

## **Appendix 2: Specific Comments on ERPP Volume II**

### **General Comments**

**Need For Summary Clarification.** The document would benefit from a summary clarification on the nature and magnitude of the ecological problem (i.e., the "big picture"). To put the ecological problems, and the adequacy of the ERPP in addressing these problems, into better perspective, perhaps an additional section could be added that would include: a description of pre-settlement ecological conditions (status of elements and processes), a description of present-day conditions, and a brief discussion of how present-day conditions evolved (stressors). This section could resemble an executive summary and concisely present information for the entire geographical area in one place. The description of pre-settlement conditions would not be a baseline in the traditional sense, but would serve as a benchmark to put present-day conditions into perspective. Conditions could be described by habitat type and approximate acreage (or range of acres). ERPP's Volume I could be cited for more detail on stressors. Some of this information may be presented in other CALFED documents, but the ERPP should clearly define the problem to set the stage for describing solutions.

**Integration of other Programs.** We note that there are inconsistencies between ecological zone discussions. For example, page 36 has a fairly accurate reference (needing only minor revisions) to the CVPIA and AFRP goal of doubling natural production of anadromous fish. Whereas, page 247 discusses CVPIA and AFRP as if they're unrelated, but complementary efforts. The CVPIA includes many programs of which the AFRP is one.

The integration of discussions for each ecological zone are generally limited to the AFRP. However the CVPIA (Public Law 102-575, Title 34) also includes programs for restoring fish and wildlife habitat, in addition to anadromous fish, such as S.3406 "B1 other", or restoring waterfowl habitat (e.g. S.3406 B22 and D1-D6). There are also sections of CVPIA that address water conservation, water transfers, renewal of contracts, land retirement, riparian restoration, and others. The sections regarding the Integration with Other Restoration Programs should be expanded to include the appropriate CVPIA programs or a general reference to all of the CVPIA programs and other restoration efforts, such as the Recovery Plan for Delta Native Fishes.

**Prioritization of Restoration Actions.** Throughout the document, relative importance of habitats are implied but priorities of importance for restoration or preservation are not clearly specified. The document should be revised to clearly state the most important priorities.

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Some targets have a "rationale" statement following them and some do not. No explanation is given for the difference. Rationales and criteria for decision-making should be described, and all terms should be specifically defined. The document should be revised to consistently provide "rationales" for all targets.

Volume II should be revised to make sure that the narrative provides additional information regarding: (1) the source of the programmatic actions and targets; (2) the biological basis or methodology for deriving the actions and targets; and (3) the consistency of the specific actions and targets with the AFRP actions, other CVPIA actions, or other restoration efforts, such as the Recovery Plan for Delta Native Fishes.

Significant redundancy is throughout Volume II. For example, the Implementation Objective for Riparian and Riverine Aquatic Habitats appears in this document, verbatim, no less than 14 times. The same is true for vision statements for ecological processes, stressors, species, and habitats. We recommend that generic statements such as implementation objectives for a given species can be stated once and provided in tabular or other quick-reference form.

**ORGANIZATION OF THE ECOSYSTEM RESTORATION PROGRAM PLAN**

Page 1, Volume II: Visions for Ecological Zones. The rationale behind decisions to emphasize certain functions, species or habitats over others needs to be discussed in more detail, even at this programmatic level. Such decisions are based on a number of assumptions. All of these assumptions should be stated specifically. The following detailed descriptions need to be included, at minimum: (1) the criteria by which "important" ecological functions and habitats were chosen, (2) the criteria used to choose the species to be singled out for particular discussion, (3) the data (or types of data) used to judge "impaired" functioning of a process or habitat, (4) definition of the terms "ecological health" and "improving" ecosystem or ecological health, and (5) the criteria by which "ecological health" and "improvement" will be judged. In addition to descriptions, references should be cited to support the terms, criteria, and data used throughout the ERPP.

Page 3, Background, paragraph 2, sentence 1. Describe what is meant by "improve" and what data are used in any particular situation to decide improvement is needed, the extent of need, and how CALFED will decide when improvement is accomplished. Similarly, describe what factors are meant to increase (area, quality, numbers of individuals, numbers of populations, habitat diversity, species diversity). If these questions cannot be fully answered in the

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introductory material, at least, some examples of the types of scientific analyses used to answer these questions should be provided.

Page 3, Background, paragraph 4. Understanding complex ecological processes is fundamental to the success of the ERPP. The assumption that we understand and can "rehabilitate" very dynamic, complex aquatic and terrestrial ecological systems needs to be supported by specific scientific data and literature. In the event the assumption proves faulty, a workable, well-developed, peer-reviewed contingency plan should be provided in the ERPP. The criteria for determining "ecosystem health" and "rehabilitation" require further definition as well.

Page 4, Background, paragraph 2. The sentence "The dynamic nature of...change" is unclear. If the intent that complex habitats are more stable than simple ones, the document should state that this idea is but one of a number of ecological hypotheses to explain stability. No single hypothesis is widely accepted, or likely to be universally applicable. Please clarify the sentence and cite specific references to support ecological or evolutionary theory.

Page 6, Terms Used in the ERPP, Ecological Process. The definition of ecological processes given in the document is quite narrow, referring only to abiotic processes. Ecological processes also include biotic interactions such as competition, predation and other interspecific interactions. The definition and concept should be expanded to include biotic interactions, or the term used should be narrowed to "abiotic ecological processes."

Page 6, Terms Used in the ERPP, Species and Species Groups. The criteria used to decide which species are given particular attention in the ERPP are quite narrow. Some species that are not listed species, not economically important, and not prey species are very important to ecosystem function and may warrant specific attention in the document. Some widespread riparian plant species are examples. The species lists should be expanded to include these species, or if they are addressed elsewhere in the document in a slightly different format, the should indicate the location of the discussion. In addition, because the term "species group" could be interpreted in a variety of ways (e.g. a taxon, guild, etc.), it needs definition. A definition should be provided that explains how species groups were chosen for the purposes of the ERPP.

Page 6, Terms Used in the ERPP, Stressors. The first sentence of the paragraph states that stressors are "natural and unnatural events or activities", yet all examples given are of

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unnatural (i.e. human caused) stressors. Some examples should be provided of natural stressors.

**SACRAMENTO-SAN JOAQUIN DELTA ECOLOGICAL ZONE**

Page 9, Introduction, paragraph 4, line 6. Channelization, levee maintenance, flood protection, and the placement of rock for shoreline erosion protection should be included as stressors.

Page 10, paragraph 3. This paragraph needs clarification, and the source of the GIS analysis should be cited. Wetted perimeter needs to be defined. Acreages should also be provided.

Page 12, paragraph 5. This paragraph states that changes to channel hydraulics in the 1950s and 1960s were insignificant. However, evaluation of the entrainment indices in the figure below this statement indicates that entrainment in the 1950s and 1960s was significant. The method of defining significance needs to be stated as well as indicating how the determination of acceptable loss is made. Citations should be given.

Page 14, paragraph 1. The source of the GIS information should be identified. If possible, estimate wetland loss before 1906 as well.

Page 14, paragraph 2, line 3. "Thompson 1965" does not appear in the literature citation section.

Page 14, paragraph 3. "Emergent wetlands" and "tidal marshes" are apparently used interchangeably on this page. To avoid confusion, either use all terms consistently, or clearly distinguish between them.

Page 14, paragraph 3, "Seasonal wetlands are important habitat to many species of fish. . ." We concur with CALFED's acknowledgment of the value of seasonal wetlands to fish. Seasonal wetlands are not just "duck habitat" but were an integral part of the historic Delta. As such, seasonal wetlands were, and are, very important to fish; both directly and indirectly.

Page 15, paragraph 1, "Riparian habitat is used by more wildlife than any other Delta habitat type". The citation for this statement is missing. By implication then is this the most important priority, or is tidal wetlands because of its historical abundance? The document

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should be revised to clearly state priorities and the rationale for selection. Service staff would be willing to participate in the prioritization process.

Page 15, paragraph 3 and 4. Some agriculture has become a surrogate habitat for wildlife. As an example, natural wetlands have been replaced by rice fields as habitat for waterfowl and natural grasses have been replaced by agricultural grains, corn, and alfalfa to provide food for geese and cranes. Waterfowl, sandhill cranes and other wildlife which use this habitat are not discussed. This is a major oversight, particularly for the delta. The importance of some agricultural lands to these species, but that agricultural land is not an equivalent substitute for natural habitat, should be stated in the background subsection of this Ecological Zone as well as in paragraph four of this page.

Page 15, paragraph 4. To simply state that the Delta supports "10%" of all wintering waterfowl in the state minimizes the importance of the Delta for some species. For example, the Delta is extremely important for tundra swans and greater sandhill cranes. In average years, 70% to 85% of the tundra swans in the Pacific flyway winter in the Central Valley of California; 90% of this use occurs in just 8 counties, with the Delta being at major use area. The document should be emphasize the importance of the Delta to these species.

Page 15, paragraph 6, line 3. "With many diversions . . .". Replace "exported" with "entrained".

Page 16, paragraph 1, line 3, "(e.g., Clifton Court Forebay)". Insert "docks, piers, etc." following Clifton Court Forebay.

Page 16, paragraph 4, line 3, "Boat traffic in the Delta contributes to erosion... habitat along Delta channels." Insert "and degrades water quality from fuel and oil spills" following ". . . Delta channels".

Page 16, paragraph 5, "Delta smelt decline is related to poor habitat conditions during periods of drought." Delta smelt are also adversely affected by water diversions throughout the Delta. Insert "and to entrainment by water diversions throughout the Delta" following "drought".

Page 17 through page 71. Starting on page 17 and moving through the rest of this section, statements referring to the implementation of the Delta Native Fishes Recovery Plan should be included. As an example, the 4th paragraph on page 17 should include and reference Recovery Plan objectives.

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Page 19, box. Habitats listed in this box are limited and do not include all of the habitats in this area. For example, agricultural lands and grasslands, which do provide habitat, are not included; acres for seasonal and fresh emergent wetland seem high, and the numbers given are identical. The document should be revised to more clearly define habitats, and the numbers used should be rechecked.

Page 20, box. This table includes habitats; and the table heading of "land use" is misleading. Grass should be included in the habitat table on the previous page. The table heading would more appropriately be "Agricultural uses in the North Delta". The tables on pages 19 and 20 could also be combined.

Page 21. The habitat box for East Delta is missing.

Page 21, South Delta Ecological Unit, last paragraph, "Hydraulic processes in the south Delta are influenced by ..." Hydraulic processes in the south Delta are also influenced by the yearly placement of temporary rock barriers. Insert "temporary rock barriers in Middle River, Old River at Tracy, Old River at Head, and Grantline Canal" following "...channel diversions" and before "and water releases from upstream reservoirs."

Page 22, Land Use and Habitat Acreage boxes. Some agriculture has become a surrogate habitat for wildlife. As an example, natural wetlands have been replaced by rice fields as habitat for waterfowl and natural grasses have been replaced by agricultural grains, corn, and alfalfa to provide food for geese and cranes. Waterfowl, sandhill cranes and other wildlife which use this habitat are not discussed. This is a major oversight, particularly for the delta. The importance of these agricultural habitats to these species, many of which would be in further decline without it, should be stated. The document should be revised to indicate the importance of agriculture to wildlife species; however, agricultural land is not an equivalent substitute for natural habitat.

Page 23, Habitat Acreage box. Acres for open water aquatic habitats such as sloughs should be included for this and other Ecological Units.

Page 23. The land use table for the Central and West Delta is missing.

