



IN REPLY REFER TO:

# United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services  
Sacramento Field Office  
3310 El Camino Avenue, Suite 130  
Sacramento, California 95821-6340

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MAY 23 1997  
May 21, 1997

Mr. Lester S. Snow  
Executive Director  
CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, California 95814

Subject: Review of Draft Ecosystem Restoration Program Plan Executive Summary, Sacramento-San Joaquin Delta and Sacramento River Ecological Zones

Dear Mr. Snow:

The Service provides the following general and specific comments concerning the draft Ecosystem Restoration Program Plan Executive Summary, Sacramento-San Joaquin Delta and Sacramento River Ecological Zones:

Executive Summary--

**General Comments:**

- (1) The ecosystem restoration program has as its foundation the "restoration of ecological processes that are associated with streamflow, stream channels, watersheds, and floodplains". This foundation would not restore many terrestrial habitats including those associated with San Joaquin kit fox. This foundation should be broadened to include restoration of functioning terrestrial habitats including diverse plant communities. By broadening the foundation, the restoration plan will be able to "reverse the fundamental causes of decline in fish and wildlife populations".
- (2) The Service agrees that individual species regulation and management should be replaced by an integrated systems approach. However, this integrated systems approach must meet basic biological needs of individual species and must fully restore the entire ecosystem and not a single element, the aquatic ecosystem. An integrated systems approach would take life-history information of multiple aquatic and terrestrial species and combine it with basic ecological functions to target restoration efforts. The Service recommends that listed species be used as the first cut since their decline has been an indicator of the decline of basic ecosystem functions. Inclusion of plant communities, insects, mammals, etc. to the systems matrix would help accomplish this.

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- (3) There are many nonreferenced statements within the documents.
- (4) A clear definition of program objectives should be given.

**Specific Comments:**

- (1) Page 7, Figure.

**Comment:** Within the species oval, at least one plant species should be listed. The predominance of fish in the species oval reinforces the concept that this is an aquatic ecosystem restoration plan with the primary focus on fish. A functioning ecosystem has both terrestrial and aquatic elements and should be balanced with representative species from both.

- (2) Table 1.

**Comment:** The Service recommends that stream flows match AFRP's flows. With "Stressor" - add "reduce export quantities"

- (3) Table 3.

**Comment:** The largest single contributor to decreasing Bay/Delta quality, the San Joaquin River, is not included in a study to improve water quality. Additionally, providing water for dilution is not the recommended approach to dealing with contaminants.

Land retirement as an option to reduce agricultural drain water should be included. The State Land Retirement program should be provided with "seed" money to get their program started.

Tables use river miles for riparian restoration. Using the widths in the narrative does not match acreage reported in the tables.

- (4) Table 10:

**Comment:** Reported river flows should match those in AFRP.

- (5) Consideration of plants:

The Service is concerned about how the plan will address plants. Although the documents make reference to "special-status plants", few are mentioned by name.

The Sacramento-San Joaquin Delta region contains seven listed and two proposed plant species. These species are not mentioned in the Sacramento-San Joaquin Delta Ecological Zone document. There is mention of the Antioch Dunes, the location of two of the seven. Three others are vernal pool species that are omitted despite the mention of vernal pools. An appendix containing the names of special status plant species with associated habitat(s) should be included for each ecological zone.

The Service recommends that the Ecosystem Restoration Planning Program staff consult the California Department of Fish and Game's Rarefind database and the California Native Plant Society's Electronic Inventory to identify which species ought to be specifically considered in the document.

(6) Habitats and plant communities:

The planning effort should be broadened and improved by more specific definition of plant community types under consideration. Most habitats are currently described primarily in terms of animals, and benefits to animals.

The relationship of habitats to plant communities is confusing. Plant communities should be added to the analysis if they are not equivalent to "habitat" within the documents. If habitat = plant community, then it may be better to use the term plant community throughout.

