

Dean R. Long
548 Font Grove RD
Slingerlands NY, 12159
June 26, 2015

Mr. Patrick Ziegler
Town Supervisor Town of Ballston
Town of Ballston
323 Charlton Road
Ballston Spa NY, 12020

Dear Mr. Patrick Ziegler:

I want to express my support for the proposed sewerage of a portion of the Town of Ballston and the area adjacent to Ballston Lake. I was a resident of the town for over 18 years and lived on or near Ballston Lake during that entire time period. Also during my professional career I have been involved in research work on lake ecology and lake management issues on Lake George, Saratoga Lake, Lake Ontario, and Cranberry Lake

Waste water collection is necessary to both protect human health of the community and reduce nutrient loading to Ballston Lake as well as other water resources in the community. On the Town web site the Summer 2013 Pipeline newsletter identifies and describes the common impacts that occur in a lake as a result of onsite waste water treatment by septic tanks and leach fields. Frequently, septic systems found in poor soils and near the lake shore area will become seasonally flooded which will increase the overall loading of readily available phosphorous compounds(reactive phosphorous) to the lake. These available forms of phosphorous immediately contribute to algae growth once the contaminated shallow ground water enters the lake.

An issue that the Ballston Lake Protection and Improvement Association requested that I comment on is the expected outcome of the sewerage plan as it relates to Ballston Lake. Lakes are complex and the water quality that is observed is related to nutrient loading from the watershed, internal nutrients, the biological communities and the water chemistry of the water body. The immediate reduction in phosphorous load from removal of septic leach fields may reduce the overall amount of phosphorus entering the lake by 10-30%. In general lakes will respond to nutrient reduction caused by sewerage in a time period that is related to the lake flushing rate. The flushing rate of Ballston Lake is roughly nine months so the first changes in the lake will be seen within a year of the sewer installation. This pace of change was observed on Saratoga in 1977 and 1978 following sewerage of the lake shore area of Saratoga Lake. The first change is to have a decrease in the algae growth which increases water clarity. The unfortunate outcome of better water clarity at Saratoga Lake was rapid growth of Eurasian Watermilfoil that had enter Saratoga Lake in the mid 1970's. Due to poor water clarity at Saratoga Lake the plant community in the lake was limited, therefore Eurasian Watermilfoil was able to spread and dominate the natural plant community in Saratoga Lake. At Ballston Lake there is a well-mixed plant community that may limit the rapid spread of any one plant. Once the immediate water quality changes have occurred there will be a variable rate of changes due the amount of nutrients within the lake sediments, shallow ground water inputs, soils and annual fluctuation in weather patterns. This pattern of recovery is described in Restoration and Management of Lakes and Reservoirs 3 rd. Edition by G.D. Cooke, E.B. Welch, S.A. Peterson and S.A. Nichols Chapter 4 Lake and Reservoir Response to Diversion and Advanced Wastewater Treatment.

Reducing one important nutrient source will create long-term benefits the lake, perhaps not as fast as we would like or the changes may create some other issues, but in the future, there will be improved water quality in Ballston Lake.

Mr. Patrick Ziegler

June 26, 2015

Page 3

Thank you for all yours efforts on the behalf of the Town of Ballston and Ballston Lake.

Sincerely,

Dean R. Long dlong735@gmail.com

cc. Timothy Szczepaniak

John Antoski

William Goslin

Kelly Stewart