

Report pinpoints nutrient source in Miacomet, Hummock ponds

Data will aid plan to combat algae blooms

By Joshua Balling

jballing@inkym.com

There are times during the summer, when the weather is right, that Miacomet and Hummock ponds are shrouded in almost fluorescent- green algae blooms, with the resulting cyanobacteria known to possess toxins that can cause ailments from skin irritations to liver problems in people, and kill pets.

The infrequent – so far – blooms are caused by excess nutrients in the ponds, primarily phosphorous, which spur algae-growth in fresh water much the same way nitrogen affects it in salt water.

A recent report funded by a state water-quality grant has pinpointed the source of that phosphorous, and with the data now in hand, town officials are beginning the lengthy process of developing plans for how to address it.

According to the report, “a significant amount of phosphorous is coming out of the bottom sediments of both ponds, primarily in Miacomet,” said Nantucket Land Council resource ecologist Emily Molden, the project manager responsible for its field work and data collection.

When the conditions are right, aided by warm temperatures and low oxygen content, phosphorous is released from the sediment back into the water, encouraging algae blooms, she said.

“There is still some concern about phosphorous inputs from groundwater, and in Miacomet from storm water, but we can now acknowledge there is a significant amount of phosphorous in the sediment that has accumulated from runoff for decades,” she said.

Conditions slowly improving

Less phosphorous is making its way into the groundwater after being flushed down sinks and toilets today than in the past, because most laundry soaps and dishwashing detergents are now phosphate-free, town natural resources coordinator Jeff Carlson said.

Most fertilizers today used on island lawns are also supposed to be phosphate-free, but the nutrient has a very long soil-life, and the impact of the ban is only now starting to be seen after two or three years, he added.

“In 2010, Massachusetts and 15 other states banned phosphates in detergent. That’s good, but it wasn’t that long ago. There’s still a lot there,” said town water-quality specialist Kaitlyn Shaw, who assisted on the report.

Sewering and more improved septic-system technology have also contributed to less phosphorous entering the groundwater, Molden said.

Search for solutions

Armed with the results of the report, town officials are now working on developing a plan to combat the algae blooms. A series of public hearings will be scheduled this summer to seek input on their efforts.

“Both ponds are major public recreational resources on Nantucket and we would like to eliminate potentially hazardous algae that bloom in the summer, as well as working to keep the ponds navigable and clear of nuisance species,” said Robert Williams, director of the Nantucket Pond Coalition, a private nonprofit group that has been working with the town for the past several years to improve water quality in the island’s ponds.

“This report gives the town the data it needs to get to work on the algae problem.”

The report recommends a number of remediation techniques, including dredging to remove sediments and treatment with alum, which binds the phosphorous in place and doesn’t free it up for release into the water column, Molden said.

Also key is continuing to remain vigilant about what ends up in the groundwater, Carlson said.

“At the end of the day, those two options are very good, but today, controlling input is key, so we’re not in the same boat in 20 years. It’s incumbent on anyone living in these watersheds to know what type of septic system they have, if they’re on sewer, and what type of fertilizer their landscaper is using, and what kind of storm water management is in their neighborhood,” he said.

Among the next steps are determining the cost and feasibility of remediation options, and prioritizing their potential implementation, Molden said.

“We’re going to continue our regular water-sampling program through the summer, but also look at filling in our other gaps, like the landfill and its inputs. I really think we’ll be putting together a task force to get a plan out, to get public input on what expectations people have of the ponds,” Carlson said.

“We need to know how people are using them, so we can focus on how to better provide public access and restrict inputs, to manage them holistically, and not just from a single point of attack. That’s something we say a lot for the harbor, and the same is true for the ponds. There’s no magic bullet, no little pill, no single answer that solves everything. Once we understand where people want to go, and review our regulatory goals, we can come back to the community with programs, and costs, and see what they are willing to support.”

Potential dangers

Fortunately for Nantucket, the blooms are still relatively rare, and cyanobacteria concentrations here almost never rise to the level of true danger to humans, in part because the ponds are not as degraded as in other communities.

There are a number of reasons, including cooler temperatures and strong breezes that prevent them from becoming stagnant, Molden said.

They can be dangerous to pets, however, and if the conditions are optimum, could pose a threat to people, she added. Transfer is primarily through ingestion or physical contact with the skin, but there can be some airborne transfer in very heavy concentrations.

“There is a wide spectrum of impacts, from skin irritation to liver toxins, and more and more research is being done on the connections to neurological disorders. Dogs have died after being exposed to toxins, because they are more likely to accidentally consume much more water containing algae and toxins. People are not as likely to consume as much,” she said.

“Very rarely do we see concentrations here that are cause for concern, but the presence of toxins indicate there is the potential for danger to people and pets. That’s why the town posts the ponds, and tells people not to use the water.”

Signs are permanently posted at both ponds warning of the potential danger of algae blooms, but most of the time, they should not be taken as warnings against using the water, Shaw said.

“Some communities only put up signs when there is a bloom. Our signs are to provide information, to let people know what the blooms look like. It’s very infrequent when blooms actually occur. That doesn’t mean you shouldn’t be using the ponds most of the time.”

Those using the ponds, however, should keep an eye out, particularly at the height of the summer, Carlson said.

“In the summer months especially, if it looks funky and bright green, don’t let your pets in, and don’t go in. Get a picture, and let us know. Blooms can happen very quickly, and we like to get the word out very quickly.”

Progress is being made, Carlson said.

“We’ve seen some great projects recently, like large-scale invasive-species management by the Pond Coalition, and we’re trying to get as many options that work available, to see what is working and what is feasible, so that at the end of the day, 10 years from now, we’ll be talking about how our water bodies are in good shape or on the road to recovery,” he said.

“It’s something the town’s taken interest in doing more so now than before. I don’t think it’s any mystery that of the two selectmen who won this year and two or three of the others that ran, water quality was in their top three priorities. There is very much an institutional commitment to improving water quality. I think Nantucket is very proactive compared to the rest of Massachusetts, and other parts of the Northeast. We’re moving in the right direction, and the town is committed to maintaining that.

To report an algae bloom, e-mail jcarlson@nantucketma.gov



Nantucket Land Council Resource Ecologist Emily Molden surrounded by cattails, collecting a groundwater sample from the shoreline of Miacomet Pond.

Courtesy of Emily Molden

Emily Molden filters a composite groundwater sample collected around the shoreline of the head of Hummock Pond.

Courtesy of Emily Molden

