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Mr. Paul Marshall
SDIP EIS/EIR Comments
California Department of Water Resources
Bay Delta Office
1416 Ninth Street,
Sacramento, California, 95814

FEB 07 2006 00152

Subject: Comments on the South Delta Improvements Program Draft EIS/EIR

Dear Mr. Marshall:

The East Bay Municipal Utility District (EBMUD or District) is very interested in working with the Department of Water Resources (DWR) to address the District's concerns regarding the potential impacts of Stage 1 and Stage 2 of the South Delta Improvements Program (SDIP or Program). We appreciate the complexities of analyzing and documenting potential SDIP impacts and believe the District can be helpful to DWR as it fulfills its obligation to identify and mitigate Program related impacts. Accordingly, we are submitting these comments on the draft Environmental Impact Statement/ Environmental Impact Report (EIS/EIR) for both Stage 1 and Stage 2 of the South Delta Improvements Program.

The District has two areas of concern regarding the potential impacts of the SDIP; impacts to the Mokelumne fisheries, and impacts to the levees protecting Woodward Island. Concerns regarding both of these issues were expressed in the District's October 31, 2002 letter commenting on the SDIP Notice of Preparation. With respect to the Mokelumne fisheries, the District's October 2002 letter requested that the SDIP EIS/EIR fully analyze and disclose the potential Program effects on the survival of Mokelumne juvenile salmon and the straying of returning adult salmon. Regarding the Woodward Island protective levees, the District asked that potential Program impacts to Old River velocities be evaluated and mitigations, if appropriate, be proposed. The draft EIS/EIR fails to fully address these previously identified concerns. The comments contained in this letter are focused on these two areas of continuing District interest.

A fundamental deficiency in the draft EIS/EIR evaluation of fisheries impacts is the grouping of Mokelumne and Sacramento fishery populations into a single combined unit for the purpose of determining Program impacts. Because these are two distinctly separate fisheries, on two distinctly different river systems, this grouping is inappropriate. Consequently, the draft EIS/EIR analysis and resulting findings are fundamentally incorrect. In effect, the analysis masks the Program's impacts on the Mokelumne fisheries.

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The District has been heavily involved in the stewardship of the Mokelumne fishery and its associated Mokelumne River habitat. Pursuant to a joint settlement agreement (JSA) between U.S. Fish & Wildlife Services, California Department of Fish & Game, and EBMUD, approved by the Federal Energy Regulatory Commission in 1998, EBMUD has invested over $15 M in the conservation and restoration of the lower Mokelumne River anadromous fishery and its associated ecosystem. The District continues to invest significant resources to preserve and protect the Mokelumne fishery. Through the work performed by the District and its resource agency partners, considerable scientific information is available about the Mokelumne salmon and steelhead populations. The attached comments and recommendations for addressing deficiencies in the fisheries evaluation of the Program draft EIS/EIR are based on that work and the information presented in the draft EIS/EIR.

Additionally, there is no analysis of the potential impacts on the Woodward Island levees as a result of increased channel flows. This is of particular concern as the Stage 2 project unfolds. This issue is also more fully discussed in the attached comments.

Thank you for your consideration of these comments. If you have any questions please call Joe Miyamoto, Manager of Fishery & Wildlife at (510) 287-2021 for more information.

Sincerely,

W. R. Alcott
Director of Water and Natural Resources

WRA:PGS:cf

EBMUD Comments on the SDIP Draft EIS/EIR

MOKELUMNE FISHERY ISSUES

The draft EIS/EIR fails to adequately address the Mokelumne fisheries by omitting the Mokelumne River system from the discussion; by its flawed analysis of Mokelumne and Sacramento River data; and by acknowledging certain impacts and then failing to address those impacts.

Omissions

The following citations are indicative of the draft EIS/EIR's failure to properly consider the Program's impacts to the Mokelumne River fishery. The Mokelumne system is a critical and distinct ecosystem which must be specifically evaluated.

