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PCB Toxicity to Phytoplankton: Effects of Dose and Density-Dependent Recovery Responses

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ABSTRACT

Polychlorinated biphenyls have been discharged into the environment for over 40 years, but comprehensive investigations of the effects of these substances on aquatic organisms have only recently begun (Ahmed, 1976). Detection of PCB's in phytoplankton has been of considerable concern as its apparent toxicity is implicated in food web alteration and resultant damage to commercially important fisheries (o' Connors et al. 1978).

PCB's of a particular chlorine content and at a particular chlorine content and at a particular concentration will elicit different responses in different species, and even clones of the same species of phytoplankton (Fisher & Wurster 1973, Harding & Phillips 1978b), and the response to that dose is a function of the susceptibility of the cell to toxicity, determined partially by the suitability of the environment, and partially by characteristics of the cell itself.

In this paper, we examine susceptibility of phytoplankton to PCB toxicity through the relationships between the dose which the cell receives, and the number of cells receiving the dose. We believe that toxicity must be view at both cellular and pollution levels.