WATER MANAGEMENT ASSETS FOR LATE STAGE ONE IMPLEMENTATION

ASSET DESCRIPTION[1]	EXAMPLES OF HOW ASSET COULD BE APPLIED
INCREASED BANKS PUMPING CAPACITY	• Increase pumping to 8,500 cfs (mid-stage 1 asset) • Increase pumping to 10,300 cfs
EFFICIENCY INVESTMENTS	• ULFT Program: Could result in gains on the order of 120,000 AF/YR mainly from implementation of state-wide program • Other ag/urban reclamation projects?
GROUNDWATER STORAGE SOUTH OF THE DELTA	• Southern Sacramento County (near Galt): potential to fill pumping depression – at least 500,000 AF • East San Joaquin Basin: potential storage capacity up to 2,000,000 AF • Madera Ranch: approximate capacity 300,000-500,000 AF • Kings River Fan: potential storage capacity of up to 1,500,000 AF
IN DELTA STORAGE	• Potential for use of in-Delta islands
IN-DELTA AGRICULTURAL DRAINAGE REDUCTION	• Source reduction through treatment.
SHASTA DAM EXPANSION	• Raise Shasta Dam to increase storage capacity 290,000 AF

[1] A number of the summaries of potential Late Stage 1 Assets have not been completed and/or are being reevaluated for consideration. These assets include: Groundwater Storage, Blending, Shifting Refuge Water Supplies, Altering Flood Control Diagrams, and Flexing Existing Standards.

WATER MANAGEMENT ASSETS
FOR LATE STAGE ONE IMPLEMENTATION

INCREASED BANKS PUMPING CAPACITY

Project Description: During August and September of 1999, the State Water Project moved an additional 38,000 AF of SWP water from Lake Oroville into San Luis Reservoir by obtaining approval to exceed the allowable export rate. Although the SWP is capable of pumping 10,300 cfs at its Banks Pumping Plant, it is constrained to a lower pumping rate because the inflow to Clifton Court Forebay is constrained to 6,680[2] cfs from mid-March to mid-December by an agreement with the U.S. Army Corps of Engineers. Outside that window, the inflow to Clifton Court Forebay may be increased by an amount equal to one-third of Vernalis flow when it is 1,000 cfs or higher. This summer, the USACE approved an increase of 500 cfs to allow the Clifton Court Forebay inflow to be 7,180 cfs from August 6 to September 30. Next year, a similar proposal is being developed to allow the additional 500 cfs pumping from July 1 through the end of September in the event the added capacity could be used to fill San Luis Reservoir. This asset, increasing the allowable inflow to Clifton Court Forebay, could be expanded beyond water year 2000 to allow for greater operational flexibility and the possibility to capture additional water that is surplus to the Delta. Two specific alternatives are presented below which could be implemented in Late Stage One.

Alternative One -- Increase SWP exports to 8,500 cfs between July1 and September 30: This alternative increases the allowable inflow to Clifton Court Forebay to 8,500 cfs.

Project Costs: About $500,000 of capital improvements in the South Delta will be needed to mitigate for the effects of higher pumping on a long-term basis. The capital improvements are being developed by DWR in coordination with the CALFED Bay/Delta Program. Generally, those improvements include dredging at specific locations in the South Delta (about $300,000) and improving the efficiency of specific diversions that are downstream of the temporary barrier sites.

Timing: See above.

Project Benefits: See graph for water supply benefits.

Assumed Duration of Project Benefits: In perpetuity. This alternative would probably be functional mid-Stage 1.

Assumed Operational Restrictions: Increased pumping during the irrigation season could exacerbate water level conditions in the South Delta. In addition to placing and operating the three temporary rock agricultural barriers, it may be necessary to improve diversion capability for those water users located downstream of the barriers. The USACE will also require consultation with fishery agencies on potential endangered species concerns. Another possible restriction on its use would be during periods of high

INCREASED BANKS PUMPING CAPACITY (CON'T)

[2] This maximum is based on a 3-day running average inflow to Clifton Court Forebay.

delta smelt salvage. In 1999, delta smelt salvage continued into the first part of July at high rates.

Impacts to Others: The permitting requirements discussed below should ensure that impacts to others will not occur.

Permits or Other Approvals Needed: In addition to endangered species consultation with NMFS, FWS, and DFG, a Section 10 Rivers and Harbors Act permit would be needed. It is believed the necessary environmental documentation and mitigation could be completed mid-Stage 1.

