

Smith Mountain Lake Association Harmful Algal Bloom Town Hall Summary

July 6, 2023

On July 6th the Smith Mountain Lake Association (SMLA) held a Town Hall on the Hazardous Algal Bloom (HAB) situation at Smith Mountain Lake (SML). The purpose of the meeting was to bring together subject matter experts from statewide agencies to share information on the current HAB situation. The goal was to further educate the residents on this topic, address their questions, and share solutions that can protect the health of SML. Approximately 150 people were in attendance for the meeting.

Program Moderator

- John Vidovich, Communications Director, Smith Mountain Lake Association (SMLA)

Program Speakers

- Margaret Smigo, Waterborne Hazards Program Director, Virginia Department of Health (VDH)
- Scott Hasinger, Water Quality Monitoring Team Lead, Virginia Department of Environmental Quality (DEQ)
- Tom Hardy, Chair, SMLA Water Quality Monitoring Program
- Keri Green, Chair, SMLA Lake Quality Council

Additional Attendees

- Representatives from Franklin and Bedford County Board of Supervisors
- Representatives from SML Water Quality Program at Ferrum College
- Representative from Central Virginia, West Piedmont, and Pittsylvania-Danville VDH Districts
- Representative from VDH Office of Environmental Health Services
- Representative from Franklin County Agricultural Extension Service
- Smith Mountain Lake Association Board of Directors

Media

- Roanoke Times
- WDBJ 7 News
- WFXR News
- WSET 13 News
- WSLS 10 News

Harmful Algal Bloom (HAB) Town Hall

John Vidovich welcomed all attendees and provided a brief introduction about SMLA:

- SMLA is the longest serving advocate and non-profit on the lake
- Established in 1969 by local businessmen as a council to link the lake's recreational opportunities to the newly forming business community
- But by 1970, the group's focus shifted to protecting the water of Smith Mountain Lake and promoting safe recreation – and that continues to serve as our mission today
- SMLA is administered by a 23-member Board of Directors with leadership from its Lake Quality Council and Water Safety Council, and supported by over 100 volunteers and over 1000 members
- SMLA is an all-volunteer organization that relies on memberships, grants, and donations to fund the programs that keep Smith Mountain Lake clean and safe

The first portion of the Town Hall included presentations and information provided by four quest speakers

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Margaret Smigo with the VDH presented a timeline review of the Harmful Algal Bloom (HAB) outbreak at Smith Mountain Lake in 2023. Full version of her presentation slides can be found [here](#).

Key points from the presentation included:

- Response to reported and actual HAB outbreaks is a coordinated effort from several state agencies including VDH, DEQ, Old Dominion University (ODU), and other resources.
- The effort concentrates on reducing risks to public health from HABs that can produce toxins. Actions can include Swimming Advisories and Drinking Water Advisories
- Harmful Algal Blooms or HABs are some types of marine algal with concentrations of cyanobacteria and potential toxins. Many times, the algal has a blue green tint from the cyanobacteria.
- Reports of potential HABs at Smith Mountain Lake are a relatively new occurrence:
 - 1 potential HAB report in 2020
 - 3 potential HAB reports in 2021
 - 0 potential HAB reports in 2022
 - Numerous HAB reports in late May & June 2023 (36+)
- Official sampling is conducted by the Virginia Department of Environmental Quality. DEQ conducted sampling in late May, but samples were below advisory levels. Additional reports and sampling in early June yielded results of cyanobacteria concentrations over the advisory levels but low levels of toxins, in multiple areas on the Blackwater Arm of Smith Mountain Lake.
- On June 6th, VDH issued a Swimming Advisory for the entire Blackwater arm of Smith Mountain Lake. Additional testing was conducted in mid-June with four sites exceeding advisory levels. Additional testing was conducted in early July on the lower Blackwater arm, with results still pending.
- To lift an Advisory, testing must be at acceptable levels in two tests conducted at least 10 days apart.

