



# **Alameda Creek Alliance**

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Assistant Regional Administrator  
Protected Resources Division, Southwest Region  
National Marine Fisheries Service  
501 West Ocean Boulevard, Suite 4200  
Long Beach, CA 90802

Re: Status Review for Central California Coast Steelhead

This is information regarding anadromous steelhead trout and resident rainbow trout populations in the Alameda Creek watershed, for consideration during the National Marine Fisheries Service ("NMFS") Status Review of the Central California Coast ("CCC") steelhead ESU.

The Alameda Creek Fisheries Restoration Workgroup ("ACFRW"), a stakeholder group composed of local water districts and flood control agencies, state and federal regulatory agencies, and environmental organizations, has been working since 1999 on restoration of anadromous steelhead trout to the Alameda Creek watershed. Although adult steelhead associated with the CCC ESU (Nielsen and Fountain 1999) have been documented attempting to ascend Alameda Creek during spawning season annually since 1997, anadromous steelhead trout do not currently have access to suitable spawning or rearing habitat in the Alameda Creek watershed due to several impassable migrational barriers in the lower creek (Gunther et al 2000). The ACFRW is pursuing several dam removal and fish passage projects which will make an estimated 27-31 miles of potential spawning and rearing habitat accessible to CCC steelhead. According to the ACFRW and the U. S. Army Corps of Engineers ("USACE"), the Alameda Creek watershed has the best potential for restoration of steelhead trout of any large watershed in the East Bay (USACE 2001, p. 21).

The historical presence of anadromous steelhead throughout the watershed until the early 1960s has been well documented (CDFG 2002; Leidy 1984; Leidy in preparation; Miller 2003). The recent presence of listed CCC steelhead in lower Alameda Creek has been extensively documented in a steelhead restoration assessment prepared for the ACFRW (Gunther et al. 2000), a preliminary restoration plan prepared by the USACE (USACE 2001), and in a table prepared by the Alameda Creek Alliance, which is attached to this letter (Miller 2003).

Although there has been some stocking of exotic trout in Alameda Creek and its tributaries in the past, present self-sustaining landlocked populations of rainbow trout above major dams and resident populations below major dams appear to be derived from coastal anadromous steelhead (Gunther et al. 2000; Nielsen 2003; Nielsen and Fountain 1999). Microsatellite analysis of adult steelhead in lower Alameda Creek, resident rainbow trout in upper Alameda Creek and its tributaries, and of landlocked steelhead/rainbow trout in tributaries to Calaveras and San Antonio

Reservoirs was conducted by J. Nielsen and M. Fountain of the U. S. Geological Survey/Biological Resources Division (Nielsen and Fountain 1999; Nielsen 2003). These genetic analyses detail the affiliation of landlocked and anadromous trout in the Alameda Creek watershed with listed CCC steelhead. Copies of Nielsen and Fountain 1999 and Nielsen 2003 are attached to this letter.

Since the residual trout populations above Calaveras and San Antonio Reservoirs and the resident trout populations in upper Alameda Creek and its tributaries below these dams reflect similar genetic population structure to their anadromous progenitors, they should be considered part of the CCC steelhead ESU. Recent occurrences of anadromous steelhead at the mouth of Alameda Creek suggests that part of the anadromous evolutionary legacy may survive in the area. Nielsen's (2003) data adds to the evidence that rainbow trout trapped behind dams and water diversion represent significant genetic components of the native, wild *O. mykiss* resource found in central California.

The studies by Nielsen and Fountain (1999) and Nielsen (2003) indicate that the anadromous steelhead documented in lower Alameda Creek are likely part of the original evolutionary component of the S. F. Bay's wild steelhead runs and are possibly descendants of the landlocked populations captured by the construction of dams and reservoirs in the 1950s. Resident trout populations in Alameda Creek and its tributaries below the major dams may also retain some anadromy and appear to have a close genetic relationship with these anadromous steelhead.

