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# Rebooting Urban Watersheds

Activists restore blighted Bay Area creeks -- and impoverished communities
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Folsom Avenue's low-lying yards are dotted with citrus trees slumping with fruit. Rows of grayish sandbags guard the foundations of dilapidated homes and line the bottoms of garage doors, foreshadowing floodwater.

We have just crossed Rumrill Boulevard from North Richmond into San Pablo, two working-class towns northeast of San Francisco. We've been tracing the overgrown course of Wildcat Creek upstream from its mouth near the junkyard at the corner of Gertrude Avenue and Richmond Parkway. Josh Bradt, a spry Berkeley-based stream restorationist, plods rapidly ahead, his mane of short dreadlocks snapping from side to side as we lurch along a weedy, garbage-choked easement. He's brought me out on a February afternoon to see what the muddle of industry, pollution and water engineering along two local waterways has done to the impoverished communities that surround them.

Bradt points to houses set four or five feet below the road, their driveways sloping downward. "The road is essentially the levee," he says. "In heavy rains, the water just runs down into the houses." We knock on the front door of one tidy bungalow, where a stout man named Everardo Navarro greets us. We ask him about Wildcat Creek, the innocuous-looking stream which runs along the back of his property. We mention the sandbags and ask if the block floods much.

"Yes," Navarro says. He tells us about the New Year's storm of 2006, which gutted the homes on the east side of his block. He taps his finger on the sill at the base of the door: "Just a little more and the water would have been inside," he says.

Most city residents give little thought to the creeks that run through culverts or along the scraggy margins at the edge of town. But restorationists like Bradt see these neglected waterways as key indicators for urban sustainability. In the Bay Area, as in other urban areas across the country, pollution, aging stormwater infrastructure and sprawl have increased the strain on nearly all of the city's waterways. To call the creeks in and around North Richmond "polluted," however, is to put it mildly. These creeks are dumping grounds.

A strong countercurrent of activism and research around water in the region has kept the plight of these streams in the public eye. In the mid-'70s and '80s, scientists and activists, many from neighboring Berkeley, turned their attention toward the neglected creeks and rivers in their own cities. Their work sparked the nation's first grassroots attempts to restore urban streams and protect community watersheds. In 1985, Berkeley

restorationists achieved perhaps their most symbolic victory. They "daylighted" a buried stretch of Strawberry Creek, exhuming it from pipes and restoring it to a channel on the surface.

A 1987 amendment to the Clean Water Act forced local governments to curb urban runoff. To help cities meet the new requirements, watershed protection groups cropped up throughout the state and country, inspired by what was happening in the Bay Area. More than 50 such groups now operate in the East Bay counties of Alameda and Contra Costa alone. These groups have done more than just educate the public; they've marshaled the manpower for small restoration projects. Yet financial and logistical constraints have generally confined most urban creek restorations to wealthier communities, such as Los Gatos, San Luis Obispo and Pasadena.

Meanwhile, in the East Bay's poor industrial communities, progress has come in fits and starts. After a few early victories -- including the creation of the very first community watershed coalition here on Wildcat Creek -- the urban watershed movement collided with bleak economic and environmental realities.

Today, however, a new generation of Bay Area restorationists is working with renewed vigor to mobilize poor residents around their local waterways, on the premise that improving the local environment can also stimulate the local economy. In spite of the recent downturn, there are hints at federal, state and local levels of a sweeping green jobs initiative. It's a bold attempt to reconcile key ecological principles with the functions of the marketplace.

From an ecological standpoint, it couldn't be happening at a more critical time. In February, more than two dozen Bay Area streams were found to be in violation of the Clean Water Act. Collectively, these small streams have become a massive conveyor belt, sending vast quantities of trash and toxins into the Bay and Pacific Ocean.

The Urban Creeks Council, one of the region's most prominent groups, has taken a wide-scale approach to its troubled waterways, creating a comprehensive restoration plan for Wildcat and San Pablo creeks. Funded by a four-year, $750,000 state and federal grant, the proposal includes restoration of greenbelted stream channels and removal of invasive plants, not to mention summer jobs for local high schoolers. Phil Stevens, executive director of the Urban Creeks Council, says the concept represents something altogether new: a collaborative, sustainable model of urban watershed management. "This is basically ‘Creeks 2.0,' " said Stevens. "The idea is that we're not just doing a single restoration project and moving on, but looking at an integrated management model that could make the watershed an asset for the entire county."

