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

# News from Crystal Lake Conservancy

May 2012

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.

## Mute Swans visit Crystal Lake

The swans are back! They arrived at Crystal Lake near the end of March. Those who stop by to visit the new arrivals see three graceful white birds with their long necks held in an s-shape. Carol Stapleton, director of the bathhouse area and staff, was the first to report that they are our usual pair accompanied by one of their offspring from last year.

They are mute swans, which are native to Europe, and were brought to the United States in the early 1900s as ornamental birds on the ponds of estates in Connecticut and Long Island. In the winter, they don't migrate far but move to open coastal bays. In the spring, they return to inland lakes and ponds.

You can distinguish mute swans from the native trumpeter or occasional tundra swans primarily by their orange beaks, each with a black bump at the root of the beak, and their curved necks. The male is larger than the female, but, otherwise, they look alike.

"Swan Lake"

Mute swans often mate for life and can live for twenty or thirty years, so it's likely that we do see the same individuals from year to year. If our pair, which also seems to spend time at Bullough's Pond, reproduces again this year, we can expect to see the downy gray cygnets with them starting sometime in June. Some wildlife advocates are not fond of the mute swans because they're more aggressive than our native birds and can drive them from the area, but because of their beauty, the mute swans remain great favorites at Crystal Lake.

### Welcome to our Newest Board Member

Lisa Rosenfeld is Counsel and Legislative Director for the Joint Committee on Children, Families and Persons with Disabilities at the State House in the office of Newton Representative Kay Khan. Lisa is responsible for the oversight and monitoring of the Department of Children and Families, the Department of Developmental Services, the Department of Transitional Assistance, the Department of Youth Services, the MA Commission for the Blind, the MA Commission for the Deaf and Hard of Hearing and the MA Rehabilitation Commission.

Lisa graduated from Pratt Institute with a Bachelor of Fine Arts in Environmental Design, a Masters of Social Work in Public Policy and Administration from the State University of New York-Albany, and her J.D. from Northeastern University School of Law. Lisa has been an active community resident of Newton Highlands for almost 30 years. During that time she served as a Vice President of the Newton Highlands Neighborhood Area Council, organized a Newton Highlands Area Council Village Day, tried to re-establish ice skating at Crystal Lake and worked to extend the swimming season. She co-founded Newton Singers, now a 60-person strong chorus, has been a long-time Board Member of the Newton Food Pantry and founded Friends of Cold Spring Park which resulted in the installation of the playground near the Beacon Street tennis courts. Lisa looks forward to furthering the Conservancy's mission and goals so that Crystal Lake remains vital for the neighborhood and the community-at-large.

**Board Members: Janice Bourque (Co-President), Schuyler Larrabee (Co-President), Srdjan Nedeljkovic (treasurer), Barbara Wales (clerk), Jean Artin, Deborah Carr, Robert Fizek, Lisa Rosenfeld, Simon Taubenberger and Beth Wilkinson.**

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## Start at Home to Keep the Lake Healthy

When rain falls or snow melts, the seemingly negligible amounts of chemicals and other pollutants around your home and yard get picked up and carried via storm drains to Crystal Lake or are absorbed by the soil and eventually reach the lake. (If you don't live directly in the Crystal Lake watershed, your storm water still contributes to the Charles River watershed.) The ramifications may include polluted water, lake closings and endangered wildlife. So what can you do to help protect surface and ground waters from reaching the lake? You can start at home. The following are some specific tips to help you become part of the solution to the problem.

