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River Voices

Taking a holistic approach

The Community Renewal Connection

by Rick Magder Groundwork USA www.groundworkusa.org

For most of us, our work is not merely focused on a specific body of water, but also on the land surrounding the water and the community that relies on the water for swimming, fishing, drinking, transporting goods and building a healthy local economy. All of us have the opportunity to have an all-encompassing perspective on our communities, to define our work to include wetlands, forests, rivers, lakes, coastlines and trails as well as streets, schoolyards, vacant properties and business districts.

Though often associated with urban watersheds, taking a holistic approach—grounded in a sense of place—is a viable option for any watershed conservation organization. We all have the opportunity to focus not just on riparian habitat restoration or water quality monitoring, but also on how the waterway can become an important community resource. We can work to create synergies across programs linked to local waterways: farmer's markets in river parks, rain gardens in business districts, biking trails along creeks and tributaries.

Artistic representation of the Elizabeth River Trail (NJ)

Why take a Holistic Approach?

In the late 1990s, Groundwork nonprofits were established in the U.S. to address blighted and vacant land and brownfields in high poverty neighborhoods and stressed urban communities. Initially the organizations planted trees, built gardens and reclaimed trails and parks. Within a few years, the organizations recognized that most of the communities in which they were working had neglected waterways, too. Though overlooked by residents and local officials, these rivers, creeks and bays defined the geography of the cities. It became clear to Groundwork that an intimate connection exists between land-based revitalization and watershed conservation efforts—and that the renewal of any community has to be closely tied to the recovery of our waterways.

Four Strategies for Building Community

In looking at our experiences in the over 20 communities in which we work, we have identified four strategies that have helped to sustain our urban waters projects. These strategies, however, are broad enough to be transferrable to almost any organization working in a community.

1 **Rebrand Your Waterway.** Many of our waterways suffer from a long-term "identity crisis." They run through densely built neighborhoods and along industrial corridors. They are frequently littered, polluted and channelized. Many people view them as inconsequential (until they start flooding and affecting personal property). Others may consider them nothing more than drainage ditches and trash collectors.

Rebranding is accomplished by tapping into the collective memory of your community to resurrect the importance of the waterway and

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River Network

Connecting People, Saving Rivers

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River Network is a national, nonprofit organization whose mission is to empower and unite people and communities to protect and restore rivers and other waters that sustain the health of our country.

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FROM THE CHAIR

Photo Credit: Suzi Wilkins Berl

What's your favorite river? Can you picture it? When was the last time you stood on its banks, swam, fished or paddled in it? Does it sustain you? Mine is in the Lower Peninsula of Michigan, and it's been far too long since I've visited it, but I do dream about it regularly.…

Sadly, not everyone knows a pristine coldwater trout stream that they can call "their river". As our country becomes increasingly urbanized, more and more of us primarily know urban rivers close to home. Are they a source of wonder and enjoyment? Or are they a source of pollution and places that attract illegal activities? Urban dwellers—kids and older people alike—deserve special spots close to home where they can experience the wonders of a majestic river. And a body of water—a river, lake or stream—is a perfect entity around which to organize—to gather people and to begin to build a more engaged and more aware community.

As a river lover, I hope that each of us can pledge to do what we can to improve our close-to-home rivers. Is there an upcoming river clean up? Get some neighbors to join you! Is there a longer-term effort to de-pave a floodplain (such as the work of Depave, Inc. in Portland) or daylight a river (such as the efforts of many for the Saw Mill River in New York)?Join in! Through the EPA-sponsored Urban Rivers Program, River Network helps city dwellers across the country to improve their rivers, and we are excited to work with these local people on their river.

What's your favorite river? Adopt a new one close to home and get to work. And, bring your neighbors with you!

Suzi Wilkins Berl

Suzi Wilkins Berl
River Network Board Chair

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create a new vision for it, which can be captured in drawings and marketing materials. It is difficult to imagine the waterway's potential without such a vision, and it is surprising how these new perspectives can quickly build momentum and lead to their revitalization.

2 **Take Action.** Once your community has engaged in reimagining your waterway, project leaders must take action and continue these efforts over the long term to solidify and ingrain the community's vision. Keep in mind that it may take years to realize your final goal. Activities that keep the image alive can be simple or complex. The important thing is to schedule regular and frequent projects and events along the stream to draw attention to it. These activities validate the vision and instill a sense of progress.

photo credit: Groundwork USA

In addition to affirming the new vision for your waterway, action has a direct effect on those involved. Participants begin to recognize the waterbody as a resource worth saving. Pulling a juvenile American eel out from

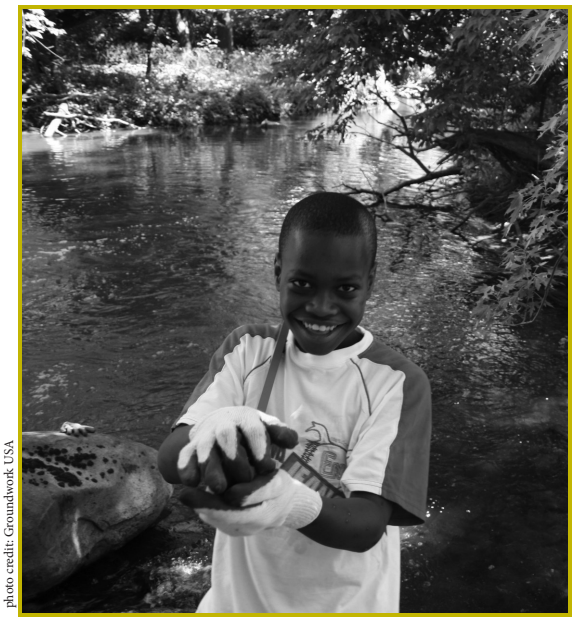

photo credit: Groundwork USA

New York's Saw Mill River's murky waters opened many people's eyes to the wonders within it. Elsewhere, 100-year old snapping turtles, hawks, flowering meadows, cactus wren and small waterfalls create awe in waters that residents formerly assumed to be lifeless and forsaken.

3 **Build a Sustainable Watershed Program.** Ongoing action and forward movement are critical, but progress also has to be sustained over time and watershed restoration can take many years. Many projects get off to a promising start but run out of steam within a few years as those involved become frustrated by setbacks and the enormity of the task, and/or move to other interests.

Not surprisingly, funding is often a critical factor in sustaining projects. Successful volunteer-driven watershed restorations certainly exist, but professionally led projects with funded staff usually have more staying power. Having a paid 'team' really makes a

difference over the long haul. If organizations can focus beyond the waterway, they can approach funders interested in community development, youth stewardship, intergenerational programs and science and education.

photo credit: Groundwork USA

4 Manage Local Politics.
Nothing is simple in terms of politics at the local level, and the politics of land-use change along waterways can be especially divisive. Commercial and industrial properties, some abandoned, make it difficult to even see the waterway in many places. It can be hard to track down the owner of a vacant property. Roads and highways can create barriers, as they frequently parallel waterways. Efforts that lead to significant on-the-ground environmental change are often controversial, perceived to be driven by either City Hall and developers or a handful of residents. These rifts can stop or delay projects.

The likelihood of achieving long-term results is clearly bolstered by creating and maintaining partnerships among government, business and community groups. Your organization can find strength in playing the role of the intermediary between neighborhood groups and City Hall, by establishing yourself as a trusted, non-political partner of both. This helps ensure the project is community driven as well as embraced by city leaders. By keeping the focus on the waterway, you can help diffuse any tensions and keep everyone's attention on the project and not the power struggles.

This advice was extrapolated from Groundwork USA, EPA's Urban Waters Program and the National Park Service's Rivers, Trails and Conservation Assistance Program experiences over the past decades. To read more, download Lessons Learned: Reclaiming Urban Waters Across the U.S at: *http://groundworkusa.org/wp-content/uploads/2012/10/Lessons-Learned-Reclaiming-Urban-Waters.pdf.*

Restore your watershed; restore your community

Depaving with Good Intentions

by Walt Lockley
Depave Volunteer
www.depave.org

"A barn raising in reverse." That's the specialty of the Portland nonprofit, Depave, according to founding board member Kasandra Griffin.

The visible part of Depave's work in the last five years has been replacing underutilized concrete and asphalt lots with gardens brimming with life. It turns out that removing pavement is more politically complicated and more physically demanding than it might sound. Making it harder still, the organization is committed to an old-fashioned model of removing pavement by manual work with volunteers and neighbors.

