					MULT	I SPECIES	CONS	ERVAT	TION ST	RATEG	GY MILE	ESTONE 2	25 ROLLI	ED UF	P SUMMARY		
MII at pov acc Ag	ESTC Southe ver pla eptabl encies	DNE ern E ants le to	25 Upgrade screens inergy's Contra Costa with screens the Fish and Wildlife			PROJECTS REVIEWED -		Southern I	ARY No c	ontracts hav	re been awar wer plants.	rded to upgrade	screens at			AGENCY NOTES	NOTES CONT'D
			MULTI SPECIE	ES CONSER	VATION STRATEG	Y MILEST	ONE 25	5 EV/	ALUATIO	ON OF	INDIVIE	DUAL PRO	DJECTS RI	EVIEV	VED TO FORMULATE T	THE ROLLED UP SUMM	IARY
MS Number	REGION	Project Type	Milestone	ERP Targets taken from ERPP Vol 2	MS Components or Questions for field personnel	ERP PROJECT	CONT START DATE	END	CALFED Award	Cost Share	Total Project Cost	Applicant	Principal Investigator	Quantifiable Units	Project Name	Comme	nts
25	Delta	U E E S S	Upgrade screens at Southern Energy's Contra Costa power plants with screens acceptable to the Fish and Wildlife Agencies.		25 A. Status of the upgrade of screens at Southern Energy's Contra Costa power plants.												

					MUL	TI SPECIES	CONS	ERVAT	ION ST	RATEG	Y MILE	STONE 2	6 ROLLEI	D UI	P SUMMARY		
MIL cond Rep · Co · De · Fin low the ( · Fin caus · Im prac depl	ESTC: ilition: ort): mple: fine a aliza aliza aliza confo Centr aliza aliza aliza aliza se low bleme tices eting	DNE s (D te st tion or ind ral V tion v DC ent a sub	26 Actions to minimize O sag) in lower San Joac udies of causes for DO s mplement corrective mea of investigation of metho clusion in total maximum alley RWQCB. of Basin Plan Amendmen D in the San Joaquin Rive appropriate source and of recommended in the TM stances loadings and mi	e or eliminate lo quin River near sag in San Joaq asures for DO s ds to reduce co daily load (TME nt and TMDL for er. ther controls and DL, to reduce a nimize or elimin	w dissolved oxygen Stockton (from Phase II uin River near Stockton. ag. nstituents that cause DL) recommendation by r constituents that d other management nthropogenic oxygen ate low DO conditions.	PROJECTS REVIEWED ERP-99-B16, ERP 01-N61, ERP- 02D-P50, ERP- 02D-P51, ERP-02D P63	2	SUMMI, 2001 (ERI causes of further val Peer Revi upstream, projects. progress of Amendme phased ar study of u	ARY The P-01-N61) ha low dissolved lidated in the I ew recomment, construction The studies pe on developme ant will be ava tion for adopti ent will propos pproach inclut pstream source	results from ve provided : oxygen (DC Peer Review dations prov of an aeratic rovided the t nt of the TM lable for put on by the CV e a phased a tes a demon ces, and con	the studies fr substantial int ) sag) in the S report from vide the basis on demonstration pasis for a sta DL for the RV oblic review in J /RWQCB in s approach to c stration aerat trol of Stockto	Inded in 1999 (E formation on the San Joaquin Riv July, 2002. The for a plan of fur tion project, and ikeholder implere April 2004 and s July, 2004. The orrect the DO ion project in the on WTP discharg	RP-99-B16) and sources and er. This was use studies and the ther studies other pilot nentation plan and Jasain Plan cheduled for Basin Plan roblem. The a DWSC, further ges.		SUMMARY continued- The aeration project is considered to be an interim control solution while more detailed studies on the upstream sources of oxygen depleting substances are completed. A final Basin Plan Amendment for the DO will be completed in 2008. The remaining studies on sources and causes (contract under development) and the modeling projects (ERP-02D-P50 and ERP-02D-P51) should be completed in 2007. In the interim, dissolved oxygen conditions should improve following completion and activation of the aeration demonstration project (2005). The final implementation solution will be identified in 2008 as part of the final TMDL. . There are other projects under different grant programs (SWRCB Prop 50 Grants) that contribute to this milestone but were not evaluated. The dissolved oxygen issue and the current and future actions will affect the SJR in both the Delta and San Joaquin River regions.	AGENCY NOTES	NOTES CONT'D
			MULTI SPEC	IES CONSEI	RVATION STRATE	GY MILESTO	ONE 26	6 EVA		ON OF I	NDIVID	UAL PRO	JECTS RE	/IE\	WED TO FORMULATE THE	E ROLLED UP SUMMA	RY
Number	GION	oject Type		ERP Targets taken	MS Components or Questions for field	ERP PROJECT	CON <sup>®</sup>	END	CALFED	Cost	Total Project		Principal	antifiable its			
SW	a RE	<u>4</u>	Milestone Actions to minimize or eliminate low dissolved oxygen conditions (DO sag) in lower San Joaquin River near Stockton (from Phase II Report): - Complete studies of causes for DO sag in San Joaquin River near Stockton. - Define and implement corrective measures for DO sag. - Finalization of investigation of methods to reduce constituents that cause low DO for inclusion in total maximum daily load (TMDL) recommendation by the Central Valley RWQCB. - Finalization of Basin Plan Amendment and TMDL for constituents that cause low DO in the San Joaquin River. - implement appropriate source and other controls and other management practices, as recommended in the TMDL, to reduce anthropogenic oxygen depleting substances loadings and minimize or eliminate low DO conditions.	from ERPP Vol 2	personnel 26 A. Status of studies determining the causes for DO sag in the San Joaquin River near Stockton.	NUMBERS		DATE	Award	Share	Cost	Department of	Investigator		Project Name Determination of the Causes of Dissolved Oxygen Depletion in the San Joaquin River	Commer This project is primarily monitoring ann project was to determine the relativ anthropogenic oxygen depleting subst primary emphasis of the project was to and research) the sources and caus considered complete; all reports of sigtmdl.org.; final report was releas been recently transmitted to the U USGS.	Its dresearch. The purpose of the re importance of natural and ances in the DWSC in fall. The investigate (through monitoring es of the DO sag. <i>Project is</i> except one are available on excin March and should have SBR as per Charlie Kratzer,
26	Delt	R				ERP-99-B16	Jul-99	Jun-03	866,408		866,408	Resources	Peggy Lehman				

Jumber	NOI	ect Type			MS Components or		CON	TRACT			Total			ntifiable s		
MS I	REG	Proj	Milestone	FRP Targets taken	Questions for field personnel	ERP PROJECT NUMBERS	DATE	DATE	CALFED Award	Cost Share	Project Cost	Applicant	Principal Investigator	Qua Unit	Project Name	Comments
					26 A. Status of studies determining the causes for DO sag in the San Joaquin River near Stockton.										This project is comprised of several contacts for different tasks: ERP-01-N61- 01:Project Coordination, Integration, and Technical Administration(G. Fred Lee); ERP 01-N61-02:SJR Diversion Data and west- side Sources of Nutrients (Tulloch Engineering); ERP-01-N61-03:City of Stockton); ERP-01-N61-04:Sediment Deposition Rates(UOP); ERP-01-N61- 05:Aeration Technology Performance Evaluation(Jones and Stokes); ERP-01- N61-06:Downstream Tidal Exchange and Residence Time(Jones and Stokes); ERP- 01-C61-1:D:Calibration of Upstream Water Quality Model, DSM2 and Use of Auxiliary Flow Pumps (Hutton/Nadar, DWR); ERP- 01-C61-2:D:Sources and Causes of Algal Biomass in SJR(Peggy Lehman, DWR); ERP-01-C61-3-D:IEP Data Management(Karl Jacobs, DWR); ERP-01- C61-4-D:Monitoring of Nutrients and Oxygen Depleting Substances in the SJR	This project was awarded as a directed acti next phase funding for ERP-99-B16; the p investigate and define the sources and caus the Deep Water Ship Channel. The project relationship of the DO sag to flow, water operation of the temporary barriers in Old included technical evaluations of possible the low-DO problems. The results of these were evaluated by an external science pane external Peer Review Workshop in May 200 investigation and the Peer Review Report s dischargers and the RWQCB to formulate that would lead to the development of implementation plan. Additional data ga identified and have been addressed in sub proposals. All tasks for this project are com 01-C61-2-D scheduled for completi
															Upstream of Vernalis (USGS-Note: same as ERP-01-C06 #3)	3
26	Delt	SR				ERP-01-N61	Jun-01	Jul-04	1,645,000	107,000	1,752,000	G. Fred Lee and Associates	G. Fred Lee		· · · · · · · · · · · · · · · · · · ·	
9	elta	×			26 A. Status of studies determining the causes for DO sag in the San Joaquin River near Stockton.							HydroQual,			San Joaquin River Dissolved Oxygen Depletion Modeling	The goal of this project is to provide a water of development of a TMDL for the Stockton Deep (DWSC). The conceptual model for the pro- identification of sources as well as river water of the DWSC and the upstream river. This model new data will be helpful in refining and valida sources and causes. <b>Project has started bu</b>
56	ŏ	ŝ		+	26 A. Status of studies	ERP-02D-P50	Nov-03	Mar-06	500,000		500,000	Inc.	Andy Thuman	+	Hydrodynamics and Oxygen Modeling of	This study will be a parallel (and somewhat
					determining the causes for DO sag in the San Joaquin River near Stockton.										the Stockton Deep Water Ship Channel	effort to the on-going HydroQual modeling P50). The Science Program believes the U greater implications for overall Delta hydro the Stockton Deep Water Ship Channel. T project is to provide a better underst hydrodynamics and biogeochemical pro produce reductions in DO concentrations project will address management strategi oxygen conditions.
y.	Jelta	ж					Nov-03	.lun-06	863 732	0	863 732	LIC Davie	Geoffrey			
3		0			26 A. Status of studies determining the causes for DO sag in the San Joaquin River near Stockton.		1100-03	501-00	003,132	0	003,132		Gunduuw		Monitoring and Investigations of the San Joaquin River and Tributaries Related to Dissolved Oxygen	This directed action study is focused on unders oxygen-consuming materials in the SJR upstre purpose of this study is to provide a compreher the sources and fate of oxygen-consuming r watershed between Channel Point and I
26	Delta	SR				ERP-02D-P63	Mar-03		6,886,960	1,083,463	7,970,424	San Joaquin Valley Drainage Authority	Dan Nelson			

lumber	UN Ct Tuno			MS Components or		CONT	RACT			Total		hiffable			
N SM	Proje	Milestone	ERP Targets taken from ERPP Vol 2	Questions for field personnel	ERP PROJECT NUMBERS	START DATE	END DATE	CALFED Award	Cost Share	Project Cost	Applicant	Principal Investigator	Units	Project Name	Comments
92				26 B. Status of defining and implementing corrective measures for DO Sag	ERP-99-B16		Jun-03	866.408		866.408	Department of Water Resources	Peggy Lehman		Determination of the Causes of Dissolved Oxygen Depletion in the San Joaquin River	The primary emphasis of the project was to investigate (through monitoring and research) the sources and causes of the DO sag in the Stockton deep Water Ship Channel. Task 4 of this project includes a preliminary evaluation of management alternatives for the DO sag. These are: 1) control of ammonia from the RWCF, 2) reduction of upstream non-point loads of oxygen depleting substances 3) flow and channel geometry controls, and 4) aeration devices. This plan formed the basis for subsequent study of these control measures. <i>Project is considered complete; all reports except one are available on sjrtmdl.org.; final report was released in March and should have been recently transmitted to the USBR as per Charlie Kratzer, USGS.</i>
26	Centa			26 B. Status of defining and implementing corrective measures for DO Sag	ERP-01-N61	Jun-01	Jul-04	1,645,000	107,000	1,752,000	G. Fred Lee and Associates	G. Fred Lee		This project is comprised of several contracts for different tasks: ERP-01-N61- 01:Project Coordination, Integration, and Technical Administration(G. Fred Lee); ERP- 01-N61-02:SJR Diversion Data and west- side Sources of Nutrients (Tulloch Engineering); ERP-01-N61-03:City of Stockton Water Quality Sampling(City of Stockton); ERP-01-N61-04:Sediment Deposition Rates(UOP); ERP-01-N61- 05:Aeration Technology Performance Evaluation(Jones and Stokes); ERP-01- N61-06:Downstream Tidal Exchange and Residence Time(Jones and Stokes); ERP- 01-C61-1-D:Calibration of Upstream Water Quality Model, DSM2 and Use of Auxiliary Flow Pumps (Hutton/Nadar, DWR); ERP- 01-C61-2-D:Sources and Causes of Algal Biomass in SJR(Peggy Lehman, DWR); ERP-01-C61-3-D:IEP Data Management(Karl Jacobs, DWR); ERP-01- C61-4-D:Monitoring of Nutrients and Oxygen Depleting Substances in the SJR Upstream of Vernalis (USGS-Note: same as ERP-01-C06 #3)	The project included technical evaluations of possible solutions to manage the low-D0 problems. This study resulted in substantial progress towards completion of this milestone. The results from this project showed that a primary source for oxygen demand was discharges of algae from Mud and Salt Slough upstream of the DWSC and from discharges of ammonia effluent from the City of Stockton WTP. Technical evaluation from this project identified aeration in the DWSC as a technical and economically feasible way to control DO depletions below the water quality standard. The project concludes increased flow would improve the DO sag. The ability to require increases in flow is not directly within the regulatory authority of the CVRWQCB and therefore not considered a feasible control measure at this time. All tasks for this project complete except for ERP-01-C61-2-D scheduled for completion July 2004.
56	Delta			26 B. Status of defining and implementing corrective measures for DO Sag	ERP-02D-P50	Nov-03	Mar-06	500.000		500.000	HydroQual, Inc.	Andy Thuman		San Joaquin River Dissolved Oxygen Depletion Modeling	This project will provide a water quality model for the development of a TMDL for the Stockton Deep Water Ship Channel (DWSC) to help predict how DO will respond by controlling other variables (or methods to reduce constituents). These variables are 1) control of nutrients sources, 2) control of point sources, 3) flow management (HORBs), and 4) aeration. This milestone will not be 100 percent complete until 1) the aeration demonstration project has been installed and operated for performance evaluation, 2) completion of the Upstream Monitoring Studies (recently awarded), and 2) more information on the effectiveness of source control measures can be obtained. The model and resulting Information work be available for inclusion in the "phased" or interim TMDL scheduled for July 2004 but will be used in the final TMDL for 2008 and the completion of this milestone. <i>Project has started but is not complete.</i>
5				26 B. Status of defining and implementing corrective measures for DO Sag	ERP-02D-P51	Nov-03	Jun-06	863 732	0	863 732	UC Davis	Geoffrey		Hydrodynamics and Oxygen Modeling of the Stockton Deep Water Ship Channel	The model and resulting information won't be available for inclusion in the "phased" or interim TMDL scheduled for July 2004 but will be used in the final TMDL for 2008 and the completion of this milestone. As this project is more research oriented rather than management oriented, the results are less likely to contribute to the development of the TMDL when compared to the Hydroqual modeling study (ERP-02D-P50). The benefits of this study have broader implications for Delta hydrodynamics and may also be linked to other Delta milestones where hydrodynamic studies are needed.

