

CALFED BAY-DELTA PROGRAM**Office Memorandum**

Date: February 21, 1996
To: Victor Pacheco
From: Michael Norris
Subject: Review and comparison of "prior" vs. "latest" draft alternatives sets.

As per your instructions, I have reviewed and compared the "prior" and "latest" draft alternatives sets for the proposed Delta solutions. The prior set was in a ringed hard covered blue binder and had a summary memorandum at the front dated January 23, 1996. This set was meant primarily for staff, consultant, Program Coordination Team (PCT), and Extended Review Team review. The latest set, which is undergoing a more extensive review, is a bound blue soft covered set and has a summary memorandum at the front dated February 14, 1996. You asked me to look for actions in the prior set that are not in the latest set and vice versa. It is helpful to look at the table entitled *Approaches and Emphasis of Each Alternative* to see differences between the prior vs. latest set of alternatives. It should be noted that the "approaches" to water supply, water quality, ecosystem quality, and system vulnerability are not the same in the prior vs. latest set of alternatives so the table has limitations in comparing the two sets of alternatives. As an example, the prior set had approaches of low, medium, and high levels of habitat restoration whereas the latest set has abandoned the "low", "medium", and "high" in favor of "Bay and Delta Habitat Improvements", "San Joaquin River Improvements", and "Upper Sacramento Restoration" which are clearly not the same. It should also be noted that significant "word smithing" has occurred between the prior and latest sets of alternatives but this does not necessarily mean the actions are not the same. In some cases, new actions have been created and in others an action was moved in the latest set to another category (such as moving from Operational and Management Features to Institutional and Policy Features) in which case the action is actually technically still there. In addition, various "modules" have been added to alternatives as a canned package of sorts. These include 100 acre-feet (AF) of in-Delta storage for environmental purposes, several enhanced habitat improvements such as channel island protection and Sacramento River channel restoration from Sacramento to Collinsville for example, some changes in levee improvements features at the "minimum", "moderate", and "maximum" levels as well as elimination of the maximum credible earthquake (MCE) standard for levee designs, fisheries management features such as marking salmon produced in hatcheries and conducting net-pen rearing of striped bass to supplant natural production, and changes in the widths of landside buffer zones to reduce subsidence. There are other module features like constructing a San Joaquin River bypass at the head of Old River. However, most of the prior alternatives except for alternatives 8, 10, 12, 16, 17, 18, and 20 had an element under the name of "install bypass at mouth of Old River". Another element was created to "acquire about 100,000 AF of water from willing sellers in the San Joaquin basin" and this exists in every alternative except for

Alternatives 1, 2, 4, 7, 17, and 19. Because it doesn't exist in every alternative, an argument could be made that it isn't a "module". In any case, I compared the prior and latest versions of the alternative sets but ignored the differences created by inserting the various module elements (or features that are almost "modules") into the alternatives. To do it otherwise would mean that every alternatives would be different from the prior version.

Based on my exercise, it would appear the most serious deletions/omissions occurred in Alternatives 3, 7, 11, 12, 16, and 18 as follows:

- Alternative 3: Elimination of a 300,000 AF in-Delta storage facility.
- Alternative 7: South of Delta groundwater storage and groundwater storage in the west and southern San Joaquin Valley.
- Alternative 11: Purchase of Delta islands and/or Delta islands in the 100-year floodplain from willing sellers for the purpose of flooding the islands to create wildlife/wetland habitat and installation of an additional gate on Clifton Court Forebay to increase diversion capacity and the closing the Delta Cross Channel with a boat lock to allow boat traffic through but not fish.
- Alternative 12: Purchase of Delta islands and/or Delta islands in the 100-year floodplain from willing sellers for the purpose of flooding the islands to create wildlife/wetland habitat and installation of an additional gate on Clifton Court Forebay to increase diversion capacity.
- Alternative 16: In-Delta storage of 200,000 to 300,000 AF and Upper Sacramento River meander belt restoration work.
- Alternative 18: Elimination of two in-Delta storage reservoirs.

