TUOLUMNE RIVER SPECIAL RUN POOL 10 RESTORATION

DA 7

I. TITLE PAGE

PROJECT APPLICANT

Turlock Irrigation District, 333 East Canal Drive, Turlock, CA 95380

CONTACTS

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PARTICIPANTS:

Tuolumne River Technical Advisory Committee (TRTAC) made up of the Turlock Irrigation District (TID), Modesto Irrigation District (MID), City & County of San Francisco (CCSF), California Dept. of Fish & Game (CDFG), and the US Fish & Wildlife Service (USFWS). Collaborating stakeholder groups with TRTAC are the Tuolumne River Preservation Trust, Friends of the Tuolumne, California Sports Fishing Protection Alliance , Bay Area Water Users Association, East Stanislaus Resource Conservation District, National Marine Fishery Service (NMFS),and local mining operators and landowners.

COST SHARE PARTICIPANTS:

USFWS through the CVPIA-AFRP and TID, MID, and CCSF through the TRTAC.

SUMMARY DESCRIPTION:

The full Special Run Pool (SRP) 10 Restoration Project involves restoration of instream aquatic habitat and shaded riverine aquatic habitat and reduction of predatory fish habitat for the primary benefit of San Joaquin River fall-run chinook salmon. The SRP 9 & SRP 10 projects were originally developed as one project because of their proximity to each other along the river. From a practical construction and funding view point they are two projects, each with a very similar scope of work. The lessons learned in first restoring the smaller SRP 9, will be incorporated in adjusting the final design of SRP 10. The full SRP 10 project will rebuild a select portion of the Tuolumne River channel, at river mile 25.4, (approximately 15 miles east of Modesto) where past instream gravel mining created a large deep lake area in the main channel that changed the habitat to one favoring warm water predator species like largemouth bass. Adjacent to SRP 10 there is an old off stream mining pit pond that has a breach in the dike separating SRP 10 and the pond. Project monitoring in 1998 confirmed the pond is a major contributing source to the bass predation known to be in SRP 10. This CALFED funding request is being made to cover the costs of one further year of pre project monitoring for SRP 9 & 10 and to facilitate the repairs to the dike in 1999 rather than wait until 2001.

BIOLOGICAL OBJECTIVES:

1. Reduce salmonid fish predator habitat.

II. PROJECT DESCRIPTION

A. PROJECT DESCRIPTION AND APPROACH

The Tuolumne River Technical Advisory Committee (TRTAC), under the auspices of the 1995 Don Pedro Project Settlement Agreement (FSA) (FERC License No. 2299), is developing a plan to restore instream aquatic habitat and shaded riverine aquatic habitat for the primary benefit of San Joaquin fall-run chinook salmon in the Tuolumne River below La Grange dam. The TRTAC specifically identified both SRP 9 & SRP 10 as prime "predator isolation" projects for the Tuolumne River. The geomorphology firm of McBain & Trush has developed a detailed description of the proposed restoration work for the TRTAC.

The SRP 9 & SRP 10 projects were originally developed as one project because of their proximity to each other along the river. From a practical construction and funding view point they are two projects, each with a very similar scope of work. The lessons learned in first restoring the smaller SRP 9, will be incorporated in adjusting the final design of SRP 10.

These two adjacent restoration segments including their associated revegetation, are to be reconstructed over a three to four year period, with SRP 9 to be reconstructed first starting in 1999 followed by SRP 10 starting in 2000. These two SRPs are stand alone projects, however the CEQA/ NEPA mitigated EA/IS, permitting, civil design, and revegetation design are being done together to facilitate future CALFED and AFRP funding for the full SRP 10 restoration construction. SRP 9 was originally envisioned for one year of construction and SRP10 was anticipated to take two years to construct given the larger volume of material involved. However, the Air Resources District mitigation developed in the EA/IS dictated that construction of SRP 9 should be done over two years because diesel emissions resulting from the volume of materials to be hauled for SRP 9 combined with that planned for the Mining Reach, 7\11 Segment, restoration project occurring during the same period exceeded State standards. The landowners adjacent to the SRP projects have asked the TID to seek a variance that would allow SRP 9 to be constructed in the original one year period to minimize impacts to their land and farming operations.

The full SRP 10 restoration work consists of filling in deep (10 to 34 feet below normal channel grade) lake like pool areas created by past instream gravel mining and re-creating a riffle and run pattern that follows the restored meander channel of the river. The channel will be reformed into a 500 foot wide riparian flood plain complete with native vegetation planted on fill terraces in a mix similar to that found along undisturbed segments of the river. The aerial extent of the project area including the restoration work proposed is shown in EA\IS Figure 10, from the project description in the EA/IS. The reconstructed floodway channel cross-section will be hydraulically sized to be an active riverine channel at currently regulated flows. These flows periodically could reach as high as 15,000 cfs for short periods, the highest regulated flow from Don Pedro Dam. The rebuilt channel is sized assuming a river stage elevation that results from full grown riparian forest vegetation at design flows. It is anticipated and planned that during these high flow events there will be some movement of the channel within the flood plain to

expose added spawning materials and clean existing spawning gravels. To minimize long term future maintenance expenditures, this restoration work is being designed with the intent to provide a self maintaining riparian floodway channel once the revegetation is completed and established.

