Title: Stream Pollution Trends Program (SPoT): Statewide Contaminant and Toxicity Monitoring Related to Land Use

The Stream Pollution Trends Program (SPoT) monitors the health of 100 watersheds statewide through measurements of sediment toxicity and contaminants. The focus of the program is trend monitoring based on land use, particularly developed, agricultural and open lands. Developed land area in California increased by 3.7% between 2001 and 2011, and the net increase in impervious surface was 8.8%. Among the developed land uses, open space decreased, and there were substantial increases in medium and high impact development. Increases in developed land have coincided with decreases in scrub, grasslands and agricultural lands. Since its inception in 2008, SPoT has identified significant increasing trends in current-use pesticides, heavy metals and the PBDE flame retardants in urban areas. Some individual pyrethroid pesticide concentrations are significantly increasing in all three land use areas, whereas individual metals such as copper are only increasing in open areas. Concentrations of legacy contaminants, such as DDT and PCBs are low at SPoT sites, but significantly decreasing trends are not discernable. Trends in toxicity, measured as survival of laboratory test organisms in ambient sediment samples, have been decreasing in open areas, but are stable statewide. The highest incidence and magnitude of toxicity has been associated with urban land use and pyrethroid pesticides. SPoT recently expanded its analyte list to include another urban-use pesticide, fipronil, and has added another test organism for urban monitoring to assess potential impacts of this pesticide. SPoT will continue to adapt to identify trends in emerging contaminants.

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Bryn Phillips has worked at the University of California Davis Granite Canyon Laboratory since 1992. During his career he has managed aspects of a number of large-scale monitoring projects that most recently include the Surface Water Ambient Monitoring Program, and the Stream Pollution Trends Program. Mr. Phillips has conducted a number of research projects related to agricultural and urban runoff, as well as research projects funded through agencies such as the California Water Boards, the Department of Pesticide Regulation and various Resource Conservation Districts.