Concurrently Depave has also pursued invisible, deeper goals. Those goals, and the last five years of lessons learned, can be applied to tree-planting, watershed restoration, neighborhood-level environmental initiatives, or any projects meant to leave their communities stronger and more focused.

As Kasandra says, "We don't have very many opportunities in this culture to get together with people and actually accomplish something tangible, visible. It used to be that communities would come together, and at the end of the day there would be a barn. Some other day, you would come back to the barn and you would know 'I helped build this.' There's something magical about shared sweat, and the scrapes and bruises you get from doing something as part of a team with a vision. And there's an investment. Years can go by and that volunteer still feels engaged."

Depaving in action

photo credit: Eric Rosewall

Depaving

In the spring of 2013, River Network received a grant from the Russell Family Foundation to help spread knowledge of "depaving" to the Puget Sound area of Washington. The expertise will come from Depave, which has developed a system from the ground up. The Russell grant will allow River Network and Depave to train Seattle-based Stewardship Partners on the techniques and best practices in volunteer-based depaving and regreening, and will support the three organizations in conducting a demonstration project in the Puyallup area.

Let's start with how depaving works.

Finding good sites is a large part of the process. Now that Depave is five years old and increasingly well-known in Portland, it receives more applications for depaving projects than it has time, funds, or staff capacity to manage. It takes months to choose the best candidate sites, work with the landowners to plan and prepare for a depaving action. Depave seeks sites that have high environmental and community benefit, visibility, and an engaged "natural constituency" to help with the project and maintain the site in the long term. As it turns out, those criteria are met most frequently at schools and churches.

So far, Depave has funded the majority of its projects with project-specific grants from four government agencies: The City of Portland's Bureau of Environmental Services, East and West Multnomah Soil & Water Conservation Districts, and the Oregon Department of Environmental Quality. Grant application deadlines have driven Depave to try to identify sites earlier and earlier every year. For most sites, Depave is responsible for finding and managing the funds, although sometimes the landowners or other partners secure

the funds independently and then bring Depave in to assist.

After a site has been accepted and the (rough) funding identified, the next steps are finalizing the vision and creating a site plan, connecting with the surrounding neighborhood, securing site development permits from the City, lining up contractors for debris hauling, and scheduling the depaving and regreening efforts.

The first step in the physical work is for trained volunteers to use a concrete saw to cut the pavement into a grid of roughly square and roughly manageable pieces, like cutting a big semi-toxic brownie into slices. That process is loud, dirty and slow.

photo credit: Eric Rosewall

Volunteers lifting the "brownie" of asphalt

Then the volunteers arrive. They're wearing pants and closed-toed shoes. They're encouraged to stretch, asked to sign releases, and armed with heavy prybars, gloves and wheelbarrows. (Never sledgehammers, pickaxes, saws or other dangerous implements.) Under these low-tech and supervised conditions, many volunteers can work safely side by side.

There is not much art to it. One wedges the prybar under a "brownie" of asphalt, edges it upward, and tilts it backwards so it breaks under its own considerable weight. Chunks of manageable weight are carted off in the wheelbarrows or on handtrucks, and delivered to the drop-boxes, which are hauled away. Where does the asphalt go? It gets recycled. Somewhat surprisingly, Reclaimed Asphalt Pavement (RAP) is America's most recycled product.

Intellectual mastery of the process takes about ninety seconds. One's mind is left to wander. One enjoys the exercise and the company of the other volunteers, gets to know them a bit, and gets hot and sweaty in short order. One becomes a connoisseur of asphalt. And one wonders where this idea came from.

Origins

The idea of Depave started with two friends, who had worked on both bicycle and local watershed issues, and had thus already spent a lot of time thinking about pavement and runoff. In 2000, Kasandra Griffin knocked down the dilapidated garage in the back corner of her yard in Southeast Portland, and Arif Khan helped her jack-hammer the foundation and replace it with a vegetable garden. The next year, Arif bought a house of his own, which started off surrounded by a small sea of concrete and asphalt, which he gradually removed.

Several years later, Kasandra's asparagus, strawberries, rhubarb, and vegetables were going strong, and Arif was harvesting figs, plums, persimmons and apples from the trees he'd planted in his previously-paved areas. The benefits derived from those two improvisations suggested to Arif that "depaving" had promise beyond their back yards. He considered a for-profit business, or a non-profit. Kasandra, by her own good-humored account, was somewhat less excited about the whole idea. But Arif started researching and pondering.

After several years of thought, research and preparation, the first major official

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Depave project took place on June 16, 2008. Property owner Angela Goldsmith, who Arif knew socially, owned a multi-use building on a busy neighborhood street, which housed two apartments, a small store and a cafe. The city did not require off-street parking because it was on a bus line. So Ms. Goldsmith agreed to let Depave transform the small adjacent parking area—a 3,000-square-foot corner lot at North Williams and Fargo—under two conditions: that Depave would design the resulting greenspace, and that it would become a garden to feed the neighborhood.

The depaving event was carefully scheduled to be the opening event of the eighth annual international *Toward Carfree Cities* Conference. Many of the 150 depaving volunteers came from the conference, and depaved the site in five hours. Those *Toward Carfree Cities* conference attendees got the benefit of visible results and a great team-building experience; afterward they went back home and wrote about it. Depave's first major site got the benefit of a good deal of press attention in various states and abroad.

That first site now stands as the Fargo Forest Garden, part of the Oregon Sustainable Agricultural Land Trust, with 15 fruit and nut trees. According to the estimates of a city environmental expert, Portland gets an average of 37 inches of rain a year, and a parking lot the size of the Fargo Forest Garden funnels an average of 67,500 gallons of stormwater straight into Portland's sewage system. (Portland's elderly combined sewer system used to deliver septic overflow into the Willamette and Columbia Rivers after every heavy rain. After a $1.44 billion, 20-year municipal Big Pipe project completed at the end of 2011, overflow incidents went from as many as 50 a year down to a goal of four.) The garden's current rain catchment system is engineered for 126,000 gallons, with secondary dry wells to accommodate a fifty-year storm. The overflow here is zero gallons.

Beyond straightforward stormwater management there's a constellation of related practical ecological benefits related to turning a parking lot into a garden: sustainable local food production, improved air quality, food security for urban wildlife and beneficial insects (particularly bees), visual greenspace and humanizing the landscape, education, enhanced property values, neighborhood identity, and those eyes-on-the-street and intangible cohesive benefits of community involvement that are so hard to quantify and so easy to feel.

photo credit: Kasandra Griffin

photo credit: Connor O'Brien

Left: "Before" at Fargo Garden

Below: "After" at Fargo Garden

In the four summers since that auspicious beginning, Depave has taken on a life of its own. It had the irresistible momentum of a good, simple, self-explanatory, immediately appealing idea. The first event saw lots of people wanting to "come to the next event." Since there was no "next event" planned, a group of motivated

volunteer leaders came together to create one...and after that successful event, the next and the next...and in the process, they've created a loose but resilient organization.

Now, after five summers of Depaving events, the organization has removed upwards of 100,000-square-feet (2.3 acres) of concrete and asphalt, which amounts to a significant impact on stormwater infiltration, and an even more significant impact on many people's ideas about community and possibility.

Why Work by Hand?

A critic might point out that you could depave one of these sites more quickly with three jackhammers or one rented backhoe over an afternoon. That would be the usual thing to do, with less effort than organizing and supervising 100 volunteers for a full day. And it would arguably be more "cost-effective", depending on which costs you're willing to account for.

So why use manual labor? One aspect is that a depaving action creates a venue, a vessel, for community sweat equity. Kasandra's description of "a barn raising in reverse" expresses a bunch of working advantages in short form: the value of neighbors and volunteers working side by side, sharing expertise, learning the benefits of the project, getting to recognize and know each other, the investment of their own energy into a common cause, the continuing engagement with that cause, the recurring pleasure and wonder of many hands making light work, and the looking forward to the next project, while creating a physical space that becomes a neighborhood landmark with a shared sense of ownership.

The growth of Depave is *itself* an example of what can happen as a result of a hands-on process. This hands-on barn-raising ethos is transferrable. That's the exciting thing.

