EXHIBIT A: EXECUTIVE SUMMARY

The American River provides spawning/rearing habitat for Chinook salmon and steelhead, yet passes through 30 miles of dense urban development. Urban runoff contains pyrethroid insecticides that cause the river to become toxic to standard testing species with every storm event. This study will go beyond observed toxicity to standard testing species, and address toxicity to chironomids, caddisflies, and mayflies, key diet components of juvenile fish in the river. Our key approach is the use of river-side systems with flowing river water that allow us to replicate realistic pesticide exposures, while controlling other variables. We will determine sensitivity to pyrethroids and fipronil of salmonid prey taxa, and expose them, as well as standard testing species, in the flow-through systems through six storm events. We will maintain experimental streams containing riverine benthic invertebrate communities, and measure response to the pyrethroid pulses. To supplement analyses of the indirect, food web-mediated effects, we will measure endocrine effects through vitellogenin induction in salmon and steelhead. Finally, one treatment includes river water from which organic contaminants have been removed by activated charcoal, to help establish cause of toxicity. The goal is to determine if known toxicity in the American River is a threat to benthic invertebrates and, through the food web, to salmon and steelhead.