Comment Letter CFFU

CFFU

CALIFORNIA FLY FISHERS UNLIMITED
Since 1962, Sacramento's Oldest Fly Fishing Club
P.O. Box 162997 • Sacramento, CA 95816

FEB 09 2006 00167

February 6, 2006

Mr. Paul A. Marshall
California Department of Water Resources
1416 9th Street – 2nd Floor
Sacramento, CA 95814

Re: Opposition to South Delta Improvement Project DEIR/S

Dear Mr. Marshall:

Thank you for soliciting public comments in response to the South Delta Improvement Project (SDIP) DEIR/EIS.

Our organization does not support the current project as proposed in your environmental document and strongly opposes diversions of any additional water from the Sacramento/San Joaquin Delta at this time.

California Fly Fishers Unlimited (CFFU) is a fly fishing and conservation club that represents over 220 conservationists in the greater Sacramento/Northern California area. We are actively involved in furthering the sport of fly fishing and protecting the fisheries resource of California.

Recently a combined team of state and federal experts announced a major decline in the Delta smelt, longfin smelt, threadfin shad and juvenile striped bass over the most recent four year period. They also indicated alarming declines in plankton species that these small fish and in turn larger fish depend upon. One of the key factors that they attributed to these declines is the increased exportation of water out of the Delta. Though further studies are underway, answers to this critical problem are yet undetermined.

Moving ahead with the SDIP that will increase Delta water exportation makes no sense when Delta fish populations are crashing. Please withdraw the SDIP DEIR/S until the causes of the Delta fish decline are identified and fully resolved. CFFU-1

Mr. Paul A Marshall
California Department of Water Resources
February 6, 2006
Page 2 of 2

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Significant impacts on other northern California rivers, like the Trinity and Klamath Rivers are a real possibility due to potential diversions to the Delta to compensate for increased exports. These diversions would have additional impacts on an already troubled fishery in those watersheds. CFFU-2

CFFU strongly urges you to withdraw the SDIP DEIR/EIS and to stop any projects that would increase Delta exports until the current crisis in the Delta ecosystem is effectively and completely resolved.

Sincerely,

Bill Felts
President

Responses to Comments

CFFU-1

Please see Master Response B, *Relationship between the South Delta Improvements Program and the Pelagic Organism Decline*.

CFFU-2

Please see Master Response N, *Trinity River Operations*.

Comment Letter CFCW1

DEC 0 6 2005

CFWC1
00002

South Delta
IMPROVEMENTS PROGRAM
EIS/EIR

Public Information Meeting
Comment Card

PLEASE PRINT

Date: December 6, 2005

Name: Mike Wade Title (if applicable): Executive Director

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Organization/Business (if applicable): California Farm Water Coalition E-Mail: mwade@farmwater.org

Address: 717 K Street, Suite 417

City: Sacramento State: CA Zip: 95814-3408

See Attached

Please submit your comments to a project representative or fold this form in half, seal with tape and mail to Paul Marshall, 1416 Ninth Street, Room 215-30, Sacramento, CA 95814. **Comments must be received by February 7, 2006.**

DEC 0 6 2005 DDD002

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FARM WATER
COALITION

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Outback Farms
Homer Lundberg
Western Canal Water District

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James "Dick" R. Akin
Western Farm Credit Bank
Randy Fiorini
Turlock Irrigation District

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California Women for Agriculture
Stan Lester, President
Yolo County Farm Bureau
Gene Lundquist
Kern County Water Agency
Daniel G. Vink
Lower Tule River Irrigatinn District

Executive Director
Michael Wade

www.farmwater.org

Comments by
Mike Wade, Executive Director
California Farm Water Coalition

Draft Environmental Impact Report/State
South Delta Improvements Program

California Department of Water Resources
Tuesday, December 6, 2005

We've seen and experienced what self-serving objections have done to the CalFed program... it has been pushed into a morass of activity and inactivity that has jeopardized its future. The South Delta Improvements Program has emerged as part of the CalFed process and offers a positive path forward to both enhancing the water quality in the Delta and providing a flexibility of water flows through the Delta. It must not be allowed to slip into a similar pattern that prevents it from moving forward. CFCW1-1

Temporary barriers have been in place for several years. The resulting flow patterns have been studied over several years by scientists and researchers seeking a means to improve the water quality in the Delta. The result of this activity has been volumes of data that indicate permanent operable gates, when operated correctly, would provide substantial benefits to the Delta.

The list of initial benefactors of this action begins with the Delta environment. The pools of fresh water collected behind the operable gates would immediately provide a safer environment for fish and plant life. Recent news stories of several Delta fish species have placed these species in jeopardy. Research is indicating that the pooling of fresh water may serve a beneficial use to their existence.

1

Final Comes When Water Flows

00002

Salmon migrating through the Delta have long been a concern and, once again, studies are indicating that the South Delta Improvements Program and its permanent operable gates, when operated correctly, will aid in the survival of the salmon.

Will increased supplies of water be available to be exported south of the Delta be a result of the South Delta Improvements Program? Maybe...but that is why a second review period is scheduled to consider proposed operational improvements to the State Water Project. Early indications show that any increase in exports may amount to only 3 to 5 percent. Another important benefit of the permanent operable gates is the increased flexibility provided to the operations of the State Water Project.

CFCW1-1

Benefits resulting from the South Delta Improvements Program are spread not only in the Delta but throughout our state. The opportunity to move forward toward an improved water future for all of California is great and no criticisms from self-serving interest groups that employ a myopic viewpoint should threaten this future.

While the California Farm Water Coalition represents the agricultural community of California, we recognize that the benefits of the South Delta Improvements Program are widespread and urge implementation of this important program.

2

Responses to Comments

CFCW1-1

The commenter's description of the project's benefits and support for the project are noted.

Comment Letter CFWC2

DEC 0 9 2005 02006

CFWC2

South Delta IMPROVEMENTS PROGRAM
EIS/EIR

Public Information Meeting Comment Card

Date: December 7, 2005

PLEASE PRINT

Name: Mike Henry Title (if applicable): Asst. Executive Directo

Telephone: 916-441-7723 Fax: 916-441-7842

Organization/Business (if applicable): California Farm Water Coalition E-Mail: mhenry@farmwater.org

Address: 717 K Street, Suite 417

City: Sacramento State: CA Zip: 95814-3408

See Attached

Please submit your comments to a project representative or fold this form in half, seal with tape and mail to Paul Marshall, 1416 Ninth Street, Room 215-30, Sacramento, CA 95814. **Comments must be received by February 7, 2006.**

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Executive Director
Michael Wade

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DEC 09 2005 **00006**

Comments by
Mike Henry, Assistant Executive Director
California Farm Water Coalition

Draft Environmental Impact Report
South Delta Improvements Program

California Department of Water Resources
Wednesday, December 7, 2005

The South Delta Improvements Program offers an opportunity to take positive action in securing a reliable water future for California. This program will solve many of the longstanding water quality and water level problems in the South Delta area. It recognizes the importance of meeting local needs of agriculture while addressing statewide concerns over adequate water supplies and environmental protections.

It is important to recognize the years of study by scientists and researchers that has resulted in the South Delta Improvements Program. In addition to providing immediate results to the Delta's environment and agricultural community, it also opens the door to increased flexibility in the operation of the State Water Project.

The permanent operable gates present the opportunity to improve water quality in the Delta by pooling fresh water behind the gates. Such action would create a safer environment for fish and plant life. Recent concerns have surfaced over several fish species in the Delta. Research leading to the South Delta Improvements Program suggests that the pooling of fresh water will serve a beneficial use to the existence of these species. **CFWC2-1**

The Delta can no longer be looked at as a regional issue. Its future is closely linked to the future of all California. Following a second review period to consider proposed operational improvements to the State Water Project, an increase in water exported from the Delta may result that would serve millions of California residents.

The California Farm Water Coalition is a public education organization committed to the use of water on our State's farms. The action steps lined out in the South Delta Improvements Program offer improved water quality to the farming community in the Delta. This is an important first step.

Viewpoints expressed by SDIP critics exclaiming a "NIMBY" approach should not be allowed to derail this very important action. The California Farm Water Coalition supports the forward movement of the South Delta Improvements Program on behalf of the California Department of Water Resources and related agencies.

Food Grows Where Water Flows

Responses to Comments

CFWC2-1

The commenter's description of the project's benefits and support for the project are noted.

Comment Letter CSPA

CSPA

California Sportfishing Protection Alliance
"An Advocate for Fisheries, Habitat and Water Quality"
3536 Rainier Avenue, Stockton, CA 95204
Tel: 209-464-5090, Fax: 209-464-5174, E: delta4cesp@aol.com

7 February 2005

Feb 07, 2006 00135

Mr. Paul A. Marshall
Department of Water Resources
South Delta Branch, Draft EIS/EIR Comments
1416 9th Street, 2nd Floor
Sacramento, CA 95814

Via email to: marshall@water.ca.gov *and* sdip_comments@water.ca.gov

RE: CSPA Comments on the South Delta Improvements Program, Draft Environmental Impact Statement/Environmental Impact Report

Dear Mr. Marshall:

The California Sportfishing Protection Alliance, San Joaquin Audubon and Watershed Enforcers (hereinafter, CSPA) submit the following comments on the Draft Environmental Impact Statement/Environmental Impact Report (DEIS/R) of November 2005, by the California Department of Water Resources (DWR) and the US Bureau of Reclamation (BOR) concerning the South Delta Improvements Program (SDIP). We incorporate by reference the comments submitted by the Planning and Conservation League, Northern California Counsel of the Federation of Fly Fishers, Friends of Trinity River, California Trout and Richard Izmarian. We also incorporate the attached comments concerning the inadequacies of the DEIS/R's assessment of water quality impacts by Drs. G. Fred Lee and Ann Jones-Lee (Attachment 1).

The environmental assessments for virtually every previous significant project in the Delta have promised benign or beneficial effects. All exacerbated existing conditions. It is frankly astonishing that, in the midst of attempts to understand the causes of the collapse of the Delta's pelagic fisheries, DWR has proposed significantly increased export pumping accompanied by a major modification of the hydrologic regime in the south Delta on the basis of a seriously flawed, inadequate and legally deficient document. That DWR and BOR are aggressively pushing this project at a time when numerous species in the Delta are in precipitous decline, with several hovering on the brink of extinction, speaks volumes about the values and intentions of its proponents.

The Administrative Record for the SDIP must comply with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) and carry out the statutory duty to provide decision-makers and the general public with a clear understanding of the consequences of the project.

1

An EIR is "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes *before* they have reached ecological points of no return." *Village Laguna of Laguna Beach, Inc. v. Board of Supervisors* (1982) 134 Cal. App. 3d 1022, 1027 (emphasis added). Beginning with its artificial segmentation of the proposed project through to its failure to evaluate a reasonable range or project alternatives, the DEIS/R fails to provide an accurate depiction of the many significant environmental impacts that will result from approval of the SDIP. The massive length of the DEIS/R does not reflect a depth of environmental analysis, but instead impedes a comprehensive understanding of the project's impacts. This letter details some, but not all, of the inadequacies in the DEIS/R, which include:

- The document is based upon the "Biological Opinion (BO) on the Long-Term Central Valley Project (CVP) and State Water Project (SWP) Operations Criteria and Plan (OCAP)", which has been found faulty by an independent technical review team convened by the CALFED Bay-Delta Program whose findings were made public January 3, 2006. (Attachment 2) A report by the Department of Commerce's Inspector General also found the BO process violated government procedures (Attachment 3).

- The document does not consider an alternative that **reduces** exports from the Delta, per the Third District Court of Appeals Decision (RCRC et al v State of California, Attachment 4), which sets aside the CALFED PEIR because the PEIR improperly fails to discuss an alternative that requires reduced exports of water from the Delta.[1]

- Similar to the CALFED PEIR and the Third District Court of Appeals Decision (RCRC et al v State of California), the document does not adequately disclose the environmental impacts of diverting water from various potential sources to meet the CALFED Program's goals. In particular, the analysis of impacts to upstream reservoirs, upstream river fisheries and upstream recreation are not only inadequate, but grossly misleading.

- The larger CALFED program, which includes SDIP, CVP long-term contract renewal, the so-called "Napa Proposal" and other elements to integrate CVP and SWP operations requires an EIS/EIR which amends the 1986 Coordinated Operating Agreement between DWR and BOR to include the regulatory baseline as it exists today prior making long term, potentially irretrievable, commitments of natural resources by building the barrier program in the Delta.

- The SDIP DEIS/EIR is premature in assuming that ever-larger deliveries of water to the San Luis Unit of the CVP can be justified, as the ROD for the San Luis Unit Drainage Re-Evaluation has not been completed. The National Economic

[1] Although the Supreme Court recently granted review of this case, the reasoning and conclusions of the Court are based on well-established CEQA law.

2

Analysis for that project identified that land retirement would be the most cost effective alternative, which could actually allow for **reduced** Delta exports.

Based on myriad inadequacies, prudence and a decent respect for the Delta Estuary we recommend that DWR and BOR withdraw the proposed DEIS/R for this project. We also request that the comment period be extended another 30 days in order to allow adequate time to review this complex and lengthy document.

I. The DEIS/R Improperly Defines the Proposed Project.

In order for an EIR to adequately evaluate the environmental ramifications of a project, it must first provide a comprehensive description of the project itself. "An accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR." *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal. App. 4th 713, 730 (quoting *County of Inyo v. City of Los Angeles* (1977) 71 Cal. App. 3d 185, 193). As a result, courts have found that even if an EIR is adequate in all other respects, the use of a "truncated project concept" violates CEQA and mandates the conclusion that the lead agency did not proceed in the manner required by law. *San Joaquin Raptor*, 27 Cal. App. 4th at 729-30. In particular, an inadequate project description hinders the evaluation of project alternatives in violation of CEQA.

The proposed South Delta Improvement Program, which has been promoted as a comprehensive solution to problems in the South Delta, and described as such in the CalFed Delta Improvements Plan, is arbitrarily divided into two stages:

> Stage I is presented as the selection of the physical/structural component of the program, the preferred alternative being the construction of four permanent physical barriers, and operation within the existing export constraints of the two water projects (CVP and SWP).
>
> Stage 2 is presented as the selection of a preferred operational component for the program. This selection process will follow the selection of the alternative in Stage 1, and will be subject to a Draft Supplemental EIS/EIR and a full public review. It is at this stage that the relaxation of the existing COE export constraints will be addressed.

The proposed staging approach (see ES-9) des not allow for a complete discussion of key elements such as alternatives to the proposed operation project. Specifically, each of the alternatives evaluated assumes that Stage 2 will include the full diversion of 8500 acre feet. The operation studies included in the Draft EIR/EIS, in a perhaps revealing way, do not include an alternative that conforms to the staged decision process. Operation studies described in this document include: CSPA-1

No Project	6680	No barriers, dredging, or ag. diversions
Missing Alt.	**6680**	**Full Barriers, dredging and ag. diversion**
2A	8500	Full Barriers, dredging, and ag. diversions
2B	8500	Full Barriers, dredging, and ag. diversions
2C	8500	Full Barriers, dredging, and ag. diversions

3

3B	8500	No Grantline Canal Barrier, dredging, and ag. div.
4B	8500	No Agricultural Barriers, dredging, and ag. div.

CSPA-1

It is clear that an alternative (the "Missing Alt." shown above in bold, underlined) which includes the barriers, dredging, and agricultural diversion extensions (physical/structural component), but which is limited to the 6680cfs pumping limitation (no operational component), is missing from the mix. Therefore it will be impossible to separate the effects of Stage 1 from Stage 2 in the analysis.

