Pesticides in the Nation's Streams, 1992–2001

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The use of pesticides to control weeds, insects, and other pests has resulted in a range of benefits, including increased food production and reduction of insect-borne disease, but also raises questions about possible adverse effects on the environment, including water quality. Water samples collected from 1992 through 2001 from 186 streams and rivers in 51 of the Nation's major river basins were summarized to provide the most comprehensive national-scale analysis of pesticide occurrence to date. At least one pesticide was detected in water from all streams studied and at least one pesticide was detected more than 90 percent of the time in water from streams draining agricultural, urban, or mixed land uses.

Concentrations of pesticides in streams were typically below water-quality benchmarks for human health. Only 11 of 186 streams had pesticide concentrations (usually atrazine or cyanazine) greater than a human-health benchmark. Concentrations of pesticides in streams were typically above aquatic-life benchmarks. One or more pesticides exceeded benchmarks for aquatic life in 83 percent of urban, 57 percent of agricultural, and 42 percent of mixed-land-use streams. The insecticides diazinon, chlorpyrifos, and malathion were frequently above benchmarks for aquatic life in urban streams whereas chlorpyrifos, azinphos-methyl, atrazine, *p,p'*-DDE, and alachlor were frequently above benchmarks in agricultural streams.