Adjacent to SRP 10 there is an old off stream mining pit pond that has a breach in the dike separating SRP 10 and the pond. Project monitoring in 1998 confirmed the pond is a major contributing source to the bass predation known to be in SRP 10. This CALFED funding request is being made to cover the costs of one further year of pre project monitoring for SRP 9 & 10 and to facilitate the repairs to the dike in 1999 rather than wait until 2001.

B. GENERAL CONDITIONS OF PROPOSED WORK

The breach to be repaired is approximately 100 feet long and was created as a result of the January 1997 flood. The dike repair will include work in the edge of the river and is anticipated to be limited for fishery reasons to an annual opportunity window of about 90 work days from mid-June through September when salmon are not as abundant in the river. Construction above the water level can proceed after September, but should be completed before about December to avoid the potential of early flood releases damaging incomplete work. Restoration plantings will not be included until the full SRP 10 restoration on the south bank is completed.

Construction design, revegetation design, completion of CEQA/NEPA through a mitigated EA/IS, permitting, and acquisition of conservation easements are being done for both SRP 9 & 10 in 1999 using AFRP funding. The repair work is not anticipated to require a conservation easement to be in place before construction.

The materials for this project will need to be imported into the site. The anticipated sources of materials are deposits of dredger tailings along the upper Tuolumne River. Alternatively, the material could come from active off channel and off site gravel mining areas between Geer Road and La Grange. The project EA/IS identified and addressed mitigation for utilization and transportation of the various sources of restoration materials available for this project.

Recreation of the riparian floodway habitat zone raises an issue of long term maintenance of project improvements. TID and MID are working with the landowners to develop some form of locally administered conservation easement process that protects the public investment, but at the same time protects the landowner property rights. Purchase of these conservation easements will be with AFRP funds.

III. PROJECT LOCATION

The full Special Run Pool 10 Restoration Project will rebuild a 2,100 foot long portion of the Tuolumne River channel, starting at river mile 25.4, downstream of the Geer Road bridge crossing the Tuolumne River, approximately 15 miles east of Modesto in Stanislaus County. The section of dike to be repaired is along the middle of the south bank. The project location is