The DEIS/R further undermines the effectiveness of the project description through its reliance on the artful use of semantics begins to describe the water transfers. For example, the DEIS/R separates the CVP/SWP contract water deliveries, from the EWA water, the refuge water supplies, and the water transfers for other parties. Thus, the document states that the effects are limited to a 1% to 3% increase in CVP/SWP contract deliveries and for the environmental water (Page ES-5). Yet another 2% increase is then subsequently assigned to water transfers. The Estuary is affected by the whole of the exports, and this "piece-mealing" of the analysis is inappropriate. The analysis should be based on the effects of the 3% to 5% combined increase in exports.

CSPA-2

The narrow definition of the operational component of SDIP to increasing exports in four versions of 8,500 cfs does not allow a thorough discussion of alternative methods of increasing water supply reliability for CVP and SWP export contractors. Despite the DEIS/R's claim that the alternatives were developed through a "stakeholder process" the range of alternatives is far too narrow and was focused only on increasing exports to 8500 cfs at the SWP pumps in the Delta. This narrow focus was inherent in naming the stakeholder group "the 8500 Stakeholder Process" at DEIS/R Vol. 1a, 2-9.

CSPA-3

In the face of the State Appeals Court ruling on the CalFed EIS/R and ROD we are astounded to find that the document does not consider reductions in exports from the Delta as a means of solving the south Delta problems. The State Appeals Court was quite clear on this issue, and this point alone requires the preparation of a new draft, which includes and analyzes the relevant environmental improvement from choosing such an alternative.

CSPA-4

II. The Long Term CVP/SWP SDIP/OCAP BO is Inadequate

The SDIP project is based on Endangered Species Act compliance through the CVP/SWP OCAP. A revised BO should be prepared with adequate analyses to determine jeopardy to listed species, including winter and spring run Chinook, steelhead, and Delta smelt. An independent CBDA sponsored review by a team of 6 scientists recently concluded that the SDIP-OCAP BO for salmon had the following deficiencies:

CSPA-5

1. **Global climate change was not considered.** The BO assumes that the climate and hydrologic regime during the last century will persist into the future. The Panel does not believe that global climate change (e.g.,

temperature warming), and the consequent temperature and hydrological changes, received adequate treatment in the BO. This deficiency resulted in an important uncertainty being ignored that could affect the characterization of the risk to the ESUs.

2. **Variability in ocean productivity, and its affect on fish production, was not incorporated into the analyses.** The current status of the listed populations is, in part, an outcome of recent favorable ocean conditions. What will the status of listed populations be under less favorable conditions that may occur in the near future? By not including variability of ocean conditions in its analysis, the BO does not adequately address whether or not the listed populations are sufficiently large to survive a period of poor ocean conditions. CSPA-5

3. **Unknowns or uncertainty were either not adequately incorporated into the analyses, or their incorporation was not clearly explained.** In some cases, uncertainties were simply ignored or their consideration was deferred to other future analyses or other in-progress biological opinions. For example, Table 9 in the BO (page 193) summarizes the effects of the proposed project on the listed ESUs, but Table 9 fails to list eleven additional effects mentioned in the text of the BO. Ignoring or deferring the consideration of these effects in analyses does not give the listed species the required benefit of the doubt.

4. **Some models and analyses appeared to be flawed.** The application of monthly temperature models to anadromous fish studies is a point of concern. Of particular concern is the adoption, with little discussion, by NMFS of these monthly results both for assessing potential impacts and for setting thermal criteria. In addition, the data used to develop relationships between water temperature and salmon gamete, egg, and alevin mortality was not the best available.

5. **Greater consideration should be given to genetic and spatial diversity in the ESUs.** Too little consideration was given to the genetic and spatial diversity aspects of the ESUs. The Central Valley Technical Recovery Team noted that the "dependent" populations of spring Chinook and steelhead occupy marginally suitable habitats that either depend on migrants from the nearby streams or operate as a meta-population in which each stream is not individually viable, but the group persists. These dependent populations are a valuable resource because they exist in marginal environments, may contain valuable genetic attributes (e.g., higher temperature tolerance), and may serve as links with other populations in ways that increase the viability and resiliency of the ESUs over long time scales. The BO did not adequately treat the genetic and spatial diversity aspects in their analysis.

5

The DEIS/R may not rely on an inadequate environmental document to address and mitigate the environmental impacts of the SDIP. *Santa Clara River v. Castaic Lake* (2002) 95 Cal. App. 4th 1373. Clearly, the BO for the SDIP is inadequate and must be revised and completed prior to release of a new DEIS/R. In order to fully disclose impacts and mitigation measures, the revised BO must be completed prior to release of the new DEIS/R. CSPA-5

III. The DEIS/R Fails To Consider A Reasonable Range Of Alternatives

"An EIR for any project subject to CEQA must consider a reasonable range of alternatives to the project, or to the location of the project, which (1) offers substantial environmental advantages over the project's proposal . . .; and (2) may be feasibly accomplished in a successful manner considering the economic, environmental, social and technological factors involved." *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 566. "The discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly." CEQA Guidelines § 15126.6(b). CSPA-6

The DEIS/R must consider feasible alternatives that would obviate the necessity for increased export capacity. These include: 1) evaluation of the cost effective retirement of marginal farmland (including, but not limited to the selenium-laced soils of Westlands), 2) comprehensive agricultural and urban water conservation (including recycling, reclamation and the capture and treatment of surface/stormwater runoff), and 3) implementation of an aggressive desalination program in Southern California. It is likely that these alternatives would be environmentally superior and considerably more cost effective than the billions of dollars required for the SDIP. The cost of desalination is approaching the $750 to $1,000 range. Point and non-point control programs, like TMDLs, are problematic and prohibitively expensive. Conservation is clearly more cost effective than heavily subsidized export water. The DEIS/R should also examine alternatives that would reduce or eliminate the need for dredging (i.e., setback levees). Should the aforementioned alternatives be rejected, the DEIS/R must contain a discussion of why they were considered infeasible.

In October, the California Third District Court of Appeals set aside the CALFED ROD because, among other things, the PEIS for CALFED did not consider an alternative that **reduces** exports from the Delta. In January, the California Supreme Court agreed to review the case. It is therefore shocking to see that similar to the flawed CALFED PEIS, the SDIP DEIS/R does not contain an alternative that reduces Delta exports. This is particularly arbitrary since the first phase of the 8500 cfs project is supposedly only for fish and wildlife purposes and less pumping would seem to be a feasible alternative to meet the purpose and need or objective of the physical barriers project. This is a serious deficiency in the SDIP DEIS/R and must be remedied by development of an alternative that does not require an increase in use of the SWP's pumping capacity at Clifton Court. The "less export" alternative should be evaluated in light of alternative water supplies for

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Delta exporters available and identified in numerous public reports, including DWR Bulletin 160-05.

CSPA-6

The DEIS/R's justification for increased exports south of the Bay-Delta Estuary is predicated upon Bulletin 160-98. However, the recently released California Water Plan Update 2005 demonstrates that, under current trends, south of Delta water demands actually decrease in 2030, even accounting for the increased population. The Water Plan Update provides a reasonable scenario under it's Less Resources Intensive assumptions that water use statewide could decrease by up to 500 million acre feet, even without additional water conservation efforts taken by California water agencies. Additionally, a recent report by the Pacific Institute titled *California Water 2030: an Efficient Future* demonstrates that California water use in 2030 could be 20% below 2000 levels, even with a growing population and a healthy economy. Basing water demand upon outdated and discredited information while ignoring more recent relevant information is misleading and unacceptable. The DEIS/R must be withdrawn and reanalyzed using a reduced export alternative.

CSPA supports Trinity County's suggestion for development of a "Land Retirement Alternative" which returns water to the environment and other water users as follows:

CSPA-7

A revised SDIP DEIS/R should expand on Appendix A of the Trinity River Fishery Restoration Supplemental EIR (shown below revised as Table 1). Table 1 portrays a rough estimate of the potential water savings associated with the retirement of lands within the San Luis Unit, Delta-Mendota Canal Unit and the San Joaquin River Exchange Contractors of the Central Valley Project that are expected to require drainage service. The purpose of the Trinity County analysis was to estimate an amount of CVP water that could be obtained from the retirement of drainage-impacted lands in the 3 units of the CVP. The water savings would then be dedicated to increase cold-water storage, drought protection, and recreational use in upstream reservoirs. Use of this water should be dedicated to environmental restoration, water quality, or other water users as needed. The total land with drainage problems is 376,751 acres in the water districts identified below in Table 1, but other problem areas also exist outside of the SLU and DMC areas, as identified in Table 2 below.

The analysis below shows that land retirement could save 793,056 AF in total CVP contracted water, which would have been an actual reduction in demand of 568,373 AF in 2002, the same year as the unprecedented Klamath Fish Kill on the Trinity River, one of the CVP source rivers. Every increasing diversion from the Delta export projects effect water conditions on all Central Valley Rivers and are causing a decline in species numbers and habitat quality. Permanent land retirement and dedication of water to other CVP project purposes would result in significant benefits from reduced pollution from drainage water, reduced CVP project power usage, increased ability to meet various water quality standards, increased water storage, increased M&I water supplies, and more water for environmental needs such as fishery flows and wildlife refuges. Land retirement could also be the basis for an alternative that reduces exports from the Delta, per the Third District Court of Appeals decision on the CALFED PEIR.

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Table 1 from the Draft Trinity River Fishery Restoration Supplemental Environmental Impact Report (Trinity County 2004, as amended 1/24/05 and 2/16/05)

	Acres	Acres Requiring Drainage Service	% of District Requiring Drainage Service	Max CVP Contract Amount (AF)	Max CVP Contract Water Savings (AF)	2002 CVP Contract Deliveries (AF)	2002 CVP Water Savings (AF)
Broadview Water District	9,515	9,515	100.00%	27,000	27,000	18,588	18,588
Panoche Water District	39,292	27,000	68.72%	94,000	64,593	66,743	45,863
Westlands Water District	***604,000***	***298,000***	***49.34%***	***1,154,198***	***569,455***	***776,631***	***383,172***
Eagle Field	1,436	1,435	99.82%	4,550	4,542	2,869	2,864
Mercy Springs	3,589	2,417	67.35%	2,842	1,914	4,679	3,151
Oro Loma	1,095	1095	100%	4,600	4,600	3,173	3,173
Widren	881	881	100%	2,990	2,990	2,094	2,094
Firebaugh	23,457	23,457	100%	85,000	85,000	85,000	85,000
Cent. Cal ID	149,825	4,951	3.30%	532,400	17,569	532,400	17,569
Charleston Drainage District (portion of San Luis WD with drainage problems)	4,314	3,000	69.54%	8,130	5,654	Not avail	Not avail
Pacheco Water District	5,175	5,000	96.62%	10,080	9,739	7,137	6,896
Total	842,581	376,751	NA	1,925,790	793,056	1,499,314	568,370

Table 1 above was derived by obtaining acreage information for each district through Chris Eacock at the Bureau of Reclamation (USBR) in Fresno. The number of acres requiring drainage by 2050 was taken from estimates in the San Luis Drainage Feature Evaluation, Plan Formulation Report, USBR, December, 2002 (pages 2-5 and 2-6). The maximum water savings associated with the retirement of these lands was calculated by multiplying the maximum contract amounts for each district by the percent of that district requiring drainage. Contract amounts were taken from a list of CVP contracts provided by Reclamation. Each district's total contract amount was calculated by adding all of its water contracts if more than one contract exists.

8

According to information we have received from the Environmental Working Group, water and crop subsidies to Westlands in 2002 amounted to over $100 million. If approximately half of Westlands, as well as those impacted lands in other drainage-problem districts such as Broadview, Widren, Mercy Springs, Panoche, Pacheco and others were retired, it would free up hundreds of thousands of acre-feet of water, as well as significantly reduce water and crop subsidies by tens of millions of dollars a year. Full analysis of such an alternative would provide meaningful disclosure to decision makers and the public about the true costs of delivering water to these problem lands.

Table 2

	Total Irrigated croplands in 2002(acres)	Drainage Impaired acreage in 2000 (acres)	% of County Requiring Drainage Service	Estimated Contract Amounts (AF)	Estimated Water Savings (AF)
Tulare County	652,385	291,000	44.60%	1,304,770	581,927
Kern County	811,672	313,000	38.56%	1,623,344	625,961
Total	1,464,057	604,000	N/A	2,928,114	1,207,888

Table 2 above portrays a very preliminary estimate of water savings in Tulare and Kern County within the SWP service area. The acres of irrigated croplands in these Counties was taken from the USDA farm census statistics report in 2002. The acreage of drainage impaired acres is derived from a report by CA Dept of Water Resources, the 2000 San Joaquin Valley Drainage Monitoring Program. The acreages identified are for lands with high groundwater within 20 feet of the surface. The contract amounts were figured by estimating 2 acre-feet per acre irrigated, most likely an underestimated amount. Further investigation is needed to verify and refine these numbers, but clearly there is adequate justification to remove these lands from irrigation due to continuing drainage problems and salinization of land, in violation of Water Code Section 100- Wasteful and Unreasonable Use of Water.

Finally, the DEIS/R not only fails to suggest reasonable alternatives to the barriers project that would better solve the objectives of a real South Delta Improvement program-land retirement and less export, it also fails to evaluate the impacts of increasing the capacity to deliver export water to drainage impacted land. CSPA-8

IV. The Selection of Alternatives Biases the Analysis, Predetermines Results and Fails to Achieve Identified Purposes of the Project.

The DEIS/R unreasonably narrows the project purposes to eliminate reasonable alternatives. The identified purposes of the project are defined as: CSPA-9

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1. Reduce the movement of San Joaquin River watershed Central Valley fall/late fall-run juvenile Chinook salmon into the south Delta via Old River. CSPA-9

2. Maintain adequate water levels and, through improved circulation, water quality available for agricultural diversions in the south Delta, downstream of the head of Old River; and

3. Increase water delivery reliability for SWP and CVP water contractors south of the Delta and provide opportunities to convey water for fish and wildlife purposes by increasing the maximum permitted level of diversion through the existing gates at CCF to 8,500 cfs.

However, other than the no-project alternative, the only alternatives considered are construction of permanent barriers and increasing exports. This disingenuously predetermines the outcome and inappropriately excludes feasible less environmentally damaging alternatives. Arbitrarily excluding less environmentally damaging alternatives fails to meet the required scope of CEQA and NEPA.

In any case, project implementation will not meet the purposes of the project.

