Helping Urban Streams

North Creek Watershed—Fighting Flashy Flow

Introduction

Over one hundred years of resource extraction and development have taken their toll on Washington's urban streams. In many places, houses and roads come within a few feet of waters that support our treasured trout and salmon resources. North Creek, a tributary to the Sammamish River and Lake Washington near Seattle, suffers from the problems created by historical development practices. The city of Mill Creek recently took a step in the right direction to help improve the health of North Creek and protect public and private buildings.

Problem

In the late 1800s and early 1900s, much of North Creek was straightened so old growth timber could be floated down to Lake Washington. As the local population grew, so did the number of roads, roofs, and parking lots. These essential markings of our modern landscape create "impervious surfaces" that rapidly deliver runoff to streams. When it rains, water travels quickly across these impervious surfaces to North Creek causing flows to increase five to ten times their normal level. This is a big change from natural conditions where changes in flow are less dramatic and less frequent.

These drastic changes in flow can create some challenges for people, their property, and fish. Accelerated streambank erosion can eat into otherwise stable property and threaten buildings and other structures. Eroded soils may also smother salmon redds found in spawning areas and destroy other fish habitat. The speed of the flowing water can sweep the small fish away.

This flow issue became worse in one particular area of public property and fish habitat along North Creek. In the city of Mill Creek, flooding and eroding streambank along North Creek jeopardized the North Creek walking trail and some older streamside buildings. Years of high flow, sediment deposition, and invasion by nonnative plants degraded much of the fish habitat.

Project or event goals

Recognizing the problem, the city of Mill Creek committed to fixing it. That meant they had to balance the needs of fish and the urban development. To do this, they hired the Watershed Company to examine the eroding area and devise a solution. Their assessment of the problem produced thirteen restoration projects that would improve and stabilize the stream with large woody debris (LWD). Thinking ahead, Mill Creek harvested large tree trunks, with their root wads intact, wherever clearing occurred under their local road improvement projects. These were needed for the stream rehabilitation project. The city then looked into its own budget to see how much stream repair could be done right away.

The Department of Ecology heard about the opportunity to help North Creek and teamed up with the city to give their project a good start. Using the Terry Husseman Account of the Coastal Protection Fund, Ecology matched Mill Creek funds to accomplish three of the thirteen restoration projects.

July 2007 *Ecology Publication No. 07-10-061*

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Milestones and outcomes

Even though they identified the projects and funding, Mill Creek still had more hurdles to cross. They needed to gain approval from the Washington State Department of Fish and Wildlife on their Joint Aquatic Resource Project Application (JARPA). This helped ensure that their project is fish-friendly. The city also needed to get a permit from the Army Corps of Engineers and complete the State Environmental Project Application (SEPA).

After receiving all the necessary approvals, Mill Creek started working with contractors, city staff, and the Adopt-A-Stream Foundation. Adopt-A-Stream coordinated local volunteers and started by removing invasive plant species. Biologists then relocated the fish from the area. Team members temporarily rerouted North Creek around the construction area. Finally, sediment and erosion control was put in place so construction could begin.

Public Education Signage

The coordinated effort to help North Creek occurred during the summer of 2005, before salmon returned to spawn in the fall. Near-stream areas were excavated to install logs with root wads that were at least 16 feet long. This kept them well anchored when high flows returned. Placing these pieces of large woody debris (LWD) in the creek created better fish habitat that would also absorb the force of the rising winter waters. After the proper placement of the wood, soil and gravel were added to finish the in-stream habitat. The Adopt-A-Stream Foundation volunteers completed improvements to the near-stream area by planting 400 trees and shrubs.

Project highlights

This first step in Mill Creek's North Creek restoration project restored 150 feet of degraded streambank. The success of this project allowed urban residents to see and learn about riparian restoration. The city also installed educational signage and a pet waste station to help protect North Creek from bacteria and nutrient pollution.

Partners

Mill Creek worked with many public and private organizations to make this project a success. The Department of Ecology helped with funding. The Washington State Department of Fish and Wildlife and the Army Corps of Engineers oversaw the protection of local salmon resources through their permitting process. Technical expertise by the Watershed Company and the Adopt-A-Stream foundation ensured the restoration efforts were friendly and supportive of fish needs.

Funding

It cost $90,000 to perform these three elements of Mill Creek's streambank restoration and habitat enhancement project. Ecology provided half of the funding. Mill Creek has since invested more funding to continue the completion of the thirteen projects in the original plan.

For more information

Ralph Svrjcek
Water Cleanup Specialist
Northwest Regional Office
425-649-7165
rsvr461@ecy.wa.gov

Marci Chew
Engineering Technician
City of Mill Creek
425-921-5709
marci@cityofmillcreek.com