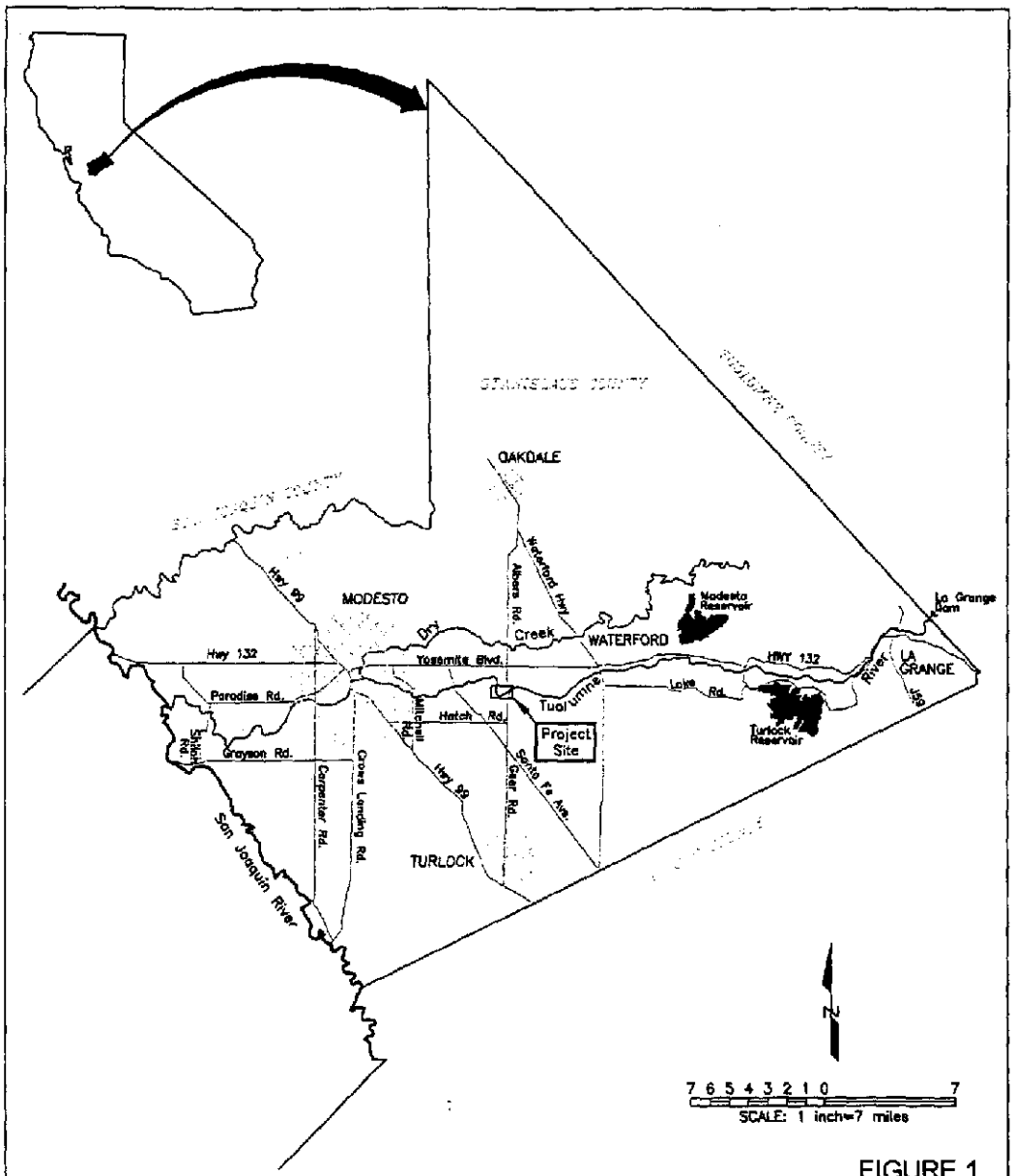

FIGURE 1

PROJECT SITE LOCATION
SRP 9-10 RESTORATION
TUOLUMNE RIVER MILE 25.1 TO 26.0

McBain & Trush 1999

1/6/99

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I-021242

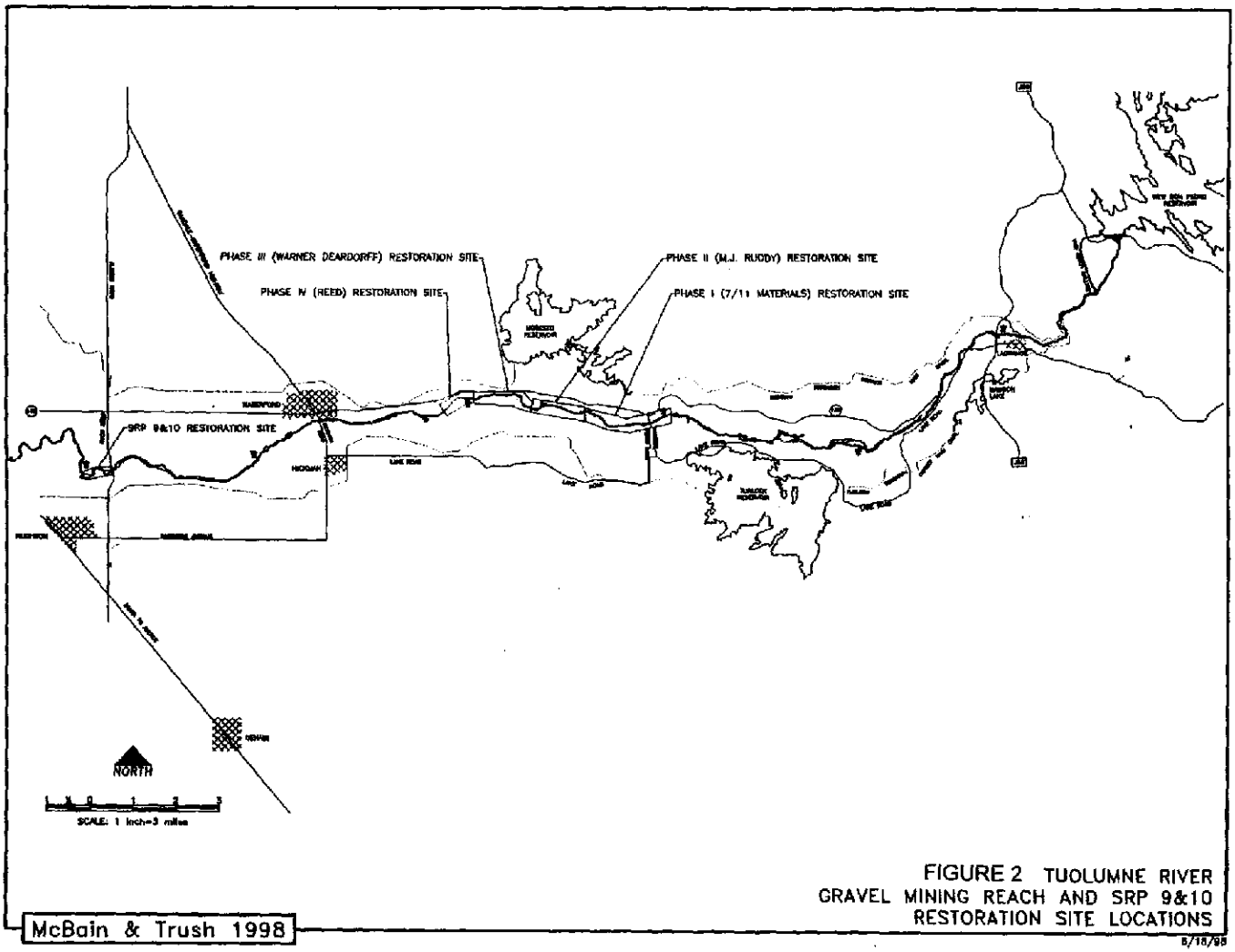

FIGURE 2 TUOLUMNE RIVER
GRAVEL MINING REACH AND SRP 9&10
RESTORATION SITE LOCATIONS

McBain & Trush 1998

8/18/98

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shown in Figure 1 and the relationship to the Mining Reach in Figure 2.

IV. EXPECTED ECOLOGICAL OBJECTIVES & PROJECT BENEFITS

The full SRP 10 project will address all four objectives listed below, however this repair and monitoring phase will only deal with Objective 1.

1. Reduce salmonid fish predator habitat.
2. Restore and increase habitat for natural salmon production.
3. Reconstruct a natural channel geometry scaled to current channel forming flows.
4. Restore native riparian plant communities within their predicted hydrological regime.

The SRP 9 & 10 projects address the ERPP objectives and visions for the Tuolumne River Ecological Unit identified on pages 409 & 410 of the ERPP Vol. II. These include restoration of stream & riparian habitat; ecological processes; gravel recruitment, transport, and cleaning processes; a diverse self-sustaining riparian corridor; and predator reduction. The repairs focus only on the predator habitat reduction and the monitoring focuses on establishing pre project predator populations and habitat conditions.