Page 23 through 71, Vision for the Ecological Zone. Maintaining the location of X2 is an important factor in the recovery of delta species such as Delta Smelt. Throughout the document, a discussion of X2 maintenance at the key locations of Roe Island, Chipps Island

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and Collinsville should be include where discussions of freshwater inflow and outflow are discussed.

Page 24, paragraph 4. Agricultural lands identified as being too expensive to maintain (levee maintenance cost being too high) have the potential to be converted to natural habitat. Measures should be identified to prevent the conversion of agricultural land to urban use.

Page 24, paragraph 7. Restoring connectivity to native habitats, identified as part of the restoration strategy, may benefit giant garter snakes and other species. The Cosumnes River Preserve (Badger Creek marsh) supports a sizable population of giant garter snakes. Caldoni Marsh (White Slough Wildlife Area) west of Lodi is also an area of several recent and historical sightings. Stone Lakes Refuge-Morrison Creek drainage and the Yolo Basin also contain suitable habitat, though population sizes are thought to be quite small. Include statements in this (or the giant garter snake) section that restoring connectivity of these areas would benefit giant garter snakes and contribute to their recovery by providing corridors for the reestablishment of historic populations.

Page 24-25. The document should be revised to indicate that although most of the Cosumnes River is in the North Delta Unit, some of it is in the East Delta Unit.

Page 26, paragraph 2, line 3 and 4. Substitute "Yolo Basin Wildlife Area" for "Yolo Waterfowl Management Area".

Page 26, paragraph 5. This discussion states that restoration is limited to riparian vegetation improvements along the Sacramento River channel between Sacramento and Rio Vista. However, this section should also focus on improving and maintaining flows. The document should be revised to discuss flows as well as improvements to riparian vegetation.

Page 27, South Delta Ecological Unit. The discussion focuses on restoration assuming that through-Delta conveyance of water to the state and federal pumping facilities is the only option. This section should consider the habitat improvements that could be made to benefit native species with an isolated facility as well.

Page 29, Delta Channel Hydraulics, line 4. Rewrite this sentence to read as follows "Restoration of natural hydraulic conditions such as removing barriers in the south Delta would improve hydrology to a more natural state and increase habitat values.

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Page 30, Visions for Habitats. Increasing the length of low salinity habitat at Roe Island, Chipps Island, and at Collinsville will benefit rearing native fishes dependent on this type of habitat. The document should be revised to include a section on Low Salinity Habitat.

Page 31, Visions for Reducing or Eliminating Stressors. This section does not include and discuss a vision for reducing the abundance of non-native wildlife even though this vision is discussed on pages 220-224 of Volume I. For the endangered California clapper rail and salt marsh harvest mouse, this vision would primarily focus on reducing the abundance of non-native mammalian predators (e.g., red foxes and feral cats). The document should be revised to include and discuss a vision for reducing the abundance of non-native wildlife.

Page 31, Disturbance. The effects of boat disturbance on two critical events--spawning seasons for fish and wintering periods for waterfowl have not been addressed. Boats present more impacts than just erosion of shorelines due to boat wakes. This is particularly true for shallow water spawners such as delta smelt. The document should be revised to include a brief discussion of boating effects on these two critical events.

Page 31, Disturbance, line 3. Boat use in the Delta also results in reduced water quality as well as erosion of habitat. Insert a second sentence which addresses water quality effects of bilge pumping and fuel and oil spills. Also add a sentence at the end of the paragraph that "Enforcement and or stricter boating regulations on bilge pumping, refueling and oil changes will result in decreased contaminant loading and improved water quality."

Pages 32-35, Visions for Species. This section does not include and discuss visions for the California clapper rail, salt marsh harvest mouse, and Suisun song sparrow. The document should be revised to include these species.

Page 32, Delta Smelt, line 4. Recovery of Delta Smelt will require habitat restoration throughout the Delta, including the south Delta. Insert ", including the south Delta," after "... aquatic habitats" and before "and reduced".

Page 34, Greater Sandhill Cranes. This section does not identify the types of lands to be improved. The benefit to sandhill cranes of increasing seasonal wetlands is doubtful if corn fields are converted to wetlands. Cranes in the delta prefer flooded corn and pasture over seasonal wetlands during the fall/winter period. The benefits to sandhill cranes should be reevaluated and the document clarified as appropriate.

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Page 34, Neotropical Migratory Birds, line 2. Insert "restore" between "to" and "maintain".

Page 35, Integration with Other Programs, paragraph 3, lines 10 and 11, "...reducing the erosion effects of boat wakes. . .". Insert " and reducing bilge pumping, oil changing, and improving refueling techniques" after "boat wakes" and before "can be implemented".

Page 35-36, Integration with Other Programs. This section briefly discusses integration with some of the CVPIA programs, including AFRP, but does not mention other CVPIA programs or the Recovery Plan for Delta Native Fishes. The discussion should be expanded to include other restoration programs.

Page 35, Integration with Other Restoration Programs, last paragraph. Include implementation of Delta Native Fishes (and other applicable) Recovery Plan Objectives.

Page 37, Target 1. This is an excellent example of the specificity which makes targets meaningful.

Pages 37-58, Implementation Objectives, Targets, and Programmatic Actions. We agree with the concepts described in the targets and programmatic actions. However, we have concerns about some of the details. As an example, the targeted 10-day higher spring flows (pg. 37) are reasonable, but the recommended timing in March should be reconsidered, or more fully explained. While flows in the Sacramento River may peak in March, our understanding is that unimpaired flows in the Feather, Yuba, and American rivers generally peak later (April or May). Furthermore, available data suggest that the peak period for salmon smolt emigration is generally in the April to May period. Consequently, the benefits to improved survival of juvenile chinook salmon rearing in and passing downstream through the Delta may be greater if the prescribed outflow is moved to the April, May period. Additional explanation and information on the timing, duration and magnitude of the spring flows would be helpful and should be included in a revised document.

Page 38, Target 4 and Programmatic Action 4A. These actions appear to be from the AFRP draft plan. However, there are several other Delta actions identified by the AFRP draft plan that could be incorporated in this section. The document should be revised. However, rather than providing a written paragraph on each target and action in this section, or in subsequent sections (pages 41, 53, 56), we recommend that the Service meet with appropriate CALFED staff to more effectively communicate the Service's ideas.

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Page 38 Rationale. Some actions include rationales while others do not. It is not apparent why this is the case. The document should be revised to consistently provide rationales.

Page 39, Natural Floodplain and Flood Processes, Target 1. We strongly support Target 1 to expand approximately 10%, or more, of leveed lands into the active flood plain of the Delta.

Page 41, Delta Channel Hydraulics, Programmatic Action 1D. Delta hydraulics are significantly changed by physical barriers resulting in significant adverse affects on Delta Smelt and resident fish. Rather than managing the operation of physical barriers, physical barriers should be removed. Replace this action with "Remove existing physical barriers so that resulting hydraulics are more like levels in the mid-1960s."

Page 42, General Rationale, paragraph 1, lines 5 and 6, "land-water interface". The document discusses "wetted perimeter", "acres of" and "land-water interface" when discussing measures of success for wetlands. These shifts in terminology will be confusing to the lay reader and many of the stakeholders. We recommend using acres for discussions associated with habitats, and lineal miles for riparian.

Page 43, paragraph 3, Target 1. The rationale for determining the number of acres of tidal perennial aquatic habitat to be restored has not been provided. How were the acres derived? What is the biological basis for the numbers? The document should be revised to clearly provide the rationale for actions proposed.

Page 43, paragraph 3, Target 1, Programmatic Action 1B. This action which proposes to restore 1,000 acres of shallow-water habitat in the downstream end of the Yolo Bypass is too low. Liberty Island alone will restore 4,000+ acres.

Page 46, last paragraph, line 4, "90,000 acres". 90,000 acres seems extremely low. Source references should be checked and cited in the document.

Page 47, Fresh Emergent Wetland Habitat, Implementation Objective. Subsidence control and island accretion need to be incorporated into the implementation objective for fresh emergent wetland habitat (nontidal).

Page 47, Programmatic Actions 1A and 1E. The paragraph as written implies that the levees will never be breeched. The document should be revised to clearly indicate the levee treatment.

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Page 48, Programmatic Action 1A. Improving the management of 1,000 acres of existing, degraded seasonal wetland habitat in the Yolo Bypass is too low. The acreage of wetlands should be increased.

Page 48, Programmatic Action 1B. The Yolo Basin Wildlife Area covers 3,150 acres and is already restored. Presumably the acreage to be restored would be in addition to the Yolo Basin Wildlife Area. This target acreage should be increased.

Page 49. Riparian widths of 75 ft-300 ft (22 m - 90 m) are used for riparian corridors, but such widths are more characteristic of degraded riparian corridors than restored corridors; this restoration goal seems inadequate. Although the restored width of any particular riparian corridor would be dependent on a number of site-specific circumstances, a general goal of 100 to 300 m would be more appropriate.

Page 53, paragraph 3 and 4, "Managing agricultural . . ." Delete these two paragraphs. The same paragraph appears three times in a row.

Page 53, Water Diversions, Implementation Objective. All life stages of fish are important and actions should be taken to increase the survival of all life stages. Replace "juvenile" with "all life stages". This sentence should read "Reduce entrainment of aquatic organisms and nutrients at water diversions to increase survival of all life stages of fish and maintain the foodweb."

Page 55, Invasive Aquatic Plants. Areas where non-native vegetation is removed should be replanted with native vegetation to maintain adequate levels of herbaceous cover, canopy closure, habitat structure, and to limit exotic recolonization. Targets should be revised to include replanting with native vegetation.

Page 57, last paragraph. Harvest regulation implies species that are taken in the sport or commercial harvest--ducks, salmon, etc. The document should clarify how regulating harvest of these fish and wildlife species could contribute to the recovery of other species such as Swainson's hawk, giant garter snake, riparian brush rabbits.

Page 58-71. In general, the species objectives and targets refer to the Recovery Plan for Delta Native Fishes. However, the goals and targets of the AFRP are incorporated in some instances, but not in others. Additionally, steelhead trout are not discussed. The document should be revised to include AFRP Delta actions and steelhead trout should be added.

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Page 58, Disturbance, Implementation Objective. Erosion is not the only disturbance from boating that has an adverse effect on Delta species. Fish which spawn in shallow water and waterfowl nesting and/rafting can also be adversely affected. Boating restrictions should be mentioned as a possibility in those areas and times when boating conflicts with critical fish and wildlife events such as the spawning season for listed fish species.

Page 58, Disturbance. Include in this section restrictions on bilge pumping, refueling, and oil changing practices.

Page 58, Species. Under delta smelt, longfin smelt, etc. the Target states that the goals of the Recovery Plan should be met. However, other sections of the document suggest that additional research, demonstration, and evaluation is needed to determine feasibility or ecosystem response. While we agree that monitoring is necessary following implementation for all aspects of the program, we do not believe that additional research is necessary before implementing the goals of the Delta Native Fish Recovery Plan. The ERPP should include full implementation of the Recovery Plan goals.

Page 66, Giant Garter Snake and Western Pond Turtle. A recovery plan for the giant garter snake is currently being developed. Targets for recovery of giant garter snakes in the Delta should be developed in coordination with this recovery plan effort.

Page 71. Since yellow-billed cuckoos have a very large home range, the extent of contiguous riparian habitat should be a focus.

