Using science, advocacy, and the law to protect, preserve and enhance the Charles River and its watershed.

STREAMER

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The newsletter of the Charles River Watershed Association

Building Blue Cities:
CRWA Designs a Sustainable Urban Future

CRWA has spent the past three years studying the urban environment, finding solutions to its problems, and bringing people together to share new ideas, advocate for new designs, and begin the transformation of greater Boston. Thanks in part to a grant from the Boston Foundation, CRWA has developed a suite of tools and an approach that will help create a new kind of place: a Blue City. The Blue Cities approach provides a way to solve problems and build a sustainable urban future by bringing together techniques such as Low Impact Development (LID), Green Buildings, and stormwater management. Using water as a foundation for planning and design, this approach can lead to a whole host of benefits: more pleasant streets, integrated public open space, a cleaner, more accessible river, and infrastructure that is flexible and resilient.

As far back as 1994, when CRWA embarked on an unprecedented water quality sampling program, we knew we had huge problems to solve in the Charles. Much of what we have discovered since is no surprise: solutions for the river come from the land. But over the past three years, we have learned an even more important and exciting lesson: the same concepts that will save the river will revitalize our cities and help make urban environments more pleasant, functional and beautiful places.

We started the Blue Cities Initiative with a focus on three areas: North Allston, where Harvard is building a new campus; the Longwood Medical and Academic Area, one of Boston's densest and most rapidly expanding neighborhoods; and Zakim North, where Cambridge, Somerville and Charlestown meet in a neighborhood that is being transformed into a dynamic multi-use urban core. Our goal in each area was to find ways to redevelop an urban environment to manage water like a natural watershed.

Many Blue Cities concepts are already being implemented in other cities around the country. Philadelphia, Seattle, Chicago, Kansas City, and other areas have undertaken Blue Cities design elements, from green alleys to stormwater fountains in public parks. CRWA brings these ideas together into a comprehensive, scalable approach, giving clear direction for the Boston of the future.

Finding Solutions with Many Benefits

There are many technologies, both simple and highly engineered, that can help us rebuild our cities so they manage water more like natural, undeveloped areas. New paving materials such as porous asphalt can reduce runoff from roads, and parking lots. Green roofs can absorb and filter rainwater that lands on buildings. Streams buried in pipes underground can be "daylighted," opened up as small streams in parks and along roads and greenways. Rain gardens and stormwater planters can capture and treat runoff, letting it seep into the ground.

The benefits of these approaches go far beyond a healthier river and more stable groundwater levels. Green streets with trees and vegetation are cooler, more attractive, safer for pedestrians and have better air quality than conventional streets. Open streams can carry larger flood flows than pipes, and provide opportunities for beautiful linear parks similar to the Emerald Necklace. Green roofs help insulate buildings, reducing energy demand. Green infrastructure is far more flexible and dynamic than conventional gray piped infrastructure, creating opportunities for adaptation to

Before (above) and after (below) images of proposed retrofits in the Inner Belt area of Zakim North.

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Editor: Rebecca Scibek Wickham
Many thanks to copy editor Abby Hansen

Volunteers Clear Invasive Weeds from the River

For the second consecutive year, CRWA, Charles River Canoe and Kayak, and 250 volunteers joined together to remove invasive water chestnuts from the river during the last two weeks of July. This fast-growing, dense weed can choke off the river in shallow sections and along the shoreline, damaging the river ecosystem and preventing boat passage.

The volunteers – including a group of 13-year-olds celebrating a birthday, scout troops, and corporate groups - pulled up twice as many weeds as last year, filling three dumpsters and one dump truck. The MA Department of Conservation and Recreation used mechanical harvesters to clear large tracks of the river so that volunteers could focus on hand-pulling along the shoreline. This will continue next year, thanks to Representative Khan and Senator Creem who helped earmark $50,000 in the FY09 State Budget for water chestnut harvesting. Next year, we hope to expand our volunteer efforts and do our best to eliminate this invasive weed!