Lesser deletions/omissions occurred in Alternative 15. The most "improved" alternatives that resulted from the rewrite of the prior set would appear to be Alternatives 6 and 10. Wording changes would appear to be needed in the text and/or title in Alternatives 2, 5, and 7. Alternative 5 should also be considered for elimination since every alternative proposes some level of habitat restoration and there is nothing special about the environmental storage element any longer since every alternative now has an "environmental storage" module element associated with it.

Alternative 1:

Prior Title: Reduce Export With New Supplies

New Title: Reduce Delta Diversions With Demand Management

Action in prior alternative that are not in latest:

- Flow barrier installation in the south Delta to support existing in-Delta diversions.
- Modification of Clifton Court Forebay operations to reduce fish losses (the latest set mentions it on the summary page but gives no further details within the alternative).
- Modification of environmental standards such as X2 to reduce exports and increase Delta outflow during the February-June period (the latest set discusses improved response time to manage X2 but does not discuss changing the standard for the purpose of reducing exports).

Action in latest alternative that were not in prior:

- Pollutant source control to improve water quality (mentioned on the summary page but no further details within the alternative which could indicate an omission).

- Groundwater storage and conjunctive use supply programs, the inclusion of inclining block rates and water pricing structures, and the possible use of gray water for landscape irrigation.

Alternative 2:

Prior Title: Transfer Supplies for the Drought Water Bank

New Title: Drought Water Management Program

Summary Discussion:

The wording about “no physical improvements” needs to be changed to reflect the environmental storage water component that is present in all of the alternatives. The language on the summary page indicates that “physical improvements in the Delta are limited to habitat improvements and levee and channel improvements for flood control” yet the latest set provides for the development of environmental storage water in the amount of 100,000 AF. Therefore, the wording needs to be changed to read “physical improvements in the Delta are limited to habitat improvements, levee and channel improvements for flood control, and environmental storage water.” The prior set did propose 100,000 AF of environmental water but this was to have occurred through purchase from San Joaquin users and not creation of in-Delta storage.

Action in prior alternative that are not in latest:

- San Joaquin River habitat restoration actions that were proposed in the prior set are no longer present in the latest set.

Action in latest alternative that were not in prior:

- Fish migration barriers at Georgiana Slough and the Delta Cross Channel are discussed in both sets but the latest set also mentions Threemile Slough.
- Improved drainage in floodway corridors to reduce fish stranding.

Alternative 3:

Prior Title: Yolo Bypass Conveyance Facility

New Title: Ship Channel Conveyance

Summary Discussion:

The change of titles suggests a completely new alternative but the option of using either the Yolo Bypass or the Sacramento Deepwater Ship Channel are actually discussed in both the prior and latest set although the prior set only mentioned the Yolo Bypass in the summarization once.

Action in prior alternative that are not in latest:

- The biggest change of note would appear to be the elimination of one in-Delta storage facility. The prior set proposed in-Delta storage in the amounts of 200,000 AF along the ship channel and another 300,000 AF near the pumps. The latest set only proposes 200,000 AF “along northern portion of isolation facility”.
- Provisions for storage of agricultural tile drain water and the modification of Clifton Court Forebay operations. The latest set contains language for increased enforcement of source control regulations for agricultural drainage but this is not the same as a program to store agricultural tile drain water to be released when pulse flows can provide dilution.

Action in latest alternative that were not in prior:

- None ignoring “module” changes

Alternative 4:

Prior Title: Habitat Restoration

New Title: Habitat Restoration

Summary Discussion:

This alternative appears to be relatively the same when comparing the prior and latest set except for “module” changes.

Alternative 5:

Prior Title: Habitat Restoration with Dedicated Environmental Water

New Title: Habitat Restoration with Dedicated Environmental Water

Summary Discussion:

The title is a misnomer because all of the alternatives now have the 100,000 AF dedicated environmental storage water component in them. The latest set has the “100,000 AF component discussed twice but it is unclear if this is redundant.

