Clear Creek Habitat Improvement Phase I
Western Pennsylvania Conservancy
Coldwater Conservation Implementation Project

Public Meeting

Due to COVID-19 public health and safety precautions imposed through much of 2020, we were unable to hold a public meeting prior to construction of the project in September. In lieu of a public meeting, the Iron Furnace chapter of Trout Unlimited (IFTU) promoted the project through social media, by posting pictures and information about the project's progress, partners, and funding before and after construction. A post in preparation for the project's construction was advertised on IFTU's public Facebook page on August 12, 2020 and engaged at least 15 people.

Gabion baskets across the main channel of Clear Creek (to the right), formed a low-head dam, explaining the vegetation growth across the channel.

After work was completed on Phase I in 2020, a temporary grade control rock dam had to be constructed at the entrance to the side channel to maintain flow in both channels until additional construction could be completed on Phase II in 2021.

Project summary

During the week of September 21–25, 2020, construction of 200 feet of the Clear Creek Habitat Improvement (Phase I) project was completed by Western Pennsylvania Conservancy (WPC) in partnership with the PA Department of Conservation and Natural Resources (DCNR), PA Fish & Boat Commission (PFBC), Jefferson County Conservation District (JCCD) and IFTU. Construction was planned after Labor Day when park visitation at Clear Creek State Park decreases to lessen construction disruption to visitors, campers, and (DCNR) staff resources to assist with the project. Along 200 feet of Clear Creek, as it flows through the park near the campground area, gabion fencing and fill was removed from the stream bed and banks along the main channel of Clear Creek. Log-cribbed channel steps were constructed in the stream and filled with stone to stabilize the stream bed and restore a more-natural stream gradient to improve aquatic habitat and fish passage. Large boulders were installed to armor the banks and the head of the island at the divergence of the side channel. Root-wad deflectors were also entrenched in the stream bank to provide aquatic habitat and guide the flow of the stream into the restored log-crib "riffle" stretch of the main channel where the gabions were removed.

Project partners, after extensive research, could not locate drawings, schematics, or permits to better understand the scope and depth of the gabion structures installed in Clear Creek at this location. Upon removal of the gabions, their full depth and volume made apparent that they had formed a dam structure. The gabion dam may have been installed to divert flood flows to the side channel, away from maintenance buildings at the park that are downstream along the mainstem

of Clear Creek or simply to maintain the side channel for its historical significance as it was established when a historic log mill and dam was built here on Clear Creek.

Due to the cultural significance of the mill and associated blacksmith near the project site, extensive archeological research has occurred at this location, which limited earth disturbance in areas known or suspected to contain artifacts. An ancient log beam from the historic lumber mill was discovered during construction, preserved and incorporated into the stream stabilization structure along the mainstem. Due to the unknown extent to which the gabion structures continued into the stream bank, project managers chose not to continue removing gabion materials beyond the machine's reach from the channel. Wire cutters and bolt cutters were used to trim and bury stray metal pieces sticking out of the ground. A large magnet was employed to collect small, but hazardous, wire fragments. Additional fill was purchased in 2021 with remaining Phase I CHP funds to complete sloping and shaping of the stream bank and establish vegetation on the bank in the Phase I section, along with completion of Phase II improvements.

Project partners desired to maintain flow in both the main channel and side channel, to provide overflow flood relief and to maintain the fishery's aquatic life. The rock material filling the gabion-dam structure was of insufficient size to provide stability to the stream banks or bed alone without the fencing to hold it together. Therefore, bigger stone and more than what was originally estimated to refill the void was needed and to raise the stream bed's elevation to match that of the side channel and maintain flow in both. Because of the unexpected need for additional materials, additional funding was raised to complete improvements to another 100 feet of the mainstem and side channel at this location in Phase II, funded under a subsequent CHP grant.

At the end of construction of Phase I in 2020, large boulders and key-piece sized stone were used to temporarily hold the elevation at the entrance to the side channel. This was necessary to temporarily establish a stable grade control at the entrance to the side channel until Phase II construction could occur in 2021 to restore a section of that side channel, improve the structures constructed in 2020, and construct additional habitat structures on the main channel.

Project outcomes

The project's goal of restoring aquatic habitat and stream function along 200 feet of Clear Creek at Clear Creek State Park is complete, although it required additional fundraising and rehabilitation work to meet that objective with a sufficiently-finished deliverable. Partnerships proved to be the key to that success and worked together to pool resources and provide staff assistance when volunteers could not be invited to assist.

Project sustainability/next steps

The artifact mill log incorporated into the structure in the project is suspected to have been preserved in the creek for possibly a century. The log structures, if they remain wet in the stream, are expected to persist for at least 20 years with minimal to no maintenance. Volunteers from IFTU and Clarion University continue to monitor fish populations in the creek at the site. DCNR park managers and staff will monitor the structures and report any maintenance needs to project partners for repair coordination. DCNR staff will monitor and control invasive weeds growing at the site. WPC will coordinate volunteers to harvest and transplant live stakes of quick-rooting riparian shrubs, like willows and dogwoods, to

Partners

Permitting and overall project coordination and fundraising was facilitated by WPC and assisted by IFTU and JCCD. WPC secured two CHP to complete phases I and II of this project. WPC also provided cash match from staff travel and time to coordinate the project, as well as in-kind match from AmeriCorps staff assistance and equipment, tool, and materials used during the construction

of the project. Staff from PFBC designed the project and directed DCNR staff equipment operators to oversee construction of the structures. PFBC contributed in-kind match for staff travel and time to oversee construction, as well as cash match towards the purchase of stone for the project. Construction labor was provided by all partners' staff. Due to COVID safety precautions, some partners' policies did not allow public volunteers to assist with construction projects during 2020. Safe travel policies, at the time, also limited overnight travel, negating the need for some of the anticipated match originally budgeted in the project proposal.

Accomplishments and outputs

This project improved 200 feet of coldwater habitat on Clear Creek and establishes a more natural gradient to the stream to improve aquatic organism passage and mobility throughout the watershed.

Clear Creek main channel before restoration

Final Clear Creek main channel after Phase I & II

Clear Creek Phase I

Lat. 41.33061
Lon. -79.09640

RESOURCE FIRST
PROTECT • CONSERVE • ENHANCE

Linear: 160'
Square: 770'

Clear Creek, Jefferson County
Clear Creek State Park
DCNR, WPC
Fish Habitat Improvement Plan
Stream Section, Habitat Management Division
Pennsylvania Fish & Boat Commission
Drawn By: Mark Sausser — Date: 06/10/2017
Not to Scale — All Measurements Approximate — Fit to Field