

U.S. Fish and Wildlife Service review of the Draft Alternatives dated March 14, 1996 and the Alternative Appendix dated March 21, 1996.

Ecosystem Restoration Goals. Ecosystem restoration should be an independent goal of the Calfed Bay Delta Program and implementation should not be dependent upon implementation of other goals of the program. The goal of all habitat restoration should be to achieve a net gain in fish and wildlife resources over time, not just to slow the decline of species or stabilize existing population levels. The Calfed Bay Delta Program preferred/selected alternative should reflect this goal.

Comm. in program approach should help is make Eco. Rest. a commitment - not dependent on other goals. Strong commitment of program - SB 900 would provide substantial benefit for Eco. Rest. - many opportunities - must be ready.

Delta Accord. Provided full implementation of the WQCP, the Delta Accord resulted in long-term Biological Opinions for delta smelt and winter run chinook salmon and increased pulse flows in addition to the San Joaquin River which also help non-listed San Joaquin salmon. The interim 3-year implementation of the Accord by the CVP/SWP is assumed to result in 80% of the beneficial actions needed to fully implement the Accord. The State Board's process of allocating responsibility for implementation to the CVP/SWP would allow full implementation of the Accord. The basic assumptions for all Calfed alternatives should be that each alternative improves upon the conditions these Biological Opinions helped create. In addition, the actions should improve upon, or at a minimum meet, the recommendations contained in the Anadromous Fish Restoration Plan, Delta Native Fishes Recovery Plan, and the Salt Marsh, Harvest Mouse, and California Clapper Rail Recovery Plan.

Intend to do!

The soon-to-be-finalized Delta Native Fishes Recovery Plan sets forth beneficial actions that, if implemented, would result in the recovery of listed and unlisted fish species. Additionally, this Recovery Plan sets forth criteria that measure the efficacy of beneficial actions in improving Delta conditions for fish that may lead to delisting of delta smelt.

Have incorp. into our actions - need Service assist to be sure we have incorporated correctly.

Modifications to the Water Quality Control Plan (WQCP) should not be a purpose of the Calfed Bay Delta Process. While we realize that, following the analysis of some alternatives, modification to the (WQCP) could be recommended, such recommended modifications only should occur following analysis. Modifications to the Accord would require reinitiation of consultation on the Biological Opinions.

Earlier drafts - we have addressed. has been done

The paragraphs concerning take limits should be eliminated. Take limits are not designed to avoid jeopardy.

Unproven Technology. We are concerned that these alternatives contain several assumptions and claim potential benefits that are experimental. The technology and stated environmental benefits have not been proven. These include the following:

a. Real Time Monitoring. Real-time monitoring is experimental and cannot be relied upon to make instantaneous operational changes. Better data would be needed than currently is being collected. To implement a program to obtain the data would likely be cost prohibitive. Severely depressed populations result in very low numbers of individuals, larvae, or eggs in the system. Finding these in a reasonable sampling program may or may not occur. When individuals are found, several hours or days may lapse before identification is complete. The existing real time monitoring program has been valuable to provide additional data to make changes in existing operations for future years. Benefits do not appear to out weigh the costs and expansion is questionable. However, this is still under evaluation. With any monitoring program, the results need to be evaluated and recommendations incorporated into the operation of water projects.

OK

OK - we have addressed

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b. Restoration of Shallow Water Habitat to Increase Fish Populations. Habitat restoration would be beneficial for terrestrial species. However, flows and habitat are both needed for aquatic species and should not be separated when considering components. While we support the concept of construction of shallow water habitat, increased shallow water habitat is not a substitute for flows. Physical habitats should also include transport flows to move larvae and provide behavioral cues for free-swimming juvenile fish to move to suitable rearing habitats or to the ocean with appropriate timing of these flows. Transport flows, as well as increased habitats, will be needed to off-set increased water supply. The value of shallow water habitats could be significantly diminished if facilities and operations compromise benefits.

Consider flows to be part of habitat rest. If not clear, we need to include flows to ensure function. Habitat are necessary.

Neither quantification nor qualification of the benefits to restoration of shallow-water habitat, including enhanced abundance and distribution of fish, is currently feasible. Therefore, a phased approach to restoration should be done to allow monitoring for fish benefits. Additionally, the engineering aspects of shallow-water habitat restoration are in an experimental stage and monitoring may result in improved engineering designs that can be applied to later phases of restoration.