- Page 6.1-1: *Introduction. This assessment covers species within aquatic environments potentially affected by the SDIP, including the Sacramento, Feather, San Joaquin, and Trinity Rivers, the Delta, and Suisun Bay.* The Mokelumne River aquatic environment may be affected by the SDIP and it should be specifically identified and assessed in the draft EIS/EIR.
- Page 6.1-35: *The hypothesis is that alternate migration pathways have different effects on juvenile Chinook salmon survival from the Sacramento and San Joaquin Rivers.* The Mokelumne River provides a migration pathway for Mokelumne origin Chinook salmon and it needs to be assessed in this section. Mokelumne fishery impacts will be distinctly different than Sacramento fishery impacts, given that Mokelumne fish use the central Delta as their primary migratory path.
- Page 6.1-77: *Impact Fish-44: Operations Related Decline in Migration Habitat Conditions for Chinook Salmon. The Sacramento, Feather and American Rivers provide a migration pathway between freshwater and estuarine habitats for Chinook salmon. In the Delta, juvenile Chinook salmon survival is lower for fish migrating through the central Delta than for fish continuing down the Sacramento River channel.* This section must also include a discussion of the Mokelumne River migratory pathway.
- Page J-37: *An effective mitigation measure for export pumping entrainment impacts at the CVP and SWP pumping plants would be to extend the closure of the DCC gates continuously from November 1 through June 30. Extending the closure period for the entire 8-month period would protect a substantial portion of all Sacramento River Chinook salmon.* The draft EIS/EIR fails to consider the impact of such a closure on the Mokelumne origin juvenile salmonids. Closure of the DCC gates combined with increased export pumping may draw more fish

from the central Delta towards the export pumps. Newman and Rice (1997)[1] showed higher survival for juvenile salmon released in the central Delta when the DCC gates were open.

The EIS/EIR needs to address these omissions by analyzing Program impacts specific to the Mokelumne fishery including the Central Delta migratory pathway used by Mokelumne origin Chinook salmon.

Flawed Analysis

The draft EIS/EIR erroneously analyzes the Mokelumne and Sacramento fisheries as a combined unit for the purpose of determining impacts. Page 6.1-85 states: *If an annual entrainment loss approaching 6,000 fish occurred during a year when production of juveniles is low (i.e., 18 million fish), the loss would represent about 0.03% of the annual production. The loss contributed by additional pumping under Alternative 2A for such a year could approach just 0.006% of the juvenile population. The simulated increase of entrainment related losses would be small, and the proportion of annual fall-run production from the Sacramento River basin* ***and*** *the Mokelumne River lost to entrainment would be inconsequential, having a less than significant impact on the population.*

The conclusion that the Mokelumne fish losses would be inconsequential and therefore less than significant is not supported by appropriate analysis. Mokelumne fall-run Chinook salmon have different migratory pathways than Sacramento origin salmon, especially from those fish that stay in the Sacramento River below the DCC. Because Mokelumne River fall-run Chinook salmon must migrate through the central Delta, the entrainment losses would be greater than the Sacramento Chinook losses, where only a portion of the salmon enter the central Delta. By combining the Mokelumne and Sacramento River data, the impacts on the Mokelumne fishery are greatly understated.

DWR's particle tracking models demonstrate that Mokelumne fisheries are likely to be impacted to a greater degree than Sacramento River fisheries. Particle tracking model results for particles injected in the Mokelumne North Fork and Sacramento River indicate the need to assess the effects on the Mokelumne fishery separate from the Sacramento River fishery. Page J-20 states "*Table J-21g indicates that entrainment of passive particles released in the Mokelumne River, downstream of the DCC, was about 90% for all three Delta outflows, and was similar (5% or less) to the entrainment of particles released from Prisoners Point.* Table J-21h shows a much lower percentage of particles entrained (50 to 60% total particles entrained) for particles injected in the Sacramento River at Freeport and Rio Vista at outflows of 5,000 to 12,000 cfs.

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[1] Newman, K. and J. Rice. 1997. A statistical model for salmon smolt survival in the lower Sacramento-San Joaquin System. IEP Technical Report 59.

