



# News from Crystal Lake Conservancy

Fall 2013

The Crystal Lake Conservancy is dedicated to the preservation and protection of Crystal Lake for the benefit of the public by promoting and supporting the unique natural beauty and enjoyment of the Lake.

**Come Join Us for a Day of Fun and Information!!**

## ***"PADDLES AND PUMPKINS"***

**SUNDAY, OCTOBER 6, 2013**

**(Weather Permitting - No Rain Date)**

### **CRYSTAL LAKE BATHHOUSE**

20 Rogers Street  
Newton Highlands, MA

**2:00pm-4:00pm**

**Enjoy free Canoeing and Kayaking  
Cider, Strung Donuts Game & Pumpkin Decorating**

**4:00pm-5:00pm**

**Water Testing Results, Report on New Storm Drain Filters & Watershed Sign**

Enjoy a lovely canoe or kayak ride on Crystal Lake on a beautiful, crisp autumn day!

Come join the board of the Crystal Lake Conservancy and the Newton Parks and Recreation Department for a Sunday afternoon of FREE Canoeing/kayaking on Crystal Lake. Participants will sign up for a free half hour of boating between 2-4pm to enjoy the pleasures of our beautiful lake. Lifejackets and waivers will be provided and required. Lifeguard will be on duty. Enjoy the game of catching strung up donuts, have fresh cider or decorate your own free pumpkin while waiting!!

Stay and learn about Crystal Lake Conservancy's water testing results for 2013; see the newly launched watershed signs; and hear about the City of Newton's installment of storm drain filters that aim to decrease the nutrient content into the lake and reduce the incidence of algae blooms.

To learn more about the Crystal Lake Conservancy, visit our website at [www.CrystalLakeConservancy.org](http://www.CrystalLakeConservancy.org)

## New Storm Drain Filters Installed by City of Newton for Crystal Lake

*By Maria Rose, City of Newton, Environmental Engineer*

Have you noticed anything different on the streets around Crystal Lake? It may not be something that catches our eye as we walk or drive by, but it's very good news for the health of lake! Looking down into the storm drains (also known as *catch basins*) you will see something unusual inside many of the catch basins along the streets around Crystal Lake. There are 49 catch basins in the Crystal Lake Watershed that collect stormwater runoff from impervious surfaces and discharge into the Lake untreated—that is, until now. Twenty-seven (27) catch basins have been fitted with “water quality” units. These units each consist of a large, stainless steel tray to capture trash and debris, a sump to hold water and a filter cartridge and were installed by the Public Works Utilities Division this past July (see inset photo of a finished installation). The proprietary water quality units are manufactured by Fabco Industries and were selected due to their cost effectiveness, ease of installation and their ability to reduce nutrient and bacteria levels in stormwater.



**New Storm Drain Filters**

Stormwater (the runoff water after it rains or snows) flows from driveways, parking lots and streets into storm drains to prevent flooding. This stormwater also picks up trash and pollution along the way, which can wash into Crystal Lake. Trash and organic matter (e.g., leaves and sand) are caught by the catch basins—which are exactly why they are called “catch” basins; however, some things are more difficult to capture, like dissolved chemicals from fertilizers, oil and bacteria. The purpose of these units is to filter the water before it enters a waterbody, like Crystal Lake. Due to the algae bloom issues that have plagued Crystal Lake, we chose cartridges that are specifically designed to reduce nutrient concentrations. Nutrients, like phosphorus and nitrogen, are essential for plant growth, but in excess can trigger an algae bloom in lakes and ponds. As we monitor the effectiveness of these units through water quality sampling, we may change the cartridge type to suit our future needs and requirements.

Due to the added time needed to filter the stormwater through the cartridges you may notice a small amount of “ponding” around one of these retrofitted catch basins. Should ponding last more than hour after a storm is over or is creating a public safety concern, please contact the City’s customer service number and report the problem.

Help us stay green AND save paper and printing costs—sign up for our electronic newsletter by going to our website at [www.CrystalLakeConservancy.org](http://www.CrystalLakeConservancy.org)



## The Silky Dogwood of Levingston's Cove

By Beth Wilkinson

If you are walking along the edge of Levingston Cove before the first heavy frost in the fall, you will notice a row of shrubs covered with striking dark blue berries. They are Silky Dogwood shrubs (*Swida amomum*, formerly *Cornus amomum*), which are native to forested wetlands and pond banks in New England--and all of the Eastern United States.