**SUISUN MARSH/NORTH SAN FRANCISCO BAY ECOLOGICAL ZONE VISION**

Page 75, Suisun Marsh/North San Francisco Bay Ecological Zone. Submerged aquatic vegetation (SAV), especially seagrass, communities/habitats should be included here, particularly in the San Pablo Bay Unit. Seagrass provide valuable habitat for fishes and invertebrates in San Pablo Bay and north San Francisco Bay (Kitting 1993, Investigation of San Francisco Bay Shallow Water Habitat, NOAA/NMFS Report). This is true for other SAV, plus SAV provides important foraging habitat for waterfowl. San Pablo Bay contains the greatest acreage of seagrass of any water body in the Bay-Delta system (Wyllie-Echeuerria and Rutter. 1989, Inventory of Eelgrass in San Francisco/San Pablo Bay, NMFS Report). The relative present-day rarity of seagrass beds suggest that it could be considered an endangered or threatened habitat in the Bay-Delta system (after approach of Noss et al 1995, Endangered Ecosystems of the United States, USDOJ/NBS Report). Therefore, the ERPP should discuss

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SAV, especially seagrass, in the Description of the Zone and include programmatic actions to protect and restore SAV habitat under Visions for San Pablo Bay and Tidal Perennial Habitat.

Page 75, Suisun Marsh/North San Francisco Bay Ecological Zone. As mentioned for Volume I of the ERPP, Volume II should include and discuss the federal and state listed endangered California least tern (*Sterna antillarum browni*). Least tern breeding colonies have been documented at six locations in San Francisco and Suisun bays: (1) PG&E Pittsburg, (2) Port Chicago, (3) Naval Air Station Alameda, (4) Oakland Airport, (5) Alvarado Salt Ponds, (6) and Bair Island. The most significant of these colony sites is Naval Air Station which supported 244 nesting pairs and produced 316 fledglings in 1997. Least terns forage for fish in open waters within San Francisco and Suisun bays and diked salt ponds in San Francisco Bay. The success of least tern breeding colonies in these locations is closely linked to the availability and abundance of suitable fish prey items throughout and subsequent to the breeding season in the open waters and diked salt ponds used within San Francisco and Suisun bays.

Page 76, paragraph 3, line 7, "In the 70 years of historical record..." The figure that follows "Historical Monthly Average Flow" is from 1972-1992, 20 years. Perhaps this was supposed to be 1927 to 1997? Same comment for the following table on Page 77. The Figures should be numbered and referenced in the text.

Page 82, Napa River Ecological Unit. Since the Napa River historically consisted of a fairly broad riparian corridor, riparian habitat should be included among the list of natural habitats. Riparian habitat should be considered for the upper Napa River area to provide habitat for wildlife and shaded riverine aquatic habitat for fish species.

Page 83, paragraph 5, "The IEP's Suisun Ecological Workshop [SEW] and the San Francisco Bay Area Wetlands Ecosystem Goals Project is using a comprehensive, science based approach to determine where and how much of various types of wetland should be restored in Suisun and San Francisco Bays. The results of that process will further indicate ways in which Suisun Marsh and San Francisco Bay can be restored." Though it may be the charge of the San Francisco Bay Area Wetlands Ecosystem Goals Project, this is not the charge of the SEW, which generally is to provide salinity recommendations for Suisun Marsh to the State Water Resources Control Board. SWRCB Charge to SEW in the 1995 Bay/Delta Plan, Page 40-41, are as follows: 1. Evaluate the beneficial uses and water quality objectives for the Suisun Bay and Suisun Marsh ecosystem. 2. Assess the effects on Suisun Bay and Suisun Marsh of the water quality objectives in this plan and the federal Endangered Species

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Act biological opinions. 3. Identify specific measures to implement the narrative objective for tidal brackish marshes of Suisun Bay and make recommendations to the SWRCB regarding achievement of the objective and development of numeric objectives to replace it. 4. Identify and analyze specific public interest values and water quality needs to preserve and protect the Suisun Bay/Suisun Marsh ecosystem. 5. Identify studies to be conducted that will help determine the types of actions necessary to protect the Suisun Bay area, including the Suisun Marsh. 6. Perform studies to evaluate the effect of deep water channel dredging on Suisun Marsh. 7. Perform studies to evaluate the impacts of urbanization on the Suisun Marsh ecosystem. 8. Develop a sliding scale between the normal and deficiency objectives for the western Suisun Marsh. The document should be revised to reflect the differences between these two entities.

Page 83, Visions for Ecological Units, Suisun Bay and Marsh Ecological Unit. The Service fully supports the vision for this ecological unit to restore tidal action to selected managed wetlands in Suisun Marsh and thus increase the acreage of tidal emergent wetland habitat. Restoring tidal wetland habitat within Suisun Marsh and other parts of Suisun Bay would greatly facilitate the conservation of federally and State listed species such as the California clapper rail and salt marsh harvest mouse. This vision is consistent with the recovery plan for these species currently being revised by the Service.

Page 83, Suisun Bay and Marsh Ecological Unit, paragraph 1. High quality rearing habitat is extremely important for the recovery of native fish in the Delta. A statement on maintaining the X2 at Roe Island, Chipps Island, and Collinsville should be made here so that rearing habitat for juvenile native fish can be protected. Additionally, fish in general will benefit from this condition.

Page 86, Visions for Reducing or Eliminating Stressors, Disturbance. Disturbances to the endangered California clapper rail which also may occur include, but are not limited to, boating and hunting. These activities should be restricted in known or potential breeding locations for this species. This section does not include and discuss a vision for reducing the abundance of non-native wildlife even though this vision is discussed on pages 220-224 of Volume I. For the endangered California clapper rail and salt marsh harvest mouse, this vision would primarily focus on reducing the abundance of non-native mammalian predators (e.g., red foxes and feral cats). The document should be revised to include and discuss a vision for reducing the abundance of non-native wildlife.

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Page 86, Visions for Reducing or Eliminating Stressors, Water Diversions. A statement that includes consolidating diversions should also be included here.

Page 87, Visions for Species. The Delta Native Fisheries Recovery Plan should be included under all sub-headings for Delta native fish (delta smelt, longfin smelt, Sacramento splittail, etc.).

Page 89, San Francisco Bay Area Wetlands Ecosystem Goals Project. This effort is being folded into the SF Bay Joint Venture Implementation Plan which will be part of the North American Waterfowl Management Plan.

Page 90, Recovery Plan for the Sacramento-San Joaquin Delta Native Fishes, third sentence. The third sentence states that the strategies of the recovery plan have been adopted by the ERPP. However, the ERPP does not include maintenance of the X2 at key locations in Suisun Bay-- Roe Island, Chipps Island, and Collinsville. The ERPP should be revised in all appropriate sections to include maintenance of X2 at Roe Island, Chipps Island, and Collinsville in Suisun Bay, a strategy stated in the recovery plan.

Page 90, Recovery Plan for Salt Marsh Harvest Mouse and California Clapper Rail. The approved recovery plan for these species, which was prepared and approved in 1984, is currently being revised by the Service. In addition to preservation of existing habitat and creation or restoration of additional habitat for these species, the revised plan also will focus on reducing or eliminating stressors to these species such as nonnative, invasive plant species; nonnative predators; and contaminants. The ERPP should state that the goals and objectives that are being developed in the revised recovery plan may lead to corresponding adjustments in ERPP targets and that the goals of other restoration programs (e.g., the San Francisco Bay Area Wetlands Ecosystem Goals Project) identified in the ERPP should be compatible with the revised recovery plan.

Page 93 and 94, Habitats. There are no objectives and targets for mid-channel islands & shoals and fresh emergent wetland habitats. In addition, agriculture is the dominant land use in the north bay, and plays a very important role for some species, but is not part of the "vision". Objectives and targets should be developed for mid-channel islands and shoals, fresh emergent wetland habitats, and agriculture.

Page 95, Seasonal Wetlands. Seasonal wetlands are defined on page 77 to include vernal pools, wet meadows or pastures, and managed wetlands (for duck clubs). Managed wetlands (wetlands

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surrounded by levees) need to be considered separately (from seasonal wetlands) because they have replaced an extensive amount (52,000 acres) of the marshlands. The vision, as earlier described on page 83, discusses removal of levees from managed wetlands to improve tidal flow, yet throughout this allotment section the discussion proposes to construct an *additional* 3,000 acres of seasonal (managed?) wetlands. The ERPP appears to be creating conflicting goals by, on one hand, seeking to construct additional managed wetlands, and yet choosing to remove them at the same time. Removing managed wetlands from the definition could clarify this situation. Remove managed wetlands and vernal pools from the definition of seasonal wetlands and treat them as separate categories. (Vernal pools allotments are already described separately on page 96.) If the intent of the ERPP is to remove the levees of managed wetlands for tidal flow and expand wet meadows or pastures the document should be rewritten to clarify this intent.

Although tidal wetlands currently comprise one tenth of the original marsh wetlands, the vision proposes to construct only 1,500 acres of additional tidal wetlands. As discussed on page 78, "levee construction and bank protection have led to the loss of riparian, wetland, and shallow-water habitat throughout the North Bay and adjacent marshes". It is the tidal wetlands habitat that is most needed by endangered species. The ERPP should reverse the allotments, or conduct a study to determine priorities and justify allotments.

The proposed location(s) for potential construction of 3,000 acres of seasonal (managed?) wetlands should be stated. Unlike elsewhere in the delta, there may not be 3,000 acres of agricultural lands available to restore to wetlands. The majority of agricultural lands have been already been converted to managed wetlands.

The following figures were provided by the Suisun Resource Conservation District and should be incorporated in the document:

managed wetlands	52,000 acres (including Grizzly Island);
unmanaged tidal wetlands	6,300 acres;
bays and sloughs	30,000 acres;
uplands and grasslands	27,700 acres.

Page 95, Seasonal Wetlands, Target 1. Restoring 3,000 acres in the Suisun Marsh to seasonal wetland may not be possible. Most of it is seasonal wetland already. Ducks Unlimited is

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currently enhancing 26,000+ acres in the Suisun Marsh as part of a NAWCA Grant through the North American Waterfowl Management Plan. The rationale behind the selection of the 3,000 acres in Target 1 should be reevaluated, sources cited in the document, and the acres in Target 1 increased.

Page 95, last paragraph, "restoring high-quality fresh-water marsh and brackish marsh.." We note that Suisun Marsh is to be maintained as a brackish marsh, according to the Water Quality Control Plan for the San Francisco Bay /Sacramento-San Joaquin Delta Estuary, May 1995, WR 95-1.

Page 95, Seasonal Wetlands. Do the acres of seasonal wetland include the proposed Montezuma Wetlands project? If so, the document should state how much is the project acreage. Consult the San Francisco Bay Area Wetlands Ecosystem Goals Project on their work before determining allotment numbers. The ERPP should be revised to discuss how allotment numbers were determined.

Page 96. See note for page 49 above. Restoration goals of riparian widths of 5 to 15 yards are inadequate.

Page 96, Riparian and Shaded Riverine Aquatic Habitats, Target 1. This target is quite specific. However, the source of the numbers, the biological basis, or the methodology of deriving the target is not disclosed. Additional information should be added to the document to provide this information.

Page 97, Saline Emergent Wetlands, Target 1. The acres to be restored to tidal action seems low for this area unless they are to be in addition to other programs proposed in the area. Does this include recent CDFG acquisitions in the Napa Marshes and their plans to restore many if not all of those lands to wetlands? Reevaluate the acreages in consideration of ongoing programs.

Page 97, paragraph 4, "Miller 1993". Include the citation in the reference.