1. Construction of a Head-of-Old-River barrier may enable out-migrating salmonids to continue down the San Joaquin River rather than being drawn down Old River. However, DWR's particle tracking model and Vogel's radio-telemetry studies establish that San Joaquin out-migrants will subsequently be drawn down Turner and Columbia Cuts to the state and federal project pumps. Out-migrant salmonids still will not reach Chipps' Island.[2] Reducing the movement of salmonids into the south Delta via Old River accomplishes no environmental purpose if they escape Old River only to be drawn to the pumps via Turner and Columbia Cuts. CSPA-10

2. Likewise, project implementation will not improve water levels and water quality in the south Delta. As we discuss below, the DEIS/R acknowledges that water levels will decrease in the south Delta and any perceived improvement in water quality is speculative and lost in the noise of the modeling. CSPA-11

[2] http://calwater.ca.gov/Programs/Conveyance/FTDDCCTDF/Sept15_2005/TDF_Presentation_Vogel_9-15-05.pdf ; http://science.calwater.ca.gov/pdf/2002_Salmonid_Workshop_Summary.pdf (page 37) ; Vogel D. 2001. Juvenile Chinook salmon radio-telemetry study in the northern Sacramento-San Joaquin Delta, January – February 2000. Final project report submitted to U.S. Fish and Wildlife Service, Stockton, Calif. Red Bluff (CA): Natural Resources Sciences, Inc. 32 p; and Vogel D. 2002. Juvenile Chinook salmon radio-telemetry study in the southern Sacramento-San Joaquin Delta, December 2000 – January 2001. Final report submitted to the U.S. Fish and Wildlife Service, Stockton, Calif. Red Bluff (CA): Natural Resources Sciences, Inc. 27 p.

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3. The only project purpose that is potentially realized by project implementation is increased water exports. However, increasing exports is not likely to improve water supply reliability as DWR's Draft 2005 Reliability Report predicts that as water deliveries increase, reliability actually decreases. While the Reliability Report contains serious flaws that must be corrected, DWR has elected to use the report analysis as the method for determining project water supply reliability. The Reliability Report shows that the SWP is estimated to be capable of delivering 1.2 maf about 90% of the time under DWR's 2025 modeling while deliveries of around 3 maf are only reliable in less than 70% of years. The DEIS/R must analyze how increasing exports under the proposed alternatives affects the reliability curve of the SWP.

CSPA-12

V. The DEIS/R Fails To Provide An Adequate Discussion of the Project Setting and Therefore Fails to Properly Analyze SDIP impacts to Fisheries

"Accurate and complete information pertaining to the setting of the project and surrounding uses" is critical to an evaluation of a project's impact on the environment. *San Joaquin Raptor/Wildlife Center v. Stanislaus County* (1994)27 Cal. App. 4th 713, 729; *See also Friends of the Eel River v. Sonoma County Water Agency* (2003) 108 Cal. App. 4th 859, 875 ("incomplete description of the Project's environmental setting fails to set the stage for a discussion of" significant effects). As detailed below, the DEIS/R does not provide a complete analysis of the current state of the Delta and therefore cannot adequately address the impacts of the SDIP on the environment.

CSPA-13

Abundance indices calculated by the Interagency Ecological Program (IEP) suggest recent marked declines in numerous pelagic fishes and zooplankton in the upper San Francisco Estuary (the Delta and Suisun Bay). These low levels were unexpected given the relatively moderate hydrology over the past three years. IEP proposes to augment existing monitoring, perform new data analyses, and conduct special studies to investigate whether there is a new threat to pelagic fish and their prey, and if so, what has caused it.

The IEP conceptual model includes at least three general factors that may be acting individually or in concert to lower pelagic productivity: 1) toxins; 2) invasive species; and 3) water project operations. The overall approach adopted in 2005 is a screening-level study to better define the degree to which each of these factors may be responsible individually, in sequence, or in concert for the apparent step-changes. The workplan is based on a "triage" model to identify the most likely causes, and to assign priorities to projects on the basis of where funds and resources can be best used. Results also may shed additional light on causes of long-term declines in several of the affected species. Several of the lines of inquiry will be managed on an adaptive basis in that information will be examined as it is made available and depending on the results, increasingly focused studies will be conducted in 2006 and later years. SDIP needs to wait for the results of those studies before effective mitigations can be designed and implemented.

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As noted, the abundance indices calculated by the IEP Fall Mid-water Trawl survey (MWT) show marked declines in numerous pelagic fishes in the upper San Francisco Estuary (the Delta and Suisun Bay). The abundance indices for 2002-2004 include record lows for delta smelt and age-0 striped bass and near record lows for longfin smelt and threadfin shad (Bryant and Souza 2004; Hieb et al. 2005). Data from another IEP monitoring survey, the Summer Tow Net Survey (TNS), support the MWT findings: TNS abundance indices for striped bass and delta smelt were among the lowest indices in the 45-yr record. In contrast, the San Francisco Bay Study did not show significant declines in its catches of marine/lower estuary species (Hieb et al. 2004; Hieb et al. 2005). Based on these findings, the problem appears to be limited to fish dependent on the upper estuary.

CSPA-13

In addition to the declines in fish species, IEP monitoring also found declining abundance trends for zooplankton with a substantial drop in calanoid copepod abundance in 2004. Calanoid copepods such as *Eurytemora affinis* and *Pseudodiaptomus forbesi* are the primary food for larval pelagic fishes in the upper estuary (IEP 1987; Meng and Orsi 1991; Nobriga 2002) as well as older life stages of planktivorous species such as delta smelt (Lott 1998). Conversely, the invasive cyclopoid copepod *Limnoithona tetraspina*, which may be a poor food source for fish and an intraguild predator of calanoid copepods, is increasing in abundance and continues to be the most abundant copepod in the estuary (Mecum 2005).

While several of these declining species - including longfin smelt, juvenile striped bass and calanoid copepods have shown evidence of a long-term decline - there appears to have been a precipitous "step-change" to very low abundance during 2002-2004. This observation is supported by initial statistical analyses of the MWT data (Manley in prep.). Moreover, the record or near-record low abundance levels are remarkable in that the hydrological regime in the San Francisco Estuary was moderate during this period. Many estuarine organisms including longfin smelt and striped bass typically produce poor year classes in dry years (Jassby et al. 1995); delta smelt abundance is generally lowest in very wet or very dry years (Moyle et al. 1992). Thus, the moderate hydrology during the past three years should have supported at least modest production.

The fact that multiple pelagic species at more than one trophic level seem to show the 2002-2004 step decline is of particular concern. Regardless of whether the observations over the past three years are remarkable, the fact that the efforts of the California Bay-Delta Authority (CDBA) have apparently not arrested long-term declines in some pelagic species indicates that additional efforts are needed to identify what limits pelagic fisheries production in the upper estuary. Over the past decade, CBDA activities have resulted in a major shift in the timing of water exports, the development of an Environmental Water Account, and construction of habitat restoration projects. Additional information about the factors affecting pelagic organisms is needed before alternatives are designed for the SDIP, and provide guidance for future activities in the upper estuary including step 2 of SDIP.

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Kimmerer (2002a) showed that water project operations have resulted in lower winter/spring inflow and higher summer inflow to the Delta. As noted previously, the CBDA actions have restored some spring inflow, but have also increased summer inflows to meet increasing summer export demands. This shift was implemented based on the assumption that it would be more protective to sensitive early life stages of key estuarine fishes and invertebrates. However, it is possible that high export during summer-winter months has unanticipated food web effects by exporting biomass that would otherwise support the estuarine food web. Other possible mechanisms include increased entrainment of fishes during the summer-winter months, or a reduction in habitat quality downstream (e.g. less area of the appropriate salinity). Total annual exports have continued to increase under the CBDA. It is also possible that the total volume diverted on an annual basis influences estuarine productivity (Livingston et al. 1997, Jassby et al 2002). The FEIR/S must disclose such information, analyze potential impacts from increased usage of pumping capacity in light of the uncertainties inherent in installation of permanent barriers and making operational changes to include further use of 8500 cfs export capacity.

CSPA-14

We also suggest that you further evaluate impacts of SDIP in light of knowledge that in the past few years, more water has been exported during the summer (July-September) and the winter (December-March) than before, in part to compensate for conservation-driven export reductions in spring (April and May). There have been other changes in water project operation changes, which may also have had unexpected biological side-effects (e.g. export of more primary production). The purpose of ongoing scientific investigation is to closely examine recent changes in water project operations to identify effects potentially strong enough to account for the apparent step change in pelagic fish species abundances since 2001.

Other historical changes in water project operations should also be disclosed and analyzed to support the decision-makers understanding of historical population dynamics for fish species in the Bay/Delta and to advance knowledge of the role of water project operations in the long-term decline of certain pelagic fish species. "Dramatic increases in winter CVP and SWP salvage occurred contemporaneously with recent declines in several pelagic fish species. These unexpected increases in salvage density coincide with the step decline pelagic fishes in 2002. The *Winter Adult Entrainment Hypothesis* presently being studied by the CALFED program posits that these events are causally linked. Evidence for this hypothesis includes:

CSPA-15

1. There appears to have been a step increase in salvage density of adult delta smelt, threadfin shad and longfin smelt between 2001 and 2002. This increase is consistent with recent-year changes in winter water export operations. See Herbold et al

2. There appears to have been a step decrease in the Fall Mid-water Trawl indices of adult delta smelt, threadfin shad, and longfin smelt between 2001 and 2002. See Study Component 2i report by Manly and Chotkowski for details.

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3. Winter exports from the CVP and SWP have increased since the late 1990s. See Study Component 2h report by Simi and Ruhl for details.

Increased winter entrainment of delta smelt, long-fin smelt and threadfin shad represents a loss of the pre-spawning adults and all potential progeny. This means on a per capita basis loss of each adult fish may be equivalent to the loss of hundreds or even thousands of juveniles later in the year. Because an entrainment impact specifically affecting adult fishes has the potential to be strong, we regard finding an explanation for this coincidence a high priority. CSPA-15

The main sorts of explanations for why winter salvage densities may have increased since 2002 include: (1) the source of exported water has been changed to an area where more of these fishes occur during the winter; (2) the affected fishes have moved to areas from which exports are drawn; and/or 3) winter exports have increased past some sort of hydrodynamic threshold below which fish were better able to avoid entrainment. We expect well-documented answers in the FEIS/R to questions like: How have recent (1995 – 2004) water project operations policy changes changed delta hydrology? "Hydrology" is meant here to include the volume, timing, and pattern of input flows into the delta, delta outflow, exports, and operation of various water project gates and barriers. We also ask: which, if any, of the changes might plausibly have contributed to, or caused, a step change decrease in pelagic fishes abundance since 2001? We also want to know how the barriers will effect the questions above.

We suggest that you redo the DEIR/S to adopt the following assumptions for your new analysis since the on-going IEP study is using them: CSPA-16

1. Stressor effects on pelagic populations are highest during the summer period.
2. Ideal" hydrology in 2005 will not result in substantial increases in the abundance of pelagic fish and calanoid copepods.
3. Stressor effects have increased during the summer period relative to historical data.

We further suggest that you redo the inadequate analysis in the DEIS/R of the potential for the SDIP to aggravate the unfolding pelagic fish crash. A thorough analysis of the direct and indirect effects of building the barriers on reverse flows, water levels, entrainment of salmon and smelt, predation, residence time of water in the South Delta, and hydrodynamic changes in the South Delta caused by the new permanent barriers should be prepared. The analysis that presently exists in the DEIS/R is not adequate to justify selection of any of the alternatives presented and will result in misleading the decision-makers about the environmental impacts of the project and what course to take in their respective decision documents. CSPA-17

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VI. The DEIS/R Fails to Adequately Analyze Project Impacts.

An EIR must provide information about the magnitude and type of environmental impacts; it may not, as this draft does, simply speculate that there may be impacts and hope for the best. *See Stanislaus Natural Heritage Project v. County of Stanislaus* (1996) 48 Cal. App. 4th 182, 196-97. An EIR must also provide "information about how adverse the adverse impact will be." *Santiago County Water District v. County of Orange* (1981) 118 Cal. App. 3d 818, 831. This information must contain facts and analysis, not the agency's bare conclusions . . . .") *See Citizens of Goleta Valley*, 52 Cal. 3d at 568.

As detailed below, the DEIS/R fails to provide an adequate analysis of a range of project impacts. This failure renders the DEIS/R inadequate and requires that the DEIS/R be revised and recirculated prior to project approval.

1. Water Quality Impacts from SDIP were inadequately disclosed and considered in the DEIS/R.

The analysis of water quality impacts in the DEIS/R is woefully inadequate. The SDIP must be consistent with and comply with requirements of the federal Water Pollution Control Act and California's Porter-Cologne Water Quality Control Act. Delta water quality must not be sacrificed at the altar of increased exports. The historical export of South Delta water has fundamentally altered the movement of pollutants throughout the Delta. Rapid population growth in the South Delta is increasing the mass loading of numerous pollutants (i.e., wastewater, stormwater, illegal dumping). Implementation of the SDIP will further alter the distribution and concentration of these constituents. The majority of water quality monitoring has primarily focused on salinity, with little emphasis on other water quality parameters. Sufficient baseline field data does not yet exist to adequately calibrate/verify models and evaluate project effects on the rainbow of water quality constituents (i.e., virtually the entire suite of organic and inorganic pollutants) that will likely be affected by the project. A rigorous water quality analysis should precede project evaluation, alternative formulation, and implementation. **CSPA-18**

As previously noted, attached and included as a part of these comments is the assessment titled *Comments on the Draft Environmental Impact Statement Environmental Impact Report , South Delta Improvement Program* by Dr. G. Fred Lee and Dr. Anne Jones-Lee on the fundamental inadequacy of the DEIS/R's analysis of the project's potential adverse impacts to water quality. (Attachment 1)

The DEIS/R failed to address our scoping comments for this project with respect to water quality issues. It does, however, acknowledge that the project will require a Clean Water Act § 401 Certification. Regardless or whether our concerns are adequately addressed in this environmental review, DWR and BOR cannot avoid addressing these issues in what is likely to be a highly contested certification process. **CSPA-19**

The Delta is identified on the California Clean Water Act 303(d) List as impaired because of diazinon, chlorpyrifos, DDT, Group A Pesticides, electrical conductivity, mercury, organic enrichment/low dissolved oxygen and unknown toxicity. Old and Middle Rivers **CSPA-20**

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are listed as impaired because of low dissolved oxygen. The DEIS/R acknowledges that changes in hydrology can affect fate and transport of pollutants. It also acknowledges that synthetic and natural contaminants have bioaccumulated in Delta fish and other aquatic organisms and that synthetic organic chemicals and heavy metals are found in Delta fish in quantities exceeding acceptable standards for food consumption. Inexplicably, the DEIS/R fails to address the project's effects on the full suite of pollutants presently identified as impairing Delta waters, with the exception of salt. The DEIS/R cannot simply evaluate project impacts in terms of a "conservative" constituent like salt or impacts to dissolved oxygen in the Stockton deep-water channel. It must analyze and quantify the Project's effects on toxicity and impairing constituents in the south Delta and propose mitigation, so that the public and decision makers may reach their own conclusions about the adverse impacts of the project. *Save Our Peninsula v. County of Monterey* (2001) 87 Cal. App. 4th 99, 130. *See Citizens to Preserve the Ojai v. County of Ventura* (1986) 176 Cal. App. 3d 421, 432-33 (finding "an absolute failure to comply [with CEQA]" where information relevant to project's impacts was omitted). CSPA-20

Toxicity to lower tropic populations in Paradise Cut, attributable to organophosphorus insecticides, extends for weeks at a time. Delta waters frequently contain a cocktail of as many as 15 pesticides. Many of these interact additively or synergistically and/or bind to sediment. The tissue of fish collected from the South Delta contains high concentrations of bioaccumulative toxins (i.e., legacy pesticides, mercury and PCBs). Changes in south Delta hydrology will inevitability affect the fate and transport of these toxic constituents. The DEIS/R must be revised to include a characterization and assessment of the sources, mass loading and fate and transport of all pollutants likely to be present in south Delta channels and an evaluation of water quality impacts from the project and alternatives.

