

## **Ballston Lake Overview**

Ballston Lake is a 3 ½ mile long lake in southern Saratoga County. Most of the Lake is located in the Town of Ballston with a small portion in the Town of Clifton Park. The Ballston Clear Water Committee was chartered by the Town of Ballston in 2013, and a subcommittee of Clifton Park residents is also working with their town board. The mission of the Clear Water Committee is to review the deteriorating water quality of Ballston Lake, make suggestions to the Town Board for improvement, and evaluate and make recommendations regarding the need for sewers around the lake and in the broader watershed.

In the early part of the century Ballston Lake was a trolley stop on the Schenectady route with a resort named Forest Park which included a casino and merry go round. This ride is now in Congress Park in Saratoga. In the 40's there was a popular public beach "The White Beach" with sand trucked from Long island, and a small car race track. Today most of the lake is private property with a Town of Ballston public fishing pier and car top boat launch. People frequently fish from the bridge on Outlet Road. The Villago Restaurant on the lake has a public boat launch. The lake is often site of fishing tournaments, especially for bass.

Ballston Lake is scientifically very interesting. It is one of only around 20 "meromictic" lakes in the U.S. This means that in the very deep southern end the water doesn't "turn" twice a year like most other lakes, and therefore remains stratified with very unusual chemistry. The lake is also the site of several ongoing Union College studies.

The Ballston Lake Improvement Association (BLIA) has been existence for many years. Much of its activities are associated with water testing, which has given us quantifiable, long term data from which to document the deterioration of the lake. Our major disadvantage is that as a modest size lake without the large commercial and tourist activity of bodies of water like Lake George or Saratoga, we lack the resources to address the issues that we have documented.

At the request of the BLIA the Ballston Town Board has recently requested status as a NYS Navigable Water body. This legislation is currently in progress in Albany. This may allow for grants from some funding sources. Major funding will be required to restore the water quality of the Lake, and we will be seeking government grants and other action for this purpose.

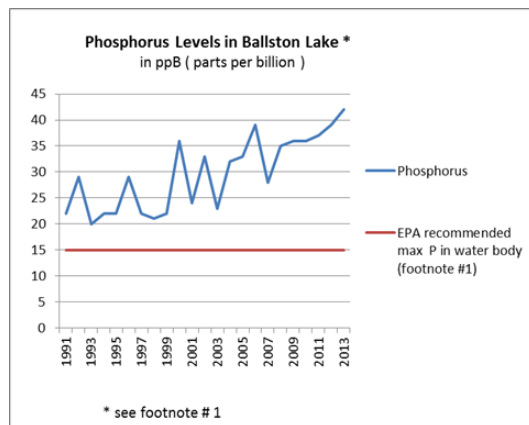
## Ballston Lake is in Jeopardy



Ballston Lake, long a site of local recreation and for some a source of drinking water, is in trouble. Extremely high levels of phosphorus, aggravated by the fundamental shale geology of the area, has caused excess weed and algae growth and toxic algae blooms in the lake. This condition is harmful to humans and pets. Increased coliform levels contribute to infections and disease. Ballston Lake is also a barometer of the condition of the watershed in the surrounding area. Your support of efforts to develop sewer systems in the affected areas of the Towns of Ballston and Clifton Park is urged as we make the health, safety and welfare of our community a priority.

### Danger Signs: Lake Studies Show Phosphorus Levels on the Rise

Long term tracking of lake water parameters by the Ballston Lake Improvement Association (BLIA) and the NYS Department of Environmental Conservation (DEC) shows that phosphorus levels are significantly increasing. From a base level of 22 ppB (parts per billion) in 1990, the level remained relatively stable for many years, but began steadily rising over the past decade and has soared to 42 ppB in 2013. The Lake is overloaded and cannot continue to absorb the current levels of phosphorus.



## Danger Signs: Lake Studies Also Show Presence of Coliform

In addition to phosphorus, coliform has been tested at a number of widely distributed sites over the same extended period, multiple times each summer. More recently testing has also been done for eColi as this is now seen as a better barometer.

Coliform is used as the typical measurement proxy for a number of other more serious bacteria, viruses, and protozoa that usually accompany it. These cause human health problems including but not limited to ear infections, viral and bacterial gastroenteritis, and hepatitis A.