Pages 98-101, Suisun Marsh/North San Francisco Bay Ecological Zone, Reducing or Eliminating Stressors. This section does not include and discuss a vision for reducing the abundance of non-native wildlife even though this vision is discussed on pages 220-224 of Volume I. For the endangered California clapper rail and salt marsh harvest mouse, this vision would primarily focus on reducing the abundance of non-native mammalian predators

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(e.g., red foxes and feral cats). The document should be revised to include and discuss a vision for reducing the abundance of non-native wildlife

Page 98, Water Diversions, Target 1, line 1. Change "juvenile" to "all life stages".

Page 99, Invasive Riparian and Saltmarsh Plants. *Phragmites* has not been included in the plan for removal and/or control. Although not woody, it is a major problem in Suisun Marsh. Though it can be controlled on the managed wetlands, it currently is not controlled on tidal wetlands. It forms massive monotypic stands and serves as a seed base which is distributed by wind throughout the Marsh. *Phragmites* must be included in a program to control and remove invasive species. Controlling this species should be a priority above eucalyptus and giant reed.

Page 101, Disturbances. Disturbances to the endangered California clapper rail also may occur in selected areas within this ecological zone from human activities including, but not limited to, boating and hunting. These activities should be restricted or eliminated in known or potential breeding locations for this species.

Page 101, Disturbances. This section does not include and discuss a vision for reducing the abundance of non-native wildlife even though this vision is discussed on pages 220-224 of Volume I. For the endangered California clapper rail and salt marsh harvest mouse, this vision would primarily focus on reducing the abundance of non-native mammalian predators (e.g., red foxes and feral cats). The document should be revised to include and discuss a vision for reducing the abundance of non-native wildlife.

Page 101, Disturbance, Target 1. Add a target to address reducing boat disturbance to spawning fish (particularly listed species) and other critical migratory bird areas such as rookeries and night roosts.

Page 108, California Clapper Rail, Target. The ERPP should include the elimination/reduction of human-related disturbances and predation by non-native mammalian predators. The ERPP should discuss programmatic actions and the rationale for the implementation of the actions identified in this portion of Volume II.

Page 108, Suisun Song Sparrow, Programmatic Action 1B. Indicate whether these acres are additive to the wetland habitat objective or part of it.

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Page 108 and 109, Suisun Song Sparrow, Rationale. The biological information in the rationale statement for this species is excellent. It should be used as an example for preparing or revising rationale statements associated with other species

Page 109, Salt Marsh Harvest Mouse, Target. The ERPP should include the elimination/reduction of predation by non-native mammalian predators on salt marsh harvest mouse populations.

Page 109, Salt Marsh Harvest Mouse, Programmatic Action 1A. This action proposes reintroduction and establishment of viable salt marsh harvest mouse populations at ten suitable habitat areas within unoccupied portions of the species' historic range in the Suisun Marsh/North San Francisco Bay Ecological Zone. These locations should be consistent with areas identified in the approved recovery plan for this species at the time that these locations are selected.

Figure 7, Suisun Marsh/North San Francisco Bay Ecological Zone. This map provides no useful information, not even the Marsh boundaries. A map displaying historical and existing land use would be useful.

## **SACRAMENTO RIVER ECOLOGICAL ZONE**

Riparian restoration actions should consider restoring adjacent uplands as well. For example, grassland could be restored adjacent to riparian forests to benefit wildlife species that use both forest and open grassland, such as Swainson's hawks. Edge-using species could also benefit from healthy habitats adjacent to riparian forest. This comment may apply to other Ecological Zones. In addition, more rationale is needed to explain how the restoration acreage target for riparian habitat was determined.

The Corps is currently considering a comprehensive program for flood control on both the Sacramento and San Joaquin Rivers that may include non-structural actions such as widening floodways. These possibilities should be considered under the "Integration with Other Restoration Programs" section here and in the San Joaquin River Ecological Zone.

Page 113, Introduction. No mention is made of habitat types other than riparian or stream channel in the description of this zone. The only species mentioned are anadromous fishes. Include a description of other habitat types, such as vernal pools and swales, freshwater and

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alkaline marshes, riparian forests and grasslands. Include a discussion of other species found in this zone, including but not limited to giant garter snake, valley elderberry longhorn beetle, bald eagle, Swainson's hawk, palmate-bracted bird's-beak, Hoover's spurge, and hairy and slender orcutt grasses. Include a description of the stressors affecting these species and habitats.

Four National Wildlife Refuges (Sacramento, Delevan, Colusa, and Sutter) are located either adjacent to or within 5 miles of the Sacramento River Zone. This zone is directly and indirectly important to the waterfowl and other bird species using these refuges. Include a discussion of this relationship and the stressors affecting these species.

Page 113, Introduction, paragraph 3. Natural floodplains and flood processes have a great influence on the river, however, they are not discussed. This is a major omission. Natural floodplains and flood processes need to be included in all discussions of ecological processes having the greatest influence on the Sacramento River.

Page 113, Description of the Zone, paragraph 2. We recommend that the 100-year floodplain and meander zone be included throughout the length of the Sacramento River Ecological Zone.

Page 114, paragraph 4. Sacramento splittail are a federally proposed threatened species for listing under the Endangered Species Act.

Page 117, paragraph 4. The document states that "The yellow-billed cuckoo along the Sacramento River above the Delta is not a species for which specific restoration projects are proposed." Yet it goes on to state that potential habitat for the cuckoo will be improved. Without specific restoration in mind, the needs of this species may not be met. Specific restoration projects should be included.

Page 122. Restoration goals of riparian widths of 10 to 25 yards are inadequate. See note for page 49 above.

Page 122, line 7. Insert "and river otter" after "ring-tail".

Page 122, Vision for the Chico Landing to Colusa Ecological Unit. Setback levees should also be considered.

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Page 123, paragraph 3, "There is simply no more room to restore large habitat nodes or corridors without contributing to the flood risk". Set-back levees should be included for consideration, because in this way restoration and flood control goals can both be met..

Page 124. See note for page 49 above.

Page 125, Vision For Habitats, Riparian and Riverine Aquatic Habitats, "The primary area for this is along the Sacramento River above Colusa". Is no riparian restoration proposed below Colusa? Contiguous riparian habitats are extremely important to fish and wildlife throughout all reaches of the river, including the 143 river miles below Colusa. The ERPP should include riparian habitat throughout all river reaches.

Page 125, Visions for Habitats, Riparian and Riverine Aquatic Habitats. Maintenance and restoration of habitat is discussed only for anadromous fish species. Other species occupy or utilize levees and riparian areas including valley longhorn elderberry beetle, neotropical migrants, and giant garter snake. Any maintenance and restoration activities should be done in conjunction with the Service and CDFG and any recovery plans written for these species.

Page 125, Vision for Reducing or Eliminating Stressors, Levees, Bridges, and Bank Protection. This vision is to modify, remove, or reoperate structures in a manner that lessens adverse effects on processes and aquatic organisms. Many non-aquatic species are known to occupy or utilize levees and banks including valley longhorn elderberry beetle, neotropical migrants, and giant garter snake. Impacts and temporal habitat loss of these species should be considered when planning restoration and maintenance activities and when selecting areas suitable for restoration.

Page 125, Vision For Reducing or Eliminating Stressors. Include a vision to protect spawning fish such as salmon, steelhead, and sturgeon from disturbance associated with boaters.

Page 126, Visions for Species. Giant garter snake, valley elderberry longhorn beetle, California red-legged frog and other special status species found in this zone are not included among the species addressed in this section. Measures that will benefit these species found in vernal pools, freshwater and alkaline marshes, riparian forests, and grasslands should be included.

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Page 127, Integration with Other Restoration Programs. Although some of the elements of the CVPIA program have been included, several restoration programs have not been included. This section should be expanded to include other restoration aspects of the CVPIA.

Page 127, Integration with Other Restoration Programs, Central Valley Project Improvement Act. Only the provisions of this act that refer to anadromous fish are mentioned. Section 3406 of the Act allows for establishment of the (b)(1) "other" program, to protect, restore, and mitigate for past fish and wildlife impacts of the Central Valley Project not already addressed by the CVPIA, including threatened and endangered plants and animals other than anadromous fish. Include a discussion of these other program elements for species found in the Sacramento River zone.

Page 128, Integration with Other Restoration Programs, Endangered Species Act. No reference is made to recovery plans for listed species other than for the winter-run chinook. Recovery plans be used to guide actions affecting listed plants and animals and species of concern where these species are addressed in recovery plans. Draft or final plans exist for valley elderberry longhorn beetle and palmate-bracted bird's-beak. For rare unlisted species, the Service recommends that conservation strategies be developed that would result in net benefits to species and habitats and, at a minimum, would not result in a need to list a species under federal or state authorities.

Page 129, Linkage to Other Ecological Zones. No discussion is made of species other than anadromous fish that use this zone. Giant garter snakes, for example, use the riparian areas for travel between suitable habitat such as sloughs, creeks, and freshwater marshes that are a part of this ecological zone. Describe the importance of linkage to other ecozones to special status species found in this zone, including the valley elderberry longhorn beetle, bald eagle, willow flycatcher, California red-legged frog, California tiger salamander, western spadefoot toad, and plants, such as palmate-bracted bird's-beak, Hoover's spurge, and hairy and slender orcutt grasses.

Page 129, Linkage to Other Ecological Zones. The Sacramento NWR acquisition and restoration efforts are not discussed. This is one of the largest restoration projects on the Sacramento River in terms of habitat protection and restoration. The document should be revised to include a discussion concerning the Sacramento NWR habitat protection and restoration effort.

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Pages 130-141, Implementation Objectives, Targets, and Programmatic Actions. In general, we agree with the concepts. However, we have concerns regarding the details. Again, some of the targets and actions relate directly to CVPIA and AFRP actions. It would be helpful if Volume II indicated these specific targets and actions.

Page 132, Implementation Objectives, Targets, and Programmatic Actions, Stream Meander Corridor, Targets 1 and 2. A total of 24,000 acres would be purchased to preserve and improve the meander belt. When selecting areas to purchase, look for land within or adjacent to the meander belt which supports special status species and include these areas whenever available in the purchase. Include in this discussion the effects on special status species, such as valley elderberry longhorn beetle and giant garter snake, in the cooperative program to evaluate feasibility of removing human-made structures from the meander corridor. The cooperating agencies should include the Service and CDFG.

Page 132, Stream Meander Corridor. Passage of SB1086 resulted in the development of the Upper Sacramento River Fisheries and Riparian Habitat Management Plan in 1989 and the ongoing development of the Sacramento River Conservation Area Handbook to guide riparian habitat management along the Sacramento River. Development of these documents has involved multiple stakeholders throughout the Sacramento River corridor. Not acknowledging previous work and the importance of coordinating with this group would be a major setback in efficiently implementing habitat restoration along the Sacramento River. Reference should be made in this section, or elsewhere in the discussion regarding the Sacramento River, to the need to coordinate with the SB1086 process.

Targets 1 and 2 may raise concerns among landowners along the Sacramento River. The wording of the discussion suggests that CALFED is primarily interested in property acquisition along the Sacramento River. Land acquisition and easements are not the only viable options available for protecting the river. The discussion should be expanded to include other options.

Page 132, Stream Meander Corridor. The Sacramento NWR land acquisition and restoration activity should be discussed.

Page 133, Rationale. Habitat protection/restoration for fish should not occur only in isolated reaches upstream. Improving habitat conditions upstream may not be effective if species still have to deal with significantly degraded conditions downstream. Include a brief discussion of improvements to be made downstream and the connectivity between ecological zones.

