ANNUAL REPORT FY2015

Charles River Watershed Association

CRWA

CRWA BOARD OF DIRECTORS

Tom Sieniewicz
President

Eric Ekman
Treasurer

Edward Englander
Clerk

Ralph Abele

Craig Aubuchon

Lee P. Breckenridge

David Bryant

Laurie Doyle

Diane Hall

James Healy

Jonathan Katz

Linda McLane

Beatrice Nessen

Stephanie Pollack

Sarah Slaughter

Robert F. Sproull

William J. Tedoldi

Grant Thomas-Lepore

CRWA BOARD OF ADVISORS

Jeffrey Bilezikian

Lee Breckenridge

Gordon Burnes

Caroline Cabot

Eugene Clapp

John Clark

John DeVillars

Laurie Doyle

Maureen Febiger

Richard Forte

Kim Goslant

Elizabeth Johnson

Carolyn King

Beedee Ladd

Virginia Lawrence

George Lewis

Sharon Malt

Richmond Mayo-Smith

Kelly McClintock

Greta Meszoely

Louisa Miller

Jeryl Oristaglio

Margot Pyle

John Thomas

Edward Watts

CRWA STAFF

Robert Zimmerman
Executive Director

Margaret Van Deusen, Esq.
Deputy Director and General Counsel

Julie Wood
Director of Projects

Pallavi Kalia Mande
Director of Blue Cities

Amy Rothe
Director of Advancement and Communications

Liza Colucci
Director of Philanthropy

Nigel Pickering
Senior Water Resources Engineer

Elisabeth Cianciola
Aquatic Scientist

Suzanne Carleo
Comptroller

Alexandra Ash
Volunteer and Event Coordinator

Bryan Dore
Rita Barron Fellow

Logan Bailey
Rita Barron Fellow

From CRWA's Board President

Dear Charles River Supporters,

With half a century of progress behind us, we now look toward the next 50 years.

With half a century of progress behind us, I am looking toward the next 50 years. We have done amazing work, and now our river is broadly understood to be clean. I am proud and grateful to know so many of the people who labored together for over five decades to make that dream come true.

Ironically, however, the fact that the river is broadly understood to be clean **is an issue**. Thanks to us, Bostonians do not focus on the water quality of the river very much anymore. (When was the last time you heard a tetanus shot joke?) But you and I know that, today, the Charles faces growing pressures from climate change, from the needs of a rising human population in a reborn and rediscovered city, and from the next level of pollutants, like phosphorus, that need to be wrung out of our beloved waters.

What does that mean for the river? Well, for the family of CRWA, the word 'clean' isn't an adjective that says we're-done-let's-quit. It's a verb that says "Keep going!" Cleaning takes focus, stamina and action. It's a lot more fun when you do it as a team. And once you're in the rhythm, it's even energizing to some of us New Englanders. So—all my dear friends of our beautiful river—I hope you will join us in spreading the word that the 'clean' Charles will stay that way only **if we keep cleaning**!

And the most effective way to advance that vital mission is to support CRWA.

We have made the **cleanest urban river in America**! Let's keep it that way. Thank you for all your help.

Yours in the cleaning,
Tom Sieniewicz
President
Charles River Watershed Association

From CRWA's Executive Director

Dear Friends,

CRWA is a powerful catalyst for change... Our research and advocacy define the way forward.

Source: Maury Eldridge

I hope you'll take the time to read this Annual Report because it does a good job of explaining the dilemma CRWA confronts most every year.

As you will read, CRWA hosts New England's largest canoe and kayak race, and one of its largest annual river clean-ups in partnership with park groups, church groups, corporations, and community groups. We review developments, write comment letters, and advocate for environmentally sound legislation and regulation.

CRWA is also a powerful catalyst for change. From spectacular new parkland in Medfield (p. 13) to using wastewater as a community asset that pays for an extraordinary transformation of water infrastructure as we know it (p. 9), CRWA's research and advocacy define the way forward. Our legal advocacy has led to seminal regulatory change and parkland protection and restoration. Our research science and engineering and development expertise have led to a new and restorative approach to the way we engineer and use water, an approach that will reduce the impacts of climate change, while nearly fully restoring the Charles River.

The systems we have developed and tested over the past several years and detail here hold remarkable promise. And yet, because they are so different from those we have been dependent on for nearly two centuries, they are very difficult to fund. The loss CRWA posted in fiscal 2015 is directly related to that problem – even though our work holds the promise of restoring the Charles while mitigating carbon emissions and reducing the impacts of climate change. The broad implementation of our work is simply difficult to imagine.

You are likely to become more aware of the work we are doing, its costs, and its implications in the coming months and years. You are also likely to become more aware of the many avenues CRWA is pursuing to resolve our financial shortfall.

I hope, very much, as you become aware of these efforts, you will appreciate your Charles River Watershed Association even more.

Thank you for your support.

Robert L. Zimmerman, Jr.
Executive Director
Charles River Watershed Association

Proposed wetland designed as part of the Connect Kendall Square Competition

Source: Richard Burck Associates

Blue Cities are Vibrant Cities

Our Blue Cities plans and demonstration projects model a greener approach to reducing polluted runoff in urban and suburban communities.

GREENING NEIGHBORHOODS

CRWA collaborates with city planners, design firms and community organizations to design greening plans for neighborhoods. Considering the neighborhood or subwatershed as a whole, we create an integrated greening plan which not only better manages stormwater to reduce pollution, but also integrates public amenities and recreational opportunities into the designs. CRWA begins by studying the historic hydrology of the area to understand how the water flowed naturally, before people engineered the landscape to assist development. Next, CRWA holds community meetings and neighborhood design charrettes to gather ideas from residents. With this input, CRWA designs a greening plan for the neighborhood which honors the natural flow patterns of the water while meeting the needs of the community. This approach reduces flooding and improves water quality in our streams and rivers.