There are indications that selenium loads in the San Joaquin River have historically been diverted down Old River. Benthic organisms bio-accumulate selenium. The EIR/EIS should evaluate the effects of redirected selenium loads into the eutrophic areas of the Central Delta.

Dioxin concentrations significantly above levels protective of public health have been documented throughout San Francisco Bay and the Stockton Deep-Water Channel. Discussion with staff from the California Department of Public Health and the Central Valley Regional Water Quality Control Board, as well as private consultants, lead CSPA to believe that elevated concentrations of dioxins are likely present in the South Delta. The SDIP should evaluate the project's effects on likely dioxin concentrations in the South Delta.

Elevated levels of pathogens have been identified in the South Delta. Changes in flow will likely have an effect on concentration and spatial distribution of bacteria, viruses and parasites. Consequently, the DEIS/R must identify and evaluate the project's effects on pathogens.

The project's permanent barriers and inevitable changes in hydrology and export rates will likely have a significant effect on existing efforts to achieve water quality standards. CSPA-21

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The DEIS/R must discuss the project's compatibility with TMDLs, Toxic Hot Spot Cleanup Plans, NPDES permitting for increased contaminate loading and Basin Water Quality Control Plans. It must also discuss how altered flow and increased exports will effect implementation of control measures. CSPA-21

Increased exports will likely alter streamflow regimes on major tributaries to the Delta (including the Trinity and Klamath Rivers). The DEIS/R must more completely evaluate and discuss the project's effects on the physical and chemical parameters necessary to support renewable fisheries within upstream tributaries and reservoirs. CSPA-22

Increased exports during certain periods of the year will likely lead to reductions in streamflow during other times of the year (as the VAMP did on the San Joaquin River). This will almost certainly lead to a reduction in assimilative capacity (i.e., reduction in available dilution) on a number of Bay/Delta tributary rivers during certain time-periods. Reduction in streamflow and the resulting loss of assimilative capacity could necessitate more stringent NPDES permit limits. More restrictive permit limits will require dischargers to expend enormous sums of money to comply with new limits. The DEIS/R must evaluate the impacts to dischargers who will face more stringent permit limits caused by reductions in available dilution. CSPA-23

A significant SDIP component involves increased dredging of south Delta channels. Recently, the Central Valley Regional Water Quality Control Board strengthened requirements for dredging and dredge spoil placement. A comprehensive assessment of contaminate remobilization from dredging activities and potential effects of land disposal on terrestrial organisms is required. The discussion must include an evaluation of the adequacy of available sediment analyses (i.e., number of core samples, locations, constituents analyzed, concentrations, detection limits, etc.) and identify and evaluate disposal sites. CSPA-24

Lastly, we note that State Water Resource Control Board Revised Water Rights Decision 1641 changes the salinity standard for south Delta channels from 0.7 mmhos/cm (April through August) to 1.0 mmhos/cm upon implementation of the permanent barriers. This degradation of water quality represents a significant adverse environmental impact. The DEIS/R is deficient for not discussing and mitigating this degradation of water quality on south Delta agriculture. CSPA-25

2. The Analysis of Upstream Fisheries Impacts Caused by SDIP Is Inadequate.

The SDIP DEIS/EIR contains unsubstantiated findings about the lack of impacts to Central Valley fisheries. Spring chinook, fall Chinook and steelhead spawn, migrate and hold during periods when temperatures can be an issue in the summer and early fall. The same is true for pelagic species in the Delta. The DEIS/R fails to recognize the importance of steelhead and Chinook in sport, tribal and commercial harvest, and it fails to identify that lower upstream carryover storage will have a negative impact on the survival of Central Valley fisheries below major dams. The DEIS/R completely ignores CSPA-26

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the issue of cold water reserves that are required in upstream reservoirs to ensure that adequate stream temperatures can be achieved in the dry periods and parts of each year (summer) in which cold water is most necessary for species survival. CSPA-26

Presumably, increased export rates could lead to drawdown of upstream reservoirs. Should the SDIP lead to reductions in upstream reservoir storage and water elevation, the effects on fisheries and recreation in the affected impoundments requires a much more complete analysis than has been done in the DEIS/R. It should also discuss potential effects to non-state water project facilities and water rights holders (i.e., those having to meet shortfalls induced by the SDIP).

The DEIS/R should be revised to include a full analysis of impacts to Central Valley River temperatures from the SDIP-OCAP project and of each alternative's likely consistency with State and federal water quality standards and objectives. CSPA-27 The DEIS/R revision should evaluate project compliance with all Delta water quality standards, including the .7 EC standard at interior Delta locations as required by D-1641. CSPA-28

The BOR has previously recognized the need to lower Delta export as a result of a decision limiting diversions from the Trinity to the Sacramento/Delta system. The 2000 Trinity River Record of Decision (ROD) called for increased fishery flows into the Trinity River from Trinity and Lewiston Dams, corresponding to roughly a 1/1 reduction in water exports to the Sacramento River. It is now apparent that the BOR, through the SDIP, has no intention whatsoever of honoring its requirement to reduce water exports to the CVP commensurate with the increase in Trinity River fishery flows. Instead, BOR intends to continue historic deliveries of CVP water from the Delta, as indicated by the numerous CVP long-term contracts such as the San Luis Unit that promise larger future deliveries. CSPA-29

Therefore, approval of the SDIP and implementation of the Joint Point of Diversion whereby the CVP can send its "surplus" water south of the Delta using SWP pumping capacity will surely result in depleted cold water reserves in all upstream Reservoirs at the beginning of the next multi-year drought. The DEIS/R should identify the source of water for increased SDIP exports and disclose and evaluate environmental impacts in the source areas. Whose water are they exporting in this project anyway? CSPA-30

3. The DEIS/R Fails to Acknowledge, Address and Mitigate Project Impacts to the Tracy Fish Facility.

The DEIS/R ignores the effects of barrier operation in conjunction with accelerated export pumping on Central Valley Project export facilities. CSPA-31 While DWR's pumping facility draws water from Clifton Court Forebay, the BOR relies upon the Old River tidal pool for its water supply. Implementation of the temporary barriers and increased export pumping have caused water stage height in Old River to decline causing head loss at the BOR pumps, especially during low tides. The Tracy Fish Facility is no longer able to operate within design criteria in accordance with the Biological Opinion and export pumping costs have increased. Moving the Grantline Canal barrier further downstream

will further constrict BOR's tidal pool. The proposed project will exacerbate these problems by causing further and longer reductions in stage height, reduced fish salvage effectiveness, greater turbulence and increased electricity costs.

The south Delta has lost 4-5 feet in stage height since the 1950's. BOR staff has suggested that as much as an additional 4 feet head loss could occur in the coming years from implementation of the Intertie (1.5 foot loss), Banks 8,500 cfs (1 foot loss) and Banks 10,200 (1.5 foot loss). CSPA-31

Temporary barriers and increased pumping have reduced primary and secondary channel and holding tank velocities and secondary bypass ratios are now below one. Turbulence has increased. The primary channel was designed to operate at a 16-21 foot depth but now operates at 13-19 foot depth. The secondary channel was designed to operate at a 5-10 foot depth but presently operates at a 0.5-8 foot depth. The holding tank was designed to operate at a minimum depth of 5 feet but now operates at a minimum depth of 0.5 feet. Fish salvage effectiveness has been reduced from design criteria (80-90% in the 1960's) to 50-60% (early 1990's) to less than 20% today. Improving TFCF Hydraulics, Lloyd Hess, Attachment 2.

BOR project pumps are 3 feet lower than DWR's export pumps. Operation of permanent barriers will:

a. Reduce the volume of water available to BOR at low tides.
b. Will cause longer low tides.
c. Increase debris buildup on trash racks.
d. Increase power costs from having to raise water from a lower elevation.
e. Further decrease the efficiency of salvage operations.
f. Increase sedimentation in Old River adjacent to BOR's facility.

The DEIS/R must be withdrawn and revised to analyze and discuss the project's adverse impacts to the BOR facility.

4. The DEIS/R Fails to Adequately Analyze and Mitigate Impacts from New and/or Modified Irrigation Diversions.

Since the project will lower water levels in the south Delta during periods of high export pumping, the project proposes to extend 24 agricultural intakes and install more powerful pumps to facilitate irrigation. These new pumps will replace less powerful pumps or, in many cases, existing siphons and are more likely to entrain fish. However, these new pump intakes will not be screened in violation of California Department of Fish and Game and NOAA Fisheries fish screen policies. This despite clear evidence from DWR's Particle Tracking Model that these diversions are a cause for fish loss in the south Delta. The DEIS/R is deficient for not analyzing and mitigating increased entrainment. CSPA-32

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5. The DEIS/R's Analysis and Explanation of the Project's Effects on South Delta Water Circulation and Water Quality is Deficient.

One of the three identified project purposes is to "[m]aintain adequate water levels and, through increased circulation, water quality available for agricultural diversions in the south Delta, downstream of the head of Old River." The DEIS/R describes the modified circulation pattern as:

a. During high tides the three gates will be lowered to allow water to flow upstream. The gates will be raised prior to the following ebb tides to ensure adequate water level remains behind the gates.

b. The height of the Grantline Canal barrier will be lower than the Old River and Middle River barriers and this will ensure that water will flow from Old and Middle River into Grantline Canal to exit over the Grantline barrier.

CSPA-33

The Summary of Environmental Effect (Chapter 4, page 4.4) states that construction and operation of permanent gates would not result in any significant reductions in south Delta channel tidal level. This begs the question of what is significant. For example, Figure 4.1 (Minimum and Maximum Tidal Level for Grant Line Canal at Tracy Boulevard Bridge for Each Alternative) reveals that installation of permanent barriers would reduce the tidal level about 0.5 feet (maximum tide) and up to 1.0 feet (minimum tide). Examination of DSM-2 validation (Appendix D-24 – D-26) reveals that model simulations of tidal elevations in south Delta waterways are 0.5 foot to 1.0 foot higher than measured tidal elevations. Clearly, replacement of the temporary barriers with permanent barriers results in lower water elevation in the south Delta.

The DEIS/R doesn't include DSM-2 validation for salinity (EC) for interior south Delta stations. However, DWR's web sit does contain comparisons between current calibration and observed EC levels for interior south Delta stations. http://modeling.water.ca.gov/delta/studies/validation2000/map.html. Both 14-Day Moving Averages and 24.75 Hour Running Averages show substantial differences between simulated and observed EC levels. For example, simulated EC at Old River at Tracy Boulevard is often more than 1,000 μS/cm lower than field observation. Any representation regarding improved EC in the south Delta resulting from implementation of permanent barriers must be taken with a grain of salt. The DEIS/R must be revised to adequately discuss the potential errors in modeling and the relative probabilities of increased circulation, water levels and water quality.

CSPA-34

The modeling fails to account for resistance in the upper reaches of Old and Middle Rivers, especially during the two low tide cycles each month. As tidal flow pushes upstream, it encounters greater resistance until the net flow disappears and a null zone develops. Resistance can also be increased as channel geometry changes (i.e., increases in sedimentation or formation of sandbars). DWR modeling relies upon old data and, consequently, it is unlikely that the simulations accurately reflect current conditions. It also incorporates an assumed average salinity concentration for local agricultural

CSPA-35

discharges despite the fact that central Delta farmers discharge lower levels of salt than south Delta farmers. This has the effect of understating the salinity in return flows and the resulting salinity concentrations in south Delta channels. Further DSM-2 treats waterways as boxes and a comparison of actual channel dimensions with modeled dimensions reveals substantial differences, often as much as 20-25% (personal conversation, Jeff Stuart, NOAA Fisheries). These effects are likely to be exacerbated as agricultural diversions remove water from the channels. It is possible that, under these conditions, there would be no net flow down Grantline Canal. Indeed, considering that the modeling of agricultural diversion is based upon 30-day averages (and farmers don't irrigated on 30-day averages), it is likely that actual agricultural diversions would lead to channel depletion causing reverse flows down Old and Middle Rivers for significant periods. The DEIS/R must be revised to provide a candid in-depth discussion of how circulation will be assured under the project.

CSPA-35

There have been several suggestions that the use of low lift pumps would help ameliorate problems cause by lack of circulation. We note that Volume 1, Page 2-23, Gate Design and Construction Detail states that "[p]er a developing agreement with south Delta water users, three agricultural gates may include structural and wiring features that would allow the easy addition of low head pumps and piping, should this contingency prove necessary and appropriate in the future." However, this would raise problems of its own and is clearly outside the scope of the described project. As such, implementation of these structural and wiring features would represent an illegal commitment of resources in violation of CEQA.

CSPA-36

Another problem largely ignored in the DEIS/R is that reductions in San Joaquin River flow through the HOR barrier will make it more problematic for farmers along Tom Paine Slough, Paradise Cut and below the HOR barrier to irrigate. Even a brief loss of suction to a siphon would represent significant trouble and cost to a farmer. The description of potential impacts to Tom Paine Slough, Paradise Cut and upper Old River is seriously deficient and must be revised.

CSPA-37

Nor does the DEIS/R adequately discuss the quality of agricultural discharges and return flows and discharges of stormwater and wastewater from municipalities. Considering the rapid growth and increased pollutant loading from Tracy, Mountain House and adjacent communities, it is likely that water quality problems will be exacerbated during periods of low flow or stagnation. The DEIS/R must analyze the effects of these pollutant inputs on water quality.

CSPA-38

6. The DEIS/R Ignores Impacts to Aquatic Life from Construction and Operation of Permanent Barriers.

Although DFG trawls are no longer conducted in south Delta channels, these waterways once provided good habitat for Delta smelt. Oddly, there is no analysis of the impacts to aquatic life, including Delta smelt, in south Delta channels although the construction and operation of the permanent barriers and other structural components are likely to have

CSPA-39

adverse impacts. The DEIS/R must be revised to include a rigorous discussion of potential impacts to all life stages of all aquatic life in these waterways. CSPA-39

7. The DEIS/R Fails to Analyze the Impacts of Increased Winter Pumping on Delta Smelt.

As previously noted, the decline of pelagic species in the Delta has occurred during periods of increased export pumping and operation of the EWC. In fact, IEP studies have suggested that increased winter pumping is a contributing factor to recent declines of Delta smelt. Since the DEIR/S relies upon EWC, it must analyze and mitigate for adverse impacts to Delta smelt and other species caused by increase EWC winter pumping. CSPA-40

8. The DEIS/R Fails to Analyze Redirected Impacts from SDIP.

The scoping document for the SDIP identified the primary issues as: 1) current and proposed diversion rates impede the ability to divert irrigation water, 2) salinity standards, and 3) decline in Delta smelt and San Joaquin River salmon populations. The project's elements are defined as: 1) increased maximum export capacity at Clifton Court Forebay, 2) dredging in Old River to facilitate increased exports, 3) improved agricultural water delivery by construction of permanent operable barriers and local channel dredging, and 4) construction of a fish control structure at the head of Old River to reduce salmon losses at CVP and SWP export facilities.

However, increased export rates, the potential for increases in total export quantity and the inevitable altered hydrographs on numerous tributaries are likely to affect the entire Central Valley circulatory system. Many of the Delta's present problems derive from a failure to consider the redirected or system-wide impacts caused by previous projects. The DEIS/R must reevaluate the project's potential present and future redirected adverse impacts on: 1) the suite of water quality problems and pollutants in the Delta, downstream waters (Suisun and San Francisco Bays) and upstream tributaries (including the Trinity-Klamath system), 2) aquatic life populations in those waterbodies and 3) existing programs to meet water quality standards (i.e., TMDLs, Toxic Hot Spot cleanup programs, NPDES permits, etc.). CSPA-41

VII. The DEIS/R Fails to Adequately Analyze Cumulative Impacts Caused by the SDIP and Other On-going State and Federal Programs.