Increasing habitat may or may not result in increased fish production. If constructing new shallow water habitats increases production, the increases may not be sufficient to allow for increased exports. Increasing exports could reduce or eliminate the benefits of increased habitat.

Assumption is that

Additionally improved habitats should improve and be over and above the existing environmental baseline, not just meet the standards. In the Delta Accord, X2 was a compromise which needs an improved standard in dry years to improve the ecosystem. Benefits are greatly overstated in alternatives with this component. The hydraulic viability of some alternative is questionable. Franks Tract is an example of an island with breached levees in which accretion has not occurred to any significant extent over several years. Siltation rates should be determined and an evaluation made to determine if enough accretion occurs to develop shallow water habitats. Pilot programs are needed to see how suggested components will work.

Good suggestion

c. Barriers. A No-Barrier Alternative should be evaluated. Placement of barriers within the South Delta for the Temporary Barrier Program has changed flows through the Central Delta which likely resulted in elevated take of fish at the pumps. Barriers should be evaluated, not assumed to be implemented. Acoustic barriers are experimental and have not been proven. For those alternatives which include barriers, reductions in exports in conjunction with barriers should be evaluated. Likewise, alternatives with barrier components should be evaluated with export reductions as well as increased flows and the two compared. Barriers may not be needed with all alternatives.

OK will be done

d. Fisheries Management. We do not believe that marking all hatchery salmon is necessary, unless one is targeting a selected fishery. It may also have an adverse effect on wild fish. The assumption for effectiveness on wild fish should be stated. The kind of fishery management that would be implemented as a result of information obtained should be specified. Currently marking massive numbers of fish is experimental with mixed results. Automated machines for marking large fish are being evaluated but not for the size fish being considered for the Califed Bay Delta Program. We are unaware of anyone working on a methodology to mark massive numbers of fish. Marking all hatchery steelhead and fractional marking of hatchery Chinook would provide meaningful information however.

OK

Need Service help to develop at least a qual. method if we set goals + implement actions, we must have some type of criteria to measure how far that action has taken to goal -

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Net pen rearing striped bass, which sometimes prey on endangered species appears to be a conflict. Management of striped bass needs to be closely coordinated with the Conservation Plan currently under development by CDFG, NMFS, and the Service.

*Are currently working on screening criteria team to develop rec. + research needs.*

All diversions should be screened. Fish screen types, assumptions of effectiveness and target species need to be identified. In general, the farther north that a diversion is located, the less likely delta smelt are to be diverted. However, because high numbers of adult delta smelt are in the vicinity, Hood is not a good location for a diversion. However, other species of fish are of concern and the diversion would need to be evaluated for its effect on all species of fish, not just Delta smelt. Although many diversions can be effectively screened for salmon, large facilities would require improvement to screening technology. The volume of water diverted, the effect on water temperatures, and the effect on flow patterns and out flows are of major concern and should be evaluated.

If a diversion from Italian Slough would reduce predation and entrainment the reasoning should be clearly stated. The timing of reduced flows and amount of reduction of exports would be needed to evaluate this component.

Ecosystem recovery should include restoration of the San Joaquin River as part of fishery management. Construction of hatcheries, although fish would be produced in them, could be contrary to the Anadromous Fish Restoration Plan which proposes restoring naturally sustaining populations of fish. Natural production needs to be expanded by improving ecosystem habitats. Any new hatchery proposed would need to be evaluated relative to its impact on natural populations. Until restoration/enhancement of natural habitats has been fully implemented and given a chance to succeed, any decision to proceed with additional hatchery production would be premature at best and may even hamper efforts to increase natural production.