Action in prior alternative that are not in latest:

- Provisions for storage of agricultural tile drain water
- Modification of Clifton Court Forebay operations.

Action in latest alternative that were not in prior:

- None ignoring “module” changes

Alternative 6:

Prior Title: Extensive Habitat Restoration with New Storage

New Title: Extensive Habitat Restoration with New Storage

Summary Discussion:

An in-Delta storage reservoir of volume 200,000 to 300,000 AF was originally proposed but this has increased in volume to 300,000 to 400,000 AF. Levee protection was originally proposed in the prior set to a standard of MCE for critical western islands and islands with important regional infrastructure and islands used for water storage but the MCE standard has been dropped and replaced with PL-99 in the latest set. Provisions for storage of agricultural tile drain water and the modification of Clifton Court Forebay operations were in the prior set but are no longer present in the latest.

Alternative 7:

Prior Title: Water Management with Environmental Storage

New Title: Water Management with Environmental Storage

Summary Discussion:

Like Alternative 5, the title is a misnomer because all of the alternatives now have the 100,000 AF dedicated environmental storage water component in them.

Action in prior alternative that are not in latest:

- The “south of Delta groundwater storage” element was proposed in the prior set and is shown on the diagram on the latest set. However, it is not described in detail which could indicate an omission.
- Groundwater storage in the west and southern San Joaquin Valley. The Water Supply Management category in the latest set has an item describing an expanded groundwater storage and conjunctive use supply program but this is not the same as specific as naming the “west and southern San Joaquin Valley”.

- New proposed standards in San Pablo Bay for X2.
- Provisions for the modification of Clifton Court Forebay operations.

Action in latest alternative that were not in prior:

- An in-Delta storage reservoir to supplement operational flexibility was originally proposed for a volume of 200,000 to 300,000 AF and this has been replaced in the latest set to an increased volume of 300,000 to 400,000 AF.

Alternative 8:

Prior Title: Chain of Lakes Isolated Facility

New Title: Chain of Lakes Isolated Facility

Action in prior alternative that are not in latest:

- Levee protection was originally proposed in the prior set to a level of MCE standard for “west-side islands used for the chain of lakes storage facility”. The MCE standard has since been dropped and there is no reference to a standard for the chain of lakes storage facility in the latest set.

Action in latest alternative that were not in prior:

- None ignoring “module” changes

Alternative 9:

Prior Title: Additional Export Capacity with South of Delta Storage

New Title: Expand Export Capacity and South of Delta Storage

Action in prior alternative that are not in latest:

- Detailed language in the prior set for reducing fish losses at Banks and Tracy pumping plants has been replaced with more general language about CVP and SWP operations in the latest set.

Action in latest alternative that were not in prior:

- None ignoring “module” changes

Alternative 10:

Prior Title: Delta Island Protection and Small Isolated Facility

New Title: Small East-Side Conveyance

Summary Discussion:

It was right to change the title in this instance because every alternative has an element of Delta island protection in it in the latest set.

Action in prior alternative that are not in latest:

- The prior set described the management of irrigation tailwater to reduce pesticides but the latest set doesn't mention irrigation tailwater in particular but instead refers to the more general term of “agricultural discharges”.

Action in latest alternative that were not in prior:

- The prior set contained language for developing storage in the Delta and in export areas and expanding off-stream storage but no amounts were given. The latest set is more specific and describes in-Delta storage in the amount of 300,000 to 400,000 AF, new upstream storage in the amount of 500,000 to 1 million AF, and new downstream storage in the amount of 250,000 to 750,000 AF.

Alternative 11:

Prior Title: Improved Through-Delta Conveyance with Screened Diversion at Hood

New Title: Through-Delta Conveyance Improvement

Action in prior alternative that are not in latest:

- The prior set proposed purchase of Delta islands and/or Delta islands in the 100-year floodplain from willing sellers for the purpose of flooding the islands to create wildlife/wetland habitat. The boilerplate habitat restoration language in the latest set does not specify flooding Delta islands to generate wetland habitat in particular.
- Installation of an additional gate on Clifton Court Forebay to increase diversion capacity.
- Closing the Delta Cross Channel with a boat lock to allow boat traffic through but not fish.
- Provisions for storage of agricultural tile drain water and the modification of Clifton Court Forebay operations.
- Maintaining current water quality standards including the position of X2.

