



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

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TO: Dick Daniel
CalFed Program

FROM: Karen Schwinn *Karen Schwinn*
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SUBJECT: EPA comments on the Draft Ecosystem Restoration Program Plan,
Volumes I and II

EPA staff have reviewed the drafts for volumes I and II of the Ecosystem Restoration Program Plan (ERPP) and have the following comments to offer at this time. Given the ambitious scale and detail of the ERPP, our review has not been comprehensive. For the most part, we have focused on certain central, conceptual issues. As you know, EPA staff have also been involved in reviewing near-term Category III proposals and in refining the indicators addressed in ERPP Volume III. We are confident of the value of this ongoing work and, in particular, expect that work on indicators will provide better information for prioritizing targets and actions. As this information develops, we may provide additional suggestions for improving the ERPP as a whole.

GENERAL COMMENTS

The ERPP reflects thoughtful, structured, and, considering the geographic scope embraced, remarkably detailed resource documentation for the greater Bay-Delta solution area. However, the ERPP fails to provide a logical framework for prioritizing and sequencing restoration activities. For example, the ERPP needs to more systematically classify restoration activities requiring further research, activities which can be implemented in stages with careful monitoring, and those which can be done now with a high degree of certainty of success. We strongly agree with the Scientific Review Panel that conceptual models should be used to clarify the premises and hypotheses underlying proposed actions, and to help prioritize actions.

Implementation of ERPP actions will be directly influenced by the choice of a CALFED alternative. All alternatives under review have hydrologic and hydraulic implications

and possibilities, such as capture of certain flows, availability of increased flows, and changes in Delta hydraulics. For this reason, targets and actions for those ecological processes (for example, Central Valley streamflows) which will be directly influenced by the choice of a CALFED alternative must be developed more clearly in conjunction with the alternatives. Another aspect of restoration that must be considered more fully is the location of physical habitat. The alternatives clearly have implications for physical habitat, both from the perspective of restoration and preservation. The ERPP plan should focus on functional and habitat aspects of the ecosystem which should be preserved, as well as including aspects that should be changed. Preservation is included to some extent in the objectives and targets for habitat areas, but not in the process portions of the plan.

SPECIFIC COMMENTS

Flows

Although most of the ecological processes and habitats identified in the ERPP are dependent on streamflows, the ERPP does not provide specific information and hypotheses about the streamflows necessary to support the other processes and habitats. For example, while the proposed ten day spring pulse flows will likely be beneficial, it is unclear how well the flows will support the ecosystem restoration objectives. Another example relates to programmatic actions for riparian and riverine aquatic habitats, such as periodic flood spikes. The ERPP suggests that reservoir operations be evaluated to "determine whether winter and spring releases can be augmented with flood simulation spikes every 1-10 years" (page 105, Vol. 1). The intended, or hypothesized, function of these spikes would be mobilization of channel deposits to redistribute and clean spawning gravels and improve riffle-pool conditions. It is important that a preliminary evaluation of these types of flows be accomplished now to set targets and actions. This information should also be used to help in final selection of an alternative.

The CalFed Program must address streamflows needed to meet ecosystem objectives from two perspectives: (1) some existing flows will need to be augmented; (2) further, some instream flows are available now, and must be preserved into the future. CalFed should explore all possible avenues of assuring needed flows during ecologically important periods. The implementation strategy for water acquisition in Vol. III (page 24) is very cursory, and should be greatly expanded. A number of innovative programmatic streamflow actions are included for the North Sacramento Valley Ecological Zone (page 165, Vol II). These include providing compensation for foregone power production, implementing a conjunctive groundwater program, purchasing water from willing sellers, and increasing dam releases. These actions and others which could provide environmental water, especially for salmonids, should be fully explored and included in the actions for all rivers and tributaries.

The ERPP should include increased flows during critically dry years. For short-lived species (1-3 years) conditions during droughts are key to supporting populations and enabling them to recover during times with better conditions. The plan identifies the importance of these flows. For example, the chinook salmon discussion in Volume I (page 141) states that "the key to improving chinook salmon populations will be maintaining populations through periods of drought by improving streamflow patterns and habitat." In addition, there is some evidence that conditions during droughts have caused major expansion of exotic species such as Potamocorbula amurensis (see Bennet and Moyle, 1996 in *San Francisco Bay: the Ecosystem*, J.T. Hollibaugh, ed.). The introduction and spread of exotic species is one of the most damaging stressors to the ecosystem, and has been very difficult to control. This is a stressor that must be better addressed by the ERPP.

Habitats

There is an underlying set of hypotheses in both the ERPP and in alternatives development that increasing acreage of habitats important to species affected by water diversion from the Delta will decrease the damage to aquatic and terrestrial resources caused by water diversions. We strongly support habitat restoration, and believe that it is an important and necessary part of the ERPP. However, the hypotheses, especially those relating increases in habitat acreage to lowered impacts from other stressors, should be explicitly stated. The actions should then be developed and monitored as a test of these hypotheses. The ERPP should explicitly include this hypothesis testing as the first step, and build other phases on the conclusions reached during this first step. As stated in our general comments, development of conceptual models would be very helpful in this task. Additionally, recent Category III funding proposals are likely to provide a more complete picture of non-flow opportunities for restoration, and should be incorporated in the ERPP, as appropriate.

