DRAFT

Subject: Fathead Minnow Toxicity in the Sacramento River

Background:. The fathead minnow bioassay is used as a surrogate to predict adverse impacts to the Sacramento River, San Joaquin River, and Delta. Toxicity testing in the Sacramento River watershed has detected a substantial amount of toxicity to this test species. Of particular concern is the fathead minnow mortality observed in approximately 50% of the samples collected from the Sacramento River near Freeport. The cause of this toxicity and its ecological significance needs to be determined. The fungicide Ziram has been identified as one potential toxicant; however, the seasonal distribution of toxicity suggests that it cannot account for all the toxicity. Studies are needed to determine the toxicants involved in the fathead minnow mortality and to determine the significance of the toxicant to the indigenous aquatic ecosystem.

Proposed Action: The Central Valley Regional Water Quality Control Board would coordinate the development of studies to determine the toxicants involved in the fathead minnow mortality and to characterize its presence in receiving waters. The studies would build on ongoing work by the Regional Board, DeltaKeeper, UC Davis, and the Sacramento River Watershed Program. After the toxicity is characterized, the ecological significance of the toxicity needs to be determined through the completion of an ecological risk assessment. The Regional Board will receive specific funding to develop and coordinate the studies; however, a focused grant process will be used to determine the entity/entities which will complete the actual field work and the ecological risk assessment.

Geographic Area: Monitoring would be conducted on the Sacramento River mainstem and tributaries, while the ecological risk assessment would encompass the entire Delta and appropriate upstream areas.

Recommended Funding: $500,000

Coordination/Overlap with Existing Studies: The Regional Board will act as an umbrella organization to integrate the above program into ongoing studies and monitoring. These studies include: (1) an evaluation of the fungicide Ziram as a potential cause of mortality to fathead minnows. The study will develop a lab method to detect Ziram at ecologically relevant levels, develop toxicity identification procedures to finger Ziram, measure Ziram in field samples, and determine if Ziram can explain some of the observed fathead minnow mortality. (2) A Category III funded literature review to determine if contaminants are likely to be impacting salmonids. (3) A CALFED 1997 Category III funded proposal to study the effects of contaminants on Delta smelt. (4) In addition, the Sacramento River Watershed Program, Sacramento Regional County Sanitation District, and DeltaKeeper will continue to conduct fathead minnow bioassays as part of their specialized monitoring programs.

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