In 2015, CRWA participated in the Connect Kendall Square Competition hosted by the City of Cambridge, as a member of the Richard Burck Associates team. We won the competition with a plan that reenvisions Cambridge's Kendall Square and focuses on water, play and a strong connection to Kendall Square's context and history. The plan connects Kendall Square to the Charles River via a constructed wetland and an extension of the Broad Canal which will not only collect and treat stormwater, but also serve as a system of interconnected open spaces for people of all ages to enjoy.

After the competition concluded, CRWA promoted the plan with presentations to Kendall Square Ecodistrict and at a BSA Urban Design event. We will also continue to use the plan as part of our advocacy for better stormwater management in Kendall Square.

DEMONSTRATING GREEN DESIGN

CRWA also designs and installs site specific blue-green infrastructure, including rain gardens, planted swales and tree pits. This type of green infrastructure decreases polluted runoff from parking lots and pavement while improving neighborhood health and aesthetics. Our demonstration projects not only help us determine what works best technologically, but also what meets the needs of a community. Demonstration projects serve as an example for developers, residents and municipalities to emulate.

In 2015, CRWA teamed up with the Chelsea Collaborative to design and install an enhanced tree trench system along Gillooly Road in Chelsea, MA. To engage the local community, two community meetings were held to gather ideas from residents for the designs. The six trees planted in the trenches will treat the polluted runoff flowing from the street before it enters Mill Creek. The tree trench system will improve water quality, reduce flooding and improve public access to the Mill Creek .

MEASURING RESULTS

CRWA's scientists monitor the results of our demonstration projects to determine their impact on the health of tributaries and rivers.

At Mill Creek

With the goal of reducing pollution and sediment in Chelsea Creek and its tributary Mill Creek, CRWA, the City of Chelsea and Chelsea Collaborative partnered to design and install blue-green infrastructure at the Mace Apartments in Chelsea, MA. This project was particularly important because sediment in Chelsea Creek was hurting the ecosystem.

Suspended Solids

Reduced 60%

To determine whether the newly installed rain gardens would help reduce pollution and sedimentation, CRWA staff conducted pre- and post-construction monitoring at the site. After construction, CRWA's watershed scientist Elisabeth Cianciola used an auto-sampler to monitor and sample stormwater runoff after 6 rainstorms (see p. 20 for pictures). The monitoring indicated that the gardens did reduce the concentration of suspended solids, a measure of sediment in the water. In addition, the gardens slowed polluted runoff from the parking lot, allowing it to soak into the ground instead of flowing into the adjacent Mill Creek.

In the South End

In 2014, CRWA and project partners designed and retrofitted an alley in Boston's South End with permeable pavement. To study how well this porous alley worked, CRWA tracked storage and groundwater levels and measured water quality. Data collection will continue through the spring of 2016. Initial data suggest that porous pavement may reduce up to 65% of the phosphorous in stormwater runoff.

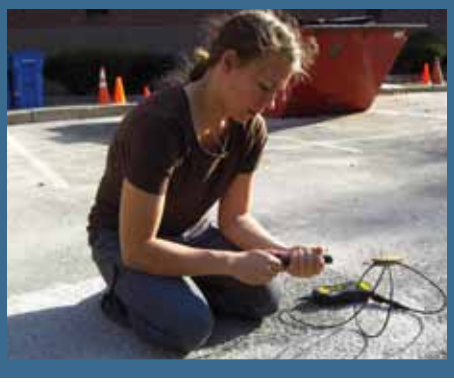
Sufficient groundwater levels are necessary to preserve from rotting the wood pilings that serve as the foundations for most of the buildings in the South End. Data collected by Boston Groundwater Trust, indicated that groundwater levels in the neighborhood increased by half a foot after the construction of the porous alley. More data will be collected to determine how much the porous alley contributed to these increases relative to last year's record snowfall.

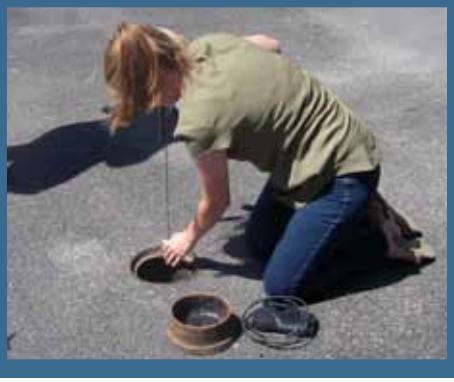
Groundwater levels

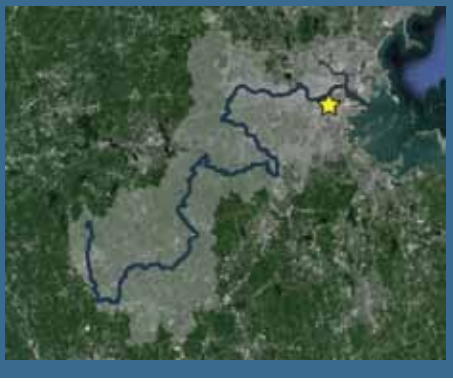
Increased 6"

The monitoring we conducted demonstrates that a porous pavement system installed in a typical urban alley is large enough to provide storage for all the stormwater runoff generated by typical New England storms. This positive result will encourage towns and developers to build more public and private porous alleys in coming years.

To track the impact of the new porous alley, CRWA's scientists measure ground water depth at the alley in the South End.