- by Rebecca Scibek Wickham

Photo by Alex Pergament

Building Blue Cities, continued from page 1

climate change and habitat restoration.

Today, CRWA's Blue Cities program has grown from a conceptual planning project into several important on-the-ground pilot projects (see sidebar). Part of our success stems from a team that brings a wide array of technical and advocacy tools to the table - including expertise in urban design, landscape architecture, hydrology, and water quality. Equally important, CRWA has invested time and energy in these communities, working with neighbors, developers and civic leaders to share ideas and identify common goals. Our work demonstrates the practicality of many Blue Cities concepts, even in densely developed urban neighborhoods. Small-scale solutions, applied across a broad area, can generate meaningful, measurable improvements, slowly making the Boston area into a Blue City.

- by Kate Bowditch

Current Blue Cities Pilot Projects

1. ***Peabody Square, Dorchester*** Green street demonstration in partnership with City of Boston;
2. ***Everett Street Greening Project, North Allston*** Partnering with Allston Brighton Community Development Corporation;
3. ***Waltham Watch Factory*** Private redevelopment in partnership with Watch City Ventures LLC;
4. ***North Allston Project*** Site-specific designs and sub-watershed scale restoration planning for Harvard University's Allston Campus and adjoining neighborhood;
5. ***Blackstone Town Hall Retrofit*** In partnership with International Power America, Town of Blackstone, and Crossroads Community Foundation.

CRWA Partners with Musician Jack Johnson

CRWA was one of five local environmental non-profits invited to Jack Johnson's August 6th show in Mansfield to showcase our work at a pre-concert "Village Green". 20,000 people attended the show and passed by CRWA's booth; we spoke with hundreds, and encouraged them to protect and learn about their local water. Jack Johnson is collaborating with CRWA as part of his environmentally-conscious 2008 World Tour. He has created an interactive online community (www.allatonce.org) and hosts "Village Greens" to build community, raise awareness, and highlight opportunities for his fans to take action.

Jack Johnson with CRWA representatives at the August 6th concert

CRWA thanks Jack Johnson and the Johnson Ohana Charitable Foundation for their donations of cash and 10 concert tickets, which were raffled off to CRWA donors and volunteers.

CRWA in the Middle East

CRWA Outreach Coordinator Rebecca Scibek Wickham participated in a Middle East Fellowship Program on conflict management in environmental work this year, sponsored by the Quebec Labrador Foundation. Ten New Englanders visited nine sites in Egypt, Jordan, and Israel, sharing information and airing differences with Middle Eastern counterparts as we experienced their work on coral reef preservation, environmental education, wildlife reserves, and other projects. The issues of water quantity and quality - ubiquitous and starkly important in the Middle East - provided ample opportunity to discuss CRWA's work and emphasize difficulties in water management faced all over the globe. A concluding workshop in Jordan convened all participants for discussion of on-the-ground methods for consensus building. Firsthand experience of the grassroots efforts underway to protect natural resources, along with the opportunity to identify common goals, inspired and encouraged all who participated.


Fellows being shown an environmental education facility in southern Jordan

Environment Wins Big in State Legislative Session

After many lackluster years for the environment on Beacon Hill, the state legislative session ending in August passed a $1.68 billion Environmental Bond Bill and energy and oceans legislation. **Senator Pam Resor** and **Representative Frank Smizik**, co-chairs of the Joint Committee on the Environment, Natural Resources, and Agriculture, deserve praise for their contributions to this success, as do many other legislators who diligently worked to pass these bills

The Mass Green Agenda, formed last year by the Massachusetts League of Environmental Voters, CRWA and eight other environmental non-profits, saw four of its six priorities passed. Collaborative efforts pay off!