What are identifying features of the Silky Dogwood in addition to the blue berries (preceded by flat-top clusters of white flowers in the spring)? The leaves grow in opposite pairs; their curved veins run parallel from the midrib and turn just before reaching the edge of the leaf. The stems are a purple-red and become darker and develop cracks as they age; they are covered with fine hairs, which give the shrub its name. Each shrub can grow to be ten feet high and can naturalize into a small colony.

In addition to their beauty, the shrubs provide food for creatures living around the lake. They are great favorites of deer, and rabbits will eat the smaller ones, too. Birds love the berries: cardinals, blue jays, robins, woodpeckers, cedar waxwings, and mockingbirds are among their biggest fans. The shrubs, with their far-reaching lateral roots, also provide erosion control, an important feature on that side of Crystal Lake.

People have found medicinal uses for the shrubs, too. The bark and flowers of the Silky Dogwoods are reported to be valuable as an astringent, and the bark of the root has been used as a substitute for quinine. When ground into a powder, the bark has been used as a tooth powder. The fruit is bitter but has been used as a digestive aid.

The ancestors of our silky dogwood shrubs, also known as swamp dogwood and red willow, probably have been growing near Crystal Lake since the at least the early 1600s, when members of the native Wampanoag tribe used 12" – 18" paths to go from the location of the current Centre Street west along the edge of the lake. Some early colonists called the shrubs "Kinnikinnick" because their bark was used in the leaf-and-bark mixture with the same name that was used for smoking by the Native Americans. They also used the bark for making baskets and the wood for arrows.

Many invasive plants are taking over the ground around the lake, so it's especially important for us to recognize and to preserve our native varietal plants like the Silky Dogwood. (Furthermore, if you're looking for a large deciduous shrub for your yard, you might want to consider adding this native, which is happy in sun or shade.)



Silky Dogwood





## Crystal Lake “Working Group” Initiatives Update

*By Co-Presidents Janice Bourque and Schuyler Larrabee*

During the past year, The Crystal Lake Conservancy (CLC) has been an active member of a Working Group led by Bob DeRubeis, Director of Newton's Parks and Recreation Department. The algae bloom in the summer of 2012 that caused the premature closing of the Lake's swimming season was extensively discussed and several initiatives proposed. Results of the City's and the CLC's water sampling have made it evident that further mitigation techniques will be required and the engagement of the watershed residents will be crucial if we are to avoid a repeat of this issue.

The Crystal Lake Conservancy has emphasized during these Working Group meetings the need for both short-term and long-term initiatives as well as engagement of the public, particularly watershed residents, to ensure the continued use and health of Crystal Lake. Here are some of the Working Group's initiatives:

### 1. Development of a short- and long-term plans

The City of Newton Parks and Recreation Department engaged consultant Larry Beals, a limnologist who has worked closely with the Crystal Lake Conservancy, to create a short and long-term plan to maintain the health and cleanliness of Crystal Lake. Mr. Beals is working with the group and the City in exploring a variety of potential treatments with examples of what other communities have utilized to address similar algae blooms and bacterial infusions.

### 2. Communication with the public

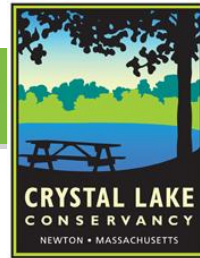
The Working Group developed an email listing enabling us to advise residents about issues of concern, such as *being especially careful to avoid utilizing use fertilizers that contain phosphorus*.

### 3. Storm-drain markings and filters

In the Spring of 2013, a few volunteers worked together and applied medallions and painted road signage indicating which storm-drains flowed into Crystal Lake. This summer, as a further step, the City purchased and installed special storm-drain Fabco filters in 27 drains (there are 49 drains in total) whose contents flow directly into Crystal Lake. All the other basins do not meet the depth specifications or have an outlet pipe that is too shallow to enable the filter installation. The special storm-drain filter's primary purpose is to reduce the nutrient content (phosphorus, nitrates, etc...) of the water from the watershed that flows into the lake. This is the largest driver of the algae blooms. The City and the Crystal Lake Conservancy (CLC) will coordinate their water sampling to track levels of nutrients. Maria Rose, City of Newton environmental engineer, will conduct road surface and direct outfall-flow sampling, and CLC will continue with the water sampling from the coves, the bathhouse and center of the lake. The filters may also have a secondary effect of reducing the amount of bacteria running from the watershed into the lake. This secondary effect would be helpful, but the primary use is nutrient reduction. The key to success is educating the watershed residents of their important role in reducing these pollutants. These filters are only a part of solving the Lake's issues.