**Summer 2013 Coliform Testing**

Test Site	Avg Tot C	Avg Fecal C	# Samples
In Lake	58	24	7
Sweet Road Creek	498	173	3
B.L.Village ( drains Buell)	3430	324	3
South End of Lake	350	171	2

### Sources of the Problems:

In 2011 the BLIA applied to the Bender Scientific Fund of the Community Foundation for the Greater Capital Region for a grant to study streams entering Ballston Lake. Sampling was performed during 2012 by BLIA members under the guidance of the Cornell Cooperative Extension. Samples were analyzed by the RPI Darrin Freshwater Institute at Lake George. Three of the largest streams which represent approximately 50% of the volume were sampled.

The report states: "The results show that for almost all measured rain events, all tributaries supply phosphorus at higher concentrations than the mean lake values. Storm averaged concentration of phosphorus in the creeks flowing into Ballston Lake are about 3 times ( 80 – 140 ppb) the lake mean summer level ( 40 ppb). Since most runoff occurs during storms, phosphorus enters the lake at a much greater rate than it leaves.

The heavily developed watershed of Buell Heights, (in the hamlet of Ballston Lake), showed mean concentrations of 140 ppb with very high occasional concentrations ( > 250 ppb). Per acre, Buell Heights contributes 5 to 7 times more phosphorus than the two rural tributaries. Inadequate septic systems are a likely contributing cause."

*Reference source as Bender Study*

The following chart combines both phosphorus and coliform data for those streams where we have both.

<u>Stream</u>	Stream inputs in ppB			
	Phosphorus *	Total coliform	Fecal coliform	# Tests
Buell Heights	140	3430	324	3
Rt50/Westside	80			
Sweet Road	100	498	173	3

\* note EPA recommends phosphorus must be < 33 ppB for streams discharging into bodies of water

Data shows that all of the tested streams are high in both coliform and fecal coliform with the Buell Heights draining stream being most problematic.

The homes immediately surrounding the lake are very likely also contributors to the problem. Some homes were originally camps and date back as far as the early 1900's. Given the same shale geology and the fact that even a perfectly designed and well maintained system only partially controls phosphates, with the proximity to the lake these homes almost certainly leach phosphates into the lake.

**The presence of both phosphorus and high fecal coliform levels is a strong indicator that the leading cause is failing septic systems.**

### **Lifespan of Septic Systems and Why they Fail**

Under optimal conditions of excellent soil, frequent regular pumping, a large lot, and good practices of not putting anything into the system other than human waste, a typical septic system has a life expectancy of around 25 to 30 years. Our entire area has poor soils for septic systems and generally high water tables which prevents proper filtration. Many people do not regularly pump. People often put caustic materials down the drain as a convenient way to dispose of them. Anyone who has a garbage disposal likely has

overloaded their system with particulates. Metal baffles in the old tanks typically rust and fall off which allows material to flow into the septic fields and clog them. Given we have significant areas where development was done in the 40's and 50's on small lots, it is highly likely that many systems are well beyond their life expectancy, have been underperforming for many years, and should be replaced.

Ballston Lake and its watershed are underlain with glacial till and impervious bedrock. While the soils have a wide variety of characteristics, the bedrock impedes proper septic system function. In addition, the soils within the watershed tend to have high groundwater tables; many parcels have groundwater levels of from 6" to 2' below the surface. When groundwater table is this high conventional septic systems will not function properly. (Footnote #2)

### **Why Does this Matter to You?**



Ballston Lake is popular both with lake residents and the general community. The Town of Ballston maintains a public fishing dock at the north end of the lake as well as a parking lot and boat launching area for canoes and kayaks. Larger boats are launched at the site of the Villago Restaurant for fishing, swimming and water skiing. Numerous residents of both the Town of Ballston and Clifton Park drink water from the lake using filtration systems because they do not have access to public water.

### **What if we ignore the Problem?**

Consequences are much more damaging than the presence of large amounts of weeds and algae. In each of the last two years, the NYS Department of Health tests have documented the presence of blue-green algae in Ballston Lake causing warnings to be issued recommending against swimming in and drinking the water. The recent announcement by Senator Schumer in May 2014 also called attention to this blue-green algae problem. The lake has recently been assessed by the DEC as a "water body with impairment requiring TMDL (total maximum daily load) development". This means that

in order to comply with the federal Clean Water Act, New York State will require a TMDL implementation plan which will set specific targets and actions required to meet them. If the Lake continues to deteriorate, DEC has the option to **force** the Towns of Ballston and Clifton Park to take immediate actions to address the situation, including the mandating of public sewer systems. Residents and Towns need to be proactive to improve the water quality and to **maintain control** over the destiny of the Lake.

