URBAN PESTICIDES

The San Francisco Estuary Partnership (SFEP) supports a nationally unique effort to reduce widespread pesticide toxicity in urban creeks. The problems are complex: although major contributors to urban creek toxicity were phased out by 2004, the pyrethroid pesticides (synthetic pesticides based on compounds in chrysanthemum flowers, but much stronger and more toxic) that replaced them created a new toxicity problem. Local agencies responsible for resolving toxicity in their jurisdictions could not directly control pesticide use, and they were frustrated that one pesticide toxicity problem had given way to another.

SFEP approaches this difficult problem by working to bridge water quality and pesticide regulation. SFEP's Urban Pesticide Pollution Prevention Project educates pesticide regulators about water quality and water quality managers about pesticides. The project tracks regulatory processes for pesticides of concern to surface water quality, connects new scientific and monitoring data to regulatory reviews, and helps local governments get involved in those processes. The project's consistent voice for urban water quality has helped to change the way pesticides are regulated at both the California and Federal levels.

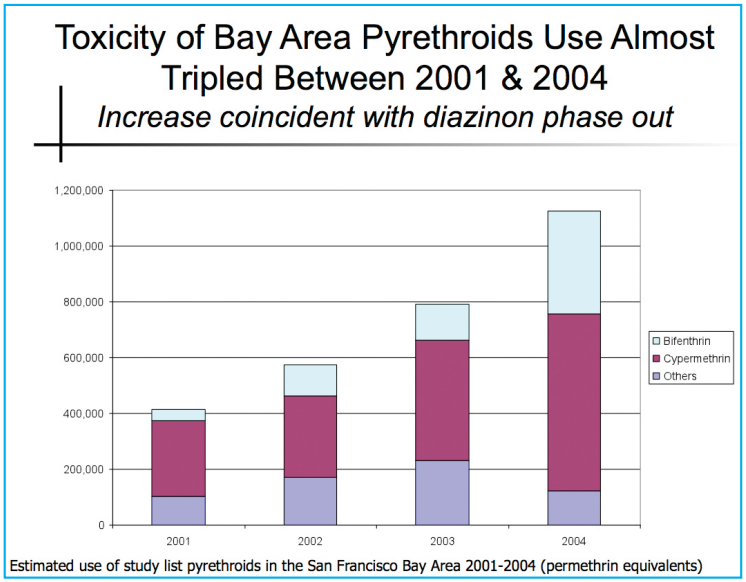
THE NATIONAL ESTUARY PROGRAM IN ACTION

San Francisco Estuary Partnership

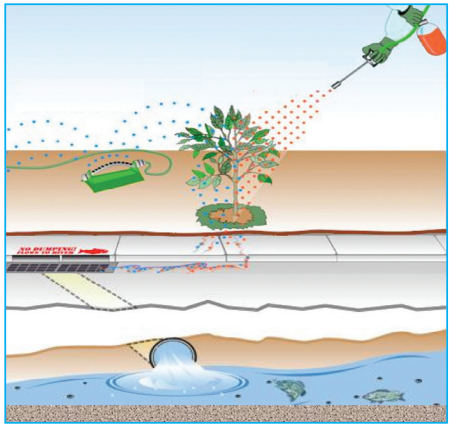
In California, pesticide-related toxicity is more severe—and more widespread—in urban areas than in agricultural areas. Currently, most toxicity comes from pyrethroids. Generic pyrethroid names often end in '-thrin,' such as bifenthrin and cypermethrin, and they are sold under hundreds of formulations and brand names. Pyrethroids are widely used nationwide, but toxicity measurements and data are still rare outside of California. In California, pyrethroids are primarily used to control the state's most common pest problem, ants, in homes and buildings.

Ant control in California often involves spraying pyrethroids on a wide band (up to 10 feet) around a building. These perimeter sprays, which are usually applied by professional applicators, often cover impervious surfaces, and runoff can bring pesticides to storm drains and creeks. While the wash-off fraction may be tiny (perhaps less than 1% of the total application), pyrethroids can be toxic to aquatic life in creeks at concentrations as low as 10 parts per trillion. A typical container of pyrethroid pesticide can contaminate up to 50 billion gallons of water. Even rigorously following label instructions does not always prevent pollution and toxicity in local creeks.

The root cause of this toxicity can be traced back to a regulatory gap. Because the way pesticide laws are implemented doesn't fully take water quality—particularly urban water quality—into account, pesticides



Estimated use of study list pyrethroids in the San Francisco Bay Area 2001-2004 (permethrin equivalents)



can be registered for uses that will cause Clean Water Act violations. While cities are responsible for pesticides in surface waters under their NPDES permits, they have little direct control because California law precludes local government from banning or regulating pesticides.

SFEP's Urban Pesticide Pollution Prevention Project works to bridge this regulatory gap by consistently bringing water quality issues to pesticide regulators. The process begins with a technical consultant reviewing state and Federal pesticide regulatory actions to find those of interest for water quality. This screening is a significant task: at the state level alone, California's Department of Pesticide Regulation manages more than 7,000 pesticides regulatory activities each year.

Once a specific pesticide item of interest is identified, SFEP helps share relevant scientific information and insights between water quality agencies and pesticide regulators. Informal communication facilitated by SFEP is usually followed up with formal letters from local agencies, including stormwater programs, wastewater treatment plants, and California's State Water Resources Control Board and Regional Water Quality Control Boards, to state and Federal pesticide regulators.

The SFEP's Urban Pesticide Pollution Prevention Project also supports communication, education, and collaboration among stormwater and wastewater agencies, pesticide regulators, water quality agencies, pesticide manufacturers, concerned citizens, and technical experts. It holds regular meetings of a working group, the Urban Pesticides Committee; issues technical reports on annual pesticide usage, science and monitoring data, and regulatory changes; and makes presentations to stakeholders.

The regulatory process works slowly, but it can make significant changes in pesticide use. For selected pesticides, the project's work has secured changes in label directions to reduce releases, limited outdoor uses to spot treatments rather than broadcast applications, and terminated applications to boat hulls and other areas that drain directly to waterways. The SFEP's Urban Pesticide Pollution Prevention Project has affected the uses of a wide range of pesticides, including numerous pyrethroids, pyrethrins, piperonyl butoxide and MGK-264 (two synergists), lindane (lice treatment), metaldehyde (snail bait), and metam-sodium (sewer system root control). More importantly, because of the project's work, both California and U.S. EPA pesticide regulators have revised the methods they use to assess pesticides. Regulators more commonly include water quality in the scope of their risk assessments—and are more likely to consider urban pesticide use patterns.

While SFEP's Urban Pesticide Pollution Prevention Project currently focuses on California, its water quality communications to Federal regulators have secured changes to pesticide regulation at a national level.

Visit **www.sfestuary.org** to learn more about this and other SFEP efforts.

EPA's National Estuary Program (NEP) is a unique and successful coastal watershed-based program established in 1987 under the Clean Water Act Amendments. The NEP involves the public and collaborates with partners to protect, restore, and maintain the water quality and ecological integrity of 28 estuaries of national significance located in 18 coastal states and Puerto Rico.

For more information about the NEP go to www.epa.gov/owow/estuaries.