# Conveyance Excerpts

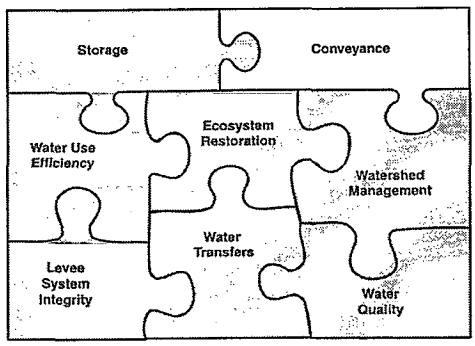
# Proposed Changes to the Revised Phase II Report

**December 8, 1998**

CALFED
BAY-DELTA
PROGRAM

# Conveyance

## Introduction




The Delta conveyance element of the Program describes the various configurations of Delta channels for moving water through the Delta and to the major export facilities in the southern Delta. While there are countless combinations of potential modifications to Delta channels, three primary categories of Delta configuration options, as described below, were studied in Phase II of the Program. These Delta conveyance options were the primary distinguishing features among the three broad categories of alternatives studied in Phase II.

Because of the potential impact on flow patterns and Delta water quality, the Delta conveyance configuration of an alternative can greatly affect the performance of other Bay-Delta program elements. The three primary Delta conveyance configurations evaluated in Phase II of the program are:

**Existing System Conveyance.** The Delta channels would be maintained essentially in their current configuration. One significant variation would include some selected channel improvements in the southern Delta together with flow and stage barriers at selected locations to allow for increasing the permitted pumping rate at the SWP export facility to full existing physical capacity of 10,300 cfs. These physical changes in the existing system include many of the features contained in the proposed Interim South Delta Project. Other variations that address the same needs are also being evaluated.

**Modified Through Delta Conveyance.** Significant improvements to northern Delta channels would accompany the southern Delta improvements contemplated under the existing system conveyance alternative. Variations include a wide variety of channel configurations, designed to improve flow patterns to benefit fisheries throughout the Delta, provide flood control, and improve water quality in many parts of the Delta.

**Dual Delta Conveyance.** The dual Delta conveyance alternative is formed around a combination of modified Delta channels and a new canal or pipeline connecting the Sacramento River in the northern Delta to the SWP and CVP export facilities in the southern Delta. Capacities for this new isolated conveyance facility in the range of 5,000 cfs to 15,000 cfs were evaluated in Phase II of the Program. The new facility would siphon under all major waterways to minimize aquatic impacts.

~~Not all of the Delta waterways follow natural channels~~**Strategy**





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The CALFED strategy regarding conveyance must consider water quality for in-Delta uses, drinking water quality, and fisheries. ~~Some were constructed for navigation which is an important Delta function~~These factors are critical to conveyance decisions both now and in the future as part of adaptive management. ~~In addition to periodic navigational work on many Delta waterways, the U.S. Army Corps of Engineers built and maintains two commercial shipping channels through the Delta. The ports of Stockton and Sacramento are served by the Stockton Deep Water Ship Channel, completed in 1933, and the Sacramento Deep Water Ship Channel, completed in 1963. Most of the length of these channels have since been deepened to 35 feet. It is possible that changes in flow patterns may result in changed operation and maintenance requirements of the channels.~~

The existing Delta channels will be an integral part of any CALFED decision for Delta conveyance. The reliance on these channels provides a shared interest in restoring, maintaining, and protecting Delta resources, including water supplies, water quality, levees, natural habitat, and the common Delta Pool, which also protects in-Delta agricultural uses. Some modifications to these through Delta channels can improve all of these Delta resources. ~~Regardless of choices that may be made in the future, it makes sense to invest in these modifications to maximize chances that CALFED can meet the Program's purpose.~~

**CALFED's ~~basic~~strategy is to develop a through-Delta ~~through Delta~~conveyance alternative based on the existing Delta configuration with some modifications, evaluate its effectiveness, and add additional conveyance actions if necessary.** The initial through-Delta conveyance will be continually monitored, analyzed, and improved to maximize the potential of the through-Delta approach meeting CALFED goals and objectives, consistent with its Solution Principles. ~~This strategy focuses on making~~If the ~~through Delta conveyance achieve~~through-Delta conveyance still fails to meet the CALFED ~~purposes. Details of conveyance improvements~~goals and objectives, there will ~~undergo subsequent environmental analysis, but are expected to~~be a ~~similar to the following:~~

reassessment of the reasons and the need for additional Delta conveyance and water management actions.