Bills that became law include:

- **Ocean Management Act** to create a plan for the use of our ocean resources;
- **Global Warming Solutions Act**, setting a goal of reducing the state's greenhouse gas emissions by 10-25% below 1990 levels by 2020 and by 80% by 2050;
- **Green Communities Act** boosting energy efficiency programs and renewable energy production;
- **Green Jobs Bill** to spur the growth of jobs in the green economy, including $13 million for jobs in the renewable energy sector;
- **Phosphorus Bill** banning phosphorus from dishwasher detergent and household cleansing products to protect rivers and streams;
- **Environmental Bond Bill,** which includes $50 million a year for land protection and a state income tax credit up to $50,000 for landowners who donate qualifying conservation or agricultural land for protection.

- by Margaret Van Deusen

The Next Generation of Environmentalists Support CRWA

John Harvard's Brew House in Harvard Square donated $1 to CRWA for each pint sold of their hand crafted organic beer, Apeman Ale. They brewed 450 gallons of the ale, an original recipe created specifically for the CRWA promotion.

Inspired by CRWA's newly re-designed website, Eli Goldberg gained support for CRWA by organizing six "Dances for the Charles" on Saturday nights at the Cambridge American Legion Marsh Post. Over 1800 people danced and celebrated CRWA's accomplishments in cleaning up the Charles.