We reiterate our recommendation from previous correspondence that planning be based on specific and scientifically defensible community types. Choosing one of the available community classification schemes for California and using it consistently would provide the framework needed for meaningful future planning discussions at any level as well as lend clarity and defensibility to the plan. This approach would also lend itself to consideration of rare community types. In particular, Great Valley Oak Riparian Woodland deserves special consideration for the Sacramento-San Joaquin Delta Ecological Zone. Rarefind is a valuable resource for identifying special status communities in specific geographic areas.

- (7) The restoration effort would benefit from specific identification of which special status species, plants and animals occupy and will be affected by actions involving each habitat type.

Sacramento-San Joaquin Delta Ecological Zone--

**General Comments:**

- (1) Downstream location of X2, the mixing zone at Chipps and Roe Island, should be included as a major factor in restoring this ecological zone. The delta smelt critical habitat designation and the Delta Native Fishes Recovery Plan both emphasized the importance of location of X2 in downstream areas of Suisun Bay.
- (2) Mention of the importance of inflow that transits the Delta and exits as outflow into Suisun Bay from both the Sacramento and San Joaquin river sides of the Delta should be reiterated throughout the document. This process is essential to transporting all life-stages of fish to suitable rearing habitat in downstream areas.
- (3) This ecozone includes listed plant and animal species whose terrestrial habitats should be included in restoration efforts to provide a broad based, fully functional Delta ecosystem.

- (4) When mentioning the Stone Lakes area, it is appropriate to mention that this is a National Wildlife Refuge (NWR). The Service recommends that the following usage be followed: **Stone Lakes NWR area**.
- (5) In discussions of creation of shallow-water habitat as spawning habitat for delta smelt (*Hypomesus transpacificus*) and other Delta native fish, mention should be made that this is experimental and that studies should be done to determine the most suitable design for this type of created habitat and the level of productivity that results for each fish species. Additionally, any creation or enhancement of shallow water habitat should not be done in areas where larvae and juveniles will be entrained by agricultural or export diversions. The south, central, and west Delta are partially within the zone of influence of the CVP and SWP pumps. Proposed conveyance and storage alternatives may alleviate this effect, but any changes to the zone of influence will need to be verified through rigorous modeling. Agricultural diversions and diversions from the proposed Delta Wetlands Projects will also cause entrainment and must be considered when creating or enhancing shallow-water habitat.
- (6) The **SOUTH DELTA ECOLOGICAL UNIT** should contain beneficial actions including increased flows on the Stanislaus, Merced, and San Joaquin rivers that will transport larval and juvenile life-stages of native Delta fish such as delta smelt to suitable rearing habitat in Suisun Bay. Timing of these flows should be based on presence of the life-stages as the months when spawning occurs are variable.
- (7) Restoration efforts should be placed in the context of proposed changes to the system (*i.e.*, conveyance and storage). Suggested beneficial actions, in some cases, would directly conflict with proposed conveyance and storage alternatives. An example of this is the proposed connection of the Sacramento Ship Channel with the proposed creation of shallow water habitat complexes at Liberty, Little Holland, and Prospect Islands. An intake in the Sacramento Ship Channel for an around-the-Delta conveyance would conflict with this connection.

**Specific Comments:**

- (1) Page 1, paragraph 1: "...hundreds of miles of levees....".

**Comment:** The PEIS for the CVPIA states: "...over 1,000 miles..."

- (2) Page 1, paragraph 2: "It remains a productive nursery grounds..."

**Comment:** Change to, "It remains a productive nursery ground..."

- (3) Page 3, paragraph 3: Discussion of conversion of agricultural land to natural habitat.

**Comment:** This may be possible if levee maintenance costs are high, but may be difficult if agricultural land is converted to urban development. There has been no cost boundaries for urban flood

protection. The Service recommends that agricultural lands be set aside, and not be converted to urban development.

- (3) Page 3 and 4, ECOLOGICAL PROCESSES, Central Valley streamflows, Delta channel hydraulics, Bay-Delta aquatic foodweb.