If CALFED's goals and objectives cannot be accomplished by the through Delta conveyance strategy, the preferred program alternative includes additional actions that may be taken toward these goals and objectives after thorough assessment of a variety of factors. For example, a decision to construct an isolated facility may occur if, in combination with vigorous implementation of relevant common program elements and improvements to through Delta conveyance, and consideration of other water management options, an isolated conveyance facility is still deemed necessary. Such a facility would have to be demonstrated to be the most cost effective and least environmentally damaging alternative, and to be necessary for significantly advancing CALFED's commitment to seek continuous water quality improvement (as stated on page ___).

An isolated conveyance facility also may be necessary if there is inability to achieve fishery recovery due to continuing impacts of diversions from the south Delta. A combination of these two factors also could result in construction of an isolated facility and/or other additional water management actions to meet CALFED goals and objectives after assessment of the effectiveness of the initial through Delta conveyance actions, and after a determination that such a facility would be effective in resolving these problems. These factors will be continually reevaluated during Stage 1 as part of the adaptive management process, and will form the basis for a comprehensive set of additional improvements in Stage 2.

Details of initial conveyance improvements will undergo subsequent environmental analysis before being implemented, but are expected to be similar to the following:

**[*** List is being revised ***]**

- South Delta channels would remain in their existing configuration except that Old River would be enlarged in the reach north of Clifton Court to reduce channel velocities and associated scouring.

- A new 2,500 cfs at 0.2 fps through-screen velocity (5,000 cfs at 0.4 fps through-screen velocity) fish screen would be constructed for the Tracy Pumping Plant.

- A new 6,000 cfs at 0.2 fps through-screen velocity (12,000 cfs at 0.4 fps through-screen velocity) screened intake with low lift pumps would be constructed at the head of Clifton Court and the SWP and CVP would be connected to aid flexible operations.

- An operable fish control barrier would be constructed at the head of Old River. Operable flow control barriers or their equivalent would be constructed in south Delta channels to alleviate the problem with reduced water levels and water quality problems that would be caused by the fish control barrier and export operations.

- A new Hood diversion test facility (with fish ladder or equivalent for upstream migrating fish) on the Sacramento River capable of diverting up to 2,000 cfs from the Sacramento River to the Mokelumne River would be constructed to determine whether adequate screening can be accomplished.

- North Delta channels along the Mokelumne River from Interstate 5 to the San Joaquin River would be enlarged by setback levees and dredging.

In addition, the initial CALFED Program will include:

- San Joaquin River and Delta water quality improvement actions described in the Stage 1 action list and in more detail in the Water Quality Program Plan would be implemented.

- Source control measures for drinking water quality, including aqueduct watershed management measures, as described in the Stage 1 action list and in more detail in the Water Quality Program Plan would be implemented.

- Ecosystem Restoration measures for fishery improvement as described in the Stage 1 action list and in more detail in the Ecosystem Restoration Program Plan (including DEFT actions) would be implemented.

~~Modifications~~In fulfilling its commitment to ~~the through Delta conveyance strategy~~an open, public decision making process, the following procedure will be ~~only made after thorough assessment of a variety of factors.~~used to evaluate progress towards the CALFED water quality goals and objectives during Stage 1 and to determine whether different conveyance actions should be carried out at the end of Stage 1 in order to meet public health and/or species recovery needs:

~~For example, a decision to construct an isolated facility will be warranted if, after aggressive implementation of relevant common program elements and improvements to through Delta conveyance, there is still a public health necessity for improved drinking water at the source (e.g., bromide levels) arising from technical or economic infeasibility of providing safe drinking water through other methods, and/or there is inability to achieve fishery recovery with continuing impacts of diversions from the south Delta. A combination of these two factors could also result in a decision for an isolated facility and/or other additional actions to meet CALFED goals. These factors will be continually reevaluated during Stage 1 as part of the adaptive management process, and will form the basis for a comprehensive set of additional improvements in Stage 2. Such reevaluation could be assisted by panels of recognized technical experts that would consider all of the relevant information and, in conjunction with stakeholder input, make recommendations to the appropriate decision making body.~~

- Establish a Delta Drinking Water Council comprised of independent, nationally recognized scientists and provide funding sufficient for the work to be adequately completed. The ability of CALFED to provide recommendations to the Legislature would be dependent on having adequately implemented necessary information collection processes and having had adequate resources for accomplishing a thorough program review as the basis for the recommendations to the Legislature.
- With the support of CALFED staff, the Council will collect information as needed, including monitoring data from CMARP, health effects research results, status of water quality standards development, treatment technology

improvements, and cost comparisons.

