WATER FACT SHEET

U.S. GEOLOGICAL SURVEY, DEPARTMENT OF THE INTERIOR

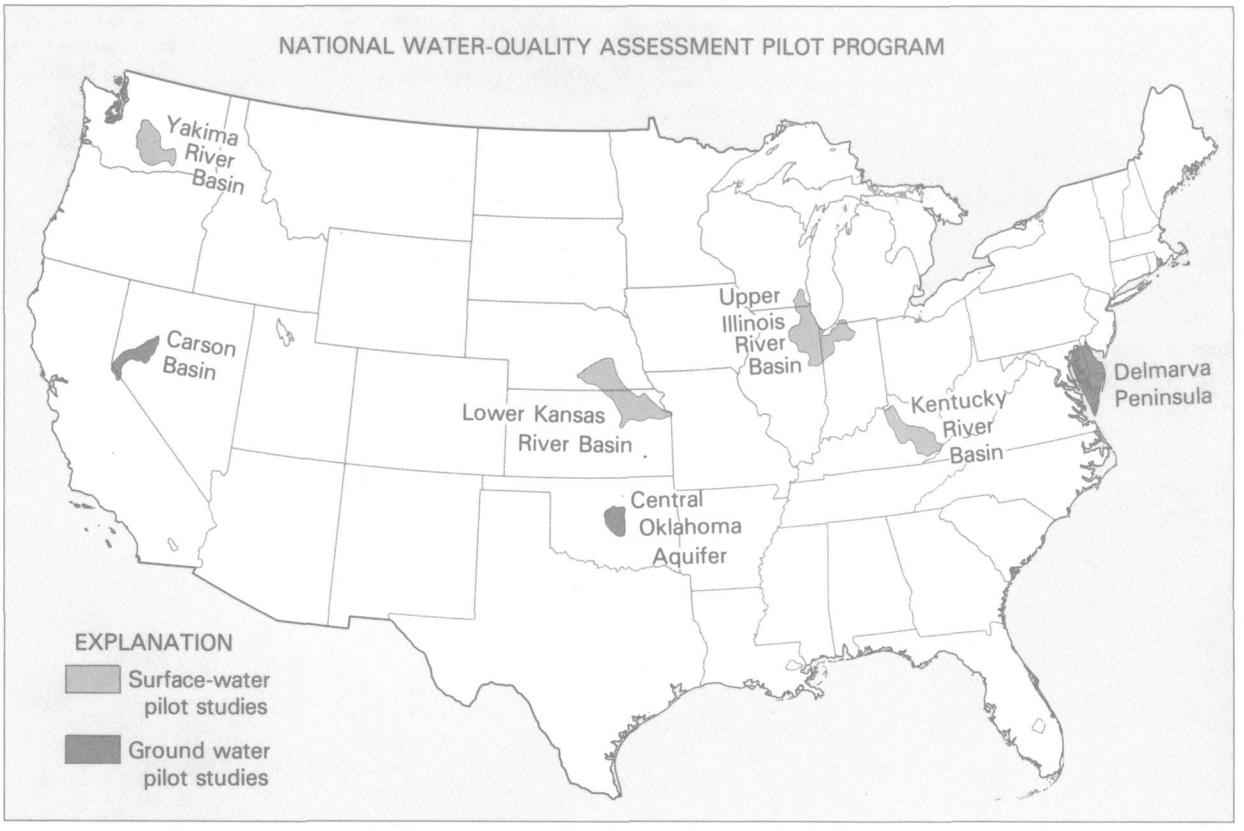
NATIONAL WATER-QUALITY ASSESSMENT PILOT PROGRAM

BACKGROUND

The protection and enhancement of the quality of the Nation's surface- and ground-water resources is a high priority concern. Effective management of these resources requires information on current water-quality conditions, trends in those conditions, and the major factors that affect water quality. It is presently not possible to provide this information in a consistent manner across the Nation, or to provide adequate understanding of the factors that control surface- and ground-water quality in different regions.

Many major decisions have to be made that will determine the directions of water-quality management for future decades. These decisions include establishment of future regulations, as well as setting the levels of public spending for pollution control, for monitoring, and for research to better understand processes affecting water quality. Many of these decisions will be made in areas of great scientific uncertainty.

