NONPOINT SOURCE SUCCESS STORY

Connecticut

Heminway Pond Dam Removal and Steele Brook Restoration

Waterbody Improved

Through the work of the Connecticut Department of Energy and Environmental Protection (CT DEEP), the Town of Watertown and other partners, the Heminway Pond Dam on Steele Brook in Watertown was removed. The long-anticipated removal occurred in 2018 after almost 15 years of discussion and planning. Since 2002, this segment of Steele Brook (Segment ID CT6912-00_02) had not supported aquatic life due to iron precipitate, which accumulated behind the dam during warm weather and low-flow periods. Removing the dam was anticipated to reduce or eliminate this water quality impairment, improve aquatic habitat connectivity, and restore natural river flows in this section of Steele Brook.

Problem

Heminway Pond was created in the early to mid-1800s when a dam was built across a section of Steele Brook just upstream of Echo Lake Road near the center of Watertown. The original purpose of Heminway Pond Dam was to provide water to a local thread and string mill. The mill no longer exists, and the dam fell into disrepair (Figure 1).

Figure 1. The Heminway Pond Dam blocked the upstream passage of aquatic life.

Around 2002, CT DEEP identified this segment of Steele Brook as not supporting habitat for fish, other aquatic life, and wildlife. The cause of the impairment was attributed to iron precipitate that accumulated during hot weather and periods of low flow, presenting itself as an orange-colored flocculation in the stream immediately downstream of the dam (Figure 2). As a source of the impairment, anecdotal evidence suggests that adjacent land west of Steele Brook may have been filled with bulk waste long ago. The groundwater appears iron-rich and supports anoxic conditions contributing to the iron precipitate conditions. The dam impeded the passage of fish and other aquatic life, obstructed the natural river flows, and induced low-flow conditions downstream of the dam. These conditions exacerbated the water quality issue and negatively affected fish and other aquatic life.

Story Highlights

CT DEEP concluded that the best way to curtail the impairment was to restore natural river flow by removing Heminway Pond Dam. Starting in the early 2000s, the Town of Watertown began discussing the removal of the dam with CT DEEP (then CT DEP) and other partners, including the Siemon Company, which at that time owned the dam and pond. In 2007, the Town acquired the dam and the pond with the intent to remove the dam, restore the river, and convert the dewatered impoundment into a passive recreation area. Removing an unused and aging dam would also eliminate a hazard and liability. Likewise, CT DEEP was interested in seeing the dam removed to improve water quality and benefit fisheries by restoring stream connectivity and improving aquatic habitat.

CT DEEP provided federal Clean Water Act Section 319 Nonpoint Source (319 NPS) grant funding to the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) to develop a watershed-based plan for Steele Brook that examined NPS impairments and included a dam removal feasibility analysis. CT DEEP subsequently provided additional 319 NPS grant funding to the Town of Watertown to hire a consultant to develop a dam removal design package and assist with permitting and preparation.

Figure 2. Looking upstream at dam site, before removal.

Figure 3. Looking upstream at the dam site, after removal.

Fortunately, it was determined that the sediments in the impoundment behind the dam had relatively low contaminant levels and could be reused on site with some protective layering or capping. Construction activities commenced in July 2018, and most of the major work was completed by early November 2018 (Figure 3). The Heminway Pond Dam removal and Steele Brook channel restoration process was documented through a video: Removal of Heminway Pond Dam & Restoration of Steele Brook.

Results

This 15-year-long project ended in 2018 with the successful removal of Heminway Dam and the restoration of Steele Brook channel and its natural habitats (Figure 4). The water quality assessments in Connecticut's 2022 Integrated Water Quality Report to Congress indicate that aquatic life use support is still impaired in this section of Steele Brook due to iron. The reasons for this are not entirely clear, and further study is required. However, flows through this stretch of Steele Brook remain lower than anticipated after the dam removal, which may be a contributing factor in the current assessment.

The project helped restore the waterway's ecology. With the dam removal and brook reconnection, approximately 0.2 miles of Steele Brook is now once again naturally free-flowing. Aquatic habitat was restored, and passage was reestablished for riverine fish and other aquatic species to travel up and down this section of the river. The stream bottom habitat was restored by adding boulders and cobbles, and the streambanks were stabilized. New floodplain and

Figure 4. Aerial imagery shows the Heminway Pond Dam location, before (left) and after (right) removal.

upland wetlands were created, adjacent to the new river channel, which further increased the area of restored natural habitats. CT DEEP is pleased with the work accomplished to date in Steele Brook and is hopeful that additional coordination and support will continue to improve water quality in the watershed.

Partners and Funding

Several partners contributed to the success of the Heminway Pond Dam removal and the Steele Brook restoration project from its inception to its completion. Key partners include the Town of Watertown, CT DEEP, NRCS, the Northwest Conservation District, the Siemon Company, and the U.S. Environmental Protection Agency. Overall, CT DEEP combined $860,191 in 319 NPS funds, with $1.1 million from CT DEEP's Supplemental Environmental Projects—a total commitment of $1.96 million—toward the dam-removal project.

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