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Stewardship Program

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Final Report

At the Lower East Side Ecology Center we have worked hard to continue the development of our environmental education offerings while responding to the changing conditions of East River Park. In October of 2005, reconstruction and renovation of the East River waterfront restricted access to the centerpiece of our education program, our classroom located in the Grand St. Fireboat House in East River Park. Our classroom houses several habitats housing representative species, ranging from a 400-gallon fish tank containing wildlife collected from the East River, to terrariums that display the unique adaptations of animals such as tree frogs and walking stick insects. In addition, the classroom houses a wide array of field equipment that has been integrated into our programming in a way that expands the classroom experience to include the surrounding parkland and the estuarine waters of the East River. Water quality monitoring instruments, bottom dredgers, flow traps, video equipment, microscopes, binoculars, fishing tackle, soil sampling tools and other materials afford student visitors with truly unique opportunities for hands-on exploration of their local watershed. In the past, we have hosted classes on an increasingly wide array of topics beyond the traditional scope of ecology issues such as: field observation of animal behavior, orienteering and map skills, plankton exploration, urban angling and photography.

Today, the classroom is temporarily off-limits for students due to the proximity and nature of the construction work in the park, and Ecology Center staff is facing the challenge of adapting our materials and curriculum to this interim of restricted access to both the classroom and the water itself. We have met these challenges with a year of innovative programs that have maintained the continuity of our education program and expanded our teaching resources at the Ecology Center.

We continue to maintain the classroom and its scaled-down cast of creatures for use as our (very unique) office and multi-use meeting space. We are still able to receive college-age interns -- a component of our education program of increasing importance -- and so the space does continue to function as a classroom in that capacity. As active construction proceeds in the park, we have begun to incorporate the construction project itself in our educational programs, offering classes that explore waterfront infrastructure, the history of the East River waterfront, environmental impacts of waterfront development and site planning issues.

To date, we have worked with almost 3000 students ranging from pre-K to college level. Such experiences have offered students valuable time at the water's edge and during classroom visits to explore their environment in a new and exciting way. For many students, we provide their very first educational contact with the East River. Students have returned to us for research projects and internships, resulting in an impressive body of student work that provides a unique and locally based set of teaching tools.

This year, in addition to our standard offerings, we ran special programs – such as The Water Underground and the Free Friday Fishing Clinic – that generated useful educational materials and opportunities for peer-to-peer learning. These materials capture local knowledge and make it available to the community and future students in the form of models, videos and log books**.**

With the support of the Mini-grant program, we held eight "Free Friday Fishing Clinics" on a biweekly basis from July through September in 2005. Ecology Center staff were responsible for coordinating outreach, materials and directing volunteer support for each event. The events were well attended, with 15-40 participants per event, with attendees ranging in age from toddlers to teens, parents and grandparents. The overwhelming majority of participants were local residents from our immediate neighborhood, who arrived at the clinics on foot or by bicycle. Over the course of the summer, we became very well acquainted with several of the participants and their families. This summer, beginning in June, Mini-grant funds helped us kick off another season of fishing clinics. Although park construction displaced us from our favorite fishing spot, we maintained a consistent crew of fisherpeople throughout the summer comprised of newcomers and veteran anglers. The clinic remained a media darling, appearing in Field and Stream online, Getty Images, the local LoHo blog and US Frontline News. The fishing clinic also served as material for student journalists, and a work sample of an NYU student is included at the end of this report.

In spring of 2006, the Ecology Center partnered with Center for Urban Pedagogy(CUP), City-as-School, and RECYouth to explore the Water Underground–the millions of gallons of water that enters the city, gets used in various ways and discharged to local waterways each day. During this semester-long project, students, educators and professionals collaborated during field trips and interviews to make sense of the drinking water, waste water and surface water systems in NYC, and come up with a way to communicate what they had learned to other students and the general public. Two educators from CUP and myself met with 12 high school students twice a week ver the course of the semester. Together we developed a video about this investigation as well as a portable, working model of a NYC sewer -- backups, overflows and all. Today, as a result of this project and previous work by LESEC staff, we offer a three-part curriculum examining New York City's water infrastructure: teachers' resources such as The Citizen's Guide to the Sewershed, in-class visits with the Water Underground video (for HS and up) and the Make Your Own CSO sewer model (K-8). So far, the materials have been demonstrated to hundreds of enthusiastic viewers at venues such as South Street Seaport Museum, Solar 1 and the Lamont-Doherty Earth Observatory Open House.

Problems encountered

Due to the much-needed renovations of East River Park and the Grand St. Fireboat House, a field office for additional staff involved with the reconstruction work is now housed in the Fireboat House. After an initial reshuffling of office space, we have been able to maintain full use of the classroom. We can, however anticipate periods of restricted public access to the Fireboat House and East River Park as the reconstruction phases proceed. Also lost was our direct water access adjacent to the classroom. All of our water access was moved to the extreme southern end of the park. These problems prevented us from doing an ongoing water quality monitoring program as we had expected. We incorporated water quality monitoring into several of our classes and clinics, but as a central part of our program, it became unfeasible, The opportunity that became available was the chance to partner with new collaborators such as CUP and RecYouth on the Water Underground project. We were able to travel throughout the city and collaborate with existing partners such as the Department of Environmental protection, the South Street Seaport Museum, Solar1, Pace University and others. We were able to take this time of instability and use it to strengthen our curriculum with the help of a great group of students.