26	26	26	MS Number
Delta	Delta	Delta	REGION
SR	SR	SR	Project Type
			Milestone
			ERP Targets taken from ERPP Vol 2
26 C. Status of investigation of methods to reduce constituents that cause low DO for inclusion in total maximum daily load recommendation by the Central Valley RWQCB.	26 C. Status of investigation of methods to reduce constituents that cause low DO for inclusion in total maximum daily load recommendation by the Central Valley RWQCB.	26 C. Status of investigation of methods to reduce constituents that cause low DO for inclusion in total maximum daily load recommendation by the Central Valley RWQCB.	MS Components or Questions for field personnel
ERP-02D-P51	ERP-02D-P50	ERP-01-N61	ERP PROJECT NUMBERS
Nov-03	Nov-03	Jun-01	CONT START DATE
Jun-06	Mar-06	Jul-04	RACT END DATE
863,732	500,000	1,645,000	CALFED Award
0		107,000	Cost Share
863,732	500,000	1,752,000	Total Project Cost
UC Davis	HydroQual, Inc.	G. Fred Lee and Associates	Applicant
Geoffrey Schladow	Andy Thuman	G. Fred Lee	Principal Investigator
			Quantifiable Units
Hydrodynamics and Oxygen Modeling of the Stockton Deep Water Ship Channel	San Joaquin River Dissolved Oxygen Depletion Modeling	This project is comprised of several contracts for different tasks: ERP-01-N61- 01:Project Coordination, Integration, and Technical Administration(G. Fred Lee); ERP- 01-N61-02:SJR Diversion Data and west- side Sources of Nutrients (Tulloch Engineering); ERP-01-N61-03:City of Stockton Water Quality Sampling(City of Stockton); ERP-01-N61-04:Sediment Deposition Rates(UOP); ERP-01-N61- 05:Aeration Technology Performance Evaluation(Jones and Stokes); ERP-01- N61-06:Downstream Tidal Exchange and Residence Time(Jones and Stokes); ERP- 01-C61-1-D:Calibration of Upstream Water Quality Model, DSM2 and Use of Auxiliary Flow Pumps (Hutton/Nadar, DWR); ERP- 01-C61-2-D:Sources and Causes of Algal Biomass in SJR(Peggy Lehman, DWR); ERP-01-C61-3-D:IEP Data Management(Karl Jacobs, DWR); ERP-01- C61-4-D:Monitoring of Nutrients and Oxygen Depleting Substances in the SJR Upstream of Vernalis (USGS-Note: same as ERP-01-C06 #3)	Project Name
The objective of this project is to provide a better understanding of how hydrodynamics and biogeochemical processes interact to produce reductions in DO concentrations in the Stockton Deep Water Ship Channel. This project will address management strategies to eliminate low oxygen conditions.	This project will provide a water quality model for the development of a TMDL for the Stockton Deep Water Ship Channel (DWSC) to help predict how DO will respond by controlling other variables (or methods to reduce constituents). These variables are 1) control of nutrients sources, 2) control of point sources, 3) flow management (HORBs), and 4) aeration. This milestone will not be 100 percent complete until 1) the aeration demonstration project has been installed and operated for performance evaluation, 2) completion of the Upstream Monitoring Studies (recently awarded), and 2) more information on the effectiveness of source control measures can be obtained. The model and resulting Information won't be available for inclusion in the "phased" or interim TMDL scheduled for July 2004 but will be used in the final TMDL for 2008 and the completion of this milestone. <i>Project has started but is not complete.</i>	The results from this project showed that a primary source for oxygen demand was discharges of algae from Mud and Salt Slough upstream of the DWSC and from discharges of ammonia effluent from the City of Stockton WTP. Technical evaluation from this project identified aeration in the DWSC as a technical and economically feasible way to control DO depletions below the water quality standard. The project concludes increased flow would improve the DO sag. The ability to require increases in flow is not directly within the regulatory authority of the CVRWQCB and therefore not considered a feasible control measure at this time. The methods to reduce ammonia from the SWTP are known. Aeration technologies have been well studied and used effectively in many water bodies. The methods for effectively removing oxygen depleting substances from upstream sources are not known at this time. All tasks for this project complete except for ERP-01-C61-2-D scheduled for completion July 2004.	Comments

26	26	26	26	MS Number
Delta	Delta	Delta	Delta	REGION
SR	SR	SR	SR	Project Type
				Milestone
				ERP Targets taken from ERPP Vol 2
26 E. Status of implementation appropriate source and other controls and other management practices to reduce anthropogenic oxygen depleting substances loadings and minimize or eliminate low DO conditions.	26 D. Status of finalization of Basin Plan Amendment for TMDL for constituents that cause low DO in the San Joaquin River.	26 D. Status of finalization of Basin Plan Amendment for TMDL for constituents that cause low DO in the San Joaquin River.	26 D. Status of finalization of Basin Plan Amendment for TMDL for constituents that cause low DO in the San Joaquin River.	MS Components or Questions for field personnel
	ERP-02D-P51	ERP-02D-P50	ERP-01-N61	ERP PROJECT NUMBERS
	Nov-03	Nov-03	Jun-01	CONT START DATE
	Jun-06	Mar-06	Jul-04	RACT END DATE
	863,732	500,000	1,645,000	CALFED Award
	0		107,000	Cost Share
	863,732	500,000	1,752,000	Total Project Cost
	UC Davis	HydroQual, Inc.	G. Fred Lee and Associates	Applicant
	Geoffrey Schladow	Andy Thuman	G. Fred Lee	Principal Investigator
				Quantifiable Units
	Hydrodynamics and Oxygen Modeling of the Stockton Deep Water Ship Channel	San Joaquin River Dissolved Oxygen Depletion Modeling	This project is comprised of several contracts for different tasks: ERP-01-N61- 01:Project Coordination, Integration, and Technical Administration(G. Fred Lee); ERP 01-N61-02:SJR Diversion Data and west- side Sources of Nutrients (Tulloch Engineering); ERP-01-N61-03:City of Stockton Water Quality Sampling(City of Stockton); ERP-01-N61-04:Sediment Deposition Rates(UOP); ERP-01-N61- 05:Aeration Technology Performance Evaluation(Jones and Stokes); ERP-01- N61-06:Downstream Tidal Exchange and Residence Time(Jones and Stokes); ERP- 01-C61-1-D:Calibration of Upstream Water Quality Model, DSM2 and Use of Auxiliary Flow Pumps (Hutton/Nadar, DWR); ERP- 01-C61-2-D:Sources and Causes of Algal Biomass in SJR(Peggy Lehman, DWR); ERP-01-C61-3-D:IEP Data Management(Karl Jacobs, DWR); ERP-01- C61-4-D:Monitoring of Nutrients and Oxygen Depleting Substances in the SJR Upstream of Vernalis (USGS-Note: same as ERP-01-C06 #3)	Project Name
	The model and resulting information won't be available for inclusion in the "phased" or interim TMDL scheduled for July 2004 but will be used in the final TMDL for 2008.	This project will provide a water quality model for the development of a TMDL for the Stockton Deep Water Ship Channel (DWSC) to help predict how DO will respond by controlling other variables (or methods to reduce constituents). The model and resulting Information won't be available for inclusion in the "phased" or interim TMDL scheduled for July 2004 but will be used in the final TMDL for 2008 and the completion of this milestone. <i>Project has started but is not</i> <i>complete.</i>	The results from the studies in the 2001 project provided substantial information for the RWQCB and stakeholders and contributed to the development of a TMDL Report in June 2003. A draft Basin Plan Amendment will be available for public review in April 2004 and scheduled for consideration for adoption by the CVRWQCB in July, 2004. The Basin Plan Amendment will proposed a phased approach to correct the DO problem. The phased approach includes a demonstration aeration project in the DWSC, further study of upstream sources, and control of Stockton WTP discharges. The aeration project is considered interim control solution while more detailed studies on the upstream sources of oxygen depleting substances are completed. A final Basin Plan Amendment for the DO will be completed in 2008. All tasks for this project complete except for ERP-01-C61-2-D scheduled for completion July 2004.	Comments

					MUL	TI SPECIES	CONSE	ERVAT	ION STR	RATEG	Y MILES	TONE 27	ROLLED	UP S	SUMMARY		
MIL imp red sub disc fee Rep	EST lemenuce p stance charge ding c bort)	DNE : olluta es, n es fro operat	27 Develop, d support measures to nt (oxygen depleting utrients, and ammonia) m concentrated animal ions. (from Phase II			PROJECTS REVIEWED -		SUMM/ this milest have contr quality imp is a signifii outreach/e the SJR. (j) or Prop 45, 73, an level.	ARY There one. However ibuted more in vacts from ani- cant source of ducation proj There may b 50) that would d 101 for addi	are no ERI there are to directly to co nal feeding nitrate in th act has impo- e other project d contribute ional project	P projects that wo projects (EF outreach/educa operations. St e SJR and tribu cted animal fe ects under diffe more directly to ts that address	specifically targe RP-98-B32 and B tion and new da udy results show utaries. It is unce eding practices a rent grant progra o this milestone. this milestone a	t the objective of ERP-01-C61-4-D) ta about water t the animal waste lear how the and discharges to ams (SWRCB 319 See milestones t a landscape			AGENCY NOTES	NOTES CONT'D
			MULTI SPEC	IES CONSEF	RVATION STRATE	GY MILEST	ONE 27	EVA	LUATIO	N OF I	NDIVIDU	AL PROJ	ECTS REV	IEWE	D TO FORMULATE THE	E ROLLED UP SUMMA	रभ
MS Number	REGION	Project Type	Milestone	ERP Targets taken from ERPP Vol 2	MS Components or Questions for field personnel	ERP PROJECT	CONTI START DATE	END DATE	CALFED	Cost Share	Total Project Cost	Applicant	Principal Investigator	Quantifiable Units	Project Name	Commer	nts
27	Delta	SR	Develop, implement, and support measures to reduce pollutant (oxygen depleting substances, nutrients, and ammonia) discharges from concentrated animal feeding operations. (from Phase II Report)		27 A. Status of development of measures to reduce pollutant (oxygen depleting substances, nutrients, and ammonia) discharges from concentrated animal feeding operations. (from Phase II Report)								g				
27	Delta	SR			27B. Status of implementing measures to reduce pollutant (oxygen depleting substances, nutrients, and ammonia) discharges from concentrated animal feeding operations (from Phase 11 Report)												

MILESTONE 28 Encourage       PROJECTS         regulatory activity to reduce       discharge of oxygen reducing         discharge of oxygen reducing       substances and nutrients by         nonpermitted dischargers. (from       Phase II Report)           Phase II Report)	
	NOTES CONT'D
MULTI SPECIES CONSERVATION STRATEGY MILESTONE 28 EVALUATION OF INDIVIDUAL PROJECTS REVIEWED TO FORMULATE THE ROLLED	P SUMMARY
Image: Second	Comments

					MULT	I SPECIES	CONS	ERVAT	TION ST	RATEG	Y MILES	STONE 29	ROLLE	D UP	SUMMARY		
MIL espe and · Pa · Im Iand · Im Vau wate	ecially rs, ar Wate ticipa bleme s, for bleme antify rshee	NE Tud Si r Qu tte ir urba nt si and ds, ir	<b>29</b> Actions to reduce fi olumne, Merced, Stanisla onoma Creek, due to hu lality Program Plan): n implementation of USD ediment reduction BMPs an storm water runoff, an tream restoration and rev I determine ecological im mplement corrective action	ine sediment loa aus, Cosumnes, man activities (fi A sediment redu is in construction ad other specific vegetation work. apacts of sedime ons.	iding to streams, Napa, and Petaluma rom Phase II Report uction program. areas, on agricultural sites. ents in target	PROJECTS REVIEWED - ERP-98-B10, ERP-99-N06, ERP-02-P02		SUMMA model use use/land c relationshi this projec efforts cou sediment l watershed amount of of the proj it well be d amount of sources ar See milest	ARY A fee d to simulate over changes p of this projet t could contri ld contribute oading. The j of high impo fine sediment eveloped as sediment mo nd programs ones 47, 76,	w contracts ha the hydrologic s and surface a control to the milese bute to this mil- project is impo- rtance (Cosum t loading to th- so reducing the well. The Cat wing into the C may also contra and 105 for an	we been awa cal effects of and groundw. stone is more lestone beca lation and im rtant in that o nnes River). e Cosumnes e Cosumnes Riv Creek Water Cosumnes Ri ribute to this dditional proje	rded. One proje historic and proje ater managemer indirect but the i use the research provements to re one of the study a One project will River by prevent hat additional par shed project will ver. Projects fro milestone but we excts that address	ct will result in a cted land t methods. The nformation from and modeling duce fine areas includes reduce the ing development cels adjacent to reduce the m other fund re not evaluated. this milestone at			AGENCY NOTES	NOTES CONT'D
			MULTI SPECIE	ES CONSER	VATION STRATEG	Y MILEST	ONE 29	9 EVA		ON OF II	NDIVID	JAL PRO	IECTS RE	VIEWI	ED TO FORMULATE TH	HE ROLLED UP SUMMA	\RY
MS Number	REGION	Project Type	Milestone Actions to reduce fine sediment loading to streams, especially Tuolumme, Merced, Stanislaus, Cosumnes, Napa, and Petaluma Rivers, and Sonoma Creek, due to human activities (from Phase II Report and Water Quality Program	ERP Targets taken from ERPP Vol 2	MS Components or Questions for field personnel 29 A. Status of actions to reduce fine sediment loading to streams in the Tuolumne River due to human activities (from Phase II Report and Water Quality Program Plan):	ERP PROJECT NUMBERS	CONT START DATE	END DATE	CALFED Award	Cost Share	Total Project Cost	Applicant	Principal Investigator	Quantifiable Units	Project Name	Commer	ıts
29	Delta	SR	Plan): • Participate in implementation of USDA sediment reduction program. • Implement sediment reduction BMPs in construction areas, on agricultural lands, for urban storm water runoff, and other specific sites. • Implement stream restoration and revegetation work. • Quantify and determine ecological impacts of sediments in target watersheds, implement corrective actions.														
29	Delta	SR			29 B. Status of the sub element of actions to reducing fine sediment loading to the Tuolumne River: Participate in implementation of USDA sediment reduction program.												

