

5-28-10 Algae Arrives Earlier than Expected

Well, this stinks! And sometimes, it really does. One of the first odor complaints I received was from a household near a water body. It wasn't one of the big ponds, but, of course, I went out and tried my best to find the source. The caller wondered if there was an overflowing septic system nearby. I wasn't able to confirm that but I did notice a lot of algae in the somewhat stagnant little pond. Back at the office, I did some file sleuthing and discovered an old complaint very similar to my recent one. The health agent at the time decided to take a sample of the green water to a local lab and the results indicated blue-green algae which sometimes have a barn yard odor. Well, that was interesting but I had no idea at that time just how familiar I would become with blue-green algae, with their odors causing the Fire and Police to respond to suspected gas releases and with the then unknown toxins they can release.

For the last two years Halifax and many other towns throughout the country have had to post advisories on the sometimes unpleasant and even the potentially toxic effects of cyanobacteria, or, better known as blue green algae. The growth of the algae is on the increase everywhere. But it kind of snuck up on us, so that some people minimize the significance, preferring to think that it has always been here and it does no harm.

Blue green algae are now known to be an emerging health risk. It is emerging in the sense that it is on the increase and because we are realizing its potential for serious health risks. Some people will respond to it with skin rashes; others with sore throats or ear infections. There are many variables. Depending on the swimmer's age and size, the contact time, whether or not any algae was swallowed with the water, and whether or not the algae was releasing toxins at the time; the effects can range from nothing, to liver damage, to heart failure.

Developing the risk communication messages for algae is the most challenging I have experienced. There are individual differences in people's responses. The algae are not always releasing toxins. Also, some activities have low risk. If you wade in the water and rinse off, maybe you're fine. If you paddle your canoe and rinse off, maybe you are fine. If your dog drinks a lot of green water, it might die. If your small child spends a lot of time in algae filled water and the skin absorbs a lot and the child's eye's receive a lot of contact and the child swallows a lot of water; that child might become very sick.

Algae are strange little beings still awaiting a clear understanding and clear definition. Some have toxins within but it is challenging, to say the least, when the toxins are released. When the cell wall ruptures, the toxins are released. That can happen after a heavy rain. The challenge there is that when the water looked like pea soup, it actually might have been safer than after the heavy rain, which broke apart the cells, releasing the toxins into the now appearing clear water. That is why the current DPH protocol advises beaches remaining closed for two weeks after the initial report of algae.

I truly feel fortunate to have our Massachusetts Department of Public Health, working with grant funds from CDC, as partners in this issue. They are not the only partners, though. I did not expect to see an algae bloom at this time, with the cool temperatures and frequent rains. However, I received a call and email recently from another kind of partner; a resident living on the West Monponsett Pond. They told me they were pretty sure there was an algal bloom already. I was, admittedly, skeptical. It was early. It had, on the whole, been cool. We had lots of rain. However, they were right and I am so glad they contacted me.

The next partner to be involved was our Massachusetts Department of Environmental Protection. It was just a tad too early for DPH to have its contract in place for sampling and testing, so DEP to the rescue! This week, DEP looked at our samples of the West Monponsett Pond, confirming the presence of two types of algae. I received the following email:

“The sample I collected from W. Monponsett Pond on Friday, March 21, showed 38,163 cells/ml of *Microcystis aeruginosa*, and 5,467 cells/ml of *Aphanizomenon*, for a total cell count of 43,630. While this count is below the MDPH guideline of 70,000 cells/ml, the presence of a near-shore scum triggers the recommendation of an advisory against water contact. Also, the clumps in the water were identified as masses of *Microcystis*.”

The “clumps” were something we had not seen before. They floated. They sank. They bobbed. They ranged in size from 2” by 2” by 3” to 3” by 5” by 3”. They were green all the way through or green on the outside and brownish on the inside. Remember, these bacteria are very buoyant and they depend on sunlight to produce chlorophyll. We suspect that “old” ones were the ones brown on the inside, with less chlorophyll on the surface.

All the bobbing, floating sponge-like clumps proved to be “masses of *Microcystis*.” That’s not good news, especially so early in the season.

DPH is studying the incidence and type and effects of algae. DEP is looking into the effects of cranberry bogs providing nutrients for the algae. Halifax has concerned citizens reporting what they see. Halifax is planning on treating the Monponsett Ponds with alum to remove the nutrients feeding the algae.

We are in good hands but the progress is slow while the environmental and public health impact is fast and furious.

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