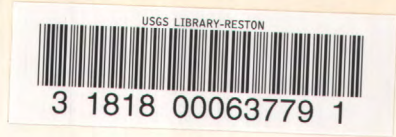


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WATER FACT SHEET

U.S. GEOLOGICAL SURVEY, DEPARTMENT OF THE INTERIOR

NATIONAL WATER-QUALITY ASSESSMENT: GROUND-WATER PILOT PROGRAM

BACKGROUND

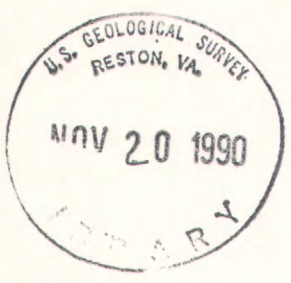
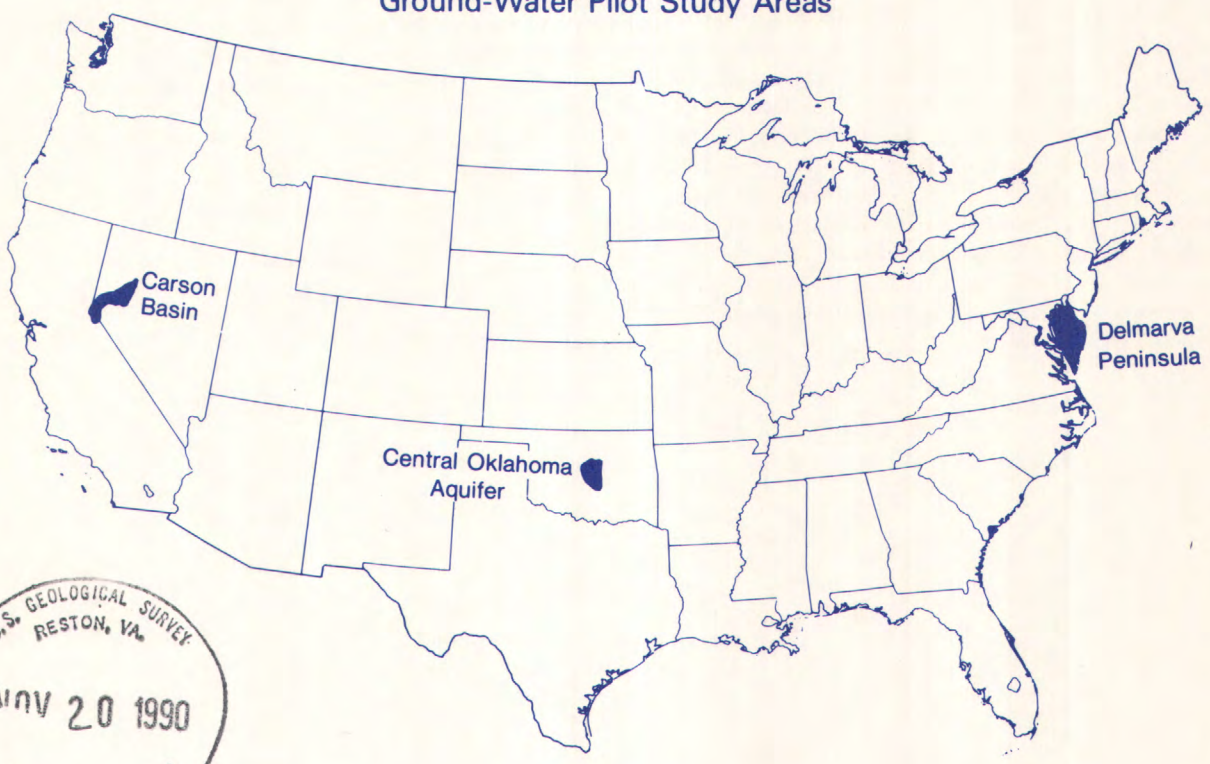
The protection and enhancement of the quality of the Nation's ground-water resources is a high-priority concern. Deterioration of ground-water quality may be irreversible in many aquifers and the removal of contaminants can be very expensive. Effective management of these resources requires information 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 ground-water quality in different regions.

Many major decisions that will determine the future direction of ground-water-quality management have to be made.

These decisions include the establishment of regulations, as well as 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.

A sound earth-science perspective is necessary for prudent management of ground-water quality. Predictions of the effects of many proposed management actions on water quality are based on knowledge of the interactions between water and earth materials (aquifers, soils, and sediment). The mission of the U.S. Geological Survey (USGS) is to develop and disseminate scientific information on the quantity and quality of the earth resources of the Nation, including minerals, energy resources, and water, and to provide information that will assist resource

Ground-Water Pilot Study Areas





managers and policy makers at the Federal, State, and local level in making sound management decisions.

THE PILOT PROGRAM

In fiscal year 1986, Congress appropriated funds for the USGS to begin a pilot National Water-Quality Assessment (NAWQA) Program to test and refine assessment concepts and approaches, and to evaluate the potential usefulness and costs of a fully implemented program. Later, a full-scale national program would be based on a large group 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 would have the potential to provide results that are useful in understanding and managing the resources of the study unit, as well as to answer questions about current conditions, trends, and factors affecting water quality on a national scale. The focus of the program is on conditions that are large in scale and persistent in time, with emphasis on regional degradation of water quality, such as might occur from nonpoint sources of pollution or from a high density of point sources. Although the NAWQA program consists of a surface-water and a ground-water component, this discussion focuses on ground water.

Three ground-water pilot projects that represent a diversity of hydrologic environments and water-quality conditions were selected to test and refine the assessment concepts. 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. Studies in the pilot projects are being conducted 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 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 duration of the pilot program is about 4 years. Near the end of this period, an independent evaluation will be conducted of the technical quality and relevance of the work and of the potential value of extending such efforts to a much larger number of regional study areas which, in aggregate, would constitute a national study effort.

OBJECTIVES

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

- Provide nationally-consistent descriptions 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 that have occurred over recent decades, and
- Identify and describe the relations of both current conditions and trends in water quality to natural and human factors.

This information, obtained on a continuing basis, would provide to water managers, policy makers, and the public an improved scientific basis for evaluating the effectiveness of past or present 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 wells distributed across the study areas to:

- Describe general ground-water-quality conditions for major hydrogeologic units;
- Describe the geographic distribution of various contaminants and water-quality problem-areas, and the causes of this distribution;
- 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 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 ground-water quality.

Information on the USGS National Water-Quality Assessment Program can be obtained from:

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