

**Alameda Creek Fisheries Restoration Workgroup
Alternatives Subgroup**

Minutes of Meeting

**December 12, 2001
Alameda County Public Works Agency**

Attendees

Pete Alexander	EBRPD
Gordon Becker	CEMAR
Bill Bennett	DWR
Brenda Buxton	Coastal Conservancy
Eric Cartwright	ACWD
Erika Cleugh	CDFG
Bill DeJager	Corps of Engineers
Ted Frink	DWR
Andy Gunther	CEMAR
Darryl Hayes	CH2MHill
Craig Hill	ACWD
Laura Kilgour	ACFCWCD
Caroline McKnight	CDFG
Jeff Miller	ACA
Josh Milstein	SF City Attorney's Office
Jim Reynolds	ACWD
Jim Salerno	SFPUC
Carla Shulteis	ACFCWCD
Gary Stern	NMFS
Richard Wetzig	ACFCWCD

The purpose of this meeting of the Alternatives Subgroup of the Alameda Creek Fisheries Restoration Workgroup was to refine a set of alternatives relating to the need to provide steelhead passage through the Alameda Creek flood control channel . Screening alternatives serves various functions including:

- use in the §1135 process, including possible modification of the §1135 project on which the PRP is based in order to conform with Army Corps funding criteria
- incorporation in the Alameda Creek Watershed Restoration Action Plan
- use by project sponsors in future environmental review and other planning processes

A draft list of alternatives was created at the November 7 Workgroup meeting. Additions to this list were solicited at the December 12th meeting and the revised alternatives set was discussed in detail. These minutes summarize the discussion. Workgroup members are invited to offer comments on the material presented here, as the alternatives set is a working document intended to guide future planning efforts.

§1135 DRAFT FLOOD CONTROL CHANNEL ALTERNATIVES
Developed by the Alameda Creek Fisheries Restoration Workgroup
December 12, 2001

The following are alternatives related to constructing a fishway at the drop structure in the Alameda Creek flood control channel:

No project (No action)--This alternative assumes that no project altering existing conditions for steelhead passage in the Alameda Creek flood control channel is approved. Under this alternative, passage for in-migrating steelhead would continue to be blocked by the drop structure, and adult steelhead would not reach upstream areas identified as providing good potential spawning habitat. Opportunities for increasing the size of the steelhead run in Alameda Creek would be foregone.

Trap and Haul--This alternative would involve adopting a program to collect steelhead migrants for transportation past the passage barriers in the Alameda Creek flood control channel. Such a program likely would be undertaken through a Memorandum of Understanding (MOU) with NMFS and CDFG. The Trap and Haul alternative would include: (1) constructing facilities to trap migrating steelhead; (2) designating a party to collect and transport trapped fish; and (3) maintaining facilities and providing security (to prevent poaching).

Based on preliminary discussions with representatives from NMFS and CDFG, this alternative is undesirable due to potentially significant environmental effects. Trap and Haul efforts typically show low fish transport efficiency. Also, potential steelhead mortality from entrainment in diversion structures would continue to be a risk under this alternative. Overall, Trap and Haul is considered to be a "last resort" alternative.

Remove Drop Structure--Under this alternative, the existing drop structure would be removed and the channel reconstructed to achieve the necessary grade change over a longer upstream-downstream section of the flood control channel. This alternative would also involve constructing new diversion facilities to replace the middle ACWD inflatable dam and associated structures.

Due to the large elevation change between the channel bottom at the middle ACWD inflatable dam and the "dragon's teeth" energy dissipaters below the drop structure, this alternative likely would involve re-engineering of a substantial reach of the Alameda Creek channel. Without such efforts, upstream incision would occur, resulting in channel instability that could create potentially significant flooding, sedimentation, water supply and other adverse effects. The scale of construction required to achieve a stable channel and maintain water supply and flood control functions while removing the drop structure is estimated to entail prohibitive costs. As a result, this alternative is rejected as infeasible.