Procedure for Obtaining Permits:

Implementation Responsibility: DWR.

Necessary Cooperating Agencies: NMFS, FWS, DFG, ACOE.

Alternative Two -- South Delta Improvement Project Exports up to 10,300 cfs

Project Costs: About $590 million are needed for a new Clifton Court Forebay screened fish facility and intake structure and associated dredging on Old River. Another $40 million would be needed to resolve SDWA water supply/quality problems (barriers, dredging, extending agricultural diversions, etc.). Mitigation costs for the project have yet to be determined.

Project Benefits: See graph for water supply benefits.

Timing:

Assumed Duration of Project Benefits: This is action could provide benefits in perpetuity.

Assumed Operational Restrictions: Operational rules are to be determined. Rules will be needed to protect fisheries, as well as local diverters. Potential show stoppers are to be determined.

Impacts to Others: The permitting requirements discussed below should ensure that impacts to others will not occur.

Permits or Other Approvals Needed: In addition to endangered species consultation with NMFS, FWS, and DFG, a Section 10 Rivers and Harbors Act permit, CWA Section 404 and 401 permits, and FEIR/EIS would be needed.

INCREASED BANKS PUMPING CAPACITY (CON'T)

Implementation Responsibility: DWR.

WATER MANAGEMENT ASSETS
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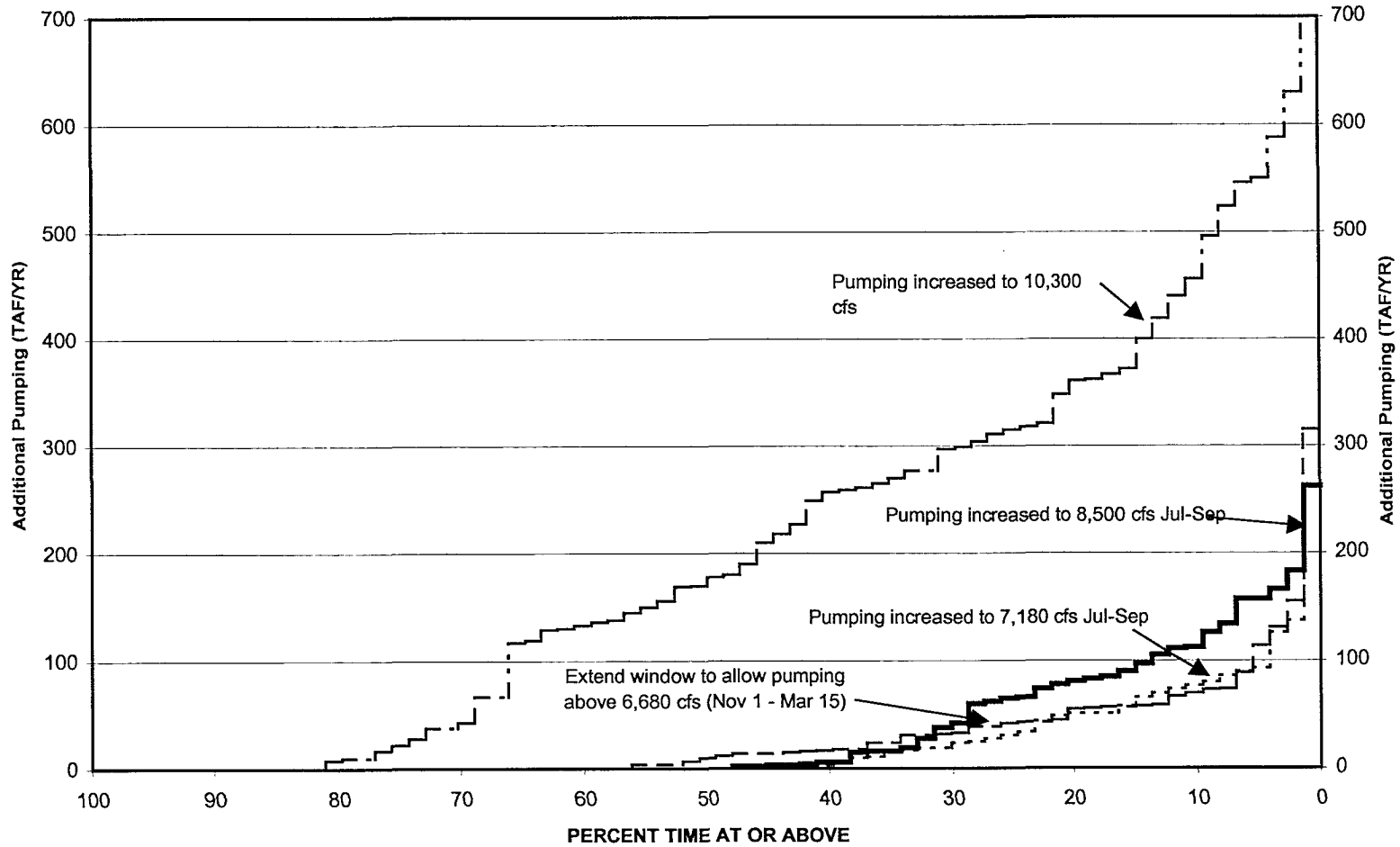
Necessary Cooperating Agencies: NMFS, FWS, DFG, ACOE.

