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Following are Ted Sommer's, Stephani Spaar's, Leo
Winternitz's and my comments on the Ecosystem
Restoration Program Plan's Implementation Objectives
and Targets. I hope they're help. Please call me if
you have any questions or if they don't come through
clearly on the e-mail

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DEPARTMENT OF WATER RESOURCES STAFF
COMMENTS on
CALFED Bay-Delta Program Ecosystem Restoration
Program Plan
Implementation Objective and
Targets
Preliminary Working Draft November 15,
1996

General Comments

There are Inherent Conflicts in Some of the Objectives

The text should acknowledge that many of the objectives are in conflict with one another and describe how this will be dealt with by CALFED. A good example is residence time (Page 13, "7d") versus fish transport (Page 12, 5a-d). Longer residence time may indeed increase plankton productivity, but is also likely to reduce fish transport. In the case of residence time, there may actually be conflicts within the objective. As noted above increased residence time could increase algal productivity as suggested, but may also create, not reduce, undesirable algal-mat growth (Page 13, Table 1, "7d").

Some other examples include:

Increase duration of water in delta channels vs increasing flows to provide transfer of fish and other organisms.

Reducing man-made structures to reduce the opportunity for predators yet engaging in much restoration work which could potentially increase much habitat for predators.

Protect existing and restore dead-end sloughs vs restore and enhance existing open-end sloughs .

Reducing stranding of fish in wetlands vs expanding floodplain areas .

The Text Needs to Be Clear that the Target Actions May Not be "Stand Alone"

There are some excellent ideas in the document, however the linkages between different Objectives or Targets need to be identified in some way. Many of the objectives are not "stand alone", but depend on another objective for the action to be successful. There are several cases where one objective is

actually a prerequisite for another. For example, Geomorphology (Table 8-2) is strongly linked to Natural Sediment Supply (Table 8-1). A logical way to proceed with restoration would be to first improve the geomorphology in the river, then provide the sediment supply needed to "feed" the geomorphic processes.

The Goal of More "Natural" Systems May Not Be Appropriate

The word "natural" is used in several Primary Physical Processes and Implementation Objectives in Tables 8 and 9. In most cases, substituting "A more natural" is advisable. However, in some examples neither use may be appropriate. For example, under the headings Hydrograph and Natural hydraulic regime, restoring flows to historical level could result in insufficient streamflow in summer and destructive flood flows.

Specific Comments

Table 1-A3b. Water hyacinths are probably not a major impediment to reach sustainable populations of most Delta fish. The may be more of a concern for migratory fish, particularly in the San Joaquin basin.

Table 1-A4a. Reducing salinities in Suisun Bay is a worthy goal under some circumstances. But it is undesirable to repel all brackish water--low to moderate salinities provide important habitat for many estuarine species.

Table 1 - A4c -- Increase occurrence of brackish water habitat in San Pablo Bay during winter and spring to support sustainable populations of Bay species -- what are they asking -- make more salty or less salty and when, during a wet year or a dry year? This objective is not clear and needs to be more carefully thought out.

Table 1-A5b. It is not always desirable to transport young estuarine fish from the Delta to the

ocean. The ocean is not typically part of the range of all asterion fish.

Table 1-A5d. We do not understand this objective--which Delta structures presently impede transport of fish?

Table 1 - A 7a. Reduce entrainment of biological productivity? Perhaps it should read of biological organisms.

Table 1-B7a. A better wording for this objective is: "Increase suitable floodplains to improve the availability of temporary flooded spawning and rearing habitat for fish."

Table 8. Hydrograph- A. - Clarification - The intent of shifting flows seasonally to better represent natural seasonal flows is to reproduce the pattern of flows not the magnitude of flows that existed prior to existing storage reservoirs. You might want to change "Restore some semblance of the natural hydrograph...." to "Restore a more natural hydrograph..." The former seems a bit overstated. Better yet why don't you indicate that you 'd like more flow in the winter and spring, unless you really do want the natural low summer and early fall flows.

It seems that A8 should be listed among the Ecosystem Quality Objectives.

A. 1. - Include sediment supply movement (gravel recruitment, transport, cleansing) in list of items that pulse flows would be used to benefit.

B . - Improvement of baseflows implies an attempt to reproduce the magnitude of natural baseflows, which appears to contradict the intent of A above . Might clarify this somehow.

Table 8 . Natural Hydraulic Regime - A. 1-2 The mid-1960s level of water supply development is prior

to the State Water Project operations. Is it realistic to use this as a reference period here and elsewhere as a Target ? How closely could we come to emulating conditions during that period with both the SWP and CVP on-line currently?

