

Update on Studies on Aquatic Life Toxicity in San Diego Creek/Upper Newport Bay

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Ben Chambliss
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Dear Mr. Chambliss:

I have previously brought to your attention the results of the studies that we are conducting on stormwater runoff aquatic life toxicity in San Diego Creek as it enters Upper Newport Bay in Orange County, California. I wish, at this time, to provide you with a copy of the Technical Advisory Committee report that I originally prepared in January 1998 but updated this May, which summarizes the fall 1997 and winter/spring 1998 studies on aquatic life toxicity in San Diego Creek as it enters Upper Newport Bay. As indicated, we continue to find high levels of aquatic life toxicity in stormwater runoff to *Ceriodaphnia* that is due to diazinon and chlorpyrifos.

We have expanded our studies to include an examination of toxicity to *Mysidopsis* (a marine zooplankton). As expected based on the literature, waters that are toxic to *Ceriodaphnia* are also highly toxic to *Mysidopsis*. If anything, the waters may be more toxic to the marine organism, especially if chlorpyrifos is present. Some stormwater runoff events cause waters in San Diego Creek as they enter Upper Newport Bay to have 10 *Mysidopsis* toxicity units. You may recall that last fall I sent you a copy of the results from the first year's work. A comprehensive report of the past year's work is being prepared and should be available by the end of the summer.

In addition to summarizing the work of the past year, I have included two other relevant discussions which focus on OP pesticide regulatory issues. They were presented at a Northern California Society for Environmental Toxicology and Chemistry meeting that was held in Reno in late June 1998. As you may know, there is considerable controversy about regulating OP pesticide aquatic life toxicity in California. There is widespread documented toxicity in urban stormwater runoff throughout many parts of the state.

Further, there is significant OP pesticide aquatic life toxicity in agricultural stormwater runoff and irrigation tailwater in several parts of the state. Several waterbodies have been placed on the 303(d) list as "impaired" waterbodies due to OP pesticide toxicity. This means that TMDLs to control this toxicity will need to be developed. My work in Orange County is in support of developing a technical information base for formulating the Upper Newport Bay aquatic life toxicity TMDL, which is supposed to be completed in two years. One of the basic issues that needs to be resolved is whether the *Ceriodaphnia* and mysid toxicity represents a significant adverse impact on the beneficial uses of Upper Newport Bay and its tributaries. Similar questions are being asked about the Sacramento River system, and urban creeks in Sacramento and Stockton, which have been found to be toxic to *Ceriodaphnia* due to OP pesticides during stormwater runoff events, as well as San Francisco Bay area urban creeks, which is experiencing similar problems.

Another basic issue that will need to be resolved is whether the Clean Water Act implementation for NPDES permitted stormwater runoff can be allowed to be toxic and still comply with US EPA requirements of no discharge of toxic compounds in toxic amounts. At this time, domestic wastewater dischargers have to control OP pesticide caused toxicity in their wastewater discharges in order to comply with US EPA requirements for implementation of the Clean Water Act, yet urban and agricultural stormwater dischargers discharge the same types and amounts of toxicity to the same types of organisms with most, if not all, rainfall runoff events.

The studies that have been done in several urban areas demonstrate that the problem is not misuse of these pesticides on residential properties. Use in accord with the label results in stormwater runoff events being toxic to certain forms of aquatic life. OP pesticide aquatic life toxicity is a national problem where stormwater runoff from urban areas is toxic to certain forms of aquatic life due to residential use of diazinon and chlorpyrifos. These issues should be thoroughly reviewed as part of re-registering these pesticides. Further, the US EPA needs to formulate a national policy on how to implement the control of NPDES-permitted stormwater-associated aquatic life toxicity.

If you or others have any questions on the attached update or previously submitted materials, please contact me. Further, if I can help resolve technical issues on this matter, please call.

Sincerely yours,

G. Fred Lee

G. Fred Lee, PhD, PE, DEE

copy to: C. Browner
R. Perciasepe

GFL:jlc
Enclosure

Reference as: "Lee, G.F., 'Update on Studies on Aquatic Life Toxicity in San Diego Creek/Upper Newport Bay,' letter to B. Chambliss, US EPA, Washington, D.C., July (1998)."