**Comment:** Discussions of streamflows, channel hydraulics, and the aquatic foodweb should include the importance of downstream location of X2, the mixing zone, and associated entrapment zone at Chipps and Roe Island. These downstream locations are important to (1) allow maximum force of the entrapment zone with the freshwater-saltwater interface (the further downstream, the more particles are entrapped thus increasing productivity), (2) locate entrapment zone where shallow shoals increase level of productivity, and (3) maintain entrapment zone where rearing fish and food organisms are outside of the influence of export pumping and areas of high contaminants.

- (4) Page 4. Use of Pacific Meridian

**Comment:** Pacific Meridian data is difficult to use when each program has it's unique habitat description. The Service recommends use of Holland, Keller-Wolf, or WHR.

- (5) Page 5, SPECIES, delta smelt, splittail, resident fish species, etc.: "Recovery of ... will occur through improved Delta inflow, ..."

**Comment:** Add: Recovery of the delta smelt, Sacramento splittail (*Pogonichthys macrolepidotus*), longfin smelt (*Spirinchus thaleichthys*) and other Delta native fish will occur with the placement of X2 at Chipps and Roe islands in Suisun Bay.

- (6) Page 5, SPECIES.

**Comment:** A couple of representative plant and insect species, for example elderberry shrub (*Sambucus* species), Antioch dunes evening-primrose (*Oenothera deltoides* subspecies *howellii*), Valley elderberry longhorn beetle (*Desmoceros californicus dimorphus*), and Lange's metalmark butterfly (*Apdemia mormo langei*), should be added to complete the suite of species under consideration.

- (7) Page 7. Discussion of "percent of change (Wetted Acreage, Acres of Tidal Freshwater Emergent Wetlands)".

**Comment:** The discussion of "percent of change (Wetted Acreage, Acres of Tidal Freshwater Emergent Wetlands)" uses a baseline of 1906. The Service recommends analyzing percent of change from 1850 to the present.

- (8) Page 9, 1st complete paragraph, 1st sentence: "Upland habitats are found mainly on the outer edges of the Delta and consist primarily of grasslands and remnant oak woodland and oak savannah".

**Comment:** Levees are essential upland habitat that serve as refugia during flood events. Giant garter snakes use levees as hibernaculum during winter months and are thus able to survive flooding, although if levees are overtopped, the snakes will swim to new refugia.

- (9) Page 11, Restoration Needs, 1st paragraph, 2nd sentence: "Important ecological processes and functions that need to be restored to provide a healthy Sacramento-San Joaquin Delta Ecological Zone include freshwater inflow and outflow, Delta hydraulics, channel configuration, water temperature, flood processes, and aquatic foodweb productivity".

**Comment:** X2 location west of Collinsville at Chipps and Roe Island is essential to the recovery of Delta native fish, including delta smelt, longfin smelt, and Sacramento splittail. The critical habitat designated for delta smelt includes these locations as critical to reverse the decline of delta smelt. The above sentence should be changed to: "... Delta Ecological Zone include freshwater inflow and outflow with location of X2 at Chipps and Roe islands, Delta hydraulics, ...".

- (10) Page 16, South Delta Ecological Unit.

**Comment:** In the first paragraph, a statement should be made that current operating conditions with the CVP and SWP export facilities would preclude the creation or enhancement of shallow-water habitat in the south Delta. Any fish spawning in this area are quickly entrained and lost. If storage and conveyance alternatives allow curtailment of operations of export facilities so that fish are not entrained, then creation and enhancement of shallow-water habitat in the south Delta would be beneficial to fish. A decrease in exports would not necessarily be beneficial to fish unless adequate flows move newly hatched larvae, and provide behavioral cues to juvenile fish, to move them to suitable rearing habitat in Suisun Bay.

- (11) Page 17, Vision, 3rd paragraph, 3rd sentence: "A new fish screen facility would be constructed on Old River that would screen all water for both facilities".

**Comment:** Larval and juvenile life-stages of fish cannot be effectively screened and so losses would still occur with this type of facility. Also, delta smelt adults have swimming behavior that makes any type of fish screen only partially effective. An Old River screen would potentially impinge many adult delta smelt.

- (12) Page 20, LINKAGE TO OTHER RESTORATION PROGRAMS.