A. BACKGROUND & TECHNICAL JUSTIFICATION

The Tuolumne River is a major tributary of the San Joaquin River. The Don Pedro Project is the largest reservoir located above the fall-run chinook salmon spawning reach on the Tuolumne. Don Pedro Reservoir is owned by the Turlock Irrigation District (TID) and the Modesto Irrigation District (MID) and is licensed by the Federal Energy Regulatory Commission (FERC).

The fall run chinook salmon in the tributaries of the San Joaquin River are currently listed as a species of concern by the USFWS. Anadromous salmonid populations in the lower Tuolumne River require adequate ecosystem health to achieve and sustain their potential productivity. Restoring and maintaining dynamic geomorphic processes are crucial for insuring healthy river ecosystems with natural productive salmonid populations. When complete restoration of a river ecosystem is infeasible, as for alluvial rivers regulated by dams, limiting factors, like predator habitat and poor quality riverine habitat, must be identified for prioritizing actions that would best improve the ecosystem, particularly salmonid habitat. Predation on juvenile salmon and smolts has been identified through field studies as having a significant impact on survival of salmon in the Tuolumne River. Currently nearly all naturally produced juvenile salmon must pass through SRP 9 and SRP 10. Reducing predator habitat by reconstructing riparian floodplain meets these desired priority actions.

The TRTAC specifically identified habitat conditions to be improved to enhance natural salmon production in the Tuolumne River. The TRTAC has developing a final draft integrated, long-term restoration plan and monitoring program that utilizes adaptive management for enhancing the natural production of salmon. The TRTAC and the AFRP have each funded $117,500 towards this integrated restoration plan, including a public outreach program. The river has been divided into seven reaches with individual segments representing specific types of

EA IIS FIGURE 10. SRP 9 & 10
TUOLUMNE RIVER (RM 25.1–26.0)
4–4–97 AERIAL PHOTOGRAPH

3/9/98

restoration projects within each reach. There are projects that focus on restoration of geomorphic processes, others for riparian restoration and predator reduction, and still others deal with gravel re-introduction and cleaning.

The Tuolumne River supports a population of fall-run chinook salmon, whose numbers have fluctuated from 40,000 fish in 1985, to a low of 100 fish in 1991, and is on another upward swing with 7,200 fish in 1997 and 7,900 in 1998. The underlying premise of the SRP 9 & 10 projects are that by creating the proposed sustainable riverine habitat both the native fishery and riparian species will benefit and stressors will be reduced. The prime target of this project is to improve the survival of juvenile salmon and smolts by reducing the habitat of introduced predator species, primarily largemouth bass. The impacts of predators on smolt survival are based on feeding studies conducted by EA Engineering for the Districts. The riparian reforestation is intended to provide food and shade for the juvenile salmon. There is the added benefit to terrestrial species in providing a more continuous corridor of riparian habitat in the restored areas. The restored channel sinuosity is intended to provide a sustainable and dynamic river morphology, i.e. infrequent flood-related channel-bed movement with periodic scour, that partially or fully restores the processes associated with natural salmon production and survival.

The full SRP 10 restoration project will provide long term low maintenance predator control combined with habitat restoration. This can be contrasted with an annual system of non-selective predator control, such as electroshocking, tournament fishing, poisoning, etc., that has a lower up front cost. However, this alternative solution requires continued annual expenses, is of limited effectiveness in targeting the primary predators, has unfavorable social consequences, and does not meet the intent of the CALFED solutions by providing an improved self sustaining riverine habitat for salmon. Such alternatives will not be considered further. The repairs in the dike are intended to eliminate two years of predation and entrapment in the pond adjacent to SRP 10 prior to the full restoration work being constructed.

V. MONITORING PLAN

A detailed mitigation and monitoring plan for SRP 9 & 10 was developed with the project EA/IS (EA\IS Attachment D; 27 pages). Attached Tables 1 and 2 from the EA\IS summarize the basic monitoring program and cost estimates over the life of the restoration project. With the delay in completing the conservation easement process for the construction on SRP 9, the post project monitoring portion of the schedule has been delayed one year. This construction delay provides an opportunity for a second year of pre-project data to be collected. This CALFED application will cover the costs of that added year of pre project monitoring. The monitoring plan can be grouped into three basic areas.

1. Physical habitat changes:
   Pre and post construction changes will be recorded from the as-built engineering drawings. This assures that the desired channel contours, cross sections, and thalweg line were built as designed and these as-built records can be used to assess future geomorphological changes after major flood events.

2. Riparian habitat changes:

Table 1. Monitoring schedule based on a sequence of hypothesized flows, to illustrate the proposed monitoring scheme.