Action in latest alternative that were not in prior:

- None ignoring “module” changes

Alternative 12:

Prior Title: Dual Transfer Facility

New Title: Dual Conveyance

Action in prior alternative that are not in latest:

- Installation of additional gates on Clifton Court Forebay to increase diversion capacity whereas the latest set discusses the modification of Clifton Court Forebay operations which isn't the same thing.
- South Delta barriers are proposed in the prior set on Old River, Grant Line Canal, and Middle River but the latest set doesn't have this provision.
- Purchase of Delta islands and/or Delta islands in the 100-year floodplain from willing sellers for the purpose of flooding the islands to create wildlife/wetland habitat. The boilerplate habitat restoration language in the latest set does not specify flooding Delta islands to generate wetland habitat in particular.

Action in latest alternative that were not in prior:

- None ignoring “module” changes

Alternative 13:

Prior Title: East-Side Foothills Large Conveyance Facility

New Title: East-Side Foothills Conveyance

Action in prior alternative that are not in latest:

- Provisions for storage of agricultural tile drain water and the modification of Clifton Court Forebay operations.

Action in latest alternative that were not in prior:

- Construction of tide gates and flow barriers in the south Delta.

Alternative 14:

Prior Title: West-Side Sacramento Small Transfer Facility

New Title: Small West-Side Conveyance Facility

Action in prior alternative that are not in latest:

- Maintaining current water quality standards including the position of X2.
- Provisions for storage of agricultural tile drain water and the modification of Clifton Court Forebay operations.

Action in latest alternative that were not in prior:

- The upper Sacramento River meander belt restoration work was shown on a system diagram but not discussed in the text.

Alternative 15:

Prior Title: West-Side Sacramento Storage and Conveyance Facility

New Title: Large West-Side Storage and Conveyance

Action in prior alternative that are not in latest:

- Utilization of wetlands for natural treatment and detention to reduce contaminant concentrations and make releases during period of higher instream flows. Restoration of 1500 to 2500 acres of tidal wetlands in Suisun Bay that is part of "habitat module" in latest set does not appear to be saying the same thing.
- Provisions for storage of agricultural tile drain water.
- Management of irrigation tailwater to reduce pesticides.
- Control of volume of agricultural discharges.
- Maintaining current water quality standards including the position of X2.

Action in latest alternative that were not in prior:

- The upper Sacramento River meander belt restoration work was shown on a system diagram but not discussed in the text.

Alternative 16:

Prior Title: East-Side Delta Isolated Facility

New Title: Large East-Side Conveyance

Action in prior alternative that are not in latest:

- In-Delta storage of 200,000 to 300,000 AF. This was shown on a system diagram in the prior set but was not discussed in the text so it may not be a difference in the two sets after all.
- Reduce water demand on Delta to increase in-stream flows.
- Increase in-stream flows through transfer and conjunctive use.
- Improved pollutant source controls.

Action in latest alternative that were not in prior:

- Upper Sacramento River meander belt restoration work is discussed in the text but not shown on the system diagram. It doesn't appear to fit in with the theme of the alternative which is activity in the Delta itself and it may be a carryover from Alternatives 14, 15 that was meant to be deleted (?).

Alternative 17:

Prior Title: Protection of Delta Islands and Functions

New Title: Delta Protection and Water Management

Action in prior alternative that are not in latest:

- Reclamation and alternative supply development. The latest set discusses feasible

reclamation and reuse projects but not alternative supply development projects like desalinization and potable reuse are not mentioned in particular in the latest set.

