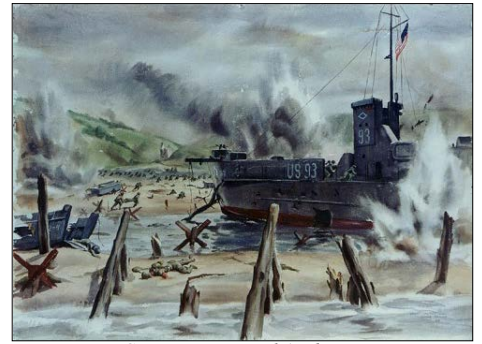


WHY DOES HANSEN CREEK LOOK LIKE NORMANDY BEACH?

Breaching defenses, mobilizing sediments,
saving farmers, and liberating fish into
habitats unknown



Courtesy National Archives
Photo No. KN-17825

Introduction

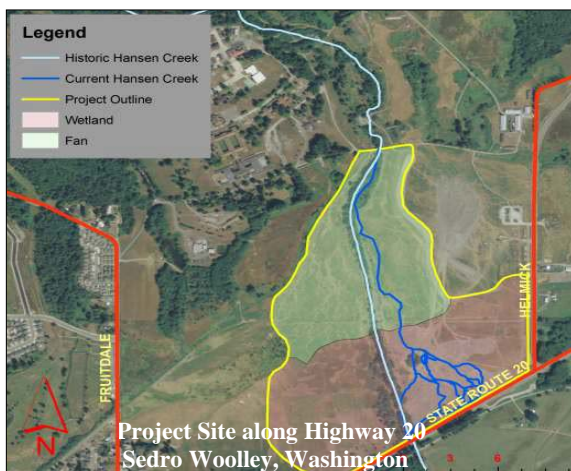
Passersby on State Highway 20 above Sedro-Woolley wondered, “What are those acres and acres of jutting posts? Why does it look so much like Normandy Beach in World War II?” As it turns out it was war. It was D-Day for stream habitat degradation. The log post “beachhead” in the fields north of Highway 20 were there to serve the vital function of improving stream channel structure and fish habitat in Hansen Creek.

Problem

The Hansen Creek project area was originally a forested alluvial fan and wetland. It was cleared and used for farming as early as the 1940s. The site is currently used as a Skagit County park. Historically, the Northern State Hospital modified Hansen Creek by stream bank armoring, rerouting tributaries, and adding culverts and bridges. Over time, this reach of Hansen Creek became a levied, straightened channel maintained by routine dredging. Each year, Hansen Creek would flow through the constricted channel and dump tons of sediment onto farms below, both clogging the creek and causing flooding to downstream farmers. In 1982, Skagit County formed the Hansen Creek Sub-flood Control District with the main intent to dredge the creek channel to maintain flood capacity. Dredging harmed the stream environment and the salmon living in the creek. Five different species of anadromous salmon (fish that spend time in both fresh and sea waters) have been observed in the creek, including two Endangered Species Act species—Chinook and steelhead. The Washington Department of Ecology determined the creek did not meet water quality standards for temperature, turbidity, and degraded fish habitat.



Log structures installed in 2009 look like
“Normandy Beach” from Highway 20



Project goals

Fortunately, the Upper Skagit Indian Tribe (Tribe), in collaboration with Skagit County, had a solution. In 2009, they opened up 140 acres of floodplain along Hansen Creek and put a dike along Highway 20 to protect the road. The Tribe installed over 1,300 logs for over 270 structures or “jutting posts” on the floodplain, which has become locally known as “Normandy Beach”. They re-vegetated the floodplain with thousands of native trees, constructed design channels, and breached openings in the mainstem levy, liberating the creek. Resource Managers at the Tribe then let nature take its course. Water from a series of fierce winter storms pummeled the “beachhead” floodplain and “landed the beach.” In late 2009, the stream avulsed

out of its original channel in other words, the stream changed course and created a new meandering channel. By the summer of 2011, the creek scoured out pools along the log structures and created newly formed circuitous, braided channels that help to establish fish habitat. Winter flows spread out, and the site’s 89 acre feet of wetland holding capacity

slowed down stream flow and allowed more time for sediment to settle out. Approximately 30,000 cubic yards of material settled out through the historic main channel and the project site in each of the first two years of opening the floodplain. Sediment and gravel that were a big problem for farmers and flooding became assets that helped form suitable gravel beds for fish spawning. The log post “beachhead” will soon become hidden with over 90,500 trees, shrubs, live stakes, and wetland emergent plugs planted, and the extensive natural seeding of the trees and shrubs throughout.