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Hypothetical annual peak discharge		*Q=3650cfs*	*Q=7280cfs*	*Q=2980cfs*	*Q=1200cfs*	*Q=10400cfs*	*Q=8010cfs*	*Q=6870cfs*		
CONSTRUCTION										
SRP 9 and 10		SRP 9		SRP 10						
GRAVEL MINING REACH		PHASE I	PHASE II	PHASE III	PHASE IV					
MONITORING										
SRP 9										
GEOMORPHOLOGY	pb	ab,rx		rx, n, xs, thal		rx*, xs, thal	xs	xs, thal		
FISHERIES	ef, sv, map	ef, sv, map, sss	ef, sv, sss	ef, sv, sss	sss	sss	sss	sss#		
RIPARIAN		ab, pp, $	$	pp	pp			pp		
SRP 10										
GEOMORPHOLOGY		pb		ab, rx, xs, thal		rx*, xs, thal	xs	xs, thal		
FISHERIES	ef, sv, map	ef, sv	ef, sv, sss	ef, sv, map, sss	sss	sss	sss	sss#		
RIPARIAN				ab, pp, $	$	pp	pp		pp	
GRAVEL MINING REACH PHASE I										
GEOMORPHOLOGY	pb	ab,rx		n, rx, xs, thal		rx*, xs, thal	xs, thal	xs, thal		
FISHERIES	map	map, sss	sss	sss	sss	sss	sss	sss#		
RIPARIAN		ab, pp, $	bio, $	pp	pp	bio		pp, bio		
GRAVEL MINING REACH PHASE II										
GEOMORPHOLOGY	pb			ab, n, rx, thal		rx*, xs, thal	xs, thal	xs, thal		
FISHERIES		map	map, sss	sss	sss	sss	sss	sss#		
RIPARIAN			ab, pp, bio, $	$	pp	pp, bio	bio	pp, bio		
GRAVEL MINING REACH PHASE III										
GEOMORPHOLOGY	pb			ab, rx, thal		rx*, n, xs, thal	xs, thal	xs, thal		
FISHERIES			map	map, sss	sss	sss	sss	sss#		
RIPARIAN				ab, pp, $	$	pp, bio	pp, bio	bio		pp
GRAVEL MINING REACH PHASE IV										
GEOMORPHOLOGY			pb		ab, rx	rx*, xs, thal	n, xs, thal	xs, thal		
FISHERIES				map	map, sss	sss	sss	sss#		
RIPARIAN					ab, pp, $	$	pp	pp		pp
ANNUAL BUDGET:	$92,565	$109,192	$154,028	$124,696	$74,619	$184,773	$142,269	$98,230	$20,416	$10,588

Geomorphology symbols: pb=pre-built channel topography; ab=as-built channel topography; n=manning's "n"hydraulic calculation; rx= bed mobility with tracer rocks; thal= channel vertical adjustment with thalweg profile; xs= channel planform adjustment with cross-section profiles; *=bed mobility observed;

Fisheries symbols: ef=bass abundance by electrofishing; sv=smolt survival estimate; map=habitat mapping, sss=annual spawning and seining surveys; # denotes that spawning surveys will occur annually by CDFG

Riparian symbols: pb=pre-built vegetation; ab=as-built vegetation; pp=project performance plots; bio=bioengineered bank protection; $=last year of irrigation

Table 2. Estimated costs associated with the hypothesized monitoring schedule. The budget assumes all monitoring components are implemented as described in the schedule.

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	TOTAL
SRP 9 and 10											
Geomorphic Processes	$1,563	$3,480	$20,880	$0	$0	$19,530	$15,610	$3,920	$0	$0	$64,983
Fisheries Resources	$75,670	$56,415	$58,515	$51,060	$4,200	$2,100	$0	$0	$0	$0	$247,960
Riparian Resources	$0	$8,145	$0	$16,290	$8,145	$8,145	$16,290	$0	$8,145	$0	$65,160
SRP 9 AND 10 SUBTOTAL	$77,233	$68,040	$79,395	$67,350	$12,345	$29,775	$31,900	$3,920	$8,145	$0	$378,103
GRAVEL MINING REACH											
Geomorphic Processes	$1,563	$6,690	$31,815	$8,000	$8,655	$107,225	$71,065	$53,525	$0	$0	$288,538
Fisheries Resources	$5,355	$14,910	$17,010	$19,110	$18,960	$9,405	$4,200	$2,100	$0	$0	$91,050
Riparian Resources	$0	$9,625	$11,805	$18,900	$27,875	$21,570	$22,170	$29,755	$10,415	$9,625	$161,740
MINING REACH SUBTOTAL	$6,918	$31,225	$60,630	$46,010	$55,490	$138,200	$97,435	$85,380	$10,415	$9,625	$541,328
ANNUAL REPORT:	$8,415	$9,927	$14,003	$11,336	$6,784	$16,798	$12,934	$8,930	$1,856	$963	$91,943
ANNUAL BUDGET TOTAL	$92,565	$109,192	$154,028	$124,696	$74,619	$184,773	$142,269	$98,230	$20,416	$10,588	$1,011,373
GRAND TOTAL:	$1,011,373										
YEARLY AVERAGE:	$101,137										

Revegetation will require annual inspections during the first few years to confirm survival of planted materials, perform replanting if deemed necessary, and to assess natural changes in the vegetation mix. This will be part of the contractors warrantee period. Monitoring vegetation would then be reduced to evaluations after significant flood events.

Note: The riparian forest restoration planting is designed to accommodate monitoring. There are 19 different hexagonal planting units classed by predominant vegetation type. These planting units are grouped together to recreate the diverse mosaic patches and strings of vegetation found on undisturbed areas of the Tuolumne. This plan enables the center point for any "hex" that will be monitored to be relocated at a later date from the as-built drawings and project bench marks.

3. Fish population changes:
   This will involve evaluation of pre and post project changes in habitat conditions for both fish predators and salmon. Monitoring criteria would include items such as flow velocity, temperature, comparisons of estimated transit time through the old vs. new stream channel, combined with sampling and observations of fish populations and spawning riffle conditions.