**Comment:** A statement should be made that all existing water quality standards, CVPIA commitments, and conditions from biological opinions will be used as the foundation for additional restoration actions. Thus, the ERPP will complement existing programs.

(13) Page 22, LINKAGE TO OTHER ECOLOGICAL ZONES, 1st paragraph, 3rd sentence: "Meeting the flow prescriptions for the Sacramento, Feather, Yuba, American, Mokelumne, Stanislaus, Tuolumne, and Merced rivers is essential to the Delta freshwater inflow prescriptions".

Comment: Add: "to the Delta freshwater inflow prescriptions and resulting Delta outflow and X2 prescriptions".

(14) Page 22, IMPLEMENTATION OBJECTIVES, TARGETS, AND ACTIONS, CENTRAL VALLEY STREAMFLOWS, IMPLEMENTATION OBJECTIVE, GENERAL TARGET: "More closely emulate the natural (unimpaired) seasonal Delta outflow ..., maintains the entrapment zone and natural salinity gradient, ..."

Comment: Add: "..., maintains the entrapment zone and natural salinity gradient at Chipps and Roe islands in Suisun Bay, ...". This ties into the delta smelt critical habitat requirements and the recovery criteria in the "Delta Native Fishes Recovery Plan".

(15) Page 23, PROGRAMMATIC ACTION 1.

Comment: Add: Prescribed outflows in February through June should increase the average number of days that X2 is located at Chipps and Roe Islands in each water year type by 2,4,6,8, and 10 days for critically dry, dry, normal, above normal, and wet water year types, respectively.

#### Sacramento River Ecological Zone--

##### General Comments:

- (1) Information in this document should adopt and tier from the AFRP when final decisions have been made on B2 water.
- (2) Information should tier off non-structural flood control efforts to accomplish riparian corridors.
- (3) Information from the San Joaquin Valley Drainage Program should be incorporated into this document.
- (4) This document is too narrowly focused on winter-run chinook salmon (*Onkorhynchus tshawytscha*).

##### Specific Comments

(1) Page 1:

Comment: The vision statement should be clearly defined with a major heading.

(2) Page 2, Natural Sediment Supply:

Comment: Red Bluff Diversion Dam does not currently impede natural sediment transport past the dam because bedload movement occurs at higher

river flows when gates are raised. Salmonid spawning habitat is controlled by many variables including water temperature, depth, velocity, gravel size, permeability, and compaction in combination with the amount of gravel.

(3) Page 2, SPECIES.

**Comment:** At least two representative plant and vernal pool species should be added to the Species, for example palmate-bracted bird's-beak (*Cordylanthus palmatus*), Orcutt grass (*Orcuttia californica*) and vernal pool tadpole shrimp (*Lepidurus packardi*), vernal pool fairy shrimp (*Branchinecta lynchi*).

(4) Page 2, Species, Bank Swallows:

**Comment:** Reword--promoting river meandering and natural erodible banks will benefit bank swallows.

(5) Page 3, Stressors; Levees, bridges, and bank protection:

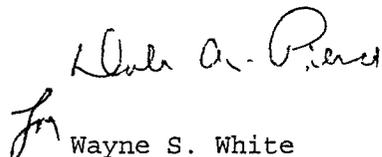
**Comment:** Heading should be retitled to *Artificial Obstructions, Humanmade Structures*.

(6) Page 8, Passage:

**Comment:** The gates-up operation at Red Bluff Diversion Dam are "allowed" by the National Marine Fisheries Service's Biological Opinion on the long-term operation of the Central Valley Project. What the Research Pumping Plant might allow is for the Bureau of Reclamation to fulfill its water contract commitments during gates-up operation.

If you have any questions or concerns about the above, contact Robert Pine at (916) 979-2725 or Jean Elder at (916) 979-2129.

Sincerely,

  
Wayne S. White  
Field Supervisor

cc: ARD, Klamath and California Ecoregions, Region 1, Portland, OR  
RD, Region 1, Portland  
USEPA, San Francisco, CA  
CE-Sac (Attn: Jim Monroe, Regulatory Branch), Sacramento