Elisabeth Cianciola prepares the weather station for the winter

Science as a Tool for Change

All of our work is based in science. Citizen scientist volunteers and our staff scientists collect robust water quality data year round. The data we collect strengthens our advocacy and design work.

KEEPING BOATERS SAFE

CRWA helps keep boaters safe throughout the summer with our water quality notification program. This program forecasts and publicizes water quality for the Charles River downstream of Watertown. To inform our forecasts, we sample water two-three times per week. This year, we launched Coming to You Live which uses a weather station and automated forecasting model to offer real-time water quality updates available on CRWA's website.

DOCUMENTING CHANGES TO THE RIVER

The second Tuesday of each month Fred Hewitt and Lisa Lobel head out at dawn to the Muddy River, a tributary of the Charles River, to collect a water sample. Fred and Lisa, volunteers since 2008 and 2014 respectively, are part of an 80-person team collecting water samples each month at 35 sites along the Charles River and its tributaries. This year, Fred and Lisa recorded a water temperature of 81 °F., the highest August temperature on record through the program. This measurement is part of a trend of rising river temperatures in the Charles River—likely due to climate change—that threatens fish and other wildlife.

In addition to sampling water directly, volunteers collect and count insects, snails and other stream life as part of our benthic macroinvertebrate program. Knowing what stream life the Charles River supports, allows our scientists to more fully understand what we need to do to make the Charles River healthy.

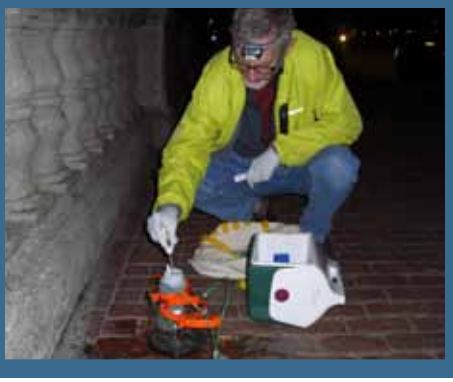
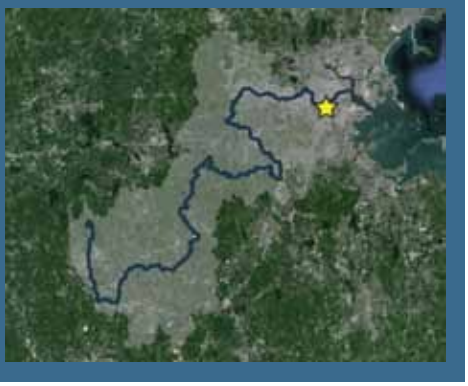
Volunteers help CRWA build a consistent and comprehensive data set for the Charles River watershed that we use to guide the restoration of the river. The dedication and commitment of all our citizen scientists makes this work possible. Our sincerest "thank you" for all of your hard work!

Liz Adler
Timea Adler
Shahidah Ahmad
Mary Sue Ankner
Craig Austin
Lauren Ballou
Tim Baurley
Ross Dreyer
Mina Elnaccash
Earl Fahey
Matthew Fessenden
Michele Forte-Cruz
Kent Fox
Paul Frank
Shyala Jayasinghe
Jessica Johnson
Emilie Kaden
Nancy Kay
Srivat Krishnamachari
Mary LaRosee
Ginger Lawrence
Bill Nicholson
Brad Nissenbaum
Emily O'Hara
Stephanie Oleksyk
Shirley Parish
Pat Polimeno
Stephanie Radner
Dianne Rice
Paul Sackley
Bob Schlauch
Michael Serotta
Marc Shelikoff
Norm Sieman
Lillian Simons
Ian Smith
Stephen Smith
Michael Sperry
Sumeeta Srinivasan
Sandy Starr
Polina Supin
Ashley Sykes
Bill Tedoldi
John Thurston
Karen Tracey
Amanda Truesdell
Tammy Viggato
Hugh Walsh
Paul Whelan
Walter Yarbrough

I've enjoyed collecting samples at the Muddy River site over the past eight years. I take some satisfaction in knowing I'm making a small contribution to the health of the Charles."
Fred Hewitt, Monthly Monitor

Terry Baurley
Jeff Bilezikian
Heather Burn
Rita Cabral
Damon Carter
Wayne Chouinard
Samantha Cook
Doug Cornelius
Adele Coyne
Diana Denning
Kathy Diamond
Debbie Dreyer
Elizabeth Dreyer
Sebastian Freeze
Tim Fulham
Nate Gardner
Christina Gasbarro
Walker Gillett
Bruce Green
Raymond Harpin
Roger Hatfield
Brenna Haynes
Mairead Helmes
Fred Hewett
Jitka Hiscox
Joseph Iaccarino
Lisa Lobel
Salome Maldonado
John Mandigo
Lisa Mawn
Matt McCaffrey
Patrick McHallam
Brian Merson
Leigh Meunier
Barbara Meyer
Christopher Moore
Shawn Moore
Van Morrill
Joseph Needleman

Fred Hewitt and Lisa Lobel measure water temperature at the Muddy River near Charlesgate in Boston.

Source: Viola Augustin

A CWERC located in an urban area with a restored stream and public footpaths

Infrastructure for a Livable Future

CRWA is defining a new paradigm in urban water management. We envision infrastructure that replicates nature and recycles resources while adapting to a changing climate.

In 2015, as part of a three year project funded by the Rosin Fund of the Scherman Foundation, CRWA developed a plan to use Community Water and Energy Resource Centers (CWERCs) to address challenges of traditional urban water infrastructure. The Eaglemere Foundation also contributed funding to this project.

