Center Springs Pond Restoration Project

Connecticut Department of Environmental Protection
Nonpoint Source Management Program

Success Stories

June 2000

Connecticut Department of Environmenatl Protection, 79 Elm Street, Hartford, CT 06106-5127 - Arthur J. Rocque, Jr., Commissioner

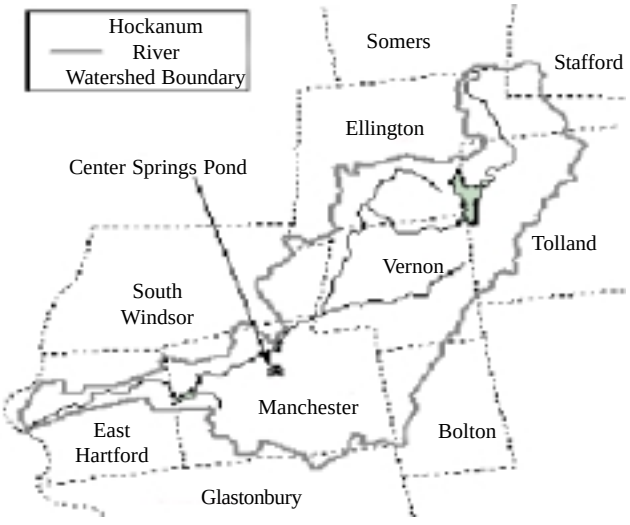
Nonpoint Source Pollution

Nonpoint source (NPS) pollution is quite diffuse, both in terms of its origin and in the manner in which it enters surface and ground waters. It results from a variety of human activities that take place over a wide geographic area. Pollutants usually find their way into waters in sudden surges, often in large quantities, and are associated with rainfall, thunderstorms, or snowmelt. NPS pollution generally results from land runoff, precipitation, atmospheric dry deposition, drainage, or seepage. Physical disturbances to a water resource caused by filling, draining, ditching, damming, or otherwise altering wetlands and stream courses are also considered nonpoint sources.

Photo by Stan Zaremba

The Resource

Center Springs Pond is the central feature of a fifty-five acre urban park located in the center of Manchester, Connecticut in the Hockanum River watershed. Center Springs Park and its pond are valued resources providing residents with a variety of recreational opportunities. The pond, which is located in the western portion of the park, has a surface area of 6.1 acres, and is fed by Bigelow Brook. From the late 1920s through the mid 1970s, the pond was a popular site for skating and fishing, attracting people from all parts of Manchester. In addition, during the warm weather, people were drawn to the area to enjoy picnic lunches or to simply sit by the pond and enjoy the scenery.



Environmental Problems

Bigelow Brook, which feeds Center Springs Pond, runs through a heavily urbanized area. As a result, the brook receives high volumes of storm water runoff. This storm water carries with it pollutants such as sediment (from road sanding and construction activities), nutrients (from atmospheric deposition, septic systems, and lawn fertilizer), and trash (everything from common litter to shopping carts). The primary impacts on the pond were from sediments, which filled in the pond and reduced its depth; nutrients, which fed the growth of algae and aquatic weeds; and, trash, which diminished the pond's aesthetic appeal.

The filling of the pond, caused by the sediment loading, contributed to weed growth and increased water temperatures by allowing sunlight to penetrate to the pond bottom. The combined effect of the sediments, increased temperature, and die-off of the algae and weeds consumed oxygen and led to low-dissolved oxygen conditions. These impacts rendered the pond inhospitable to most species of fish, and too shallow for ice skating. The trash, bottles, cans, plastic containers, tires, lumber, logs, shopping carts, and even a doghouse, simply made the park a less appealing place to visit.

The Solution

The goals of the Center Springs Pond Restoration Project were to improve water quality in the pond and to re-establish the pond and surrounding area as a focal point for recreational activity in the town of Manchester. The pond restoration project was the second phase of a comprehensive plan to restore the park initiated by the town of Manchester in 1988.

Phase 1 included: construction of a recreation building which is used as an office/public gathering place, reconstruction of the parking lot; installation of new parking lot lights and other security lights; clearing brush and undergrowth from the building area; and upgrading certain amenities (including repairing a burned down skating lodge).