### **What does all this Mean?**

There are several disturbing conclusions that can be drawn from this analysis:

- Ballston Lake is getting high levels of phosphorus from the greater watershed. Watershed phosphorus inflow must be curtailed to prevent further lake water deterioration.

- with DEC recently classifying the lake as an “impaired water body”, the Towns of Ballston and Clifton Park may be forced to impose new rules on property development. Impairment is caused by failing septic systems, erosion and sediments.

- Sewers** are needed in the entire watershed as well as along the lake. Currently, old and/or failing septic systems threaten both ground and surface water by releasing ineffectively treated wastewater that ultimately flows into the lake. Taking corrective action now allows for the Towns to apply for grant money plus government funds.

- Ballston Lake is currently a Class A lake, which means drinking water is approved with filtration. As the water quality continues its rapid deterioration, we may be in jeopardy of losing this status. A number of residents would then lose their drinking water source.

- Open space in the watershed needs to be given a high priority, to prevent overdevelopment which would exacerbate the problem.

- Existing storm water management is insufficient for the current levels of impervious surface.

### **What is Being Done?**

The Town of Ballston has formed a Clear Water Committee comprised of local residents, to review the data and make recommendations to the Town Board.

The Delaware Engineering Firm has been retained to prepare a comprehensive feasibility study for the construction of public sanitary sewers in Ballston, with particular emphasis on the areas of Ballston Lake and its watershed.

New York State government is also actively engaged in monitoring the water quality of the lake, particularly the Departments of Health and DEC. The fragile status of the lake could trigger further intervention on their part.

The Town of Ballston published a flyer with practical tips for residents and businesses to follow as stop gap measures until the ultimate remedy of sewers can be implemented. Most of these tips refer to maintaining septic systems and drain fields, with other suggestions regarding disposal of toxic products (especially those containing phosphorus), managing waterfowl, and other ideas. The flyer is available at Ballston Town Hall and the Community Library, among other locations.

Representatives of the Towns of Ballston and Clifton Park are working collaboratively, bringing additional resources to the eventual solution.

### **What Can You Do?**

Support of residents and businesses, especially in the watershed areas, is essential for a sewer project to be successful. You can contact local, state and federal politicians to support allocation of funds for sewer installation costs. Government funds for the project will reduce tax increases on property owners. Taking action **now** provides time to prepare justifications and grant requests for funding. Doing nothing, we risk state agencies declaring the lake polluted, mandating installation of sewers. This could certainly reduce the time frame to seek and impact opportunities for government funding.

### **What are the Benefits?**

Anticipated results of the installation of sewer systems would include:

- A healthier and safer environment in general, including a cleaner lake
- Appropriate and smart commercial development
- Enhanced property values for the entire watershed
- A healthier atmosphere for investments i.e. new mortgages
- A broader tax base for the school systems thus potentially reducing school taxes.

### **What's Next?**

The Towns will issue updated information once the Engineering Study is completed, to share information about strategies, timelines and costs, particularly as these pertain to sewers.

Notices of public meetings and “White Paper” updates will be issued periodically and will be available on-line at the Town of Ballston Web site [www.townofballstonny.org/](http://www.townofballstonny.org/)

*Footnote # 1 : All years except 2000 consist of average of 8 data points, 2000 is single point. Testing done under the CSLAP ( Citizens Statewide Lake Assessment Program ) which is managed by DEC and the New York State Association of Lakes. Please see NYS DEC website for further details. Tests were analyzed by DEC. EPA threshold for Lakes of 14.75 ug/L from EPA summary table guidelines for lakes in ecoregion VII*

*Footnote # 2 “Evaluation of sanitary sewers in the Ballston Lake watershed”, C.T. Male, March, 2005 page 3 and 5*

*Footnote3: Source EPA Summary Table for Rivers and Streams, column for ecoregion VII*

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May 19, 2014