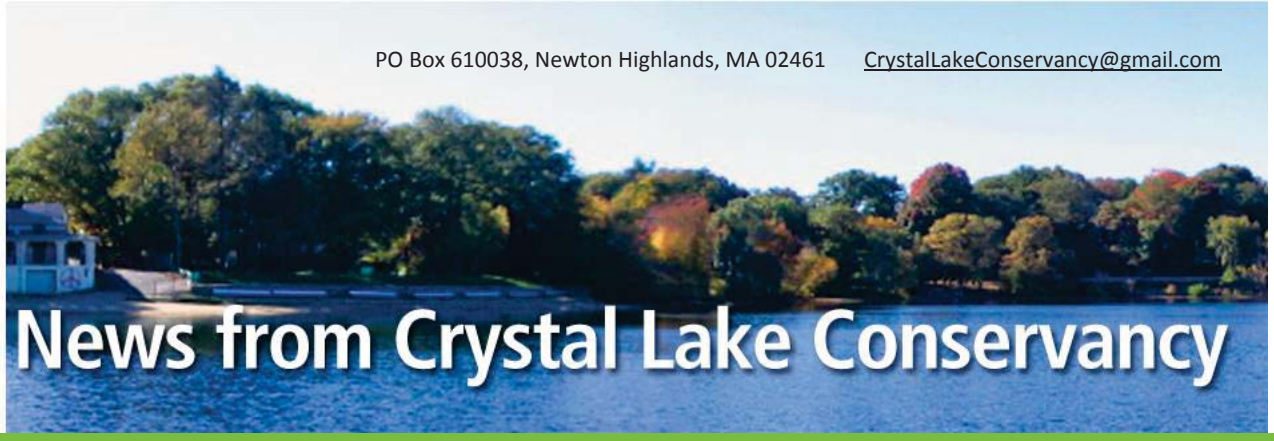
PO Box 610038, Newton Highlands, MA 02461 CrystalLakeConservancy@gmail.com



News from Crystal Lake Conservancy

Spring 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.

Better Lawn, Better Lake!

May 9, 2013 7:00pm – 9:00pm

Druker Auditorium, Newton Free Library

Guest Speaker: Mary Owen, Turf Specialist, UMass-Amherst

Waterways abound in New England. In Newton alone we have Cheesecake Brook, Laundry Brook, Crystal Lake and more.
Protecting our vast network of interconnected waterways is imperative, especially when it comes to decisions on how to care for our lawns.

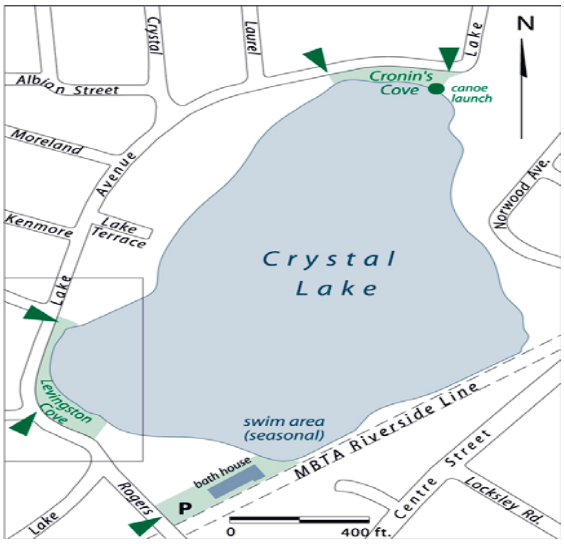
Join Mary Owen, Extension Turf Team Leader and Specialist for the University of Massachusetts, for a program that will help you understand how you can have a good-looking functional lawn while protecting and enhancing the local environment, especially Crystal Lake. Putting rain in the ground and not in storm drains will prevent pollution and reduce costs for in-lake treatments.