There's an argument that addressing a highly artificial industrial-scale problem with a low-tech, low-budget, human response is ultimately more effective. This isn't an ethical ideal as much as an observation that technical improvements often fail to take hold. In 2004, for example, Portland installed three blocks of pervious pavement in the Westmoreland neighborhood, for the first time on any city street. It was a great idea with the same kind of environmental benefits. It filters groundwater, reduces runoff, and quiets the street. Nine years later it seems as strong and car-friendly as any other street. Looks great. Did it cause a wave of similar projects all through the city? No. It stands alone in Portland. Why? One answer is that there was never any hard work or emotional investment or community engagement involved, and therefore no chance for the same kind of momentum.

There's also this about a depaving action: there is no substitute for physically handling asphalt. Preferably with gloves —it can be sharp, and definitely dirty. Obviously the cab of a backhoe protects you from any such direct experience.

Removing asphalt by hand makes asphalt real to you in a sensual way. It's a heavy black sealant with different characteristics of thickness and crumbliness, in different layers, at different sites. It has an actual physical relationship to the ground underneath that's not what you could call a healthy relationship. The ground's been crushed, sealed off from the rain, dehydrated, sterilized, deadened. During a depaving action you give this pale prisoner sunlight and rain again so the healing can start. (Depave usually brings in new soil, for post-depaving plantings.)

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Depaving by hand also involves working along the very edge of two physical scales, the car-scale of parking lots and the human-scale of gardens, and it becomes easier to feel the shocking contrast between the two, and how much space automobiles devour.

Then there's another benefit afterwards. You start looking around on your way home from a depaving event, or the next day, you look down and realize you're looking at a patch of unnecessary pavement where a garden could be. You might tell it, with an edge in your voice, "I don't have to put up with you." Then you might look around your community and see other things that seem as hard, inflexible, and permanent as asphalt, and begin to think about how you could change them, too.

photo credit: Eric Rosewall

Neighbors and volunteers working together

Lessons Learned

Along the way, after the projects are over, Depave has brought home some lessons about working with organizations new to this sort of thing—unseasoned partners. These ten points are presented in the spirit of offering Depave's experience so far, to groups who want to engage similar communities and constituencies, tackling projects with similar scale and intent. They might avoid unnecessary heartburn. They'll certainly increase the chances of long-term project success.

1. Start very early to look for sites and partners; expect some of them to fall through even after they initially agree.
2. Involve the immediate community (teachers and families at a school, the congregation of a church) but also introduce yourself to the surrounding community of residents, businesses, and other interested parties.
3. Identify your partner's decision-maker(s). Make sure they're excited or at least engaged.
4. Establish a primary point of contact for each side.
5. Require some initial financial contribution from the site host (for example, a $250 soil testing fee) to affirm their commitment.
6. Help your partner focus on site restoration, a stewardship/maintenance plan and an ongoing budget for when the initial depaving is done.
7. Put the vision and expectations in writing: project scope, timing, cost responsibility, who does what, end result, maintenance plan.
8. Document revisions, decisions, and agreements along the way.
9. Keep in close communication on all issues with as many of the partners as possible. Don't work in a vacuum. Always "cc" everyone. Identify what you need help with and ask partners to take on specific responsibilities/tasks as they pop up. Create a schedule to get everyone on the same page.
10. Be mindful that your partners may never have done anything like this before, and may not yet be organized for this sort of decision-making and coordinated action. Your project plan should allow time, effort and constructive patience for their education. Remember, their education is an act of community-building, the real soul of the project.

Horizons

As of 2013, Depave is continuing its projects while also expanding in other ways. In 2011, Depave officially became an independent 501(c)3 organization, after previously operating under another organization's fiscal sponsorship. They also established a three-pronged plan for projects, policy, and inspiration.

To say the organization runs 'lean' is an understatement. With one exception Depave runs solely on volunteer effort. The exceptional Eric Rosewall is one of two staffers first hired in 2011. The other was Maia Nativ. They were both depave "leaders"—the folks who made the decisions and ran the organization before there was an official board—and both raised their hands for employed positions when Depave received its first, limited funding for staff. When Maia stepped down to attend graduate school, Eric officially became the Interim Program Director.

On a local scale, Depave will continue to physically take up pavement at several Portland sites per year. Although it may look simple, depaving is still a developing technique, and Depave has found itself, somewhat accidentally, at its cutting edge.

Soil remediation is one area with potential. Happily we've learned that asphalt itself doesn't leach chemicals, although we require landowners to arrange for soil testing to check for pre-existing soil contamination. Physical compaction is the real problem. That damaged ground cannot immediately support growing plants or absorb a good amount of moisture. There seems to be no good, effective, cheap method of de-compacting soil, short of digging it up. For now, after most manual depaving events, Depave hires a contractor with a backhoe to remove the top layer of gravel, compacted dirt and dregs of asphalt, and then to break up what is below, and mix in new soil and compost brought in from elsewhere.

On a regional scale, Depave is involving itself in policy conversations. They range from taking a stand on Portland's parking requirements, to supporting a Metro Parks and Greenspaces bond measure, to reviewing stormwater management manuals for local agencies, to celebrating the virtues of Portland's still-unpaved streets. Depave's goal is for the region to develop in ways that protect watersheds and communities up front, so there will be less rehabilitation work to be done later.

And on a national and international scale, Depave is working to inspire and educate activists and depavers everywhere. Our website (depave.org) is a treasure-trove of information, from a video series about do-it-yourself driveway depaving, to the opportunity to download the "How to Depave" manual, to pictures and descriptions our sites. And, starting last year, Depave is formally training other organizations how to do what we do, with a continued emphasis on the benefits of direct cooperative action and muscle power. Green Communities Canada, a coalition of groups in Ontario, hired Depave for a series of webinars and an in-person workshop in 2012, and the new partnership with River Network and Stewardship Partners will allow Depave to bring its expertise to the Puget Sound area.

Removing pavement remains a real environmental frontier with exciting possibilities. Our capacity to do more depends on these cooperative efforts, attracting funding, and your involvement.

There's plenty of work to do.

Turning a new leaf

Ex-Offenders Grow and Learn

by Francis Lawn

Pennsylvania Horticultural Society

www.phsonline.org

It is a cool April morning. In the parking lot of Philadelphia's Friends Hospital a group of men waits for a truck to deliver plants. To the casual eye, it looks like a landscape crew getting ready to install a number of understory trees, azaleas and rhododendrons on the campus grounds. But the truth is that four members of the group were released from the Philadelphia Prison System no more than six months ago. Today, they are here as graduates of PHS Roots to Re-Entry: A Job Training and Placement Program. More than that, they're eager to get to work.

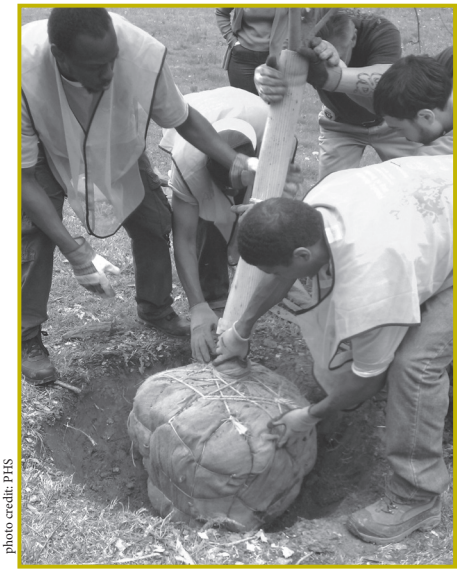

photo credit: PHS

Planting a better future

PHS Roots to Re-Entry is an innovative green jobs initiative created by the Pennsylvania Horticultural Society (PHS) and its partners. Through this training, inmates of the Philadelphia Prison System are finding new opportunities and new hope while helping to care for three of Philadelphia's oldest gardens: Bartram's Garden, Awbury Arboretum and the grounds of Friends Hospital.

A component of PHS's larger City Harvest program, PHS Roots to Re-Entry is designed to maximize the chances of job placement for men and women involved in City Harvest, in which inmates grow vegetable seedlings at a prison greenhouse that are transplanted into community gardens, where they are grown to maturity and distributed to needy families. PHS Roots to Re-Entry also provides supportive services to help inmates re-adjust to life outside the prison walls. Participants receive 16 weeks of training, beginning with health and skill-building workshops at the prison provided by the Federation of Neighborhood Center's Career Support Network. Next they learn about food production at the prison greenhouse and garden. Inmates then enter the landscaping phase, getting hands-on lessons on tool and equipment use and maintenance, landscape installation and maintenance, and turf management.

"Green jobs initiatives like PHS City Harvest and PHS Roots to Re-Entry get at the heart of the PHS mission, which is to empower people and change lives through horticulture," says PHS president Drew Becher.