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Page 133, Natural Floodplain and Flood Processes, Programmatic Action 1A, line 1. We strongly support implementation of actions to alter river channel configurations in leveed reaches of the Sacramento River to increase the areal extent of floodplains inundated during high flow periods. However, to be effective the program developed should be implemented. Insert "and implement" between "Develop" and "a cooperative . . ."

Page 133, Implementation Objectives, Targets, and Programmatic Actions, Natural Floodplain and Flood Processes, Programmatic Action 1A. A cooperative program will be developed to evaluate modifications in Sacramento River channel. Include in this discussion, effects on special status species, such as valley elderberry longhorn beetle and giant garter snake, in the cooperative program to evaluate feasibility of removing human-made structures from the meander corridor. The cooperating agencies should include the Service and CDFG.

Page 134-137. The target statements on these pages lack quantifiable objectives. Each target should answer when, where, how much. For example, on page 137, Target 1 should indicate how many miles of setback levees are needed or proposed. Unless more detail is provided, progress can not be measured. The document should be revised to provide more detail for the targets and programmatic actions.

Page 134, Riparian and Riverine Aquatic Habitats, Programmatic Action 1A. We question the need for pilot projects because, a great deal of expertise and experience already exists concerning restoring riparian areas. A better approach would be to implement riparian restoration in phases, monitor, and modify as necessary under adaptive management.

Page 134, Habitats, Riparian and Riverine Aquatic Habitats, Programmatic Actions 1A. In this action, a cooperative program will be developed for revegetation of unvegetated, riprapped banks. The Service and CDFG should be included in coordination of this potentially beneficial program. The effects of these actions on valley elderberry longhorn beetle and giant garter snake, as well as other species, should be considered when designing the project. Plant species that are native to these areas should be used in the revegetation program. The Service also recommends the removal of aggressive, non-native plants, such as giant reed (*Arundo donax*), whenever possible, concurrently with revegetation.

Page 135, Habitats, Riparian and Riverine Aquatic Habitats, Programmatic Actions 1B. Setback levees are proposed to be constructed to increase floodplain width and development of shaded riverine aquatic habitat. This action, which is potentially beneficial to a wide variety of special status species, must be designed with consideration of impacts of levee

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construction on those species existing in construction areas as well as borrow areas. This action should be designed in coordination with the Service and CDFG.

Page 135, Habitats, Riparian and Riverine Aquatic Habitats, Programmatic Actions 2A and 3A. These actions describe a program to purchase land or easements to protect and improve habitat. Include the presence of special status species habitat as one of the criteria for prioritizing potential purchase sites. Confer with the Service and CDFG in selection of these sites.

Page 136, Programmatic Action 1C, line 6, "... it may be necessary to modify operations of the diversion. Such determinations will be made .... case basis." Diversions that are screened generally have a biological opinion from the regulatory agencies appended to the Corps of Engineers permit required to install the fish screen. We recommend deleting the 2nd and 3rd sentences and replace with the following sentences. "When a fish screen is installed it should be tested to determine that it can perform to the criteria of the fish regulatory agencies. After testing has indicated that the screen meets the criteria, monitoring should be performed to ensure that the screen can meet these criteria under the range of hydrologic conditions that the diversion is operated. When operation monitoring indicates that everything is working satisfactory, or the operation of the diversion is modified so that it works satisfactorily, the diverter should routinely inspect the screen to ensure that the facility is undamaged. If damage is noted operation should stop, regulatory agencies should be notified, and appropriate repairs made."

Page 136, Programmatic Action 1D, Rationale, paragraph 2, "Determining which..." The determination of which diversions need to be screened has not been based upon monitoring and evaluation since most of the funds would be spent on that rather than on installing screens. Therefore, we suggest the following change: "Determining the priority for screening diversions will be based on several criteria including but not limited to the geographical location, the volume, the location in the water column, and the cost effectiveness. Consideration will be given to appropriate alternatives." "Priority will be given to screening diversions..."

Page 136, Sacramento River Ecological Zone, Dams, Reservoirs, Weirs, and other Human made Structures, Programmatic Action 2A, "Evaluate the need to upgrade fish passage facilities at the ACID dam." The need has already been recognized in CVPIA, Sec. 3406(b)(17). The action should be "to upgrade the fish passage facilities" rather than to evaluate the need.

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Page 137, Reducing or Eliminating Stressors, Levees, Bridges, and Bank Protection, Programmatic Action 1A. This action develops a cooperative program to evaluate potential sites for establishing setback levees along the Sacramento River. This action, which is potentially beneficial to a wide variety of special status species, must be designed to consider impacts of levee construction on those species existing in the construction area as well as borrow areas. This action should be designed in coordination with the Service and CDFG.

Page 142, Species. Only two non-fish species are addressed in this section. Many federal and state listed and proposed plants and animals are found in this ecological zone and should be addressed in this document. These species include amphibians, invertebrates, raptors, waterfowl, reptiles, and plants.

Pages 142-150, Species. We appreciate the acknowledgment of the CVPIA's efforts to restore chinook salmon populations in the Central Valley, however, CVPIA efforts are intended to restore other anadromous fish species, as well as other fish and wildlife resources and their habitats. The document should be revised to include these species and habitats.

Page 142, Sacramento River Ecological Zone, Species. The valley elderberry longhorn beetle should be included and described in a similar context as the yellow-billed cuckoo and the bank swallow.

Pages 144 through 148. The programmatic actions listed in Winter-run Chinook Salmon, Programmatic Action 1A are repeated verbatim five times in pages 144-148. This is an example of redundancy which could be eliminated to make the document more readable. Revise the document to eliminate redundant text.

Page 149, Western Yellow-Billed Cuckoo, Programmatic Action 1A. This action states that the primary focus area for restoration of the yellow-billed cuckoo is the Delta. However, in the section on the delta, it does not state that the Delta was going to be the primary area for cuckoo restoration. The Sacramento River has the highest breeding densities of yellow-billed cuckoos in California, yet there are no specific actions for cuckoos or their habitat outlined for the Sacramento River Ecological Zone. Successful restoration in the Delta may be determined by actions along the Sacramento River to provide connectivity of riparian habitats from existing populations to the delta. Restoration actions should take into consideration the extremely large home range of yellow-billed cuckoo. The document should be revised in all appropriate ecozones to clearly indicate restoration needs for this species.

## NORTH SACRAMENTO VALLEY ECOLOGICAL ZONE

Page 152-159, Description of the Ecological Units. No description is given of any habitat type in the four units except those associated with stream courses. Include descriptions of other habitats found in these units, including riparian forest, upland forest and savannah, grassland, and so forth.

Page 152, Description of the Zone. Only habitat types relevant to salmon and steelhead are described. The previous paragraph states that the zone contains habitat for "many terrestrial species, including neotropical birds, reptiles, and invertebrates." However, these habitats are not described or addressed in any specific way in the North Valley Sacramento Ecological Zone section. Fully describe other habitats in the zone, including riparian forest, upland forest, woodland, scrub, grasslands, and vernal pools. Federal listed species in this zone are not restricted to streams.

Page 152, Description of Zone, paragraph 4, line 4, "Opportunities to maintain . . ." Water diversion is one of the main stressors addressed in the document and should be included. Insert ", diversions that reduce flow" between "such as dam construction" and "and gravel extraction . . .".

Page 154, paragraph 1, line 8-10. "The intent of ERPP is to provide the habitat and flow necessary to achieve its implementation objective." Since this paragraph is discussing gravel replacement, this sentence appears to be misplaced. Flows are a necessary component of habitat for fish. Flows are also a necessary component for gravel transport. The document should be revised to clarify the intent.

Page 158, paragraph 3, line 8. Ozone is a potent *disinfecting agent* and its use at the Coleman Hatchery's water treatment plant is to kill disease pathogens present in the hatchery's Battle Creek water supply, not to sterilize the water. Sterilization denotes the water will be free from all microorganisms. Replace the use of the word ozone "sterilizing" with "disinfecting".

Page 159, Vision for the Ecological Zone. Paragraph 1 states that the vision for the North Sacramento Ecological Zone is to "restore important fishery, wildlife, and plant communities". In contrast, paragraph 2 states that the vision *focuses* on "restoring spring-run chinook salmon and steelhead to population levels of the 1960s and early 1970s", and the rest of the vision discussion revolves around only fish issues. No further mention is made of other wildlife and

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plant communities. Include a discussion of these as well as of other habitats present in each ecological unit.

Page 159, Vision for Ecological Units, Cow Creek Ecological Unit. The vision includes reducing adverse effects of timber harvest, erosion, and cattle grazing on streams and riparian systems. However, timber harvest, erosion, and cattle grazing may have adverse impacts beyond those on streams and riparian systems. These impacts should be discussed.

Pages 160-161, Visions for Ecological Processes, all. These sections discuss ecological processes only in reference to their importance for anadromous fish and their habitats. Include discussions of these processes for plants, non-migratory fish, and other animals. In particular, the Upper Watershed Processes section could be expanded.

Page 161, Vision for Habitats. This vision neglects species other than anadromous fish, omitting habitat types necessary to many of the listed species in this zone (as noted above). In addition, the treatment of riparian habitats does not recognize the diversity and complexity of riparian habitats and plant communities. For example, the zone contains several types of riparian forest and scrub including some rare types such as Great Valley Cottonwood Riparian Forest, Great Valley Mixed Riparian Forest, Great Valley Oak Riparian Forest, and Great Valley Willow Scrub. Expand the vision to thoroughly address riparian habitats as well as other habitats and plant communities.

Page 161, Vision for Habitats, Riparian and Riverine Aquatic, line 9. Add an "s" to "habitat" and "ed" to "maintain" in the sentence "The vision for riparian and riverine aquatic habitat..."

Pages 161-162, Visions for Reducing or Eliminating Stressors. All of the stressors discussed may adversely impact species other than anadromous fish. Include a discussion of the impacts to plants, non-migratory fish, and other animals similar to the one done for anadromous fish.

Page 162, Visions for Reducing or Eliminating Stressors, Water Diversions, line 2, "and that water will be diverted through state-of-the-art fish screens to reduce loss of juvenile fish." Suggest more appropriate to state the water will be diverted through state-of-the-art fish screens that meet "State mandated screening criteria".

Pages 162-163, Visions for Species. Only fish are mentioned. The ecological zone includes four listed birds (American peregrine falcon, Aleutian Canada goose, bald eagle, northern spotted owl), one listed amphibian (California red-legged frog), four listed invertebrates

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(vernal pool tadpole shrimp, Shasta crayfish, vernal pool fairy shrimp, valley elderberry longhorn beetle) and one listed plant (slender Orcutt grass) as well as listed and proposed fish that are not mentioned. Include visions for appropriate plants, non-migratory fish, and other animals.

Pages 163-164, Integration with Other Programs. No mention is made of recovery plans for listed plants and animals. Recovery plans should be used to guide actions affecting listed species and species of concern when recovery plans are available. For rare unlisted species, the Service recommends that conservation strategies be developed that would result in net benefits to species and habitats and that, at minimum, would not result in a need to list a species under Federal or state authorities. Include a discussion of these issues in the document.

Pages 164 through 169, Implementation Objectives, Targets, and Programmatic Actions. Implementation objectives and Targets should be quantified as in most other Ecological Zones. The document should be revised to provide additional rationale for Programmatic Actions.

Page 164, Integration with Other Restoration Programs, Central Valley Improvement Act, paragraph 3. "Reclamation is willing to assist in restoring Clear Creek fish habitat...", is obviously misplaced and should be "cut and pasted" to page 154 under Clear Creek Ecological Unit. We suggest placement between paragraphs nine and ten (before paragraph beginning, "The California Department of Fish and Game...").