Topics will include:

- How to prevent landscaping nutrients from moving into water
- Soil testing
- What to look for when purchasing grass seed
- How to transition your lawn to lower input grasses
- Matching your maintenance to your landscape
- Making the best of 'rainfall only' watering
- Fertilizing

Mary Owen is a veteran educator who directs the development of outreach turf publications and programs, and provides instruction for professional turf management programs such as the UMass Winter School for Turf Managers. She is an active participant in several industry organizations including the New England Sports Turf Managers Association, the New England Regional Turfgrass Foundation and the Massachusetts Association of Lawn Care Professionals.

- Cosponsored by the Crystal Lake Conservancy, Green Decade/Newton and the Newton Conservators



Come and discover the impact of your lawn treatments on the watershed and the lake!

To learn more about the Crystal Lake Conservancy, visit our website at www.CrystalLakeConservancy.org

Preventing another Summer Algae Bloom in Crystal Lake

As many residents are aware, Crystal Lake suffered a substantial algae bloom last summer resulting in a premature shut down of the swimming season. The Crystal Lake Conservancy (CLC) has been monitoring several locations across the lake for various bacteria, phosphorus, nitrates, herbicides, pesticides, water visibility and temperature with help from dedicated volunteers and Larry Beals, our limnologist, for the past four years. The City tests only the bathhouse swimming area for bacteria and algae blooms.

Algae blooms typically are normal. Algae blooms thrive in water rich with nutrients such as phosphorus. Normal lake activity during the spring and fall involves surface water layers cycling downward and deeper water layers cycling upward stirring up phosphorus-rich debris from the lake bottom, which can cause a short bloom.

Why are these recent algae bloom different? The algae blooms are occurring much earlier than usual and lasting longer due to ***too many extra nutrients from the watershed run-off.*** Crystal Lake is so high nutrient levels that any prolonged heat, low rain, and warm nights will quickly tip the lake into one or multiple algae blooms.

WHAT CAN YOU DO TO HELP CRYSTAL LAKE?

It is important for you to realize that your household is in the Crystal Lake Watershed area. What does that mean? That means all the runoff from your property including lawn treatments, (chemical or manure), car detergents, and household chemicals actually get washed down the street into the City catch basins (storm drains). Contents in the catch basins then drain into the lake via seven different outfall areas.

What you do at home directly affects Crystal Lake!
We know you care about this lovely asset in your neighborhood. We wanted to encourage you to read the articles contained within this newsletter and consider **HOW YOU CAN HELP DECREASE THE IMPACT ON CRYSTAL LAKE**.

Remember last summer!!

Help us help Crystal Lake!!

To learn more about Crystal Lake please visit www.CrystalLakeConservancy and www.newtonma.gov/parks.

Algae blooms decrease Crystal Lake's visibility. Water clarity less than four feet prevents lifeguards from seeing into the water, and the swimming area is closed for safety.

An abundance of algae adds a characteristically "green hue" to the water. Some varieties of algae can be toxic to pets and humans.

Using a Rain Garden to Help the Environment

-Ed Himlan, Massachusetts Watershed Coalition

What is a rain garden?

A rain garden has a bowl-shaped landform that collects 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 cleanse pollutants that would harm the quality of the rivers and lakes that would receive the water that otherwise would run off your property. Letting rain soak in, rather than go into the street, increases groundwater that keeps streams flowing during dry times. A constant supply of clean groundwater is essential to stream and pond life.

Benefits of Rain Gardens

Storm runoff is the leading source of water pollution that harms aquatic life and spoils recreational uses of lakes and brooks. Creating rain gardens has many water quality benefits:

- Gardens remove dirt, oil and metals in storm water.
- Plants recycle phosphorus and other nutrients that would be harmful if they reached local lakes and rivers.
- Microbes in soils reduce bacteria levels in runoff. Rain gardens also attract birds and beneficial insects like butterflies and bees that pollinate plants, as well as dragonflies that eat mosquitoes. Your family and friends will enjoy watching these wildlife habitats that enrich your yard and neighborhood.