er		ed					CONT	RACT						ole		
S Numb	GION	oject Ty		ERP Targets taken	MS Components or Questions for field	ERP PROJECT	START	END	CALFED		Total Project		Principal	uantifiak iits		
Ϋ́	R	å	Milestone	from ERPP Vol 2	personnel	NUMBERS	DATE	DATE	Award	Cost Share	Cost	Applicant	Investigator	άĐ	Project Name	Comments Objective: To create and utilize outreach materials as tools to
					element of actions to reducing fine sediment loading to the Tuolumne River: Implement sediment reduction BMPs in construction areas, on agricultural lands, for urban storm water runoff, and other specific sites.										and stewardship proposal	build awareness, understanding undrach materials as tools to build awareness, understanding and support for the Tuolumne River Technical Advisory Committee Plan, "Habitat Restoration Plan for the Lower Tuolumne River Corridor". The cooperative agreement between the AFRP and TRPT was completed in October of 2001. TRPT released two documents: the Tuolumne River Watershed Map and the Lower Tuolumne River Corridor and Its Lands; a brochure depicting land use patterns in the Tuolumne River corridor. The TRPT received a no-cost time extension extending the end date to April 2003 to complete their outreach to landowners who might be interested in easement opportunities. TRPT submitted a final report, in August 2003 documenting their outreach efforts. This report, along with the Tuolumne River Watershed Map and the Lower Tuolumne River Corridor and Its Lands can be found on the AFRP website.
29	Delta	SR				AFRP-01-12		Aug-03				AFRP	Cesar Blanco USFWS			
29	Delta	SR			29 D. Status of the sub element of actions to reducing fine sediment loading to the Tuolumne River: Implementation of stream restoration and revegetation work.											
	lelta	œ			29 E. Status of the sub element of actions to reducing fine sediment loading to the Tuolumne River: Quantify and determine ecological impacts of sediments in target watersheds, implement corrective actions.				4 540 010						Linked Hydrogeomorphic-Ecosystem Models to Support Adaptive Management: Cosumnes-Mokelumne Paired Basin Project	Develop a model that will be used to simulate the hydrological effects of historic and projected land use/land cover changes and surface and groundwater management methods. Jeff Mount, UC Davis. Research and Planning; The project is wrapping up. The final reports are being finalized and should be available soon. Research and modeling efforts from this project could contribute to future evaluation and improvements to riparian habitats (12 and 14), to instream flows (17), to fish passage and reduction of predation (23, and to reduce fine sediment loading (29).
29 2	Delta	S			29 F. Status of actions to reduce fine sediment loading to streams in the Merced River due to human activities (from Phase II Report and Water Quality Program Plan):	ERP-99-N06	Jan-00	Jan-03	1,546,016	none	1,546,016	UC Davis	Jeff Mount			
29	Delta	R			29 G. Status of the sub element of actions to reducing fine sediment loading to the Merced River: Participate in implementation of USDA sediment reduction program.											
6	Delta	ĸ			29 H. Status of the sub element of actions to reducing fine sediment loading to the Merced River: Implement sediment reduction BMPs in construction areas, on agricultural lands, for urban storm water runoff, and other specific sites.											

er		ed					CONT	RACT						e	
9 Numb	GION	oject Ty		ERP Targets taken	MS Components or Questions for field	ERP PROJECT	START	END	CALFED		Total Project		Principal	its	
Ň	RE	Pre	Milestone	from ERPP Vol 2	personnel	NUMBERS	DATE	DATE	Award	Cost Share	Cost	Applicant	Investigator	ਰੈ 5 Project Name	Comments
29	Delta	SR			29 I. Status of the sub element of actions to reducing fine sediment loading to the Merced River: Implementation of stream restoration and revegetation work.										
	elta	~			29 J. Status of the sub element of actions to reducing fine sediment loading to the Merced River: Quantify and determine ecological impacts of sediments in target watersheds, implement corrective actions.									Linked Hydrogeomorphic-Ecosystem Models to Support Adaptive Management: Cosumnes-Mokelumne Paired Basin Project	<ul> <li>Develop a model that will be used to simulate the hydrological effects of historic and projected land use/land cover changes and surface and groundwater management methods. Jeff Mount, UC Davis.</li> <li>Research and Planning; The project is wrapping up. The final reports are being finalized and should be available soon.</li> <li>Research and modeling efforts from this project could contribute to future evaluation and improvements to riparian habitats (12 and 14), to instream flows (17), to fish passage and reduction of predation (23, and to reduce fine sediment loading (29).</li> </ul>
53	ă	ц.			20 K. Status of actions to	ERP-99-N06	Jan-00	Jan-03	1,546,016	none	1,546,016	UC Davis	Jeff Mount		
6	lelta	ж.			reduce fine sediment loading to streams in the Stanislaus River due to human activities (from Phase II Report and Water Quality Program Plan):										
Ñ		S			29 L. Status of the sub										
29	Delta	SR			element of actions to reducing fine sediment loading to the Stanislaus River: Participate in implementation of USDA sediment reduction program.										
6	elta	œ			29 M. Status of the sub element of actions to reducing fine sediment loading to the Stanislaus River: Implement sediment reduction BMPs in construction areas, on agricultural lands, for urban storm water runoff, and other specific sites.										
29 2	Delta D	S			29 N. Status of the sub element of actions to reducing fine sediment loading to the Stanislaus River: Implementation of stream restoration and revegetation work.										
29	Delta	SR			29 O. Status of the sub element of actions to reducing fine sediment loading to the Stanislaus River: Quantify and determine ecological impacts of sediments in target watersheds, implement corrective actions.	ERP-99-N06	Jan-00	Jan-03	1,546,016	none	1,546.016	UC Davis	Jeff Mount	Linked Hydrogeomorphic-Ecosystem Models to Support Adaptive Management: Cosumnes-Mokelumne Paired Basin Project	<ul> <li>Develop a model that will be used to simulate the hydrological effects of historic and projected land use/land cover changes and surface and groundwater management methods. Jeff Mount, UC Davis.</li> <li>Research and Planning; The project is wrapping up. The final reports are being finalized and should be available soon.</li> <li>Research and modeling efforts from this project could contribute to future evaluation and improvements to riparian habitats (12 and 14), to instream flows (17), to fish passage and reduction of predation (23, and to reduce fine sediment loading (29).</li> </ul>

umber	NO	ct Type			MS Components or		CONT	RACT			Total			ıtifiable		
N SM	REG	Proje	Milestone	ERP Targets taken from ERPP Vol 2	Questions for field personnel	ERP PROJECT NUMBERS	START DATE	END DATE	CALFED Award	Cost Share	Project Cost	Applicant	Principal Investigator	Quan Units	Project Name	Comments
					29 O. Status of the sub element of actions to reducing fine sediment loading to the Stanislaus River: Quantify and determine ecological impacts of sediments in target watersheds, implement corrective actions.								g			
62	Delta	SR			29 P. Status of actions to reduce fine sediment loading to streams in the Cosumnes River due to human activities (from Phase II Report and Water Quality Program Plan):	FRP-98-B10	Jun-98	.lun-00	38 000	none	38 000	U.S. Forest Service, Eldorado National Forest	Chervl Mulder		Cat Creek Watershed Project	Review of the forest road system for repair, relocation of oblitera If the recommendations from this project are implemented, there v a reduction in the amount of sediment moving into the Cosumn River. Cheryl Mulder, U.S. Forest Service, Eldorado Nation Forest. Planning; project completed.
5	Jelta E	ж ,			29 Q. Status of the sub element of actions to reducing fine sediment loading to the Cosumnes River: Participate in implementation of USDA sediment reduction program.				00,000	Toric	30,000		Cheryn Mudel			
29	Delta	SR			29 R. Status of the sub element of actions to reducing fine sediment loading to the Cosumnes River: Implement sediment reduction BMPs in construction areas, on agricultural lands, for urban storm water runoff, and other specific sites.											
29	Delta	SR			29 S. Status of the sub element of actions to reducing fine sediment loading to the Cosumnes River: Implementation of stream restoration and revegetation work											
	tta				29 T. Status of the sub element of actions to reducing fine sediment loading to the Cosumnes River: Quantify and determine ecological impacts of sediments in target watersheds, implement corrective actions.										Linked Hydrogeomorphic-Ecosystem Models to Support Adaptive Management: Cosumnes-Mokelumne Paired Basin Project	Develop a model that will be used to simulate the hydrological et of historic and projected land use/land cover changes and surfac groundwater management methods. Jeff Mount, UC Davis Research and Planning; The project is wrapping up. The fi reports are being finalized and should be available soon Research and modeling efforts from this project could contr to future evaluation and improvements to riparian habitats and 14), to instream flows (17), to fish passage and reduction predation (23, and to reduce fine sediment loading (29).
29	Del	SR				ERP-99-N06	Jan-00	Jan-03	1.546.016	none	1.546.016	UC Davis	Jeff Mount	1		

	lumber	NO	ect Type			MS Components or		CONT	RACT	-		Total			ntifiable s		
	MS N	REG	Proje	Milestone	ERP Targets taken from ERPP Vol 2	Questions for field	ERP PROJECT NUMBERS	START DATE	END DATE	CALFED Award	Cost Share	Project Cost	Applicant	Principal Investigator	Quar Units	Project Name	Comments
	-	_				29 T. Status of the sub element of actions to reducing fine sediment loading to the Cosumnes River: Quantify and determine ecological impacts of sediments in target watersheds, implement corrective actions.										Upper Cosumes River Basin Conservation Project	The purpose of this project is to purchase a conservation easement across an 1,814 acre ranch, and either a conservation easement or a fee tille interest on a 348 acre property, totaling approximately 2,160 acres of exceptional riparian and upslope habitat along the North Fork of the Cosumnes River, with the Upper Cosumnes River Basin. Project is completed. Implementation. This project was easement acquisition of properties to protect riparian, riverine, and associated uplands identified in their strategic plan for the upper watershed. This grant was used to acquire approximately 1,800 acres of land between the north and south forks of the Cosumnes river. This acquisition was not directly on the mainstem of the Cosumnes River but is a strategic piece of property for their strategic plan. This project will reduce the amount of fine sediment loading to the Cosumnes River by preventing development of the property while also reducing the likelihood that additional parcels adjacent to it well be developed as well.
	6	Delta	К				ERP-02-P02	Jul-03	.lul-04	2 000 000	4 000 000	6 000 000	American River	Alan Ebroott	2160 acres		
	8	elta	S			29 U. Status of actions to reduce fine sediment loading to streams in the Napa River due to human activities (from Phase II Report and Water Quality Program Plan):	<u>ERF-02-FUZ</u>	301-03	<u>Jui-04</u>	2,000,000	4,000,000	0,000,000	Conservancy		acies		
-	29	ð	R			29 V. Status of the sub											
	6	Delta	ŝR			element of actions to reducing fine sediment loading to the Napa River: Participate in implementation of USDA sediment reduction program.											
	29	Delta	SR			29 W. Status of the sub element of actions to reducing fine sediment loading to the Napa River: Implement sediment reduction BMPs in construction areas, on agricultural lands, for urban storm water runoff, and other specific sites.											
	29	Delta	SR			29 X. Status of the sub element of actions to reducing fine sediment loading to the Napa River: Implementation of stream restoration and revegetation work.											
	29	Delta	SR			29 Y. Status of the sub element of actions to reducing fine sediment loading to the Napa River: Quantify and determine ecological impacts of sediments in target watersheds, implement corrective actions.											
	29	Delta	SR			29 Z. Status of actions to reduce fine sediment loading to streams in the Petaluma River due to human activities (from Phase II Report and Water Quality Program Plan):											

S Number	GION	oject Type	ERP Targets taken	MS Components or Questions for field	ERP PROJECT	CONT	END	CALFED		Total Project		Principal	its		
Ň	RE	č Milestone	from ERPP Vol 2	personnel	NUMBERS	DATE	DATE	Award	Cost Share	Cost	Applicant	Investigator C	n n	Project Name	Comments
				29AA. Status of the sub											
				fine sediment loading to the											
				Petaluma River: Participate in											
				implementation of USDA											
	Ita	~		sediment reduction program.											
29	De	R.													
				29BB Status of the sub											
				fine sediment loading to the											
				Petaluma River: Implement											
				sediment reduction BMPs in											
				construction areas, on											
				storm water runoff, and other											
6	elta	с.		specific sites.											
~		<u></u>		29CC. Status of the sub											
				element of actions to reducing											
				fine sediment loading to the											
				Implementation of stream											
_	elta	~		restoration and revegetation											
29	ă	S		work.											
				element of actions to reducing											
				fine sediment loading to the											
				Petaluma River: Quantify and											
				determine ecological impacts											
				watersheds, implement											
	a			corrective actions.											
5	Delt	SR													
				29EE. Status of the sub											
				element of actions to reducing											
				fine sediment loading to the											
				implementation of USDA											
				sediment reduction program.											
ត្ត	Delt	ж													
				29FF Status of the sub											
				element of actions to reducing											
				fine sediment loading to the											
				sediment reduction BMPs in											
				construction areas, on											
				agricultural lands, for urban											
	elta	~		storm water runon, and other											
29	De	S.		2000 Status of the suit											
				element of actions to reducing											
				fine sediment loading to the											
				Sonoma Creek:											
	lta			Implementation of stream											
29	De	SR		work.											