Page 164, Integration with Other Programs, Central Valley Improvement Act. The Clear Creek and Battle Creek targets and actions appear to be consistent with the AFRP actions. However, only the provisions of this act that refer to anadromous fish are mentioned. Other wildlife and plants could be addressed through the (b)(1) "other" program and/or conservation program of CVPIA. Include a discussion of these other program elements for species other than anadromous fish found in the North Sacramento Valley zone.

Pages 164-174, Implementation Objectives, Targets, and Programmatic Actions. The implementation objectives emphasize anadromous fish and their habitat. Many other habitat types and species are found within the Northern Sacramento Valley Ecological Zone. Even where other species and habitats are obviously involved (e.g., Upper Watershed Processes and Riparian and Shaded Riverine Aquatic Habitats), they have been neglected. Include

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objectives, targets, and actions that will benefit rare species in other habitats, such as grasslands, vernal pools, riparian forest and upland forest.

Pages 169-170, Implementation Objectives, Targets, and Programmatic Actions, Land Use.

Although the implementation objective is to "promote rangeland management practices and livestock stocking levels to maintain high-quality habitat conditions for wildlife, aquatic, and plant communities; protect special-status plants and riparian vegetation...erosion", the programmatic actions emphasize benefits only to anadromous fish. Rangeland management practices and livestock stocking levels affect many plant and wildlife species other than anadromous fish. These effects are just alluded to in the implementation objective. Include a discussion of how the implementation objective will be achieved for plant and wildlife species other than anadromous fish and for habitats not supporting anadromous fish.

**COTTONWOOD CREEK ECOLOGICAL ZONE**

Page 183, Ecological Processes. Natural Floodplains and Flood Processes need to be added here as an implementation objective with targets following.

**COLUSA BASIN ECOLOGICAL ZONE**

Page 189, Introduction. For the Colusa Basin the following need to be added: 1) the importance of the area to the food chain/food web of the Delta through detritus production and direct primary production and 2) the value of wetlands (both seasonal and permanent) to waterfowl and other wetlands dependent species.

Page 189, last paragraph. Natural floodplains and flood processes are very important and have been omitted from this paragraph. Include a discussion concerning natural floodplains and flood processes in this paragraph.

Page 189, Description of the Zone. No description is given of any habitat type in this zone except stream courses. The previous paragraph, "Introduction", states that this zone is one of the primary waterfowl and wetland bird migratory and wintering areas in the Pacific Flyway and contains "vital waterfowl and wetland habitat", however, these habitats are not described or addressed here or in any portion of the Colusa Basin section. Fully describe the freshwater marsh, alkaline marsh, vernal pool, riparian forest, upland forest, and grassland habitats in this zone. The majority of federal listed and proposed species in this zone are found in habitats types other than streams.

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Page 190, line 5. Insert "and wetlands" after ". . . riparian and riverine aquatic habitat."

Page 190, Description of the Zone. The use of the word "streamflow" is confusing. Omit, replace, or precisely define this term. The next sentence discusses "their" influence on bedload movement, etc. Clarify whose influence is referred to.

Page 190, Descriptions of Ecological Units. No description is given of any habitat type in the four units in this zone except stream courses. Include descriptions of other habitat types found in these units including freshwater marsh, alkaline marsh, vernal pool, riparian forest, upland forest, and grassland habitats.

Page 190, Descriptions of Ecological Units, Stony Creek Ecological Unit. The soil types and total watershed acreage are not given for this unit as they were for the other 3 units. Include this information.

Page 191, paragraph 4, line 2. Insert ". . .below" between "streamflow" and "Black Butte . . .". The sentence should read "Restoring fall-run chinook salmon in Stony Creek requires suitable streamflow downstream of Black Butte Reservoir, adequate fish passage at the GCID creek crossing, gravel mining restrictions, and giant reed control."

Page 193 and 194, Vision for the Ecological Zone. The vision for this zone is defined as "restoring...wildlife and plant communities and ecological processes and functions until their status is not longer identified as a problem...." The vision is focused on "gravel recruitment, transport, and cleansing, and restoring seasonally flooded aquatic habitats" that provide habitat for waterfowl and shorebirds. No further mention is made in the document of wetland restoration. Include a discussion of these and all other habitats present in each ecological unit.

Page 194, Visions for Ecological Units, Stony Creek Ecological Unit. Reference is made to "improving upstream and downstream passage" and "increasing habitat complexity". Clarify what is meant by these terms, what their importance is, and how they will be accomplished.

Page 195, Colusa Basin Ecological Unit. The discussion in this paragraph is very general and should be revised to explain how the ERPP proposes to "remedy" the ecological problems related to the Colusa Basin Drain.

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Page 196, Visions for Habitats. This vision acknowledges only the migratory corridor for anadromous fish, omitting habitat types necessary to most of the listed species existing in this zone including freshwater marsh, alkaline marsh, vernal pool, riparian forest, upland forest, and grassland habitats. Include discussions of these other habitat types. At a minimum, seasonal wetlands should be added because of their critical importance for Pacific Flyway waterfowl.

Page 196, Visions for Reducing or Eliminating Stressors. All of the stressors noted in this section have been responsible for loss of individuals and habitat of plants, non-migratory fish, and other animals. Include a discussion of these impacts similar to that done for anadromous fish.

Page 196, Visions for Species. Only one species, chinook salmon is listed. This area is also important to other species such as plants, non-migratory fish, migratory birds, giant garter snakes, and other animals. The document should be revised to include other species.

Page 196, Integration with Other Restoration Programs. No mention is made of recovery plans for listed plants and animals. Recovery plans should be used to guide actions affecting listed species and species of concern where these species are addressed in recovery plans. For rare unlisted species, the Service recommends that conservation strategies be developed that would result in net benefits to species and habitats and, at a minimum, would not result in a need to list a species under Federal or state authorities.

Page 196, Integration With Other Restoration Programs. Include the restoration goals and objectives that the Central Valley Habitat Joint Venture has for the Colusa Basin as well as the Sacramento River NWR.

Page 197, Central Valley Improvement Act. Only the provisions of this act that refer to anadromous fish are mentioned. Section 3406 of the Act allows for establishment of the (b)(1) "other" program, to protect, restore, and mitigate for past fish and wildlife impacts of the Central Valley Project not already addressed by the CVPIA, including threatened and endangered plants and animals other than anadromous fish. Include a discussion of these other program elements for species found in the Colusa Basin zone.

Page 197, Linkage to Other Ecological Zones. The single value and goal discussed regarding linkage to other zones is sediment transport and the need to reactivate the transport process.

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Certainly, reestablishment of riparian forests and wetlands would also provide benefits. Include values and goals applicable to plants, non-migratory fish, and other animals.

Pages 197 through 201, Implementation Objectives, Targets and Programmatic Actions. The implementation objectives for all of the ecological processes are directed only towards the restoration of anadromous fish habitat. Many habitat types other than streams are present in the Colusa Basin zone and support many other species. Although these actions may indirectly improve habitats other than streams, it is unlikely that these actions will have any direct effect on vernal pools, freshwater marshes, alkaline marshes, upland grasslands and forests. Their effect on riparian forests is unclear. No specific measures are given for controlling factors that directly affect water quality, such as soil loss, pesticide, and herbicide use from farming practices. None of the rare plants and very few of the rare animals present in the Colusa Basin are found in stream channels and rarely in riparian corridors, the only habitats addressed in this document. Include objectives, targets, and actions that will benefit rare species found in vernal pools, freshwater marshes, alkaline marshes, riparian and upland forests and grasslands.

Pages 198 and 199, Natural Sediment Supply, Programmatic Actions 2A and 3A. Gravel miners will be assisted in identifying alternative gravel and sand sources beyond the stream channel and relocating to those areas. State that these alternative sources will be carefully selected in coordination with the agencies, will not be located in areas supporting rare plants or animals, and that extraction activities will not impact high quality habitats.

Page 198, Natural Sediment Supply, Implementation Objectives, Targets and Programmatic Actions. For programmatic actions to increase and/or supplement spawning gravel in various tributaries, implementation of gravel restoration actions on one stream must not threaten limited supplies of spawning gravel in other tributaries. Also, to reduce extraction of spawning gravel, restrictions and /or modification of gravel mining permits may be necessary and should be fully considered in ERPP planning.

Page 199, Stream Meander Corridor, Target 1 Include the width of channel meander anticipated in the 18 mile stretch of Stony Creek below the North Diversion Dam.

Page 199, Stream Meander Corridor, Programmatic Action 1B. This programmatic action discusses the development of a program to recontour and regrade portions of Stony Creek streambed to facilitate, over time, a natural meander regime, etc. However, Implementation of a recontouring and regrading program on Stony Creek may be for naught if flood control

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releases from Black Butte reconfigure the newly regraded streambed. The ERPP should reevaluate the potential affects of flood control releases from Black Butte reservoir and modify the plan as appropriate.

Page 199, Stream Meander Corridor, Target 2. This target should be quantified so that measurable success criteria can be established.

Page 199, Stream Meander Corridor, Target 3. Include the width of channel meander anticipated in the lower 10 miles of Elder Creek.

Pages 200-201. All target statements need to be quantified.

Page 201, Upper Watershed Processes, Implementation Objective, Programmatic Action 1A. The effect of fuel loads on watersheds and benefit of this action on watershed "health" are not explained in this document. This action has the dangerous potential of seriously and permanently harming the integrity of the entire watershed by increasing runoff and erosion, degrading water quality and increasing water temperature through inappropriate logging and herbicide practices. Omit this action as it is currently written or expand it to specify limitations of the action, including a statement that only controlled burns, or other small-scale, selective methods using appropriate riparian buffers and erosion controls will be conducted to control fuels in upper watersheds. State that any "fuel load" control program will be done only in coordination with the Service, the Forest Service, CDFG, and other agencies knowledgeable in wildfire. Define in the *Rationale*, the term "excessive fuel load", explain how it is detrimental to the watershed, explain the benefits of this action on the watershed, and what effects this action will have on downstream habitat.

Page 201, Habitats. Riparian and Shaded Riverine Aquatic Habitat is the only habitat listed. Wetlands are also important. We recommend adding a target for wetlands in the Colusa Basin Ecological Zone.

Page 203, Species. Only one species, chinook salmon, is listed for the Colusa Basin Ecological Zone Vision. Species associated with adjacent riparian and upland areas should be included. Include plants, non-migratory fish and other animals, including but not limited to giant garter snake, vernal pool fairy shrimp, vernal pool tadpole shrimp, and valley elderberry longhorn beetle.

## **BUTTE BASIN ECOLOGICAL ZONE**

The actions included for this zone are predominantly focussed on fisheries. We recommend that the Zone Vision be expanded to include other wetland and upland species and habitats which would influence Delta ecosystem processes.

Page 207, Paynes Creek. This section discusses the need to screen 15 diversions, but does not mention CVPIA's fish screening program.

Page 217, Vision for the Zone. The ERPP visions reiterate those already planned in the AFRP. The AFRP currently is assessing feasibility of implementing watershed management plans in Mill Creek, Deer Creek, Butte Creek and Big Chico Creek in this ecozone. These actions should be completely incorporated into the ERPP.

Pages 222-228, Butte Basin Ecological Zone, Implementation Objectives, Targets, and Programmatic Actions. It appears that in general, the targets and actions are somewhat consistent with the AFRP actions. However, there are additional actions identified in the AFRP draft plan. We recommend that CALFED staff meet with Service staff to determine the additional actions which should be included in the ERPP and then revise the document accordingly.