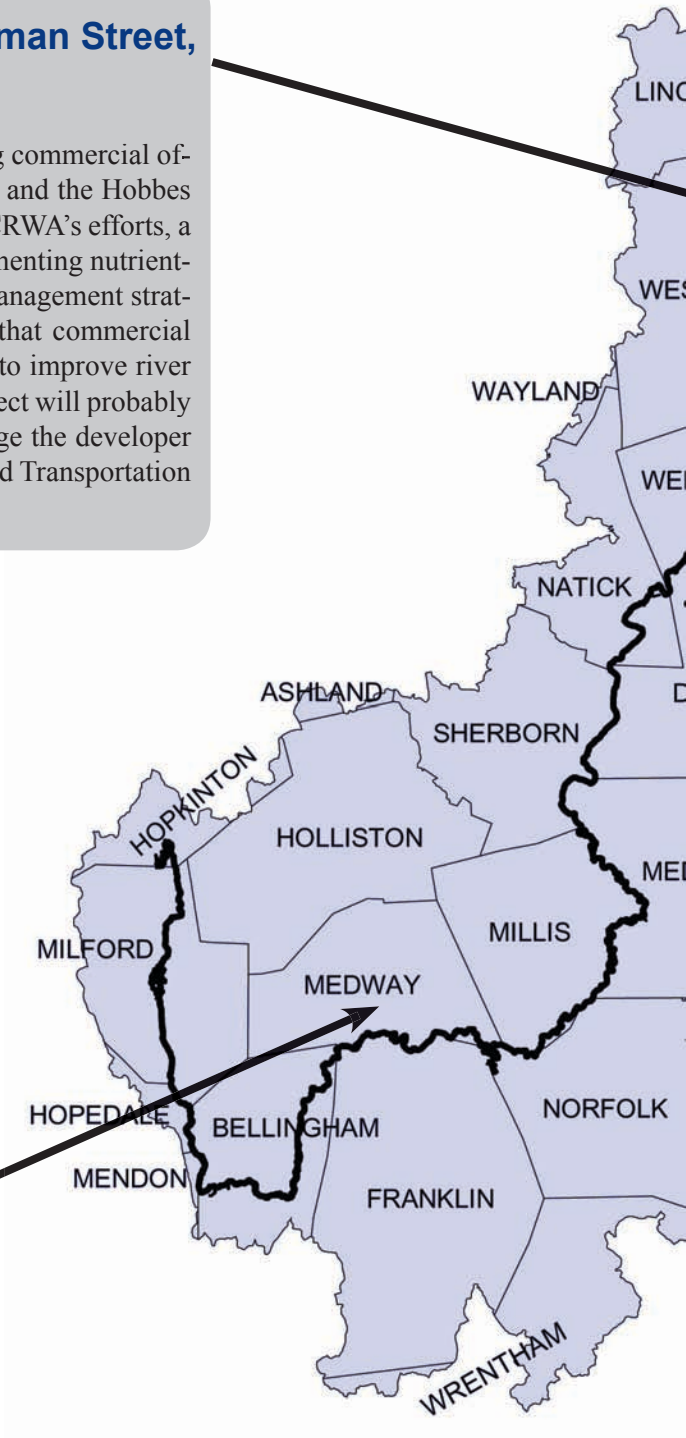
RUN OF THE RIV

Secretary Issues MEPA Certificate for 175 Wyman Street, Waltham

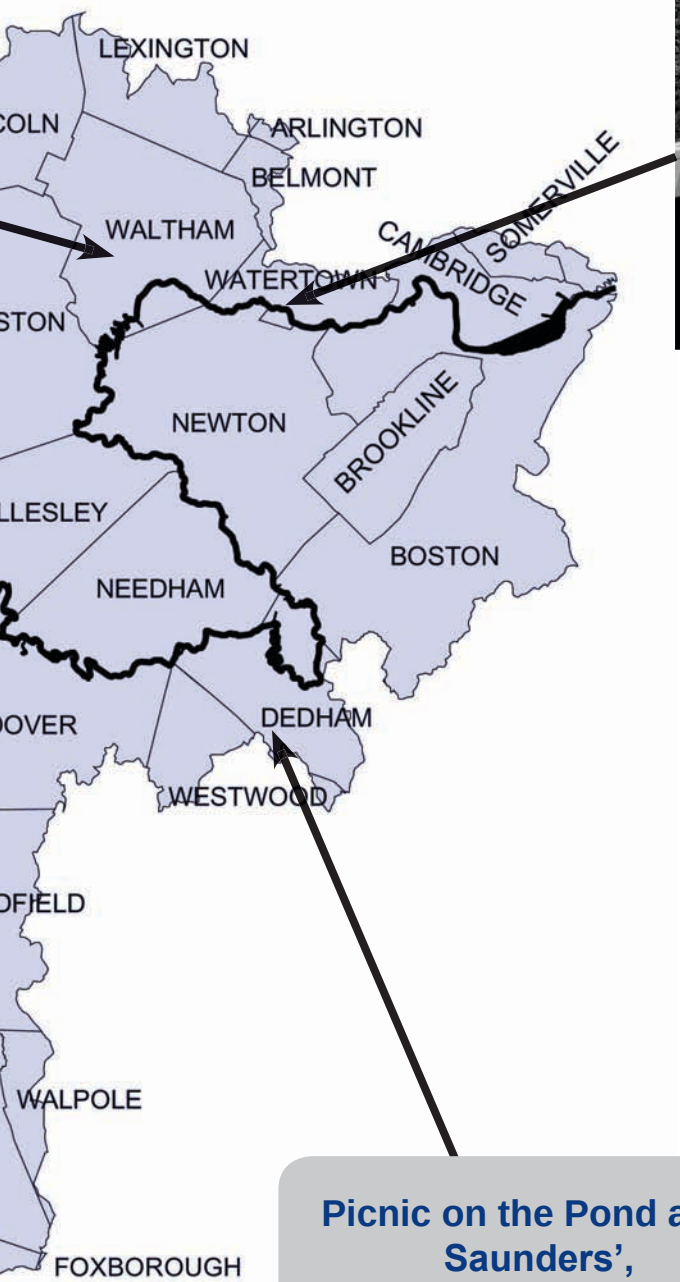
The Wyman Street Project - a 26.3 acre redevelopment of an existing commercial office complex right off I-95 in Waltham - drains to the Charles River and the Hobbes Brook drinking water reservoir for the City of Cambridge. Despite CRWA's efforts, a certificate was issued without the developer's commitment to implementing nutrient-reducing Low Impact Development (LID) design and stormwater management strategies. A recent federal Lower Charles River nutrient study stated that commercial developments like this one must reduce phosphorus runoff by 65% to improve river health, but state standards do not reflect this. This means that the project will probably not reach the 65% target. CRWA comments did, however, encourage the developer to commit to improving the Stormwater Pollution Prevention Plan and Transportation Demand Management program in the proposal.