- Use a professional lawn care service that employs trained technicians and follows practices designed to minimize the use of fertilizers and pesticides or consider one that uses natural alternatives to chemical fertilizers and pesticides. If you must use chemicals, have your soil tested to determine the right amount.
- Compost your yard trimmings. Compost is a valuable soil conditioner that gradually releases nutrients to your lawn and garden. (Using compost will also decrease the area of fertilizer you need to apply.) In addition, compost retains moisture in the soil and thus helps you conserve water.
- Spread mulch on bare ground to help prevent erosion and runoff.
- Keep storm gutters and drains clean of leaves and yard trimmings. (Decomposing vegetative matter leaches nutrients and can clog storm systems and result in flooding.)
- Do not over-water your lawn or garden. Over-watering can increase leaching of fertilizers to ground water.
- When your lawn or garden needs watering, use slow-watering techniques such as trickle irrigation or soaker hoses. (Such devices reduce runoff and are 20 percent more effective than sprinklers.)
- Limit the amount of impenetrable surfaces in your landscape. Use permeable paving surfaces such as wood decks, bricks, and concrete lattice to let water soak into the ground.
- Allow thick vegetation or buffer strips to grow along waterways to slow runoff and soak up pollutants. Plant trees, shrubs, and ground cover. They will absorb up to 14 times more rainwater than a grass lawn and don't require fertilizer.
- Don't hose down driveways or sidewalks. Dry sweeping paved areas, along with careful trash disposal, are simple, effective pollution reducers.
- Gutters and down spouts should drain onto vegetated or gravel- filled seepage areas - not directly onto paved surfaces. Splash blocks also help reduce erosion.
- Divert runoff from pavement to grassy, planted or wooded areas of your property, so storm water can seep slowly into the ground.
- Properly dispose of household hazardous wastes. Never pour unwanted household chemicals on the ground. Soil cannot purify most chemicals, and they could eventually contaminate runoff.
- Animal wastes contain bacteria and viruses that contaminate lake water. Pet owners should pick up after their pets and dispose of the wastes in the garbage or toilet, never in catch basins.
- With everyone doing his or her own part, Crystal Lake will stay healthy for generations to come!

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

# Secrets of Organic Landscaping - Go WILD!

At the Green Decade's March Program, expert landscaper Risa Edelstein explained the key to an organic yard. Go WILD! Be Wildlife Friendly, Imitate Mother Nature, Limit Your Inputs, Design for People and Nature. The organic landscape welcomes wildlife. It attracts butterflies and bees and even bats and hawks that eat enormous numbers of mosquitoes and other insects. Bees are the preeminent pollinators essential to growing food and flowers. (Alarmingly, scientists see a dramatic decline in the bee population.) Edelstein showed photos of her four-season garden makeovers with a diversity of native plants such as Black-eyed Susan and Oak Leaf Hydrangea, Virginia Creeper that attracts the sphinx moth, Dutchman's Pipe that attracts the swallowtail butterfly and common milkweed that attracts the monarch butterfly. Gardens with native berries such as raspberries, blackberries and blueberries provide edibles for us as well as wildlife. "Like nature, let it be messy," said Edelstein. She advised using a mulch of minced leaves and leaving plants stand through the winter to feed the birds and other wildlife. Edelstein also avoids inputs such as chemicals and recommends drip irrigation. She said to water well to start the garden and then water sparingly to encourage hardy deep-rooted plants. She advised monitoring for invasive plants such as bittersweet and swallowtail vine. Be persistent pulling them out. Other ecological features included a rain barrel to capture rooftop rainwater and a dry creek to channel run-off into the ground instead of the sewers. Jessie Banhazl, owner of Green City Growers, described how her company installs and maintains organic vegetable gardens in raised beds and cold frames. Adequate sunlight and healthy soil are necessary. She advised getting soil tested at the Extension Service and that plants may need different pH levels. To deter critters, she advised tall beds and wire mesh fencing.

**Got grubs?**

There are some products that can help -- corn gluten in the spring and milky spore applied at the right time. Sarah Little, author of the Introduction to Organic Lawns and Yards added that research reveals that chemical treatments make lawns more vulnerable to grubs. Organic lawns are most resistant to grubs. She also noted that even organic pesticides still may be toxic. Sarah Little recommended a variety of references and the list at www.organiclandcare.net to find "160 NOFA accredited organic lawn care professionals who service Newton; 90 do yard maintenance." The recorded program will be shown soon on NewTV. For more resources go to www.greendecade.org/greencap.html.

***- Submitted by Ellie Goldberg, Green Decade Coalition***

## Water Sampling and Testing for 2012 Season

For a third season, with the help of several volunteers, the Crystal lake Conservancy will again collect multiple water samples and monitor weekly water visibility and temperature readings.