Page 225 and 226, Water Diversions. The connections between the vision for water diversions in the ERPP and the alternatives and other core programs are absent. One of the visions for water diversions should be water conservation/water use efficiency.

Pages 228 through 230, Butte Basin Ecological Zone, Species. The species targets and actions do not include the AFRP goals and objectives and it is not clear whether they are consistent with the numerical goals on pages 64-67 in Volume III. This section should be reevaluated and rewritten to include AFRP goals and objectives.

## **FEATHER RIVER/SUTTER BASIN ECOLOGICAL ZONE**

Page 232, 4th paragraph. The rationale for only identifying riparian (waterside) habitat as important should be clarified. We believe that other habitat types should be included.

Page 232, paragraph 4, line 21, "Stressors . . ." Other stressors, particularly for riparian and other wetland habitats, include flood control improvements, such as levees which constrict

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the floodplain and generally prevent historic sheet flooding of seasonal wetlands. Development in the floodplain (agricultural, industrial, residential, recreation) also are stressors for these habitats, particularly in the lower reaches of the Yuba River floodplain.

Page 233, Description of the Zone. This whole section (paragraph) is redundant with the first paragraph of the Introduction on the previous page.

Page 233, Feather River Ecological Unit, paragraph 1, line 11. Change "below" to "downstream of".

Page 233, Feather River Ecological Unit, paragraph 2, line 1. Downstream of Oroville Dam the flows are no longer have a natural streamflow pattern. Insert "upper" before Feather River.

Page 235, Yuba River Ecological Unit, paragraph 3, line 1. Insert "several miles beyond" after "floodplain".

Page 238, Yuba River Ecological Unit, first line. "limiting conditions" is vague. The context appears to be in reference to flow. The document should be revised to clarify the intent.

Page 239, Bear River and Honcut Creek Ecological Unit, first full paragraph, line 4 and 5. Some text is missing in the middle of the paragraph between ". . .no flow in all" in line 4 and "substantially to 260 to 460 cfs." in line 5.

Page 240, Sutter Basin Ecological Unit, first full paragraph, line 3. Change "is part of" to "contains".

Page 240, Vision for the Ecological Zone, paragraph 2. The actions listed to reduce stressors are all fish related. Actions to reduce stressors to riparian habitats, seasonal wetlands etc need to be identified also. Examples of possible actions include constructing offset levees, constructing new bypass channels for flood flows, limiting development in the floodplain, establishing and protecting existing riparian corridors, and changing post harvest agricultural habits to benefit wildlife.

Page 240, Vision for the Ecological Zone, paragraph 3, line 10. Yuba River spring-run chinook salmon should also be included in any genetic analyses.

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Page 241, Yuba River Ecological Unit, paragraph 1, line 12. Generally, gravel recruitment is probably not a problem on the Yuba River except in the reach just below Englebright Dam. Once the Yuba reaches the goldfields it is a gravel rich system. This clarification should be made in the document.

Page 241, Yuba River Ecological Unit, paragraph 3, line 5. The configuration of the stream channel of the Yuba may be already good. Given its historic ability to meander widely (pre-mining, flood and debris control) it may never have had significant streamside riparian vegetation compared to other Central Valley streams. Flow is probably more limiting than channel configuration.

Page 241, Yuba River Ecological Unit, paragraph 3, line 17 and 18. Is it documented that water temperature is a concern in late winter and early spring on the Yuba River?

Page 241, Yuba River Ecological Unit, last paragraph. Gravel is not a problem on the Yuba except possibly just below Englebright Dam.

Page 242, Yuba River Ecological Unit, paragraph 2, line 9. Tamarisk and giant reed are not major problems yet. Action now will keep them from developing into a larger and more expensive problem to correct in the future.

Page 242, Yuba River Ecological Unit, paragraph 4, line 8. On page 237 it states that the practice of stocking spring- and fall-run chinook salmon and steelhead has been discontinued. This paragraph needs to be modified or the text corrected on page 237. Also the paragraph refers to the Feather River, rather than the Yuba River.

Page 244, Visions for Habitat. The "Fresh Emergent Wetland Habitat" should be changed to "Freshwater Emergent Wetland Habitat".

Page 244, Fresh Emergent Wetland Habitat, line 6. Wetlands are important for more than just waterfowl (generally defined as ducks, geese and swans). The document should be expanded to include the importance of wetlands to multiple species.

Page 246, Integration With Other Restoration Programs. The Corps of Engineers own and operate Daguerre Point Dam on the Yuba River. They have been involved in solving the fish passage problems associated with this structure also. The Corps programs should be included in this section.

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Pages 247-255. While we agree with the general concepts, we have concerns regarding the details of the specific targets and actions, such as the timing, duration and magnitude of the March flows. Also, the streamflow recommendations for the Yuba River (pg.248) are inconsistent with DFG's Restoring Central Valley Streams, November 1993. There may be additional actions from the AFRP draft plan that could be incorporated in this section. We recommend that the CALFED staff meet jointly with the Service and DFG to determine appropriate revisions to be incorporated into the document.

Page 247. Targets 1 through 4. These targets mention specific flow releases - are they adapted from conservation measures or dependent on the "30% surplus waters" for fish & wildlife?

Pages 255-258, Feather River/Sutter Basin Ecological Zone, Species. The species objectives and targets are not consistent with the AFRP doubling goals for anadromous fish and should be revised to be consistent with the AFRP.

#### **AMERICAN RIVER BASIN ECOLOGICAL ZONE**

Discussions of American River flows appear to meet water supply needs before environmental flows will be met. A more balanced approach would be to establish base flows to determine what water supplies can be anticipated from the watershed during water year types to meet the needs of water contractors and the environment.

Pages 264-268, Description of the Ecological Units, Lower American River Ecological Unit. The geographical limits of the Lower American River Ecological Unit are not specified. Although the unit would be composed of all areas within the zone and outside the American Basin Ecological Unit, the geographic limits should be described. In addition, most discussion of the unit involves habitat for anadromous fish. This is despite the mention on page 266 of "terrestrial resources of management concern" including valley elderberry longhorn beetle, and several birds. Include descriptions of other habitats found in the unit, including riparian forest or woodland, vernal pools and other seasonal wetlands, grassland, and so forth.

Page 265, Lower American River Basin Ecological Unit, Paragraph 1, Sentence 4. Insert the Agency(ies) or entity(ies) who are proposing Auburn Dam and/or the South Fork American River project.

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Page 266, paragraphs 3-5. Discussion on SWRCB/ legal decisions should include the Hodge decision, Fazio water, and the Water Forum process.

Page 267. Add a new second paragraph which discusses the 1996 Folsom flood control diagram change from 400,000 AF to 670,000 AF of flood storage, the reconfiguration of the temperature control shutters, and the proposed installation of the water supply diversion temperature control structure in relationship to the American River temperature concerns.

Page 268, Visions For Ecological Units, American Basin Ecological Unit. Add: Evaluate reestablishing a river corridor link from below Nimbus to above Folsom Reservoir for anadromous fish passage.

Page 268, Visions For Ecological Units, American Basin Ecological Unit, Paragraph 2. Add water quality improvements by implementing tertiary water treatment plants to improve effluent discharges.

Pages 269-271, Visions for Ecological Units, Lower American River Unit. These visions emphasize benefits for anadromous fish and their habitats. Include visions for plants, non-migratory fish, and other animals.

Page 270, paragraph 2, line 1. "The most important fish of" should be deleted.

Page 271, Visions for Ecological Processes, Central Valley Streamflow. Reductions in diversions is addressed, but, the Water Forum's proposal to divert some 200K acre-feet is not included. The document should be revised to include the Water Forum proposal.

Pages 272-273, Visions for Habitats. The visions for habitats emphasize very broad habitat types. Some of these habitat types have a number of sub-types that are worthy of specific discussion. For example, the treatment of riparian habitats does not recognize the diversity and complexity of riparian habitats. The zone contains several types of riparian forest, including some rare types such as Great Valley Mixed Riparian Forest and Great Valley Oak Riparian Forest. Additionally, the zone contains a diversity of vernal pool types including Northern Hardpan Vernal Pools and Northern Volcanic Mud Flow Vernal Pools. Because of the unique nature of vernal pools, they should be discussed in detail separately. Expand the visions to thoroughly address riparian habitats as well as vernal pools, alkali meadows and seeps and other habitats in the zone.

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Page 273, Visions for Reducing or Eliminating Stressors, Land Use. The vision is narrowly restricted to land use impacts on riparian and aquatic habitats. Include a similar discussion of the impacts to habitats of plants, non-migratory fish, and other animals.

Page 273, Visions for Reducing or Eliminating Stressors, Non-native Species. The vision is narrowly restricted to non-native fish. Include a similar discussion of the impacts from other non-native species, including non-native plants.

Page 274, Contaminants, line 5, "The vision is to reduce the input of toxins entering the streams and wetlands . . ." This statement is too general. The document should be revised in all sections to include more specifics such as tertiary treatment of waste water effluent and implementation of Non-Point Source Pollution control programs. A core vision should be developed and each zone should discuss how this core vision changes.

Pages 274-276, Visions for Species. The ecological zone includes four listed birds (American peregrine falcon, Aleutian Canada goose, bald eagle), one listed amphibian (California red-legged frog), and three listed vernal pool plants (Sacramento Orcutt grass, Colusa grass, slender Orcutt grass). Visions should address these species as well.

Pages 276-279, Integration with Other Programs. No mention is made of recovery plans for listed plants and animals. Recovery plans should be used to guide actions affecting listed species and species of concern when they are available. For rare unlisted species, the Service recommends that conservation strategies be developed that would result in net benefits to species and habitats and that, at minimum, would not result in a need to list a species under federal or state authorities. Include a discussion of these issues in the document.

Page 278, Integration with Other Programs, Central Valley Improvement Act. Only the provisions of this act that refer to anadromous fish are mentioned. Other wildlife and plants could be addressed through the (b)(1) "other" program and/or conservation program of CVPIA. Include a discussion of these other program elements for non-anadromous fish species found in the North Sacramento Valley zone.

Pages 279 through 294, Implementation Objectives, Targets, and Programmatic Actions, all. The implementation objectives are well developed for anadromous fish and their habitat. The other habitat types and species found within the Northern Sacramento Valley Ecological Zone should be addressed in equivalent detail.

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Pages 279 through 285, Implementation Objectives, Targets, and Programmatic Actions, Ecological Processes. The document lacks Implementation Objectives, Targets, and Programmatic Actions for the Stream Meander Corridor vision on page 272. Please include them.

Pages 279 through 291, American River Basin Ecological Zone. While we agree with the general concepts, we have concerns regarding the details of specific targets and actions. The minimum flow targets in Table 1 (pg. 281) are mostly consistent with the AFRP flow objectives. There may be additional actions from the AFRP draft plan that should be incorporated in this section. We recommend that CALFED staff meet with Service staff to determine specific actions to be incorporated to make the ERPP consistent with the AFRP.

Page 281, Central Valley Streamflows, Target 1, and Tables 1 and 2. Provide the source for the streamflows in these tables. If the authors generated the figures, state the basis for the flow recommendations.

Pages 286 through 288, Implementation Objectives, Targets, and Programmatic Actions, Habitats. The document lacks Implementation Objectives, Targets, and Programmatic Actions for the Emergent Wetland and Seasonal Wetland/Slough visions on pages 272 and 273. Please include them.

Pages 286 through 287, Implementation Objectives, Targets, and Programmatic Actions, Habitats, Seasonal Wetland. The discussion of vernal pool habitat is brief. There is a diversity of vernal pool types in the American River Basin Ecological Zone. The discussion would benefit from addressing this diversity (see also above). In addition, rationale for Seasonal Wetland actions should be expanded to include vernal pool plant and animal species.