Information from California Department of Fish and Game files (CDFG 2002) indicates that an anadromous steelhead run still persisted in San Antonio Creek in 1954. Populations of landlocked steelhead/rainbow trout 15-18" in length were documented in the 1970s in San Antonio Reservoir, with spawning in its tributaries San Antonio Creek, Indian Creek, and La Costa Creek. Populations of landlocked steelhead/rainbow trout up to 22" in length were documented in the 1970s in Calaveras Reservoir, with spawning in its tributary Arroyo Hondo.

Fish trapping of adfluvial landlocked steelhead/rainbow trout in tributaries to Calaveras and San Antonio Reservoirs was conducted from February to April 2002 (Entrix, Inc. 2002). Upstream and downstream traps were installed to assess the spawning stocks and juvenile recruitment to Calaveras and San Antonio Reservoirs. On Arroyo Hondo, 5 adult trout were trapped in the upstream trap during 26 days of trapping; and 46 adult and 10 juvenile trout were trapped in the downstream trap during 13 days of trapping (both of these traps were removed for 17 days due to high flows). Adult spawners were from 39.5 to 50.8 cm in length, and juveniles were from 10.9 - 24.2 cm in length, with at least 1 of the downstream migrant juveniles in smolt condition. On San Antonio Creek, 70 adult trout were trapped in the upstream trap during 49 days of trapping; and 56 adult and 172 juvenile trout were trapped in the downstream trap during 28 days of trapping (both of these traps were removed for 4 days due to high flows). Adult spawners were from 42.1 to 52.5 cm in length, and juveniles were from 8.1 - 20.4 cm in length, with at least 21 of the downstream migrant juveniles in smolt condition (parr marks highly faded or absent, bright silver or nearly white coloration, scales easily shed, black trailing edge on caudal fin).

Fin clips from 11 adult steelhead spawners captured below the BART weir in lower Alameda Creek in 1998 were analyzed by Nielsen and Fountain (1999) and these fish were determined to be part of the listed CCC steelhead population, with a closely genetic relationship with steelhead in

Lagunitas Creek in Marin County. Genetic material was also analyzed from resident rainbow trout populations in upper Alameda Creek and its tributaries below major dams in 1999, including upper Alameda Creek (4 fin clips), Indian Joe Creek (12 clips), Pirate Creek (5 clips), Stonybrook Creek (8 clips), Welch Creek (4 clips), and W-Tree Creek (10 clips). These resident trout also showed a close genetic relationship with Lagunitas Creek steelhead and adult steelhead at the BART weir. 48 samples collected by NMFS in 1997 during the status review for west coast steelhead were also analyzed. These samples may have been collected from Alameda Creek in Niles Canyon, where the California Department of Fish and Game has been stocking hatchery trout most years until 2000. None of the Alameda Creek fish showed any significant genotypic or allelic frequency associations with the four primary rainbow trout hatchery strains in use in California (Whitney, Mt. Shasta, Coleman, and Hot Creek strains). Based on these genetic associations, Nielsen and Fountain (1999) recommended conservation management of rainbow trout in the Alameda Creek watershed as part of the listed CCC steelhead population.

Nielsen (2003) conducted further genetic analysis of fin clips taken from the adfluvial steelhead/rainbow trout populations above San Antonio and Calaveras Reservoirs and resident trout populations in upper Alameda Creek in the Little Yosemite area (below major dams) and the tributary Arroyo Mocho. Nielsen (2003) found that the adfluvial reservoir trout and Little Yosemite trout had a close genetic relationship with fish collected in Alameda Creek 1997-1999, including adult steelhead captured downstream of the BART weir, and also have a close genetic relationship with Lagunitas Creek steelhead. Arroyo Mocho trout are more closely genetically related to hatchery fish from the Whitney Hatchery strain (Nielsen 2003). A copy of Nielsen 2003 is attached.

The ACFRW is pursuing future supplementation of a restored anadromous steelhead run in Alameda Creek with resident fish from the Calaveras and San Antonio Creek sub-watersheds. These landlocked fish and resident trout populations that are determined to be genetically related to listed CCC steelhead are absolutely essential to the restoration of an anadromous steelhead run in Alameda Creek and should included as part of the listed population of the Central California Coast ESU.

Sincerely,

Jeff Miller  
Director, ACA

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