The tree-planting project is about halfway complete, and the men approach each action with care, prepping the holes so that each tree and shrub has the best possible growing conditions.

Hands-on work has been a mainstay of PHS Roots to Re-Entry—reconnecting the men to the land, helping them understand that this basic connection can be more than a job or skill. For these men, it can be a healing force. Those of us in the industry understand that hard work mixed with patience and hope equals an outstanding garden. The same concept can be applied to the lives of these men. They may have made bad choices in the past, but now they are willing to look to the future. This transition back to community is not easy. It takes a lot of effort on their part, as well as support from their families and communities.

PHS Roots to Re-Entry sets the foundation for learning and provides opportunities for entry-level employment. Reentry programs such as this can not only help men and women find new direction, but they also address gaps in workforce development. PHS Roots to Re-Entry

opens up new ways to employ men who might otherwise face limited prospects. It also increases the labor force within the landscape and horticulture industries by providing an alternative workforce. Program partners are working to create a network of employers in the regional landscape industry to identify and secure job opportunities for the graduates.

This new workforce can also be used to help improve our environment. Recently, thanks to an Environmental Protection Agency Urban Waters Small Grant, PHS has partnered with the Tookany/Tacony Frankford Watershed Partnership and GreenTreks Network to create a pilot program that will provide information and training to a variety of target groups with land-management interests. The program will build capacity and teach skills needed to implement and maintain green infrastructure stormwater projects, which use plants to infiltrate and filter pollutants from storm runoff. PHS Roots to Re-Entry trainees will take part in projects on the ground at multiple stormwater sites. The program will encourage the development of green infrastructure within the Tookany/Tacony Frankford Watershed, further connecting trainees to community beautification efforts. Ultimately the work will help improve water quality in the Tookany/Tacony-Frankford Creek.

photo credit: PHS

Roots to Re-entry graduates

The Urban Waters program brings together partners that together possess extensive experience and solid track records in stormwater management, community education, curriculum development, and job training. It will address two major gaps in current stormwater-related outreach efforts: job creation and focused training to those in the land maintenance industry.

At the end of the day at Friends Hospital, the plants are all in. The men are pleased with their work, teasing each other about who was the fastest and best planter, clearly feeling a sense of accomplishment over a job well done. "After you see what you've done, you feel proud," says PHS Roots to Re-Entry graduate Troy Johnson, walking past tidy paths and manicured vistas he worked on. "The result is just awesome."

For these men, it has been a new day of learning and a new skill to take with them as they face the future.

"I never believed that a tree could change my life."

- Quentin Davis, PHS Roots to Re-Entry Graduate

PHS Roots to Re-Entry is generously supported by the Thomas Scattergood Behavioral Health Foundation, Job Opportunity Investment Network, The Pew Charitable Trusts, the Philadelphia Prison System, and the Philadelphia Foundation.

Employer partners include KJK Associates, Liberty Tree & Landscape Management, and Moon Site Management.

Other program partners include the Philadelphia Prison System, the Defender Association of Philadelphia, the Philadelphia Office of the District Attorney, Adult Probation & Parole Department, and the Federation of Neighborhood Centers.

To learn more or to become involved with PHS Roots to Re-Entry as an employer partner or supporter, please contact Francis Lawn at flawn@pennhort.org or 215-988-8764.

Restoring the 'Water of the Walleye'

Emergence of a College-based Watershed Group in West Michigan

by Gail Gunst Heffner, Michael Ryskamp & David Warners

Plaster Creek Stewards
Calvin College

www.calvin.edu/admin/provost/pcw

Plaster Creek in Grand Rapids, Michigan faces many of the problems that are now commonplace for urban waterways in the United States. But because Plaster Creek is a sub-watershed of the Lake Michigan Basin, it contributes to the health of the Great Lakes, the largest fresh water resource in the world; therefore what happens in the Plaster Creek watershed has far reaching effects. The Plaster Creek watershed is also an integrator, connecting farmers, commercial and industrial interests, as well as suburban and urban residents, to issues of common concern within this shared space.

History of the Plaster Creek Watershed

The Wisconsin ice sheet receded northward out of West Michigan for the last time around 16,000 years ago. As it did so, this mass of ice left a rolling landscape of mixed soils, sand, gravel, silt and clay. This was the time when the Great Lakes were formed, along with the basins and sub-basins that drained into these lakes.

One of those medium-sized sub-basins is the 58-square-mile Plaster Creek Watershed which drains into the Grand River, Michigan's largest river, in Grand Rapids. The Grand River flows into Lake Michigan 30 miles further downstream at the port city of Grand Haven. By the time the first European explorer, Samuel de Champlain, reached this area in 1615, the Plaster Creek watershed was occupied and used by the Odaawaa Indians (today known as the 'Ottawa') and they called this stream 'Kee-No-Shay', which means 'water of the walleye.'

In the early 1800s, the local Odaawaa tribe's leader, Chief Blackbird, lived in an area today known as the Black Hills neighborhood, a prominent knob of land in the Grand River floodplain that overlooks the final reach of Plaster Creek before it joins the Grand River. A story recorded by Charles Belknap, one of the earliest mayors of Grand Rapids, recounts a disagreement between Chief Blackbird and a local missionary about the best place to encounter God. Chief Blackbird maintained the Great Spirit is best worshipped outdoors, and thought it odd that the missionary was trying to convince the Chief's people to come inside a building and look into a book to meet God.

On one particular day, Chief Blackbird coerced the missionary into a small boat and the two of them travelled up Kee-No-Shay Creek until they reached a beautiful waterfall pouring over a large, colorful and crystalline outcrop of gypsum. Chief Blackbird explained to the missionary that this was the sacred space where he and his people met their God.

This was also the first known encounter of European immigrants with gypsum in West Michigan, a rock quickly recognized as a resource that was subsequently mined throughout the Grand Rapids area. Ground up gypsum was used as both a fertilizer and as a base for making plaster. In fact, the first plaster mill in West Michigan was set up at a location near Chief Blackbird's sacred spot in 1841, and ever since that time the creek was known as 'Plaster Creek,' a tragically more appropriate name because the extensive gypsum mining that ensued caused the creek to become so degraded it was no longer able to support walleye.

As the city of Grand Rapids developed and expanded, the quality of Plaster Creek progressively declined. Several of the creek's tributaries were relegated to underground pipes, including a 4-mile stretch of Burr Oak Creek, today known as Silver Creek—one of Plaster Creek's two major feeder streams. By the early 2000s, the creek had

become so degraded that it had earned the distinction as west Michigan's most polluted stream, often carrying bacterial loads so high as to be designated unsafe for even partial human body contact.

Development of the Plaster Creek Stewards

In response to the regrettable state of the creek and the public health dangers it posed, in the mid-1990s faculty at Calvin College began service-learning projects for students, collecting data on the state of the watershed and organizing stream clean-ups in collaboration with other community groups. By 2008, a group of concerned organizations, including Calvin College, began meeting regularly to discuss what further steps could be taken to improve the watershed. At the close of one of these meetings a staff member of the Michigan Department of Environmental Quality challenged the Calvin representatives, asking specifically for help to reach the faith community in west Michigan, which to this point had been uninvolved or even resistant to restoration efforts.

We responded to this challenge by organizing a three-day summer workshop for local churches, offering both basic instruction in watershed ecology as well as a theological foundation for why creation care in general—and this watershed in particular—deserved our attention and engagement. This workshop led to an article in the *Grand Rapids Press* complete with photos of participants in waders examining macroinvertebrates in Plaster Creek. After seeing the *Press* article, a local philanthropist made an anonymous $10,000 contribution to our work, which enabled us to hire a part-time Program Coordinator and helped to launch the efforts of Plaster Creek Stewards.

As the work of Plaster Creek Stewards has unfolded, we have developed three focus areas: education and outreach, research, and on-the-ground restoration. Because Plaster Creek Stewards is an initiative embedded in a college, we see education as a primary aspect of our core mission. In addition to involving students and faculty across many disciplines within the college, we have focused on educating local schools, churches, neighborhood associations, and some local businesses. With each of our educational events, we also provide an opportunity for people to take action to restore the watershed. We hope a deeper affection for the stream will emerge from combining education with opportunities for action, a combination that is a consistent hallmark of our program.

photo credit: Plaster Creek Stewards

One particular outreach approach we've taken has been to create upstream-downstream partnerships within the watershed. Very few Americans identify themselves as watershed residents; working to form intentional partnerships between upstream schools and churches with downstream schools and churches has been challenging but also rewarding. This approach requires a long term commitment because building relationships of trust between rural and urban groups does not happen overnight. After two years, we are just beginning to see some fruits from our efforts.