Where to build your rain garden

First, walk your yard in the rain to see where runoff from your roof, driveway and patio flows. Choose a spot where runoff naturally goes; the rain garden should be placed between the source of runoff and where it flows out of your yard. If the runoff stays in your yard and already soaks into the ground, a rain garden may not be worthwhile. When choosing the location, your rain garden should be:

- at least 10 feet from the house foundation and 25 feet from a septic leach field or a well
- away from underground utilities (Call Dig Safe at 811 before digging your garden.)
- away from wet/soggy places where ponding persists after a storm
- away from tree roots that can be injured when digging the garden.

Cost for Building Rain Garden

The cost of your garden will vary depending on what you want and are able to do. If you design, dig and collect seeds or plants from other gardens, the cost is minimal. Alternatively, you can hire a contractor to install your garden. Costs for a do-it-yourself garden are about $2 – $5 per square foot, depending on the plants and accessories that you want. Many landscapers are expert in building rain gardens, and costs are likely to range from $8 – $12 per square foot, again depending on what plants you want.

To learn more about rain gardens, visit our website and click on "creating a rain garden" under Keep the Lake Healthy.

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

Two Unusual Native Woodland Plants in Cronin's Cove

Later in the summer, when you're walking along the path through Cronin's Cove, keep your eyes open for two unusual looking and wonderful native plants that probably have been there since members of the Native American Massachuset tribe walked its shores in the 1600s, when there was a major north-south trail along current Centre Street from Nonantum to Crystal Lake.

Sometime in June or July, you can see what look like spikey white golf balls growing on shrubs in the water along the stone wall in the cove—usually at the bottom of the steps near the middle of the wall. Those are the blooms of ***Cephalanthus occidentalis,*** **or Common Buttonbush.** By fall, they will become hard green balls, or nutlets.

Common Buttonbush

Buttonbush is a deciduous shrub in the coffee family that usually grows to between four and twelve feet tall. It's found at the edge of lakes and flooded areas and is one of the increasingly small number of wetland plants that can be found around Crystal Lake. It's also a very attractive source of nectar for butterflies, bees, and hummingbirds.

Native Americans in the Southeast used Buttonbush bark as an emetic and as a cure for urinary blockage. The Choctaw used a poultice of its roots to bathe infected eyes and its bark to treat fevers and toothaches. On the other hand, the cephalantin contained in the shrub is a poison that destroys red blood cells, so modern-day herbalists should be cautioned against experimenting with it.

Another native wetland indicator in Cronin's Cove is ***Apios Americana,*** **or Groundnut or Indian Potato.** It is a vine that twists its way around the Buttonbush and other shrubs along the edge of the lake in the Cronin's Cove—and in Levingston Cove. The Groundnut is a legume and looks similar to a pea vine. At first, it can be hard to see its flowers, which emerge shortly after the Bottonbush starts to bloom, but they are beautiful in an unusual way and well worth looking for. In fall, 2-5" pods replace the flowers.

Groundnut or "Indian Potato"

The flowers are edible—raw or cooked—as are the seeds, which can be eaten like peas. The real treats, however, are the Groundnut tubers, which grow in chains underground. They are said to be crunchy and tasty, and they are high in protein and starch. It's odd that so few of us know of this plant now because its tubers were of the most important food sources in pre-European North America. Native Americans were said to plant them or even to locate their villages near locations rich in them. The Pilgrims in Plymouth ate the tubers when their corn supplies ran out, and they helped the colonists to survive their first winters in North America. (However, be careful of eating them—not only to preserve one of the decreasing number of native plants around the lake but also because some people have an intolerance to them and get sick from eating them. Cooking the tubers is said to reduce that problem.) Woodchucks and rabbits are extremely fond of them.

There always are natural delights such as these to be found around Crystal Lake if you take the time to look carefully. Let us know if you have questions about any of the plants or animals that you see.

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 and use the Paypal link.