WATER MANAGEMENT ASSETS
FOR LATE STAGE ONE IMPLEMENTATION

Water Supply Assets: Increased Pumping at Banks Pumping Plant
(1995 Level of Development with Interruptible Supplies)



WATER MANAGEMENT ASSETS
FOR LATE STAGE ONE IMPLEMENTATION

EFFICIENCY INVESTMENTS

Project Description: A number of possible variations exist. Use CALFED investments in urban/agricultural water efficiency to help meet CALFED goals. For example:

- Credit water saved toward water supply targets.
- Transfer some water saved to areas of particular need
- Transfer some of saved water for blending to improve water quality (where water saved has higher water quality than other water for which it can be exchanged).
- Transfer some water saved to the EWA.

Applicable practices include:

- Urban coastal water conservation. For example, CALFED could help fund an acceleration in the replacement of ultra low flush toilets (ULFTs).
- Urban coastal water recycling
- Urban and agricultural reductions in ET and/or discharges to salt sinks.

All versions involving transfer of water must be attractive from a local perspective. For urban agencies, this implies that the water accessible to CALFED will be water of limited value to local areas. There are two related forms of such water: (1) wet year water and (2) temporary water (e.g., available for a period of years only). Both wet year water and temporary water may be very valuable to CALFED for Stage 1.

Several urban agencies were approached to ascertain the level of interest in exploring the potential for this tool. The agencies seem willing to discuss possible CALFED investments in efficiency. However, they are very cautious about making any kind of commitment, however, tentative, to such a tool at this time. Therefore, the use of efficiency investments as a tool to provide CALFED benefits must remain speculative at this time.

Timing: Aggressive low tech projects such as ULFT replacement could begin within 1-2 years, as demonstrated by Los Angeles Department of Water and Power (LADWP). Water recycling projects could take much of Stage 1 to implement.

Project Costs: CALFED has budgeted on the order of $1 billion for efficiency purchases during Stage 1. If the cost of water saved is $500/af, then CALFED could generate 2 million acre-feet of savings. Of course not all the savings would be realized within Stage 1. Alternatively, if $1 billion is converted into any annual income stream of $100 million, then CALFED could generate an average of 200 kaf per year through efficiency. If the water saved were focussed on just a fraction of years (e.g., wetter than average years), then the amount of water possible could be quite large in these years. Temporary water would be quite valuable to CALFED inasmuch as many efficiency measures can be put in place in a very short time, and CALFED is more in need of new benefits in the near-term than the long-term. Wet year benefits would be particularly

EFFICIENCY INVESTMENTS (CON'T)

beneficial to the EWA, for which large needs have been identified in wet years. Also, federal export contractors will continue to have unmet needs in many wet years.

Project Benefits: (See above)

Assumed Duration of Project Benefits: Efficiency measures, such as ULFTs, which produce less water over time would have an effective lifetime of less than 20 years. By contrast, water recycling projects might be operated and provide benefits indefinitely. In such cases, the duration of project benefits would be determined by the contract terms.

Assumed Operational Restrictions: No intrinsic restrictions.

Impacts on Others: By structuring CALFED efficiency investments as transfers instead of grants, CALFED will change the benefit stream from efficiency. For example, efficiency improvements by urban coastal Project contractors would normally increase supplies for agricultural Project contractors, as a result of Project rules. Treated as transfers, this water would, instead, flow to the beneficiary selected by CALFED.

