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FEATURED

A CONVERSATION WITH: John Halfman

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Spencer Tulis / Finger Lakes Times

What Science Tells Us -Seneca Lake, NY
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John Halfman, Seneca Lake expert

Job: Professor of Geolimnology & Hydrogeochemistry; chairman of Environmental Studies program at Hobart and William Smith Colleges; endowed chairman in

FLT: How and when did you come to be on the HWS faculty?

HALFMAN: There was an opening; I applied back in 1994. I've been here 20 years.

FLT: All modesty aside, are you the most knowledgeable person about Seneca Lake?

HALFMAN: When it comes to the science of the lake, I'm sure I'm the most knowledgeable. That's from my students and I studying it for 20 years.

FLT: Any opinion on the health of Cayuga, Keuka or Canandaigua lakes?

HALFMAN: Canandaigua and Keuka are significantly cleaner than Seneca Lake. Those two watersheds strictly control what can be put into the water. Their septic systems are more efficient and agricultural runoff is curtailed more effectively than Seneca. Cayuga

environmental studies program at the Finger Lakes Institute.

Age: 58

Lives in: Benton

Hometown: Lexington, Mass.

Education: Undergraduate degree in geology from the University of Miami, 1978; master's degree in geology from the University of Minnesota, 1982; doctoral degree in geology from Duke University, 1987.

Hobby: Sailing

Family: Wife, Barbara; three adult children.

Lake has more algae than Seneca because it has more agricultural runoff. None of them have the salt issue that Seneca has, but nutrient loading and algae are issues. Otisco and Honeoye are worse, especially for algae. On the other end, Skaneateles, which has no treatment plants, septic systems are cleaned regularly and farmers have buffer strips and retention ponds and good management for low nutrient runoff. They feed the city of Syracuse, get a lot of money back to keep the lake clean. Seneca does not have a big urban center customer. Waterloo and Geneva are not big enough.

Video

To see a video about Halfman produced by Geneva native Carl Fospero, go to www.youtube.com/watch?v=pd2un1HQtlw

FLT: What are the threats to Seneca Lake's quality, in order of significance?

HALFMAN: One of the biggest is its chloride level has increased in comparison with the other Finger Lakes. The other big threat is nutrients being washed into the lake from the watershed that directly increases algae growth over time. The salinity or sodium concentration has increased to the point where if I had an infant under the age of 1 or a health condition requiring a low-sodium diet I would not drink the water. It is above advisory levels of the [Environmental Protection Agency] and [Department of Environmental Conservation]. On the nutrient issue, we're starting to see blooms of blue-green algae that may turn to toxic strains. If that happens, we would not be able to use the lake for drinking water without a multi-million-dollars treatment system to allow it to be used for drinking water.

FLT: Has the health of the lake gotten better, worse or stayed the same over the past 20 to 25 years and why?

HALFMAN: Over the past 15 to 20 years, nutrient loading has made the lake more productive to algae. That indicates it's getting worse.

FLT: What are your thoughts about LPG storage in salt caverns next to the lake on the south end of the lake?

HALFMAN: I have two thoughts. Professionally and scientifically, I can't prove they will do anything wrong. However, accidents can happen, and I'd hate to have an event occur down there that causes a significant increase in the salinity of the lake. The former Himrod

salt mine had an accident in the early 1970s, putting millions of [pounds of] salt into the lake. That caused the lake to go from 70 parts per million of salt to 180 to 200 parts per million.

The lake can change, and that's what scares me about that facility. Salt is naturally occurring in Seneca. Back when it was a shallow sea, there were natural salt deposits. It has been brought up from the ground in mines. Seneca is a lot deeper than the other Finger Lakes, resulting in extra salt from the ground the other lakes don't get. Mining salt can be more problematic.

FLT: What are your thoughts about the city of Geneva trying to end its contract with Casella for the handling of landfill leachate prior to discharge into the lake?

HALFMAN: Anything we can do to effectively remove toxic compounds from entering the lake is a good thing because it is used for drinking water. If any toxins are in the leachate, they should not go into our drinking water unless it can be guaranteed they can be scrubbed out of the effluent.

FLT: What is your role with the Finger Lakes Institute?

HALFMAN: I was one of the founding fathers of the Institute. I wrote many of the grants that got us up and going our first five or six years. I'm actively involved in monitoring Finger Lakes, primarily Seneca Lake, but also Honeoye to Otisco, making comparisons in water quality from one to other. My title is endowed chair in environmental studies. It's a title they give me to extract more work from me (laugh).

FLT: Is Seneca Lake water safe to drink, even after treatment?

HALFMAN: In a word, yes. I have well water at my home now, but I used to live in Geneva for many years and drank the water for years.

FLT: What recommendations do you have for the future protection of Seneca Lake?

HALFMAN: Going back to nutrient loading, my main recommendation is to somehow limit runoff from agricultural fields, increase the efficiency of wastewater treatment plants and private septic systems. That would make a major reduction in loading so the lake can clean itself up. Also, I'd pay significant attention to any industry that wants to come into the watershed, making sure that leachate that has toxic compounds or salt brine does not get into the lake.

In the balance, we have to avoid everything that could reduce our Class AA drinking water. We've got to keep it that way. It's the highest-class drinking water we can have. They are expensive, but over the past two or three years of working on a watershed plan. Once that plan is accepted by the state, we can go after state dollars for implementing this plan, make some improvements to allow farmers to build blocking walls or retention ponds to reduce runoff from fields to the lake, septic system upgrade and treatment plant upgrades as well. The runoff goes into tributaries then into the lake. There are 17 to 18 major tributaries and hundreds of smaller ones. From Dresden north is agricultural land and south is forested land. We need to concentrate that effort on Ontario, Seneca and Yates counties bordering the lake.

FLT: How are the zebra and quagga mussels doing these days?

HALFMAN: They are still there, but not quite having the same impact as when they first came in, mainly because they could sequester all of the nutrients and not put them back into the water. Now they not do not clarify water like they used to in the late 1990s. You could see the bottom of the lake at the end of your docks then, but not now. They cannot keep up with the nutrient-loading issue.

The number of zebra mussels are down, replaced by quaggas, except in a few isolated places. In the past three to five years, the number of quaggas are down too.

FLT: What is the current state of Seneca Lake in terms of sport and sustenance fishing? Is it still the lake trout capital of the world, as the signs say?

HALFMAN: Sure. There is plenty of algae around, which provides the basis for the food the fish need. What would cause a problem is a significant algae increase. That could make bottom water devoid of sufficient oxygen for fish, especially lake trout, who live on the bottom and need oxygen.

It's a delicate balance. If there is more algae, oxygen decreases to where we are not going to have lake trout, but it's pretty good the last few summers. They've been catching some big ones in the Memorial Day trout derby, so fishing in Seneca is still good — and, as far can I know, you can still eat the fish you catch.