Construct Bypass Channel--This alternative would provide fish passage past the drop structure and middle ACWD inflatable dam by means of a channel constructed outside the boundaries of the existing flood control channel. A Bypass Channel alternative has the potential to fulfill the project objectives of providing fish passage while maintaining existing flood control and water supply functions.

The Bypass Channel alternative presents technical difficulties by insuring that fish enter the bypass channel as opposed to using the flood control channel. A conceptual location and preliminary design specifications also would be necessary to evaluate the feasibility of this alternative in terms of site suitability. Existing land uses adjacent to the flood control channel could present constraints to implementing this alternative.

Alternate Fishway Design--This alternative involves developing another design for the fishway on the drop structure in the Alameda Creek flood control channel. The details of this alternative will be discussed at a future meeting with Workgroup members and fish passage experts from NMFS and CDFG.

The following alternatives are in conjunction with constructing a fishway at the drop structure in the Alameda Creek flood control channel:

Modify Rubber Dam Operations--Under this alternative, ACWD inflatable dams would be operated so as to provide fish passage during migration periods and an alternative water supply mechanism(s) would be developed (e.g., new pipelines, intake facilities, alternate water supply, etc.). It should be noted that while some information is available concerning steelhead migration periods in Alameda Creek and elsewhere, extreme variability in the timing of such events is known to exist. Therefore, establishing fixed periods of dam deflation to allow fish passage is likely to occur in a context of trade-offs between foregone water diversion opportunities and incidental "take" of steelhead. In dry years in particular, conflicts between fish passage and water supply would be expected. Some modifications to existing inflatable dam operations may be required even with construction of fishways at the middle and upper ACWD dams.

This alternative would not achieve the project objective of maintaining the water supply function of the Alameda Creek flood control channel. Environmental effects of this alternative would depend on the effectiveness of operational changes in relation to the timing of steelhead migration. During periods of dam deflation, the size of upstream impoundments would be substantially reduced, resulting in beneficial environmental effects related to reducing possible migration delays and predation opportunities. The economic viability of this alternative would depend on the method of providing water to ACWD to replace diversions foregone by modified operations. It is estimated that additional facilities required under this alternative would be substantially more expensive than the cost of constructing fish ladders at the middle and upper ACWD dams. Such facilities could include pipes or other conveyance structures to alternate water storage locations, associated pumps, and other types of water supply facilities.

Remove Rubber Dams--This alternative would consist of removing the middle and upper ACWD inflatable dams and providing new water supply mechanisms such as new pumping facilities and pipelines or an alternate water supply and associated delivery structures. Currently, the upper ACWD dam impoundment provides a high hydrologic head resource that allow for operational flexibility and produces large volumes of groundwater storage through recharge. The middle dam also produces substantial water supply through groundwater recharge.

The alternative would achieve the project objective of providing fish passage at the existing dams and would benefit potential future steelhead populations by reducing migration delays and predation pressures represented by impoundments. ACWD facilities at each of these sites are critical to current operations, however, and this alternative would entail large costs associated with developing replacement water supplies. Based on the projected costs of this alternative, it would not represent an economically viable alternative and will not be considered in future planning discussions.

Replace Rubber Dams with Rock Weirs or Multiple Inflatable Dams--This alternative attempts to achieve fish passage by constructing multiple "stepped" weirs or dams, thus reducing the elevation change between upstream and downstream portions of the creek on either side of each structure. The alternative could achieve the goals of providing fish passage and maintaining

multiple uses of the Alameda Creek channel (i.e., flood control and water supply). The replacement alternative essentially comprises creating a bank-to-bank pool and weir fishway.

The replacement alternatives would cause less desirable fish passage conditions in terms of attraction flows than either construction of fishways or operational modifications. Also, this proposed design could cause migratory delays and/or increased predation opportunities. The replacement alternative also would involve substantial additions to ACWD facilities at costs estimated to be greater than costs of fishways or other alternatives.