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Emergence of a College-based Watershed Group, cont.

cont. from page 15

The second focus of Plaster Creek Stewards is research. Since Plaster Creek Stewards emerged out of a college, research has been a natural task to take on. With increased emphasis on undergraduate research experience nationally, Calvin redesigned its biology core curriculum in 2011 to include a Sophomore level 'Research Methods' class, a course that uses the Plaster Creek watershed as its living laboratory. Students learn how to do research in small groups by designing and carrying out a research project focused on the health of Plaster Creek. These projects are all summarized in a written scientific paper and presented in a public forum at the end of each spring semester.

While these student research projects have been yielding interesting and helpful information, their limited duration (confined to two months in early spring) results in limited applicability. Last year we began a summer program where student research assistants continued to collect data and effectively extended the duration of several key projects. A recently submitted grant proposal would secure funding to support four additional students during both the school year and summer to identify the main sources of Plaster Creek's bacterial contamination. In addition to biological research, we have also started a social research oral history project, collecting stories and memories from people who have lived, worked, gone to school or church within the Plaster Creek watershed over the past 60 years. This has become a great way to engage the public in caring for the watershed.

photo credit: Plaster Creek Stewards

The third focus of Plaster Creek Stewards is on-the-ground restoration. We use greenhouses owned by the college to grow native plants from seed, all of which is collected from natural areas around Grand Rapids. We use the plants in green infrastructure community-based projects such as installing rain gardens and native habitat plantings, mostly in urban and suburban areas. This spring we will be growing over 25,000 plants that will mostly be used in two large stream restoration projects scheduled for construction this summer—a retention pond that drains 320 acres of suburban neighborhood, and a two-stage ditch that will be installed in an agricultural area of Plaster Creek.

In addition to acting as a tool for restoration, education and conservation, we use our plant production facilities to raise money for Plaster Creek Stewards. As the benefits of green infrastructure become more commonly known, more and more people are asking us to install rain gardens and other types of native plantings on their personal property—and they're willing to pay us to do it! We use this revenue stream to support our organization financially, but also to promote the biological benefits of green infrastructure and sustainable native habitat plantings.

Lessons Learned

As we've talked about the most significant things we've learned in recent years, three key lessons have surfaced. The first and most significant lesson is the importance of a clear mission. Knowing what we will and will not focus on has given us a lens for more effective decision-making. When we finally got to the point of identifying that our organizational focus is on education and outreach, research, and on-the-ground restoration, we had a framework for saying 'yes' to particular projects and 'no' to other projects. For more than five years, we had been applying for external grants to support our work and we were repeatedly turned down. Once we developed a strategic plan with a clear mission, we were able to write proposals for funding that were more targeted and thus, successful. Part of maintaining a focus on our mission has been to have weekly team meetings in which we identify specific tasks and track the progress of activities and projects. This has enabled us to make steady advances, step by step, on what we have identified as priorities.

A second lesson learned is that despite needing external funding to do our work, it's often counter-productive to chase after funding just to survive. We are in a unique situation being embedded within a college, which helps to cover overhead costs by providing facilities, human resources, and other support. However, it's been important for us to identify which aspects of our work can be supported internally (i.e., some of the research, some of the green infrastructure fees-for-service work) and which aspects need to be funded through external sources (i.e., education and outreach, additional research, etc.). This enables us to solicit particular funding sources for specific aspects of our work. Just writing generic grant proposals to fund watershed restoration had not been successful, but soliciting funding for targeted aspects of our work has proved fruitful. In our experience, funders want to contribute to a specific aspect of our work where there is evidence of measurable improvement.

photo credit: Plaster Creek Stewards

The last lesson learned is the importance of combining education and action—people want opportunities to do something to care for the watershed, but it's important to embed the action in education to increase understanding and awareness among the public. We never teach about watershed restoration without providing an opportunity to do something for the watershed; we never organize action events without first providing education about the watershed. These two always go hand in hand. Each year we host three community events for residents to get involved in these education-action opportunities and they have served as vital catalysts for community engagement in Plaster Creek restoration.

It has taken Plaster Creek over 100 years to achieve the degraded condition it is in today and it will likely require several decades to restore it, but we are seeing a growing interest among west Michigan residents to learn what they can do to care for their particular place. As momentum continues to build we are cultivating the hope that one day the walleye will return, and the creek's name can be changed back to 'Kee-No-Shay.'

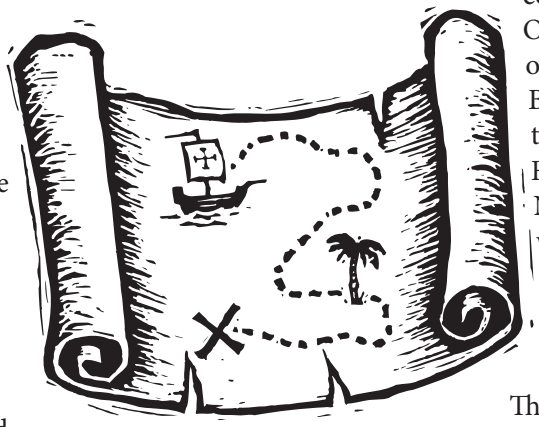
The Blues Cities® Initiative

Recreating the Past

by Kate Bowditch
Charles River Watershed Association
www.crwa.org

Most of us know that rivers are radically altered by urbanization—especially pavement and piped infrastructure—and are working hard to find ways to bring back a more natural hydrologic regime to cities and towns. This can include slowing down the speed of stormwater runoff, trying to get more rainfall to percolate into the ground, and allowing rainfall to be evaporated or transpired by plants back up into the atmosphere.

In some areas of the country, this work is well underway with extensive rain garden installation programs, street greening efforts, and green roof and porous alley projects changing city landscapes. The community "Depave" (see article on page six) is a great example. In other regions, these "green infrastructure" programs are still in the planning stages. These efforts not only help rivers but improve the neighborhoods they are built in, introducing more vegetation to help hot cities "sweat," and often calming traffic, cooling neighboring buildings and improving aesthetics.



Choosing what kinds of green infrastructure are best for a city or town, and where the right locations are, depends on many factors, but one key consideration is the original landscape and its hydrology and drainage patterns. Although often buried from sight in pipes and conduits beneath the city, streams and drainage channels still exist, collecting water from the land and carrying it down to a river, a wetland or a harbor. Groundwater still flows through the soils and rock formations below our cities and towns, moving inexorably to low points or areas of low pressure such as sewers and drains. Neighborhoods that look alike may have been built on completely different soils, with radically different water tables and groundwater movement.

Efforts to restore hydrologic function to an urban environment will be far more successful if they work with these hidden but still powerful natural features. Finding those historic drainage patterns and understanding the alterations to land and water that have happened over time is a basic foundation of the Charles River Watershed Association (CRWA) Blue Cities® Initiative.

The Blue Cities® Process

A Blue Cities® analysis begins with a search for the oldest maps CRWA can find. These may be buried in libraries, historic societies or Town Hall planning offices. Often we find maps attached to old state permits issued for river fills, dams or sewer construction permits. Occasionally they are on the internet. In the Boston area, we are lucky to be the home of the Frederick Law Olmsted National Historic Site, which houses thousands of maps and images dating back to the middle 1800s.

These historic maps form the base of CRWA's Blue Cities® planning work. The first step is usually to bring these historic images into a Geographic Information System (GIS) system, using georeferencing and careful manual manipulation so the maps are at the same scale as current GIS maps of land use, infrastructure and topography. If we

can find multiple maps that trace urban development over time, we can see the evolution of the city, as areas are developed with roads and buildings, wetlands are drained and built on, open water is filled in, streams are buried, and hills are leveled.

When we overlay historic maps with modern maps of street grids and drainage pipes, it is remarkable how often the underlying hydrology and geology can be traced. Many of the oldest streets were laid out beside or on top of an ephemeral stream; many large stormdrains and culverts are placed right on top of an old streambed; public parks and golf courses are often built in former wetlands and floodplains.

Once we have begun to understand the original landscape, we begin to collect information from a wide range of people who live and work in the city: neighborhood residents; planning departments; environmental agencies; public works officials; environmental advocates and economic development departments. The information we collect helps identify critical issues, goals, and opportunities, and identifies partners.