- Improved pollutant source controls.
- Management of irrigation tailwater to reduce pesticides.
- Retain and manage stormwater runoff.
- Water transfers. Water transfers are on the checklist and the summary page of the latest set but no wording such as in alternatives 1,2,7, and 9 that says “transfers” or something close to it is in the text of the latest set.

Action in latest alternative that were not in prior:

- None ignoring “module” changes.

Alternative 18:

Prior Title: Delta Island Protection with Storage

New Title: Delta Protection with Storage

Action in prior alternative that are not in latest:

- Construct in-Delta storage. In-Delta storage was an original feature of Alternative 18 (that used to be called “Delta system vulnerability alternative SV-2” or the “moderate protection level of Delta islands and system functions”). It originated as part of an old exercise from 12-21-95 where an alternative to “Reduce Demand” (called Alternative 3 at that time) that was written by Dave Fullerton was then merged by Michael Norris with Alternatives “WS7” and “WS11” which respectively had “in-Delta” and “off-stream storage” elements associated with them. Candidate reservoir sites were selected for the Sacramento and San Joaquin Rivers based on islands that had significant volumes and none or lesser amounts of organic materials in the island soils. Page 26 (Thickness of Organic Materials) of the Delta Atlas was used as a reference and Ryer Island, which has no organics in its soils, was selected as a possible reservoir for the Sacramento River system and Bacon Island, that has organics but in smaller amounts, was selected as a possible reservoir for the San Joaquin River system. Another candidate for the San Joaquin River system that was previously missed might be McDonald Island which has no organics in its soils. Because of possible public outcry, it was decided not to mention the names of the candidate reservoir islands at the time the prior set was printed but to instead circle the general area that included candidate islands for such things as in-Delta storage reservoirs or a chain-of-lakes facility. This is reflected in the prior set but not the latest. The in-Delta storage reservoirs on the Sacramento and San Joaquin River systems that used to be in Alternative 18 have somehow been deleted in the latest set except for the 100,000 AF environmental storage reservoir that is a modular feature that is part of every alternative. This deletion could be the most important of any of the alternatives since the alternative no longer has the “selling features” that it had before.
- Improved pollutant source controls.
- Management of irrigation tailwater to reduce pesticides.
- Retain and manage stormwater runoff.
- Modify timing releases.
- Conservation and water pricing. Expanding water conservation BMPs and EWMPs are mentioned in the latest set but there is no mention of water pricing.
- Reclamation and alternative supply development. This is absent in the latest set although

the 100,000 AF purchase from willing sellers in the San Joaquin basin might cover this.

Action in latest alternative that were not in prior:

- Provide incentives for conjunctive use for the Sacramento and San Joaquin River basins to provide 300-500,000 AF of annual supply. This was actually listed in the prior set but no quantities were given. Most of the other alternatives (except for Alternatives 9, 19, and 20) that discuss groundwater storage and/or conjunctive use do not list such substantial amounts of water to be generated on an annual basis. The 300,000 to 500,000 AF makes sense if the two in-Delta reservoirs discussed above are put back in the alternative.

Alternative 19:

Prior Title: Pollutant Source Controls and Operational Changes

New Title: Improve Delta Flow Through Operational Changes

Action in prior alternative that are not in latest:

- Control volume and temperature of agricultural discharges.
- Reduce water demand on Delta to increase in-stream flows.

Action in latest alternative that were not in prior:

- Expand groundwater storage and conjunctive use supply programs to provide 500-800,000 AF of annual supply. This was actually listed in the prior set under “groundwater banking and conjunctive use” but no quantities were given. See further discussion of this item under Alternative 18.

Alternative 20:

Prior Title: Source Control and Added Storage

New Title: Improve Delta Flow Through Added Storage

Action in prior alternative that are not in latest:

- Modification of Clifton Court Forebay operations.
- Management of fisheries production and take.

Action in latest alternative that were not in prior:

- Expand groundwater storage and conjunctive use supply programs to provide 500-800,000 AF of annual supply. This was actually listed in the prior set under “water transfers and conjunctive use” but no quantities were given. See further discussion of this item under Alternative 18.

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