An earth-science perspective is needed for prudent management of water quality. Predictions of the water-quality effects of many proposed management actions rely heavily on knowledge of the interactions between water and earth materials (soils and sediment). The mission of the U.S. Geological Survey (USGS) is to provide information that will assist resource managers and policy makers at the Federal, State, and local levels in making sound decisions. This is done through assessments of the quantity and quality of the natural resources of the Nation, including minerals, energy resources, and water.



THE U.S. GEOLOGICAL SURVEY NATIONAL WATER-QUALITY ASSESSMENT PILOT PROGRAM

In fiscal year 1986, the Congress appropriated funds for the USGS to begin a National Water-Quality Assessment (NAWQA) pilot program to test and refine assessment concepts and approaches, and to evaluate the potential use and costs of a fully implemented program. A full-scale national program would be conducted through a large set of investigations of river basins and aquifer systems, referred to as study units. By conducting the national program as an aggregation of many individual study units, the assessment will provide results that are useful in understanding and managing the resources of the study unit, as well as answering national-scale questions about current conditions, trends, and factors that affect water quality. The program will focus on conditions that are large in scale and persistent in time. It will emphasize regional degradation of water quality such as might occur from nonpoint sources of pollution or from a high density of point sources.

Four surface-water and three ground-water pilot projects—representing a diversity of hydrologic environments and water-quality conditions—were selected to test and refine the assessment concepts. Surface-water pilot project areas are the upper Illinois River basin in Illinois, Indiana, and Wisconsin; the Kentucky River basin in Kentucky; the lower Kansas River basin in Kansas and Nebraska; and the Yakima River basin in Washington. Ground-water pilot project areas are the Carson basin in western Nevada and eastern California; the Central Oklahoma aquifer in Oklahoma; and the Delmarva Peninsula in Delaware, Maryland, and Virginia. Work in the pilot projects will primarily be done by USGS personnel in District offices assigned to these study areas.

Coordination between USGS personnel and other interested scientists and water-management personnel is an important component of the pilot program. Each pilot project has a liaison committee, consisting of representatives from other Federal, State, and local agencies, to help ensure that the scientific information produced by the project is relevant to local and regional interests. A National Coordinating Work Group also has been established to advise the USGS on the overall pilot program.

The pilot program is to last about 4 years. Near the end of this period, there will be an independent evaluation of the pilot program, and of the potential value of extending such efforts to a much larger number of regional study areas which, together, would constitute a national study effort.

GOALS

The goals of a full-scale NAWQA program would be to:

- Provide a nationally consistent description of current water-quality conditions for a large part of the Nation's water resources,
- Define long-term trends (or lack of trends) in water quality, and
- Identify, describe, and explain, as possible, the major factors that affect observed conditions and trends in water quality.

This information, obtained on a continuing basis, would be provided to water managers, policy makers, and the public to provide an improved scientific basis for evaluating the effectiveness of water-quality management programs and for predicting the likely effects of contemplated changes in land and water-management practices.

ACTIVITIES

The pilot projects are using available information and new data collected from sites distributed across the study areas to:

- Describe general water-quality conditions for major drainage basins and hydrogeologic units;
- Describe the geographic distribution of various contaminants and water-quality-problem areas and the causes of this distribution;
- Estimate loads of selected water-quality constituents at key locations in river basins;
- Describe the temporal variation and the frequency of occurrence of various contaminants at key locations in major river basins;
- Describe attenuations or changes in water quality that occur with depth in various geohydrologic environments;
- Describe factors that affect the vulnerability of aquifer systems to contamination;
- Identify and describe relations between the quality of surface and ground water and natural and human factors; and
- Where possible, define trends in water quality that have occurred during recent decades, and provide a data base for evaluating future trends in water quality.

Information on technical reports, overview reports, and hydrologic data related to the USGS National Water-Quality Assessment Program can be obtained from:

Hydrologic Information Unit
U.S. Geological Survey
419 National Center
Reston, Virginia 22092

Open-File Report 88-312

W.G. Wilber, 1988 and
W.W. Alley, 1988