___ Individual membership ($40)
___ Family membership ($75)
___ Supporting membership ($150)
___ Sustaining membership ($300)
___ Patron membership ($500)
___ Non-profit membership ($100)
___ Corporate membership ($1000)
___ 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

Crystal Lake Conservancy to Receive Green Decade's 2013 Environmental Leadership Award

Tuesday, May 28th, 7pm
"Greening our Community Series" Program -Newton Free Library

Green Decade Newton has selected The Crystal Lake Conservancy to receive one of their **2013 Environmental Leadership Awards** for outstanding environmental contribution in Newton. Green Decade based their decision primarily upon the work CLC has been doing to preserve and protect Crystal Lake for the benefit of the public. The group award acknowledges CLC's promotion and support for the unique natural beauty and recreational enjoyment of the Lake and the organization's efforts to increase community awareness of issues related to the Lake and its environmentally sustainable uses.

The individual award is being awarded to State Representative Kay Khan for her work to make the Newton Lower Falls Community Center more environmentally sustainable building, and the business award is being given to Big Belly Solar.

Thank You Green Decade for your Support and Acknowledgment!

Water Sampling and Testing for 2013 Season

For the fourth season, with the help of volunteers, the Crystal Lake Conservancy will again collect multiple water samples and monitor water visibility and temperature readings.

Water Sampling
Volunteers will collect samples from five specific locations around the lake:
Levingston Cove, Cronin's Cove, Lake Terrace, Bathhouse, and center of the Lake. Samples will again be analyzed by State Certified G&L Laboratory in Quincy MA. The water sampling will include bacterial analysis for E. coli and Enterococci. Spring testing for potential lawn and garden chemicals will include herbicides, pesticides, nitrate, ammonia and total phosphorus.

Water Testing/Monitoring Program
Volunteers will conduct weekly monitoring of the temperature and visibility readings via boat 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.

Newton Highlands Village Day

Please visit our booth during Village Day!
Sunday, June 10, 2013
Lincoln St, Newton Highlands
Village Center
12 noon - 5pm.

Come learn more about last year's 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!

Summer Supplies
Do you know someone who has fond memories of swimming at Crystal Lake and would enjoy a reminder of those experiences? 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.

NEW! NEW! NEW!

Limited Editions and Folklorica to stock CLC merchandise

Now you can get merchandise bearing the attractive CLC logo to support the Conservancy. Check out Limited Editions (Newton Highlands) and Folklorica (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 then click on the "Order" tab at the top. If you submit the order form on-line, someone will contact you ASAP for delivery.

Storm water Management Glossary

Below are some common terms that are often used when discussing storm water issues.

Bio-retention: Method of catching and storing rain water runoff using certain landforms and plantings such as vegetated wetlands, rain gardens, green roofs.

Biofiltration swale or Bioswale: A long, gently sloped, vegetated ditch designed to filter pollutants from storm water. Grass is the most common vegetation, but wetland vegetation can be used if the soil is saturated.

Catch basin: A device to slow or screen storm drainage in order to separate solids that can then be removed.

Conveyance system: Drainage facilities and features that collect, contain, and provide for the flow of surface and storm water from the highest points on the land down to the receiving water. Conveyance systems are made up of natural elements and of constructed facilities.

Drainage facility: A constructed or engineered feature that collects, conveys, stores or treats surface and storm water runoff. Drainage facilities include but are not limited to constructed or engineered streams, pipelines, channels, ditches, gutters, lakes, wetlands, water quality treatment facilities, and erosion and sedimentation control facilities.

Embankment: A raised structure of earth, gravel, or similar material to form a pond bank or foundation for a road.

Eutrophic: A stage in the gradual deterioration of a water body in which excess nutrients, particularly phosphorous, stimulate the growth of aquatic plant life usually resulting in the depletion of dissolved oxygen. It often results from runoff carrying fertilizers. Also referred to as "Nutrient loading." **Crystal Lake is an Eutrophic lake at present.**

Impervious surface: A hard surface area which either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development; and/or a hard surface area which causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions prior to development.