Pre project monitoring started in 1998. Post project monitoring will start after the completion of the SRP 9 restoration in 2000. Generally the monitoring for a given project or segment will extend for 2 years after the completion of construction. The more detailed monitoring plan is available through the District as is the mitigation monitoring outlined in the EA\IS. The project specific monitoring was designed to compliment the fishery monitoring requirements of the FSA. Annual monitoring summaries will be provided to the TRATC, and other interested parties upon request. In addition, the Districts and CCSF spend an average of $100,000 per year on FSA monitoring for the Tuolumne River.

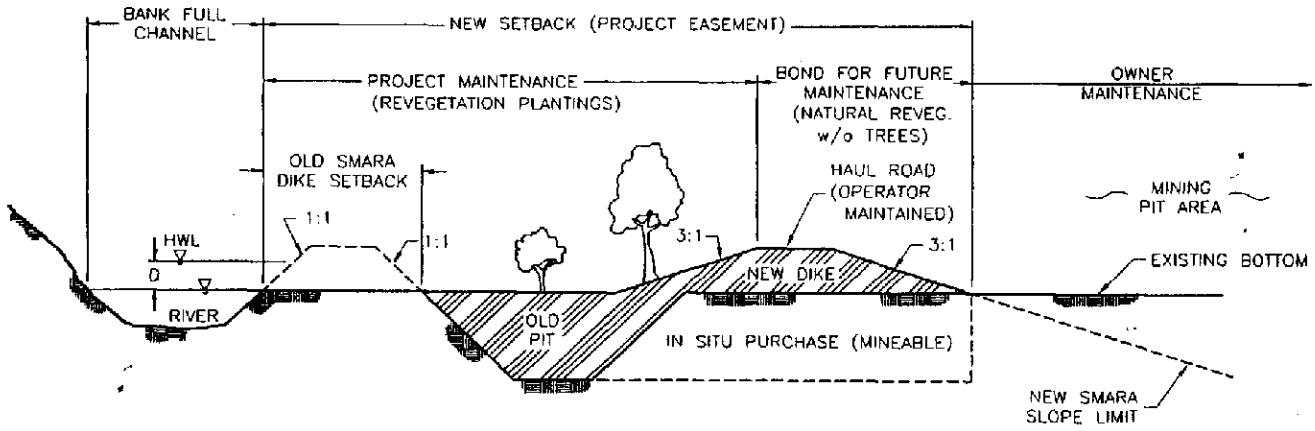
The first level of peer review comes from the biologists that make up the regular representation on the TRTAC. There is a monitoring subcommittee of the TRTAC charged with close technical review of the FSA and project specific monitoring. Recently the UC Davis Centers for Water and Wildland Resources was asked to evaluate competing fry and smolt survival monitoring methods currently used on the Tuolumne River. Stillwater Sciences provides technical design of monitoring programs and statistical analysis of the results.

VI. TECHNICAL FEASIBILITY AND TIMING

A. CEQA \ NEPA

SRP 10 is the fourth of several restoration projects being proposed for the Tuolumne River based on the restoration plan developed by the TRTAC. The staff is also working closely with the affected landowners in the development of site specific adjustments to the preliminary plans. The firm EDAW, Inc. was hired to assist with the CEQA, NEPA, and permitting work. The NEPA portion was coordinated with NEPA work devèloped by the USFWS and coordinated with the AFRP program. A mitigated EA/IS was jointly developed between the TID, as project

CONSERVATION EASEMENT ELEMENTS



CHANNEL DYNAMICS

$Q_1 = V_1A_1 = V_1W_1D$
$Q_1 = 8000$ cfs
$Q_R = V_1 2W_1D = 15{,}000$ cfs
$Q_B = V_2 4W_1D = 15{,}000$ cfs $V_2 = \frac{1}{4} V_1$

PROJECT NOTES:

1) NEW CONSTRUCTION TO CUP & SMARA STANDARD 3:1 SLOPES
2) NEW DIKE CONSTRUCTED BY PROJECT
3) REVEGETATION TO PROJECT STANDARDS

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FIGURE 3

W.FRYER 30 MAR 98

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manager & lead agency, and the USFWS as a Federal funding agency. The EA/IS tiers off the 1995 EIS for the FERC Settlement Agreement for the Don Pedro Project. Public agency comments were received in July and August 1998 and the comments focused on economic issues of compensation for conservation easements and lost availability of aggregate supplies. No environmental comments were received.

The final EA\IS approval is pending resolution of the complex compensation issues involved with the acquisition of the conservation easements starting with SRP 9 and the Mining Reach, 7\11 Segment. TID control of the conservation easements has taken a long time to resolve with the landowners due to their concerns over potential public access to their land. The same process will be used to acquire conservation easements in the three subsequent segments in the Mining Reach and SRP 10. Development and acceptance of an appraisal process that covers land owner and leasehold mining interests has taken longer than anticipated. Figure 3 shows in a cross section typical easement elements that are involved in the ROW issues.

B. PERMITS

A partial list of the anticipated permits and agencies to be dealt with prior to construction is as follows: 404 Fill & Dredge Permit from the USCOE; 1600 Series Streambed Alteration Agreement from CDFG, a mining lease and Boundary Delineation finding from the State Lands Commission; RWQCB 401 waiver for water quality; and an Encroachment Permit from the Reclamation Board.