What we have learned

We have a renewed awareness of the importance of our work as a supportive educational resource for our community. We have also learned (or perhaps re-learned?) the critical importance of maintaining a flexible program that can quickly respond to changing external circumstances as well the needs of our teachers, students and parents. In light of the sidelining of a DEP-funded project that would have created water-themed educational venue for the City, and the temporary displacement of the River Project and its invaluable Estuarium, we know that our increased resolve is critical to maintaining waterfront education opportunities for students in the Lower East Side. To that end, we have focused on strengthening collaborative efforts with our many partner organizations and maintaining ongoing relationships directly with area teachers and students. We look forward to this year of expanded environmental education programming.

2005 Fish Log – click to download
http://lesecologycenter.org/pdf/LESECfishlog_2005.pdf

A link to LoHo Blog, and an article by Pat Arnow on the Free Friday Fishing Clinic:
http://lohoblog.blogspot.com/2006/07/east-river-park-planning-and-fishing.html#links

A link to the Water Underground project description and opening event photos:
http://anothercupdevelopment.org/projects/detail/35

Demonstrating the CSO model generated during the Water Underground with students from City-As-School

First fish of the 2006 fishing clinic season, an American Eel, caught by Avery

Article written by NYU Journalism student, Julie Leibach:

6/22/06
Fishy feature

There's a tiny stretch of shore just north of Pier 17 along the East River that emerges at low tide to reveal a beach comber's paradise—or a sanitation worker's nightmare. Plastic bottles and potato chip bags. A baby carseat. Soaked socks. A twisted blue tarp, bulging with sodden sand. Lip gloss, Styrofoam, other unidentifiable flotsam.

Further up from that shore, as far as the eye can see: fishing poles, like sentinels tied to the railing running along the water's edge, their lines quivering in the breeze—or perhaps in anticipation of a nibble. And watching them, their owners, sometimes dozens: men, young and old, waiting—sometimes hours—for a catch. But when it happens, then comes the big decision: is it a keeper? The answer depends on the fisherman.

Carlos Gonzalez fishes purely for sport. "Every now and then you'll se a floating condom," in the river, he says. "I don't trust it." But others do.

Ruben Perez is one of them.

A retired truck driver for the New York State Department of Health, Perez, 61, comes out virtually every day. "See how dark I am?" he says, stretching out his leathery arms.

He sits on a little folding stool near Stuyvesant Cove, just north of the Con Ed utility plant. A grey cooler and a small metal cart accompany him. His baseball hat, the words Puerto Rico spelled out in red, white and blue, shades his milky eyes from the sun. He monitors his rod, which is bungee-corded to the railing.

Despite once hooking his line on a dead body—an episode that took him a month to recover from—Perez is generally not suspicious of the quality of the river's fish. "I've been eating it for more than 20 years. I'm still alive," he says.

Indeed, despite its brackish water, pungent air, and foul-and-funky reputation, the East River is actually a legitimate source of seafood—but with a catch, of course.

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Every year the New York State Department of Health (NYS DOH) issues an advisory report about eating sport fish from New York's water bodies. It's designed to warn sportsman that while their prizes may be tasty, they may not be so healthy because of environmental contaminants.

Advisories are mainly based on information that the New York State Department of Environmental Conservation (NYS DEC) gathers on contaminant levels in fish. The sampling focuses on water bodies with known or suspected contamination, as well as popular fishing waters. In a given year, the DEC collects nearly 2000 fish from over 50 locations and analyzes them in contract labs.

The results of those analyses are sent to the NYS DOH, which reviews them to see if an advisory should be issued. The NYS DOH bases its report on guidelines from both the Environmental Protection Agency and the Food and Drug Administration regarding acceptable levels of contaminants in seafood, according to a prepared statement from the press office.

According to the NY DOH 2006-2007 advisory report, the contaminants of primary concern in fish swimming in the East River are polychlorinated biphenyls, or PCBs. They're a group of man-made chemicals once used in electrical transformers and lubricants.

The United States produced over 1.5 billion pounds of PCBs before they were banned in 1977 because they were considered harmful to human health. An overwhelming majority of these—1.3 billion pounds—were dumped into New York's Hudson River by a General Electric Plant. The East River has its share as well, according to Timothy Fitzgerald, a scientist with Environmental Defense, a non-profit organization.

The Environmental Protection Agency considers PCBs "probable human carcinogens," meaning that they could cause cancer. Indeed, laboratory experiments show that PCB exposure causes tumor in rats. Further, there is growing evidence that PCBs can cause developmental and neurological problems in fetuses.