### 4. Watershed signs

Education of the watershed residents and their visitors is key to reducing the level of pollutants that flow into the storm drains and directly into Crystal Lake. In the near future, every street that is part of the Crystal Lake Watershed will have a colorful sign indicating that you are in the watershed area and indicate various pollutants that should be eliminated or reduced that directly cause the high levels of nutrients and algae blooms in the Lake. Such pollutants include: lawn fertilizers with phosphates and high nitrates, car washing detergents, dog waste and the bags, excess motor oil, any harsh chemicals, and ice and snow salting. We have pushed for a reduction, or elimination, of salt application to roads in the watershed. **Watershed residents should be aware that whether the pollutants run inadvertently off their property or are dumped directly into the storm drain, all of these pollutants flow directly into Crystal Lake.** Filters can improve the situation but the **REAL solution is reduction of use by watershed residents**. (Continued on next page)



## Crystal Lake “Working Group” Initiatives Update Cont’d

### Rain gardens

The working group has been exploring various natural filtration mechanisms that could be installed by home owners and on City property to further reduce the polluting burden on the Lake. Ed Himlan, Executive Director of the Massachusetts Watershed Coalition, presented examples of various types of rain gardens utilized by other communities during the Crystal Lake Conservancy’s 2012 Annual Meeting. Visit the CLC website for the rain garden brochure [www.crystallakeconservancy.org](http://www.crystallakeconservancy.org) or visit [www.commonwaters.org](http://www.commonwaters.org).

Simplified, a rain garden is a planted depression in the terrain where water can collect and infiltrate slowly into the soil. A rain garden typically has a bowl shape to collect the rain that runs off from a roof, driveway, parking area or yard. This 6 - 9 inch deep basin fills with runoff and allows it to seep into the ground in a few hours. The rain garden plants and soils filter the storm water and cleanse pollutants that could harm water quality. The rain garden is filled back to natural grade with natural and beautiful plants and layers of soil, sand and gravel. Downspout runoff, driveways and sloping lawns that allow rapid runoff of heavy rains are directed to a rain garden to catch the runoff and allow a slower drainage into the soil allowing natural filtration of most pollutants. The City is exploring if there are any conservation requirements that may be required for direct lake abutters who wish to implement rain gardens, as well as what type of permitting may be needed. Additionally, the working group is exploring potential City property sites in the watershed that might be a good “rain garden” model for the community.

There are other initiatives that are under discussion that could further reduce the impact of pollutants on Crystal Lake. Stay tuned as the watershed signs roll out and further water sampling is done post filter inserts.

## Crystal Lake Conservancy Awards Student Volunteer

### Daniel Mangoubi

Daniel Mangoubi, a Newton native, and son of an immigrant mother and a Jewish refugee from Egypt, has spent summers at the Crystal Lake Bathhouse where he learned to swim. He still swims there regularly when he is not working or away on a program. He joined the CLC Water Testing Program in 2011 because he was curious about the “technical” aspect of environmental challenges. After experiencing the 2012 algae bloom, his main concern has been helping to determine how to prevent future algae blooms.

Daniel attended Solomon Schechter Day School in Newton and is now a Senior at Gann Academy in Waltham, where he assumes leadership roles in Gann’s extra-curricular life. He knows French and Hebrew. His passions are math, computer science, languages, and history. Daniel conducts independent research on the History of Jews in Egypt; his research has been presented to college audiences in Egypt. This summer, he first worked at SoftArtisans, an avant-garde software company that provides unique opportunities to High School students. He then joined the SciTech program at the Technion in Haifa, Israel, where he worked with two other participants on a mathematical algorithm for a more general version of the “Stable Marriage Problem”. His group won first prize in the SciTech 2013 Scientific Research and Poster Competition, and is continuing to work on their project with the goal of publishing a paper on their innovation.

Daniel is the first student to receive the new annual Crystal Lake Conservancy Student Volunteer Award at our October 5<sup>th</sup> “Paddles and Pumpkins” (see front page). Daniel’s award will be given during the presentations from 4pm-5pm.

Help us stay green AND save paper and printing costs—sign up for our electronic newsletter by going to our website at [www.CrystalLakeConservancy.org](http://www.CrystalLakeConservancy.org)



## Renew or Join the Crystal Lake Conservancy

Stay informed and help sponsor our environmental testing and our work for a healthier lake!

**Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**City:** \_\_\_\_\_ **State:** \_\_\_\_\_ **Zip:** \_\_\_\_\_

**Telephone Number:** \_\_\_\_\_

**E-mail Address:** \_\_\_\_\_

I am paying by \_\_\_\_ enclosed check

*Please note: If paying by credit card, please go to [www.CrystalLakeConservancy.org](http://www.CrystalLakeConservancy.org) and use the Paypal link.*

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|--|---|
| ____ Individual membership     (\$40)  | ____ Patron membership     (\$500)                |
| ____ Family membership     (\$75)      | ____ Non-profit membership     (\$100)            |
| ____ Supporting membership     (\$150) | ____ Corporate membership     (\$1000)            |
| ____ Sustaining membership     (\$300) | ____ Conservation Council membership     (\$5000) |

If you wish to pay by check, please send your membership and contact information to:  
The Crystal Lake Conservancy, PO Box 610038, Newton Highlands, MA 02461

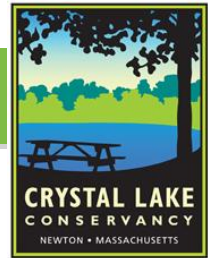
Help us stay green AND save paper and printing costs—sign up for our electronic newsletter by going to our website at [www.CrystalLakeConservancy.org](http://www.CrystalLakeConservancy.org)

### Welcome to Our New Board Member

Dr. Frank Bachner was born in Brookline, MA, and moved to Newton when he was eight years old. He attended the Mason School, Weeks Junior High and graduated from Newton High in 1957. Upon graduation, he entered MIT, where he received his bachelor's and doctorate degrees in materials science. After serving two years as a Captain in the Army, Dr. Bachner worked for 15 years at the MIT Lincoln Laboratory and then spent several years working in the microelectronics industry both in Boston and subsequently in San Diego. He has been an industry consultant specializing in advanced semiconductor packaging and assembly for the past several years. While growing up in Newton, Dr. Bachner swam, fished and skated at Crystal Lake. His children, raised in Newton, also swam and fished in the lake and even skated there when they were very young. Now semi-retired, Dr. Bachner enjoys taking his grandchildren swimming and fishing at Crystal Lake and working to preserve the lake for their children.

### Thank You to Our Departing Board Member

Simone Taubenberger and her family had lived in Newton, across from Crystal Lake, since 2007. She and her young sons spent almost every day at the lake during swim season and loved to walk around the lake all year. Simone was key in conducting and compiling our Watershed Survey, assisted with the water sampling and testing, oversaw our newsletter distribution and utilized her scientific background and experience with limnology in Montana. Simone has moved to Pittsburgh, PA, and we will miss her skills and support of Crystal Lake.



## Thank You, Volunteers!

### Water Sampling/Testing for 2013 Season

For the fourth season, with the help of volunteers, the Crystal Lake Conservancy collected multiple water samples and monitored water visibility and temperature readings.

**We would like to recognize the tremendous efforts of the following volunteers:**

**Sophia Autor, Frank Bachner, Janice Bourque, Irwin and June Jungreis, Schuyler Larrabee, Ursula Mangoubi, Daniel Mangoubi, Lynn Scheller, Simone Taubenberger, and Beth Wilkinson.**

#### **Water Sampling**

Volunteers collected samples from five specific locations around the lake:

Levingston Cove, Cronin's Cove, Lake Terrace, Bathhouse, and the center of the Lake. Samples were analyzed by the state certified G&L Laboratory in Quincy MA. The water sampling included bacterial analysis for E. coli and Enterococci as well as potential lawn and garden chemicals found in herbicides, pesticides, and fertilizers such as nitrate, ammonia and total phosphorus.

#### **Water Testing/Monitoring Program**

Volunteers monitored the temperature and visibility readings via the rowboat at three different depths, at six different sites around Crystal Lake.

#### **Volunteer**

Want to help? Please contact us by visiting our website under the volunteer section.

## Harvest Fair

**Please visit our booth during Harvest Fair!**  
**Sunday, October 20, 2013**  
**Village Green and Parking Lot**  
**Newton Centre Park**  
**11 am - 4pm.**

Come learn more about this year's water testing, new storm drain filters, new watershed signs, algae bloom and the Conservancy's efforts. Pick up a copy of our newsletter; provide your email so we can keep you informed; and find out how to become involved; become a member or sign up to volunteer!