Pollutant Discharge Elimination System (NPDES) Permit caps in Medway Area

The Charles River Pollution Control District (CRPCD) treats wastewater from the towns of Medway, Millis, Bellingham, and Franklin and releases it into the Charles downstream of Populatic Pond in Medway. This area of the Charles exhibits algae blooms and extremes in oxygen saturation and depletion—classic telltale signs of "cultural eutrophication" (nutrient enrichment from human activities). An EPA-issued National Pollutant Discharge Elimination System (NPDES) Permit caps and monitors wastewater effluent quality in this area. Using our knowledge of river flows, water quality, and computer modeling, CRWA developed tighter phosphorus concentration limits to improve the health of the Charles. The model confirms a permit with lower phosphorus limits will curb algae blooms and other water quality degradation from nutrient-rich wastewater discharges.



ER CHARLES RIVER WATERSHED ASSOCIATION'S REPORT OF WHAT'S HAPPENING ALONG THE CHARLES



Bob Zimmerman and members of his Beacon Hill Seminars class *Floods, Drought, and Climate Change: Fixing the Charles River Now*, on the Blue Heron footbridge over the Charles in Watertown.

CRWA Comments on Groundwater Regulations, Statewide

CRWA carefully reviewed and commented on a suite of statewide draft regulations for groundwater discharges, use of reclaimed water, and permit procedures. CRWA promotes "keeping water local" and recharging clean stormwater and treated wastewater into depleted aquifers - but not at the cost of public and environmental health. CRWA provided the MA Department of Environmental Protection with proposed changes in language, procedural revisions/additions, and activities to protect water resources and environmental integrity. Highlights include our request to assess pollutant removal efficiencies across different treatments, and for the establishment of a monitoring plan to study treated reclaimed water quality based on emerging concerns over pharmaceutical and personal care product contamination. CRWA was adamant in ensuring that permit streamlining not preclude a thorough and comprehensive public review process.

Picnic on the Pond at the Saunders', Dedham

CRWA Members Becky and Sandy Saunders graciously hosted a party at their home at Jackson Pond on June 25th. The crowd of over fifty friends, neighbors, and CRWA supporters enjoyed a lively dialogue with Bob Zimmerman about CRWA's practical and visionary approaches to reducing pollution and maintaining plentiful water supply for fresh water ponds, streams, and rivers while also recharging ground water.

Return of the Shad

For the third summer in a row, CRWA has supported the efforts of the Massachusetts Division of Marine Fisheries (MA DMF) and U.S. Fish and Wildlife Service (US FWS) to restock the Charles with American shad. On July 9 and 18, a total of 915,000 juvenile American shad were released at the Woerd Avenue boat launch in Waltham. American shad are anadromous - living primarily in the ocean but swimming upriver to breed and spawn. This species was plentiful in the Charles until the mid-1800s, when the population began to decline due to construction of dams and degraded water quality. In the early years of this project, CRWA assisted US FWS and MA DMF by monitoring the Charles River, both before releases (to help project fish survival rates) and after (to document habitat conditions).

Shad fry are released through a tube into the Charles

CRWA continues to work to repair and maintain fish passage along the Charles, especially fish ladders at dams, so adult shad are able to return to the river to spawn. Fish released during the first year of the program are expected to return to the Charles to spawn in the Spring of 2009; MA DMF, US FWS and CRWA will be working together to track these returning adults.

- By Julie Wood

Harvard Briefs CRWA on New Campus Plans

On Wednesday, August 5th , Harvard University's Allston Development Group (ADG) hosted forty-two CRWA board members and friends at a formal briefing by designers, engineers, and landscape architects charged with developing the new Allston Brighton campus.