NEPA does not allow projects to be analyzed in artificial isolation. Instead, it requires discussion, in an EA or EIS, of the cumulative impacts of the proposed project in combination with "past, present, and reasonably foreseeable future actions." 40 C.F.R. § 1508.7; *see Native Ecosystems Council v. Dombeck*, 304 F.3d 886, 895-96 (9th Cir. 2002). That discussion cannot be "perfunctory," *Kern v. United States BLM*, 284 F.3d 1062, 1075 (9th Cir. 2002), but instead must provide "some quantified or detailed information; ... general statements about 'possible' effects and 'some risk' do not constitute a 'hard look' absent a justification regarding why more definitive information CSPA-42

could not be provided." *Id.* (quoting *Neighbors of Cuddy Mt. v. United States Forest Serv.*, 137 F.3d 1372, 1379-80 (9th Cir. 1998)). See also *Muckleshoot Indian Tribe v. United States Forest Serv.*, 177 F.3d 800, 811-12 (9th Cir. 1999); *City of Carmel-by-the-Sea v. United States DOT*, 123 F.3d 1142, 1161 (9th Cir.1997); *LaFlamme v. FERC*, 852 F.2d 389, 401-02 (9th Cir. 1988). CEQA similarly requires lead agencies to consider cumulative impacts, or the incremental effects of the proposed project viewed together with the effects of past, current, and probable future projects. Pub. Resources Code § 21083(b); CEQA Guidelines § 15130(a)-(b). CSPA-42

A cumulative impacts analysis must address "reasonably foreseeable" projects that may have a "synergistic environmental effect" combined with the project under review. *Tenakee Springs*, 915 F.2d at 1312-13. A project is "reasonably foreseeable" when formally proposed by government agencies. *Kern*, 284 F.3d at 1075-78; *Muckleshoot Indian Tribe*, 177 F.3d at 811-12. The state and federal government are required to evaluate their SDIP project in context of the numerous other projects presently contemplated during the thirty-year CalFed program.

Such analysis was particularly necessary here, for the SDIP is a component of a larger set of interrelated actions in the CALFED program, many of which involve sustaining damaging level of exports or increasing extraction of water from the Bay-Delta. In their CALFED programmatic FEIS/EIR, the Bureau and DWR described the SDIP project as part of a broader effort to increase water supply, and the CALFED agencies "recognized that many of their proposed actions were interrelated." BOR EA/IS for the Intertie, at 3-86. Likewise, in the OCAP ESA consultation process, the Bureau, FWS, and NMFS defined the SDIP, along with several other changes to CVP and SWP operations, as part of the same overall OCAP project. Cumulative impacts discussions cannot merely provide "general statements about possible effects." *Kern*, 284 F.3d at 1075; *see Neighbors of Cuddy Mt.*, 137 F.3d at 1379-80. Yet the SDIP DEIS/R cumulative impacts discussion contains only generalities and unsupported conclusions in violation of both CEQA and NEPA.

Even if it had prepared the cumulative impacts analysis NEPA requires, the Bureau and DWR could not have explained their deviation from the earlier CALFED EIS/EIR's conclusions, for those conclusions were right. As the CALFED EIS/EIR explained, the SDIP and related projects also designed to sustain or increase exports have significant potential impacts: CSPA-43

1. Export pumping causes "negative" flows, in which water flows toward the south Delta pumps rather than San Francisco Bay, for many months each year. Those "[r]everse flows…have contributed to the reduction of Bay-Delta productivity and of some Bay-Delta invertebrate and fish populations." *Id.* at 6.1-8, 6.1-42 (listing affected species, many of which are threatened or endangered);

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2. Export pumping pulls saline water into the Delta. "Sea-water intrusion into the Delta can be intensified by diversion of fresh water and the corresponding decrease of freshwater outflow from the Delta" *Id.* at 5.2-5;

3. Export pumping causes "salinity [that] adversely affects most beneficial uses. Bromides associated with sea water lead to the formation of DBPs in treated water." *Id.* at 5.3-11. Salinity intrusion also forces open water species that prefer non-saline habitat to move from Suisun Bay, which provides open-water habitat, into the Delta, which does not. *Id.*; *see id.* at 6.1-35 (explaining benefits of minimizing saline intrusion);

4. Export pumping kills thousands of fish. Those fish die through "direct loss at pumps, reduced survival when young fish are drawn out of river channels into the Delta, and reduced spawning success of adults when migratory cues are altered." Therefore, "most species are potentially affected" by pumping increases, "including chinook salmon, delta smelt, steelhead, and striped bass"—all of which are protected under federal law; CSPA-43

5. Export pumping for irrigating the west side of the San Joaquin Valley, where SDIP water will be transported, drains pollutants into the San Joaquin River and the Bay-Delta. *Id.* at 5.3-7. The CALFED Program EIS/R recognized that "Inadequate natural drainage, salt accumulation, and high selenium concentrations in agricultural return flow have been long-standing problems in this area and have intensified with the importation of irrigation water from the Delta." *Id.* at 6.1-11; and,

6. Export pumping threatens compliance with federal and state law, both of which require attaining water quality objectives and recovering endangered species populations. CALFED specifically acknowledged that "[t]here is concern whether a through-Delta conveyance approach," in which water is sucked through the Bay-Delta by the South Delta pumps, "can meet future water quality objectives and not adversely affect the recovery of threatened and endangered fish species." *Id.* at ES-17.

The CALFED EIR analysis confirms a common-sense notion: increasing the already-massive amount of water pumped out of a fragile aquatic ecosystem, at a time when other export-increasing projects are proposed, fish populations in that ecosystem are threatened or collapsing, and water quality already fails to meet federal and state standards, is likely to cause adverse environmental impacts. The SDIP DEIS/R's contrary conclusion is arbitrary and unreasonable given the historical facts in the Bay/Delta.

Further, the DEIS/R fails to identify and analyze a number of other existing and proposed projects that will have synergistic environmental impacts. Consequently, the DEIS/R is deficient, and should be withdrawn and revised to address and analyze these projects. CSPA-44

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1. **South Delta Temporary Barriers Project.** The DEIS/R begins with the clear assumption, that project effects from the Temporary Barriers project are part of the "baseline." As such they are not to be considered impacts of this project. However, a careful review of the environmental documentation for the Temporary Barriers project clearly identifies areas of concern that were to be studied. Examples include the effects of inundation of listed plants (such as the Mason's lileaopsis), by the operation of the barriers, and the accumulation of avian and fish predators at the barrier sites. These impacts have occurred and are the responsibility of the Temporary Barrier's Project to mitigate. Since the SDIP will replace the Temporary Barrier's Project, it becomes the responsibility of the SDIP to mitigate for these impacts.

CSPA-44

2. **City of Stockton Drinking Water Intake.** The City of Stockton is planning to construct an intake on the San Joaquin River near Potato Slough. The environmental documents for the project acknowledge entrainment and reduction of Delta outflow issues.

3. **Delta Improvement Project (DIP).** This CalFed program includes the SDIP, the Delta Cross-channel re-operation, the Through Delta Facility, the Frank's Tract modification, the Contra Costa Water District facilities, and the increases in export capability.

4. **CVP-SWP Intertie.** A connection between the CVP's Delta Mendota Canal and the SWP's California Aqueduct, which will permit 300 cfs to be pumped from the CVP to the SWP, and will allow up to 900 cfs to flow from the SWP to the CVP.

5. **Joint Point of Diversion and Coordinated Operating Agreement.** This item is currently before the SWRCB, who is currently conducting a Cease and Desist Order hearing on the subject of violations of internal Delta water quality standards by the CVP and SWP.

6. **Port of Stockton Water Quality Improvement Project.** This project proposes to inject oxygen into the zone of low DO in an effort to improve the water quality. Injection of pure oxygen into the water column is likely to create super saturated conditions detrimental to fish.

7. **San Joaquin River Recirculation** – This proposed recirculation program would move Delta water south, via the Delta-Mendota Canal, to the Newman Wasteway for release into the San Joaquin River.

NEPA also does not allow project to be analyzed in artificial isolation. Instead, it requires discussion of the cumulative impacts of the proposed project in combination with "**past**, present and reasonably foreseeable future actions." The past direct and indirect impacts to the aquatic habitat, ecology and fishery populations from state and

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federal project operations (including temporary barriers) have resulted in long-term cumulative adverse effects on present and future generations of aquatic life in the Delta. The DEIS/R is deficient for not candidly discussing project impacts on population trends for striped bass, sturgeon, American shad, Delta and long-fin smelt and other Delta species, including their food webs. Such an evaluation would encompass entrainment of all species of fish and lower tropic populations and provide an assessment of what cumulative impacts have occurred over the life of the projects and what can reasonably be expected to occur if the proposed project goes forward.

CSPA-44

VIII. The DEIS/R Improperly Relies on DSM-2 and CALSIM II, Flawed Analytical Tools that Fail to Adequately disclose the SDIP's Environmental Impacts.

The DEIS/R's analyses of water availability, environmental impacts, export and project effectiveness are predicated almost entirely on modeling output. While DSM-2 and CalSim-II may be useful tools, a complete dependence upon modeling is inappropriate as the models are incapable of providing the certainty that is required of an environmental document. Yet, throughout the DEIR/S, modeled predictions are presented as fact. There are no error bars that would indicate the range of uncertainty or accuracy (although the DEIS/R briefly admits that modeled surface elevations in the south Delta tend to be half a foot higher than actual levels). It is simply inappropriate to base major planning decisions on modeling output without discussing model resolution and probabilistic error rates.

CSPA-45

DSM-2 has never been peer reviewed and been heavily criticized. It's 2001 calibration and verification report has never been finalized and remains in an incomplete draft form. For example, DSM-2's salinity transport module is one-dimensional and has been calibrated exclusively using surface salinity. It ignores stratification and assumes that surface salinity over a channel cross-section is constant. Only a three-dimensional model can account for higher concentrations of salinity at depth, as has been documented by subsurface monitoring. Examination of the most recent verification of DSM-2 water quality modeling reveals substantial differences between actual and predicted values. For example, as previously discussed, salinity at Old River at Tracy Road 14 Day Moving Averages and 24.75 Hour Running Average Plots: 1 April 1900 through 30 September 1994 and 1 October 1994 through 30 September 1999 show substantial discrepancies; often more than 1,000 µS/cm. http://modeling.water.ca.gov/delta/studies/validation2000/qual-ec/rold059Avg.html. It is clear that any claimed improvement from the project implementation is lost within the "noise" of the model. Consequently, proponent claims that the project will improve electric conductivity by a precise amount are without creditable foundation.

CALSIM II modeling is similarly flawed. CalSim II is not an accurate model design to evaluate environmental impacts of the SDIP-OCAP and it has not been sufficiently calibrated for this use. DWR and BOR have been told this by other scientists repeatedly. CalSim-II is being used in every significant water planning process now underway in California. When the outcome of a planning process like this one hinges on modeling

results, even partially, the assumptions and assertions that lead to these results should be accurate and transparent. Indeed, the failure to utilize an accurate model to assess the environmental impacts renders the DEIS/R's analysis inadequate. *See Berkeley Keep Jets Over the Bay v. Board of Port Commissioners*, 91 Cal. App. 4th 1344 (2001) (finding that agency improperly relied on outdated air quality model to assess the impact of toxic air contaminants.)

Given the paucity of available empirical water quality data, evaluations of project impacts on water quality and flow are dependent upon flow and water quality modeling efforts. However, hydrodynamic modeling by any known technique is not an exact science. Models are easily manipulated and should not be employed as substitute for hard data or common sense. Subtle changes in coefficients or assumptions can dramatically alter output. Input variables are critical. Proper calibration and verification is crucial. Even then, models are only an idealization of actual field conditions and must be used with caution to ensure that underlying assumptions hold for the site-specific situation being modeled. For example, the DEIS/R's assumption that future water flow patterns will be similar to those that have occurred in the past is clearly inconsistent with the body of literature on the effects of global warming on California water flows. The use of average values in modeling ensures results that are generally unprotective of specific water quality criteria. Virtually all models, even those subject to peer-review, have significant rates-of-error, often greater than plus or minus 50%. CSPA-45

The DEIS/R fails to identify and discuss:

1. Model input variables; i.e., channel geometry, surface and bottom temperature and density, constituent concentration, velocity, friction factors, stratification, etc.
2. Calibration and verification of models; i.e., adequacy of baseline data for various constituents and how closely output conforms to actual field measurement.
3. Assumptions used in modeling flow and water quality. For example, CalSim II studies for the SDIP have assumed that Stanislaus River operations are in accordance with the USBR's New Melones' Interim Operation Plan. However, since the Interim Operation Plan cannot be met during drought cycles, the model cannot accommodate the lack of New Melones' storage and reduced instream flow during consecutive drought years.
4. Foreseeable future changes: i.e., loss of storage capacity due to sedimentation and the continuing 80 year decline in snowmelt as a percentage of yearly runoff.

The independent peer-review report titled *A Strategic Review of CALSIM II and its Use for Water Planning, Management, and Operations in Central California* that was submitted to the California Bay Delta Authority Science Program in December 2003 documented numerous problems with the model. (Attachment 6) The report stated that "[I]n our opinion CalSim II has not yet been calibrated or validated for making absolute predictions values. Report at 6.1, absolute Values or Comparative Results. It further stated that the panel is skeptical of the suggestion that, while the model might not

generate a highly reliable absolute prediction because of errors in model specification and /or estimation, it might produce a reasonably reliable estimate of the relative change in outcome.

Among the many weaknesses noted by the peer-review panel are:

1. The model is too complex and did not handle particular components of the system with sufficient detail.
2. The mode provides limited and inadequate coverage of non CVP or SWP water and of the California water system south of the Delta.
3. The model assumes that facilities, land-use, water supply contracts and regulatory requirements are constant over this period, representing a fixed level of development rather than one that varies in response to hydrologic conditions or changes over time.
4. Groundwater has only limited representation in CalSim II.
5. Groundwater resources are assumed infinite, i.e., there is no upper limit to groundwater pumping.
6. The linear programming model considers only the current month, and hence CalSim II operating rules are required to determine annual water allocations, to establish reservoir carryover storage targets, and to trigger transfers from north of Delta to south of Delta storage.
7. Better quality control is needed both for the model and its current version and input data. Procedures for model calibration and verification are also needed. Currently many users are not sure of the accuracy of the results. A sensitivity and uncertainty prediction capability and analysis is needed.
8. Need improved ways of altering the model's geographic scope and resolution and its temporal resolution to better meet the needs of various analyses and studies.
9. Need to improve the model's comparative as well as absolute (or predictive) capabilities.
10. CalSim II needs better capabilities for analyzing economic, water quality, and groundwater issues.
11. Need improved documentation explaining how the model works, its assumptions, its limitation, and its applicability to various planning and management issues.
12. DWR and USBR have not provided a centralized source of support for CalSim II. More training for CalSim II is needed. There is a need for more people who can run CalSim II. There is a need for a well-publicized user group. A more extensive users' guide is needed.
13. Improved capabilities are needed for real-time operations especially during droughts, gaming involving stakeholders during a simulations run, handling of evapotranspiration and agriculture demand changes over time, water transfers, Delta storage, carryover contract rights, refuge water demands and more up to date representation of Feather River, Stanislaus River, Upper American River, San Joaquin River and Yuba River operations.
14. Need an improved graphical user interface to facilitate input of model data, setting of model constraints and weights, operating the model, and displaying and post analysis of model results.
15. Need to be able to change the model time period durations for improved accuracy of model results.