Scott Hasinger with DEQ then discussed the DEQ Sampling Plan at Smith Mountain Lake and HAB sampling protocols. Full version of his presentation slides can be downloaded [here](#).

Key points from the presentation included:

- DEQ conducts regular monitoring on Smith Mountain Lake at seventeen (17) sites from April to October each year.
- Regular monitoring assesses water chemistry profiles from the surface to the bottom of the lake, recording temperature, pH, dissolved oxygen (DO), percentage DO saturation. Water samples are collected for nutrients including nitrogen and phosphorus, bacteria including e. Coli and fecal coliform, chlorophyll, water clarity and visual observation.
- When direct reports are received through the VDH HAB reporting tool, DEQ prioritizes a response ASAP as resources allow to investigate the report.
- If HAB conditions (i.e., elevated DO, DO% sat., pH readings, or the presence of a surface scum or foul odor) are noted during a routine monitoring cruise then a HAB investigation begins, and samples are collected.
- If no bloom is observed or conditions do not meet the criteria, no sampling is conducted at that time for the site.
- HAB water samples are analyzed at the ODU Phytoplankton Laboratory in Norfolk, VA. Lab analysis for species identification, cell count, and toxin analysis is performed by the lab.

Tom Hardy with SMLA spoke about the SMLA and the Ferrum College water monitoring program at Smith Mountain Lake. Key points from his discussion included:

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- Water monitoring has been conducted at Smith Mountain Lake for 37 consecutive years. 50+ monitors conduct sampling at 84 sites around the lake.
- This program was not established to detect or monitor HABs, but the sampling does include data that could indicate the potential for HAB formation. For example, data is collected to determine the phosphorus levels across the lake.
- Phosphorus is considered to be a “limiting resource” for the development of HABs. Phosphorus comes from many organic sources and has been at a consistent level in Smith Mountain Lake for the past 20+ years.
- We do not yet know the cause(s) for the recent dramatic increase in HABs and HAB reports. We will continue to work with our partner agencies and academic resources to better understand the causes.
- The SMLA and Ferrum College plan to augment the water sampling programs.

Keri Green with SMLA spoke on various SMLA resources and programs. Key points from her discussion included:

- SMLA has created a [Harmful Algal Bloom \(HAB\) Resource Center](#) on the SMLA Website with information and resources about HABs and how they are affecting Smith Mountain Lake.
- The Smith Mountain Lake Association considers itself to be a communication resource to the public, and getting information out is a key task.
- SMLA is planning to form a HAB Working Group to align community communication and eventually create a quick response monitoring program for HAB reports.
- SMLA is learning from other responses to HABs in the region, particularly from the Lake Anna Civic Association’s HAB mitigation planning.
- Plans are in discussion to develop local response team(s) that can more quickly analyze and sample suspected site and work in conjunction with the VDEQ Monitoring protocols.
- Buffer Landscaping is one action that local citizens can take to help reduce the level of nutrients entering the lake. The SMLA Website has much more information on [Buffer Landscaping](#) and resources.
- The Smith Mountain Lake Association is made up of individual members and Business Partners dedicated to keeping Smith Mountain Lake Clean and Safe. Join with us and become a “Steward of the Lake”. Membership information can be found on the [SMLA Website](#).

The second portion of the Town Hall was a Question and Answer session

- The following questions were verbally asked by attendees during the meeting and answered by the speakers and/or SMLA Board of Directors

Q: We live in Gills Creek which is in the affected area for the current Swimming Advisory, and we have family coming into the area. Where can we go to safely recreate and enjoy the Lake?

A: The Smith Mountain Lake State Park and Beach and the Franklin County Community Park and Beach are open and not in the affected advisory area. Also, anchoring up in coves along the base of Smith Mountain offers good swimming opportunities. The entire arm of the Roanoke River is open for swimming.

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Q: Can you add Channel Markers to the Advisories on the HAB maps and announcement so the public can better understand the locations?

A: Yes, SMLA will work with VDH to clarify locations.