*Recognize the need for emphasis on San Joaquin FFG pushing hatchery - need to evaluate*

Phased Implementation. Initially, those actions which can be taken to significantly improve delta fish and wildlife and water supply reliability before constructing structural fixes should be identified and implemented. Additionally, any proposed structural water facilities or components should be implemented in phases with monitoring to determine effectiveness. As previously mentioned, phasing should also be done with restoration of shallow water habitats with Prospect Island used as a preliminary test of fish and habitat production. We still do not have sufficient monitoring information to determine the effectiveness of the Delta Accord. Testing with pilot programs should be considered for components with unproven benefits before large scale implementation. However, several of the structural components are large and cannot be phased. In addition, many of these large structural components are totally dependent upon other structural components. Because of incomplete information, evaluating and implementing these components even with proven technology may not provide adequate protection for fish and wildlife. Alternatives that have adverse impacts should be avoided. In the event that significant adverse effects to fish and wildlife cannot be avoided by a proposed alternative, monitoring plans which include contingency plans to correct problems identified during monitoring should be developed.

*Good use Prospect as test for adaptive rest. Analysis of impacts will be done to test of ability - constant input will be needed from FWS + other agencies*

Alternatives to expand pumping ability should not negate restoration benefits implemented as part of the program. How they would be phased, when would additional water would be taken, and the amount of water that would be taken should be clearly identified. Variances from existing conditions should be explained. Linkages between interdependent and interrelated features should be made abundantly clear.

*Trying to meet all obj. - level of detail will increase in Phase II*

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Level of Detail. The level of detail of this iteration of alternatives does not provide enough information for meaningful analysis and comment. All alternatives need to be fully identified and operational assumptions clearly stated. No alternative should include the potential for additions which will not be evaluated in the impact analysis. In addition, the draft EIS/EAR should identify a preferred alternative.

level of detail is difficult in a PEIS - need to do the best comp. analysis we can - draft will ID a preferred alt.

For example: Some alternatives mention a temporary new diversion. Is it really temporary? Where would the diversion be located? What is the temporary diversion? Where is critical habitat in relation to the location of the diversion? What would be the disposition of the temporary facility when it is no longer needed? What is the source of supplemental water in the San Joaquin? Would existing facilities remain? How would all components interrelate? If existing facilities are no longer needed, what will be their disposition? What is the source of water (100 TAF or 1500 cfs/month)? Where is it? Is this amount above the 800 TAF? If above the 800 TAF, this alternative should clearly identify how the 100 TAF relates to other water sources. How does it function? How will the system and its components be operated? What is the source of the 1 MAF of upstream storage? What the facility size or yield which will produce this 1 MAF of storage? What is the demand? Is this existing or future? What are the changes in use of water in the system. These changes should be identified and the effects evaluated. What are the goals to be achieved? What is meant by "sustain"? What is meant by "restore"? What is considered shallow water habitat? Are transport flows that move fish to suitable rearing habitat a component of this habitat? Is construction similar to that on Staten Island being considered? What is the 50 miles of habitat restoration? Where would this be? Why 50 miles? Will this be conversion of one aquatic habitat for another? Terms such as "downstream of the Delta" need to be defined? Is off stream storage south of the Delta or in proximity to Suisun/San Pablo/San Francisco Bay? "Upstream storage" also needs to be defined. How were numbers derived? When numbers are used, the rationale used to develop them or the source from which they were obtained should be identified. The draft EIS/EAR should provide sufficient information to answer these questions.

Many of these issues will be addressed in Phase II analysis.

Outflow/X2. Degradation to the ecosystem may occur while meeting the existing standards because of the way the standards are written. The basic assumptions for management of X2 should be stated. The Califed Bay Delta Program needs to improve upon the Delta Accord and WQCP. Non-Jeopardy and recovery are not the same. One of the goals of the Califed Bay Delta Program should be to strive for recovery.

Diversion of 100% of Vernalis flows, is a major concern. In the Delta Accord, the Service assumed April/May Pulse Flow would be used for outflow not increased export. The ability to manage Vernalis is in question because of availability of water. The biological effects of acquired flows versus export reduction need to be clearly identified and analyzed individually as well as cumulatively.

The 100 TAF of increased water in the San Joaquin (ie. an increase of approximately 1700 cfs for 1 month) will not have the substantial benefits suggested. Earlier analyses have estimated that 300 TAF would be needed.

Some alternatives rely entirely on the San Joaquin to meet X2. The source of 6-8 MAF of storage, the effect on outflow, X2, the state water quality control plan, etc. need to be stated. Sacramento River flows drive X2. If significant amounts of Sacramento River water were exported, the San Joaquin River could not supply sufficient water to maintain X2. Sacramento side transport flows and other functions of the ecosystem would be lost with this

Our goal is necessary - see a needed Eco. Rest. Strategy - if not clear, please help!

will examine impacts to X2

Can evaluate a range - however may be difficult to obtain - 100% there is a historical record of obtaining that much

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alternative.