Kathy Spiegelman, Chief Planner of the ADG, began with an overview of Harvard's Draft Master Plan for the Allston campus, first released last year. A revised Master Plan, based on feedback the University received on the Draft, is expected later this year. Will Donham, Senior Manager for Regulatory Approvals at ADG, and Mike McBride, Program Manager for Infrastructure, presented the design details of the Science Complex, the first phase of the new campus currently under construction on Western Avenue, with a specific focus on Harvard's stormwater management and water recycling efforts. Both emphasized CRWA's valuable role in setting goals and standards for better stormwater management.

The presentation was followed by a visit to a prototype stormwater planter along a sidewalk on a Harvard-owned road. The planter is designed to capture and clean street runoff, and Harvard staff will test the quality of stormwater to monitor the planter's effectiveness. The design can thus be evaluated in cold climate conditions, and to see how plants survive the salt load from the street. Harvard hopes to be able to use stormwater planters along many streets in North Allston as a component of its overall stormwater management plan.

- By Viola Augustin and Kate Bowditch

Ten Tips to Prevent Phosphorus Pollution in the Charles River

There are many things you can do to reduce the amount of phosphorus that enters our local environment, and reduce overall stormwater runoff volume to the Charles:

1. **Don't use fertilizer!** Complete a soil test to determine if your lawn even requires additional fertilizers; many local soils do not.

2. **Purchase low-phosphorus (phosphate (PO4) content <4%) or phosphorus-free automatic dishwasher soap.** Most other household cleaning products are required by law to limit their phosphorus content.

3. **Do not deposit grass clippings in the river or on the river bank**. Keep them in a compost bin and use them later as mulch.

4. **Walk, bike or take the T to nearby destinations,** as automobile exhaust contains phosphorus.

5. **Pick up after your dog** and properly dispose of the waste in a garbage can or pet waste composter.

6. **Allow wildlife to be wild**; do not feed wild animals, especially geese and ducks.

7. **Reduce areas of exposed soil on your property**, especially during renovations, as soil runoff carries phosphorus to local waterways.

8. **Plant a rain garden**, to collect and filter stormwater runoff.

9. **Collect stormwater runoff from your roof and store it for reuse** in a rain barrel or underground rainwater recovery system.

10. When constructing driveways, patios or sidewalks, **use permeable pavers to infiltrate stormwater into the ground.**

CRWA Monitoring Tracks Contamination in the Charles this Summer

This has been a summer to remember in MA: Strong, isolated thunderstorms with dramatic lightning, hail, and high winds, and for the rest, just plain wet. At this time of year, the Charles is usually low and green-tinted with lots of aquatic plants and algae backed up behind its many dams and in slow-moving reaches. In Dover, however, the Charles is nearly seven times higher than its seasonal historical median level, as measured for the past 80 years. This should be good news, as high flow levels mean plenty of water to go around. The problem is that most of the river water consists of polluted, rapidly-deposited runoff, not clean, filtered, slowly-released groundwater.

As of the end of August, we've flown 26 red flags at Charles River lower basin boathouses, indicating likely bacteria contamination. On June 24, CRWA's monthly volunteer monitoring effort captured water quality data after over an inch of intense rain had fallen in the watershed. From Route 9 downstream to Boston, 80% of sites sampled showed higher bacteria concentrations than state and federal limits for boating. Fortunately, but not unexpectedly, indicators of sewage contamination were absent in less-developed sections of the watershed that had seen the same rainfall.

Volunteer Jeff Bilezikian collects a monthly water sample in Watertown. Thanks to the Bilezikian Family Foundation for supporting CRWA's Monthly Water Quality Monitoring Program.

High levels of nutrient pollution in the river create ideal conditions for a blue-green algae (cyanobacteria) bloom. This summer's high flows have allowed water to move quickly through the Charles River Basin and prevented blue-green algae from thriving. The Muddy River has been less fortunate: in early August, blue-green algae appeared in its slow-moving sections from the Agassiz Bridge to Charlesgate. The Charles is not immune. It is still rich with nutrients and a hot, dry spell could trigger a bloom this year.