Permits or Other Approvals Needed:

Procedure for Obtaining Permits and Other Approvals: Local approval is needed in all cases. For water recycling projects, the approval process can be very extensive.

Implementation Responsibility: Probably local implementation.

Necessary Cooperating Parties: Local Agencies. For projects involving the transfer of water, SWP and CVP cooperation might be needed. For state and federal contractors, the cooperation of other contractors might be needed.

WATER MANAGEMENT ASSETS
FOR LATE STAGE ONE IMPLEMENTATION

GROUNDWATER STORAGE SOUTH OF THE DELTA

Project Description: This asset will provide additional storage to allow greater flexibility to the system and increased water supply reliability. Groundwater banking is a form of conjunctive use that involves the storage of surplus or wet-year water in groundwater basins that have existing storage space. Currently, a number of basins both north and south of the delta have available storage for groundwater banking.

The following groundwater banking projects have been identified as the most promising potential Late Stage 1 Assets:

	Project Area	Minimum Storage (acre-feet)	Potential Storage (acre-feet)
1)	South Sacramento County	500,000	1,000,000
2)	Eastern San Joaquin Basin	500,000	2,000,000
3)	Madera Ranch	300,000	500,000
4)	Kings River Fan	500,000	1,500,000
	Total:	1,800,000	4,000,000

The "Minimum Storage" values for these projects were calculated based on the volumes of existing cones of depression and a conservative specific yield factor of 0.1. These storage values are currently being used in CALFED's Water Management Strategy modeling effort to make a preliminary evaluation of conjunctive use potential in the Central Valley.

The "Potential Storage" values are estimates based on raising regional water tables beyond the point of filling cones of depression, but within elevations that would not likely result in unacceptable impacts. These numbers will be revised as project specific data become available.

Project Costs: Groundwater banking costs will vary with the infrastructure required to operate the project. Some projects will utilize spreading basins, while others may use injection wells. In lieu projects, where surface water is provided so that groundwater pumping could be reduced, will also be considered. Additional infrastructure could include conveyance facilities, diversions, pump stations, filtration plants, and extraction wells.

Preliminary cost estimates for each of the projects listed above are currently being developed. In general, cost estimates for groundwater banking projects can range from $100 to $400 per acre-foot.

Timing: From a strictly technical perspective, a groundwater banking project can be designed and implemented within two to three years. However, for each of the above projects, a number of institutional and political issues will need to be addressed prior to actual implementation. Given the complexity of these issues, it will likely take at least three to five years for any of these projects to become operational.

WATER MANAGEMENT ASSETS
FOR LATE STAGE ONE IMPLEMENTATION

GROUNDWATER STORAGE SOUTH OF THE DELTA (CON'T)

Project Benefits: The primary benefit of groundwater banking is additional storage to the system. The minimum cumulative storage from the above projects is 1.8 million acre-feet. This amount of added storage will improve system flexibility and increase water supply reliability. An additional benefit will be improved groundwater basin management. Properly managed projects should not result in water quality impacts. Groundwater banking is generally environmentally neutral, and in many cases such projects can create wetland habitat and other environmental benefits.

Assumed Duration of Project Benefits: Project benefits would continue for the life of each project. With proper operation and maintenance, groundwater banking projects can continue indefinitely.

Assumed Operational Restrictions: The key operational restrictions include availability of water to be banked, recharge rates, land availability for spreading basins, and extraction rates.

Impacts on Others: Improperly managed groundwater banking projects can result in third-party impacts, including changes in water table elevations, water quality degradation, and subsidence. The Minimum Storage Groundwater Banking projects listed above would avoid many of the impacts typically associated with conjunctive use projects since they involve the filling of existing storage space in the respective groundwater basins. However, each of the above projects would require a thorough evaluation of the specific potential impacts, and development of appropriate monitoring and mutually agreeable mitigation measures. Additionally, water rights issues would need to be addressed.

Permits or Other Approvals Needed: SWRCB temporary change in place of use permits, pursuant to Water Code Section 1725, may be required. Additionally, many counties have adopted ordinances that require permits for exportation of groundwater. There is some uncertainty regarding the applicability of Water Code sections 1220 and 1011.5 with respect to some import/export groundwater banking projects.