Combining the data from both physical and human geography makes successful urban hydrologic restoration possible. Most communities are trying to address a wide array of issues—reducing flooding, improving access to open space, redeveloping underused properties, eliminating sewer overflows, protecting water bodies—and understanding the physical landscape and the changes we have made to it are critical to designing sensible solutions that will last over time.

Projects that restore natural features of the landscape such as daylighting buried streams and restoring floodplains are likely to have the most environmental

benefit. But these may not be feasible in ultra-urban environments where homes and businesses have been constructed in areas rivers once used. More easily accomplished are projects to create streets that once again act as ephemeral streams, "green streets" that carry water slowly to a main channel through a meandering path of vegetated swales or planters. Urban areas that were once wetlands are typically low-lying and often retain some topography that allows easy retrofits so they can be used to store water and release it slowly. Parking lots on top of coarse sand and gravel can be converted to recharge areas with porous pavement. Dense vegetation and trees, especially planted in areas that were once riparian, can take up large volumes of water and support cooler microclimates.

Combining pathways for water to flow with parks and pathways for people to move through a city is not a new idea—Olmsted created the Emerald Necklace in Boston for exactly those purposes—but it is a powerful way to bring people with diverse goals and interests together in support of urban restoration that mimics nature. Working at the scale of small urban subwatersheds, with a focus on historic landscapes and functions, the Blue Cities® approach can help build lasting and beautiful urban places, where rivers and people can thrive.

The Urban Waters Learning Network

Partnering with Communities to Restore Our Waters

by Surabhi K. Shah

Office of Water, U.S. EPA

www.epa.gov

EPA's Urban Waters program seeks to help communities—especially underserved communities—as they work to access, improve and benefit from their urban waters and surrounding land. Whether as part of a river cleanup, waterfront development, water quality monitoring, or source water protection to ensure safe drinking water, community groups across the country have engaged volunteers, community organizations, and local and state government to protect and reclaim their urban waters. EPA supports these locally-driven priorities in many ways. One example is the work the agency accomplishes through its collaboration with Groundwork USA and River Network to establish the Urban Waters Learning Network that enables community members to learn of best practices for restoring urban waters and to share lessons learned. In 2011, EPA initiated a project at River Rally, through the Urban Waters Learning Network, to create Urban Waters Voices—short video segments that offer shared learning on several successful Urban Waters restoration strategies, including community engagement in 14 communities.

The video series features interviews about locally led efforts to restore urban waters in communities across the United States. The strategies are designed to improve urban water quality while advancing local community priorities and engaging volunteers from the community. Please view all of the Urban Waters Voices videos on EPA's website at: **www2.epa.gov/urbanwaters/urban-waters-voices.**

The videos address a range of challenges with an emphasis on strategies for community and volunteer involvement in the urban waters issues. Some of the strategies identified in the videos include:

1. engaging citizens in reporting illegal dumping;
2. engaging the community in a sampling blitz for water quality monitoring;
3. engaging recreational river users in stewardship; and
4. using positive recognition programs to enlist stewards for water protection.

Village Creek, Alabama

Edwin Revell, a volunteer with the Village Creek Society of Birmingham, Alabama describes the importance of giving residents information that enables them to become good stewards of the river. The watershed is 34-square-miles with about 12 stream miles that travel through industrial, commercial and residential areas of Birmingham. Edwin states that change comes slowly, and improving the quality of the water as well as the quality of the place is a generational goal. But working with the community is the key. As a Village Creek volunteer, who also happens to work in city government, he believes that working to educate residents in order to strengthen their efforts to address challenges and protect the water is more beneficial than anything the city can do on its own. An informed citizen is an engaged citizen, and having extra eyes to report illegal dumping and illicit discharges is a benefit that comes from helping residents understand the damage that happens when it goes unreported. "In addition to voluntary reporting, citizens will also take better care to be better stewards themselves if they understand the nuances of individual behavior that can contribute to poor water quality."

Wabash River, Indiana

Sara Peel, Director of Watershed Projects for the Wabash River Enhancement Corporation, describes some of the challenges faced by the Greater Lafayette region of Indiana. The area, about an hour northwest of Indianapolis, faces many challenges such as access to the river, sewer overflows and water quality issues. The Wabash River is the longest undammed river east of the Mississippi and it's one of the iconic features of the community.

One very successful strategy to engage the community in protecting water quality is a "sampling blitz." During the Wabash sampling blitz, over 200 individuals sample roughly 210 stream sights twice a year in the spring and fall in about a two hour period. The effort provides a snapshot assessment of water quality throughout the watershed. Volunteers monitor temperature, water cloudiness (also called turbidity), nutrient levels and pathogen concentrations.

The goal is to get as many individuals from as many backgrounds as possible out and involved. The community is approached in many ways, including recruiting through a Facebook page and online registration. Specific targets for participation include neighborhood associations, schools, Girl and Boy Scout troops, and Purdue University students. Purdue is an actively involved partner because they are a big part of the community. Though they represent a transient population, their support for the community is solid. In addition to Purdue, the community has found that engaging with charter schools within the community has been highly successful. Sara said that "Charter schools have been intrinsic in our efforts to really improve the water quality in the Wabash River. They are able to get out on the river often and incorporate it into their education, both in science curriculum and in history curriculum."

The sampling blitzes have been a great way to get people interested in the Wabash River and to get their feet wet. Volunteers can really see what's going on in the tributaries, what the conditions are like, and it gets them thinking about the river and their own impact on it. The event has great retention of volunteers who keep coming back to make the river better for future populations.

Charles River, Massachusetts

Bob Zimmerman, Executive Director of the Charles River Watershed Association (CRWA), discusses in another Urban Waters Voices video how volunteer efforts have led to stunning change on Boston's Charles River. Recreational safety was a driver in cleaning the river, and success in drawing volunteers came in part from targeting groups determined to see, touch, and feel the river through various recreational activities.

The Charles River was closed to swimming in 1954 due to the level of pollution and it remained closed for quite some time. The Charles River watershed is the most urbanized in Massachusetts, and 20 percent of the state's population lives in the watershed. The highly impervious land cover cause urban and suburban stormwater runoff to create serious problems for the river. "Prior to 1998, the only people that used the river recreationally for a period of time were university crew teams," Bob said, "However even then, if they ended up in the water, they had to go to the hospital to make sure they had their tetanus shot and to start a course of antibiotics. That doesn't

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happen anymore. For much of the river, you can go in the water, swim around, and get back on the boat with no reservations."

Bob describes how water quality in the Charles River has significantly improved and much of the river meets water quality standards for fishing and swimming in dry weather conditions. A Charles River that's swimmable year-round has not been fully achieved, but the efforts of CRWA and volunteers continue to work towards that goal. CRWA began a comprehensive water quality monitoring program for the Charles River and its tributaries in 1995. This includes a foundation of water quality data generated by volunteers, which provides baseline information of the river's health and allows for the analysis of spatial, temporal and meteorological water quality trends for a number of water quality parameters.

In addition to monthly monitoring by volunteers, CRWA staff conducts targeted water quality monitoring and collect critical data to verify or gather additional information about polluted areas of the river. Data collected by CRWA volunteers and staff are used widely by regulators, municipalities and students in tracking pollution and is used by the EPA to determine the annual Charles River report card.

A long-honored Boston tradition, the Run of the Charles annually celebrates the ongoing improvements of the Charles River, drawing approximately 1,500 paddlers and thousands of spectators to enjoy a day on the river. From canoe and kayak races to a marathon, the entire community celebrates the improvements to Boston's historic Charles River. This event, along with other water based activities provides an important outreach opportunity to not only teach the community about water quality, but to recruit and retain volunteers to protect the water for recreational use.

Elizabeth River, Virginia

Marjorie Mayfield Jackson, Executive Director of the Elizabeth River Project, describes successful implementation of a positive recognition program as a strategy to engage business and industry, schools and homeowners in urban waters quality restoration activities. The Elizabeth River in Norfolk, Virginia is one of the most industrialized rivers in America. It is home to the world's largest coal-exporting plant, the world's largest navy base, and 20 ship repair facilities. The river suffers from legacy contamination from maritime activity and flooding.

Undaunted by the task of a thorough cleanup, the Elizabeth River Project has stimulated voluntary action and cooperation to promote cleanup efforts through their River Star program. The River Star program for business and industry seeks volunteer commitments to engage in greening activities and clean up efforts to improve the water quality in the river.