Milestones and outcomes

This project re-established natural landscape processes in the Hansen Creek basin. It restored over 140 acres and 17,000 lineal feet of stream, riparian, and floodplain habitat. The project enhanced in-stream habitat complexity, restored channel connection with the floodplain, and developed forested riparian floodplain and flow channels. The project is also restoring noxious weed-laden wetlands into forested riverine wetlands that support active side channels. These side channels provide rearing, foraging, and migration habitat for fish. The project implementation improves water quality problems from sediment, temperature, and degraded fish habitat. By 2012, a slight temperature reduction trend was identified at the most downstream monitoring station, and overall stream temperature will further decline as the tree canopy develops. Sediment transport is being managed within the project as intended and the site is holding high flows. This means the intended natural processes for metering sediment and flow through the floodplain are being demonstrated. Fish spawning and redds (fish egg nests) are beginning to be found throughout the newly formed channels in the project area, as are juvenile and yearlings. Project monitoring is providing important information on fish, habitat, temperature, turbidity, sediment, and flow, which will be used as a baseline to measure success as the project matures.



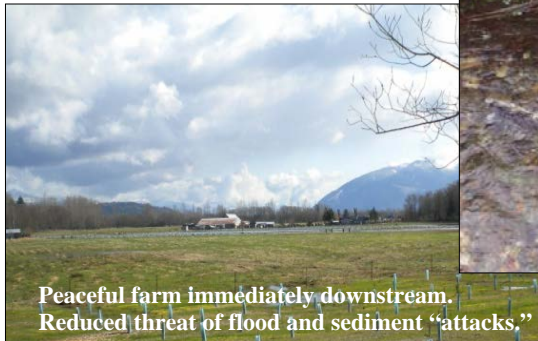
Project highlights

This project is unique in the size of the floodplain restoration. The project also provides a strong educational opportunity in that its location on Skagit County park land allows numerous park visitors to learn the story and techniques of watershed restoration. To supplement the trail system that existed on the park land, this project provided an additional 1.5 miles of trail winding through the restoration site.

A project site of this size changes the dynamic of restoration needs along the entire stream. As a result of this project, other restoration sites along Hansen Creek will not need to be as large to get a similar benefit to fish and farms. Now, several years after establishing the log “beachhead” on the Hansen Creek floodplain on “D-Day” in July 2009, salmon and water quality “Allies” can celebrate the victory of improved stream channel, less sediment transport below Highway 20, and greatly improved salmon habitat.

Partners and funding

The Upper Skagit Indian Tribe facilitated an amazing collaboration with several public agencies. The Tribe took the lead for project design, permitting, and funding in an interlocal agreement with Skagit County. The funding partners included EPA Tribal Set-aside Clean Water Act Funds (\$450,000), the Department of Ecology Centennial Clean Water Fund (\$454,000), and the National Association of Coastal Counties (\$75,000) which was matched with an in-kind contribution from Skagit County, an EPA/Puget Sound Partnership/Northwest Indian Fisheries Commission contribution (\$105,000), the Washington Salmon Recovery Funding Board (\$663,915) and the NOAA’s Restoration Center, Community-based Restoration Program (\$1,013,915). Skagit County provided additional in-kind contributions and \$25,000 cash contribution, and Washington Department of Natural Resources provided a contribution of tree seedlings. Earth Day volunteers and others contributed to seedling planting and noxious weed control. The total project cost came to just over \$2.7 million, or \$19,000 per acre.



For more information

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