Many of the above-enumerated weaknesses of CalSim II were also identified in the

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survey report from the University of California at Davis. Ferreira, et al. 2003. Additional flaws in the statistical basis for CalSim II was revealed in a recent study titled *Analysis of CALSIM's Statistical Basis* by Arve Sjovold, 28 December 2005.

Additionally, an expert panel sponsored by the CalFed Science Program and the California Water and Environmental Modeling Forum recently reviewed the CalSim II model representation of the San Joaquin River. http://science.calwater.ca.gov/workshop/calsim_05.shtml. The January 2006 report titled *Review Panel Report San Joaquin River Valley CalSim II Model Review* found that the model:

CSPA-45

1. Used incomplete data sets.
2. Underestimated salinity.
3. Underestimated releases of water from New Melones Reservoir that leads to overestimates of water availability to entities dependent on New Melones storage.
4. Documentation and testing was not sufficient to provide users or model results with a complete reasonable basis for understanding the accuracy and limitations of results.
5. Did not include groundwater.
6. Took loss and return flow rates from older model without re-examination and scrutiny.
7. Failed to update Westside water demands.
8. Failed to include error rates.

Since the San Joaquin River module sets boundary conditions for the Delta, errors are likely to be carried over to the rest of CalSim II's output.

Another recent critique of CalSim II titled *An Environmental Review of CalSim-II, Defining "Full Environmental Compliance" and "Environmentally Preferred" Formulations of the CalSim-II Model* by Jeffrey T. Payne and Dr. David R. Purkey of the National Heritage Institute, November 2005, (Attachment 7) was prepared in order to examine the transparency of CalSim-II and to measure the current version of the model against two important standards. This report is purposely focused on two specific questions.

1. Does the representation of environmental regulations and objectives in CalSim-II represent full compliance with current legal requirements?
2. Can CalSim-II be used to plan for water management alternatives associated with improve environmental outcomes and habitat restoration?

The NHI report does not deal with any of the other CalSim-II issues identified in the CalSim-II Peer Review. All of the issues identified in the review cause flaws in the results displayed in the SDIP EIR/S. The Natural Heritage Institute (NHI) was hired to carry out the technical analysis needed to determine whether CalSim II can answer the above questions. The first question was posed in order to assure that the current

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formulation of CalSim-II is consistent with all current environmental regulations on California's water resources.

CalSim-II attempts to characterize all components of the regulatory structure. This report reviewed a significant but limited subset of these regulations. Those reviewed were selected based on the experience of a panel of environmental experts. This selection does not imply that characterizations of other regulations in CalSim-II meet the full compliance standard. In fact, it would be very valuable for the SDIP proponents to complete a similar analysis on the model characterization of all existing environmental regulations. With regards to the Full Compliance standard, NHI identified three areas where the assumptions and assertions in the current version of CalSim-II were at odds with the expert panel's interpretations of existing environmental regulations:

- **CalSim-II uses information not available to real time operators of the California water system.** This allows CalSim-II to relax environmental standards earlier than is the case in actual operations. As a result, the model under-allocates water needed to satisfy existing environmental regulations; in turn, the model makes that water available for export to south of Delta contractors or other uses.
- **CalSim-II is not faithful to Federal law that allocates water to meet ecosystem restoration objectives.** The 1992 Central Valley Project Improvement Act calls for 800 TAF of water to be allocated for environmental regulation and the logic of CalSim-II does not fully honor this requirement.
- **CalSim-II currently includes no requirement to maintain a minimum flow in the San Joaquin River below Friant Dam**, contrary to a court ruling requiring such flows. This allows for allocation of water to urban and agricultural uses in the Friant Service area rather than allocating that water to maintain water in the San Joaquin River.

CSPA-45

For each of these deficiencies, this report proposes a series of actions that can be taken in order to improve the performance of the model. These should be considered the minimum steps required to meet the Full Compliance standard for the regulations reviewed as part of this effort.

The second question is motivated by the SDIP proponent's historic failure to protect and restore the Sacramento-San Joaquin watershed as legally required. Long-term monitoring of the system suggests that threatened and endangered fish populations are in serious jeopardy. A prudent approach to water management planning would use modeling tools that evaluate the impact of various environmental regulations on water deliveries. CalSim-II has not been crafted to include this flexibility.

As examples of the kinds of new regulations that may need to be considered before CalSim-II can be adequately used in SDIP, the expert panel identified the following regulatory changes that the model needs:

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- CalSim-II should have the flexibility to shift salinity compliance points to allow more targeted tributary restoration action. For example, changing the location of the Vernalis salinity standard may reduce the burden on the Stanislaus River.
- CalSim-II should have the capacity to shift required salinity profiles in the Delta (X2) to benefit Delta-dependent species.
- CalSim-II should allow for the prioritization of tributary environmental objectives, such as targeted operation of the Nimbus/Folsom system for the American River.
- CalSim-II should allow for the modification of Delta export restrictions to target improvements in the Delta ecosystem.
- CalSim-II should not count, towards the satisfaction of environmental regulations, water that otherwise would have been released as part of unavoidable reservoir spills.
- CalSim-II should allow for the definition of flow requirements that result in periods of spring high-flow and summer low-flow conditions in Central Valley rivers.

CSPA-45

These changes are consistent with the need to comply with existing environmental laws (CEQA, NEPA, ESA) through the evaluation of alternatives, including identifying those that are the most environmentally beneficial. Given the historic difficulty associated with returning the San Francisco Bay/Delta to a viable ecosystem, these changes would allow policy makers to engage in more thoughtful alternatives analysis.

Having completed this environmental review of the CalSim-II model the authors of the attached review say, "we are left with the profound impression that it is not a tool that can – under its current formulation – fully address the legally required water management objectives. CalSim-II is, after all, a tool that has been designed to determine how best to operate the state's hydraulic infrastructure in ways that maximize the satisfaction of contractual demands. This reality is a result of both the history of water model development in California and a general analytical approach that has held sway for decades in the field of water resources planning and analysis. This approach holds that the environment is a constraint on system operations, not one of the objectives for which the system should be managed. In order to create a tool that can investigate water management innovations designed to comply with the law and restore the environment, it is not simply a matter of adjusting a few input parameters. Instead, a reformulation of the model along the lines described in this document is needed."

This philosophy of including the environment as an objective in water resources management is gaining credence around the world. Unfortunately, in California we cannot get to this point if we limit ourselves to the current version of CalSim-II. In any event, CalSim II is an inadequate tool for SDIP alternatives analysis as it cannot be adjusted to solve for improved environmental conditions; it can only tell us how to maximize exports. In other words, CalSim II cannot measure environmental impact above baseline standards; it can only measure the impact of improving the environment on water export amounts. Project proponents have also improperly employed CalSim II results to represent precise predictions regarding potential impacts although it has not yet

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been calibrated or validated for making absolute predictions values. That is not acceptable NEPA/CEQA environmental analysis. CSPA-45

Finally, we note that the U.S. District Court for the Northern District of California recently issued a Temporary Restraining Order in an action brought by the Planning and Conservation League against the BOR enjoining construction of the Intertie because, in part, the BOR failed to disclose the short-comings of the data or models. Here, the DEIS/R for the SDIP also fails to disclose error-bars and numerous other limitations in the modeling. The DEIS/R also inappropriately uses the model for predictive rather than comparative purposes, especially in addressing whether the project would meet specific water quality standards, maintain specific tidal levels, etc.

IX. The DEIS/R's Mitigation for Project Impact is Inadequate and Fails to Comport with Legal Requirements.

As the California Supreme Court has repeatedly emphasized, "the chief goal of CEQA is mitigation or avoidance of environmental harm." Laurel Heights I, 47 Cal.3d at 403; see Goleta II, 52 Cal.3d at 564. CEQA requires public agencies such as the County to implement this goal through a three-step process. First, the County must accurately identify, analyze, and disclose the adverse impacts of a Project. Stanislaus Natural Heritage Project v. County of Stanislaus (1996) 48 Cal.App.4th 182, 196-97. Second, the County must "identify mitigation measures for each significant environmental effect." Guidelines § 15126.4(a)(1)(A). Finally, the County must actually adopt such mitigation measures, unless it is infeasible to do so. § 21002.1(b) ("Each public agency shall mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever it is feasible to do so."); Citizens for Quality Growth v. City of Mt. Shasta (1988) 198 Cal.App.3d 433, 440-41.

"Mitigation" as defined in CEQA includes:

1. Avoiding the impact altogether by not taking a certain action or parts of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
3. Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. Compensating for the impact by replacing or providing substitute resources or environments

CEQA Guidelines section 15370. This definition of the term "mitigation" adopts the definition contained in the federal NEPA regulations. The federal definition is used so that this term will have identical meanings under NEPA and CEQA for projects that are subject to both acts.

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The DEIS/EIR proposes a novel set of "Mitigation Measures" for the impacts associated with the proposed actions. As discussed below, these actions will not reduce or avoid significant project impacts, but instead seem to totally rely upon the Environmental Water Account (EWA) and fail to meet the requirements of either NEPA or CEQA, as they are contingent on other actions outside the scope of, and beyond the control of, this project.

This deficiency is clearly evident in the text taken from page 6.1-2 of the DEIS/EIR: CSPA-46

1. *Avoidance Measure.* All pumping at SWP Banks that is in excess of the existing permitted capacity from November 1 through June 30 will be tracked by EWA and SWP/CVP operations staff. When EWA actions reduce exports for fish protection during this period, any pumping at SWP Banks that is above the existing permitted capacity will be reduced without cost to the EWA account, limited only by the amount of pumping reduction funded by the EWA (i.e., maximum of 100% match with EWA action).

This suggests that the proponents agree not to use the excess "Banks" pumping plant capacity to pump above the existing permitted capacity, only if, and limited by the size of, the EWA actions at that time. However, it would appear to reserve the right to exceed the permitted capacity, if any remained, after the EWA action was taken into account.

In other words, the project proposes to exceed the "existing permitted export capacity" when it suits them. Clearly this is not mitigation for project impacts, but would in fact exceed the limits of the EWA, the very measure the project relies upon to reduce project impacts.

2. *Crediting Measure.* From November 1 through March 31, pumping reduction credits will be given to the EWA (ranging from 10% to up to 30%) for all non-EWA pumping that is above the existing permitted capacity. Under this mitigation component, for each 100 taf of non-EWA pumping above the existing permitted capacity, a pumping reduction credit, ranging from 10 taf to 30 taf, could be used by EWA to reduce pumping during periods of high fish density. CSPA-47

This measure appears to offer a 1:10 (or a 3:10) exchange for non-EWA pumping above the existing permitted capacity, between November 1 and March 31. Again, the project proposes to permit "non-EWA pumping above the existing permitted capacity" as it suits them.

The limitation of actions to mitigate for losses that may occur during the May 16 to May 31 pumping, which is subject to actions by the EWA, is not mitigation. There is no certainty to the proposed mitigation and it is subject to an action that is unrelated to this project. As such, it has not met the test of mitigation, since it is not available without other independent actions. Further, the decision maker cannot with any certainty

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determine the level of mitigation being proposed, since the nature of the external actions cannot be determined.

Given the definition from CEQA, it is difficult to see how the various proposed mitigation measures in the DEIS/R are valid. For example, "Mitigation Measure Fish–MM–1 " is premised on another action by an unrelated event i.e., the actions of the EWA. Nowhere in the definition is the mitigation, of acknowledged impacts, made subject to contingencies based on an unrelated event. The DEIS/R also fails to make provision for mitigation in the event EWA actions are not taken to reduce entrainment. As a result, MM-1 relies entirely on an existing program, the EWA, to mitigate new impacts associated with the SDP. The EWA has already proven unsuccessful at protecting aquatic species in the Delta. This existing program cannot satisfy the requirement that impacts associated with the SDIP be mitigated, especially since EWA winter pumping has been targeted by the IEP POD studies as a potential cause of the loss of Delta smelt in the winter. Finally, studies (or initiatives) are not mitigation. **CSPA-48**

Mitigation Measure Fish-MM-3: Minimize Entrainment Losses of Delta Smelt Associated with Increased SWP Pumping (Volume 1 – Page 6.1-96) states that "[t]he SWP has proposed increased funding through an amended Four-Pumps Agreement to support SDIP mitigation measures, including an expanded EWA. In the absence of the EWA, that increased funding would continue to be available to DFG to mitigate impacts of the SDIP through purchases of water to reduce pumping during critical periods for fish or other mitigation strategies developed through the adaptive management process." The funds in the Four-Pumps Agreement are mitigation for on-going losses of fish the result of the existing operations of the SWP. Why would those funds be used to then permit additional damage? Those funds are (or should be) fully encumbered for existing loss mitigation. It is the worst form of chicanery to propose the use of these funds to permit the projects to increase their impacts on the populations of fish we are trying to preserve. **CSPA-49**

Impact Fish-68: Operations-Related Increases in Entrainment Losses of Splittail (Volume 1 – Page 6.1-99) acknowledges spawning on the San Joaquin River, and an increase of up to 40% in entrainment (10 to 20% in other years), but concludes that no mitigation for these increases is warranted due to the Sacramento River production, and the fact that they occur in the drier years. The loss is acknowledged, the impacts can be avoided or minimized, and the mitigation is feasible but proponents simply decided that they just don't want to do it. This is unacceptable and in violation of CEQA and NEPA. **CSPA-50**

The bottom line is that the DEIS/R relies upon the EWA for mitigation despite the complete lack of credible studies documenting the success of the EWA in reducing adverse impacts from water exports. Indeed, the decline in Delta fish species has occurred and accelerated concurrent with increased exports and operation of the temporary barriers. As an added insult, the DEIS/R states that mitigation measures would be carried out "if necessary." The DEIS/R must clearly define precise mitigation measures that will be established and the specific assurances that will ensure that the mitigation measures will be successfully implemented. **CSPA-51**

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Thank you for considering these comments. Please place us on all lists to receive the FEIS/R, notice of hearing dates and the Notice of Determination. We reiterate our request that the comment period be extended another 30 days in order to allow sufficient time to review and analyze the 2,788 pages of this document.

Sincerely,

Bill Jennings
Chairman & Executive Director
California Sportfishing Protection Alliance

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CSPA SDIP Comments Attachment 1

Comments on

Draft Environmental Impact Statement Environmental Impact Report
South Delta Improvement Program

Prepared by

Bureau of Reclamation for the U .S. Department of the Interior and the Department of Water Resources for the State of California Resources Agency'

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February 5, 2006

The Department of Water Resources (DWR)/US Bureau of Reclamation (USBR) (DWR/USBR, 2005) draft EIS/EIR states,

> *"The general purposes of the SDIP were identified by the Agencies, as follows:*
>
> *(c) increase water deliveries and delivery reliability for State Water Project (SWP) and Central Valley Project (CVP) water contractors south of the Delta and provide opportunities to convey water for fish and wildlife refuge purposes by increasing the maximum permitted level of diversion through the existing intake gates at Clifton Court Forebay from 6,680 to 8,500 cubic feet per second.*

Basically, in this draft EIS/EIR DWR/USBR have attempted to justify increasing the amount of South Delta water exported by the Central Valley Project (CVP) and State Water Project (SWP).