					MULT	I SPECIES	CONS	ERVAT	ION ST	RATEG	Y MILE	STONE 30	) ROLLEI	D UP	SUMMARY		
MIL nec adv thre in se the wate	ESTC essar erse e shold edime Bay-D ershe	DNE y resecold con ents : Delta d.	<b>30</b> Conduct the search to determine no ogical/biological effects centrations for mercury and key organisms in estuary and its			PROJECTS REVIEWED - ERP-97-C05, ERP-99-B06, ERP-02-C06A, ERP-02-C06B, ERP-02D-C12, ERP-02D-P62, ERP-02D-P62, ERP-02-P40		SUMMA shown that bioaccumu concentrati ERP has m sources, tr bioaccumu studies are However, a mercury tr mercury st framework and 106 for	<b>RY</b> This r there are ma lations, and w ion in sedimer hade substant ansformations lation process just beginnin, at this time the ansformations rategy also prr for future inver r additional pr	nilestone shh ny factors th e cannot se ts, without t al investme , and factors , and factors , Two stu g that will ev re are still s bioaccumu povides addit stigations to ojects that a	ould be rewo lat affect merr t an "effects t consideration nts for resear s controlling ti udies have be raluate source ignificant kno lation and eff ional informal o investigate ti ddress this m	rded. Previous i cury methylation hreshold" for mer of the other facts ch projects to un he methlation/dei en completed, ar es, processes an wledge gaps in u ects to fish and w tion on what is kn his issue. See m iilestone at a land	research has and rcury ors. However, derstand mercury methylation and nd four more d effects. inderstanding vildife. The ioown, and a nilestones 48, 77 dscape level.			AGENCY NOTES	NOTES CONT'D
			MULTI SPECI	ES CONSER	VATION STRATEG	SY MILEST	ONE 30	) EVA		N OF I		UAL PRO	JECTS RE\	/IEWI	ED TO FORMULATE TH	HE ROLLED UP SUMM	ARY
MS Number	REGION	Project Type	Milestone	ERP Targets taken from ERPP Vol 2	MS Components or Questions for field personnel	ERP PROJECT NUMBERS	CONT START DATE	END DATE	CALFED Award	Cost Share	Total Project Cost	Applicant	Principal Investigator	Quantifiable Units	Project Name	Comme	nts
30	Delta	sr	Conduct the necessary research to determine no adverse ecological/biological effects threshold concentrations for mercury in sediments and key organisms in the Bay-Delta estuary and its watershed.		30 A. Status of the necessary research to determine no adverse ecological/biological effects threshold concentrations for mercury in sediments and key organisms in the Bay-Delta estuary and its watershed. (Work specific to a key organism in a specific watershed	ERP-99-B06	Sep-00	Sep-03	4.062.058		4.062.058	San Jose State University Foundation - Moss Landing Marine Lab	Kenneth Coale		CALFED Mercury Project: An Assessment of Ecological and Human Health Impacts of Mercury in the San Francisco Bay – Sacramento – San Joaquin Delta Watershed (California)	Conduct the necessary researc ecological / biological effects th mercury in sediments and key orga watershed. This large multifaceted sources and cycling of mercury, in effects on avian populations. The i focused on the Sacramento River, ( the biogeochemical cycling comp This milestone is difficult to achiev concentrations are not well correla many other factors that influen bioaccumulation and effects. The i significant gains in understanding but there are still many critical unh understo	h to determine no adverse reshold concentrations for nisms in the Bay-Delta and its research project investigated cluding bioaccumulation and n-depth study of sources was Cache Creek and the Delta, but onent applies to all regions. re because mercury sediment ted with affects, and there are ce methylation, exposure, results from this project made mercury sources and cycling, inown processes that are not ood.
0	Delta	N			30 A. Status of the necessary research to determine no adverse ecological/biological effects threshold concentrations for mercury in sediments and key organisms in the Bay-Delta estuary and its watershed. (Work specific to a key organism in a specific watershed	ERP-020-012	Sep-00	sep-03	5 337 012		5 337 012	U.S. Fish and Wildlife	Tom Sucharsk		Mercury in San Francisco Bay-Delta Birds: Trophic Pathways, Bioaccumulation and Ecotoxicological Risk to Avian Reproduction	NO CONTRACT STILL UNDER DE comprehensive study to determi effects of mercury exposure and bi in the Bay-Delta. The guilds inclu recurvirostrids. The project includ reproductive effects, dietary expos histopathological effects in biro milestone is somewhat misleadi factors that affect exposure and b not just mercury concentrations unlikely to develop NOEL se	EVELOPMENT. This is a very ne exposure pathways and baccumulation in 3 bird guilds ide: terns, diving ducks and les both field and lab studies, ure and bioaccumulation, and l populations. (NOTE: this ng because there are many ioaccumulation of mercury - in sediment - therefore it is diment concentrations)

		Ð					CONT	RACT						o		
umbei	N	ct Typ			MS Components or						Total			tifiabl		
N SN	REGIO	Proje	Milestone	ERP Targets taken from ERPP Vol 2	Questions for field	ERP PROJECT	START DATE		CALFED Award	Cost Share	Project Cost	Applicant	Principal Investigator	Quant	Project Name	Comments
		_	million		30 A. Status of the necessary research to determine no adverse ecological/biological effects threshold	Nomberto	DATE	BATE	Award	onaro	0001	Approant	investigator		Mercury and Methylmercury Processes in North San Francisco Bay Tidal Wetland Ecosystems	NO CONTRACT STILL UNDER DEVELOPMENT. This project will examine mercury and methylmercury concentrations in the sediments, water and biota of five tidal marshes along a salinity gradient up the Petaluma River. The study will investigate how
					concentrations for mercury in sediments and key organisms in the Bay-Delta estuary and its watershed. (Work specific											environmental variables affect methylmercury production and bioaccumulation, including age of marsh and salinity, and assess seasonal and interannual variation. The project will also investigate potential effects to Virginia Rail and Clapper Rail
					to a key organism in a specific watershed											populations in these marshes. The process-oriented investigations are applicable to other watersheds.
<u> </u>	Delta	R				ERP-02D-P62			1 656 569		1 656 569	San Francisco Bay Institute	Donald Yee			
					30 A. Status of the necessary				1,000,000		1,000,000	Buy montate	Bonaia Poo		Evaluation of Mercury Transformations	This research project conducts investigations to understand
					research to determine no										and Trophic Transfer in the San Francisco Bay Delta: Identifying	mercury bioavailability in two different Delta locations and the processes and factors that control it including bioaccumulation
					effects threshold										Critical Processes for Ecosystem	in the food chain. Understanding of processes applies to other
					concentrations for mercury in sediments and key organisms										Restoration Program	regions as well.
					in the Bay-Delta estuary and											
					its watershed. (Work specific							U.S.				
	elta	~			watershed				0 000 507			Geological	Mark Marvin-			
ē		S			30 A. Status of the necessary	ERP-02-P40	Jul-03	Jun-06	2,262,567			Survey	DiPasquale		The Effects of Wetland Restoration on	This research project looks at methylmercury production and
					research to determine no										the Production of Methyl Mercury in	exposure in wetland environments, which are found in all
					adverse ecological/biological										the San Francisco Bay Delta System	column and biota of wetlands, compared to adjacent channels.
					concentrations for mercury in											More studies are needed to determine methylation /
					sediments and key organisms											demethylation and exposure in different types of wetlands and other habitats to determine if there are controllable factors that
					its watershed. (Work specific											can reduce methylation rates and exposure.
					to a key organism in a specific							University of				
	Jelta	Ř			watersneu	EPP 07 C05		Son 082	546 171		546 171	California,	Darell Slotton			
<del>ر</del>		ø			30 A. Status of the necessary	ERF-97-C05	Jui-90	3ep 96?	540,171		540,171	Davis	Daren Siotton		Transport, Cycling and Fate of Mercury	This research projects have a number of investigations to
					research to determine no										and Monomethyl Mercury in the San	understand mercury bioavailability in different sediment
					effects threshold										Integrated Mass Balance Assessment	environments and the processes and factors that control it.
					concentrations for mercury in										Approach- Prop 204 funded	
					in the Bay-Delta estuary and							Dept. of Fish				
					its watershed. (Work specific							and Game;	Mark			
	olta	~			to a key organism in a specific watershed							University	Stephenson,			
30	å	Ŗ			20 A Status of the personny	ERP-02-C06-A	Apr-03	Mar-06	2,668,091		2,668,091	Foundation	Chris Thompson		Transport Cuoling and Eato of Marouru	Conduct the personny recorrect to determine no educroe
					research to determine no										and Monomethyl Mercury in the San	ecological / biological effects threshold concentrations for
					adverse ecological/biological										Francisco Delta and Tributaries - An	mercury in sediments and key organisms in the Bay-Delta and its
					effects threshold concentrations for mercury in										Approach- Prop 13 funded	investigations to understand mercury bioavailability in different
					sediments and key organisms							Dept of Fish				sediment environments and the processes and factors that
					in the Bay-Delta estuary and its watershed. (Work specific							and Game;				control it.
	a				to a key organism in a specific							San Jose State	Mark			
30	Delt	SR			watershed	ERP-02-C06-B			1,213,121			Foundation	Chris Thompson			

				MUL	TI SPECIES	S CONS	ERVATIO	ON STR	ATEGY	MILES	TONE 31	ROLLED	UP S	UMMARY		
MII wo · S · D · S · P · D	EST k in th uppor eterm burce, articip propria eterm	DNE 31 Conduct the follow ne Cache Creek watershed ( t development and implemer ine bioaccumulation effects i transport, inventory, mappin ate in Stage 1 remediation ( ate. ine sources of high levels of	ving mercury eva (from Phase II Re ntation of TMDL : In creek and Delf ng and speciation drainage control) bioavailable mer	aluation and abatement eport): for mercury. a. n of mercury. I of mercury mines as rcury	PROJECTS REVIEWED - ERP-99-806, ERP-01-C07-D, ERP-02-C03D, ERP-02-C06A, ERP-02-C06B, ERP-02D-C12, ERP-02D-C12, ERP-02-P62, ERP-02-P62, ERP-03-C03,		SUMMAR region. ERP to Sacramento re mercury source bioaccumulati significant info the mine sites Creek TMDL fo begun will com Significant unl bank sedimen such as specia organic carbon	Y First n usually consid- egion. One la che Creek, in ces and source on and trophii vimation on lo to the mercury. S thribute inform knowns includ ts and its abil ation of mercur, and structu	tote that this lers the Cac arge multifact cluding mer e bioavailab c transfer in adds of merc ry loads tha Several othe hation on me is the exten ity to mobiliz ury, presence re of the tro	s milestone s the Creek dra teted project l cury loads, p ility, mine rer the food cha ury from Cac t is being use rr mercury re- ercury process t of mercury of ze, particularl te of sulfides, phic web hav	nould probably n inage to be a pai nas been comple articularly during nediation feasibil n. This project p he Creek and the d in the developr search studies th d in the developr search studies th d in the developr search studies th contamination in : y during storm ev redox conditions e all been identifi	bt be in the Delta t of the ted to evaluate storm events, ity, mercury rovided e contribution of nent of the Cache at have recently n birds. stream bed and rents. Factors , availability of ed as potentially a	SUMMA mercury characte conditior other me recently mercury Several been as: occurree See mile address	RY continued bioavailability of However, this watershed has not been rized to determine where these is exist or how to control them. Several wrcury research studies that have begun will contribute information on processes and effects on birds. arge mine sites in this watershed have sessed, but no remediation has yet stone 78 for additional projects that this milestone at a landscape level.	AGENCY NOTES	NOTES CONT'D
		MULTI SPEC	CIES CONSE	RVATION STRATE	GY MILES	TONE 3	1 EVAL		N OF IN	IDIVIDU	AL PROJE	ECTS REV	IEWE	D TO FORMULATE THE	E ROLLED UP SUMMAF	RY
IS Number	EGION	roject Type	ERP Targets taker	MS Components or Questions for field	ERP PROJECT	CON START		CALFED	Cost	Total Project	Annilaria	Principal	tuantifiable Inits	Desired Name		
	elta	Conduct the following mercury, evaluation and abatement work in the Cache Creek watershed (from Phase II Report): · Support development and implementation of TMDL for mercury. · Determine bioaccumulation effects in creek and Delta. · Source, transport, inventory, mapping and speciation of mercury. · Participate in Stage 1 remediation (drainage control) of mercury mines as appropriate. · Determine sources of high levels of bioavailable mercury	)	31 A. Status of actions undertaken to support the development and implementation of TMDL for mercury in Cache Creek watershed	NUMBERS			Award			San Jose State University Foundation - Moss Landing	invesugator		CALFED Mercury Project: An Assessment of Ecological and Human Health Impacts of Mercury in the San Francisco Bay – Sacramento – San Joaquin Delta Watershed (California)	Comments           Image: Status of actions undertaken to support the development and implementation of TMDL for mercury in Cache Creek watershed.           San San Trial           Status of actions undertaken to support the development and implementation of TMDL for mercury in Cache Creek watershed.           Task 1: Evaluate sources and storm loading of mercury in Cache Creek watershed, Task 5: Mercury Sources, bioaccumulation ar trophic transfer in the Cache Creek Watershed. This project contributed most of the scientific basis for development of the Cache Creek draft TMDL, including water and sediment concentrations and loads, identification of sources, mercury levels in biota, sediment flux rates, and estimated bioaccumulation factors in the Cache Creek watershed. NOTE Cache Creek is in the Sacramento Region, although there are milestones related to Cache Creek listed in the Delta and Sacramento Regions.	
4	lelta	<u>к</u>		31 A. Status of actions undertaken to support the development and implementation of TMDL for mercury in Cache Creek watershed	ERP-99-B06	Sep-00	Sep-03	4,062,058		4,062,058	California	Kenneth Coale		Department of Conservation, Abandoned Mine Lands Unit Mine Remediation Assessment and Field Investigations of the Middle Yuba River and other Watersheds	Support development and impleme This project identifies sources of n to the Sacramento River and Delta. assist in sources load red	ntation of TMDL for mercury nercury that contribute loads Identification of sources wil uctions in the TMDL.
34	Delta	R N		31 A. Status of actions undertaken to support the development and implementation of TMDL for mercury in Cache Creek watershed	ERP-02-C03-D	no contract	no contract	100,000	0	100,000	Central Valley Regional Water quality Control Board	Patrick Morris		Regulatory Activities of Inactive Mine Sites Affecting Bay-Delta Water quality	Support development and impleme This project provides support fo support activities that will get inac the owne	ntation of TMDL for mercury. TMDL implementation - to tive mine sites cleaned up by srs.

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lber	_	Type					CON	IRACI	-					able		
L m	NO	ect 7			MS Components or						Total			s		
AS h	SEG	roj	Milestone	ERP Targets taken	Questions for field	ERP PROJECT	START		CALFED	Cost Share	Project	Applicant	Principal Investigator	Jua	Project Name	Comments
	-		milestone		31 B. Status of the	NOMBERG	DAIL		Awaru	Unare	0031	Applicant	investigator	0 0	CALFED Mercury Project: An	Status of the determination of bioaccumulation effect
					determination of										Assessment of Ecological and Human	Creek and the Delta. Task 1: Evaluate sources and s
					Cache Creek and the Delta										Francisco Bay – Sacramento – San	of mercury in Cache Creek watershed, Task 5: Merc bioaccumulation and trophic transfer in the Cac
															Joaquin Delta Watershed (California)	Watershed. This project contributed most of the sci
																for development of the Cache Creek draft TMDL, inc
																sources, mercury levels in biota, sediment flux r
																estimated bioaccumulation factors in the Cach
																although there are milestones related to Cache Creek
												San Jose State				Delta and Sacramento Regions.
	_											Foundation -				
Σ	Delta	Ř				ERP-00-B06	Sen-00	Sen-03	4 062 058		4 062 058	Moss Landing	Kenneth Coale			
<u>е</u>		0)			31 B. Status of the	EIGF-99-B00	3ep-00	Sep-05	4,002,030		4,002,030	Marine Lab	Rennetin Coale		Mercury in San Francisco Bay-Delta	NO CONTRACT STILL UNDER DEVELOPMENT. Th
					determination of										Birds: Trophic Pathways,	comprehensive study to determine exposure path
					Cache Creek and the Delta										Risk to Avian Reproduction	in the Bay-Delta. The guilds include: terns, diving
																recurvirostrids. The project includes both field and
												LLS Fish and				reproductive effects, dietary exposure and bioaccur
	elta	~										Wildlife				
31	å	Ъ			21 D. Status of the	ERP-02D-C12			5,337,012		5,337,012	Service	Tom Suchanek		Mercury and Mathulmanoury Drasses	
					determination of										in North San Francisco Bay Tidal	determination of bioaccumulation effects in Cache C
					bioaccumulation effects in										Wetland Ecosystems	Delta. This project will investigate dietary exposure
					Cache Creek and the Delta											reproductive effects to Virginia Rail and Clapper Rail also includes investigations on food web transfer o
	əlta	~										San Francisco				these systems.
31	ă	SF			31 B. Status of the	ERP-02D-P62			1,656,569		1,656,569	Bay Institute	Donald Yee		Science Program Directed Action for	Research Project 50% complete Most of research
					determination of										Ecological evaluation of Yolo Bypass	done.
					bioaccumulation effects in										to support floodplain restoration	
	lta				Cache Creek and the Delta							Dept. of Water				
31	De	SR				CSP-01-C01	??-01	??-02	395,500		395,500	Resources	Ted Somer			
					31 C. Status of determining source, transport, inventory,										CALFED Mercury Project: An Assessment of Ecological and Human	Status of determining source, transport, inventory, speciation of mercurv in Cache Creek watershee
					mapping and speciation of										Health Impacts of Mercury in the San	Sources and loads from Cache Creek watershed
					mercury in Cache Creek										Francisco Bay – Sacramento – San	special storm events Subtask 5A: Source Bioava
					watersneu.										Joaquin Della Walersheu (California)	Subtask 5B Mercury Bioaccumulation and Trophic
																the Cache Creek Watershed; Subtask 50
																Assessment of the Feasibility of Remediation of M Sources in the Cache Creek Watershed. This p
																contributed substantial information towards evalua
																from Cache Creek, mine sources, and bioavailabili
																widespread in the streambeds and banks and is th
																the most significant source of most mercury loads
																known how sources and loads relate to a variety of
																It is not known how the bioavailability changes as
												San Jose State				moves downstream
												University				
	lta											Foundation - Moss Landing				
31	De	SR				ERP-99-B06	Sep-00	Sep-03	4,062,058		4,062,058	Marine Lab	Kenneth Coale			