The EIS/EIR must analyze Mokelumne River smolt production and entrainment losses independent of the Sacramento River smolt production and entrainment losses. The results of these particle tracking model simulations demonstrate why it is erroneous to combine Sacramento and Mokelumne data for the purpose of determining impacts. To correct this error the EIS/EIR needs to specifically address the entrainment impacts from the project on juvenile salmonids from the Mokelumne River migrating through the central Delta using Mokelumne-specific entrainment losses, smolt production, and other applicable entrainment data.

Impacts Identified but not Mitigated

The draft EIS/EIR identifies potential impacts to Mokelumne fisheries but does not appropriately quantify or mitigate for those impacts.

- Page 6.1-119 acknowledges that operation of the head of Old River fish control gate "*will cause more water to be drawn from the central Delta to supply the CVP and SWP pumping, which may increase entrainment of some larval or juvenile fish from the central Delta.*" This effect is quantified in Table J-22G (DSM2 Particle Tracking Results for Mokelumne River (Node 285), which shows that for the upper end of export pumping under VAMP conditions, the total entrainment of Mokelumne particles increases from 1.5% with the Head of Old River Barrier (HORB) out to 49.1% with the HORB in place. For tidal trigger simulations, the total entrainment under these conditions increases from 0.2 to 7.9% with the placement of the HORB. Accordingly, these levels of impact are significant and require additional analysis.

- The report acknowledges that compared to temporary barriers, the operation of permanent barriers would likely extend over longer periods. Permanent barrier operations at the beginning of the irrigation season in the spring could lead to more complex migration routes and increased exposure to entrainment of out-migrating juvenile salmon and steelhead from the Mokelumne River. Attachment 1 provides updated data that should be analyzed and incorporated into Tables J-23 and J-24 of the EIS/EIR. These data indicate that out-migration occurs during the January through July period, and operation of permanent flow barriers in March and April could affect this out-migration through the interior Delta. This impact should be fully addressed by the EIS/EIR.

- The draft EIS/EIR does not adequately mitigate the impacts to juvenile Mokelumne steelhead. Page 6.1-93 acknowledges *"considering that the natural production of steelhead appears to be relatively low, the potential impact of a 15 – 20% increase in entrainment loss in some years is considered significant."* The report concludes that *"Mitigation measures Fish-MM-1 and Fish-MM-2, already described for reducing Chinook entrainment, would reduce the impact to less than significant."* However, mitigation measure Fish-MM-1 only applies from May 16

through May 31 and Fish-MM-2 only applies from March 1 through April 14 and May 16 through May 31. Attachment 1 to this letter indicates the proportion of juvenile Mokelumne Chinook salmon and steelhead entering the Delta by month from the updated EBMUD data base. The data indicates Fish-MM-1 and 2 do not provide protection during 50% of the juvenile chinook outmigration and 60% of the juvenile steelhead outmigration period.

Other Issues Requiring Clarification

- Page 6.1-84 states "*Most fall-run Chinook salmon entrainment losses historically have occurred during May. More than 90% of the fall-run Chinook salmon historically entrained by SWP and CVP pumping are believed to have originated from the San Joaquin River basin; therefore only about 10% of the historical entrainment losses would include fall-run Chinook salmon from the Sacramento River basin and the Mokelumne River.*"

  The draft EIS/EIR does not provide documentation to support the conclusion that 90% of the fall-run Chinook salmon historically entrained by SWP and CVP pumping originate from the San Joaquin River basin. The draft EIS/EIR cites the December 2001 DWR and USBR Biological Assessment (BA) as the source, but there is no data presented in that document. Most of the impact analysis in the BA is focused on spring-run and winter-run Chinook salmon and CV steelhead. For fall-run Chinook, the BA conclusions do not mention the Mokelumne River.

- Appendix Page J-5: *Figure J-6 shows the measured density for steelhead and splittail at the SWP and CVP fish facilities in 1999. The steelhead fish densities measured at the CVP and SWP fish facilities were very low and similar and indicate a maximum density during the months March – May. . . This review of 1999 salvage fish densities from the CVP and SWP fish facilities indicates that there are months with higher densities of fish that reflect the life stage and migration patterns for each species.*

  The draft EIS/EIR evaluates fish densities based on 1999 peak densities without an explanation as to why 1999 data was used. The peak densities of 1999 do not seem representative of the period from 1998 – 2003, where the mean monthly salvage at both facilities for all steelhead was highest in February, or the period from 1980 to 2002 where the highest maximum monthly average steelhead salvage density occurred in January at the CVP.