**The blue-collar neighborhoods** of Richmond, North Richmond and San Pablo lie across the bay from San Francisco, on a knuckle of land between San Francisco and San Pablo Bays. The surrounding terrain is rich in contrasts -- sweeping coastlines and smokestacks, rolling hillsides and vast tidal estuaries hemmed in by scrap yards and chemical plants, the elegant Victorian homes of Point Richmond and the abandoned storefronts of downtown. The natural beauty and history of the region rival that of any East Bay community, but Richmond and the surrounding communities have struggled for decades to match the prosperity and livability of Berkeley, 10 miles to the south, or the hamlets of Marin and Napa counties across the blue-green waters of the bay.

The 94801 zip code, which comprises the most polluted and flood-prone stretches of Richmond and North Richmond, is home to six Superfund sites and hundreds of toxic emission sites. The demographic profile of the neighborhood -- 70 percent African-American and 15 percent Hispanic, 40 percent below the poverty line -- closely resembles that of other industrial neighborhoods across the country. North Richmond's creeks, like its residents, have borne the brunt of this crush of waste and industry.

North Richmond's environmental troubles began in a time of prosperity. During World War II, many African-Americans from the South and Midwest came to work in Richmond's shipbuilding factories. Black laborers

were segregated in housing built on flood-prone land between San Pablo and Wildcat creeks. Soon after the war ended, returning G.I.s displaced the women and blacks working in the shipyards.

By the early '80s, the neighborhood was 98 percent black, and the poverty rate was nearly 65 percent. Floods ravaged the community almost yearly. In 1982, a neighborhood coalition formed to lobby the Army Corps of Engineers for a flood-control system that would preserve the environment and also jumpstart the area's economy.

North Richmond's residents sought a "natural" approach to flood control: sinuous streambeds and vegetated, sloping stream banks. The greenbelt design would improve the terrain for wildlife and pedestrians and at the same time help impound water and sediment upstream rather than pouring into the marsh. "Even though Wildcat Creek was creating misery for them, overflowing in the streets and bringing mud into their homes, they valued the environment of the creek," says Ann Riley, a river and watershed advisor for the San Francisco Regional Water Quality Control Board and cofounder of the Urban Creeks Council, one of the groups in the North Richmond Coalition. "They had a vision for bringing economic life to the community through commercial recreation, with bait shops, trails and a magnet school for environmental education."

Between 1984 and 1989, the group secured more than $2 million in state and local funds to pay for the work. In the end, however, the design was a compromise. Plans for playgrounds and a streamside amphitheater fell by the wayside. But there would still be a natural channel running between gently sloping banks, interrupted only intermittently by short runs of traditional concrete flood channels.

Today, industrialization, sprawl and pollution threaten to undo such cooperative efforts. Bradt takes me around the lower reaches of San Pablo and Wildcat creeks, pointing out the mounting problems, as well as several of the "demonstration" restoration projects he has overseen. Both streams originate in protected headwater parks southeast of Richmond, wending through wealthier neighborhoods in the Berkeley Hills. Before exiting to the bay, the creeks meander, forming an hourglass-shaped floodplain on which rundown homes, rail yards, a sewage treatment plant and industrial firms huddle together. The endpoint of Wildcat Creek is a 250-acre marsh that provides vital fish and bird habitat. Chevron's massive refinery and tank farm loom over the marsh's southern edge. Here, from 1902 to 1987, Chevron and its predecessors discharged mercury and other toxins. The only landmark higher than the refinery stacks is the 250-foot high ziggurat of the former West County Landfill, which guards the marsh's northern boundary. Locals call the seagull-haunted massif "Garbage Mountain."

Bradt and I press eastward along Wildcat Creek, slogging through weeds and mucky underbrush. The problems with the streambed and the surrounding community become ever more apparent. Bradt points to the Burlington Northern Santa Fe Railroad trestle over the creek: "In high water, that bridge acts as a dam, trapping all sorts of garbage. People also really like to set it on fire." A dizzying array of flotsam lies along the weedy drainage: a transmission flywheel, tires of various sizes, a massive wooden spool, discarded clothes, human feces, hundreds of plastic bags.

Much of the new development here pays little heed to past experience. The low-income housing just west of Rumrill Boulevard sits along a sinuous stretch of Wildcat Creek that the Urban Creeks Council restored in 2006. Bradt says that flood maps clearly show that the building is in the 100-year floodplain. It's also less than 50 yards from the railroad tracks. "Here's a case where creek restoration and low-income housing, two good things, are working against each other," says Bradt, raising his voice to be heard as a freight train pounds by. "Would you want to live here?"

**Imagining restoration** in this damaged landscape requires optimism of the highest order. Relentless residential and commercial development upstream -- with its attendant buildings, pavement and storm drains -- has

significantly altered runoff patterns and increased the stormwater entering local waterways. As a result, restoration and flood-control work along these lower reaches can be undermined by what happens far upstream.