Low Impact Development (LID): Development that employs natural onsite drainage features and landscaping techniques to help control and contain storm water to increase natural recharge and reduce pollution.

Nonpoint source (NPS) pollution: Occurs when rainfall, snowmelt, or irrigation runs over land or through the ground, picks up pollutants, and deposits them into water bodies or introduces them into ground water.

Outfall: A point where collected and concentrated surface and storm water runoff is discharged from a pipe system or culvert.

Rain Garden: A planted depression that allows rainwater runoff from impervious surfaces like roofs, drives, walks, and compacted lawn areas the opportunity to be absorbed.

Runoff: Water originating from rainfall and other precipitation that ultimately flows into drainage facilities, rivers, streams, springs, seeps, ponds, lakes, and wetlands as well as shallow groundwater.

-Compiled by the Environmental Committee of the League of Women Voters of Newton

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

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CRYSTAL LAKE CONSERVANCY
NEWTON • MASSACHUSETTS

Spring 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.

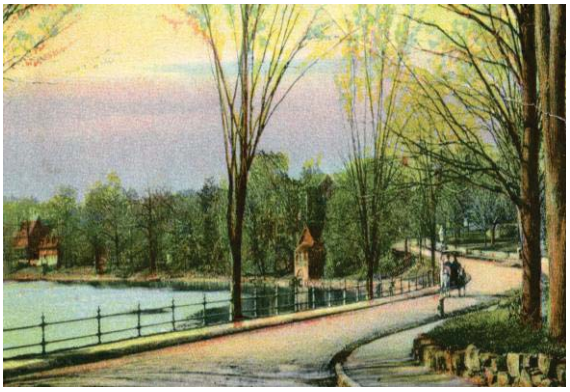
Did you know…?

-excerpts from 1911 "Comprehensive Historical Sketch of Crystal Lake"
Posted on CLC website under History & Rules

In 1905, preparatory to a thorough examination and purification of the Lake, a hydrographic survey was made. During the warm weather of that year a kind of seaweed made its appearance, accompanied in the more stagnant water by an unpleasant odor. The Board of Health having been notified, their agent was directed to apply a treatment of copper sulphate. Three hundred pounds were used, being about 2 1-10 pounds to each 1,000,000 gallons of water. The treatment was applied by suspending the sulphate in burlap bags over the side of a boat and letting it slowly dissolve as the boat was rowed along. The time occupied was eight hours, and the distance traveled eighteen miles. The date was August 18th. In less than a week favorable results were noted. In four weeks the water had entirely resumed its normal state. Between July 1909, and January 1910, analysis of the water at different periods, and of the ice taken from it, was made by the Bacteriological Department of the Massachusetts Institute of Technology at the request and expense of the Newton Centre Improvement Association. The result is shown by the following reports:

Dec. 6th, 1909: The examination of the water of Crystal Lake has been made both before the "overturn" caused by the cooling of the surface and after. The condition of the water is not at all "bad." It shows no E. coli. and while it would not be recommended as drinking water, it is in much better condition than in August, 1905. The dosing with copper sulphate then applied seems to have kept down the algae growth. The water carries rather more albuminoid ammonia in solution than is usual, but otherwise does not appear to be seriously contaminated. **The greatest risks are from the wash of the streets and lawns** and from the possible contamination of ice by skaters. Only great care in cutting the ice will obviate these risks.

Jan. 10, 1910: Referring to my previous report on the water of Crystal Lake, it will be seen that the water compares favorably with other surface waters in settled regions. No E. coli were found and only the usual amount of ammonia even at the time of the overturn. The chloral was in slight excess over the normal, but the oxidized nitrogen was low. On January 5th two samples of ice were taken from the cakes being cut and stored from Crystal Lake. The pieces represented the average character of the ice. There is danger of contamination of single blocks in so densely settled a region where skating is practiced. **–E.H. Richards**



Lake Avenue 1905

Ice Skating on Crystal Lake 1899

Crystal Lake Bathhouse 1940