ber		ype					CON	TRACT						able		
MS Num	REGION	Project T	Milestone	ERP Targets taken	MS Components or Questions for field	ERP PROJECT	START		CALFED	Cost	Total Project Cost	Applicant	Principal	Quantifia	Project Name	Comments
-	4				31 C. Status of determining source, transport, inventory, mapping and speciation of mercury in Cache Creek watershed.	NUMBERG						Approxim	Investigator		Directed Action for Cache Creek Settling Basin Study	This study is being conducted by the Army Corps to assess the potential for increasing sediment deposition and mercury removal in a proposed flood control structure at the mouth of Cache Creek. Project not begun; was not awarded a contract but is in the process of applying for a new one.
31	Delta	SR				ERP-01-C07-D			100,000		100,000	Army Corps of Engineers				
31	Delta	SR			31 C. Status of determining source, transport, inventory, mapping and speciation of mercury in Cache Creek watershed.	ERP-02-C06-A	Apr-03	Mar-06	2,668,091		2,668,091	Dept. of Fish and Game; San Jose State University Foundation	Mark Stephenson, Chris Thompson		Transport, Cycling and Fate of Mercury and Monomethyl Mercury in the San Francisco Delta and Tributaries - An Integrated Mass Balance Assessment Approach- Prop 204 funded	This project evaluates mercury from different sources and their relative importance in contributing to methylmercury contamination in biota.
31	Delta	SR			31 C. Status of determining source, transport, inventory, mapping and speciation of mercury in Cache Creek watershed.	ERP-02-C06-B			1,213,121			Dept. of Fish and Game; San Jose State University Foundation	Mark Stephenson, Chris Thompson		Transport, Cycling and Fate of Mercury and Monomethyl Mercury in the San Francisco Delta and Tributaries - An Integrated Mass Balance Assessment Approach- Prop 13 funded	This project evaluates mercury from different sources and their relative importance in contributing to methylmercury contamination in biota.
31	Delta	SR			31 C. Status of determining source, transport, inventory, mapping and speciation of mercury in Cache Creek watershed.	ERP-02-C03-D	May-02	Sep-04	400.000	0	400.000	California Department of Conservation	Douglas Craig		Department of Conservation, Abandoned Mine Lands Unit Mine Remediation Assessment and Field Investigations of the Middle Yuba River and other Watersheds	Source, transport, inventory, mapping and speciation of mercury. This project inventories and assesses abandoned mine sites throughout the watershed. It ranks and prioritizes sites for remediation.
31	Delta	SR			31 C. Status of determining source, transport, inventory, mapping and speciation of mercury in Cache Creek watershed.	ERP-02-P40	Jul-03	Jun-06	2,262,567		,	U.S. Geological Survey	Mark Marvin- DiPasquale		Evaluation of Mercury Transformations and Trophic Transfer in the San Francisco Bay Delta: Identifying Critical Processes for Ecosystem Restoration Program	Source, transport, inventory, mapping and speciation of mercury. This project evaluates the speciation of mercury and its bioavailability
31	Delta	SR			31 C. Status of determining source, transport, inventory, mapping and speciation of mercury in Cache Creek watershed.	CSP-01-C01	??-01	??-02	395,500		395,500	Dept. of Water Resources	Ted Somer		Science Program Directed Action for Ecological evaluation of Yolo Bypass to support floodplain restoration	Research. Project 50% complete. Most of research has been done.
31	Delta	SR			31 D. Status of participation in Stage 1 remediation (drainage control) of mercury mines in Cache Creek watershed	ERP-99-B06	Sep-00	Sep-03	4,062,058		4,062,058	San Jose State University Foundation - Moss Landing Marine Lab	Kenneth Coale		CALFED Mercury Project: An Assessment of Ecological and Human Health Impacts of Mercury in the San Francisco Bay – Sacramento – San Joaquin Delta Watershed (California)	Status of participation in Stage 1 remediation (drainage control) of mercury mines in Cache Creek watershed. Subtask 5C1: Assessment of the Feasibility of Remediation of Mercury Mine Sources in the Cache Creek Watershed This project evaluated a number of specific mine sites in the Cache Creek watershed to determine extent of mercury contamination, loads to the waterbody and feasibility of cleanup.
31	Delta	SR			31 D. Status of participation in Stage 1 remediation (drainage control) of mercury mines in Cache Creek watershed	ERP-02-P40	Jul-03	Jun-06	2,262,567			U.S. Geological Survey	Mark Marvin- DiPasquale		Evaluation of Mercury Transformations and Trophic Transfer in the San Francisco Bay Delta: Identifying Critical Processes for Ecosystem Restoration Program	This project will evaluate mercury concentrations at multiple levels in the foodweb, which may contribute to an understanding of how mercury is affecting different populations.

31	31	31	31	31	31	MS Number
Delta	Delta	Delta	Delta	Delta	Delta	REGION
SR	SR	SR	SR	SR	ßR	Project Type
						Milestone
						ERP Targets taken from ERPP Vol 2
31 E. Status of determining sources of high levels of bioavailability mercury in the Cache Creek Watershed	31 E. Status of determining sources of high levels of bioavailability mercury in the Cache Creek Watershed	31 E. Status of determining sources of high levels of bioavailability mercury in the Cache Creek Watershed	31 E. Status of determining sources of high levels of bioavailability mercury in the Cache Creek Watershed	31 E. Status of determining sources of high levels of bioavailability mercury in the Cache Creek Watershed	31 E. Status of determining sources of high levels of bioavailability mercury in the Cache Creek Watershed	MS Components or Questions for field personnel
ERP-02-P40	CSP-01-C01	ERP-02-C03-D	ERP-02-C06-B	ERP-02-C06-A	ERP-99-B06	ERP PROJECT NUMBERS
Jul-03	??-01	May-02		Apr-03	Sep-00	CON START DATE
Jun-06	??-02	Sep-04		Mar-06	Sep-03	TRACT
2,262,567	395,500	400,000	1.213.121	2.668.091	4,062,058	CALFED Award
		0				Cost Share
	395,500	400,000		2.668.091	4,062,058	Total Project Cost
U.S. Geological Survey	Dept. of Water Resources	California Department of Conservation	Dept. of Fish and Game; San Jose State University Foundation	Dept. of Fish and Game; San Jose State University Foundation	San Jose State University Foundation - Moss Landing Marine Lab	Applicant
Mark Marvin- DiPasquale	Ted Sommer	Douglas Craig	Mark Stephenson, Chris Thompson	Mark Stephenson, Chris Thompson	Kenneth Coale	Principal Investigator
Evaluation of Mercury Transformat and Trophic Transfer in the Sar Francisco Bay Delta: Identifying Critical Processes for Ecosyster Restoration Program	Science Program Directed Action Ecological evaluation of Yolo Bypa to support floodplain restoration	Department of Conservation, Abandoned Mine Lands Unit Mir Remediation Assessment and Fie Investigations of the Middle Yuba F and other Watersheds	Transport, Cycling and Fate of Mer and Monomethyl Mercury in the S Francisco Delta and Tributaries - Integrated Mass Balance Assessm Approach- Prop 13 funded	Transport, Cycling and Fate of Mer and Monomethyl Mercury in the S Francisco Delta and Tributaries - Integrated Mass Balance Assessm Approach- Prop 204 funded	CALFED Mercury Project: An Assessment of Ecological and Hur Health Impacts of Mercury in the S Francisco Bay – Sacramento – S Joaquin Delta Watershed (Californ	e nutifiable Dutts Dutts Dutts Dutts Bute Bute Bute Bute Bute Bute Bute Bute
This project evaluates the processes that convert mercury to methylmercury, making it bioavailable, and determines how it is transferred in the foodweb in different habitat types.	Research. Project 50% complete. Most of research has been ss done.	Determine sources of high levels of bioavailable mercury. This project inventories and assesses abandoned mine sites throughout the watershed. It ranks and prioritizes sites for ver remediation.	Ury This project evaluates mercury from different sources and their relative importance in contributing to methylmercury contamination in biota.	ury This project evaluates mercury from different sources and their relative importance in contributing to methylmercury n contamination in biota.	<ul> <li>Subtask 1C: Mercury Loads to the Sacramento-San Joaquin Delta from the Cache Creek Watershed and the Yolo Bypass.</li> <li>Subtask 1D: Special Storm Event Study of Mercury Loading in Cache Creek, Subtask 5A: Source Bioavailability and Mine Remediation Feasibility in the Cache Creek Watershed, Subtask 5B Mercury Bioaccumulation and Trophic Transfer in the Cache Creek Watershed, Subtask 5C1: Assessment of the Feasibility of Remediation of Mercury Mine Sources in the Cache Creek Watershed. This project provided significant information on loads of mercury from Cache Creek and the contribution of the mine sites to the mercury loads. Significant unknowns include the extent of mercury contamination in stream bed and bank sediments and its ability to mobilize, particularly during storm events. Factors such as speciation of mercury, presence of sulfides, redox conditions, availability of organic carbon, structure of the trophic web have all been identified as potentially affecting bioavailability of mercury.</li> </ul>	Comments

					MULT	I SPECIES	CONS	ERVAT	FION ST	RATEO	GY MILE	STONE 3	2 ROLLE	D UP	SUMMARY		
Nafo P b c d c · e m h	ILES Ilowir batem	TON Ig mo ient v II Re mine umul: mine tratic d dui ance mine tem mero troph	<b>E 32</b> Conduct the ercury evaluation and work in the Delta (from port): methylization (part of ation) process in Delta. sediment mercury on in areas that would be ring levee maintenance of e work. potential impact of restoration work on cury levels in lower and ic level organisms.	r		PROJECTS REVIEWED - ERP-97-C05, ERP-99-806, ERP-02-C06A, ERP-02-C06B, ERP-02-C06B, ERP-02-C12, ERP-02-P62, ERP-02-P40		SUMMA understan methlation completed processes gaps in un and wildlifi impacts of provides a investigati	ARY ERP d mercury sou //demethylatio d, and four mo and effects. derstanding r e. These sigr f ecosystem r additional infor ons to study t	has made s urces, transf on and bioac re studies a However, a mercury tran nificant gaps estoration w mation on w his issue.	substantial inv ormations, ar cumulation pr re just beginn t this time the sformations, l make it impo ork at this tim rhat is known	vestments for res d factors control rocesses. Two s ing that will eval re are still signifit bioaccumulation possible to determi e. The mercury , and a framewor	earch projects to lling the tudies have been uate sources, cant knowledge and effects to fish ine potential strategy also rk for future			AGENCY NOTES	NOTES CONT'D
			MULTI SPECI	ES CONSER	VATION STRATEG	BY MILEST	ONE 32	2 EV/		ON OF		UAL PRO	JECTS RE	VIEW	ED TO FORMULATE TH	IE ROLLED UP SUMMA	ARY
	MS Number	REGION	ad AL 10 00 00 00 00 00 00 00 00 00 00 00 00	ERP Targets taker from ERPP Vol 2	MS Components or Questions for field personnel	ERP PROJECT NUMBERS	START DATE	END DATE	CALFED Award	Cost Share	Total Project Cost	Applicant	Principal Investigator	Quantifiable Units	Project Name	Commei	nts
		elta	Conduct the following mercury evaluation and abatement work in the Delta (from Phase II Report): • Determine methylization (par of bioaccumulation) process in Delta. • Determine sediment mercury concentration in areas that would be dredged during leve maintenance or conveyance work. • Determine potential impact of ecosystem restoration work of methyl mercury levels in lower and higher trophic level	v t v e of n r	32 A. Status of determining methylization (part of bioaccumulation) process in Delta.							San Jose State University Foundation - Moss Landing			CALFED Mercury Project: An Assessment of Ecological and Human Health Impacts of Mercury in the San Francisco Bay – Sacramento – San Joaquin Delta Watershed (California)	Subtask 1A: Methyl Mercury Budg the Sacramento-San Joaquin Delta i Methyl Mercury Flux Rates: This p data on loads of mercury and methy years of sampling, giving a simplis sources of methyl mercury. TI methylmercury flux rates from se habitats during several seasons. understand the factors that influence into the food	et for the Freshwater Side of Estuary Task 4: Mercury and roject provided water quality /Imercury to the Delta for two tic mass balance estimate of the project also evaluated adiment in several different More studies are needed to e methylation rates and entry chain.
	32 32	Delta	vorganisms.		32 A. Status of determining methylization (part of bioaccumulation) process in Delta.	ERP-99-B06	Sep-00	Sep-03	4,062,058		4,062,058	Marine Lab Dept. of Fish and Game; San Jose State University Foundation	Kenneth Coale Mark Stephenson, Chris Thompson		Transport, Cycling and Fate of Mercury and Monomethyl Mercury in the San Francisco Delta and Tributaries - An Integrated Mass Balance Assessment Approach- Prop 204 funded	Tasks 4 and 5 of this project investi methylmercury in the Delta and inv and factors that control meth Task 4: Delta Wide Monitoring and studies of different ecosystems Task 5 Process orig	gate sediments as sources of estigates different processes sylmercury production. Characterization (Sediment s, benthic flux chambers) ented studies
	32	Delta	<u> </u>		32 A. Status of determining methylization (part of bioaccumulation) process in Delta.	ERP-02-C06-B			1,213,121		2,000,091	Dept. of Fish and Game; San Jose State University Foundation	Mark Stephenson, Chris Thompson		Transport, Cycling and Fate of Mercury and Monomethyl Mercury in the San Francisco Delta and Tributaries - An Integrated Mass Balance Assessment Approach- Prop 13 funded	Tasks 4 and 5 of this project investi methylmercury in the Delta and inv and factors that control methylmerc Wide Monitoring and Characteriz different ecosystems, benthic flux oriented st	gate sediments as sources of estigates different processes ury production. Task 4: Delta ation (Sediment studies of c chambers) Task 5 Process udies
	33	Delta	x		32 A. Status of determining methylization (part of bioaccumulation) process in Delta.	ERP-02-P40	Jul-03	Jun-06	2,262,567			U.S. Geological Survey	Mark Marvin- DiPasquale		Evaluation of Mercury Transformations and Trophic Transfer in the San Francisco Bay Delta: Identifying Critical Processes for Ecosystem Restoration Program	This project evaluates the proces. methylmercury, making it bioavaila transferred in the foodweb in	ses that convert mercury to ble, and determines how it is different habitat types.