In A. you might also consider changing "Restore some semblance of the natural hydraulic regime...." to "Restore a more natural hydraulic regime...". Again, the former seems a bit overstated. It seems that A8 should also be listed among the ecosystem quality objectives for the natural hydraulic regime. You might also consider deleting the word "natural".

Table 8 . Geomorphology - B. Add a fourth item - 4. Restore more natural floodplains along the San Joaquin mainstem and tributaries. You might also more clearly indicate what you mean by "compound cross sections". B.2. - There's nothing wrong with " using the Cosumnes River Preserve as a model" , but do you really want to hardwire that approach into the target at this point? You might consider deleting it here and building it into the action which is a bit more subject to change if a better approach should come along.

Table 8. Tides. You might consider incorporating this into the hydrodynamics section.

Table 8. Fire. Seems like this would be more appropriate reflected as an action to achieve one of the other primary or secondary processes.

Table 9 . Gravel Recruitment - 1-3. - Matt Kondolf, UC Berkeley should be conducted to determine actual targets for what the existing levels of erosion and gravel recruitment are and what a desirable level would be for restoration.

Table 9. Water Temperature - A. 2. - Rearing of early life stages of salmonids in the San Joaquin

system probably only extends through early summer since fall-run salmon outmigrate as smolts or younger, and spring-run salmon and steelhead are extirpated from the system. Natural Sacramento River water temperatures in Redding area would kill winter and spring-run.

Table 9. Nutrient Inputs and Availability. " Restore pre-SWP levels of nutrients to the Bay-Delta"

There is no evidence to indicate that the system is nutrient limited. In fact, many researchers do not think that it is - nor food-limited.

Table 10. Exotic Species - C. Consider adding other means of influx to list, such as introduction through bait shops receiving live bait from outside California.

Table 10. Water Management and Diversions. A. 1 and 3.- Reducing entrainment by 50% implies that we know what current entrainment levels are in the Bay, Delta, rivers, and tributaries, which I don't think we do. We may have most of them identified, but we don't know what they entrain quantitatively so it would be difficult to know when the target is reached. Could set the target as some measure based on the number and capacity of identified diversions.

Table 10. Water Management and Diversions. Item A.1 indicates that entrainment of fish into the Bay, Delta and their tributary rivers are to be reduced by 50%. Why then are striped bass, of all species, given such special treatment in A.2 and A.3? A.2 - Is reliable CVP striped bass entrainment data available for the mid-1960s period to use as a target?

D.- Targets for 1-2 are rather broad. Specifically state what the important times of the year are.

Table 10. Harvest of Fish and Wildlife - A. Do we

know what a 90% reduction in illegal harvest would be?
Is it even measurable for plants? Non-game animals?

Table 10. Artificial Production of Fish - A. Does the limiting of hatchery supplementation apply to existing hatcheries or only new hatcheries that specifically are focused on supplementation? How will the use of fish for research purposes be integrated into these targets? Production could conceivably be needed off each individual river or tributary for study purposes to evaluate the targets of some CALFED objectives to limit straying and to preserve genetic integrity.

NOTE: The proposed Tuolumne Fish Hatchery is estimated to cost \$10-12 million to construct and an additional \$12-15 million to operate for 30 years. Total project cost including construction and 30 years of operation are estimated at about \$25 million, not \$40 million as one of the CALFED staff stated at a recent public workshop. You might more clearly indicate that it includes operations when the total cost is used.

Table 11. Tidal perennial aquatic - Was probably never much mud flat habitat in the Delta. You might want to change this to tule habitat.

Table 11. Riparian Scrub, Woodland, and Forest - A. Under this objective, is the increase of riparian habitat area in addition to or part of those objectives and targets under Shaded Riverine Aquatic? What is the basis for the linear mile targets in 1-4? Are targets in 2-4 and B in addition to or part of the targets in A.1?

Table 12-1. Sacramento Late Fall-Run/Fall-Run Chinook Salmon - To restore stocks, average cohort replacement should be greater than 1.0. The same applies to San Joaquin stocks.

Table 12-1. Sacramento Winter- Run Salmon. What is

the basis for the sustained target of 40,000 winter-run adults?

Table 12-4. Striped Bass. You might separate maintaining a self sustaining bass population and providing a quality fishery into two objectives with distinct targets. As written the reader could too easily interpret the 2.5-3.0 million adult bass target for the combined objective as being what is needed to sustain the population.

Table 12-5. Native and Non-Native Resident Fishes. Population growth rates of greater than 1.0 may be desirable on a short-term basis to promote recovery, but carrying capacity inevitably becomes a problem after successive generations.

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