- The Council will prepare annual reports, to be submitted, along with reports from the Delta Fisheries Council (see below) to CALFED and the Legislature, that document progress towards Stage 1 water quality goals.
- Using the reports of the Drinking Water and Fisheries Councils, CALFED will conduct program reviews in 2003 and 2007 to assess whether Stage 1 actions to meet CALFED water quality goals and objectives have been met and determine whether modifications in conveyance or additional water management actions may be needed after Stage 1.
- CALFED will present the results of these reviews to the Legislature, along with its recommendations.

To provide for the best adaptive management decision making in the future, aggressive monitoring and research, as well as thorough development and evaluation of alternatives must occur. For drinking water quality issues this means Stage 1 must include the following (see pages _ - _):

- Performance and review of public health effects studies to more specifically identify the potential health effects of bromide related disinfection byproducts.

- Investigation of alternative sources of high quality (low TOC, bromide, and total dissolved solids) water supply for municipal users of Delta water as a Stage 1 action.

~~Investigation of advanced treatment technologies for the removal of salt, bromide, total organic carbon, and pathogens in municipal water supplies.~~ •
Investigation as needed of advanced treatment technologies for the removal of salt, bromide, total organic carbon, and pathogens in municipal water supplies and implement at affected sites to complement source water quality improvement actions.—

**~~Investigation of combinations~~Fisheries Protection**

A Delta Fisheries Council comprised of ~~new supplies and technologies that can minimize salt content of municipal water supplies~~independent, nationally recognized fisheries scientists will be organized and ~~provide greater public health protection~~will be provided with funding sufficient for the work to be adequately completed. The ability of CALFED to provide recommendations to the Legislature would be dependent on having adequately implemented necessary information collection processes and having had adequate resources for accomplishing a thorough program review as the basis for the recommendations to the Legislature.

- With the support of CALFED staff, the Council will collect information as needed, including monitoring data from CMARP, fisheries health effects and behavioral research findings, fish screening technological developments, and cost comparisons.
- The Council will prepare annual reports for CALFED and the Legislature to accompany the report of the Drinking Water Council, and according to the same format and schedule.

For fishery issues, Stage 1 must include adequate monitoring and research to answer the following questions (see page ___):

- What measures have been taken to restore fisheries?
- How adequate are the measures?
- How are the actions affecting target species, and are there any unexpected adverse effects on other species?

~~If a decision~~As noted above, an isolated facility may prove to ~~build~~be the most cost effective method of achieving CALFED's goals and objectives. If an isolated facility were ultimately ~~made~~constructed, it would be ~~coupled~~designed with each of the following assurances:

5. An agreement limiting the amount, or proportion, of water that can be exported (linked to water year types and flexible enough to allow additional exports when conditions allow) and needed assurances for compliance.
6. Commitment to ~~preserve~~preservation and continuous improvement of in-Delta water quality sufficient to protect existing beneficial uses (Delta standards or contracts including assurances for implementation, permits, financing, and O&M).
7. Commitment to ~~address~~avoid potential seepage and flood impacts of an isolated facility along its alignment.
8. Long-term funding for Delta levees (perhaps tied to quantity of water moved in the isolated facility or other institutional assurances) and commitment to provide at cost, suitable excess excavated material from facility construction for levee and habitat improvements.
9. Reaffirm commitment to protect all area of origin water rights and to continue implementation of the 1959 Delta Protection Act.
10. Completion of all environmental documentation and permitting requirements.
11. Demonstrated commitment to finance by beneficiaries.
12. Agreement on operating authority and operating criteria.
13. There must be a determination that the through Delta conveyance with the other Program elements cannot meet CALFED goals and objectives, and that an isolated conveyance facility is the best and only reasonable measure to correct this deficiency in meeting the goals and objectives.

14. A decision to proceed with implementation of the program will come through State and Federal State and Federal legislative action.