

Dutch Bill Creek Dam Removal and Creek Restoration Project



The Old Camp Meeker Dam
Photo taken April 4, 2008



The New Camp Meeker Bridge
Photo taken December 1, 2009

A Project of the Gold Ridge RCD with funding from the CA State Coastal Conservancy, the CA Dept of Fish and Game, the National Fish and Wildlife Foundation, the National Association of Counties, the US Fish and Wildlife Service and the County of Sonoma

The Market St. Fish Passage Project



Pre-Project. Photo taken October 17, 2005



**Weirs below the Market St. Bridge
looking Upstream - Photo taken
November 6, 2009**

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The Market St. Fish Passage Project



**Rock Weir #1 -Photo taken November 6,
2009**

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The Dutch Bill Creek Fish Barrier Elimination Program

The Dutch Bill Fish Barrier Elimination Program entailed three major project components: the removal of a small (15' high) dam that formerly impounded a swimming lake for the community of Camp Meeker, the retrofitting of the Market St. culverts, and the installation of rock weirs below the culver.. Both sites were partial barriers to adult steelhead spawning migration and complete barriers to coho salmon.

Both the design and implementation of the Dutch Bill project were supervised by the Gold Ridge Resource Conservation District, and the project was funded by grants from a number of both state, federal and local agencies: the State Coastal Conservancy, the California Department of Fish and Game, the Sonoma County Water Agency, the US Fish and Wildlife Service, the National Association of Counties, NOAA Restoration Center, and the National Fish and Wildlife Foundation. A critical component of this project's success was the collaborative spirit of the Camp Meeker Recreation and Park District (Landowner) and the community of Camp Meeker. Without the support and partnership and the Camp Meeker Recreation and Park District, this project would never have had community buy-in, and ultimately would not have happened.

Camp Meeker Dam Removal and Channel Restoration

The Camp Meeker Dam was constructed in the 1940s to form a swimming lake on the mainstem of Dutch Bill Creek in the community of Camp Meeker. The dam measured approximately 15' in height, and with a triple concrete weir on its downstream side, posed an insurmountable barrier to spawning coho salmon. Because of restrictions from the California Department of Fish and Game (DFG) instream dams for recreational uses, such as the one in Camp Meeker, were no longer considered compliant with beneficial uses of salmonid bearing streams, and the lake had not been filled since the late 1990s, the dam flashboards removed, and the site had become overgrown with non-native plants.

The dam removal and creek restoration project was designed by Syd Temple, PE (Questa Engineering), and called for the complete removal of the dam and weirs and the restoration of roughly 300' of upstream channel from an aggraded and overgrown condition to an ecologically functioning stream channel and riparian corridor. Plans included the addition of appropriately sized substrate to the newly reconstructed channel, and the placement of boulders and construction of large wood structures to dissipate stream energy, encourage channel stability and develop channel complexity. In addition, since the community was losing both a creek crossing (the dam top) and a recreational facility, plans called for the construction of a new pedestrian bridge and channel wading pool as stream-related focal points for the community.

Construction was contracted to Prunuske Chatham, Inc. (PCI) and its subcontractors, and work commenced in early August and continued through early November of 2009. Resident fish were relocated and the stream was dewatered through the entire site (including the Market Street site downstream). The concrete dam and weirs took two to three weeks to remove, and channel restoration work commenced immediately thereafter.

A significant challenge to the project came in mid-October, when the first significant storm of the season dropped 6 inches of rain on the region. Channel restoration was only partially complete, and PCI had to scramble to make the unfinished section of the channel ready to convey streamflow. Dutch Bill Creek rose dramatically during the storm, overwhelming the capacity of the dewatering system, but the partially restored channel weathered the storm with a minimum of adjustment.

The new pedestrian bridge was placed on October 22, and restoration work - including riparian revegetation and placement of erosion control measures - and Phase I of the project was brought to a successful conclusion in early November, in time for the next major storm.

Market Street Culvert Retrofit and Fish Passage Improvement.

The Market Street project site consisted of a 1960s-era concrete double culvert with a low-gradient concrete apron at its outlet. The apron created a drop of 3-5 feet to the natural stream channel, and was a complete barrier to upstream migration of spawning coho salmon, while the culvert itself posed a velocity barrier to fish migration. The restoration project called for the retrofitting of the interiors and outlets of both culverts with concrete baffles to disperse flow energy and create a low-flow channel in each culvert, as well as removal of the apron and the construction of 6 boulder weirs between the culvert and the natural channel to create a series of pools that would be passable to fish. This portion of the project was designed by Eric Austenson, PE (Streamline Engineering).

Construction of this project component was also contracted to and started in mid-August of 2009. Almost immediately, soil contaminated with petroleum was discovered beneath the apron. Construction halted for about 2 weeks while the soil was excavated and tested and design modifications were made. By the time of the first significant storm in mid-October, concrete work was complete, but only one boulder weir had been finished. Both the new baffles and completed weir performed perfectly during the storm, and construction continued as soon as the channel could be dewatered. Work was completed on the Market Street project in early November, just in time for the next storm.