

The Quality of Our Nation's Waters

Nutrients and Pesticides



U.S. Geological Survey
Circular 1225

U.S. Department of the Interior
U.S. Geological Survey



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otherwise noted

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
Brennemen, University of Minne-
sota 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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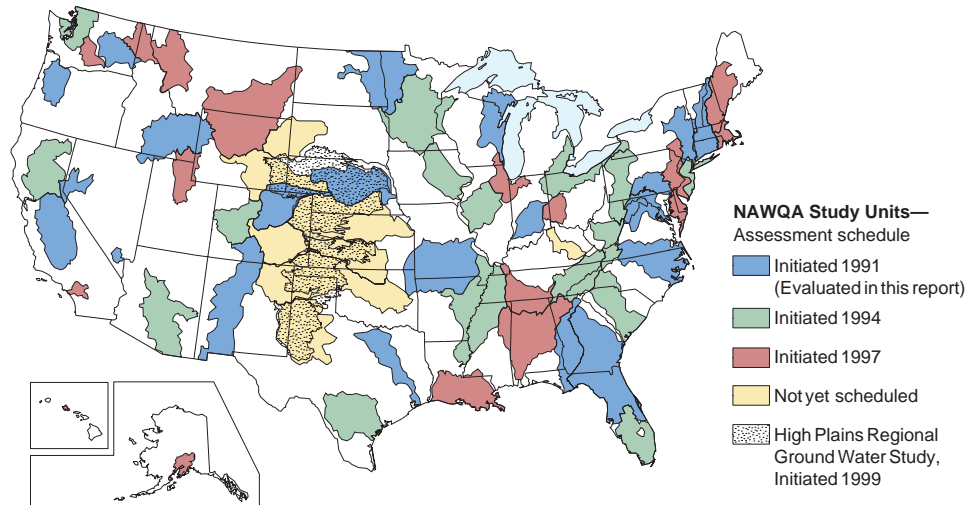
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NAWQA

National Water-Quality Assessment Program

“The Nation’s water resources are the basis for life and our economic vitality. These resources support a complex web of human activities and fishery and wildlife needs that depend upon clean water. Demands for good quality water for drinking, recreation, farming, and industry are rising, and as a result, the American public is concerned about the condition and sustainability of our water resources. As part of the National Water-Quality Assessment Program, the U.S. Geological Survey will continue to work with other Federal, State, and local agencies to better understand how natural and human influences affect water quality in different parts of the Nation. Without this understanding, we can not wisely manage these resources.”

*Bruce Babbitt, Secretary
U.S. Department of the Interior*



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.

Introduction to this report and the NAWQA series

The Quality of Our Nation's Waters



Douglas A. Henred

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.¹ 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.

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.