Majorie explains that "when the Elizabeth River Project first got started, interests were very polarized. The environmentalists weren't talking to the business people and the business people weren't talking to the regulators, and the scientists weren't talking to anybody".

Given this lack of communication and interaction, Marjorie describes how the River Stars program had to aggressively recruit just to get its first River Star candidate. That initial River Star partner was a small shipyard that restored a nearby wetland. Positive local media coverage helped show local businesses the potential

benefits of joining the program. Gradually more businesses and industry came forward and now River Stars is a thriving program. Potential River Stars submit information and data to describe their project and to be recognized as a River Star, the information has to demonstrate that the proposed project is a proactive volunteer effort and not in response to a governmental requirement.

Most of the major facilities on the Elizabeth River have become River Stars. The largest private shipyard on the Elizabeth River has completed numerous projects as part of the River Star program including wildlife habitat projects, wetlands restorations, construction of an oyster reef and upgrading their stormwater management system. Since the program began in 1997, River Star businesses have:

- created or conserved 1,247 acres of wildlife habitat;
- prevented the release of 281 million pounds of pollutants; and
- reduced or recycled more than a billion pounds of waste.

The program, in addition to its River Stars, now has 126 River Star schools, and this year has expanded to the general public with River Star homes. Both these programs also focus on volunteer efforts to clean up and green the river. More details of the program are discussed in the video, and are also available on the Elizabeth River website.

These are just a few examples of strategies for engaging communities in urban waters quality restoration. You can find more information on these and other community efforts using the links in the resources box, below.

ADDITIONAL RESOURCES

For more information on the Urban Waters Voices videos, visit EPA's website at: **www2.epa.gov/urbanwaters/urban-waters-voices**

More information on the organizations discussed in this article can be found at:

- Charles River Watershed Association, **www.crwa.org**
- Elizabeth River Project, **www.elizabethriver.org**
- The Village Creek Society, **www.villagecreeksociety.org**
- Wabash River Enhancement Corporation, **www.wabashriver.net**

Voices From the Field

Here are just a few ways that organizations around the country are helping to protect and restore watersheds while creating a better sense of community.

Putah Creek Council celebrates 25 years in 2013. What started as a modest effort to remove dumped items from the creek has blossomed into an all-out community effort which first focused on securing legally protected instream flows and now focuses on restoring and enhancing our watershed.

During summer 2011, the largest project to-date was untaken on Putah Creek by a local restoration partner—an earth-moving endeavor which had massive yellow equipment crawling, bumping and beeping through a one-mile section of creek as they shuffled 1000s of cubic yards of soil into place to create floodplains. The project narrowed the creek, induced meander, filled-in gravel mining pits, and gave our community access to the creek which had not been enjoyed in generations. When we asked for volunteers to help rescue fish from the project site, dozens responded. Many drove over an hour to participate; many took days off work to muck in the mud lugging 5-gallon buckets up and down steep slopes.

When the heavy equipment work was complete we again called for volunteers to help us re-plant the site. To date, 627 volunteers have helped us on the project. Our volunteers: rescued over 7,000 native fish; planted over 3,100 trees and shrubs; and planted nearly 6,000 sedges, rushes, and forbs. Beyond the numbers, the real payoff is being stopped in town to hear how much people appreciate the creek and the work being done, and how heartened they feel to see kids—for the first time in generations—accessing and playing in the creek again.

Lessons learned:

- **Leverage:** We have a tiny staff (less than 2 FTE), so not only did we need help getting the physical work done, we needed help managing and supervising volunteers. We did this by training-up super volunteers into our "Stewardship Team" which has 22 members this year. We trained them on the ecology of the region, and they commit to helping during at least 5 field events per year. We have two Stewardship Team members and one staff member at each event.
- **Build on other efforts:** We also learned to take advantage of national or regional efforts, such as national days of volunteerism, arbor day, etc. People want to volunteer then, so we plan accordingly—sometimes we will have 80 people show up at one event.
- **Tracking Volunteers:** We have an amazing website that helps us recruit, register, and track volunteerism. Without our website we could not run the bulk of the events we do.
- **Be generous:** we home-bake muffins for every event. Yes, they are from a box, but volunteers always notice they are homemade and understand that it means we took the time to show them we appreciate them. We also always make sure to talk about the work they do as a community, rather than what we accomplish as an organization. The more they feel ownership over the work, the more they care about the creek.

Putah Creek Council (CA)
www.putahcreekcouncil.org

photo credit: Earth Force, Inc.

In Texas, Reagan Middle School student discovered a local beaver population moving into the creek in their Outdoor Learning Center next to their school. Although they were excited to have the beavers back in their habitat, the beavers were creating dams on the lower end of the creek, and during rainstorms, the water would back up and flood, causing pollutants to run into the creek. In order to create a sustainable solution, students had to get to the root of the problem, as trapping and removing the beavers would not guarantee that they would not return.

photo credit: Earth Force, Inc.

The students decided to consult experts in their community in order to explore all of their options. When talking with a local wildlife biologist from the Texas Parks and Wildlife District they learned about a possible solution that would allow the beavers to stay, but would prevent future flooding called a "beaver deceiver." By putting PVC pipe at the dam, the excess water accumulated during a heavy rain is redirected.

In order to further research this possible solution, they contacted Wildlife 911, a company specializing in animal removal and relocation. Bonnie Bradshaw, president of 911 Wildlife, confirmed their solution, saying trapping and relocating the beavers is only a short term solution for the learning center. Students learn how important it is work with rather than against nature to help protect their future. Allowing the beavers to stay in their natural environment allows for a sustainable resolution.

With their strategy chosen, it was time for the youth to take action. Gathering support from their community like General Motors, national non-profit Earth Force, Wildlife 911, and educators at Reagan Middle School, 45 students worked in partnership with their community to install the "beaver deceiver." Now the beavers can continue to live in the Outdoor Learning Center without it flooding and the students can enjoy the species in its natural habitat.

Earth Force, Inc. (CO)
www.earthforce.org

Voices From the Field

Armed with a $10,000 grant from the Danville Regional Foundation (DRF) and a lot of volunteer assistance, Dan River Basin Association (DRBA) recently led a project to liberate a stream in a poor urban neighborhood. In addition to creating a beautiful place for people to visit, the project created community pride and shaped a lasting bond between groups who usually do not work together. DRF's Make-it-Happen grants encourage collaboration and action within a 90-day window to "make something happen" in Danville. DRBA partnered with the Allison Platt & Associates, the City of Danville, the Danville Science Center, the Galileo Magnet School and the WW Moore Juvenile Detention Facility to create learning experiences for students while cleaning up the stream.

"We first held a community BBQ to let neighbors know what we were proposing to do on their street and also to encourage them to help," said Nancy Bell, project director. Bell said more than 75 people attended the event, many registering for the November workday. "The unique thing about the project," Bell said, "is that students from a 'magnet' high school worked beside students from the juvenile detention center, who worked beside landscaping and mapping professionals, who worked beside city employees and many volunteers from the community." The neighbors embraced the project because of all the positive energy and enthusiasm, she said. Students conducted biological surveys, performed water quality testing, developed and shared presentations of their work, captured video for a documentary, designed a project logo for t-shirts, and researched native plants, and attended classes on landscape architecture and environmental methods. All attended at least one day of hard labor outdoors.

"Our kids usually don't get invited to participate in these types of activities," noted Jane Clardy, a teacher at the WW Moore school. "They got a lot out of it and are very proud of what was accomplished—and they learned a lot." Sherri Wright, a nurse for the Danville school system and active DRBA member, worked with teachers of the nearby Galileo school to engage students interested in conservation and biological sciences. "It's just been terrific," she said.

An engaging video of the students' work can be found at:
www.youtube.com/watch?v=AXYZqCbNHlQ

Dan River Basin Association (VA/NC)
www.danriver.org

St. Johns Riverkeeper and our numerous partners collaborated to install the City of Jacksonville's first bioswale on public property. A bioswale collects stormwater runoff from roads, rooftops, and parking lots and uses soil and plants to remove pollution before the water reaches the St. Johns River.

The bioswale was installed in the public right-of-way in front of a library in the San Marco neighborhood of Jacksonville where several mature dying trees had to be removed due to liability concerns. The community was rightfully concerned and upset about losing these beautiful, mature live oak trees. We were able to assemble a coalition of partners to come up with a way to turn an unfortunate situation into a positive solution for the neighborhood.