THE CHALLENGE

Conventional urban water infrastructure has devastating effects on our surface and groundwater resources. To supply drinking water for their residents, cities and towns aggressively pump the groundwater, depriving the Charles River of a continuous base flow source. Groundwater also infiltrates from local aquifers into sewer pipes requiring energy to pump and treat it. The Charles River and surrounding urban watersheds lose a combined 90 million gallons a day through sewer infiltration; clean freshwater that is ultimately discarded into Boston Harbor. Additionally, extensive development and pavement prevent rainwater from getting into the ground to recharge lost groundwater. Instead, rainwater runs across pavement, picking up pollutants and bringing them to local water bodies. Every year, about 20 inches of rain that should filter into the ground becomes polluted runoff. Climate change is increasing the

In a CWERC, the wastewater produced by 10,000 people can produce 16% of their heating and cooling needs and 2% of their electricity demand.

frequency and intensity of large storms, leading to more polluted runoff, flash flooding and severe flooding. Continued use of fossil fuels only exacerbates this devastating global problem.

OUR VISION

CRWA proposes that communities treat wastewater in distributed Community Water and Energy Resource Centers (CWERCs). A CWERC is a small scale, enclosed wastewater treatment facility. At the facility water is cleaned for re-use. Anaerobic digestion uses the organics to generate electricity. Thermal energy in the water is captured for use heating and cooling surrounding buildings.

OUR RESEARCH

Starting in 2013 and continuing through 2015, CRWA conducted extensive research and modeling to bring our vision from an idea to a reality. Working with wastewater professionals at Natural Systems Utilities and economists at Industrial Economics we have carefully examined the benefits of CWERCs and associated green infrastructure districts.

OUR FINDINGS

A CWERC sized to treat 3 million gallons of wastewater per day fits on a 2.5 acre parcel of land and could be integrated into a multi-use building such as a parking garage or office building. Constructing a plant of this size costs approximately $54 million. Annual operation and maintenance costs average $7 million annually.

Water treated per day

3 million gallons

A CWERC of this size generates 5,300 megawatt-hours of electricity and 421,926 million BTUs of thermal energy per year. The CWERC generates $8-13 million in revenue each year through the sale of this energy and other recycled products.

The CWERC will provide additional benefits in the form of reduced carbon emissions and reduced air pollution. The economists at Industrial Economics estimated the benefits to be worth over $14-33 million annually to society.

A LIVABLE RESILIENT FUTURE

A CWERC takes advantage of previously discarded resources while also protecting our communities and the environment. Reusing water, producing electricity from waste, capturing the heat present in wastewater and using green infrastructure to treat polluted runoff are underutilized practices although not necessarily new ideas. CRWA's proposal is unique in that it combines these practices to solve many of the problems we face today while building a system that helps us to adapt to a changing climate, protecting wildlife and the Charles River.

Electricity produced

5,300 mWh/yr

CWERCs are a win-win. They green neighborhoods, prevent flooding and generate clean energy, while protecting the Charles River and the planet for future generations.

"...protecting area rivers is only one of several possible environmental benefits. The effort could also bring more renewable energy into the area and restore now-buried waterways." - The Boston Globe

Diverting food waste from landfills to these facilities reduces truck hauling and green house gas emissions and increases energy output. A CWERC transforms solid waste into useful products such as compost for local food production. Treated water is used to restore the natural environment and beautify our neighborhoods through the restoration of streams and wetlands previously lost to development. Green infrastructure fed by reclaimed water also provides treatment for runoff and storage of floodwaters.

GREENING OUR CITIES

Restoring streams and wetlands in our neighborhoods and managing stormwater with the use of green infrastructure is critical to CRWA's vision for future water management.

Restored streams and wetlands, with baseflow provided by treated water from a CWERC, creates habitat for wildlife, recreation opportunities for residents and reduces flooding from heavy storms. Wetlands, streams and other green infrastructure filter and absorb stormwater that would otherwise carry pollutants directly into the Charles River.

CRWA's People Make Us Strong

CRWA relies on the support of people from the communities we serve to sustain a vibrant organization and a healthy Charles River.

1,000 paddlers
competed in
5 exciting races

At the Run of the Charles:
Boston's Premier Paddling Race

Source: David F. Dobrzynski

FY15 Interns

Paige Davis
Hong Min Le
Caroline Lippincott
Sondra Lipshutz
Nathan Loomis
Rae-Ann MacLellan-Hurd
Tim McNamara
Apratim Sahay
Charles Siewert
Anjana Tamrakar
Nicole Thomson
Cathleen Torres Parisian
Veronique Vicard

Source: CRWA staff

Thank You For Your Commitment

A sincere thank you to our volunteers from each of us at CRWA. Your dedication makes our work possible.

75,000 hours
donated by volunteers

22 tons
of trash removed

As part of the 16th Annual Earth Day Charles River Cleanup

Source: McGill Alumni Association of Boston

81,000 pounds
of invasive plants removed by

417 volunteers

With CRWA's Canoeing for Clean Water program

Source: CRWA staff

The new Charles River Gateway in Medfield features restored wetlands and wildlife habitat

Advocacy Sustains River Health

Our goal is not to stop development, but to encourage the best possible outcomes. Projects and permits that improve river health, increase public access and recreation and restore wildlife habitat.

CRWA is involved in every major decision affecting the health of the Charles River and its parklands. Our law and policy staff comment on permits, development and re-development projects and appear before conservation commissions, planning boards, environmental agencies and legislative committees. CRWA's science and innovative solutions to watershed problems inform our advocacy, making it persuasive and compelling.