Capture of Flood Flows. The concept of "creaming the flood flows" needs to be clearly defined and explained. Spring is a sensitive time for aquatic resources. Capturing of winter flood flows may take water which is needed for outflow. Flows should be defined for a variety of conditions. Care must be exercised when considering flood storage and export of flood flows. Periods identified as "safe" need to be specified. A need exists to maximize conditions for all species and all habitat if one is to improve the delta ecosystem. With this in mind, identify the best way to take flood flows, the quantity that could be taken, the time of year for diversion. By-passes used for flood storage and water supply, with controlled releases for environmental purposes later in the year, should be evaluated for their effects.

Impact Analysis. The impact analysis of alternatives should consider multiple species for both terrestrial and aquatic species, and life stages of each, within specific geographic areas, as well as along their migratory routes. Adverse effects should not be transferred for one species or life stage to others at different locations. Additionally, impact analysis should start with the baseline established by the Bay-Delta Accord, the delta smelt and winter-run biological opinions and the State Board's WQCP.

Ground Water Regulation. Surface water and ground water are interrelated and should both be evaluated. The proposed alternatives appear to look at surface water without regard to ground water effects and regulation. Ground water regulation should also be included when considering measures to off-set problems.

Reference Quantified Numbers. References should be given for all quantified numbers used, such as acres of land to be retired, acres of shallow water habitat, etc. If these numbers have been developed for the Califed Bay Delta Program, the rationale for selection should be explained.

Dilution of Pollution. Dilution of pollution in most alternatives is questionable and should not be considered a reasonable use of water. The quantity of pollution that can be diluted with 30 TAF of water should be specified. This component will need much more detail and evaluation. Our Contaminant Division should be involved with all proposals of this nature.

Water Banking. The drought water bank could affect endangered species. Care should be taken in framing parameters for implementation such that endangered species would not be adversely affected species.

Conversion of Habitat. The acceptability of conversion of one habitat to another will depend upon the resources of each. Converting 1,000 acres of leveed land may adversely affect threatened and endangered species in Suisun Marsh. Areas of concern should be identified prior to identifying areas for habitat conversion. Measures to assure that this can be implemented and targets reached should be included. Contingency plans, in the event of failure, should be identified.

Some of the wetland restoration components of alternatives (ie. conversion of managed wetlands to tidal wetlands) shows that there may be a net loss of 4,000 acres of wetland. The location of this wetland restoration has a high potential for affecting sensitive species. If adverse impacts cannot be avoided, mitigation should be included.

More detail is needed concerning restoration on the east side of the Delta to answer the following questions. Was the restoration proposed on the east side

*are currently trying to analyze need substantial EWS report from FWS + other agencies to help id. "safe" times - if they actually exist.*

*OK*

*Intend to do this to the extent it does not impair flood control uses.*

*Have a separate document provide*

*Agreed - will need this help will need substantial EWS in post.*

*Need Service help!*

*Mitigation will be included*

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of the Delta or on Staten Island? If wetlands are to be created on the Mokelumne River, they should be constructed on the east side of the delta. Would meander belts be constructed to provide spawning habitat? Where would the habitat be located? How would flows be provided that would move newly spawned fish to suitable rearing habitat?

Some alternatives appear to sacrifice Sacramento and Feather River resources to benefit the San Joaquin River resources. All in-stream conjunctive uses would be lost as well as riverine ecosystems. Outflows would be minimal. Types of problems currently being experienced in the San Joaquin Valley would be created in the Sacramento River valley. Habitat conversions may violate objectives of the Galfed Bay Delta Program by transferring impacts from location to another.

Land Retirement. The 800 thousand acres of valley-wide land retirement appear extremely overly optimistic when 75 thousand acres were identified in the San Joaquin Valley Drainage Program Plan. This alternative relies heavily on willing sellers. Water rights and contracts may not be transferred, resulting in little water available for environmental uses. Land retirement should be an integral part and consistent with the San Joaquin Recovery Plan. Endangered species needs should be considered. Lands to be retired should include those which would provide wildlife corridors. Measures to assure environmental benefits need to be included. Management of these lands needs to be identified.