Procedure for Obtaining Permits and Other Approvals: Developing a contract between banking partners, addressing third party impacts, applying for SWRCB and local permits, complying with CEQA/NEPA. This process could take two to three years. Clarification of Water Code sections 1220 and 1011.5 may also be needed.

Implementation Responsibility: The contracting parties.

Necessary Cooperating Parties: Contracting parties, local landowners and permitting entities.

WATER MANAGEMENT ASSETS
FOR LATE STAGE ONE IMPLEMENTATION

IN-DELTA STORAGE (WEBB TRACT AND BACON ISLAND)

Project Description:

240 TAF storage capacity
11,000 acres of reservoir
9,000 acres of habitat (Bouldin and Holland)

Reference: Delta Wetlands DEIR/EIS, December 1995

Timing:

DEIR/S completed December 1995, REIR/EIS in January 2000
Water rights hearing held summer 1997, continued hearing in spring 2000
2-3 year construction schedule

Project Costs:

$779 million estimated capital costs
$10 million estimated annual O&M costs
$236 to $328 per acre-foot

Reference: CALFED Storage and Conveyance Components, Facility Descriptions and Cost Estimates, October 1997

Project Benefits:

173-240 TAF of additional Delta exports per year
Creation of 240 TAF of new in-Delta storage
Potential salinity benefits from release of low salinity water
Elimination of 92 unscreened ag diversions
Elimination of 56 TAF of foregone ag discharges
Creation of 9,000 acres of wetland and wildlife habitat (Bouldin and Holland)

Reference: DNCT gaming EWA Game 1, Summer 1999
Delta Wetlands DEIR/EIS, December 1995

Assumed Duration of Project Benefits: Benefits are assumed to be permanent.

Assumed Operational Restrictions:

4,000 cfs average monthly diversions
4,000 cfs average monthly discharges
Diversion restrictions October to March for fishery protection
Diversion prohibitions April to May for fishery protection
Discharge restrictions January to July for fishery protection

WATER MANAGEMENT ASSETS
FOR LATE STAGE ONE IMPLEMENTATION

IN-DELTA STORAGE
(WEBB TRACT AND BACON ISLAND – CON'T)

Additional operational restrictions may be necessary to mitigate for water quality and seepage impacts

Reference: FWS and NMFS biological opinions, May 1997
DFG revised biological opinion August 1998

Impacts on Others:

Potential water quality impact on export TOC levels
Potential seepage impacts to neighboring islands
Potential salinity impacts if high salinity water is diverted to storage

Permits or Other Approvals Needed:

Water rights permit to divert and store surplus flows
404 permit to construct levee improvements
NMFS and DFG consultation for spring run chinook salmon

Procedure for Obtaining Permits and Other Approvals:

SWRCB issues water rights permit
USACE issues 404 permits
FWS, NMFS, and DFG issue biological opinions

Implementation Responsibility: Delta Wetlands or project buyer.

Necessary Cooperating Parties: DWR and USBR for operations involving SWP and CVP facilities. Fish and wildlife agencies to monitor the implementation of biological opinions

WATER MANAGEMENT ASSETS
FOR LATE STAGE ONE IMPLEMENTATION

IN-DELTA STORAGE
(BACON ISLAND CONNECTED TO EXPORT PUMPS)

Project Description:

4,000 cfs pipeline connection from Bacon to CCFB
Requires Bacon Island storage to be in place (see above)

Project Costs:

$218 million estimated capital costs (no new storage)
$1 million estimated annual O&M costs
$94 to $130 per acre-foot (in addition to Bacon storage costs, see above)

Reference: CALFED Storage and Conveyance Components, Facility Descriptions and Cost Estimates, October 1997

Timing:

Feasibility and environmental studies could take 3 to 5 years
2-3 year construction schedule

Project Benefits: 108-150 TAF of screened Delta exports per year. Reference: DNCT gaming EWA Game 1, Summer 1999

Assumed Duration of Project Benefits: Benefits are assumed to be permanent.

