Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY
Connecticut

Menu of Measures is a Recipe for Success

Waterbody Improved

Edgewood Park Pond was in danger of becoming a marsh due to its highly eutrophic condition and shallow depths. Project leaders devised a plan that included stormwater diversion, dredging, revegetation, and fish habitat restoration. These actions contributed to reduce sedimentation, improve fish habitat, and reduce fecal contamination by waterfowl. Consequently, pond water quality has improved dramatically, the pond's eutrophic state has been eliminated, and large fish have returned. Because of these results, the Connecticut Department of Environmental Protection (CT DEP) expects to partially remove the pond from the state's 303(d) list of impaired waters in 2006.

Problem

The 2.7-acre Edgewood Park Pond is northwest of downtown New Haven, Connecticut, along the shore of Long Island Sound. Over many years, a steady accumulation of organic matter reduced the pond's average depth to 2.5 feet. During summer months, the shallow waters became too warm for fish survival and algal blooms transformed the pond into a pool of green muck and unpleasant odors.

To understand the source, nature, and context of the problem, the City of New Haven undertook a diagnostic feasibility study of the pond in 2000. With a goal of restoring the pond to a warm-water fishery resource, the study included an inventory and assessment of existing pond and watershed conditions, determined factors responsible for the pond's degradation, and proposed specific actions to restore the pond. The study revealed that the pond was a nutrient-enriched, sediment-filled, shallow, highly eutrophic waterbody unsuitable for contact recreation and fishing. It also concluded that the pond was often an aesthetic and odor-emitting nuisance, low-quality fish habitat, seasonal nutrient source, and undesirable educational resource.

Several sources contributed to pond degradation. Sparsely vegetated—and hence highly erodable—land sloped toward the pond and delivered high sediment loads during storm events. Discharge from a nearby storm pipe further exacerbated bank erosion. The storm pipe, pet wastes left along the bank, and waterfowl were also suspected bacteria and nutrient sources.

Decades of organic matter accumulation reduced average pond depth to 2.5 feet, with some areas as shallow as 1.5 feet. Dredging restored the pond to a maximum depth of 10 feet.

By 2004, the pond was on the state's 303(d) list for aquatic life use impairments due to low dissolved oxygen and siltation caused by nutrients and sediments. The pond was also listed for primary contact recreation impairments due to nutrients and bacteria. The state listed the pond on the basis of observations of eutrophication and the absence of its former fishery.

Project Highlights

The City of New Haven applied for and received several section 319 grants needed to help restore the pond as a fishery and recreation resource. In 2004 and 2005, the city, CT DEP, and other conservation partners took a number of measures:

- Dredging the pond to a maximum depth of 10 feet. This removed approximately 12,500

One view of Edgewood Park Pond after restoration. Littoral plantings and a stabilized bank are shown to the center and left.

cubic yards of nutrient-rich sediments from the pond bottom.

- Redirecting the storm pipe away from the pond and into a nearby wetland, facilitating the removal of nutrients, sediments, and other nonpoint source pollutants.
- Planting littoral vegetation to reduce slope erosion and discourage geese and other waterfowl from accessing the pond.
- Improving fish habitat by installing fish structures, felled trees, and littoral zone plants.
- Using construction and vegetative planting approaches to stabilize the slope on one side of the pond.

Results

The project was an overwhelming success, with water quality improvements visibly apparent to even the casual observer. Large fish have returned, and the pond edge has been stabilized.

With the nutrient and sediment impairments resolved, CT DEP expects to remove Edgewood Pond's aquatic life use impairment from the state's 303(d) list in 2006. While nutrient loads have been reduced, the other cause of the pond's primary contact recreation impairment—bacteria—remains a problem. For this reason, the pond will remain listed for primary contact recreation. Water quality monitoring will continue beyond 2006.

Beyond the physical improvements to the pond, this project produced many other benefits. For example

- It restored the pond's status as a valuable recreational and educational resource for city residents.
- It demonstrated the benefits of urban environmental restoration projects to human and natural resources.
- It coalesced a diverse group of park and pond constituents and raised general public awareness about the need for continued stewardship of this important resource.
- It helped to enhance the quality of life for low-income residents of New Haven affected by pollution.

Since the restoration project was completed, local schools have used the pond to conduct seining activities and aquatic environment education programs, and the Edgewood Park Ranger has used it for canoeing and fishing programs. The pond has once again claimed its place as one of the most beautiful assets in Edgewood Park and the surrounding neighborhood.

Partners and Funding

With support from the federal section 319 program, CT DEP provided $267,600 for the pond study and restoration program. The City of New Haven provided more than $90,000 toward the project design and construction and contributed in-kind services for project management, landscape design, and site grading.

The city built on the success of the initial pond restoration and mobilized the Elm City Parks Conservancy, the Friends of Edgewood Park, and the Yale University Forestry School's Urban Environmental Initiative to undertake the final slope stabilization project. The city provided an additional $35,000 for a consultant to provide construction materials and oversee volunteers.

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