Salmon Rearing Habitat

Recent American River emigration studies (Snider & Titus, 1995; Snider, Titus & Payne, 1997) have found that the large majority of juvenile fall-run salmon leave the river as fry or yolk-sac fry. In 1993-94 and 1994-95, 96% and 74%, respectively, left the River while still in these early juvenile stages. Results are similar for the Feather River (B. Snider, pers. comm.), and presumably are similar for other systems. This indicates that downstream rearing habitat is very important to these fish. A description of good quality salmonid rearing habitat; recognition of its importance within the mainstem rivers, Delta, and Bay; and a strategy for providing substantially improved rearing conditions should be included in either the habitat sections or the chinook salmon sections of the Plan. The acreage and river mile targets for such habitats as riparian and freshwater emergent wetland, especially those for the San

Joaquin system, do not appear to be adequate to provide increased survival for rearing salmon.

Suisun Marsh/North San Francisco Bay Ecological Zone (Volume II, pp. 75-112)

We appreciate the holistic approach that CalFed is taking with respect to the solution area as exhibited in Volume III, page 4, where even connections to the near coastal waters are recognized. For the same reasons that the near coastal waters should be considered, the Central and South Bays, and the entire portion of San Pablo Bay (all of Marin County shoreline) should play a role in long-term restoration of the entire estuarine system. This geographic expansion would recognize ecosystem relationships (for example, nutrient movement, and use by bird and fish species) which are not confined to watershed boundaries (see Figure 7). Documenting these relationships will help later evaluation of most effective and timely restoration actions.

The ERPP does a good job of setting a vision for restoration in the North Bay, describing the ecological zones, and capturing the major stressors. However, there are some improvements that can be made. Most important, the North Bay and Suisun Marsh are very different ecologically and would in fact warrant being treated as separate zones.

CalFed should coordinate closely with the Goals Project to jointly develop restoration scenarios for the portions of the system covered by the Goals Project. Specific targets (starting on page 91) should be viewed as interim targets to be achieved within an adaptive management framework. The targets will undoubtedly be adjusted according to funding, land availability, monitoring results, policy changes, and other information that will direct decision making.

The importance of agricultural lands is expressed in Volume I (page 114 and Table 7 on page 74, for example), but is not carried forward into the North Bay Ecological Zone descriptions or in the Visions for Habitats in Volume II. The appropriate sections of Volume II should be strengthened to reflect general recognition that agricultural lands are an important part of the North Bay environment and need to be protected within the mosaic of landscapes.

Suisun Marsh/North San Francisco Bay--Specific Comments

Page 75: The last paragraph of the Introduction regarding stressors should include erosion, sedimentation, and salt ponds (in the context of habitat conversion, and chemical pollution which must be addressed during restoration).

Page 75-76: The Description of the Zone should include salt ponds as an important habitat type. Also, the northern shore of Contra Costa County is on the map, but not

described in the zone.

Page 76: Where the paragraph starts: "Freshwater inflow to the Bay..." change to "The interaction of freshwater inflow meeting tidal flows...." That is, the estuarine processes that make up the null zone have the greatest influence on aquatic habitats.

Page 77: Lakes and ponds in the North Bay were not historically prominent features on the landscape, although some large ponds did exist in tidal wetland areas.

Page 78: The second full paragraph implies that riparian habitat exists on levees in the North Bay. This is largely not the case in the tidally influenced reaches of North Bay.

Page 78: Agricultural habitats also support deer (frequently seen from Highway 37 on agricultural lands). Most of the fields are oat hay fields, not alfalfa, and Swainson's Hawks are rare in the area.

Page 81, fourth full paragraph: Change "Delta" to North Bay.

Page 84, Napa, Sonoma and Petaluma Units: Agriculture is prevalent in lower reaches of Sonoma and Petaluma Units, and diked baylands comprise about 66,000 acres in the sub-region (all 3 Units) and should be discussed. Also, the salt ponds in the Napa-Sonoma Units pose significant challenges in terms of removal of salts and bittern before restoration can take place. This must be mentioned.

Page 86: Seasonal wetlands make up a significant portion of the North Bay wetland inventory (not just in Suisun).

Page 89, Integration with Other Programs: There are several stakeholder efforts not mentioned. Napa Resource Conservation District (RCD), Southern Sonoma RCD, and the Sonoma Ecology Center have programs in their watersheds. The San Francisco Joint Venture and the Partnership for San Pablo Baylands should also be mentioned.

Page 93: Action 1B should also include the Napa, Sonoma and Petaluma Units because it is in these units that the land exists to restore shallow-water habitat; there is little available in the San Pablo Bay Unit.

Page 95, Seasonal Wetlands: Target 1 and Programmatic Action 1C should include references to the Napa River, Sonoma Creek, and Petaluma Units.

Page 96: It is unclear why Programmatic Action 1A under vernal pools in the North Delta is in this section.

Page 97, Saline Emergent Wetlands: Target 1 should be changed to 5000-10,000 acres for Napa River Unit and 500-5000 in Sonoma, Petaluma and San Pablo Bay Units. This is based on the historic condition (66,000 acres of diked historic baylands in the North Bay) and the fact that there are varying degrees of opportunity in the different units.

Page 98: Water Diversions: For the most part, water diversions are not an issue in the diked historic baylands (where farmers pump water out into the Bay). However, diversions are a problem in the Napa and Sonoma Units in the upper part of the watersheds where numerous diversions occur mostly for agricultural operations.

Page 99, Invasive Plants: Target 1 and Programmatic Action 1A should be increased to 90%, with recommendation to systematically work from the upper part of the watershed to the lower reaches on a suite on invasive plants, including *Arundo donax* and eucalyptus.