

**POTENTIAL
FISH FACILITIES STUDIES ASSOCIATED
WITH A
THROUGH DELTA FACILITY
(DCCTDF CONNECTION)**

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Recent concerns over water quality deterioration in the northeastern portion of the Sacramento-San Joaquin Delta, associated with closures of the U.S. Bureau of Reclamation (USBR) facility known as the Delta Cross Channel (DCC), has led to the formulation of a series of alternatives, and potential study elements. The study elements are presented in two general categories, the first, the IEP-DCC studies, are studies which can be accomplished in the fall of 2000. The second, more complex set of studies, will follow, and are described in limited terms, pending resolution of several questions affecting the conceptual design of the proposed facilities.

Immediate Study Proposal

Staff was asked to consider the possibility of adding to an existing study, already planned for the fall of 2000. The study, the "Adult San Joaquin River Chinook Salmon Telemetry" study, involved tagging adult chinook salmon upstream migrants in the San Joaquin River, and following them as they negotiate the main channel in the Port of Stockton, or take alternate routes up Middle and/or Old River.

The existing study plan included monitoring stations at Hood (or Courtland) on the Sacramento River, and on the Mokelumne River near I-5. These stations were intended to account for any salmon, which fell back and chose another river system after tagging. Due to a fortuitous circumstance, equipment and tags originally scheduled for use in the Suisun Marsh, have become available this fall.

ELEMENT ONE – Adult San Joaquin River Chinook Salmon Telemetry Study Expansion (this is an existing CALFED and IEP funded effort scheduled for the fall or 2000).

A) Additional Fixed Telemetry Stations:

We propose to add an element of effort in the Mokelumne River system with little additional cost. At least four more fixed stations are proposed, two on the two forks of the Mokelumne River (near Staten Island), one in the DCC, and one in Georgiana Slough. The additional staff to support this portion of the study is estimated at no more than \$5,000.

B) Additional Tagging Efforts on the Mokelumne River:

Additionally, on a "as possible" basis, we propose to attempt to tag upstream migrant adult Chinook Salmon in the Mokelumne River. Tags for this additional effort could be made available from those ordered for the work in the Suisun Marsh, as long as they were replaced before the fall of 2001.

This element will only be possible if we meet our goals on the San Joaquin River effort in any given week. We believe the estimated cost of this additional effort to be no more than \$50,000 (although it could be less, depending on circumstances).

ELEMENT TWO-

A) Upstream Migrant Fish Passage Investigation:

A common concern associated with any "through Delta facility" which includes a fish screen at the Sacramento River, is the potential to strand upstream migrant adults of several species (including several species of concern). Means to provide for fish passage around the obstacle have been discussed during several reviews of the problem.

Two opportunities to investigate the feasibility of such a fish passage facility have presented themselves in recent years. The first, at the head of the Sacramento Deep Water Ship Channel, would involve passing these fish around the ship locks in the Port of Sacramento. The second, at the Fremont Weir (from the Sacramento River into the Yolo Bypass), presents a similar opportunity.

In either case (or both cases), work could begin immediately. A proposal to develop a small portion of the Yolo Bypass into "shallow water aquatic habitat," along the Toe Drain, with a fish passage complex and the addition of some flow to improve the water quality is currently under preparation. Such a complex could require a fish screen as well, and would combine both elements of the "through Delta facility," and would allow evaluations at a more manageable scale.

B) Fish Screen Passage Openings for Adult Upstream Migrants Investigation:

Another proposed solution has been to leave openings (either permanent or controllable), which allow the upstream migrants to pass, while losing only a small percentage of the downstream migrants. A study, to evaluate such a concept, would include literature reviews of the field of fish passage, the development of conceptual designs, modeling of the designs, and field testing the effects (on both upstream and downstream migrants).

Attached is a draft list of potential alternative intakes and fish screen configurations. This list was prepared to help guide the discussion over the last few weeks, and it served to highlight the need for some input from the fishery agencies on the fish protective criteria needed for an intake along this reach of the river.

ATTACHMENT

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Potential Intake Screening Alternatives for the DCC-HM Exercise

1) No Project - Continue to operate the DCC without another connection -

a-Historical Operation schedule, fishery impacts

b-Curtailed Operation schedule, water quality impacts

2) Screened Delta Cross Channel - Operate DCC without another connection - Project would include a louver (behavioral) or high speed positive barrier (ie-horizontal flat plate, Coanda or MIS) fish screen; a fish collection, sorting and transportation (bypass line or truck/barge operation).

a-Historical Operation schedule, fishery impacts for smaller (and fragile) fish

b-Curtailed Operation schedule, water quality impacts

3) Screened Delta Cross Channel and Screened Hood-Mokelumne connection (combined mean daily 4,000 cfs capacity)-

a-Multiple (two or more) smaller intakes between Hood and the DCC (including a small screened intake at the DCC)

4) Close Delta Cross Channel and New mean daily 4,000 cfs Diversion(s) into Hood-Mokelumne connection-

a-Single intake near Hood, much like the first stage of the 1982 project, described in Odenweller and Brown - IEP Technical Report #6.

b-Multiple (two or more) smaller intakes between Hood and the DCC (could consider, again, Rainey collectors)