Q: If we see people swimming or in the water in an Advisory area should we say something to them?

A: If you feel comfortable you can mention it. The VDH issues advisories, they do not provide warning or enforce the advisories. VDH simply informs of the potential risks.

Q: Have there been illnesses from the HAB outbreak at Smith Mountain Lake?

A: VDH has received four complaints from five people. When VDH received an illness report, they attempt to conduct a follow-up interview to gather more information. While the individuals were in the water, the interviews were inconclusive as most had gastrointestinal issues that could be caused by other factors.

Q: If I see a potential HAB, should I take a sample?

A: Yes, a sample can be taken in a clear, clean, glass jar. Wear gloves, wash afterwards appropriately. Wrap the jar in aluminum foil to protect it from light. Refrigerate, but do not freeze the sample. Report collection of a sample to SMLA at theoffice@smlassociation.org so that arrangements can be made to pick it up. Ferrum College should be able to look at the sample under a microscope to identify if cyanobacteria species are present in the water. This will not provide a concentration of cyanobacteria or a toxin level analysis. You may also report a sighting of a potential bloom on the VDH portal: <https://www.vdh.virginia.gov/waterborne-hazards-control/harmful-algal-bloom-online-report-form/>

Q: Why isn't AEP here tonight?

A: Although AEP is not present tonight, they are a significant positive resource and partner to SMLA and the Lake. They provide an annual grant for the Smith Mountain Lake Water Quality Monitoring Program and recently provided an \$80,000 grant for a new boat for the SML Water Quality Program at Ferrum College.

Q: Can you provide more information about Buffer Gardens and Landscaping?

A: The SMLA has a significant amount of [Buffer Landscaping information and resources](#) on the SMLA website. SMLA has Teams of Master Gardeners who can conduct a [Buffer Landscape Assessment \(BLAST\)](#) at no cost.

Q: Why do we even have "acceptable" levels of bacteria and toxins?

A: The VDH needed to adopt levels for response protocols. They are scientifically based on EPA and World Health Organization citations.

Q: How are septic systems monitored around the lake? With the many rentals there are homes exceeding the septic size ratings.

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A: Septic systems permits are issued by Health Departments. Upon installation, unless local ordinances require regular pumping or maintenance, there are no regulations to monitor septic systems. While Franklin County has adopted a local ordinance requiring septic systems to be pumped out or inspected on a five-year basis neither Bedford nor Pittsylvania Counties have local septic pumping/maintenance ordinances.

- The following questions were written by attendees at the meeting and subsequently, are being answered in this summary

Q: Which cyanobacteria are prevalent?

A: The primary cyanobacteria identified in HAB samples to date are *Dolichospermum circinale* and Chrysochlorum-like species (*Aphanizomenon*). Much less prevalent are *Microcystis* species.

Q: Does the bloom have a life span?

A: The HAB must die off and therefore, we rely on Mother Nature and time to rid the lake of a HAB. This can take days to weeks, and possibly months. It is impossible to predict when this might occur. The duration of a bloom depends on physical and biological conditions that influence its growth and persistence, including sunlight, water temperature, nutrients, and speed and direction of wind.

Q: What are some of the theories of what caused the bloom?

A: Although there is no “smoking-gun”, excess nutrients such as phosphorus and nitrogen along with unquantified dissolved organic material combined with warm sunny weather set the table for a bloom. The excess nutrients come from internal and external sources. Internal sources include dead, decaying organic matter found on the lake bottom, such as green algae, leaf litter and nutrients bound to sediment in the lake bottom. Disturbances to the lake bottom can make these nutrients available to cyanobacteria, but these organisms also can migrate from the surface to the lake bottom to access the nutrients. External sources are those that originate outside of the lake and are washed into the lake via stormwater. Lawn and farm fertilizers, failing septic system leaks, shoreline and stream erosion, pet and wildlife waste are all external sources of nutrients.

Q: We have heard a lot of monitoring the HABs, but what I would like to know is what can be done to get rid of the algae bloom altogether?