The Draft EIS/EIR further states.

> *"The impact assessment focuses on benefits and impacts to hydrology, water quality, fish resources, recreation, vegetation and wildlife, ..."*

We are familiar with current water quality issues in the South Delta and the generally inadequate understanding of how the current South Delta water exports through the CVP and SWP impact Delta water quality. **We find that the draft EIS/EIR for the proposed expanded export of South Delta water is significantly deficient in providing an adequate, reliable discussion of the potential water quality impacts of the proposed project.**

At the time of the notice of preparation of this EIR/EIR we were highly involved in a study of the low dissolved oxygen (DO) problem in the San Joaquin River (SJR) Deep Water Ship Channel (DWSC). We were the coordinating principal investigators for a $2-million CALFED-supported study of the characteristics of the low DO problem, factors

influencing the DO in the DWSC, the sources of the oxygen demand, and potential approaches for controlling the concentrations of DO in the DWSC to eliminate violations of the DO water quality objective (WQO). It was through those studies that we found that the CVP and SWP exports of South Delta water were a major factor contributing to the low-DO problem in the SJR DWSC.

We developed a SJR DWSC low-DO "Issues report" for the SJR DWSC TMDL Steering Committee that identified and described many of the issues that needed to be addressed as part of studying the nature of the DWSC low DO problem (Lee and Jones-Lee, 2000). We also developed a Synthesis Report summarizing and integrating the results of the approximately $4-million of studies conducted by about a dozen investigators on the DWSC low-DO problem (Lee and Jones-Lee, 2003a). That synthesis report also presented our findings on the impact of SJR flow in the DWSC on DO depletion below the WQO. Of particular importance were the results of the DWR D-1641 SJR cruises, in which DO was measured at about biweekly intervals from late summer to early winter at the Rough and Ready Island DO monitoring station, and the USGS monitoring of SJR DWSC flow. Lee and Jones-Lee (2003a) reported that when the SJR DWSC flows were on the order of a few hundred cfs, severe low-DO problems occurred in the DWSC. However, when the SJR DWSC flows were above about 1,500 cfs there were no DO WQO violations in the DWSC.

Since completion of the synthesis report we have continued to examine the relationship between SJR DWSC flow and DO WQO violations, and have issued a series of reports of our findings (Lee 2003a, b, 2005a,b; Lee and Jones-Lee 2003a,b,c; 2004a; 2005a,b,c). Those follow-up studies have confirmed that low SJR DWSC flow is a major factor contributing to violations of the DO WQO in the DWSC. It has also been noted that the export of South Delta water through the USBR CVP and DWR SWP is the primary cause of low SJR flow in the DWSC. Basically those projects at times, draw most of the SJR Vernalis water into the South Delta through the Head of Old River to the CVP and SWP export pumps. Figure 1 presents a map of the Delta area of concern in the Delta Improvement Package.

When the SDIP request for comments on the CEQA scope was issued, it was with this background that Lee (2002) submitted comments on the water quality issues that needed to be addressed in the EIS/EIR. Lee (2002) stated,

> *"A credible, certifiable EIR/EIS for the SDIP should include a detailed evaluation of the full range of water quality problems caused by the South Delta diversions and how they will be corrected as part of implementing the SDIP."*

CSPA-52

Lee (2002) also stated,

> *"As discussed in these reports, the South Delta currently has significant water quality problems of low DO, currently-used pesticide caused aquatic life toxicity, legacy organochlorine pesticide excessive bioaccumulation in edible fish which are a threat to cause cancer in people who use the fish as food, excessive*

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nutrients and elevated salts and TOC. Dr. Anne Jones-Lee and I have just completed a review for the Central Valley Regional Water Quality Control Board

CSPA-52

Figure 1

on the organochlorine pesticide and PCB excessive bioaccumulation problems in Central Valley fish, which shows that Old River and Paradise Cut fish have excessive concentrations of legacy pesticides that are a threat to the health of those who use these fish as food."

CSPA-52

There is no doubt that the existence and operation of the permanent operable barriers will have water quality impacts, many of which are not currently recognized.

A number of key factors will ultimately govern how the operable barriers are operated. Salinity is only one of those factors. Others include:

- potential impacts on the low-DO problems,
- excessive bioaccumulation of mercury, organochlorine "legacy" pesticides, and PCBs that accumulate in fish and other organism to threaten the health of those who eat those organisms,
- aquatic life toxicity, and
- other pollutants in several of the South Delta channels.

CSPA-53

Lee and Jones-Lee (2004b) have provided a comprehensive review of Delta water quality issues that need attention as part of evaluating the potential impacts of the SDIP.

A review of the "Water Quality" section of the draft EIS/EIR shows that the draft EIS/EIR does not conform to CEQA requirements of providing full disclosure of potential environmental impacts of the proposed SDIP. Instead, consideration of water quality impacts has been essentially limited to potential impacts on salinity in South Delta Channels. The current modeling of salt, a conservative parameter, does not address the behavior and impacts of non-conservative pollutants such as pesticides that cause aquatic life toxicity. While there is mention of low-DO situations in some South Delta channels, the discussions are superficial and inadequate to inform the readers of the draft EIS/EIR about the potential impacts of the proposed increased export of water on the low-DO situation in South Delta channels.

CSPA-54

The draft EIS/EIR also fails to address the large number of other water quality issues in the South Delta that have been impacted by the current water exports by the CVP and SWP and that will be exacerbated by the increased water exports that will occur if the proposed SDIP is approved. Further, there is no discussion of the impacts of the proposed operation of the operable barriers that are part of the proposed SDIP. As indicated above, the Lee and Jones-Lee (2004b) review of Delta water quality issues provides a discussion of the lack of understanding of impacts of the CVP and SWP on the large number of water quality issues that exist in the Delta overall and especially the South Delta. Many of the Delta channels have been listed as US EPA Clean Water Act (CWA) Section 303(d) impaired due to excessive concentrations of variety of pollutants compared to WQOs.

CSPA-55

CSPA-56

DWR and the USBR have not complied with SWRCB (2000) Water Rights D-1641 requirements to reliably delineate the potential impacts of exporting South Delta water on Delta water quality. Lee and Jones-Lee (2004b) observed that those agencies have

apparently convinced the IEP managers that the proposed exports will not cause any water quality impacts and that there is no need to conduct a comprehensive water quality monitoring/evaluation in the Delta to assess the impacts of the exports. The fallacy of that approach was clearly brought to light in the findings of an independent expert panel review of the current pelagic organism decline (POD) (POD Review, 2005). The POD has resulted in a crash program to attempt to quickly gather information to define and understand the potential combined impacts of CVP and SWP exports on POD. Lee and Jones-Lee (2005a) discussed the problems with that approach, which stem from the subtle nature of potential impacts of exports on water quality.

During the past six months we have been developing a San Joaquin River Water Quality Issues Report (Lee and Jones-Lee, 2006) as a follow-up to our Delta Water Quality Issues report (Lee and Jones-Lee, 2004a). Table 1, taken from Lee and Jones-Lee (2006), lists the current TMDLs for the SJR. The Lee and Jones-Lee (2002, 2006) SJR water quality issues reviews also list a number of potential water quality issues that could readily lead to CWA section 303(d) listings for the SJR that would require TMDLs to be developed to control the loads/conditions that are causing WQO violations.

WQO violations that occur in the SJR at Vernalis can also contribute to WQO violations in the South Delta as a result of the CVP and SWP export projects' drawing most of the SJR Vernalis water into the South Delta either through the Head of Old River or through Turner Cut. As discussed by Lee and Jones-Lee (2006), this results in the carrying of SJR water quality problems into the South Delta and to some extent into the Middle Delta. The proposed SDIP will amplify the water quality impacts of the SJR watershed as well as contribute locally derived pollutants. A credible EIS/EIR for the SDIP must include an evaluation of the potential impacts of the proposed increase in exports and an assessment of the impacts of the operation of the operable barriers on Delta water quality. This will require a large-scale, focused, comprehensive, multi-year monitoring and evaluation program, with particular attention to Delta aquatic life resources, to gather the background information needed to begin to reliably assess the potential impacts of the proposed SDIP on Delta water quality. The current POD studies are not focusing on many of the issues that will need to be addressed in order to develop a credible EIS/EIR for the SDIP.

CSPA-57

Because of this major deficiency, the current draft EIS/EIR is inadequate and rejected as failing to comply with CEQA requirements. DWR and USBR should be required to fund a multi-year monitoring/evaluation program delineated by an independent panel of experts that would be responsible for organizing the studies, overseeing the implementation of the studies, reviewing results as they are developed, and reviewing the appropriateness of the draft reports and conclusions. This study program review should be conducted in a manner that provides the public with adequate opportunity to be informed of the progress and findings of the review and to provide and have considered comments on the approach and findings. It will take several years of study and assessment to obtain an adequate information base upon which to develop an EIR/EIR that could reliably assess the water quality impacts of the then proposed SDIP involving

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increased CVP and SWP exports of South Delta water, and the potential consequences of various methods of operable barrier operation approaches. CSPA-57

Table 1. San Joaquin River Watershed TMDLs
Updated from Lee and Jones-Lee (2002)

Current (Active)
Selenium
Salinity at Vernalis, Total Dissolved Solids (TDS), Electrical Conductivity (EC)
Boron
Organophosphorus (OP) Pesticides (Diazinon, Chlorpyrifos)
Oxygen-Demanding Substances (BOD/Algae, Ammonia, Organic N)
Pending (to be Developed)
Organochlorine "Legacy" Pesticides (DDT, Chlordane, Dieldrin, Toxaphene, etc.)
PCBs
Dioxins/Furans
Mercury
Sulfate (Bioaccumulation of Mercury)
Pathogen-Indicator Organisms, *E. coli*, Fecal Coliforms
Toxicity of Unknown Cause
Salinity Upstream of Vernalis
Potential Future (to be Evaluated)
Nutrients, Excessive Fertilization (Nitrogen and Phosphorus Compounds)
High pH, Low DO caused by Excessive Fertilization (Photosynthesis/Respiration)
Alternative Pesticides to OP Pesticides including the Pyrethroid-Based Pesticides that are Causing Water Column and Sediment Toxicity
PBDEs.
Total Organic Carbon, and other chemicals such as Bromide that develop into Disinfection Byproducts (Trihalomethanes) in Treated Domestic Water Supplies
Excessive Sediment, Erosion, Turbidity
Herbicides (Toxicity to Algae)
Aquatic Sediment Toxicity, (Pesticides, Nutrients/Algae/Sediment Ammonia, Heavy Metals, PAHs and other Chemicals)
Unrecognized Pollutants
Pharmaceuticals and other Unregulated Chemicals Discharged by Confined Animal Facilities (dairies, feedlots, etc.) and domestic wastewaters

A key part of the monitoring/evaluation program should be an assessment of the mitigation that DWR/USBR would need to implement to eliminate, to the maximum extent practicable, the adverse water quality and aquatic life impacts of the current export of South Delta water for the projects.

One of the conditions that also need to be evaluated in this program is the beneficial impacts of reduced South Delta exports by CVP and SWP from the current conditions. CSPA-58

Incorporation of this approach is justified since the current water export rates were not based on a reliable assessment that they could be practiced without adverse impacts on Delta aquatic ecosystems. CSPA-58

The draft EIS/EIR Chapter 5 Section 3 presents DWR/USBR's assessment of SDIP impacts on "Water Quality". The introduction to that discussion states,

> *"5.3 Water Quality*
>
> *Introduction*
>
> *The maintenance of beneficial uses of Delta waters depends on several key water quality variables (e.g., salinity, water temperature, dissolved oxygen, and dissolved organic carbon) in Delta waters. This chapter describes these key water quality variables, the objectives associated with maintaining beneficial uses of Delta waters, existing Delta water quality conditions, and impacts of the SDIP project on selected water quality variables in Delta channels and exports."* CSPA-59

That chapter then reviews the perceived impacts of the SDIP increased exports and barrier operations on "Water Quality." It is stated in Chapter 5,

> *"Summary of Significant Impacts*
>
> *There are no significant impacts on water quality as a result of implementation of the project alternatives. Operation of the tidal gates provides substantial improvements in salinity in the south Delta channels. There are occasional slight increases in salinity occur in the CCWD intakes and at SWP Banks, but these are less than 5% of the baseline values. The water quality benefits are less under Alternative 4B, which includes constructing only the head of Old River gate."*

In the subsequent section it is stated,

> *"Affected Environment*
> *Delta waters serve several beneficial uses, each of which has water quality requirements and concerns associated with it. The Delta is a major habitat area for important species of fish and aquatic organisms, as well as a source of water for municipal, agricultural, recreational, and industrial uses. Dominant water quality variables that influence habitat and food-web relationships in the Delta are temperature, salinity, suspended sediments (SS) and associated light levels for photosynthesis, DO, pH, nutrients (nitrogen and phosphorus), DOC, and chlorophyll. Other key constituents that are monitored in water for municipal are bromide (Br–) concentrations (measured in raw water) and concentrations of THMs or other chemical by-products formed during the disinfection of water (measured in treated water).*

That presentation of so-called water quality impacts illustrates one the fundamental flaws of DWR/USBR's approach to water quality evaluation. The focus of the DWR and

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USBR discussion is on selected aspects of municipal and agriculture uses of Delta waters. Those who understand water quality know that water quality impacts of a proposed project must be evaluated from all perspectives, as they relate to the impairment of the beneficial uses of a waterbody. DWR/USBR considers water quality as being limited to the quality of the water that is exported. These agencies largely ignore the vast arena of conventional water quality issues associated with the impacts of pollutants on the beneficial uses of a waterbody.

The federal congress defined water quality in the Clean Water Act in terms of all designated beneficial uses of a waterbody. By definition in the CWA, the exceedance of a water quality standard/objective is an impairment of beneficial uses of a waterbody that must be corrected. As discussed by Lee and Jones-Lee (2004b) there are highly significant water quality problems in the Delta that are caused by known chemicals that that occur at concentrations above the applicable WQO for the Delta channels. Most importantly with respect to Delta water quality, water manipulation/diversions/exports do impact how pollutants in the Delta impact aquatic life-related beneficial uses of Delta waters. Changing the flow of water in the Delta will impact the location and magnitude of pollutant impacts on aquatic life and other beneficial uses of Delta waters. **CSPA-59**

An example of this can be seen with the potential impacts in the SJR sulfate that is brought into the South Delta by the CVP and SWP. The concentration of sulfate affects the methylation of mercury. The CVRWQCB (2005) has indicated that the manipulation of flows in the South Delta as part of DWR-proposed operation of the operable barriers could affect the distribution of sulfate in the South Delta channels which, in turn, could affect the bioaccumulation of mercury in edible fish. There is need to evaluate how the operation of the South Delta operable barriers that are scheduled to be installed and operational by 2009 could affect the bioaccumulation of mercury in South Delta fish.

In testimony before the SWRCB hearing on the DWR and USBR draft Cease and Desist Order to prevent violations of the South Delta Salinity standard established as part of D-1641, Lee (2005c) indicated that DWR, as part of developing the operation of the South Delta operable barriers, will need to expand its scope of evaluation of barrier operation to include not only EC but also the impact of sulfate on mercury bioaccumulation. In addition, that evaluation should include the impact of barrier operations on the impacts of the other pollutants on the CVRWQCB 303(d) list for South Delta channels and other constituents that, while not on the 303(d) list, are impacting South Delta water quality. Lee (2005c) also suggested that DWR needs to more reliably evaluate the potential benefits of installing low-head, reverse-flow pumping across the permanent operable barriers to bring more Sacramento River water into the South Delta. Adoption of this approach could be highly cost-effective in improving South Delta water quality as well as the quality of the CVP-exported water. It could also help solve the low-DO problem in the DWSC.