In the Delta, land retirement is a good idea for fish but may affect wildlife which utilize agricultural lands.

Water Transfers. Water transfers may be more beneficial than ground water recharge. Both should be evaluated. In addition, ground water recharge should be considered in conjunction with land retirement.

In-Delta Storage. Details of in-delta storage operation need to be provided. In-Delta storage may not work for exports and this should be evaluated. The 400 TAF of water from in-Delta storage may not benefit fish through transport flows and behavioral cues that indicate downstream direction to suitable rearing habitat, depending on where the fish are located and the timing of diversion to the islands and releases. Additionally, releases from the islands would not contain all of the benefits gained through net Delta outflow and placement of X2. When X2 was set at Roe and Chipps Island and at Collinsville in the Accord, the biological benefits that are derived from in-basin flows and from positioning at these three locations were considered. Meeting X2 in years when fish are upstream of the islands through releases from the islands will not provide these same benefits. Cross-delta flows would be adverse to spawning and out-migration.

The potential for degradation of water quality associated with peat soils and agricultural use of the land are of concern. Entrapment of fish in diversions is also a concern. Potential hydraulic benefits may not outweigh potential adverse impacts on water quality.

North and South of Delta Storage. Upstream and downstream storage components of alternatives must consider and evaluate the effects within the receiving areas as well as the Delta. All south of delta storage may have some endangered species issues and require consultation under ESA. Los Banos Grandes has significant endangered species issues. South of Delta alternatives first should evaluate the need for additional facilities with Dominigoni and Kern Water Bank proposed for construction. Expansion of

*very specific - will be covered in Phase II + beyond -*

*Most of these Mts. have been dropped*

*Have limited this!*

*Are considering this*

*Need help from Service as to how feasible in-Delta storage is - what are limitations - what are uses.*

*OK*

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existing storage facilities will need to consider terrestrial effects as well as delta aquatic effects. Operation of storage facilities should consider minimizing turbidity and elevated water temperatures during down stream releases, particularly in the Sacramento River.

Dual Conveyance. Benefits from this Dual Conveyance, considered by many to be maximum flexibility, are entirely related to the integration of new facilities and the existing facilities. Issues include timing, water availability, volume, etc.

Isolated Facilities. An isolated facility may have benefits and/or adverse effects. In general, the farther upstream from the Delta that an intake is placed the less likely it is to divert delta smelt. However, delta smelt are not the only concern and the effects on all resident and anadromous species must be evaluated and adverse effects avoided or minimized to the extent possible. An isolated facility may eliminate some of the timing problems associated with delta smelt and exports from the Delta. Although screens can be constructed to prevent salmon from entrainment, the size of the intake facility may determine whether it can be effectively screened for salmon. Large facilities would require improvements to screening technology. Non-structural components should be exhausted before any structural fix is undertaken. Assurances to limit the amount of water to be exported will be needed. The size of the facility, how it would be operated, how storage would be related, and whether, when operational, it would meet existing delta standards without further degrading the base conditions are all issues which need to be considered and evaluated.

If this alternative were implemented, traditional management mechanisms like the Head of Old River Barrier, predation control, and the Delta Cross Canal may not be needed and should be evaluated. The source of water for fish and maintenance of water quality in the delta should be identified.

Sacramento River flows drive positioning of X2. If significant amounts of Sacramento River water were exported, the San Joaquin River could not supply sufficient water to maintain X2 in areas suitable for maintaining abundance and distribution of Delta fish.

Assurances. The Service is not philosophically against dramatic changes to the present system. The present system has led to the decline of Delta fish and other aquatic resources and needs to be fixed or replaced. However, for all alternatives, assurances need to be developed that guarantees environmental benefits. Environmental needs must be met before meeting increased demand for other water supply purposes. Assurances need to be developed that Delta standards can be met without eroding base conditions that the Service evaluated for the March 6, 1995 delta smelt Biological Opinion. One cannot assume that meeting the Accord standards results in no degradation of the ecosystem.

*Will be addressed in Phase II - more detail*

*good point*

*Solved before*

*Consider this to be high priority - will be addressing assurances.*

*eco system health is of highest priority - must first reverse decline in eco. health - commitment of CALFED Prop*