We never look at a project, permit, regulation or policy without asking: "How can we make this better?"

PRIORITIZING PUBLIC ACCESS

Ensuring public access to the Charles River and its parklands, which are held in public trust for the benefit of all citizens, is central to CRWA's mission. As the river is restored, private entities and institutions increasingly try to control public trust land along the Charles.

In 2012, state legislators voted to allow Simmons College to convert Daly Field, a public soccer field and baseball diamond on the banks of the Charles River, into a high-intensity sports complex for the college's use with limited public hours.

CRWA was unsuccessful in preventing the privatization of Daly Field despite our best efforts. We then turned our

attention to ensuring that the sports complex project minimizes environmental impacts, and provides fair public use and compensation for the loss of public parkland.

In 2015, CRWA and 12 citizens appealed the MA Department of Environmental Protection's (DEP) Chapter 91 waterways license required because the project is partially within Commonwealth tidelands. This resulted in the addition of several environmental provisions in the license to help minimize impacts to the Charles River and agreement to maintain information on a website about when the fields are available for public permitting and drop-in use.

CRWA will continue to oppose efforts to privatize public open space on and adjacent to the Charles River.

CREATING NEW PARKLAND IN MEDFIELD

2015 marked the completion of the Medfield Charles River Gateway, a project

Flood plain storage

+ 4.5 million gal.

that cleaned up a 100-year old dump adjacent to the river at the former Medfield State Hospital, replacing it with 3 acres of wetlands and restored floodplain and creating wildlife habitat, trails, a canoe launch and stunning views of the Charles River.

Debris removed

30,0000 yd³

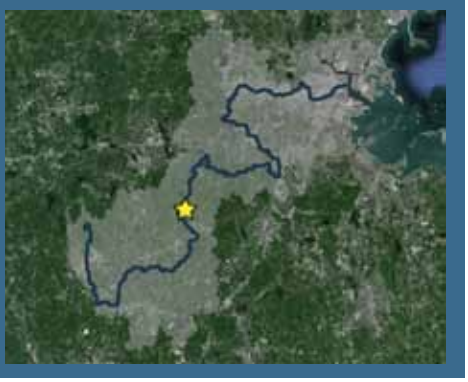
The plan originally proposed by the state would have capped the hospital's 3.2-acre hazardous waste dump, leaving most of the debris in place. Petroleum-contaminated sediments in the Charles River would also have been capped and left in the river. CRWA and citizen activists advocated for a full restoration of the site.

CRWA, along with The Trustees of Reservations and a group of Medfield citizens appealed a local wetlands permit to DEP. This appeal, along with vigorous activism by residents and the Town of Medfield led to a year-long mediation among the Town, concerned residents and the State, resulting in a comprehensive cleanup. The restoration project, completed in 2015, dredged contaminated sediments from the river, removed contaminated debris from the riverfront, replaced wetlands and created the Medfield Charles River Gateway. A celebration of the new parkland in October, 2015 introduced the Gateway and its amenities to the public.

CRWA is proud to have been part of this project which stands as a model for successful river restoration and demonstrates what collaboration, cooperation, and creative thinking by citizens,municipalities, environmental groups, and the State can accomplish.

"Being a nature photographer, the Gateway is a fantastic place to get great shots of the wildlife... We are eagerly awaiting the warmer weather so we can put in our kayaks and enjoy all the Charles has to offer." - Heidi Nelson, Norfolk Resident

Bob Zimmerman speaks at the ribbon cutting of the Charles River Gateway at the former State Hospital in Medfield.



PROTECTING THE CHARLES FROM STORMWATER POLLUTION

In 2015, CRWA continued its strong partnership with the Conservation Law Foundation, teaming up to file a lawsuit under the Clean Water Act against the U.S. Environmental Protection Agency (EPA) for its failure to regulate polluted stormwater runoff from commercial, industrial and institutional large impervious surfaces discharging to the Charles River and its tributaries. Pavement and parking lots are the number one source of phosphorus pollution in the Charles River. Phosphorus, a nutrient carried by stormwater into the river, feeds aquatic invasive plants and causes algal blooms, including cyanobacteria, harmful to people, pets and wildlife. Cyanobacteria also negatively affect the aquatic ecosystem. Studies have shown that phosphorus loading to the river needs to be reduced by 50% across the watershed.

Phosphorus pollution

2x healthy levels

The Charles has experienced one or more cyanobacteria blooms in eight of the past 10 summers. In 2015, an extensive cyanobacteria outbreak, five miles in length, persisted from late July through early October, generating public consternation and impacting boating on the Charles River. Cyanobacteria outbreaks also occurred in Jamaica Pond and the Brookline Reservoir. Climate change will increase the frequency of these blooms as more storms bring more polluted stormwater to the river and warmer temperatures raise water temperatures.

The suit seeks to require EPA to begin to control these significant contributors of phosphorus-laden stormwater to the Charles through improved stormwater management.

ENSURING SUSTAINABLE WATER MANAGEMENT

Continuing our campaign for sustainable water management, CRWA represented groups in the Blackstone River Watershed challenging the Town of Shrewsbury's water withdrawal permit issued by the Massachusetts Department of Environmental Protection (DEP). Shrewsbury's withdrawals are impacting a cold water fishery in the Blackstone River. This was the first opportunity to apply the new Sustainable Water Management Initiative (SWMI) regulations, adopted in 2014; therefore, it was critical to have them correctly interpreted by DEP.