Phase 2 was based on the recommendations of a "diagnostic/feasibility" (D/F) study conducted by the Connecticut Department of Environmental Proection (CT DEP) Lakes Management Program on behalf of the town of Manchester, and included the following components:

*** Installation of trash rack - upstream of the pond**

This trash rack collects large debris before items enter the pond. Trash is held in areas easily cleaned by the town maintenance crew.


Photo by Stan Zaremba

*** Construction of sedimentation forebay - eastern end of the pond**

The forebay accumulates sediment entering from Bigelow Brook in a confined area for easy removal. The forebay is separated from the main pond by a gabion wall/weir. The wall/weir directs the flow to the southern end of the forebay before water passes into the pond. This extends the detention time and allows for more settling of sediments before water enters the main body of the pond. The town also developed and has implemented a pond maintenance plan, which includes periodic sediment removal.

*** Dredging of the pond**

Approximately 25,000 cubic yards of material were removed. The pond was excavated to the bottom of the soft sediment, and the materials were trucked to a landfill. At the landfill, the material was stockpiled, de-watered, and then used as landfill cover.

Results

The Center Springs Pond Restoration Project was completed in 1995. Since then, there have been many noticeable changes. The most obvious of these is the improved appearance of the pond and the park. Before the restoration project, Center Springs Pond's high nutrient content and shallow depth caused extensive duck weed growth, rendering the pond unattractive for recreation and unsuitable for most fish. Since the project was completed, the duck weed blooms have been eliminated. Floating debris also repelled visitors from the pond, but the trash rack and watershed management activities have brought this to an end. Watershed residents have done their part by responding to public education and helping reduce the amount of litter and other household and yard pollutants.

Before the project, sedimentation of the pond and winter draw downs for weed control had reduced the surface area to the degree that ice skating was very limited. Before the project was completed, it had been 20 years since skaters had used the pond. Now the pond once again is used for skating. Perhaps the most astonishing change that has taken place at Center Springs Pond is the return of fishing as a viable recreational opportunity. Before the restoration project, the town's annual fishing derby was held at other ponds in the region. This event usually attracts 600-700 people each spring. Since the project was completed, the annual fishing derby has been held at Center Springs Pond, which is stocked with both trout and bass.

The town of Manchester now has a regular maintenance program for the pond and park which includes weekly litter pickup and periodic dredging of the sedimentation forebay. In December 1998, 1200 cubic yards of sediment was removed from the forebay. Other amenities have been added since the completion of the restoration project, including a fishing pier/lookout point on the gabion wall, and a picnic area.

Future Plans

Future plans for Center Spring Pond include regular maintenance for the immediate park grounds. There are also plans to rebuild an picnic pavillion/observation deck over the old skating lodge foundation, which burned down. A concrete fishing pier, which is there in addition to the recent pier, is going to be "dressed up" to match the décor of the new skating lodge. Also, proposed are stone dust trails through-out the park and a picnic pavillion at the top of the sliding hill. It is easy to see that, through the Center Springs Pond Restoration Project, this picturesque place in Manchester has been restored as an important recreational resource for the community.

Project Partners and Funding

This project was a combined effort by the town of Manchester, the Connecticut Department of Environmental Protection (CT DEP), United States Environmental Protection Agency (US EPA), and several private consultants and contractors.
The total cost of the project was $342,900 which included:

- $250,000 from CT DEP special bond act funds authorized by the CT General Assembly;
- $ 62,900 from federal Clean Water Act section 319 funds; and
- $ 30,000 from the town of Manchester capital improvement funds.

Section 319 funds were dedicated to nonpoint source controls in and around the pond, and other watershed management activities. Nonpoint source controls included the construction of the trash rack and the sedimentation forebay. As a condition of the section 319 grant, CT DEP and US EPA required the town to conduct watershed management activities, including a review of street sweeping programs, a public education program (in the form of pamphlets mailed to all residents in the immediate watershed area and newspaper articles), and an investigation of high nutrient loading areas identified in the D/F study.

Contacts

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CT DEP and US EPA websites
http://dep.state.ct.us
http://www.epa.gov/owow/nps/education.html

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