



Feb. 23, 2009

UPDATE: LEWIS RIVER RIDGE STREAM RESTORATION PROJECT – EAST FORK

PROJECT SITE LOCATION: 1,300 feet of channel, 1.2 miles below Daybreak Park Bridge, Lewis River System, Clark County, SW. Washington.

COMPLETION: September, 2008 In-stream Restoration Work Window

PURPOSE: A **multi-objective project** to re-balance the degraded unstable stream channel, restore key fish habitat, reduce severe stream bank erosion and protect homes and property above from further damage due to eroding stream bank at base of cliff by flood flows. Note that state and federal agencies have identified the lower East Fork as degraded & unstable.

SPECIFICS: The project design was compromised by the permitting agencies. NOAA-Fisheries (the primary permitting agency) reluctance to permit alterations to the river above the project despite extensive scientific documentation, data, analysis and a proposed alternative that offered a complete and responsible restoration (**see attached Design Alternative 6 & series of project/flood photos, note photo dates**).

Fish First was concerned that if the section of river above the finally permitted project was not included, there was a strong possibility that the project would be compromised by the high risk that future flood flows would erode out an old flood overflow channel upstream and cover the project with sediment. If this were to occur, the result would eventually be a damaged project that would not continue to function properly as designed.

REASON FOR CONCERN: The construction timeframe was becoming very short, the result of NOAA's continued discussions with Fish First to reduce the size of the project before they would issue their permit.

The Fish First project team scientists in the above request for permitting made NOAA aware that a small overflow channel posed a serious risk to the success of the project, if treatment of the upstream section of channel was not included in the permit. The result could be a heavily damaged project that would not continue to function properly to provide high quality fish habitat and protect the stream bank and cliff above from severe erosion.

WHY FISH FIRST WENT AHEAD WITH THE PROJECT

The reduced project needed to be completed in the 2008 field season because of the fact that additional severe erosion of the stream bank from another flood season could cause the cliff above the stream bank to collapse resulting in extensive damage to property above and to already deteriorated fish habitat. Our design incorporated over 90 root wads into the bank by the cliff area to significantly improve fish habitat.

The construction timeframe was becoming very short, the result of NOAA's continued discussions with Fish First to reduce the size of the project before they would issue their permit. Contractors had been hired; equipment and equipment operators were committed to agreements and contracts. Waiting another year would have made the project even more difficult and expensive. And it is clearly evident, that after three severe floods, **had we not installed the reduced project, the cliff would likely have failed as predicted**. A collapse of the cliff and associated damages might have motivated the filing of a series of lawsuits.

This project was supported and funded by Washington State, Lewis River Ridge Home Owners Association, Clark County, Clark Conservation and Fish First. WA Dept. Fish & Wildlife sponsored a streamlined permit to allow construction in 2008. They and NOAA participated in the series of meetings held to discuss the various Alternative Designs.

WHAT HAPPENED?

The first of a series of **three severe floods** occurred on November 12, 2008, it was followed by a **second** that occurred on of January 1, 2009 and a **third** flood occurred about a week later on January 8, 2009. **The project functioned well in providing fish habitat and protecting the stream bank and cliff both before and after the first flood** in November. **The second flood**, occurred **48 days after** the first, and the **third flood 6 days after** the second, these last two floods eroded out the overflow channel above the project. These last two floods also deposited a large volume of sediment on the project treatments and re-routed much of the main river channel at the project ---as predicted in the concerns about alternative designs evaluated & documented by the Fish First project team.

DAMAGE TO THE PROJECT:

The project was compromised as the sediment eroded from the overflow channel during the second flood, deposited on the treatment structures downstream. Those deposits also reconfigured the newly designed river channel, shifting/moving it westward, changing the curvature of the channel and its relationship with the treatment structures, to the point where they no longer could continue functioning properly, as they had prior to the second flood.

THE GOOD NEWS:

Despite the project's being compromised by NOAA's questionable understanding of fundamental stream processes and unwillingness to permit Alternative Design 6 within the 2008 construction window, the river bank at the very lower end of the project was the only significantly eroded area within the project.

The newly deposited sediment expanded the existing "project bench" and is still protecting the stream bank and cliff above from erosion. Two treatment structures of the original six are visible at the lower end of the project. Despite sediment impacts, their original fish habitat pools are partly functioning. Three structures further above were buried under sediment and the last (lowest) structure was washed out when the accumulating sediment shifted the stream channel west and directly into it.

WHAT'S NEXT? :

Fish First, stream team, and property owners are currently studying means to remedy the impact of the sediment from the eroded out overflow channel, with the objective to prevent future occurrence of damage to the project in this reach of the river and to try and restore project functioning. **They are taking data at the site, photographing the changing conditions, and documenting their findings with the intention of developing a strategy to reduce the damage to this project.**

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