Under the SWMI regulations, towns requesting an increase in their withdrawal volumes must mitigate these impacts. Following a year of intense mediation, the appeal was settled in April, 2015. It resulted in the development of a methodology for crediting stormwater recharge, and mitigation credits overall. It also enabled us to address a host of other SWMI regulatory issues. Shrewsbury agreed to conduct a study to look at the feasibility of using alternative water supply sources less damaging to the environment, an improved groundwater and streamflow monitoring plan that we believe will confirm the impacts of pumping the Town's wells on Poor Farm Brook, repairing its leaking water mains, replacing water meters, and conserving water. CRWA will continue our work to ensure the SWMI regulations are robustly implemented.

EXELON POWER PLANT

In 2015, CRWA intervened in proceedings before the Energy Facilities Siting Board because of our concern about the water use by Exelon West Medway LLC's proposed 200 megawatt dual-fuel peak generating plant in the upper watershed, an area already stressed by water withdrawals. Exelon initially sought to buy water from the Town of Medway, however, following a feasibility study, the Town agreed with CRWA that it did not have water to sell. Exelon then turned to the neighboring Town of Millis, seeking to buy an average of 48,000 gallons of water daily (gpd) and up to 75,000 gpd in the summer, the peak time for plant operation and the time when the Charles is most stressed by water withdrawals. It also plans to develop an on-site bedrock well to withdraw 52,000 gpd.

CRWA argued before the Siting Board that Exelon should be required to offset its water demand impacts by paying to recharge area stormwater back into the aquifer. It is this groundwater that provides flow to the river in the summer. Millis has not yet decided whether to sell water to Exelon through an inter-municipal connection with Medway. The Siting Board's decision on the plant is expected spring, 2016

Sharing What We've Learned

CRWA educates the public about the Charles River and shares our expertise in river conservation through workshops, classroom visits and online resources.

EMPOWERING HOMEOWNERS TO STOP POLLUTION

In June 2015, CRWA held a rain garden workshop for 18 Franklin residents, the second training in a collaborative project with the Town of Franklin, part of the EPA's Soak Up the Rain initiative. In this workshop, homeowners learned to design, build and maintain a residential rain garden to treat polluted runoff from their driveways and rooftops while adding beauty to their property. As part of the training, participants put their new skills to work planting a rain garden at the Remington Middle School.

TRAINING THE NEXT GENERATION OF SCIENTISTS

Over the course of 2015, CRWA scientists and interns spoke with over 10 groups of students at schools, camps and clubs. Through hands-on activities, CRWA engages youth in taking care of our environment and the planet.

In 2015, CRWA worked with Aecern, an education technology company, to develop a Watershed Scientist Classroom Learning App. The App provides middle and high school students an opportunity to collect data and use it to make mock policy recommendations. Two teachers piloted the App and found that it deepened students' understanding of the environment.

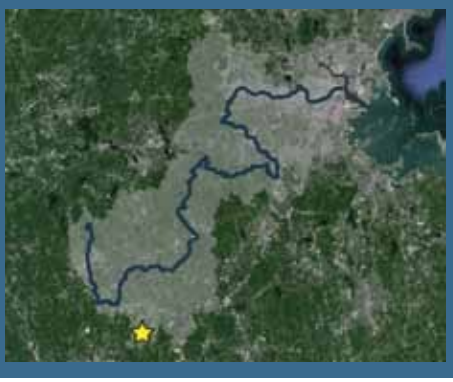
In addition, CRWA has begun using the App as a data recording tool for our Monthly Monitor Program (see p. 7). The Watershed Scientist App allows our volunteers to collect data in the field and quickly and easily share it with CRWA. We plan to expand the use of this App by our volunteers next year.

STRENGTHENING INTERNATIONAL TIES

As the 2011 winner of the International River Foundation'sThiess International River*prize*, CRWA has developed a Twinning partnership in the Dominican Republic to support local efforts to restore an urban river in a key area of economic and environmental importance.

CRWA is partnering with the Nature Conservancy, Plan Yaque and the National Environmental School to develop a restoration plan for the Arroyo Yerba Buena and Cañada Los Gatos, two urban streams in Jarabacoa. As part of this project, CRWA staff traveled to the Dominican Republic again in 2015 to meet with the Dominican team, tour potential sites for pilot restoration projects, and host a two day conference to finalize river restoration plans for these two waterbodies (see p. 21 for pictures). We appreciate the opportunity to work with and learn from our colleagues in the Dominican Republic.

As part of a workshop, Franklin residents install a rain garden at the Remington Middle School in Franklin, MA

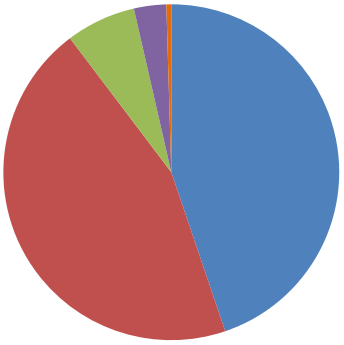


FY 2015 Financial Summary

October 1, 2014- September 30, 2015

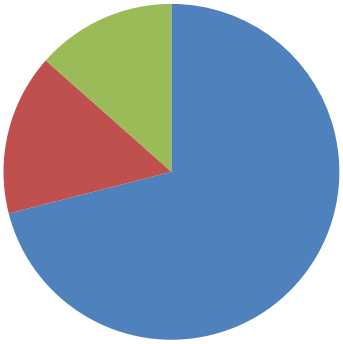
REVENUE & SUPPORT

	FY2015	FY2014
Grants | 45%	$514,617	$704,858
Contributions, Membership , & Gala | 45%	515,890	407,928
Special Events | 6%	77,262	95,657
In-Kind | 3%	35,747	45,889
Other Revenues | 1%	5,398	2,156
TOTAL REVENUE & SUPPORT	$1,148,914	$1,256,488