But some are trying to find new ways to understand and attack these complicated problems. Phil Stevens' "Creeks 2.0" ideas about collaborative watershed management seem to resonate with those of the county water bureaucracy. Engineer Mitch Avalon of the Contra Costa Flood Control District has recently begun drafting a 50-year plan for replacing aging flood-control infrastructure with natural stream corridors. The plan recommends acquiring and removing homes in flood-prone sections -- never an easy sell. With enough lead time, however, Avalon says that even the sticky issue of eminent domain can be overcome: "Over a 50-year period, almost every house will turn over on its own accord. The city can buy them as they come up for sale and rent them out until it is ready to renovate the creek."

But even the best-laid plans can bump up against economic reality, as California's watershed groups are finding out. With the state's budget crisis, environmental work has largely fallen off the table. Last December, as California legislators wrangled over a $42 billion shortfall, the state froze its bond funds. Nowhere has the impact been felt more acutely than at California's environmental nonprofits, which are almost entirely funded by those bonds. "A lot of restoration work has just stopped in its tracks," says Dale Hopkins at the San Francisco regional water board.

February's federal economic stimulus includes $340 million for nationwide watershed rehabilitation and flood prevention and $50 million for ecosystem restoration in the San Francisco Bay-Delta. It also injects $280 million into California's clean water fund, some of which is meant as a stopgap for water restoration groups until the state starts issuing bonds again. But that portion accounts for less than half of California's $167 million budget for watershed restoration, and the money has gone mostly to construction firms for "shovel-ready" projects, rather than to conservation and planning-oriented organizations like the watershed groups.

To make matters worse, the crash of the bond market has made funding for future conservation work even more uncertain. As a result, says Riley, many community watershed groups could permanently shut down. "Some of these groups have been in existence for 25 or 30 years. That's where your institutional memory and ground workforce is," she says. For many of California's smaller watersheds, these community groups are the only organizations doing monitoring and conservation work. "If you lose continuity," Riley says, "it's very hard to recreate momentum and organization."

Restoration activists seem to have found a sympathetic ear in the United States Congress. The Water Quality Investment Act, which passed the House in March and awaits a vote in the Senate, could allocate $18.7 billion to states over the next five years for "watershed approaches to solving water quality problems." The bill outlines another $1.8 billion for sewer overflow control grants and includes funding provisions for "economically distressed" neighborhoods. According to the Web site of Speaker of the House Nancy Pelosi, D-Calif., these investments in waterway restoration and flood control could translate to 300,000 jobs nationwide.

**The economic and political** challenges of urban stream-restoration work are daunting, but the long-term ecological costs of inaction are even worse. A study conducted between 2004 and 2006 by the San Francisco Regional Water Quality Control Board found that nearly all of the region's creeks showed impaired biodiversity. In February, the regional water board declared 26 urban waterways chronically polluted by toxins and garbage. The pollution concentrates at the ends of the watersheds, along the tidal lowlands, in places like North Richmond. Over time, tides and currents flush the most buoyant material through the Golden Gate. Some of the material migrates to the Texas-sized "Great Pacific Garbage Patch," a soup of plastic fragments and debris that languishes 1,000 miles off the California coast.

In San Francisco, where nearly all of the city's streams have been buried in pipes and tied into the city's sewer system, stormwater presents an even greater dilemma. When heavy rains overwhelm the system's capacity, sewage overflow runs into San Francisco Bay. Last year alone, over 800 million gallons of untreated sewage flowed into the ocean and bay.

Rosey Jencks, a watershed and stormwater planner at the San Francisco Public Utilities Commission, is exploring the feasibility of small, low-impact projects such as vegetated medians, permeable pavement and daylighting stretches of streams. If water and pollutants are absorbed into the ground, the amount of runoff entering the sewers is decreased. "These projects allow you to take the pressure of the system without 100 percent going back to the old hydrology," says Jencks. To date, however, the city has only a handful of demonstration projects, including a parking lot near Lake Merced that shunts runoff into grassy medians.

These fledgling efforts are about more than protecting the Bay's marine ecosystems. Every gallon of water kept out of San Francisco's east-side sewer system is a gallon less directed to the Bayview District, the city's poorest neighborhood and site of its largest waste-treatment plant. The Southeast Plant processes almost 80 percent of the city's sewage and stormwater, much of it pumped uphill from other urban drainages. Though the city has remedied some of the problems, Southeast is still locally notorious for odors, flooding and ominous emissions from its stacks.

"In San Francisco, we're constantly reminded we're this clean, green city," says Marie Harrison, a Bayview-Hunters Point activist and resident. "I laugh. If we're leading the way, everyone else must be half dead."