Overall, the draft EIS/EIR cannot be certified as a credible discussion of SDIP water quality impacts. It does not provide a reliable evaluation of how the increased exports

and operation of the barriers will impact the aquatic life related beneficial uses of the Delta.

Cited References

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Responses to Comments

CSPA-1

For each alternative for each resource, the impacts of Stage 1 are evaluated first. This analysis assumes no change in the operations of the SWP and CVP. Therefore, an alternative that includes the four gates, dredging agricultural diversion modifications, and the assumption that existing 6,680 cfs operations would continue, is analyzed. Secondly, the effects of each operational component are evaluated assuming that the permanent gates are operating (2A, 2B, 2C, 3B, 4B).

CSPA-2

The SDIP Draft EIS/EIR clearly presents the direct effects of the SDIP on CVP and SWP contract deliveries. A large fraction of this water is additional Article 21 water for SWP contractors. The potential for future increases in water transfers, and the need for additional EWA purchases and transfers of upstream purchases, are described separately. All possible effects of the SDIP on water supply and water management operations are accurately described.

CSPA-3, CSPA-4, CSPA-6, CSPA-7, CSPA-8, and CSPA-9

Please see Master Response D, *Developing and Screening Alternatives Considered in the South Delta Improvements Program Draft EIS/EIR.*

CSPA-5

Please see Master Response A, *Relationship between the South Delta Improvements Program and the Operations Criteria and Plan.*

CSPA-10

The SDIP is consistent with VAMP assumptions that survival of juvenile Chinook salmon improves if they are not diverted into Old River. It is assumed that juvenile Chinook salmon blocked at the head of Old River will be less likely to be subsequently diverted back into the south Delta channels at Turner and Columbia Cuts, because the tidal flows, providing a downstream migration cue, in the San Joaquin River at these downstream locations is much greater than at the head of Old River.

CSPA-11

DSM2 tidal simulations (Section 5.2 of the SDIP Draft EIS/EIR) demonstrate that minimum water levels can be maintained above the target elevation of 0.0 feet msl with the proposed tidal gate operations. Salinity at CVP Tracy Pumping Plant and at other south Delta locations will be reduced substantially (10%). Please also see Master Response I, *Reliability of CALSIM and DSM2 Models for Evaluation of Effects of the South Delta Improvements Program.*

CSPA-12

The first objective will be met through construction and operation of the fish control gate at the head of Old River. The second project objective will be met by the flow control tidal gates and dredging. The major factor affecting water supply reliability in California is the uncertain annual rainfall and snowpack depth. Increased export capacity can improve reliability by allowing greater diversions at times when fish issues are not limiting. Increased export capacity provides water contractors access to water when it is available (Article 21) so contractors can store it for future use. This flexibility can be used to both protect listed fish species and reduce water shortages in drier years. The SDIP will improve the water supply reliability of the integrated CVP and SWP system of reservoirs, Delta exports, and water conveyance facilities.

CSPA-13

Please see Master Response B, *Relationship between the South Delta Improvements Program and the Pelagic Organism Decline.* .

CSPA-14

Appendix J of the SDIP Draft EIS/EIR describes the POD hypothesis and potential relationships between CVP and SWP pumping levels and entrainment, and subsequent population effects. No accepted hypothesis or mechanism would explain relatively large decreases in the recent abundance of some fish based on relatively small recent increases in CVP and SWP exports. The variations in the annual abundance indices are also described; very large changes in Fall Mid-Water Trawl catch have been observed from month to month and between years. These catch records may not be sufficient to understand ecological mechanisms and species interactions in the pelagic zone. The abundance of the dominant pelagic organisms, American shad and threadfin shad, remains high. All findings from the DWR- and Reclamation-funded POD studies will be fully considered in the SDIP Stage 2 evaluations and decision.

CSPA-15 and CSPA-16

The SDIP Final EIS/EIR will not analyze the relationships between past pumping and annual fish abundance; SDIP Stage 2 evaluations will include all major findings from the POD studies.

CSPA-17

The SDIP permanent operable gates (Stage 1) are assumed to have no impact on pelagic organisms in the lower estuary. CVP and SWP entrainment of pelagic species will not change because existing pumping patterns will not be modified during Stage 1. The head of Old River gate closure, which will protect Chinook salmon, will cause a slightly increased reverse flow from the central Delta (Appendix J of the SDIP Draft EIS/EIR). The fish representatives on the GORT will fully consider these relative fish effects when determining the operations for the head of Old River gate. No other effects on pelagic fish are anticipated during Stage 1.

CSPA-18

Section 5.3 of the SDIP Draft EIS/EIR contains a rigorous analysis of those constituents that have a direct linkage with the SDIP project (EC, DO, DOC). Many other variables may be of concern in the Delta, but they are not affected by SDIP actions.

CSPA-19

The water quality analysis thresholds are based in part on the 1995 Water Quality Control Plan, which was established to protect beneficial uses, including drinking water quality and fish habitat. The CWA 401 certification will be based on the water quality analysis in the SDIP Final EIS/EIR.

CSPA-20

Please see response to comment CSPA-18. No water quality assessment was made for any toxic material because there are no available methods for assessing biological effects from changes in toxic chemical exposure in the Delta and there are no indications that any toxic chemical would be released during construction or operation of the SDIP.

CSPA-21

SDIP will have no effect on compliance with water quality objectives or other water quality control implementation plans (TMDLs) upstream of the Delta. The operable gates will increase the ability to control flows and will reduce salinity in the south Delta channels, including the Old River at Tracy Boulevard and Middle River at Old River (Union Island) EC compliance stations. The effects of the head of Old River fish control gate on San Joaquin River flows at Stockton, and the subsequent improvement in DWSC DO conditions are fully described in Section 5.3 of the SDIP Draft EIS/EIR.

CSPA-22

Please see Master Response N, *Trinity River Operations*.

CSPA-23

Assimilative capacity (dilution) of tributary streams is based on low-flow periods. The SDIP will have no effect on the low-flow hydrology; minimum release flows are required below all major CVP and SWP reservoirs.

CSPA-24

Page 2-23 of the SDIP Draft EIS/EIR presents some of the permitting to which DWR and Reclamation will have to adhere to conduct dredging in the Delta. Permits are necessary from the Corps and the RWQCB. Page 2-24 indicates that recent past dredging projects in a nearby channel did not encounter chemical contamination of the dredge spoils. Although DWR and Reclamation will need to conduct similar sampling to verify this, significant chemical contamination is not expected in any of the sediments proposed to be dredged under the SDIP. Recently (June 2006), DWR completed preliminary sediment coring to determine the quality of the sediment for disposal on agricultural land or for use on levees. Additional sampling may be required during and after dredging as a part of the dredging permits.

CSPA-25

The existing conditions analyzed in the SDIP Draft EIS/EIR include the existing 0.7 mS/cm and 1.0 mS/cm EC objectives. The SDIP will improve the EC at the Old River and Middle River compliance locations and will have no effect on the Brandt Bridge compliance location. Changing the EC objectives at these Delta locations will not degrade the existing water quality for agricultural users,

because salinity controls will still be implemented to meet the 0.7 mS/cm and 1.0 mS/cm EC objectives at Vernalis.

CSPA-26 and CSPA-27

The importance of Chinook salmon and steelhead is acknowledged throughout the SDIP Draft EIS/EIR and is reflected in the bulk of the biological analysis. Temperature is recognized as a key limiting factor for salmonids and is extensively analyzed (summarized in Tables 6.1-15 through 6.1-26 of the SDIP Draft EIS/EIR). Some adverse survival impacts on salmonids were found that were largely the result of reduced carryover as a result of the proposed operations. However, these temperature impacts were small and occurred in a small fraction of the simulated months. Temperature impacts were considered and found to be less than significant.

CSPA-28

The changes in EC from the SDIP are fully evaluated in Section 5.3 of the SDIP Draft EIS/EIR, including the periods with a 0.7 mS/cm EC objective.

CSPA-29

Please see Master Response N, *Trinity River Operations*.

CSPA-30

The SDIP will not cause any significant drawdown of upstream reservoirs. The reservoir operating criteria (rules) will not be changed by the SDIP. Both CVP and SWP balance water deliveries with carryover storage; the SDIP will not change this balance.

CSPA-31

Section 5.2 of the SDIP Draft EIS/EIR demonstrates that the SDIP will have no effect on the water surface levels at the DMC intake and fish facility. Difficulties with operating this 50-year old facility are serious but will not be aggravated by the SDIP. Reclamation is evaluating cost-effective improvements for the Tracy fish facility.

CSPA-32

None of the agricultural diversions that will be modified (extended) will be replaced with larger or more efficient pumps. Extending the diversions will ensure operations with fluctuating water levels at their original capacity. Because there is no change in the capacity of diversion, this action does not require fish screens.

CSPA-33

The SDIP effects on tidal water levels and tidal flows are fully described and evaluated in Section 5.2 of the SDIP Draft EIS/EIR. Figure 4-1 is a summary of the general effects on water levels. The SDIP will allow the minimum water levels to be maintained throughout the monthly cycle of spring tide and neap tide.

CSPA-34

The Old River at Tracy Boulevard EC data are suspect, because EC is not routinely 2,000 µS/cm. The DSM2 results are reliable, as shown for the other south Delta locations. The comparative results shown for the Old River at DMC or Middle River at Mowry Bridge stations show a good match with measurements. The comparison of simulated EC values for each SDIP alternative with the baseline EC values is the most appropriate method for impact analyses, as shown in Section 5.3 of the SDIP Draft EIS/EIR. Please also see Master Response I, *Reliability of CALSIM and DSM2 Models for Evaluation of Effects of the South Delta Improvements Program.*

CSPA-35

Simplified assumptions and geometry data are used in the DSM2 modeling. However, the results have been verified with actual field data and the comparisons between the baseline and the alternatives are adequate for the identification of significant tidal hydraulic and water quality impacts. Actual channel geometry and diversion flows along each channel are included in DSM2. The tidal flows within each channel are fully described in Section 5.2 of the SDIP Draft EIS/EIR. There are no null zones with the proposed operations of SDIP operable gates.

CSPA-36

It is possible that in the future low-head pumps may be needed to ensure that the SDIP objectives are fully met. Including wiring so that this potential future action can be more easily added represents a prudent measure to ensure the best

possible use of funds for protecting Delta resources. Low-head pumps are not a component of the SDIP and would not be installed or operated without further environmental documentation.

CSPA-37

Figure 5.2-50 of the SDIP Draft EIS/EIR indicates that simulated minimum water levels at the head of Old River gate will be maintained above the 0.0 feet msl objective, even during the April and May period, when the simulated flows through the head of Old River gate were 0 cfs. Tidal filling of the channels and the proposed operation of the agricultural gates will be adequate to protect any diversions during these months. High tide levels, which are necessary for the proper operation of the Tom Paine Slough siphons, will be protected by continued use of Priority 3 operation of CCF gates.

CSPA-38

Dilution and flushing of City of Tracy and Mountain House effluents are important considerations for the actual operation of the head of Old River gate. The GORT will consider the need for a minimum diversion flow of 500 cfs to provide dilution of the Tracy and Mountain House treated wastewater.

CSPA-39

Potential impacts of construction and operation of the SDIP gates are described in Section 6.1 of the SDIP Draft EIS/EIR. While some adverse impacts in the Delta channels are possible, information is limited and there is little factual basis on which to judge the potential impacts of operations in the Delta channels. However, compared to the existing temporary barriers, the permanent gates provide flexibility in operation and do not result in annual disturbances once in place. Additionally, the GORT will allow adjustments in gate operations as new information is obtained.

CSPA-40

The potential effects of increased pumping on winter survival of delta smelt are evaluated in Impact Fish-63. Mitigation Measure Fish-MM-3 provides appropriate mitigation.

CSPA-41

The impact analyses include system-wide effects, for those resources that may be affected. There are no redirected impacts on water management agencies or water users outside of the CVP-SWP operations.

CSPA-42

The SDIP cumulative analysis included the use of the best available information. The qualitative portion of the assessment was based on information about other projects that could affect the same resources, and their potential contribution to cumulative effects was described.

CSPA-43

The SDIP impact assessment and cumulative impact evaluation are consistent with the CALFED ROD and identify significant cumulative effects on fish. Proposed mitigation measures will reduce the SDIP contribution to less than significant. The cumulative water quality effects are less than significant because of the existing water quality regulations and projects that likely will be implemented to improve water quality for municipal and agricultural uses, including CALFED actions and other actions described in the DIP.

CSPA-44

Temporary barriers are included in the baseline. Table 10-1 of the SDIP Draft EIS/EIR has been modified to add the Stockton Intake and DWSC DO projects. The likely responses of the selected species to cumulative effects provide an indicator of the potential responses of other species. The full range of environmental conditions and fish habitat elements potentially affected is encompassed by the assessment for the species specifically discussed.

CSPA-45

Please see Master Response I, *Reliability of CALSIM and DSM2 Models for Evaluation of Effects of the South Delta Improvements Program.*

CSPA-46, CSPA-47, CSPA-48, and CSPA-51

Please see Master Response E, *Reliance on Expanded Environmental Water Account Actions for Fish Entrainment Reduction.*

CSPA-49

The referenced funds are above the current funding level for the Four-Pumps Agreement. SWP funding for an expanded agreement could provide supplemental restoration and replacement actions, as currently are funded for striped bass, steelhead, and Chinook salmon entrainment losses (see Appendix J of the SDIP Draft EIS/EIR).

CSPA-50

Splittail entrainment impacts were simulated to be high in a few years. The average impact, however, was less than 5%. This was found to be less than significant because splittail abundance is linked to the large flooded bypasses of the Sacramento River. The overall fraction of the population that is entrained in the south Delta export facilities is relatively small.

CSPA-52

The SDIP analysis includes adequate background information relative to each resource, including water quality, for full disclosure of SDIP water quality impacts.

CSPA-53

Please see Master Response O, *Gate Operations Review Team*.

CSPA-54 and CSPA-56

Salinity is the primary water quality parameter that will be affected by the SDIP gate operations and pumping changes. The improved tidal circulation in the south Delta channels is expected to improve the periods of low DO that have been observed in these channels.

CSPA-55

The effects of the proposed gate operations on tidal circulation and water quality are fully described in Section 5.2 and 5.3 of the SDIP Draft EIS/EIR. The Draft EIS/EIR does not evaluate general effects of existing levels of CVP and SWP pumping on Delta flows or water quality, because these are the existing conditions.

CSPA-57

DWR and Reclamation support (fund) and their staff participate in the major ongoing intensive monitoring of water quality and fish (IEP) in the Delta. This same monitoring will be continued as appropriate for adaptive management of the SDIP gates, as well as the existing CVP and SWP pumping facilities (EWA).

CSPA-58

Please see Master Response D, *Developing and Screening Alternatives Considered in the South Delta Improvements Program Draft EIS/EIR.*

CSPA-59

There are no established methods for evaluating the assumed linkages between SDIP facilities and operations and the trace organic and inorganic pollutants and precursors that may be of concern. Impact evaluation for these variables would be speculative and was not considered appropriate for the Draft EIS/EIR, which is based on the best available information.