Pages 287 through 288, Implementation Objectives, Targets, and Programmatic Actions, Habitats, Riparian and Riverine Aquatic Habitat. Riparian habitat in the American River Basin Ecological Zone is diverse and includes some rare plant community types (e.g. Great Valley Oak Riparian Forest). The discussion needs to address this diversity. For example, Programmatic Action 1C should address what type(s) of riparian vegetation will be planted.

Page 288, Implementation Objectives, Targets, and Programmatic Actions, Habitats, Perennial Grasslands, Target 1. The target is unclear. Perennial grasslands typically occur in uplands around wetlands but not associated directly with the wetlands themselves. In addition, it is

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critical that any restoration of perennial grassland involve *native* grass species. Please clarify these points.

Pages 288 through 291, Implementation Objectives, Targets, and Programmatic Actions, Stressors. The document lacks Implementation Objectives, Targets, and Programmatic Actions for the Land Use and Non-native Species visions on page 274. Please include them.

Pages 291 through 294, Implementation Objectives, Targets, and Programmatic Actions, Species. The document lacks Implementation Objectives, Targets, and Programmatic Actions for Splittail, Striped Bass, Native Resident Fish, Neotropical Birds, Waterfowl, Valley Elderberry Longhorn Beetle, and Vernal Pool Shrimp visions on pages 274-276. The species that ought to be addressed include, but are not limited to, federally-listed and proposed species that occur in the North Sacramento Valley Ecological Zone. Please include them.

Pages 291 through 294, Implementation Objectives, Targets, and Programmatic Actions, Species, Giant Garter Snake. The discussion of the giant garter snake should be clarified. Giant garter snakes occur not only in the American Basin Ecological Unit but also in south Sacramento and the Morrison Creek areas. Please make clear that the ERPP will address the species throughout the zone. Additionally, not all seasonal wetlands are appropriate habitat for giant garter snakes. Appropriate seasonal wetlands are those that contain water during the snakes' active period from April to the end of October.

Pages 291 through 294, American River Basin, Species. Even though the rationale for the species targets and actions refers to the doubling goal for anadromous in the CVPIA, the specific targets for the anadromous fish refer to maintaining the average cohort replacement rate above 1.0 during the period that the stocks are rebuilding. This is unlikely to result in doubling. This section should be reevaluated and the document revised appropriately.

#### **YOLO BASIN ECOLOGICAL ZONE**

Page 295, Introduction, paragraph 1. It is not clear how "increasing biological productivity." will be measured (in terms of biomass, or species diversity, etc.), or how increasing biological productivity will contribute to "healthy ecological processes." It should be noted that some of the most productive systems are also very simple systems; for example, the Mono Lake Basin is extremely productive in biomass, but is a relatively simple system comprised of algae, brine flies, and brine shrimp which support large numbers of migratory birds. Describe what is meant by "increasing biological productivity."

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Page 295, Introduction, paragraph 2. Habitat for steelhead trout and chinook salmon is specifically mentioned, but other species and their habitats are lumped into one sentence and never mentioned by name. The Yolo Basin also provides important habitat for migratory waterfowl, reptiles, and invertebrates (giant garter snake, vernal pool crustaceans, valley elderberry longhorn beetle). Address these species and habitats.

Pages 295, Description of the Zone, general. Description of the ecological zone includes problems, needs, and goals/solutions interspersed throughout this section. This detracts from presenting a clear picture of the current environmental conditions of the ecological zone. It is important to give a clear overview of the ecological zone and visions that would prepare the reader to better understand the information following the description. Describe the zone and its conditions, then present problems, needs, and potential solutions.

Page 295, Description of the Zone, paragraph 3. The ecological processes identified (streamflow, stream meander, and sediment supply) are abiotic processes that would be better classified as hydrologic processes. Ecological processes also include biotic interactions such as competition and predation. Expand the discussion of processes to include biotic processes. Otherwise define ecological processes as "hydrologic processes" or "abiotic ecological processes."

Page 296, Description of the Zone, paragraph 3. Stream and slough channels are also important habitat for other species including splittail, delta smelt, other native fishes, and giant garter snakes. Habitat for other species is lumped into "wildlife and waterfowl" habitat. Address habitat for other species.

Page 296, Description of the Zone, Notable stressors. Stressors are too narrowly defined. Stressors should include: conversion of seasonal wetlands and perennial marsh to agriculture; channelization of creeks, streams, and sloughs, and flood control projects.

Pages 296 through 299, Cache Creek Ecological Unit. The Yolo Bypass should be addressed as an important part of the Cache Creek Ecological Unit. The map of the Yolo Basin Ecological Zone includes the Yolo Bypass in the Cache Creek Ecological Unit, but the Bypass is only mentioned in connection with anadromous fish passage to the upper watershed. In addition, the Yolo Bypass provides seasonal flooded wetlands used by waterfowl and shorebirds. During high flows, native fishes use the Yolo Bypass. In particular, Sacramento splittail could use the flooded vegetation in the bypass as spawning areas.

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Pages 296 through 299, Cache Creek Ecological Unit. The discussion of this ecological unit deals almost entirely with anadromous fish. Many other species may benefit from restoration activities. Cache Creek and its tributaries above Capay dam may provide appropriate habitat for California red-legged frogs, and may provide habitat for wintering bald eagles. Lower portions of Cache Creek above the Yolo Bypass (particularly tule marsh and seasonal wetlands) may provide habitat for giant garter snakes and for waterfowl and shorebirds. Identify these species to ensure that restoration efforts directed toward anadromous fish are also compatible with restoring habitat for other species.

Pages 299 through 301, Putah Creek Ecological Unit. Please refer to comments for the Cache Creek Ecological Unit.

Page 301, Solano Ecological Unit. While the watersheds in this ecological unit may not provide habitat for anadromous fish, these areas do provide habitat for native fishes, waterfowl, and other wildlife. Identify and address these habitats and species.

Page 302, Visions for Ecological Units. Visions for the ecological units only specifically addresses anadromous fish and generally addresses native fishes. Include visions for other species that depend on the habitats in the Yolo Basin.

Page 302 through 303, Visions for Habitats. Riparian and riverine habitats are addressed, but seasonal wetlands and perennial marshes are not addressed. These are important habitat that support a large number of species. Address these habitats.

Page 303, Visions for Species. Anadromous fish and one native fish are addressed. Identify and address other species to ensure compatible restoration objectives.

Page 304, Delta Native Fishes Recovery Plan. Coordinate the restoration plans with recovery plans for other species, both those that currently exist and those that are being developed.

Page 304, Endangered Species Act. The second sentence of the first paragraph states that programs under the ESA will be compatible with the ERPP. It is unclear what authority the ERPP has to ensure this compatibility. Change the second sentence of the first paragraph to read, "Any recommendations in the ERPP will be compatible with restoration programs developed under the federal Endangered Species Act."

### **EASTSIDE DELTA TRIBUTARIES ECOLOGICAL ZONE**

Pages 325 through 342, Eastside Delta Tributaries Ecological Zone. We agree with the concepts, but have concerns with the details of the targets and actions. There may be additional AFRP actions that could be incorporated in these actions. Again, the doubling goals are mentioned generally, but are not incorporated in the specific species targets. Review of the minimum flow targets for the Mokelumne River would be facilitated, if they were put in a table format, rather than the narrative on pg. 327.

### **SAN JOAQUIN RIVER ECOLOGICAL ZONE**

Page 344, Introduction, paragraph 1. Add a new fourth sentence. New sentence - "The ecological integrity of the San Joaquin River below Friant Dam is critical to the ecological health of the Bay/delta ecosystem." Old fourth sentence: Replace "the mouth of the Merced" with "Friant Dam".

Page 344, Description of the Zone, paragraph 2, line 12. Insert "contaminated" before "agricultural drainage".....

Page 344, Description of the Zone, paragraph 2, last sentence. Add the Upper San Joaquin River to the list.

Page 344, Description of the Zone, paragraph 3. This paragraph reads as if the wetlands and the riparian area still remains today. Add that less than 10% of the historic wetland acreage and less than 2% of the historic riparian acreage exist as remnant vestiges. (Moore, et.al., 1990, San Joaquin Valley Drainage Program)

Page 345, paragraph 1. Add following last sentence: "No water passes through the Gravelly Ford to Mendota Pool river reach except during extremely high runoff events."

Page 347, Merced to Mendota Pool, Mendota Pool to Gravelly Ford, and Gravelly Ford to Friant Ecological Units. Because CALFED is proposing no actions in these which would assist improving the health of the Bay-Delta ecosystem, delete them from the analysis. As an option CALFED could evaluate substituting or replacing water supplies that can then be released from Friant Dam to restore the ecological processes in the upper mainstem San Joaquin River. If actions are to remain in these units, the following should be added as

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stressors: 1) Lack of water from the Upper mainstem San Joaquin River, and 2) Drainwater and effluent, point and non-point source water contaminants.

Page 348, Vision for the Ecological Zone. This vision applies to the Merced River to Vernalis, but the remaining units will not contribute to improving the Bay/delta's ecological health. The document should be revised to make this clarification.

Page 353, Agreement on San Joaquin River Protection. This Agreement does not address the Upper mainstem San Joaquin River flows. The document should be revised to clarify the reach of the river addressed.

Page 354, San Joaquin River Riparian Restoration Project. This Project does not resolve the Upper mainstem San Joaquin River flow contribution to the Bay/delta. The document should be revised to clarify the reach of the river addressed.

**EAST SAN JOAQUIN BASIN ECOLOGICAL ZONE**

Page 364, Introduction, first sentence. Add the Upper Mainstem San Joaquin River to this list and evaluate options as noted in page 347 above.

Pages 384 through 395, Implementation Objectives Targets, and Programmatic Actions. As mentioned before, we agree with the concepts, but have concerns with the details of the targets and actions; the incorporation of additional AFRP actions, and AFRP specific species targets. Again, it would facilitate review of the minimum flow targets for the Stanislaus, Tuolumne and Merced rivers, if they were put in a table format rather than the narrative format. A cursory review indicates that: (1) the Stanislaus River flow target 1 (pg. 384) is consistent with the AFRP flow objective; (2) the origin of the Tuolumne River flow target 3 (pg. 384-385) is unclear, and consequently very difficult to determine whether it is consistent with any existing flow recommendations; and (3) the Merced River flow target 5 (pg. 385) appears to be lower than even the existing minimum instream flow requirements pursuant to the FERC license. Finally, page 386 states that "adequate releases for upstream attraction of adults and spawning begin on November 1. This sentence contradicts the rest of the paragraph and according to the agency biologists familiar with the Merced River the existing minimum flows are not adequate. We recommend that CALFED staff meet with Service staff to determine appropriate revisions for this part of the ERPP.

**WEST SAN JOAQUIN BASIN ECOLOGICAL ZONE**

Page 401, Vision for the Ecological Zone, paragraph 1, line 7. There are no identified human health problems, but potential problems. Insert "potential" between "are" and "human and wildlife health. . ."

Page 403, Integration With Other Restoration Programs, paragraph 2. Cattle trample and/or eat young riparian trees. Add incentives to encourage the farmers and ranchers to keep their cattle out of the stream and off the banks to afford sycamores an opportunity to survive.

Page 407, Stressors, Contaminants, Programmatic Action 1A. Implementation of programs which would contribute to improved water quality have frequently not occurred because of the lack of sufficient funding. Consideration should be given to adding actions to contribute funds for implementation of programs such as the State Land Retirement Program.