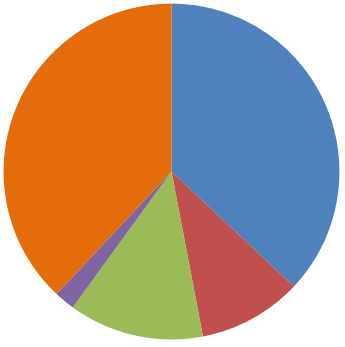
EXPENSES

	FY2015	FY2014
Programs | 71%	$913,667	$986,539
Administrative | 15%	199,900	159,082
Fundraising | 14%	173,149	153,700
TOTAL EXPENSES	$1,286,716	$1,299,321
NET REVENUE	$(137,802)	$(42,833)



FUNDING SOURCES

- Individuals | 37%
- Corporations | 10%
- Government | 13%
- Other | 2%
- Foundations | 38%



THANK YOU TO OUR VOLUNTEERS

We are thankful to each of CRWA's dedicated volunteers for extending CRWA's reach, and for sharing their talent, insight and enthusiasm. CRWA volunteers assist with a variety of projects and events including the Monthly Water Quality Monitoring Program, the Annual Earth Day Charles River Cleanup, the Run of the Charles Canoe & Kayak Race, and more.

16TH ANNUAL EARTH DAY CHARLES RIVER CLEANUP

Volunteer Groups

Adobe
Amgen
Bates College
The "Behind the Mcdonalds" Crew
Boston Arts Academy National Honor Society
Boston Arts Academy NHS
Boston Bar
Boston Navy ROTC
Boston University Alumni
Boston University Marsh Chapel
Boston University School of Management
Boston Volunteer Meetup
Boston Volunteers
Brafton, Inc.
Brandeis Students For Environmental Action
Brandeis Univeristy MLK Scholars
Brandeis University
Brownies of Fitzgerald Elementary
Cambridge Boat Club
Cambridge Running Club
Charlesgate
City of Waltham Conservation Commission
College of the Holy Cross Alumni Club of Greater Boston
Cornerstone Research
DelCarte Conservation Area Cleanup Team
Doc Wayne Youth Services
Edgewater Drive Neighbors
EMC
Emerson College Living Green Learning Community
FactSet
Fireballs
FSG
GAO
Geocaching CITO 2015
Georgia Tech Alumni Association
Girl Scout Troop 65053
Girl Scout Troop 66040
Grand Iranian Family NPO
The Green Engineer, Inc.
Harvard University Asian American Brotherhood
Harvard University Graduate School of Arts and Sciences Residence Hall
Hosteling International
Kings Boston
KPMG
Lexington High School Project Green Club
Liberty Hotel
Manor Neighborhood Association

CRWA, volunteers and neighborhood residents work toward a river free from invasive plants.



16TH ANNUAL EARTH DAY CHARLES RIVER CLEANUP

Source: Maury Eldridge

Volunteer Groups

Massachusetts Institute of Technology McCormick Halls
Massachusetts Institute of Technology Undergraduate Associations Sustainability Committee
MCCA Signature Boston
McGill Alumni Association of Boston
Mike DelRose Real Estate Team
Momenta Pharmaceuticals
Nadeem Mazen for Cambridge City Council
NBBJ
Nelson Mullins Riley & Scarborough
No Nasties Stream Team
The North Face
Northeastern University NEWEA
Oakdale Square Alliance
Payette Associates
PIB Law
Plymouth Rock Assurance
QIAGEN Boston
Quincy Albs
Raytheon Company
Saint Cecilia Parish
SAME Boston Post Young Members
Sigma Kappa Sorority
Signature Boston
Simmons College Biology Liaison Club
St. James Youth Group
Team Bellingham
Team Raymond
Tetra Tech
Tierney Learning Center
University of Massachusetts, Boston
University of Michigan Club of Greater Boston
USBank
USGBC
Waltham Land Trust Stewards
WIT
Woodard & Curran

Individual Volunteers

Kishma Andrew
Mary-Kathryn Aranda
Denlyn Atherton
Jad Atoui
Madeleine Barowsky
Che Bills
Miles Bills
Brian Boissonneault
Jill Callahan
Ken Camara
Meghan Card
Koshnev Cothias
Martha Creedon
Gina Danca
Chantelle Dashner-Griffith
Natasha Dias
Stefanie Dimeo
Nancy Dolberg
kaitlyn doucette-brayer
Joan Emerson
Mark Emerson
Chris Eyer
Alessio Ferraro
David Friedman
Susan Gruber
Amanda Hamblin
Liz Humphreys
Chris Jacobs
Rebecca Kahn
Roger Kirschner
Nancy Kramer
Melissa Levine
Corie Lewis
Mauricio Lopez
Bruce MacEachern
Jack McCarron
Barb Meyer
Hoang Nguyen
Brianna Pierre
Heather Ralston
Lyle Reed
Edling Reyes-moreno
Dan Rose
Caitlin Ruggiero
Paul Sackley
Drew Searcy
Victoria Sherman
Paige St. Cyr
Sophie Steck
Teri Story
Barbara Strauss
Elizabeth Thomson
Sarah Trachtenberg
Paul Vanecko
Ruth Weinz

CANOEING FOR CLEAN WATER

Volunteer Groups

Boating in Boston Summer Camp
Boston Health Care for the Homeless
Boston Volunteers
Dunkin Brands
Earthwatch
EMC
FedEx Earthsmart
Gay for Good - Boston
Intel
Jewish Community Resources
New England Aquarium
New England Interstate Water Pollution Control Commission
Penn State Alumni Association Greater Boston Chapter
Quincy Asian Resources
"Quincy Asian Resources Youth ServiceCorps"
Sproxil

