The Quality of Our Nation’s Waters

Nutrients and Pesticides

U.S. Geological Survey
Circular 1225
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ABOUT THE COVER
Top left:
Opal Creek drains one of the few protected old growth forest
reserves remaining in the Willamette Basin, Oregon.
(Photograph by Dennis A. Wentz)

Top right:
Wheat is a major crop in the Red River of the North Basin, Minnesota,
North Dakota, and South Dakota.
(Photograph courtesy of Don Brenneman, University of Minnesota Agricultural Extension Service)

Bottom left:
Dallas is reflected in the channelized Trinity River, Texas. (Photograph courtesy of TEXAS HIGHWAYS Magazine. © by Richard Stockton. Used with permission.)

Bottom right:
A hydrologic technician collects a water sample from Zollner Creek, Oregon, for analysis of nutrients and pesticides. (Photograph by Dennis A. Wentz)

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PHOTOS
All photos by USGS personnel unless otherwise noted
In 1991, the U.S. Congress appropriated funds for the U.S. Geological Survey (USGS) to begin the National Water-Quality Assessment (NAWQA) Program. As part of the NAWQA Program, the USGS works with other Federal, State, and local agencies to understand the spatial extent of water quality, how water quality changes with time, and how human activities and natural factors affect water quality across the Nation. Such understanding can help resource managers and policy makers to better anticipate, prioritize, and manage water quality in different hydrologic and land-use settings and to consider key natural processes and human factors in resource strategies and policies designed to restore and protect water quality.

The NAWQA Program focuses on water quality in more than 50 major river basins and aquifer systems. Together, these include water resources available to more than 60 percent of the population in watersheds that cover about one-half of the land area of the conterminous United States. NAWQA began investigations in 20 of these areas in 1991 and phased in work in more than 30 additional basins by 1997. Investigations in these basins, referred to as “Study Units,” use a nationally consistent scientific approach and standardized methods. The consistent design facilitates investigations of local conditions and trends within individual Study Units, while also providing a basis to make comparisons among Study Units. The comparisons demonstrate that water-quality patterns are related to chemical use, land use, climate, geology, topography, and soils, and thereby improve our understanding of how and why water quality varies regionally and nationally.
This report is the first in a series of nontechnical publications, *The Quality of Our Nation’s Waters*, that describe major findings of the NAWQA Program on water-quality issues of regional and national concern. This first report presents insights on nutrients and pesticides in water and on pesticides in bed sediment and fish tissue. It represents a compilation of findings in the first 20 Study Units. Subsequent reports in this series will cover other water-quality constituents of concern, such as radon, arsenic, other trace elements, and industrial chemicals, as well as physical and chemical effects on aquatic ecosystems. Each report will build toward a more comprehensive understanding of regional and national water resources as assessments in other Study Units are completed and as scientific models and tools that link water-quality conditions, dominant sources, and environmental characteristics are applied in geographic areas not covered by NAWQA Study Units.

The information in this series is intended primarily for those interested or involved in resource management, conservation, regulation, and policy making at regional and national levels. In addition, the information might interest those at a local level who simply wish to know more about the general quality of streams and ground water in areas near where they live, and how that quality compares to other areas across the Nation.

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1 Summaries of water-quality assessments for the first 20 Study Units are available as USGS Circulars and on the World Wide Web. Information on accessing these summaries is provided on p. 80.