In heavily paved urban environments flash rainstorms like this summer's mean localized flooding, temporarily high river flows, and polluted waters. We need to improve the quality of the stormwater that supplies our water bodies with technological and design solutions that put stormwater back into the ground, where it belongs.

CRWA has these solutions. We have been working with regulators, municipalities, developers, and citizens to incorporate Low Impact Development (LID) stormwater techniques in existing and future projects. When properly designed, these elegantly-engineered stormwater management techniques work far better than piped systems and also provide landscaped aesthetics and habitat. They direct water appropriately, and filter and recharge stormwater into the ground, where it can be naturally cleansed. Using these solutions, the Commonwealth can clean up stormwater, reduce flood risk, and increase water storage. With nature as our model, we will restore the natural hydrologic cycle and ensure the quality and quantity of our water resources in perpetuity.

-by David Kaplan

Victory for Clean Water: Federal Judge Rules against MassHighway on Stormwater Pollution

In a landmark decision following a six-day trial in Federal District Court in Boston, Judge William G. Young ruled that the Massachusetts Highway Department violated the Clean Water Act and must clean up its stormwater discharges. This important court case gives MassHighway two years to adopt a new, more effective stormwater pollution management plan and expeditiously remedy pollution hotspots - two in the upper Charles River Watershed near I-495, and one near Route 90 in Lancaster.

Conservation Law Foundation (CLF) brought the case, with CRWA as a plaintiff. CRWA also provided technical support. Director of Projects Kate Bowditch was a key witness and Judge Young cited her testimony in his ruling. CRWA Environmental Scientist David Kaplan created GIS maps that were admitted into evidence illustrating the correlation between water quality impairments and Mass Highway's stormwater discharges.

Polluted stormwater runoff is a significant factor in the continuing failure of Massachusetts's rivers and lakes to achieve basic water quality standards. High concentrations of nutrients, toxic metals, oil and grease, de-icing salts, and sand in highway runoff wash directly into waterways during rain events. Infrastructure directly under MassHighway management - about 2,500 miles of roadways and bridges - is a major source of polluted stormwater that discharges directly into rivers and streams

Judge Young's decision in our favor is a significant step toward remedying this harmful situation and making real improvement in our water resources.

- by Margaret Van Deusen

Charles River Watershed Association
190 Park Road
Weston, MA 02493

Save the Date! Upcoming Events at CRWA

Wednesday, September 24: "Make Way for Duck Boats" Dinner and River Tour

CRWA will host a unique behind-the-scenes adventure on the Charles: a dinner and private guided river tour of normally inaccessible sites. From the dual perspective that only amphibious craft can provide, guests will learn more about our waterway and CRWA's prominent role in ensuring that redevelopment creates a healthier environment. A buffet dinner will kick off the evening with fellowship and a fantastic river view. Then CRWA expert guides will provide guests on the duck boats with commentary on the river's history and future.

Make Way for Duck Boats

Charles River Watershed Association

INVITES YOU TO A VIP RIVER TOUR LIKE NO OTHER

Come gather with CRWA supporters for drinks, buffet, and a majestic river view

WEDNESDAY, SEPTEMBER 24, 2008

5:30 P.M.
Skyline Room Royal Sonesta Hotel, Cambridge for dinner

7:30 P.M.
Duck boat tour departure

8:30 P.M.
Scheduled return to Royal Sonesta Hotel

We shall visit sites accessible only by amphibious vehicles.
Your expert CRWA guides will explain our organization's role in making these sites water-friendly.

Wednesday, November 19: CRWA Annual Meeting

Mingle with CRWA staff, volunteers, and friends of the river as we celebrate 43 years of protecting and restoring water and the Charles River! Join us at the Newton Marriott at 5:30pm for an award presentation, buffet dinner, and environmental speaker (to be announced).

For more information or tickets, visit www.charlesriver.org,
or contact Leigh at 781-788-0007 x231 or lheffernan@crwa.org