- The draft EIS/EIR indicates that increased pumping is most likely to occur during the July through October time frame to facilitate water transfers (pg. 2-15) and increased exports (pg. J-6). The Stage 2 EIS/EIR must assess potential impacts on the upstream migration of Mokelumne origin fall-run Chinook salmon and steelhead resulting from such increases. This may be a particular concern if the

transfers occur through a Through-Delta Facility (TDF) that enters the South Mokelumne fork upstream of Beaver Slough and reverse flows occur in the south Delta at higher export levels. A greater number of Mokelumne hatchery origin fall-run Chinook salmon and non-ESU (Ecologically Significant Unit) hatchery steelhead would be expected to stray.

- The EIS/EIR needs to clarify how Fish-MM-2 will reduce the entrainment of juvenile steelhead under the increased pumping scenario of close to 500 cfs in the middle of March, as presented in Figure 6.1-9. The December 2001 DWR and USBR Biological Assessment indicates that based on catch data from the USFWS Chipps Island Trawl, the peak CPUE for unclipped (wild) steelhead occurred in March.

- Table 10-1 indicates a qualitative cumulative impact assessment will be completed for the Delta Cross Channel Reoperation and the Through-Delta Facility. Given the potential routing of the TDF into the South Mokelumne Fork upstream of Beaver Slough, the EIS/EIR needs to include an assessment of the risk of entrainment of Mokelumne origin juvenile salmonids under this scenario.

Supplemental Data

Attachment 1 provides updated data that should be incorporated into Tables J-20, J-23, and J-24 of the EIS/EIR.

In response to the statement regarding a "*lack of information about movement of migrating adult and juvenile steelhead in the Delta*" (as noted on page 6.1-36 of the draft EIS/EIR), Attachment 2 contains coded wire tag recovery information for Mokelumne Hatchery steelhead released on February 3-5, 2004, and February 7-March 10, 2005. This information should be used in analyzing Program impacts related to entrainment loss rate and incorporated into the EIS/EIR. Adjustments to the data are needed to account for sample period at the export pumps and pre-screen losses due to predation at Tracy and CCFB. The data does indicate a significant number of hatchery steelhead that strayed to the Nimbus Hatchery. Higher export rates, Through Delta Facility, permanent operable barriers, and especially the combination of these actions may increase the straying of Mokelumne Hatchery salmon and steelhead.

The Mokelumne Hatchery releases yearling steelhead in the South Mokelumne Fork at Thornton, which flows directly to the interior Delta. The EIS/EIR should use the following data to compare the annual SWP and CVP hatchery steelhead salvage CPUE to the annual number of hatchery steelhead released from the Mokelumne River Hatchery for the period from 1998 to 2005.

Annual Hatchery Releases of Mokelumne Hatchery Yearling Steelhead

Year	Number Released Susceptible to Entrainment
1998[1]	101,240
1999	124,969
2000	129,577
2001	111,680
2002	0[2]
2003	167,578
2004	239,951
2005	376,010

Footnote 1. August 1997 was the first year of the policy to mark 100% of the hatchery steelhead with an adipose fin clip so the hatchery fish can be separated in the export pump salvage.
Footnote 2. No hatchery fish were released in 2002 due to construction closure to expand the hatchery.

LEVEE INTEGRITY ISSUES

The District is concerned about potential impacts on the levees surrounding Woodward Island, which carries EBMUD's Mokelumne Aqueducts. The draft EIS/EIR does not specifically address the expected velocity changes in the south Delta channels that may result from increased export pumping. Those velocity changes must be identified, especially for Old River and Middle River, in order to determine whether or not Woodward Island levee stability/integrity will be affected, and whether or not mitigating measures will be necessary. It should also be noted that the Middle River channel profile has been altered as a result of the Jones Tract levee failure and subsequent repairs. Those alterations appear to be having an impact on Middle River flow velocities and may also have altered Old River flows. These issues should be addressed before selecting a Stage 2 preferred alternative.