**Back on Wildcat** Creek, near Verde Elementary, Bradt and I come upon a three-channeled raceway installed by the Army Corps of Engineers. Its vertical concrete walls are tattooed top to bottom with graffiti. (I pause to decipher one haiku-like snippet, which reads: *Respect / Train Wit No Love / Richmond*.)

In spite of the heavily engineered aesthetic, Bradt says, Wildcat Creek is one of a handful of Bay Area streams that still provide habitat for endangered steelhead. (Locals have even reported fish farther upstream, sheltering in submerged shopping carts.) Richmond's estuaries also remain important stopovers for migrating birds on the Pacific Flyway, he says. But when you're actually out here, it's hard to feel hopeful. We hop a small wire fence into the concrete streambed. The middle channel carries a swift, shallow flow of water, designed to allow spawning fish upstream. Though we are in the midst of steelhead spawning season, there are no fish. Even if there had been, the channel would probably have been impassible: It's clogged with a mattress.

On our way back to the car, parked near the entrance to Wildcat Creek Marsh, Bradt mentions the importance of keeping "eyes on the creek," inspired by the urbanist Jane Jacobs' notion of "eyes on the street." "The idea is that a community that uses its local waterways for recreation is far more likely to become active in protecting them," says Bradt. But as we approach Richmond Parkway, there's not a recreationist in sight. The path along the creek under the roadway is blockaded, as it is almost year-round, with floodwater, mud and trash, and we are forced into the street to contend with a torrent of traffic.

**The eyes on the creek** have been steadily increasing, however, as East Bay activists and residents rally local support for the environment. In 2006, with the election of Gayle McLaughlin, Richmond became the largest city in the country with a Green Party mayor. Twice in as many years, community members have marched to protest the Chevron refinery's frequent "flaring" events -- which emit heavy black smoke and toxic gases -- as well as the company's proposal to expand its facility to refine low-grade crude oil. In 2006, the community successfully defeated Chevron's plans to dredge Wildcat Creek Marsh for a deepwater shipping channel.

At the federal level, the new presidential administration has made environmental justice a distinct part of its vision. In March, President Obama appointed Van Jones, the Oakland-based author of *The Green Collar*

*Economy*, as his green jobs advisor. Jones, who has quipped that a nationwide environmental revitalization should begin with "greening the ghetto," believes that money allocated for environmental protection can spur a green jobs movement in disenfranchised communities.

Many early efforts to introduce "green sector" jobs in the East Bay have focused on alternative energy. In 2008, for example, the Oakland Green Jobs Corps, part of a group founded by Van Jones, announced a program to train 40 inner-city recruits for "solar panel installation, energy efficiency and green construction." However, Ian Kim, a director of the Corps, sees another nascent effort in the East Bay, based around water efficiency and supply protection. "In California, water scarcity is an issue. We spend almost 20 percent of our energy just moving water around," says Kim. "We are beginning to reframe and rethink how water and energy are related." He points to water efficiency upgrades -- the installation of low-flow appliances, graywater recycling units and rainwater retention systems, for instance -- as job markets that may emerge in underserved neighborhoods. Some call these socially responsive new jobs "blue-green" work -- "blue" as in blue-collar labor.

To see how such jobs might play out on urban waterways, I meet with Sergio Brambila, a site director for the Oakland-based Civicorps. (Civicorps, which is modeled on the California Conservation Corps, seeks to recruit at-risk inner-city youth.) Many of his crew are dropouts or are on parole or probation. Brambila and his crew are working with the Urban Creeks Council on a restoration project on Rheem Creek, which runs through the Contra Costa College campus in San Pablo. As we talk, Civicorps members claw at the ground with picks and heavy rakes, removing trash, ivy and invasive black acacia tree runners from the creekbed.

Brambila reminds his recruits to dig deeper, and to look carefully for weeds left in the upturned soil. "Break that ball up. Pull out the roots. Sift through it!" he urges. Brambila says the corps provides an avenue for work and also a means of stanching the flow of local youth into the criminal justice system. "That's what is beautiful about the corps. You get to be in an environment where you can teach them about their community -- and about the importance of stream restoration, water quality and loss of habitat," says Brambila. "It then becomes their choice about whether they're going to use it and abuse it or leave it a better place."

A young man from East Oakland named Freddy Bowman props his chin on his shovel and looks out over his work. "I'm here to get my high school diploma and finish my portfolio," says Bowman. "Maybe I can get a little money in my pocket, too, and stay out of jail." After five months in the classroom, he says he's happy to finally be out in the field working. Until he gets his diploma, however, Bowman can't get onto a fire crew or into the recycling program that he says drew him to Civicorps in the first place. Then he politely excuses himself; he has to get back to work. A hard afternoon lies ahead. "We've got to get all this ivy out of the creek, so it doesn't grow all over and choke the trees. So they can breathe."

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