In one retrospective study, researchers studied children and their mothers who had consumed PCB-contaminated fish from Lake Michigan for an average of 16 years. Fish consumption was correlated with lower birth weight and lower IQ scores.

Despite the ban, PCBs are still around in various U.S. waters. As it turns out, the qualities that made them ideal for use in industry are what also make them resistant to environmental degradation. PCBs are oil-soluble, so they don't mix well with water. As a result, they settle into river beds and lake bottoms. And that's where fish swim into the picture.

Through a process called bio-accumulation, PCBs can make their way through the food chain, according to Rick Aldridge, a retired University of Florida limnologist who studied freshwater systems. The chemicals first collect on small, bottom-dwelling organisms like algae. Then, fish grazing on those smaller creatures also get a dose of PCBs. Finally, the big guys take their turn. As the predator fish break down their prey, the PCBs accumulate in their tissues. As a result, those large fish "become basically toxic-concentrators," says Aldridge.

As it turns out, the fish in the East River that are good for eating—namely striped bass and bluefish—are also good at storing PCBs. Because they're at the top of the fish food chain, and because they're fattier than some of their cousins, they can accumulate higher levels of PCBs than other fish.

For that reason, striped bass and bluefish garner special spots on the NY DOH advisory list: while other fish might be eaten once a week with no serious health risks, the NY DOH recommends that people should eat no more than one meal a month of striped bass or bluefish from the East River. And for infants, children under 15, and women, no fish should be eaten.

Although representatives from the NYS DOH couldn't be reached for comment on its specific methodology, fish consumption advisories like the one issued for striped bass and bluefish are typically based on average human body size, the average size of a meal of fish, and the amount of contaminants that are safe to consume without causing major health effects, according to Aldridge.

Of course, the advisories are just that. Not everyone heeds them. However, while some willingly choose not to, others simply don't know about them. They're posted in very few places along the East River, according to Kate Zidar, Program Director of Environmental Education at the Lower East Side Ecology Center. Furthermore, the advisories are only translated into English and Spanish. Many of the fishermen along the East River speak other languages, such as Chinese and Polish, according to Zidar

"There's this kind of knowledge gap," says Zidar.

But getting the message out is difficult. "You don't want to terrify people," says Maureen O'Neill, who studies children's environmental health issues with the NY branch of the EPA. So

the question is, “how do you get these messages out to people in a way that works,” and that is also cost-effective, she says.

Furthermore, the effort made to spread the word about public health issues like PCB-contaminated fish often depends on how important the problem is to public officials, says O’Neill. Indeed, despite the numerous studies, the research that guides advisories still isn’t clear as to the relationship between PCBs and human health, according to some researchers.

“There’s a whole debate…about how toxic PCBs are to people,” says Isaac Wirgin, a professor in the Department of Environmental Medicine, part of the New York University School of Medicine.

In addition, many of the studies done on PCBs have limitations. Laboratory evidence from rats isn’t enough to conclude that PCBs will affect humans in the same way, says Dickson Despommier, Professor of Environmental Health Sciences at Columbia’s Mailman School of Public Health in New York City.

And while human studies like the Michigan one are certainly suggestive that PCBs may cause problems, more studies involving more people are necessary to pinpoint just what sorts of harm PCBs might cause. The issue is often “is it the actual exposure, or is it some other [factor] that I didn’t think to measure” that’s causing the health problem, says Gary Myers, a pediatric neurologist and neonatologist at Strong Memorial Hospital in Rochester, New York.

Further, different fish of the same species can contain different levels of PCBs. For example, while the majority of striped bass that swim through the East River probably spawned in the Hudson River—which is still riddled with PCBs, even though levels have dropped over the years—not all follow the same migratory paths, according to John Waldman, a biology professor at Queens College. As a result, some fish have lower levels of PCBs and others have high levels.

So when testing these fish, “you don’t know if it arrived the day before from some clean place or from some dirty place,” says Waldman.

As a result, when setting advisories, the NYS DOH may be “erring on the side of caution” when they write their advisories, says Waldman.

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Ruben Perez sits atop his little folding stool, waiting. He is vaguely aware of the possibility of contamination in his dinner. But the bit that he knows he didn’t learn from the fishing advisory report. Rather, from listening to the news on television, he says he says that he can eat about a quarter of a pound of fish every two weeks.

“The bluefish taste like motor oil sometimes,” he says. But after preparing them with some milk and vinegar, “it doesn’t even taste like fish—it tastes like chicken,” he says with a grin.

For seafood lovers like Perez, fish caught in the East River do have health benefits: they’re a source of omega-3 fatty acids, which help to control inflammation and promote vascular health, according to Lora Sporny, an associate professor of nutrition at Columbia University. And with the jury still out on the status of PCBs, it could just come down to whether or not the benefits outweigh the risks, says Sporny.

Indeed, for a child or a pregnant woman, frequently eating fish from the East River “may cause problems,” says Zidar of the Lower East Side Ecology Center. “But for a grown man? Better than McDonalds.”