Assumed Operational Restrictions: 4,000 cfs capacity

Impacts on Others:

Potential impact to landowners between Bacon and CCFB
Potential impact to Santa Fe railroad
Potential impact to HWY 4
Potential impact to EBMUD aqueduct
Potential impact to gas pipeline

[Major] Permits or Other Approvals Needed:

404 permit to pipeline
Biological opinions for terrestrial and fishery species
Streambed alteration permit for siphons under channels

Procedure for Obtaining Permits and Other Approvals:

USACE issues 404 permits - FWS, NMFS, and DFG issue biological opinions

WATER MANAGEMENT ASSETS
FOR LATE STAGE ONE IMPLEMENTATION

IN-DELTA STORAGE
(BACON ISLAND CONNECTED TO EXPORT PUMPS – CON'T)

Implementation Responsibility: Project proponent

Necessary Cooperating Parties: DWR and USBR for operations involving SWP and CVP facilities. Fish and wildlife agencies to monitor the implementation of biological opinions.

WATER MANAGEMENT ASSETS
FOR LATE STAGE ONE IMPLEMENTATION

IN-DELTA STORAGE
(WOODWARD ISLAND AND VICTORIA ISLAND)

Project Description:

108 TAF storage capacity (EWA gaming assumed 80 TAF)
8,300 acres of reservoir, Assume 6,800 acres of habitat

Reference: CALFED Storage and Conveyance Components, Facility Descriptions and Cost Estimates, October 1997

Project Costs:

$666 million estimated capital costs
$7 million estimated annual O&M costs
$483 to $670 per acre-foot

Reference: CALFED Storage and Conveyance Components, Facility Descriptions and Cost Estimates, October 1997

Timing:

Feasibility and environmental studies could take 3 to 5 years
Water rights hearing could be held in 2005
2-3 year construction schedule

Project Benefits:

70-97 TAF of additional Delta exports per year
Creation of 108 TAF of new in-Delta storage
Potential salinity benefits from release of low salinity water
Elimination of unscreened ag diversions
Elimination of foregone ag discharges
Creation of 6,800 acres of new wetland and wildlife habitat

Reference: DNCT gaming EWA Game 2, Summer 1999

Assumed Duration of Project Benefits: Benefits are assumed to be permanent.

Assumed Operational Restrictions:

4,000 cfs average monthly diversions
4,000 cfs average monthly discharges
Diversion restrictions October to March for fishery protection
Diversion prohibitions April to May for fishery protection
No discharge restrictions, directly connected to CCFB

WATER MANAGEMENT ASSETS
FOR LATE STAGE ONE IMPLEMENTATION

IN-DELTA STORAGE
(WOODWARD ISLAND AND VICTORIA ISLAND – CON'T)

Impacts on Others:

Potential water quality impact on export TOC levels
Potential seepage impacts to neighboring islands
Potential salinity impacts if high salinity water is diverted to storage
Potential impact to Caltrans HWY 4
Potential impact to EBMUD aqueduct
Potential impact to gas and WAPA power transmission lines
Additional operational restrictions may be necessary to mitigate for water quality and seepage impacts

[Major] Permits or Other Approvals Needed:

Environmental evaluations (EIR/EIS)
Water rights permit to divert and store surplus flows
404 permit to construct levee improvements
Biological opinions for all species
Streambed alteration permit for siphons under channels

Procedure for Obtaining Permits and Other Approvals:

SWRCB issues water rights permit
USACE issues 404 permits
FWS, NMFS, and DFG issue biological opinions

Implementation Responsibility: Project proponent.

Necessary Cooperating Parties:

DWR and USBR for operations within SWP and CVP system
Fishery and wildlife agencies to implement biological opinions
Caltrans for HWY 4 impacts
Gas and WAPA for power transmission impacts

WATER MANAGEMENT ASSETS
FOR LATE STAGE ONE IMPLEMENTATION

IN-DELTA AGRICULTURAL DRAINAGE REDUCTION
Source Reduction Through Treatment

Project Description: Remove TOC from in-Delta agricultural drainage through coagulation (using alum and ferric chloride). Construction and operation of between 12 and 27 treatment plants on most of the central and south Delta islands to reduce 60% of TOC load in the discharges. Total design capacity is up to 580 MGD for a TOC removal of 73,000 lb/day. TOC removal by membrane treatment (nano-filtration and ultra-filtration) is at least twice as expensive. Bio-filtration is effective only for biodegradable organic carbon. Wetlands treatment are not effective. Source: *Candidate Delta Regions for Treatment to Reduce Organic Carbon Loads* by Marvin Jung and Quy Tran, Consultant's report to the Municipal Water Quality Investigations Program (MWQI), DWR, January 1999, and references cited therein.