32	32	32	32	32	12	MS Number
Delta	Delta	Delta	Delta	Delta	Delta	REGION
SR	SR	SR		SR	ßR	Project Type
						Milestone
						ERP Targets taken from ERPP Vol 2
32 C. Status of determining the potential impact of ecosystem restoration work on methyl mercury levels in lower and higher trophic level organisms in the Delta.	32 C. Status of determining the potential impact of ecosystem restoration work on methyl mercury levels in lower and higher trophic level organisms in the Delta.	32 C. Status of determining the potential impact of ecosystem restoration work on methyl mercury levels in lower and higher trophic level organisms in the Delta.	32 C. Status of determining the potential impact of ecosystem restoration work on methyl mercury levels in lower and higher trophic level organisms in the Delta.	32 B. Status of determining sediment mercury concentration in areas that would be dredged during levee maintenance or conveyance work in the Delta	32 B. Status of determining sediment mercury concentration in areas that would be dredged during levee maintenance or conveyance work in the Delta	MS Components or Questions for field personnel
ERP-02D-P62	ERP-02-C06A	ERP-02-C06-B	ERP-99-B06		FRP-09-B06	ERP PROJECT NUMBERS
	Apr-03_		Sep-00		Sep-00	CONT START DATE
	Mar-06		Sep-03		Sep-03	RACT END DATE
1,656,569	2,668,091	1,213,121	4.062.058	1,002,000	4 062 058	CALFED Award
						Cost Share
1.656.569	2,668,091		4.062.058	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	4 062 058	Total Project Cost
San Francisco Bay Institute	Dept. of Fish and Game; San Jose State University Foundation	Dept. of Fish and Game; San Jose State University Foundation	San Jose State University Foundation - Moss Landing Marine Lab		San Jose State University Foundation - Moss Landing Marine Lab	Applicant
Donald Yee	Mark Stephenson, Chris Thompson	Mark Stephenson, Chris Thompson	Kenneth Coale		Kenneth Coale	Principal Drits Investigator
Mercury and Methylmercury Processes in North San Francisco Bay Tidal Wetland Ecosystems	Transport, Cycling and Fate of Mercury and Monomethyl Mercury in the San Francisco Delta and Tributaries - An Integrated Mass Balance Assessment Approach- Prop 204 funded	Transport, Cycling and Fate of Mercury and Monomethyl Mercury in the San Francisco Delta and Tributaries - An Integrated Mass Balance Assessment Approach- Prop 13 funded	CALFED Mercury Project: An Assessment of Ecological and Human Health Impacts of Mercury in the San Francisco Bay – Sacramento – San Joaquin Delta Watershed (California)		CALFED Mercury Project: An Assessment of Ecological and Human Health Impacts of Mercury in the San Francisco Bay – Sacramento – San Joaquin Delta Watershed (California)	Project Name
NO CONTRACT STILL UNDER DEVELOPMENT. This project provides some important process-level investigations on mercury cycling in wetlands and specifically looks at how different environmental variables affect methyl mercury production and bioaccumulation.	<ul> <li>Tasks 4 and 5 investigate methyl mercury production in different habitats and investigates several processes in mercury cycling. Task 2 puts these into perspective with other sources of mercury.</li> <li>Task 4: Delta Wide Monitoring and Characterization (Sediment studies of different ecosystems, benthic flux chambers) Task 5 Process oriented studies Task 2: (Prop 13 contract) Mass Loading</li> </ul>	Tasks 4 and 5 investigate methyl mercury production in different habitats and investigates several processes in mercury cycling. Task 2 puts these into perspective with other sources of mercury. Task 2: (Prop 13 contract) Mass Loading. Task 4: Delta Wide Monitoring and Characterization (Sediment studies of different ecosystems, benthic flux chambers). Task 5 Process oriented studies	Status of determining the potential impact of ecosystem restoration work on methyl mercury levels in lower and higher trophic level organisms in the Delta. Task 1, Task 4 This project provides some basic mass balance data to give perspective to different sources of mercury and methyl mercury. The sediment flux studies indicate that wetlands have increased methylation rates. This project provides some preliminary information that indicates that wetland restoration could significantly increase methylation rates and biotic exposure. More studies are needed to determine the relative contribution of different types of wetlands and the factors that control methylation and bioaccumulation. In addition, a monitoring program is needed to determine if there are any quantifiable changes in methylation and exposure during restoration activities. This milestone also affects other regions, as mercury contamination is widespread in the soils and gravels of the tributaries where restoration is planned.		Task 4: Mercury and methyl mercury in sedimentsThis project evaluated 233 sediment samples from the bay-delta. NOTE: This milestone may not be very relevant to restoration for the following reasons: 1. areas to be dredged will have this material removed so it will no longer result in exposure to biota 2. RWQCB always requires testing of the sediment before giving a dredging permit 3. Sediments in channels move from place to place, particularly during high flow events, 4. Sediment mercury concentrations are only slightly correlated to methyl mercury production, other factors may have greater influence.	Comments

32	32	32	MS Number
Delta	Delta	Delta	REGION
SR	SR	SR	Project Type
			Milestone
			ERP Targets taken from ERPP Vol 2
32 C. Status of determining the potential impact of ecosystem restoration work on methyl mercury levels in lower and higher trophic level organisms in the Delta.	32 C. Status of determining the potential impact of ecosystem restoration work on methyl mercury levels in lower and higher trophic level organisms in the Delta.	32 C. Status of determining the potential impact of ecosystem restoration work on methyl mercury levels in lower and higher trophic level orcanisms in the Delta.	MS Components or Questions for field personnel
ERP-97-C05	ERP-02-P40	ERP-02D-C12	ERP PROJECT NUMBERS
Jul-98	Jul-03		CONT START DATE
Sep-98	Jun-06		RACT END DATE
546,171	2,262,567	5,337,012	CALFED Award
			Cost Share
546,171		5,337,012	Total Project Cost
University of California, Davis	U.S. Geological Survey	U.S. Fish and Wildlife Service	Applicant
Darell Slotton	Mark Marvin- DiPasquale	Tom Suchanek	Principal Investigator
			Quantifiable Units
The Effects of Wetland Restoration on the Production of Methyl Mercury in the San Francisco Bay Delta System	Evaluation of Mercury Transformations and Trophic Transfer in the San Francisco Bay Delta: Identifying Critical Processes for Ecosystem Restoration Program	Mercury in San Francisco Bay-Delta Birds: Trophic Pathways, Bioaccumulation and Ecotoxicological Risk to Avian Reproduction	Project Name
This project looked at methylation in wetlands and determined that wetlands do increase net methylation and bioaccumulation. More studies are needed to determine if there are controllable factors to reduce methylation in wetland environments, as well as a monitoring program.	This project evaluates the processes and factors that convert mercury to methylmercury, making it bioavailable, and determines how it is transferred in the foodweb in different habitat types.	NO CONTRACT STILL UNDER DEVELOPMENT. This study will provide information on existing conditions and effects to avian populations.	Comments

						MULT	I SPECIES	CONS	ERVA1	FION ST	RATEG	Y MILE	STONE 3	3 ROLLE	D UP	SUMMARY		
M Re · [ ar · [ · [ · [ · ]	LEST port) evelo d the uppo evelo etern uppo lonito	FON pp di Dep rt de pp Bl nine rt im or to	Itazir partr evelo BMP e the nple o dete	3 Conduct the follow non and chlorpyrifos ha ment of Pesticide Regu opment and implemen s for dormant spray an e ecological significance mentation of BMPs. ermine effectiveness o	ring pesticide wo azard assessme ulations. Itation of a TMDI Id household use e of pesticide dis of BMPs	rk (from Phase II nt criteria with CDFG - for diazinon. - s. - scharges.	PROJECTS REVIEWED - ERP-97-C12, ERP-97-N01, ERP-97-N20, ERP-98-C06		SUMMA chlorpyrifo completed assess an County. reduction p been fund developed effectivene pyrethroidi shown tha with sensc sublethal e mortality fr	ARY One is hazard assist to support the d reduce diaz Three projects practices for b ed to evaluate I BMPs for pe ess of various s are causing es tested (par t very low cor pry cues need exposures to prom	project has b assment critte e developme inon inputs fi have been i e effects of pr sticide reduc techniques. significant to ticularly cree icentrations of ed for salmo opyrethroids s	been complete ria for toxicit int and impla rom urban str funded to eva tommatter ann esticides on a tions in agric Recent resu ks and draim of organopho nid migration howed signif	ted to develop th y. One project t ntation of a TMD promwater runoff aluate and implei d agriculture. Th aquatic life. One ulture also monii lits from studies i thic organisms in ages). Other stu sphate pesticide . Lab studies of icant increased s	e diazinon and has been L for diazinon, to in Sacramento ment pesticide ree projects have project that ored for indicate that 2.25-60% of the dies have also s may interfere salmon with susceptibility to	SUMMA investiga of both v pesticide potentia may affe significa address drainage the Regi and othe reduce p pesticide addition. a landsc	RY continued disease. More ations are needed to evaluate episodes water and sediment toxicity from es, including pyrethroids, as well as l effects from sublethal exposures that ect aquatic populations. There are nt efforts by other organizations to pesticide issues, including the ag e program and TMDL development at ional Board, PRIZM grants from USEPA, er efforts by USDA and local groups to pesticide usage and impacts from es. See milestones 49, 80, and 107 for al projects that address this milestone at tape level.	AGENCY NOTES	NOTES CONT'D
				MULTI SPECI	ES CONSER	VATION STRATEG	GY MILEST	ONE 33	8 EV/	ALUATIO	ON OF I	NDIVID	UAL PRO	JECTS RE	VIEW	ED TO FORMULATE TH	IE ROLLED UP SUMMA	ιRY
		KEGION	Project Type	Milestone	ERP Targets taken from ERPP Vol 2	MS Components or Questions for field personnel	ERP PROJECT NUMBERS	CONT START DATE	END DATE	CALFED Award	Cost Share	Total Project Cost	Applicant	Principal Investigator	Quantifiable Units	Project Name	Commer	its
			Water Quality 요 프 · 뉴 O & 이 · ヵ 쇼 O	Conduct the following posticide work (from Phase II Report): Develop diazinon and chlorpyrifos hazard assessment criteria with CDFG and the Department of Pesticide Regulations. Support development and mplementation of a TMDL for diazinon.		33 A. Status of the development of diazinon and chlorpyrifos hazard assessment criteria with CDFG and the Department of Pesticide Regulations.	ERP-97-N01	Aug-98	Jan-01	663,500	none	663,500	Sacramento Stormwater Management Program	Larry Nash		Assessment and Implementation of Urban Use Reduction of Diazinon and Chlorpyrifos	This project consists of a multi-phase and control the toxicity of urban runof diazinon and chlorpyrifos. <i>Quarterly</i> <i>complete. Research; pr</i>	program to identify, evaluate, f caused by elevated levels of report in e-room says 100% oject completed.
			Water Quality			33 A. Status of the development of diazinon and chlorpyrifos hazard assessment criteria with CDFG and the Department of Pesticide Regulations.	ERP-98-C06	Aug-98	Jun-99	67,753	0	67,753	CDFG	Brian Finlayson		Water Quality Criteria for Clorpyrifos and Diazinon	Develop hazard assessment criteria Brian Finlayson, DFG. Implemen	or diazinon and chlorpyrifos. tation. Project complete.
			Water Quality			33 B. Status of actions taken in support of development and implementation of a TMDL for diazinon.	ERP-97-N01	Aug-98	Jan-01	663,500	none	663,500	Sacramento Stormwater Management Program	Larry Nash		Assessment and Implementation of Urban Use Reduction of Diazinon and Chlorpyrifos	This project consists of a multi-phase and control the toxicity of urban runof diazinon and chlorpyrifos. Quarterly complete. Research; pr	program to identify, evaluate, f caused by elevated levels of report in e-room says 100% oject completed.
	3		Water Quality			33 C. Status of the development of BMPs for dormant spray and household uses.	ERP-97-C12	Aug-98	Jul-01	957,781	none	957,781	UC Davis	Frank Zalom		Evaluation of Alternative Pesticide Use Reduction Practices	The project is designed to identify, pro practices to reduce biological impac quality of all priority aquatic habitats id <i>final report. Research; p</i>	mote, and monitor alternative ts of pesticides on the water entified by CALFED. <i>E-room</i> <i>roject completed.</i>
			Water Quality			33 C. Status of the development of BMPs for dormant spray and household uses.	ERP-97-N01	Aug-98	Jan-01	663,500	none	663,500	Sacramento Stormwater Management Program	Larry Nash		Assessment and Implementation of Urban Use Reduction of Diazinon and Chlorpyrifos	This project consists of a multi-phase and control the toxicity of urban runof diazinon and chlorpyrifos. Quarterly complete. Research; pr	program to identify, evaluate, f caused by elevated levels of report in e-room says 100% oject completed.