#### **Holiday Gifts**

Support our efforts and browse through our merchandise to find that unique gift of note cards (new!), a mug, water bottle, pin, poster, or T-shirt. These items would make great holiday gifts this year.

## Holiday Shopping!!!

**Limited Editions and Folklorica stock**  
**CLC merchandise**

Now you can get merchandise bearing the attractive CLC logo to support the Conservancy. Check out Limited Editions (Walnut St, Newton Highlands) and Folklorica (Union St, Newton Centre), or go to our website for the full array of products.

**PRODUCT IMAGES ARE AVAILABLE ON OUR**  
**WEBSITE.**

Go to [www.CrystalLakeConservancy.org](http://www.CrystalLakeConservancy.org); then click on the "Order" tab at the top. If you submit the order form on-line, someone will contact you ASAP for delivery.





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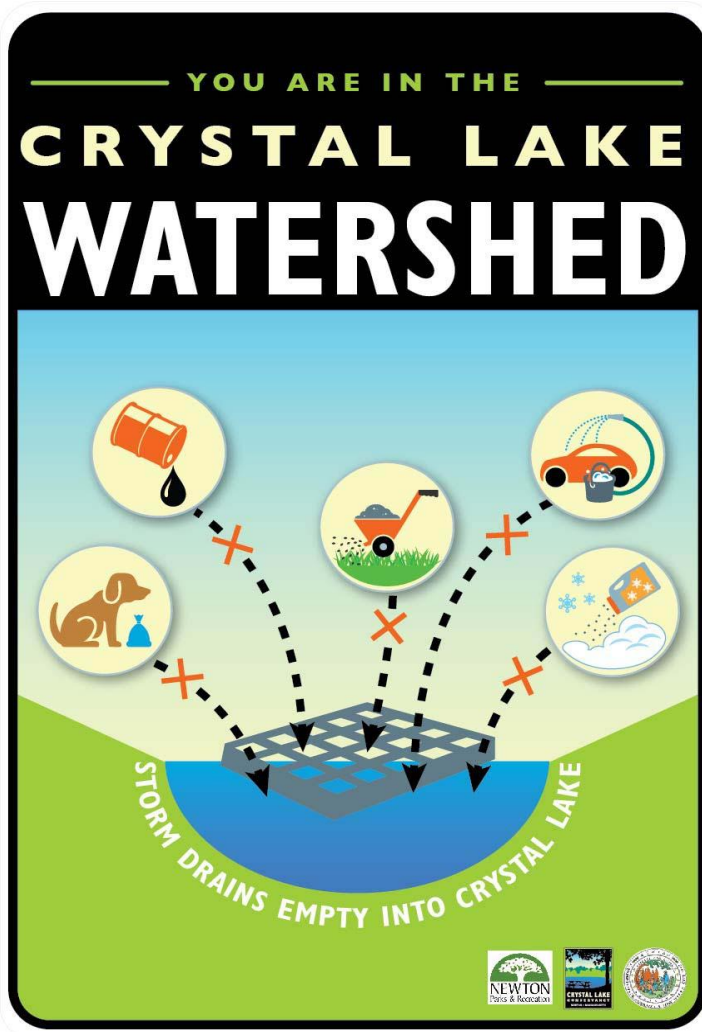
Fall 2013

The Crystal Lake Conservancy is dedicated to the preservation and protection of Crystal Lake for the benefit of the public by promoting and supporting the unique natural beauty and enjoyment of the Lake.

## Coming Soon!! New Watershed Sign for Crystal Lake

Crystal Lake has a sizable watershed area and includes 34 streets. What is a watershed? It is an area of land where surface water from rain and melting snow or ice converges to a single point at a lower elevation via storm drains or direct run off. Crystal Lake collects all the water in the watershed and with it, all the chemicals and pollutants used in that land. Please be mindful of chemicals and pollutants used in the watershed so we can all be good stewards and care for Crystal Lake. Watch for these new informational watershed signs. Teach your children, grandchildren and your neighbors about being good stewards and caring for Crystal Lake.

*By Janice Bourque*



The 34 streets within the green lines is the Crystal Lake watershed area. Are you in the watershed? All of your home activities: lawn treatments and fertilizers, ice salt, car washing, dog waste and oil spillage, runs off your property, into the storm drains and into Crystal Lake if you live in the watershed.

**Help us keep Crystal Lake clean!**