Raya Property Fish Passage Restoration Project

Carpinteria, California

PROJECT

Fish Barrier Removal Project
Gobernador Creek
Carpinteria, CA 93013

CONTACT

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TIMING

Estimated Project Start:
September 2008

Project Completion Estimate:
December 2008

FUNDING

CA Dept. of Fish and Game
CA Coastal Conservancy

HIGHLIGHTS

Creek Restoration
Fish Passage Enhancement
Bank Protection
Native Riparian Plantings

Downstream barrier, BR_CA_GR_3

Upstream barrier, BR_CA_GR_4

Project Summary:
South Coast Habitat Restoration (SCHR) has coordinated efforts to remove two existing concrete crossings on the Raya property and replace them with a clear span bridge along Gobernador Creek. Tasks will include demolition of existing crossings, construction of abutments, new bridge at the upstream crossing's location, eradication of non-native vegetation, revegetation with natives within creek corridor, and in stream boulders weirs as necessary.

Project Details:
Carpinteria Creek is located in coastal Santa Barbara County, about 10 miles southeast of the City of Santa Barbara and 16 miles northwest of the City of Ventura. It drains a watershed of about 15 square miles, or about 9700 acres. The watershed begins in the Santa Ynez Mountains at an elevation of about 4,700 feet and drains steep hillsides and canyons before flowing through orchards, agricultural fields, and urban areas, and emptying into the Pacific at Carpinteria State Beach.

Fifty years ago, Carpinteria Creek was home to plentiful runs of steelhead trout, which migrated each spring to spawning and feeding habitat in the upper watershed. Although recent surveys suggest that small numbers of fish may still enter the Creek to spawn, anadromous populations are a mere fraction of their numbers in the 1940s. Steelhead runs have declined drastically as impacts from human activities have seriously altered the Creek and its drainage basin. Those impacts include: loss of native vegetation and an influx of highly aggressive exotic species, increased scouring of creekbeds and streambanks, diversions of streamflow and groundwater, increases in impervious surfaces and associated runoff, modifications to the creek channel and streambanks for flood control, barriers to upstream passage, and degraded water quality because of thermal pollution and nutrient, sediment and other polluted runoff from agricultural and urban development.

Despite its problems, Carpinteria Creek offers great potential for steelhead recovery. In the 1960s and 70s, the City of Carpinteria refused to allow the creek to be channelized with concrete for flood control. As a result, the channel still runs freely under open spans (rather than through culverts) at both the Union Pacific tracks and the 101 freeway. The upper reaches of the creek contain very valuable fish habitat, and a tall tree canopy runs through much of the riparian corridor. Because of these features, biologists for the California Department of Fish & Game and NOAA fisheries believe that Carpinteria Creek offers the best opportunity among all South Coast urban streams for restoring significant steelhead runs in the next few years. To do so, however, will require a concerted effort to address the major problems that have led to the degradation of steelhead habitat.

The Conception Coast Project's Steelhead Assessment and Recovery Opportunities in Southern Santa Barbara County, California has identified Carpinteria Creek as a priority watershed for steelhead restoration. The study assessed steelhead habitat conditions, population status, and site-specific restoration opportunities in watersheds from Jalama Creek above Point Conception to Rincon Creek on the Santa Barbara/Ventura County line. The resulting study contains excellent documentation and sighting information on salmonid occurrence in Carpinteria Creek and other regional watersheds. It also contains maps of natural and artificial barriers to fish passage, evaluations of salmonid habitat quality, watershed habitat scores, and regionally- prioritized watersheds for steelhead recovery.

The Steelhead Assessment study found that of all the focal watersheds analyzed in the study, Carpinteria Creek offered the highest potential for steelhead recovery, both because of its biological value and because of relative impact of passage barriers on the creek. The study found that the Creek had the best current (2000-2002) documentation of salmonid populations and noted that historic documentation of steelhead in Carpinteria Creek is continuous well back into the early 1900s. More significantly, however, the study ranked Carpinteria Creek with the highest score among all watersheds for "total habitat value"--- a rating derived by combining evaluations of habitat quantity (stream miles up to the estimated natural limit of steelhead migration) and habitat quality (a multiple of scores for seven watershed attributes). The study found that Carpinteria Creek potentially offers 15.86 miles of historic stream habitat. In addition, the study gave Carpinteria Creek its second highest score for "average habitat value" (a quality ranking derived by averaging scores for all the habitat reaches along the length of a creek). The study identified 10 major anthropogenic barriers and a total of 15 barriers in total.

The Carpinteria Creek Watershed Plan, developed by the Cachuma Resource Conservation District and the Carpinteria Creek Watershed Coalition with funding from DFG, also states that Carpinteria Creek has excellent potential for the recovery of steelhead and recommends the removal of fish barriers along the creek.

The Steelhead Assessment study found a total of 15 anthropogenic barriers in the Carpinteria Creek Watershed. Of those, ten barriers were rated as moderate to impassable to fish migration. This project would remove two barriers, BR_CA_GR_3 and BR_CA_GR_4 found along Gobernador Creek. The low flow instream crossings, which contain box culverts, were rated as 0.8 (High) and 0.9 (Extremely High to Impassable) respectively by the study. The downstream barrier BR_CA_GR_3 is a concrete crossing which spans the stream channel in a gradual U-shape from bank top to bank top. A concrete box culvert measuring 60 inches wide and 26 inches tall at the downstream end extends 136 inches under the center of the crossing. A debris grate composed of 2-inch diameter metal bars surrounds the inlet of the culvert where flows drop 23 inches from the upstream substrate down into the culvert bottom. The pool below the crossing extends into the culvert and created a depth of 8 inches throughout. The upstream barrier BR_CA_GR_4 is also a concrete stream. The crossing spans the entire stream channel in a gradual U-shape from bank top to bank top. A concrete box culvert measuring 60 inches wide and 28 inches tall at the downstream end extends 146 inches under the center of the crossing. A debris grate composed of 3-inch diameter metal bars covers the inlet with a flat, parallel configuration and 6-inch spacing between the bars. Flows pass through the grate and down a steep slope at the inlet of the culvert and drop 40 inches to the culvert bottom. Unlike the crossing downstream, the culvert bottom extends downstream of the culvert 34 inches and forms a small ledge. At low flows, water drops 3 inches off this ledge into a pool downstream with a maximum depth of 3 feet.