**Water Sampling**

Volunteers will collect samples from 6 specific locations around the lake: Levingston Cove, Cronin's Cove, Lake Terrace, Bathhouse, center of the Lake and outflow to Paul's Brook. Samples will again be analyzed by State Certified G&L Laboratory in Quincy MA. The water sampling will include a monthly 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 3 different depths, at 6 different sites around Crystal Lake.

**Volunteer**

Want to help? Please contact us by visiting our website.

NEWS FROM CRYSTAL LAKE CONSERVANCY May 2012

# 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)

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 "Memories"*

**Do you or someone you know have wonderful memories and pictures of Crystal Lake?**

So many people have rich memories of their first swimming lessons, days as a lifeguard, the wildlife, ice skating, sailing, canoeing, first fish of the season or new friends created over the summer visits to the lake.

If you have early memories, whether over 50 years ago or just last summer, we would love for you to share them with us.

Go to our website at *www.CrystalLakeConservancy.org* and submit your memories! We will compile and share them on the website or in our newsletter as we walk down memory lane with you.

We look forward to hearing from you!


**Newton Department of Public Works cleaned, videotaped and smoke tested the sewer and drains lines around Crystal Lake during the winter.**

## Newton Highlands Village Day

**Please visit our booth during Village Day!**
**Sunday, June 10, 2012**
**Lincoln St, Newton Highlands**
**Village Center**
**12 noon-5pm.**

Come learn more about the Conservancy's efforts, 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 a mug, water bottle, pin, poster, swimming pass lanyard or T-shirt.

## Swim Season Shopping!!

**Stock up on CLC merchandise for the Swim Season! Get your swim-pass lanyards, water bottles, towel/swim suit bags and T-shirts!**

Merchandise bearing the attractive CLC logo makes perfect summer gear and supports the Conservancy at the same time. Check out the website for the full array of products ranging in price from $3 to $15.

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.

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

| | | | |
|---|---|---|---|
| Swim Pass Lanyards | $3 | Water Bottles | $15 |
| Shopping Bags | $5 | Logo T-shirts | $15 |
| Pins | $5 | Sizes: | |
| Mugs | $10 | ADULT: Sm, Med, Lg, XL | |
| 14" x 18" posters | $10 | CHILD: Sm, Med, Lg, XL | |

NEWS FROM CRYSTAL LAKE CONSERVANCY May 2012

## Fishing Season Has Begun!


**Mass Division of Wildlife and Fisheries stocked 300 rainbow trout at Crystal Lake this spring.**

**This is part of a State wide annual stocking program.**

**Fishing licenses may be obtained at Newton City Hall.**

**Crystal Lake also is a natural habitat with several fish beds of sunfish, perch and large mouth bass.**

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

## Stormwater Treatment for Crystal Lake and Bathhouse

Newton's Department of Public Works has been working on two projects that will improve the water quality of Crystal Lake. The first and more visible project is at the Crystal Lake Bath House, where uncontrolled stormwater runoff from the parking lot is being captured, treated and infiltrated into the sandy soils present on the land acquired adjacent to the bathhouse.

The Bath House was built in 1930, long before standards for managing stormwater runoff were developed or required as part of site designs. It wasn't until the late 1970s and 1980s that methods, calculations and specialized software programs were developed to calculate the peak runoff rates and volumes generated from developed land. These methods and programs were subsequently applied to new development to minimize downstream flooding and soil erosion due to the force of water. Today, we are concerned not only with managing the quantity (volume) of runoff from impervious surfaces, but also the quality of that water before discharging it to a local water body, such as Crystal Lake. For these reasons, the City has designed and installed storm water management controls at the Bath House. Currently, stormwater runoff from the parking lot and roof discharges directly to Crystal Lake or to the side of the bathhouse closest to the MBTA tracks. Once the project is finished nearly all the parking lot and roof runoff will be captured and treated.