In the San Marco neighborhood, stormwater that enters storm drains goes straight to the St. Johns River untreated, carrying with it fertilizers, chemicals, hydrocarbons, and other pollutants. These older neighborhoods also often experience flooding problems.

photo credit: St. Johns Riverkeeper

By installing the bioswale, we were able to divert some of this potentially polluted stormwater from going directly into the St. Johns, so that it could be naturally treated and help recharge the groundwater. This demonstration project also helps to alleviate some minor flooding problems along this section of the street, enhances the aesthetics of the neighborhood, and provides an important educational tool about the benefits and applications of green infrastructure.

Funded by a grant from Coca-Cola and in-kind donations from numerous partners, the bioswale was installed to demonstrate how Low Impact Development (LID) or Green Infrastructure strategies can be effectively utilized to manage and treat stormwater. We were also able to install an educational sign and a pervious concrete walkway at the site to demonstrate additional strategies to prevent stormwater from polluting our waterways. This project was made possible by the generous contributions of numerous partners, including enVision Design + Engineering, Coca-Cola, San Marco Preservation Society, Greenscape, Jacksonville Zoo & Gardens, MetroVerde, Content Design Group, Petticoat-Schmidt, Media Works, PMB Constructors, Superior Trees, City of Jacksonville, Council Member Lori Boyer, Jacksonville Public Library, and Florida Roads.

Our volunteers have maintained the bioswale for over a year now, allowing the City of Jacksonville to gather more data about maintenance requirements and expenses and to better understand how to effectively design and implement future Green Infrastructure projects.

For more information: www.stjohnsriverkeeper.org/blog/lasalle-bioswale-project

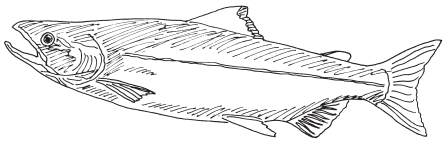
St. Johns Riverkeeper (FL)
www.stjohnsriverkeeper.org

Voices From the Field

Portland's (Ore.) Johnson Creek Watershed Council (JCWC) is leading a community effort to enhance salmon habitat in and build an interpretive boardwalk next to Johnson Creek at the site of a light rail (e.g., MAX) scheduled to open in 2015. With the recent documented return of threatened salmon (our iconic species in the Pacific Northwest) to Johnson Creek, we saw the station as an opportunity to catalyze additional restoration on Johnson Creek to benefit salmon and to engage our community in place-making, with Johnson Creek as a focus.

To that end, in 2010, we partnered with TriMet, the public agency that operates mass transit in Metro Portland, jointly hosting a series of community design workshops. Dozens of community members—neighborhood residents, university students alternative transportation advocates, public officials—came together to brainstorm how the new MAX station could be more than just a place where people get on and off the train. Our project, scheduled for construction in the summers of 2013 and 2014, is the outcome of those visioning workshops.

As it has developed, the community has continued to steer the project, providing input at every stage of design. Throughout the design phase, we are convening workshops to review the design, layout and text of the boardwalk's interpretive signage. We also are using "crowd-funding," not just to raise money for habitat and boardwalk construction, but to increase project visibility and get an even broader swath of community members behind it. For more details on our crowd-funding efforts, see the following link: http://jcwc.org/jcwc-wins-a-10000-grant-from-oregon-wildlife-to-improve-salmon-habitat/



Lessons learned: Think broadly about innovative partnerships. Involve community members in all stages of your project; from visioning to design review to fundraising, those all are opportunities to engage people. Think of ways to combine restoration and place-making activities. Restoration helps grow and maintain our sense of place.

Johnson Creek Watershed Council (OR)

www.jcwc.org

Grow Berlin Green (GBG) is a multi-year campaign to establish Berlin, Maryland and the surrounding area as a model community for participatory environmental protection, conservation and smart growth policy and practice. The campaign is managed by a coalition of Assateague Coastal Trust, Lower Shore Land Trust and Maryland Coastal Bays Program, and is driven by community education, empowerment and action.

GBG was the recipient in 2011 of an award from Main Street Maryland "in recognition of developing and implementing strategies for increased community safety, improved streetscapes; and improved community parks and playgrounds that support a positive image of the commercial and residential areas of the Main Street district."

GBG was instrumental to Berlin being named earlier this year as first Maryland municipality to qualify for "Sustainable Maryland Certified" status by University of Maryland Environmental Finance Center.

Objectives of the GBG campaign are to:

- Educate and engage citizens and public officials in Berlin and the surrounding area on environmental protection, conservation, and smart growth issues, activities and policies.
- Promote and facilitate community action to achieve measurable impact on a range of environmental and conservation priorities, including water resources management and conservation (e.g., stormwater management), energy conservation, waste reduction/recycling, and smart growth development; and
- Build broad-based community capacity for a sustainable movement to protect, promote and enhance the environmental quality of the Berlin area.

Major Elements of the GBG campaign include:

- Outreach events and activities to solicit community input on priority needs and interests, and to build foundation for citizen and policymaker participation in campaign activities;
- Educational events and materials to inform community about environmental challenges and empower citizens and policymakers to engage in practical and policy solutions;
- Conservation projects (e.g., rain barrels, rain gardens, buffers) with Berlin schools;
- Neighborhood "Green Teams" to promote and facilitate practical household, neighborhood and business district conservation projects; and
- Land conservation and smart growth initiatives, including possible development of an open space "greenbelt" around Berlin.

Key Outcomes of the GBG campaign include:

- Increased understanding, engagement and activism among citizens and policymakers in community's environmental challenges and solutions;
- Increased conservation and quality of natural resources;
- Improved natural resources management infrastructure (e.g., stormwater, wastewater);
- Reduced waste stream and increased recycling; and
- Smart Growth principles manifested on the ground (e.g., no sprawl, preserved open space, greenway, etc.).

Grow Berlin Green (MD)

Voices From the Field

The Charles River Watershed Association (CRWA) has developed several key, interconnected programs to explore, test and implement change within its community. Below is an overview of two recent projects.

Everett Street Greening Demonstration Project in Allston: CRWA developed a Green Street demonstration project along a section of Everett Street in North Allston, MA. The project involved the design and construction of a system of green infrastructure technologies such as rain gardens, permeable pavers and a stormwater tree pit. These elements maximize the use of soils, vegetation and tree canopy for stormwater interception as well as temperature and air quality improvement.

In the first phase of planting, volunteers from the German International School of Boston, Saint Anthony's Church, and the Allston/Brighton community turned out to dig holes, prepare the soil, and plant a combination of drought tolerant, native plants and trees. In the second phase, students from the German International School of Boston helped plant perennials and woody plants in a rain garden trench adjoining the school parking lot, all while learning about the benefits of rain gardens, tree pits, and their impact on the environment.

The green infrastructure strategies implemented help to decrease storm water runoff and provide benefits including shade and greenery. Additionally, the site now serves as a community interaction space that is used not only by the school teachers and students, but also the neighborhood residents to gather and enjoy the greenery.

photo credit: CRWA

Students from the German International School of Boston plant perennials and woody plants along Everett and Brentwood Street

photo credit: CRWA

Environmental Chelsea Organizers youth present results from their neighborhood assessment at City Hall

Mystic River Collaborative Project in Chelsea: CRWA has been collaborating with the Mystic Watershed Association and the Chelsea Collaborative to plan, design and implement a number of green infrastructure projects in Chelsea, MA using our Blue Cities® approach.

As part of creating a green infrastructure plan, the community members and youth from Environmental Chelsea Organizers have been trained by CRWA staff to carry out an environmental assessment of their neighborhood in order to identify potential issues and opportunities for "greening" both the public realm and key sites. The youth and residents also participated in a CRWA-led design charette which discussed ideas for incorporating green infrastructure strategies along Broadway.

The youth group presented results from their neighborhood assessment at a public meeting, where they shared opportunities for green infrastructure retrofits. Participants in the design charette suggested rain gardens to catch stormwater flows from parking lots adjoining the street, rain barrels for storing roof runoff, as well as tree pits and planters for treating runoff from the street and sidewalk. Both the neighborhood assessment and the design charette ideas have informed the green infrastructure plan for Broadway which will be implemented by the City of Chelsea.

The involvement of youth and residents in both the assessment of their neighborhood as well as the discussion of design ideas not only helped with creating an enormous interest and awareness about stormwater and green infrastructure but also provided a sense of empowerment to the community.

Charles River Watershed Association (MA)
www.crwa.org

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