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## EXECUTIVE SUMMARY

### Pelger Mutual Water Company: Small Fish Screen Evaluation

Applicant

**Pelger Mutual Water Company**

**Project Description & Primary Biological/Ecological Objectives:**

Pelger Mutual Water Company proposes to evaluate the benefits of screening a specific type of small diversion on the Sacramento River in Sutter County by comparing entrainment at two diversions. The diversions are located adjacent to one another on an outside bend of the river, and have the same configuration, pumps, pumping capacity, intake depths, diversion volumes, and operating regimes. One of the diversions is screened (Pelger Mutual's diversion), and the other is not (Broomside Farms diversion). Thus, these diversions provide an ideal opportunity to evaluate the benefits of screened diversions of this type, prioritize screening of diversions on the basis of fisheries benefits, and consider alternatives.

By quantitatively evaluating entrainment at small screened versus unscreened diversions, valuable information will be gained regarding the cost effectiveness of small diversion screening. Subsequently, alternatives to screening can be better evaluated from a cost/benefit standpoint. Fisheries resource management of several priority fish species will benefit from this information, including the threatened Central Valley steelhead and all runs of chinook salmon.

**Approach/Tasks/Schedule:**

Completion of the proposed study would involve the following tasks:

Agency consultation, permitting	11/1/98 - 3/31/99
Monitoring	4/1/99 - 12/31/99
Analysis and Reporting	1/1/00 - 6/30/00

**Justification:**

The proposed study will benefit future fish screen planning, as it will provide a quantitative analysis and comparison of entrainment losses at "twin" diversions, one of which is unscreened. This type of side-by-side analysis of pump related entrainment losses has never been conducted in Central Valley watersheds. Data from this analysis will help answer pertinent questions about fish screening, such as 1) how effective is a small diversion screen, 2) what are the fisheries resource losses without screening, 3) what are the quantified benefits and costs of screening, 4) how can changes in diversion rates, frequency, or diel and seasonal timing affect entrainment at a small screen, and 5) how do entrainment rates vary with river conditions?

**Budget Costs:**

The proposed budget for the project is presented below. Pelger Mutual Water Company is proposing to absorb \$5,000 in management costs as an in-kind cost share contribution, resulting in a total study price of \$95,000.

Permits and Agency Consultation	--	\$10,000
Monitoring	--	\$50,000
Report, Analysis, Management	--	\$40,000
Cost Share	--	<u>(\$5,000)</u>
Total	--	\$95,000

**Third Party Impacts:**

There are no anticipated third party impacts associated with the project.

**Applicant Qualifications:**

This proposal is submitted by Murray, Burns and Kienlen, Consulting Civil Engineers of Sacramento, California, on behalf of Pelger Mutual Water Company. MBK has been retained to by Pelger Mutual for fish screen, water supply planning, flood control and water rights related services. MBK's fish screen projects include facilities associated with Deseret Farms Wilson Ranch, Maxwell Irrigation District, Lower Joice Island, Thousand Acre Ranch, Browns Valley Irrigation District, Grizzly Island and King Island.

**Monitoring and Data Evaluation:**

The monitoring program will be focused on evaluating comparative entrainment at each of the diversions (screened and unscreened), under a variety of hydraulic conditions and operating scenarios. Monitoring of entrainment will occur 4-6 days per week during 9 months of the diversion season. Variables to be monitored at each of the diversions include the following.

- Diversion volume, timing, duration, frequency
- River flow, temperature, turbidity, hydraulic characterization
- Entrained species, sizes, numbers, and timing

Biological sampling will utilize fyke nets and live boxes that can be attached directly to the downstream end of the diversions. The nets will be continuously operated during water diversion over 4-6 days each week. A technical report will be prepared after the irrigation season, itemizing the results of the biological monitoring. Results of statistical tests (including ANOVA) and comparative graphics will be provided.

**Local Support/Coordination With Other Program/Compatibility with CALFED**

The study is supported by both water diverters at the site. The applicant will coordinate information exchange with agency staff involved in various fish screening programs. The study is compatible with CALFED's mission to seek solutions to water problems in the Delta and its tributary watersheds.