The science of saving Spring Lake

Science Night Live dives into lake conservation

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Maggie Karschnia, water resources project manager at the Prior Lake-Spring Lake Watershed District, looked at a slide on her PowerPoint presentation and wrinkled her nose.

She was showing photos of a lake covered in blue-green algae. It looked like some kind of grimy turquoise cake icing was sitting on top of the water. Algae, she explained, isn't just ugly. It's dangerous. It degrades lakes by forming a scummy umbrella on the surface and reducing the amount of sunlight that can reach the plants and animals that already live there. Besides that, it could be toxic. Pets could die by ingesting too much of it.

"And it smelled terrible in the summer," she said during the April 28 presentation of Science Night Live at Prior Lake High School.

They weren't just photos of any algae-covered lake. This was Spring Lake, only a few miles from the presentation site, just a couple of years ago.

The Science Night Live program has presented all sorts of science topics, from flashy chemistry demonstrations to veterinary science investigations. "The Science of Spring Lake," sponsored by the Prior Lake-Spring Lake Watershed District, was science occurring right in the attendees' backyards. In some cases, literally.

Jenny Nagy of the Community Education department saw the watershed district as a great local source of expertise for Science Night Live, and with warm weather on the way, the timing was good.

"When people think 'spring,' they think 'lakes," she said.

That may be especially the lakes are some of the town's best-loved resources. Not having recreational use of the lakes due to pollution would be a very real problem for local residents.

Karschnia was telling her audience about the aluminum sulfate ("alum") treatment the watershed district deployed a few years ago and its effect on the health of the lake. In 2002, Spring Lake got a wake-up call when the Minnesota Pollution Control Agency placed it on the state's list of impaired waters. It was up to the watershed district to clean up the lake's act and start a positive chain reaction flowing down to upper and lower Prior Lakes.

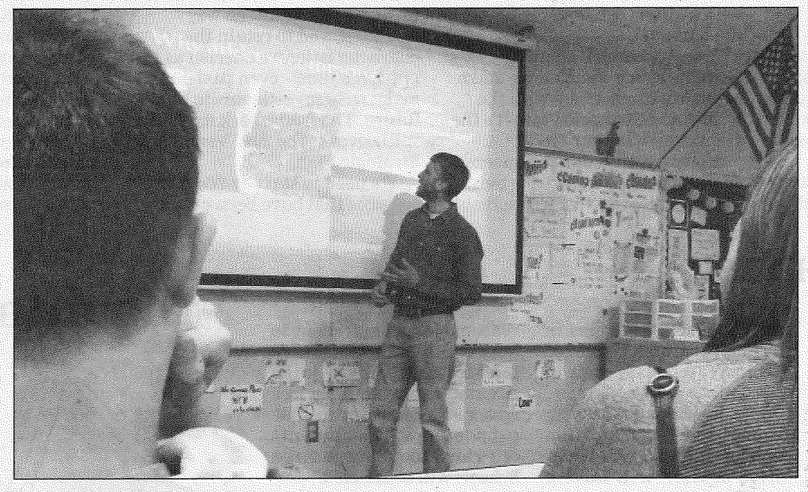
In 2013, Spring Lake got its first treatment: 290,000 gallons of aluminum sulfate, right in the deepest areas of the lake, where the phosphorous levels were the highest. The plan is to do two more treatments like this one with half as much alum, one every three or four years. Adding the alum gradually, Karschnia said, reduces the risk of making the pH level dangerous for fish and wildlife.

Already, Spring Lake has seen some seemingly miraculous results. The alum did its job and bonded with the phosphorous, forming heavy clumps that sunk to the bottom of the lake and cleared up the water. Phosphorous levels went from nearly 120 micrograms per liter in 2013 to about 40 in 2014. Residents saw — and smelled — the difference a year made. The lake went from chocolate brown and turquoise sludge to looking clear down to 15 feet.

Of course, as Karschnia pointed out, throwing alum at the problem is a temporary fix. There are some more

PHOTOS BY HANNAH JONES

Maggie Karschnia, the water resources project manager at the Prior Lake-Spring Lake Watershed District, kicks off Science Night Live on April 28.



The Science Night Live audience learns more about measures to control and eradicate invasive carp from Spring Lake at Science Night Live.

that need to take place to ensure the lake stays healthy and clean.

For one thing, it's necessary to curb the amount of phosphorous that goes into the lake in the first place. A is runoff. Phosphorous is a key ingredient in fertilizer. And while a lot of people may pin the brunt of the fertilizer blame on crop-growing areas, Karschnia explained that residential areas are Green, well-fertilized lawns are making their share of excess phosphorous.

Another contributor to the runoff: pavement.

"We've seen an increase in impervious surfaces like

Pavement makes it impossible for the ground to absorb runoff and capture phosphorous. This has increased the flow of runoff into the lake, which in turn has increased phosphorous levels. One suggested solution to reducing the phosphorous runoff is filtering it through buffer zones and rain gardens.

But runoff is only one of the causes. Another is invasive species. Tony Havranek, senior environmental scientist at WSB and Associates Inc., gave a whole presentation that evening on curbing the invasive carp population in Spring Lake. Other presentations covered shoreline restoration, monitoring the upper watershed and watching out for other potentially invasive species like pond weed.

The mishmash of different topics around one theme made it atypical for a Science Night Live, Nagy said, and the lake presentations did attract a slightly smaller audience. However, even the younger attendees seemed to get a little more out of it than just extra credit.

Megan McCarthy of Prior Lake, a seventh-grade student at Twin Oaks Middle School, was definitely getting extra credit. But she was also getting decently interested.

"I found it really fun and enjoyable," she said of the presentations. "I learned that carp is a big problem, and I'm curious about how to get rid of them."

Curiosity from a local learner: that's probably the best response you can get when the problem is right in

More information

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