Project Costs: Per treatment plant: capital cost at $4,600,000 in 1997 dollars; O&M cost is $300,000 per year plus $ 0.47 chemical cost per lb TOC removed. For 27 treatment plants with a project life of 20 years, the total cost in present worth is $420,000,000 in 1997 dollars.

Timing: 2-5 year construction schedule

Project Benefits: Monthly reductions of between 14% to 23% TOC at CCFB based on very rough estimates by DWR Delta Modeling Section using DSM2 simulations. Actual reduction might be considerably less. Averages 18% over simulation period 1976-1991. Reduction at Los Vaqueros intake is similar. Reduction at Tracy Pumping Plant is smaller and averages 10%. Source: DWR MWQI Draft Consultant report *Water Quality Benefits from Controlling Delta Island Drainage*, to appear in early 2000.

Assumed Duration of Project Benefits: Ongoing.

Assumed Operational Restrictions: Sludge disposal on dedicated land nearby is assumed. Dewatering and disposal in landfill will add about $170,000 per treatment plant annually.

Impacts: Potential increase in chloride, sulphate, sodium, calcium, and iron or aluminum concentrations in discharge due to addition of coagulants. Chloride increase could be in the range of 10 to 30 mg/L, TDS 50 to 150 mg/L.

Permits or Other Approvals Needed: NPDES Permits might be required.

Implementation Responsibility: DWR

Necessary Cooperating Parties: Cooperation of local land owners is critical.

WATER MANAGEMENT ASSETS
FOR LATE STAGE ONE IMPLEMENTATION

IN-DELTA AGRICULTURAL DRAINAGE REDUCTION
Source Reduction Through Treatment (Con't)

Other considerations: TOC modeling in the Delta has not yet advanced to a stage to be able to reliably predict TOC at intakes. In particular it is not possible at this point to quantify the success of this measure towards meeting the 3 mg/L long-term goal with confidence.

- The total capacity of drainage treatment plants considered (580 MGD) is comparable to the combined capacity of urban water treatment plants using Delta water.
- A scaled down version treating only the drainage with most impacts at intakes, possibly with seasonal operations, could be a more cost-effective approach.

WATER MANAGEMENT ASSETS
FOR LATE STAGE ONE IMPLEMENTATION

SHASTA DAM EXPANSION

Project Description:. Shasta Dam is a key feature of the Central Valley Project and is an important feature in providing: a reliable source of cold water for Sacramento River fisheries; flows necessary to maintain water quality standards in the Sacramento-San Joaquin Delta; and water supplies for other consumptive uses. Expanding Shasta Dam will allow storage of surplus or wet-year water to allow greater operational flexibility and increased water supply reliability. The most feasible expansion involves raising the height of the dam 6.5 feet resulting in an increased storage capacity of 290,000 acre-feet. This low raise option maximizes storage while avoiding and/or minimizing impacts to nearby communities, recreational facilities, and the environment.

Project Costs: The estimated investment cost of a low raise is $122 million.

Timing: Technically, a low raise option expansion of Shasta Dam can be designed and implemented within six years. However, a number of institutional and political issues will need to be addressed prior to actual implementation. Given the complexity of these issues it may take longer for this project to become operational.

Project Benefits: The primary benefit of the enlargement is additional storage to the water management system. A small enlargement could increase the average annual yield between 50,000 to 125,000 acre-feet depending on hydrology. Significant benefits could be derived for: Delta water quality management, temperature control in the Sacramento River for fisheries restoration, and flood control operational flexibility.

Assumed Duration of Project Benefits: Project benefits would continue for the life of the Project. With proper operation and maintenance benefits could accrue indefinitely.

Assumed Operational Restrictions: Any new operational scenarios will have to be integrated into overall water management system operations.

Impacts on Others: While much of the new inundation zone lies within existing rights-of-way, there will be some additional adverse environmental and socioeconomic impacts on upstream landowners. There may also be positive socioeconomic impacts to some local resort owners resulting from increased water surface levels.

Permits or Other Approvals Needed: Required permits or approvals include Section 404 of the Clean Water Act, State Water Quality Certification, State Historic Preservation Act, Streambed Alteration Permits, and others as defined by State and Federal law.

Procedure for Obtaining Permits and Other Approvals: Necessary approvals and permits would be obtained through the planning and design process.

Implementation Responsibility: The U.S. Bureau of Reclamation would have implementation responsibility in coordination with other State entities and project beneficiaries.