

Chautauqua Watershed Notes
From the Chautauqua Watershed Conservancy
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Blue-green Algae
By Mark Baldwin



“It’s always something,” the late Gilda Radner’s hilarious character Roseanne Roseannadanna used to say. It’s always something in the Chautauqua Watershed too. This summer the pest that caught everyone’s attention was a critter called blue-green algae. It ruined many a hopeful swimmer’s afternoon, inspired debate on the floor of the County legislature, and caused some lakefront residents to be downright irate. But what is blue-green algae?

First we must make an important distinction between blue-green algae and green algae. This is where we run into trouble with our names for things. So, right off, in this article we’ll stop calling them blue-green algae and call them cyanobacteria instead. Cyanobacteria are actually a phylum, or big group, of bacteria. What makes them different from most other bacteria is that they make their own food, and they do this in a way similar to the method plants use: photosynthesis, converting solar energy into food energy. Other than that, cyanobacteria are not like plants at all.

Cyanobacteria are microscopic. Their individual cells are much too small to be seen with the naked eye, but they are gregarious and can gather in such numbers under the right conditions that they can form a “bloom” or scum on the surface, somewhat similar to the scum that green algae can form. But if you were able to see an individual cyanobacterium cell you would notice something it lacks: a nucleus. So, in spite of a range of complex biochemical processes they perform, they are comparatively simple in structure.

Cyanobacteria are also an ancient form of life. In fact, scientists have found fossil evidence of colonial cyanobacteria well over two billion years old; that’s almost half the age of the earth

itself. Some scientists credit their long-ago photosynthetic activity with producing the healthy dose of oxygen needed in order for life on earth to diversify and flourish.

Cyanobacteria are an important part of marine (saltwater) ecosystems. There they help cycle the important nutrient nitrogen (needed for DNA and proteins) and carbon through the oceans' food web. In fact, cyanobacteria perform the same service in coral reefs that legumes such as clover and alfalfa perform on farms – converting atmospheric nitrogen into a form that other living things can use.

Of course, cyanobacteria also occur in freshwater ecosystems such as Chautauqua Lake. There they don't add much to the food chain; nothing much seems to eat them, in contrast to green algae, which, at least when their population is kept reasonably in check, form an integral part of the base of the aquatic food pyramid.

One thing about cyanobacteria that should stick in everyone's mind is that they, like the green algae and aquatic plants in Chautauqua Lake, flourish in an environment rich in phosphorus. That is why their abundance in the lake this summer figured into the county legislature's decision to pass a law banning phosphorus in lawn fertilizers. Some cyanobacteria also produce chemicals that have a toxic effect in humans and pets that come into contact with them. Yes, "it's always something." This time it's yet another reminder that a clean, healthy Chautauqua Lake ecosystem is no accident. It depends on all of us.

The Chautauqua Watershed Conservancy is a local, private not-for-profit organization supported primarily by membership donations and grants from private foundations. Its mission is to preserve and enhance the water quality, scenic beauty and ecological health of the lakes, streams and watersheds of the Chautauqua region. It is the only local-based not-for-profit organization actively conserving important habitats, scenic sites and watershed lands in the county. It takes a preventive approach to address lake algae and plant problems. For a list of upcoming events go to <http://www.chautauquawatershed.org/> or call 716-664-2166.