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Attachment 1

Latest Monitoring Data on Out-migration of Juvenile Mokelumne Salmon and Steelhead

Corrected and Updated Data on Tables J-23, J-24 and J-20.

Table J-23. The Proportion of Juvenile Chinook Salmon Production Entering the Delta from the Mokelumne River by Month

MONTH	MOKELUMNE RIVER - SALMON	
	Reported in Table J-23[1]	Updated percentage[2]
January	40.91	15.08
February	30.91	24.51
March	10.91	7.88
April	2.73	7.75
May	10.00	30.75
June	0.00	13.38
July	0.00	0.61
August	0.00	0
September	0.00	0
October	2.73	0
November	0.91	0
December	0.91	0.06

[1]Rotary Screw Trap data from EBMUD from December 1997 to August 1998
[2] Rotary Screw Trap data from EBMUD from December 1997 to July 2005

Table J-24. The Proportion of Juvenile Steelhead Production Entering the Delta from the Mokelumne River by Month

MONTH	MOKELUMNE RIVER - STEELHEAD	
	Reported in Table J-24[1]	Updated percentage[2]
January	44.28	3.98
February	0.73	9.57
March	2.80	12.09
April	4.62	9.22
May	2.68	17.05
June	4.74	27.18
July	5.60	19.29
August	0.49	0.14
September	0.00	0
October	0.00	0
November	0.00	0
December	34.06	1.47

[1] Rotary Screw Trap data from EBMUD from December 1997 to August 1998
[2] Rotary Screw Trap data from EBMUD from December 1997 to August 2005

Table J-20. Natural escapement used to calculate production of juvenile Chinook entering the Delta (from Natural Escapement) for 1970-2002.

YEAR	TOTAL MOKELUMNE ADULTS	
	Reported in Table J-20	Updated Numbers
1980	400	2592[1]
1981	50	4954[1]
1982	1800	6695[1]
1983	1700	11293[1]
1983	50	8298[1]
1985	200	7459[1]
1986	300	5254[1]
1987	100	1000[1]
1988	100	400[1]
1989	50	199[2]
1990	50	429[2]
1991	50	368[2]
1992	300	935[2]
1993	1500	993[2]
1994	1200	1238[2]
1995	2400	2194[2]
1996	1800	4038[2]
1997	6300	3681[2]
1998	2500	4122[2]
1999	1600	2183[2]
2000	4600	1973[2]
2001	4300	2307[2]
2002	5800	2804[2]

[1] Data from CDFG Grand Tab
[2] Data from EBMUD FERC report

Attachment 2
Results from 2004 & 2005
Coded-Wire Tag (CWT) Releases

	2004	2005
Release Dates	Feb 3 – Feb 5	Feb 7 – Mar 10
Release Location	New Hope Landing (Mokelumne River)	New Hope Landing (Mokelumne River)
Number Released	163,170	282,266
Size at Release (mm FL)	171	184-201
Federal Fish Facility		
Number Recovered[1]	37	15
Recovery Dates	Feb 12 – Apr 3	Mar 16 – Apr 27
Size at Recovery	185-275	200-261
State Fish Facility		
Number Recovered[1]	56	15
Recovery Dates	Feb 16 – Mar 22	Feb 16 – Apr 14
Size at Recovery	180-275	200-255
Nimbus Fish Hatchery		
Number Recovered	27	Not Available
Recovery Dates	Dec 22 – Feb 23	
Size at Recovery	400-530	
Mokelumne River Hatchery		
Number Recovered	20	Not Available
Recovery Dates	Dec 9 – Mar 15	
Size at Recovery	400-511	
Mokelumne River		
Number Recovered		2
Recovery Dates		May 12 – May 18
Size at Recovery		202-242
Cosumnes River		
Number Recovered	3	
Recovery Dates	May 20 – Jun 2	
Size at Recovery	211-242	
Chipps Island Trawl		
Number Recovered	1	Not Available
Recovery Dates	Feb 27	
Size at Recovery	193	

[1]Raw recovery data needs to be expanded for sample period and pre-screen and with-in facility predation losses.