VII. COSTS AND SCHEDULES

BUDGET COSTS

The CALFED is being asked to fund $88,000 for the costs of the breach repair and $72,000 in added pre-project monitoring for a total of $160,000. The attached spreadsheets, Table 3 Tuolumne River SRP 10 Reach Restoration and Table 4 Quarterly Project Budget, detail the cost breakdown. The USFWS-AFRP has funded $128,000 through 1998 under the current monitoring program and it is anticipated they will fund $228,000 of post project monitoring expenses.

SCHEDULE

The attached Gantt chart schedule, Figure 4, shows the basic components of SRP 9 and SRP 10 restoration. The schedule shows SRP 9 constructed as a two year project, assuming our request for a variance from the Air Control District is not granted. The SRP 10 north side restoration can start in 2000 with the remainder of the SRP 9 because the total volume of material moved combined with that in the Mining Reach 2, MJ Ruddy Segment, will not generate diesel emissions exceeding the threshold used by the local Air Resources District.

VIII. THIRD PARTY IMPACTS

The parties most directly impacted by the proposed project are the local landowners at the

TABLE 3 PROJECT BUDGET SUMMARY

TUOLUMNE RIVER SRP 10 REACH REPAIR & 1999 MONITORING

SRP 10 SEGMENT Rm 25.6 to 25.1

Construction Task EA\IS Figure 10	Description of work			Cost
	Repair 1997 breach in south bank			
	Materials (7,700 cy)		46,000	
	Transporation		34,000	
	Contingency, 10%		8,000	
		sub total	88,000	88,000
	Monitoring			
	Geomorphology		3,500	
	Fisheries		56,400	
	Riparian		8,100	
	Report		4,000	
		sub total	72,000	72,000
		CALFED Total		**160,000**

note: The monitoring cost estmates are from the EA\IS Table 2 for 1999, with the report estimated as 41% of the total report cost. All values rounded to the nearest $100.

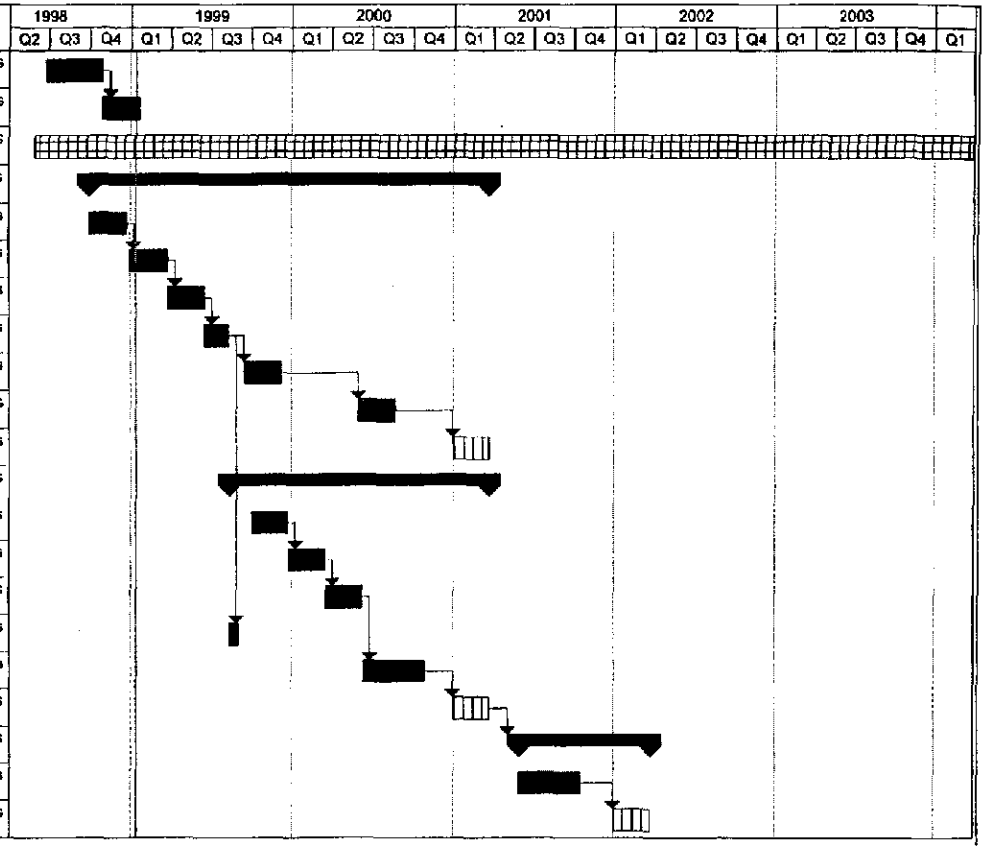
TABLE 4 QUARTERLY PROJECT BUDGET ESTIMATES

TUOLUMNE RIVER SRP 10 REACH REPAIR & 1999 MONITORING

SRP 10 SEGMENT Rm 25.6 to 25.1

Task	1999				2000				Budget
	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Total
Repair 1997 breach in south bank									
Materials (7,700 cy)			46,000						46,000
Transporation			34,000						34,000
Contingency, 10%			8,000						8,000
subtotal			88,000						88,000
Monitoring SRP 9 & 10									
Geomorphology			3,500						3,500
Fisheries		20,000	20,000	16,400					56,400
Riparian				8,100					8,100
Report					4,000				4,000
subtotal		20,000	23,500	24,500	4,000				72,000
Total		20,000	111,500	24,500	4,000				160,000