Takeda Pharmaceuticals
Vantage Partners
WS Development

Individual Volunteers
Diane AH-kine
Deena Altschwager
Mary Sue Ankner
Fatima Bouirabdhne
Ryan Buckley
Kenneth Camara
Abner Cavalcanti
Micheal Cecil
Stephanie Chen
Yinung Chin
Alexandra Chouramanis
Pau-Lo Chuang
Robert Cohen
William Colan
Melinda Colling
Benjamin Cook
Valentina Cordero
Tiffany Culd
Margaret Curry
Gina Danca
Aaron Dewberry
Kerry Drake
William Duncan
Laura Flynn
Shanti Freundlinch
Karen Glover
Michael Gobler
Helaine Golann
Krittika Govil
Thomas Grady
Madeline Green
Benjamin Grey
Noah Gruenbaum
Christin Hong
Peter Hulbert
Ari Jackson
John Janvrin
Will Jobs
Brad Jones
Sean Jones
Tarin karimbux
Brandon Kee
Kathryn Keefe
Sam Keezell
Emily Kingston
Vicki Krueger
Sarah Kurko
Renee Kwan-Doan
Kien Lang
Arjun Laud
Corie Lewis
Yan Liu
Paola Loy
Surabhi Mahapatra
Rachel Mak
Jesse Mark
Sam Marshalik
Amanda Mccalister
Brian Mccormick
Kevin McGreedy
Mpoki Mwankanye
Nga Kerrie Nguyen
Sophia Nieves
Fisn Novosad
Ellen Nowakowski
Megan O'Brien
Roger Parent
Lori Poirier
Andrew Pratt
Amber Price
Jaime Rooke
Toshie Sadamura
Claire Santoro
Suzanne Schromm
Kelly Shadwick
Jean Sideris
Aaron Simms
Ian Smith
Michelle Song
Melissa Sprachman
Laurel Stanton
Danielle Tocci
Amy Tung
Cong Wang
Joshua Weiss
Maddy Werner
Mark Wert
Pam Westrom
Micah Wilson
Randall Wilson
Haile Xiao
Sarah Yasenka
Jennifer Youk See
Nadja Young
Edwin Zhang
Dianna Zhou
Jane Zhou

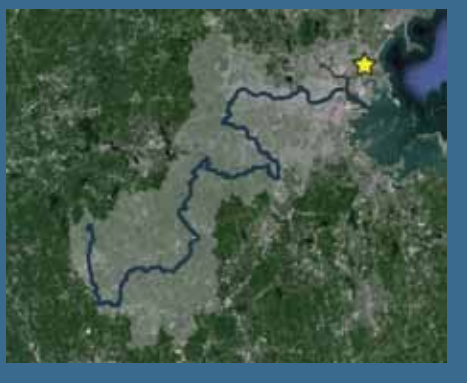
RUN OF THE CHARLES

Volunteer Groups
Parrothead Club of New England
Singles Volunteer Boston

Individual Volunteers
Rahul Aggarwal
Rachel Alfie
Sehej Anand
Shelly Armstrong
Kayla Bagley
Jonathan Bauman
Ernest Bell
Caren Belli
Eric Bender
Corey Bither

Elisabeth Cianciola collects water samples at CRWA's demonstration project in Chelsea (p. 5).





RUN OF THE CHARLES

Individual Volunteers

'Lorraine Blake
Chris Blatchley
Carly Botelho
Ian Bowker
Louise Bowker
Bill Bridgham
Henry Brown
Hank Buccigross
Katherine Cabral
Ken Callahan
Michael Carroll
Mindi Chen
Andrew Chretian
Kyle Cogan
Deanna Cortina
Allan Cox Jr.
John Cronin
Ed Curley
Allison Daigle
Jaimie Darling
Ralph Devlin
David Dobrzynski
Amelia Doyle
Paul Dzus
Richard Eastman
Abbey Erdlen
Earl Fahey
Joe Flaherty
Alex Gaertner
Russ Gardner
Kirsten Gyllenhaal
Chris Handwerker
Alan Hawksley
Ethan Hill
Mark Ide Jr.
Andy Jacques
Bob Justrom
Lynne Karsten
Fred Keuthen
Cathy Keuthen
Emily Keuthen
Janice Khin
Rhoda Kubrick
Emma Lathan
Nhi Le
Vivian Le
Vera Lee
Austin Lefebvre
Sean Lehman
Ashley Lerke
Alan Lewis
Matt Marks
Leo Martin
Alexa Nguyen
David O'Brien
Dave O'Brien
Brian O'Halloran
Justin Park
Brian Park
Chintu Patel
Adam Perri
Jeff Pinterparsons
Susan Reagan
Sarah Reagan
Mark Richards
Amy Rothe
Robert Salow
John Schwab
Emma Schwab
Gary Schwartz
Akash Shah
Peter Shireman
Mike Simonds
Brett Smith
Joel Soo
Jade Su
Noah Tanguay-Collins
Clara Ting
Charles Tran
Nicky Graf Ussher
John Viggato
Tammy Viggato
Lauren W
Chris Wan
Morgan Weadock
Kathy Werner
Evan Weststrate
Acadia Willis
Anrew Wilson
Nancy Wilson
Claire Wong
Ashley Wong
Kai Yasutomi
Gila Yudewitz
Fred Ziegler

CRWA staff meets with the team in Jarabacoa, Dominican Republic as part of CRWA's Twinning partnership (p. 16).