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Der		ype					CONT	RACT	-					ble		
Numt	NOI	ect T			MS Components or		07.07	-			Total		Dela i i	ntifia s		
MS P	REG	Proj	Milestone	ERP Targets taken from ERPP Vol 2	Questions for field personnel	ERP PROJECT NUMBERS	START DATE	END DATE	CALFED Award	Cost Share	Project Cost	Applicant	Principal Investigator	Qual Unit	Project Name	Comments
	lta	ater Quality			33 C. Status of the development of BMPs for dormant spray and household uses.							Community Alliance with Family	<b>g</b>		Implementing Program to Reduce the Use of Pesticides and Fertilizers in the Sacramento and San Joaquin Watersheds	The project objectives: 1) Plan and implement and intensive media campaign to enlist mainstream farmers in CAFF's pesticide reduction programs; 2) Continue to coordinate BIOS in San Joaquin, Madera and Colusa Communities through the 1999 growing season; 3) Oversee the transition of BIOS projects to local leadership starting in the fall of 1999; 4) Use the Lighthouse Farm Network to offer consistent technical support to farmers. <i>Marcia Gibbs, Community Alliance with Family Farmers (CAFF).</i> Implementation; project completed. Addresses pesticide reduction and water quality. The primary stressor addressed by the project was water quality from agricultural, non-point source contaminants and increased nutrient inputs. The project reduced the use of pesticides that have been shown to degrade water quality. Farmers that enroll in BIOS have been shown to cut by 90% their use of diazinon. The project also decreased the use of other organophosphate insecticides.
33	De	Ň			33 D. Status of determining	ERP-97-N20	Jul-98	Jun-01	1,680,631	none	1,680,631	Farmers	Judith Redmond		Evaluation of Alternative Pesticide Lise	The project is designed to identify promote and monitor alternative
	B	er Quality			the ecological significance of pesticide discharges.										Reduction Practices	practices to reduce biological impacts of pesticides on the water quality of all priority aquatic habitats identified by CALFED. <i>E-room</i> <i>final report. Research; project completed.</i>
33	Delt	Wate				ERP-97-C12	Aug-98	Jul-01	957,781	none	957,781	UC Davis	Frank Zalom			
33	Delta	Water Quality			33 D. Status of determining the ecological significance of pesticide discharges.	ERP-97-N01	Aug-98	Jan-01	663,500	none	663,500	Sacramento Stormwater Management Program	Larry Nash		Assessment and Implementation of Urban Use Reduction of Diazinon and Chlorpyrifos	This project consists of a multi-phase program to identify, evaluate, and control the toxicity of urban runoff caused by elevated levels of diazinon and chlorpyrifos. Quarterly report in e-room says 100% complete. Research; project completed.
33	Delta	Water Quality			33 D. Status of determining the ecological significance of pesticide discharges.	ERP-97-N20	Jul-98	Jun-01	1,680,631	none	1,680,631	Community Alliance with Family Farmers	Judith Redmond		Implementing Program to Reduce the Use of Pesticides and Fertilizers in the Sacramento and San Joaquin Watersheds	The project objectives: 1) Plan and implement and intensive media campaign to enlist mainstream farmers in CAFF's pesticide reduction programs; 2) Continue to coordinate BIOS in San Joaquin, Madera and Colusa Communities through the 1999 growing season; 3) Oversee the transition of BIOS projects to local leadership starting in the fall of 1999; 4) Use the Lighthouse Farm Network to offer consistent technical support to farmers. Marcia Gibbs, Community Alliance with Family Farmers (CAFF). Implementation; project completed. Addresses pesticide reduction and water quality. The primary stressor addressed by the project was water quality from agricultural, non-point source contaminants and increased nutrient inputs. The project reduced the use of pesticides that have been shown to degrade water quality. Farmers that enroll in BIOS have been shown to cut by 90% their use of diazinon. The project also decreased the use of other organophosphate insecticides.
33	Delta	Water Quality			33 E. Status of actions taken in support of implementation of BMPs.	ERP-97-C12	Aug-98	Jul-01	957,781	none	957,781	UC Davis	Frank Zalom		Evaluation of Alternative Pesticide Use Reduction Practices	The project is designed to identify, promote, and monitor alternative practices to reduce biological impacts of pesticides on the water quality of all priority aquatic habitats identified by CALFED. <i>E-room final report. Research; project completed.</i>

33	33	MS Number
Delta	Delta	REGION
Nater Quality	Water Quality	Project Type
		Milestone
3: pr ef	3; in Bi	ERP Targets taken from ERPP Vol 2
3 F. Status of monitoring rogram to determine ffectiveness of BMPs	3 E. Status of actions taken support of implementation of MPs.	MS Components or Questions for field personnel
ERP-97-C12	ERP-97-N20	ERP PROJECT NUMBERS
Aua-98	Jul-98	CONT START DATE
Jul-01	Jun-01	RACT END DATE
957.781	1,680,631	CALFED Award
none	none	Cost Share
957 781	1,680,631	Total Project Cost
UC Davis	Community Alliance with Family Farmers	Applicant
Frank Zalom	Judith Redmond	Principal Investigator
		Quantifiable Units
Evaluation of Alternative Pesticide Use Reduction Practices	Implementing Program to Reduce the Use of Pesticides and Fertilizers in the Sacramento and San Joaquin Watersheds	Project Name
The project is designed to identify, promote, and monitor alternative practices to reduce biological impacts of pesticides on the water quality of all priority aquatic habitats identified by CALFED. <i>E-room final report. Research; project completed.</i>	The project objectives: 1) Plan and implement and intensive media campaign to enlist mainstream farmers in CAFF's pesticide reduction programs; 2) Continue to coordinate BIOS in San Joaquin, Madera and Colusa Communities through the 1999 growing season; 3) Oversee the transition of BIOS projects to local leadership starting in the fall of 1999; 4) Use the Lighthouse Farm Network to offer consistent technical support to farmers. <i>Marcia Gibbs, Community Alliance with Family Farmers (CAFF).</i> Implementation; project completed. Addresses pesticide reduction and water quality. The primary stressor addressed by the project was water quality from agricultural, non-point source contaminants and increased nutrient inputs. The project reduced the use of pesticides that have been shown to degrade water quality. Farmers that enroll in BIOS have been shown to cut by 90% their use of diazinon. The project also decreased the use of other organophosphate insecticides.	Comments

ſ						MULT	SPECIES	CONS	ERVA	TION ST	RATEG	BY MILE	STONE 3	4 ROLLE	D UP	SUMMARY		
	AILES Conc oals evera Evalu ischa Expa Phase an Je f land /ays ( Supp oaqu	STOI luct : of so il so iate rges nd a rges nd a II R baqu Is wi from ort c in Ri	NE 3 seler ource enari and, and ir sepor uin Va ith dr n Pha devel iver v	4 Conduct the follow iium research to fill da control actions; deter os (from Phase II Rep if appropriate, implen m Phase II Report). nplement source cont t). Coordinate with ot alley Drainage Implem ainage problems that ise II Report). opment and implement vatershed (focus on G	wing selenium wo ata gaps in order rmine bioavailabil port). nent real-time ma trol, treatment, an ther programs; e.g nentation Program are not subject to ntation of TMDL f Grassland area).	rk: to refine regulatory ity of selenium under nagement of selenium d reuse programs (from g., recommendations of n, CVPIA for retirement o correction in other for selenium in the San	PROJECTS REVIEWED - ERP-98-B07, ERP-98-B14, ERP-01-C07, ERP-02-P35		SUMMA/ water, run San Joaqi have beer ecological have beer technolog watershec developm ERP has   coordinate SJR. See milestone	ARY Sele off and groun uin Valley and n funded to ex l effects of sel d. Two additio ent and opera on of agricult e with the RW e milestones 3 at a landscap	nium source dwater input I from refiner aluate source enium in the velop treatm selenium an nal projects tition of a read tition of a read ural drainage QCB on TMI 4, 50, and 10 re level.	is in the water is from natura ries in the Sar is, fate and t a quatic ecos ent feasibility d salinity inpu were funded t I-time water <u>c</u> ty to SJVDIP issues in the DL issues for 08 for addition	shed include irr lly occurring soi n Francisco Bay ransport, bioacc ystem. Three o s studies and tre ts in the San Jo o support the pl uality managem (BCP process) SJR. ERP and salinity (affects nal projects that	igation return I selenium in the . Two projects sumulation and f these projects atment aquin River anning, nent program. The to improve DWQP staffs selenium) in the address this			AGENCY NOTES	NOTES CONT'D
				MULTI SPECI	ES CONSER	ATION STRATEG	Y MILEST	ONE 34	4 EV/	ALUATIO	ON OF	INDIVID	UAL PRC	JECTS RE	VIEW	ED TO FORMULATE T	HE ROLLED UP SUMM	ARY
Note       Note										Commo	nte							
	34	Delta	ж	minescone		34 A. Status of selenium research to fill data gaps in order to refine regulatory goals of source control actions; determine bioavailability of selenium under several scenarios (from Phase II Report).	FRP-98-B07	Aug-98	Dec-01	1 589 000		1 589 000	U.S. Geological Survey	Samuel Luoma		Assessment of the Impacts of Selenium on Restoration of the San Francisco Bay-Delta Ecosystem	PORTION OF MILESTONE ADDRES and use models and monitoring controversies that might impede the Samuel Luoma, U.S. Geological S Project com	SED: Resolve knowledge gaps to aid management of Se ecosystem restoration process. <i>urvey. Monitoring/Research.</i> <i>pleted.</i>
	m	La C				34 A. Status of selenium research to fill data gaps in order to refine regulatory goals of source control actions; determine bioavailability of selenium under several scenarios (from Phase II Report).		Aug-30		1,509,000		1,503,000	Juvey	William		Irrigation Drainage Water Treatment for Selenium Removal: Panoche Drainage District Demonstration Facility	Tryg J. Lundquist. Implementatio the treatment of wastewater to re- Project completed. The pilot proje of a laboratory conceptual mode nitrogen found in agricultural dra function and provide further resea treatment of agricultural draina, include: the State Water Resourc \$500,000 loan from the Agricult Program for the Pacheco Water Dis The Project will conserve up to 500 annually and reduce selenium an Joaquin River. The SWRCB (Resol \$1.0 million State Revolving Funn District for an Irrigation efficiency, water reclamation and conservativ	n. Demonstration project for duce selenium and nitrogen. ict was a successful scale up I for reducing selenium and inage water. It continues to rch information in regards to ge water. Related projects ese Control Board approved ural Drainage Management trict the Canal Lining Project. 7 acre feet of irrigation water d salinity loading to the San ution No. 97-004), approved a I loan to the Pacheco Water provement Project. The Project improved management, and on practices for the District.
-	34	Delt	SR			34 A. Status of selenium	ERP-98-B14	Sep-98	Sep-02	1,149,000	none	1,149,000	UC Berkeley	Oswald		Transport, Transformation, and Effects	Development of hydrodynamic models	to evaluate SE and C transport,
	34	Delta	SR			research to fill data gaps in order to refine regulatory goals of source control actions; determine bioavailability of selenium under several scenarios (from Phase II Report).	ERP-01-C07	Jul-01	Jun-04			2,600,000	USGS	James Cloern		or SE and Carbon in the Delta of the Sacto-SJ Rivers: Implications for Ecosystem Restoration	SE sediment record, laboratory stu phytoplankton. <i>Donna Podger. N</i>	dies of SE transformations by Ionitoring. 74% completed.

Number	NOIS	ect Type			MS Components or		CONT				Total		Dringing'	ntifiable s	
MS	REG	Proj	Milestone	from ERPP Vol 2	personnel	NUMBERS	DATE	DATE	CALFED Award	Cost Share	Cost	Applicant	Investigator	Site Ø⊃ Proiect Name	Comment
	_	_			34 A. Status of selenium research to fill data gaps in order to refine regulatory goals of source control actions; determine bioavailability of selenium under several							The Degeste a		Selenium Effects on Health and Reproduction of White Sturgeon, Acipenser transmontanus, in the Sacramento-San Joaquin Estuary	This project will elucidate the effects of white sturgeon in the San Francisco E The project is looking at the effects of The project is incomplete and has in
4	elta	2			scenarios (from Phase II Report).							the University	Ahmad Hakim-		
14 32	Jelta Di	SI SI			34 B. Status of the evaluation and, if appropriate, implementation a of real-time management of selenium discharges (from Phase II Report).	ERP-02-P35	Jul-03	Jun-04	150,047		150,04	r of California	Elahi	#1 Transport, Transformation, and Effects of SE and Carbon in the Delta of the Sacto-SJ Rivers: Implications for Ecosystem Restoration;	Development of hydrodynamic models t SE sediment record, laboratory studi phytoplankton. <i>Donna Podger. Mo</i>
	tta				34 C. Status of expansion and implementation of selenium source control, treatment, and reuse programs (from Phase II Report).								William J.	Irrigation Drainage Water Treatment for Selenium Removal: Panoche Drainage District Demonstration Facility	The project will provide the studies ne selenium removal at the lowest possib implementation of the Algal-Bacteria technology in the western San Joaquin to the San Joaquin River and the Delta lowering the potential for toxic impa <i>Lundquist, University of California,</i> <i>Demonstration project for the treatm</i> <i>selenium and nitrogen. Project com,</i> <i>a successful scale up of a laboral</i> <i>reducing selenium and nitrogen for</i> <i>water. It continues to function an</i> <i>information in regards to treatment c</i>
34 34	Delta De	SR			34 D. Status of coordination with other selenium programs; e.g., recommendations of San Joaquin Valley Drainage Implementation Program, CVPIA for retirement of lands with drainage problems that are not subject to correction in other ways (from Phase II Report).	ERP-98-B14	Sep-98	Sep-02	1,149,000	none	1,149,00	0 UC Berkeley	Oswald		
34	Delta	SR			34 E. Status of actions to support development and implementation of TMDL for selenium in the San Joaquin River watershed (focus on Grassland area).										

					MULT	I SPECIES	S CONS	SERVA	TION ST	RATEG	GY MILE	STONE 3	5 ROLLE	) UP	SUMMARY		
MII folle org stre · Pa US · In BM oth · In urb and org	EST( owing anoch ams articipp DA se plem Ps or plem an/inc I disc I disc	ONE acti Inlorir (fron ate i edim ent s a agr ecific ent f dustr harg hlorir	35 Conduct the ons in reduce ne pesticide inputs to n Phase II Report): in implementation of ent reduction program. sediment reduction ricultural lands and c sites. BMPs for rial storm water runoff es to reduce PCB and ne pesticides. MULTI SPECI	ES CONSEF	RVATION STRATED	PROJECTS REVIEWED - ERP-97-N20	ONE 3	SUMMA However, t Therefore, pesticides. this waters this milesto	ARY Organ they are extrem efforts to redu One project h shed. See mile one at a landso	nochlorine p nely persiste ce sediment nas been fun estones 51, 8 nape level.	esticides are n int and tend to inputs will als ided to reduce 31, and 109 for	uo longer used in bind strongly to o reduce inputs / sediment and fe r additional proje	this watershed. the sediment. of organochlorine rtilizer usage in cts that address	/IEW	ED TO FORMULATE TH	AGENCY NOTES	NOTES CONT'D
er		/pe					CONT	RACT						ble			
qmnN SM	REGION	Project Ty	Milestone	ERP Targets taken from ERPP Vol 2	MS Components or Questions for field personnel	ERP PROJECT NUMBERS	START DATE	END DATE	CALFED Award	Cost Share	Total Project Cost	Applicant	Principal Investigator	Quantifiat Units	Project Name	Comm	ents
35	Delta	Water Quality	Conduct the following actions in reduce organochlorine pesticide inputs to streams (from Phase II Report): • Participate in implementation of USDA sediment reduction program. • Implement sediment reduction BMPs on agricultural lands and other specific sites. • Implement BMPs for urban/industrial storm water runoff and discharges to reduce PCB and organochlorine pesticides.		35 A. Status of participation in the implementation of USDA sediment reduction program in behalf of reducing organochlorine pesticide inputs to streams.	ERP-97-N20	Jul-98	Jun-01	1,680,631	none	1,680,631	Community Alliance with Family Farmers	Judith Redmond		Implementing Program to Reduce the Use of Pesticides and Fertilizers in the Sacramento and San Joaquin Watersheds	The project objectives: 1) Plan and campaign to enlist mainstream farm programs; 2) Continue to coordina and Colusa Communities throug Oversee the transition of BIOS proj the fall of 1999; 4) Use the Ligh consistent technical support to farm Alliance with Family Farmers (C completed. Addresses pesticid The primary stressor addressed I from agricultural, non-point sourn nutrient inputs. The project redu have been shown to degrade wate BIOS have been shown to cut by project also decreased the us insection	I implement and intensive media ers in CAFF's pesticide reduction te BIOS in San Joaquin, Madera h the 1999 growing season; 3) ects to local leadership starting in thouse Farm Network to offer ers. Marcia Gibbs, Community AFF). Implementation; project e reduction and water quality. by the project was water quality ec contaminants and increased ced the use of pesticides that r quality. Farmers that enroll in 90% their use of diazinon. The e of other organophosphate cides.
<u>د</u>	belta	Vater Quality			35 B. Status of the implementation of sediment reduction BMPs on agricultural lands and other specific sites to reduce organochlorine pesticides		hu 00	lue 01	1 680 624		1 680 624	Community Alliance with Family	Judith Podmond		Implementing Program to Reduce the Use of Pesticides and Fertilizers in the Sacramento and San Joaquin Watersheds	The project objectives: 1) Plan and campaign to enlist mainstream farm programs; 2) Continue to coordina and Colusa Communities throug Oversee the transition of BIOS proj the fall of 1999; 4) Use the Ligh consistent technical support to farm Alliance with Family Farmers (C completed. Addresses pesticid The primary stressor addressed I from agricultural, non-point sourn nutrient inputs. The project redu have been shown to degrade wate BIOS have been shown to cut by project also decreased the us insection	I implement and intensive media ers in CAFF's pesticide reduction te BIOS in San Joaquin, Madera h the 1999 growing season; 3) ects to local leadership starting in thouse Farm Network to offer ers. Marcia Gibbs, Community AFF). Implementation; project a reduction and water quality. by the project was water quality ere contaminants and increased ced the use of pesticides that r quality. Farmers that enroll in 90% their use of diazinon. The e of other organophosphate ides.