ID		Task Name	Duration
1		Reach Hydraulic Design	18 wks
2		EA\IS	12 wks
3		Project Monitoring	1523 days
4		**SRP 9**	**647 days**
5		Engineering Design	12 wks
6		Easements	12 wks
7		Permits	12 wks
8		Phase 1-A instream	8 wks
9		Phase 1-B South Side	12 wks
10		Phase 1-B North Side	12 wks
11		Revegetation	60 days
12		**SRP 10 North Side**	**421 days**
13		Engineering Design	12 wks
14		Easements	12 wks
15		Permits	12 wks
16		Dike Repairs	3 wks
17		Phase 3-B North Side	20 wks
18		Revegetation	12 wks
19		**SRP 10 South Side**	**212 days**
20		Phase 2-B South Side	20 wks
21		Revegetation	12 wks



Project: TUOLUMNE RIVER SRP9 & 10
REACH RESTORATION
Figure 4

Task
Split
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Split
Rolled Up Milestone
Rolled Up Progress
External Tasks
Project Summary

SRP9All Tasks0b.mpp Tue 1/12/99

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project site, those along the haul road route, and the County Public Works Department. TID staff and consultants have been and will continue to meet with the affected stakeholders to listen to and address their individual concerns. Recognizing those individual concerns, the landowners at the site contacted to date have been cooperative and supportive of the project. The EA/IS for both the SRP 9 & 10 restoration projects outlines the mitigation and monitoring that are to be followed to minimize impacts associated with the restoration activities.

IX. APPLICANT QUALIFICATIONS

Since 1971, TID, MID, and CCSF, in cooperation with DFG and USFWS, have monitored river conditions and developed programs that enhance the natural production of fall-run chinook salmon in the Tuolumne River. The project manager for these activities has been TID.

A. TRTAC and Other Local Support for Project

The fluvial geomorphology firm of McBain & Trush was retained in 1996 by TID through the TRTAC to develop an integrated, long-term fish and riparian habitat restoration plan for the Tuolumne River below La Grange Dam and to prepare preliminary designs for specific restoration projects which have been approved by the TRTAC participants as high priority projects. The SRP 9 & 10 had long been identified as a portion of the river that had been substantially altered by past mining operations that would benefit from restoration of more natural geomorphic processes.

B. Project Management

The Project Manager is Wilton Fryer, P.E. Mr. Fryer graduated from the University of California at Davis with a BS in Soil & Water Science, an MS in Irrigation Science, and later an ME in Civil Engineering with an emphasis in water resources. He is currently registered as both a Civil Engineer and an Agricultural Engineer. Accomplishments are: Development and implementation of the Oakdale Irrigation District Irrigation Master Plan; Directed a $22 million canal rehabilitation project for OID where 54 miles of dirt canals were replaced with pipe; Development of the OID domestic water service system; Designer and project manager for a replacement water treatment plant for the La Grange Domestic Water System.

Tim Ford has been the staff aquatic biologist for TID and MID since 1981. Mr. Ford graduated from the University of California at Davis with a BS in Wildlife & Fisheries Biology in 1977. He worked as a Biological Technician for the Modoc, Tahoe, and Stanislaus National Forests prior to working for the Districts. Mr. Ford is tasked with planning, coordinating and conducting the aquatic resources program for the Districts, and his responsibilities at TID include field studies, program development, consultant supervision, and coordination with Don Pedro project operations.

The firm EDAW, Inc. has been retained to perform the CEQA and NEPA environmental work and to obtain necessary permits.

TID Engineering will assist with providing construction management and inspection services to the project. Contracting support and financial service support as needed will be provided by TID staff. The engineering firm HDR, Inc. has been retained to prepare detailed construction plans and specifications, oversee construction management, and assist with ROW easement documentation. The firm of HART, Inc., will provide revegetation design.

Project design work has been performed by McBain & Trush who will continue to provide oversight of the civil construction design work, revegetation design and implementation, and fluvial process monitoring. McBain & Trush is a professional consulting partnership specializing in applying fluvial geomorphic and ecological research to river management and restoration, particularly in regulated river ecosystems. The principals on this project are Scott McBain, Dr. William Trush, and John Bair. Scott McBain is a hydraulic engineer and fluvial geomorphologist with a MS in Civil Engineering from the University of California at Berkeley. He specializes in effects of high stream flows on channel morphology, bedload transport, watershed sediment yields, and stream restoration. Dr. William Trush is an adjunct professor in the Humboldt State University Fisheries Department, specializing in anadromous fish ecology, anadromous fish interactions with fluvial geomorphology, channel maintenance flows and hydrology, riparian ecology, and stream restoration and management. He is also Director of the HSU Institute for River Ecosystems. John Bair is a riparian botanist with a MS in Environmental Systems form Humboldt State University. He specializes in riparian interactions with geomorphic processes and riparian restoration.

The firm Stillwater Sciences has been retained to assist with the design and implementation of the fishery monitoring plan components. Stillwater Sciences is also actively involved with the river wide monitoring associated the Districts' FERC Settlement Agreement.

X. NON ECOSYSTEM OBJECTIVES

Expansion of the riparian floodway capacity to 15,000 cfs in the Mining Reach is consistent with the Governor's Flood Emergency Action Team recommendations and the subsequent Corps of Engineers preliminary flood improvement feasibility studies on the Tuolumne River.

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