



## Section 319

# NONPOINT SOURCE PROGRAM SUCCESS STORY

# Alaska

## Restoring Stream and Riparian Areas Improves Gåndlaay Håanaa

### Waterbody Improved

Logging activities in an Alaskan sub-basin previously known as Fubar Creek left upland areas prone to erosion.

In 1993, heavy rains caused landslides that blocked the creek channel with sediment and prevented passage by anadromous fish. As a result, in 1996 the Alaska Department of Environmental Conservation (DEC) added Fubar Creek to its list of impaired waters (in Category 4b: “other pollution control requirements are expected to attain water quality standards in a reasonable amount of time”) for sediment. Beginning in 2006, the U.S. Forest Service (USFS) partnered with The Nature Conservancy (TNC) to remove excess sediment and restore the stream channel and riparian areas. Fish have returned to the restored channel, and sediment levels are within normal ranges. Therefore, in Alaska’s 2012 Integrated Report, DEC proposes to move Fubar Creek from Category 4b to Category 2 (includes waterbodies that have been previously identified as impaired but which are now attaining a water quality standard for that impairment).

### Problem

Fubar Creek is in the Tongass National Forest on Prince of Wales Island in southeastern Alaska (Figure 1). One of three sub-basins of the Harris River Basin, the 2,560-acre Fubar Creek sub-basin historically provided high-quality spawning and/or rearing habitat for salmon, trout and char. The creek is one of a number of Prince of Wales Island waterbodies in which ecosystem function has been impaired as a result of forest management activities.

Between 1960 and 1987, loggers harvested approximately 20 percent of the Fubar Creek sub-basin—clear-cutting nearly the entire floodplain and thereby damaging riparian function and contributing to erosion and sedimentation. In 1993, a large storm event triggered 11 landslides in the sub-basin. Four of the landslides reached Fubar Creek and deposited debris containing high volumes of gravel and sediment directly into the stream and floodplain. A “bulge” of material in the stream channel caused Fubar Creek to abandon its historic channel and create a deep side channel around the landslide area. This large influx of sediment negatively affected the creek’s ability to sustain anadromous fish populations. In 1996 DEC added 2.0 miles of Fubar Creek to Category 4b of the state’s list of impaired waters for sediment (impaired waters for which “other



Figure 1. The Gåndlaay Håanaa (Fubar Creek) sub-basin is on Alaska’s Prince of Wales Island.

pollution control requirements are expected to attain water quality standards in a reasonable amount of time”). The water qualified as Category 4b because the USFS documented in a 1995 letter to DEC that timber harvesting would be deferred and watershed improvement projects would be accelerated.



Figure 2. After landslides filled Fubar Creek's original channel with sediment (top), USFS excavated the sediment (middle) and returned the creek to its former channel (bottom).

## Project Highlights

In 1995, as recommended by DEC, the USFS stopped commercial timber harvesting activity in the Fubar Creek sub-basin. In 2003, USFS' Craig Ranger District conducted a comprehensive hydrologic condition assessment of the Harris River Basin. The USFS also monitored channel conditions to assess trends in geomorphic indicators to determine progress toward channel equilibrium as restoration occurred. The watershed-based assessment, along with channel condition monitoring, helped the USFS to guide and prioritize restoration activities in the Fubar Creek sub-basin.

In 2006, the USFS decommissioned 1.2 miles of old logging road in the sub-basin. In addition, the USFS and TNC began the first of three phases of in-stream restoration work in Fubar Creek, reconstructing 2,500 linear feet of the historic channel and adjoining floodplain, creating pools, and adding more than 200 logs and other natural materials to the channel to create the

complexity required for high-quality fish habitat. In 2006, as a result of this in-stream work, the first perennial flows since the 1993 landslides occurred in the historic channel (Figure 2).

In 2007, partners launched Phase II of the project, restoring another 2,900 linear feet farther downstream to the confluence with the Harris River. This stream segment had been considered disconnected from the floodplain due to channel degradation. In Phase II, the USFS and TNC focused on in-stream habitat improvement by stabilizing banks and adding large woody debris in both the channel and the floodplain.

In 2008, the USFS completed Phase III of active restoration, replacing floodplain overflow culverts

along a highway that crosses Fubar Creek. In 2009, the USFS and TNC completed supplemental off-channel habitat improvements and log jam construction.

## Results

Fish counts show that the restored creek once again supports a fishery. By 2009, the peak adult pink salmon returning to spawn in the Phase I reach was 4,046, with a total of 8,630 adult pink salmon counted in both the Phase I and II reaches.

Data show that sediment and turbidity levels have declined. Staff from the USFS' Tongass National Forest Watershed Program collected water quality data between July and December 2010 on Fubar Creek and on Rio Roberts Creek, a nearby reference watershed. On the basis of analyses of the data collected by USFS, DEC determined that Fubar Creek met state turbidity standards and that sediment continues to move through the Fubar Creek system, but it does so in a pattern consistent with the unmanaged watersheds in the region. As a result, in Alaska's 2012 Integrated Report, DEC proposes to move Fubar Creek to Category 2 (includes waterbodies that have been previously identified as impaired but which are now attaining a water quality standard for that impairment).

In August 2011, local, state, federal and tribal stakeholders gathered to celebrate the success of the restoration efforts in Fubar Creek and the larger Harris River Basin. The day's events included a ceremony to change the name of Fubar Creek to one suggested by the Hydaburg Tribal Council—*Gàndlaay Hàanaa*, which means "beautiful stream" in the Haida language.

## Partners and Funding

Key partners in the Fubar Creek restoration effort included the USFS and TNC, with support from Trout Unlimited and other local tribal and conservation partners. A total of \$3.5 million has been spent on restoration in the Harris River Basin, of which \$950,000 was spent on Fubar Creek projects. Funding support for the greater Harris River Restoration Project was provided by the USFS, the National Oceanic and Atmospheric Administration, the National Forest Foundation, the Gordon and Betty Moore Foundation, and the National Fish and Wildlife Foundation.



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