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Abstract: Virtually all of America's fresh water is tainted with low concentrations of chemical contaminants, according to the new report of an ambitious nationwide study of streams and groundwater conducted by the U.S. Geological Survey (USGS). Pesticides, for example, were detected in 94 percent of all water samples and in 90 percent of fish samples. While the widespread appearance of pollutants is cause for concern, the report states, their concentrations fell well below the U.S. Environmental Protection Agency's recommended limits in most places. The USGS has monitored the nation's water for more than 3 decades, but the new data, gathered under the auspices of the National Water-Quality Assessment program, are the broadest by far. In the study, fish in rural New Hampshire were more likely to be contaminated with mercury than fish in Boston's Blackstone River were. Some pollutants associated with farmlands are showing up in cities, the study also found. For instance, researchers generally measured higher concentrations of various insecticides in urban water sources than in rural ones.

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THIS WEEK

A Portrait of Pollution

Nation's fresh water gets a checkup

Virtually all of America's fresh water is tainted with low concentrations of chemical contaminants, according to the new report of an ambitious nationwide study of streams and groundwater conducted by the U.S. Geological Survey.

Pesticides, for example, were detected in 94 percent of all water samples and in 90 percent of fish samples. While the widespread appearance of pollutants is cause for concern, the report states, their concentrations fell well below the U.S. Environmental Protection Agency's recommended limits in most places.

The USGS has monitored the nation's water for more than 3 decades, but the new data, gathered under the auspices of the National Water-Quality Assessment program, are the broadest by far. More than 400 scientists tested thousands of rivers, aquifers, wells, fish, and sediments across the country over a 10-year period. They analyzed some 11 million samples for more than 600 chemicals.

"It's a huge expansion," says Timothy L. Miller, chief of the USGS Office of Water Quality. "It's a world away from what we were doing in the '70s and '80s."

The report reveals blurring boundaries between rural and urban pollution. Miller expected to find the gasoline additive methyl tert-butyl ether (MTBE) in large cities, for example, but he and his colleagues also found the chemical in groundwater far from urban locales. "We didn't anticipate [that]," he says.

Mercury is also making its way into pristine areas. For example, the soil chemistry in wetlands converts mercury to a form taken up by fish. In the study, fish in rural New Hampshire were more likely to be contaminated with mercury than fish in Boston's Blackstone River were.

Some pollutants associated with farmlands are showing up in cities, the study also found. For instance, researchers generally measured higher concentrations of various insecticides in urban water sources than in rural ones. "We didn't expect to see such a difference," says Miller. He speculates that insecticides are applied more extravagantly to lawns and golf courses than to croplands.

Not all the news is bad. Consider the insecticide DDT. Although banned in 1972, it persisted for years in rivers across the country. A decade ago, the Yakima River Basin in central Washington had DDT levels up to 15 times EPA's recommended limit. In the new study, researchers detected no DDT in any Yakima sample. "That's a very dramatic difference," says Miller, who attributes DDT's disappearance in the region to changes in irrigation practices by farmers.

Robert J. Miltner of the Ohio Environmental Protection Agency says that he values the USGS' work on this project but that translating those results into specific policies or changes in industrial or agricultural practices is a long-term process.

In a decade-long second phase of water assessment, USGS researchers plan to return to most of the sites.

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By Carrie Lock
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