Stormwater runoff from the parking lot and driveway will be collected by catch basins and a trench drain, conveyed via piping to a water quality unit and subsequently dispersed evenly across a series of eight StormTech chambers (see Photo A). The water quality unit, First Defense by Hydro International, will remove sediment, oil and any litter (that gets past the catch basins) prior to releasing the treated water into the ground. Infiltration is one of the best ways to manage stormwater runoff because it allows for the natural recharge of groundwater, which in some communities is the source of drinking water. In addition, recharge (infiltration of storm water to the subsurface soil) removes nutrients such as phosphorus, which feed toxin-producing cyanobacteria, also known as *blue-green algae*. The City is very fortunate to have acquired the parcel of land at 20 Rogers Street because this property is the only suitable location to infiltrate storm water in the immediate area.


**Photo A: Installation of StormTech chambers (open bottom structures that temporarily hold stormwater and release it to the subsurface).**


**Photo B: DPW crew using a ram-hoe and jack hammer to break apart the ledge where the drain line will be installed.**

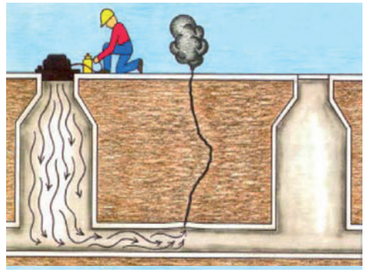
NEWS FROM CRYSTAL LAKE CONSERVANCY May 2012

## Stormwater Treatment for Crystal Lake and Bathhouse-cont'd

Ledge was encountered at numerous locations on the Bath House property. The presence of ledge (bedrock) precludes the ability to naturally recharge water into the ground. Department of Public Works' crews needed to hammer out the ledge in order to install the catch basin and piping (see Photo B). Additional infiltration was previously installed for the roof leaders associated with the Bath House building in 2010. A perforated PVC pipe is connected to the end of each roof leader. The perforated pipe is then laid in shallow trenches lined filter fabric and stone. The entire project is set for completion in May 2012.

The second project the City has undertaken impacts the entire watershed area draining into Crystal Lake. There are seven (7) active drain outfalls that collect storm water from City streets and some residential driveways and direct this runoff into Crystal Lake. Last year, the City began sampling these outfalls for E.coli bacteria, phosphorus and detergents. The first round of data collected in June 2011, indicated elevated bacteria and phosphorus levels in four of the seven outfalls. Subsequently, DPW cleaned all the catch basins in the vicinity of problematic areas, removing pet waste bags and other debris. A limited investigation followed, which included video taping of targeted drain lines to search for any cross-connections with lines. None were found. Since two of the problem outfalls are draining only one or two catch basins on Lake Avenue, leaks from the sanitary sewer were thought to be a possible contributor to the problem; as such a contractor was retained to clean, test and seal permeable joints in the section of sanitary sewer on Lake Avenue closest to the problem areas. In late September 2011, a second round of samples was collected from the outfalls. Despite our initial remediation efforts, the data show that significantly elevated E.coli bacteria levels persist in the majority of the outfalls. Phosphorus concentrations went down, which is likely attributed to less fertilizer use in the late fall.

Over the winter the Utilities Division completed an extensive investigation of both the sewer and drainage infrastructure located in the Crystal Lake watershed. This included cleaning and video taping the interior of every sewer and drain pipe. In total, 9,300 linear feet of sewer and 1,700 linear feet of drain were cleaned and inspected by camera. The reports and DVDs for this work were compiled and sent to a consultant. Weston & Sampson Engineers is reviewing the reports and subsequently completed smoke testing for both sewer and drain lines in the area. Smoke testing is a commonly used method to isolate illicit discharges (e.g., sanitary sewer from a house to the drain, or clean water discharges going into the sewer) between the sewer and drain systems. It works by introducing smoke into the storm drain or sanitary sewer system and observing where smoke surfaces (see graphic).



**When the sewer system is filled with smoke, leaks can be visually detected.**

This approach coupled with dye testing will be useful in identifying illicit inflow sources to our infrastructure. Once we identify the illicit discharges that are contaminating our drainage system, we can begin working on the required corrective measures. The ultimate goal of all these efforts is to improve the water quality discharging from the storm drainage outfalls into the lake and, therefore, improve the overall health of the Crystal Lake.

***-Submitted By Maria Rose, CFM, Newton's Environmental Engineer***

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