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A: The HAB must die off. While there are chemicals that can be infused into the lake to help reduce the HAB, the sheer size of SML, the unintended impact to the aquatic ecosystem and the cost associated with this approach make it prohibitive to pursue.

Q: How much do the geese affect the water?

A: Reportedly, one pound of goose poop contains enough phosphorus to lead to the growth of 1,200 pounds of algae (not differentiated into green or cyanobacteria). Planting a buffer garden at the top of rip rap will discourage geese because they will not climb up riprap and come onto a lawn with a barrier of grass or other dense plantings at least 12 inches high. These plantations are a simple barrier to goose invasion as well as a good filter for nutrients coming off your lawn. Other waste from wildlife species like deer or house pets also contain similar levels of phosphorus. Picking up after your dog and disposing of waste into the trash eliminates one such source.

Q: Where can we get the Swimming Advisory map?

A: The VDH HAB website includes links to the Algal Bloom Map and most recent SML Status Report. The surveillance map is located at the following URL: <https://www.vdh.virginia.gov/waterborne-hazards-control/algal-bloom-surveillance-map/>

Q: Are home tests available?

A: Single use tests are available. The accuracy of these tests is questionable, but they claim to indicate whether toxins are in a water sample that may be attributed to cyanobacteria. <https://a.co/d/5efNxOv> They do not tell you concentrations of cyanobacteria or levels of toxin present.

Q: How are sample sites chosen and is response site specific by zone?

A: VDEQ, resources allowing, determines where and when to sample during a HAB response. Not all sites of HAB reports can or will be sampled by VDEQ however, due to lack of access or lack of evidence of a bloom, when the technicians arrive. The regular water quality monitoring that VDEQ conducts on a monthly basis continues, and it appears that these established sampling sites are used to further define the Swimming Advisory follow up sampling.

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Q: Why is it not a law in all 3 counties that you cannot fertilize lawns on the lake and that all lawn companies who fertilize will be fined?

A: By state law, private landowners cannot use phosphorus-containing fertilizer, unless a new lawn is being established. The significant increase in new construction around the lake is resulting in many new lawns being established. New property owners should consider installation of buffer gardens to intercept nutrients.

Q: Have you contacted landscape companies that work around the lake to solicit their cooperation?

A: Landscaping companies are also banned from using phosphorus containing fertilizer unless during the establishment of new lawn.

Q: Can boats, skis, etc. transfer the HAB from one location to another?

A: HABs are not “contagious” and are not picked up by boats and then transferred to other locations.

Q: Several lakes around the country have experienced HABs in conjunction with the increase in wake boats. Have you looked into the effects of increased turbidity due to wake boats?

A: Any disturbance to a lake bottom can incorporate nutrients into the water column and make these more accessible to cyanobacteria. Research regarding the effect that wake boat props have on lake bottoms is inconclusive but perhaps worth further consideration.

Q: Has VDH plus DEQ examined the Mountain Valley Pipeline construction sites as a possible source of the HABs? What about the significant land clearing activities that occurred due to the pipeline construction?

A: To our knowledge, no investigation of increased sedimentation from MVP right of way construction has been undertaken by VDH or DEQ. Land clearing is a source of sediment and therefore phosphorus into any waterbody. The clearing that occurred a few years ago when the ROW was constructed could have added new sediment into the upper reaches of tributaries to the Blackwater.

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Q: What is being done to address significant trash in the lake? I live above the bridge near R37 and trash run off in the area has become a problem.

A: Inflow of litter into the lake is a common sight following heavy rains. Vegetative debris consisting of sticks, leaves, weeds, and other floating organic material also increases after high water events. TLAC and APCO manage debris reporting and collection for items that could be a hazard to navigation. Litter collection efforts are consequently left to neighborhoods to organize, especially during Take Pride in SML annual cleanup.

Q: Please consider Zooming and recording program for future meetings.

A: Acknowledged. The Town Hall was organized in less than 10 days, and we had no capacity for recording the meeting.