-	e					CONT	RACT						e		
Numbe	siON lect Tyl			MS Components or		STADT			Cont	Total		Dringing	intifiab Is		
WS	Proj	Milestone	from ERPP Vol 2	personnel	NUMBERS	DATE	DATE		Share	Cost	Applicant	Investigator	Qua	Project Name	Comments
-	lity F	miestone		35 C. Status of Implementing BMPs for urban/industrial storm water runoff and discharges to reduce PCB and	NOMBERG	DAIL	DAIL	Awaru	Ghare	0031	Аррисан	Investigator		i fojeci name	Comments
35	Delta Water Qua			organochlorine pesticides.											

			MULT	I SPECIES (	CONSE	ERVAT	ION STR	RATEG	Y MILE	STONE 36	6 ROLLE	D UP	SUMMARY		
MILE Repo · Det · Det · Eva · Par · Par contr · Par resto	STO ort): ermir luate ticipa ther v ol fac ticipa ratior	<b>PNE 36</b> Conduct the following spatial and temporal extense ecological significance a impacts of other metals suite in Brake Pad Partnership with municipalities on evaluities. It is nemediation of mine sin and Delta restoration.	wing trace metals work (from Phase II ent of metal pollution. nd extent of copper contamination. ich as cadmium, zinc, and chromium. p to reduce introduction of copper. ation and implementation of storm water ites as part of local watershed	PROJECTS REVIEWED - ERP-01-N21		SUMMA treatment i addressed the develo bay area b report http 110 for add	ARY One method for ac by monitoring pment of TME y the SF Bay //www.sfei.org ditional projec	oroject did a d mine draia l performed Ls for meta Regional W //mp/pulses is that addre	a pilot demon nage from a by the SF Ba ls, and the st later Quality ( /POE2004.pc ess this miles	stration project for copper mine. Th ay Regional Mon ormwater runoff Control Board. (ff). See milestor tone at a landsc	or a passive is issue is being itoring Program, program in the See latest RMP les 52, 82 and ape level.			AGENCY NOTES	NOTES CONT'D
	MULTI SPECIES CONSERVATION STRATEGY MILESTONE 36 EVALUATION OF INDIVIDUAL PROJECTS REVIEWED													HE ROLLED UP SUMM	ARY
MS Number	REGION	e C X L Joe Joe Milestone	MS Components or ERP Targets taken from ERPP Vol 2 personnel	ERP PROJECT NUMBERS	CONT START DATE	END DATE	CALFED Award	Cost Share	Total Project Cost	Applicant	Principal Investigator	Quantifiable Units	Project Name	Comme	nts
36	Delta	Conduct the following trace metals work (from Phase II Report): • Determine spatial and temporal extent of metal pollution. • Determine ecological significance and extent of copper contamination. • Evaluate impacts of other metals such as cadmium, zind and chromium. • Participate in Brake Pad Partnership to reduce introduction of copper. • Partner with municipalities o evaluation and implementatio of storm water control facilities. • Participate in remediation of mine sites as part of local watershed restoration and	36 A. Status of determining spatial and temporal extent of trace metal pollution.	F											
36	Delta	ĸ	36 B. Status of determining ecological significance and extent of copper contamination.												
36	Delta	к.	36 C. Status of evaluating impacts of other metals such as cadmium, zinc, and chromium												
36	Delta	к.	36 D. Status of participation in Brake Pad Partnership to reduce introduction of copper	n											
36	Delta	ж,	36 E. Status of partnerships with municipalities on evaluation and implementatio of storm water control facilities.	n											

er		be					CONT	RACT						ole		
qun	NOIS	ect Ty			MS Components or		STADT			Cast	Total		Principal	intifiat S		
S	ы	ē		ERP Targets taken	Questions for field	EKP PROJECT	START	END	CALFED	Cost	Project		Principal	n it		
М	R	Ā	Milestone	from ERPP Vol 2	personnel	NUMBERS	DATE	DATE	Award	Share	Cost	Applicant	Investigator	σΞ	Project Name	Comments
					36 F. Participate in										Large-Scale Pilot Demonstration of	Participate in remediation of mine sites as part of local watershed
					remediation of mine sites as										Passivation Technology For	restoration and Delta Restoration. Study passive techniques for
					part of local watershed										Restoration of Newton Copper Mine	treating acid mine drainage (AMD). Donna Podger, California Bay
	lta				restoration and Delta							University of	Dr. Manoranjan			Delta Authority. Project completed.
36	De	SR			restoration.	ERP-01-N21	Oct-01	Jan-03	60,000	none	60,000	Nevada, Reno	Misra			· · · · · · · · · · · · · · · · · · ·

					MULTI	I SPECIES	CONS	ERVAT	FION ST	RATEG	BY MILE	STONE 3	7 ROLLE	D UP	SUMMARY		
MIL follo Pha · Co iden man	STO wing u se II F nduct tify un agem	NE : unkn Repo appi ikno ient a	<b>37</b> Conduct the lown toxicity work (from ort): ropriate studies to wn toxicity, and develop actions as appropriate.			PROJECTS REVIEWED - ERP-97-C06, ERP-97-N09, ERP-98-C07, ERP-98-C08, ERP-99-N08, ERP-01-N22, ERP-02-P42		SUMMA monitoring Chlorpyrifc pyrethroids occasion, ' Pyrethroid instances, underway additional has develk recommer toxicity in events froi However,	ARY One J locations in t 25 was identifi 5 found sedim with severe to concentration , but did not e: to develop m monitoring foi oped a "Strate dations on fu the watershea m OP pesticia	1997 study of the Delta and ied as the ca nent toxicity i oxicity in 14% ns were iden xplain all of t ethods for to r toxicity thrc egy for Toxic d. In general des may be c es, such as p	did 3 species d found toxicit ause of toxicit in 42% of loc: % of the sites the toxicity ob oxicity identific oughout the w isty of Unknow to monitor, id I, recent moni declining as c oyrethroids are	toxicity testing a ty in 4 samples o y in one sample. ations sampled o (all Central Valle cause of toxicity i served. Several cation evaluations ratershed. A mul no Origin" that ind ientify and reduc itoring data has s ontrol measures e gaining in popu	t several ut of 29. A 1999 study on n at least one y sites). n many more studies are s (TIE), as well as ti-agency group studes e episodes of shown that toxic are put in place. larity and may incr	SUMMA benthic c Addition the spati methods developr control p reduce a are activ inputs to agricultu funded b there are organiza USEPA, and 111 mileston	RY continued toxicity and affect organisms throughout the watershed. al studies need to be done to determine al and temporal extent of toxic events, for identifying toxicants need further ment. Once toxicants are identified, rograms need to be implemented to iffects to waterbodies. Currently, there ities to reduce pesticide usage and waterbodies from both urban and ral sources. Some activities have been y CBDA (see pesticide milestone), but e also significant efforts by other tions including the Regional Boards, and NRDC. See milestones 53, 83, for additional projects that address this e at a landscape level.	AGENCY NOTES	NOTES CONT'D
			MULTI SPECIE	S CONSER	/ATION STRATEG	Y MILESTC	ONE 37	7 EV/	ALUATIO	ON OF I	INDIVID	UAL PRO	JECTS RE	VIEW	ED TO FORMULATE TH	HE ROLLED UP SUMM	\RY
							CONT	TRACT	_								
MS Number	REGION	Project Type	Milestone	ERP Targets taken from ERPP Vol 2	MS Components or Questions for field personnel	ERP PROJECT	START DATE	END DATE	CALFED Award	Cost Share	Total Project Cost	Applicant	Principal Investigator	Quantifiable Units	Project Name	Comme	nts
2	lelta	~	Conduct the following unknown toxicity work (from Phase II Report): Conduct appropriate studies to identify unknown toxicity, and develop management actions as appropriate.		37 A. Status on conducting appropriate studies to identify unknown toxicity	FDD 07 000	hel 00	hun 01	407.006		407.000	UC Davis	William A.		Contaminant Effects on Smelt	Research and monitoring of listed sp Bodega Bay. Research / Monito	ecies. William Bennett, UCD ring. Project completed.
17 3	Delta D	R S			37 A. Status on conducting appropriate studies to identify	ERP-97-000	Jui-90	Jan-00	100.000	none	100.000	San Francisco	Marsha Mather-		Monitoring of Delta Contaminants	Conduct appropriate studies to ide Jennings, Deltakeeper. Monito	ntify unknown toxicity. Bill ring. Project completed.
37 3	Delta	R.			37 A. Status on conducting appropriate studies to identify unknown toxicity	ERP-98-C07	Sen-98	Nov-02	400.000	0	400,000	State Water Resources	Karen Larsen		Fathead Minnow Toxicity Study in the Sacramento River	Monitoring and research of fathead m Water Resource Control Board. Mo	nnows. Karen Larsen, State mitoring; project completed.
37 3	Delta	SR			37 A. Status on conducting appropriate studies to identify unknown toxicity	ERP-98-C08	Jun-01	Nov-02	500.000	0	500.000	State Water Resources Control Board	Karen Larsen		Algae Toxicity Study	Monitoring and research. Karen L complete	arsen. Monitoring; project ad.
37 3	Delta	SR			37 A. Status on conducting appropriate studies to identify unknown toxicity	ERP-01-N22	Sep-98	Jun-01	530,000	120,000	650,000	Central Valley Regional Water Quality Control Board	Karen Larsen		Rainbow Trout Toxicity Monitoring	Research and monitoring of rainbov Water Resource Control Board. M contract delays. The work	trout. Karen Larsen, State 'onitoring; There have been has not yet started.
37	Delta	SR			37 A. Status on conducting appropriate studies to identify unknown toxicity	ERP-02-P42	Oct-02	Sep-05	800.000	60.000	860.000	US Geological Survev	Kathryn Kuivila		Pyrethroid Insecticides: Analysis, Occurrence, and Fate in the Sacramento and San Joaquin Rivers and Delta	Studying the unknown toxicity of Pyr Geological Survey. Monitoring/R landscape project. Project is	ethroids. Kathryn Kuivila, US esearch. Note: Project is a about 1% completed.

nber	-	Type					CONT	RACT						iable		
Nun	0E	ject		EPD Targets taken	MS Components or Questions for field		START	END		Cost	Total Project		Principal	antif ts		
MS	REC	Pro	Milestone	from ERPP Vol 2	personnel	NUMBERS	DATE	DATE	Award	Share	Cost	Applicant	Investigator	Uni	Project Name	Comments
	lta	~			37 A. Status on conducting appropriate studies to identify unknown toxicity							University of California,	Donald P.		Assessment of Pesticide Effects on Fish and their Food Resources in the Sacramento-San Joaquin Delta	The field work is designated to: 1) Document pesticide concentrations in surface waters in a temporally-intensive manner. Document the exposure duration and frequency for resident organisms so laboratory- based toxicity tests can be designed and interpreted accordingly. 2) Compare toxicity of surface waters to a standard species, Ceriodaphnia dubia, with toxicity to several other resident species for which testing protocols will be developed. 3) Determine the pesticide responsible for observed toxicity through Toxicity Identification Evaluation. 4) Determine the principal prey organisms in the diet of juvenile salmon, to develop toxicity tests for these critical species, and determine how the diet of the fish may change following a pesticide exposure event. 5) Develop and conduct in situ toxicity testing for surface water monitoring. 6) Collect field data on dissolved organic matter and pesticide mixtures that will help design and interpret our laboratory testing on these same topics. <i>Donald Weston UC</i> <i>Berkeley. Research. Project completed.</i>
37	ŏ	ŝ			37 B. Status on development	ERP-99-N08	Mar-00	Mar-03	1,706,670	155,010	1,861,680	Berkeley	Weston, Ph.D.		Contaminant Effects on Smelt	Research and monitoring of listed species William Bennett LICD
37	Delta	ĸ			of management actions to address identified unknown toxicity.	FRP-97-C06	.lul-98	.lun-01	437 326	none	437 326	UC Davis	William A. Bennett			Bodega Bay. Research / Monitoring. Project completed.
37 3	Delta	SR			37 B. Status on development of management actions to address identified unknown toxicity.	ERP-98-C07	Sep-98	Nov-02	400,000	0	400,000	State Water Resources Control Board	Karen Larsen		Fathead Minnow Toxicity Study in the Sacramento River	Monitoring and research of fathead minnows. Karen Larsen, State Water Resource Control Board. Monitoring; project completed.
37	Delta	SR			37 B. Status on development of management actions to address identified unknown toxicity.	ERP-98-C08	Jun-01	Nov-02	500,000	0	500,000	State Water Resources Control Board	Karen Larsen		Algae Toxicity Study	Monitoring and research. <i>Karen Larsen. Monitoring; project completed.</i>
37	Delta	SR			37 B. Status on development of management actions to address identified unknown toxicity.	ERP-01-N22	Sep-98	Jun-01	530,000	120,000	650,000	Central Valley Regional Water Quality Control Board	Karen Larsen		Rainbow Trout Toxicity Monitoring	Research and monitoring of rainbow trout. Karen Larsen, State Water Resource Control Board. Monitoring; There have been contract delays. The work has not yet started.