

# NATIONAL WATER-QUALITY ASSESSMENT PROGRAM

## High Plains Regional Ground-Water Study Web Site

Now available on the Internet is a web site for the U.S. Geological Survey's (USGS) National Water-Quality Assessment (NAWQA) Program—High Plains Regional Ground-Water Study. The purpose of the web site is to provide public access to a wide variety of information on the USGS investigation of the ground-water resources within the High Plains aquifer system. Typical pages on the web site include the following: descriptions of the High Plains NAWQA, the National NAWQA Program, the study-area setting, current and past activities, significant findings, chemical and ancillary data (which can be downloaded), listing and access to publications, links to other sites about the High Plains area, and links to other web sites studying High Plains ground-water resources.

The High Plains aquifer is a regional aquifer system that underlies 174,000 square miles in parts of eight States (Colorado, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, and Wyoming). Because the study area is so large, the Internet is an ideal way to provide project data and information on a near real-time basis. The web site will be a collection of living documents where project data and information are updated as it becomes available throughout the life of the project. If you have an interest in the High Plains area, you can check this site periodically to learn how the High Plains NAWQA activities are progressing over time and access new data and publications as they become available.

### SELECTED WEB SITE CONTENTS

#### Study-Area Setting

The environmental setting of the High Plains aquifer study area is described on this

[http://co.water.usgs.gov/nawqa/hpgw/HPGW\\_home.html](http://co.water.usgs.gov/nawqa/hpgw/HPGW_home.html)

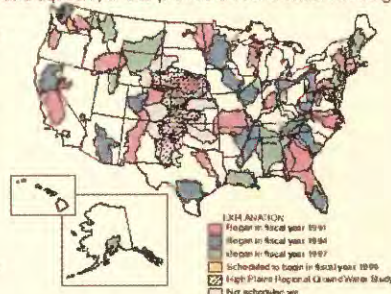


### National Water-Quality Assessment (NAWQA) Program

#### High Plains Regional Ground Water (HPGW) Study

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In 1991 the U.S. Geological Survey initiated the **National Water-Quality Assessment (NAWQA) Program** to describe the status and trends in the quality of freshwater streams and aquifers, and to provide a sound understanding of the natural and human factors that affect the quality of these resources. As part of the program, investigations will be conducted in more than 50 of the Nation's largest river basins and aquifers, known as **Study Units**, to provide a framework for national and regional water-quality assessment. Together, these areas account for 60 to 70 percent of the Nation's water use and population served by public water supplies, and cover about one-half of the land area of the Nation.



As part of the NAWQA program, the USGS is evaluating ground-water quality in the **High Plains Aquifer system**. The High Plains aquifer system underlies 174,000 square miles in parts of eight States (CO, KS, NE, NM, OK, SD, TX, and WY) (figure 1). Approximately 20 percent of the irrigated land in the United States is in the High Plains and about 30 percent of the ground water used for irrigation in the U.S. is pumped from the High Plains aquifer. Irrigation withdrawals in 1990 were **greater than 14 billion** gallons per day. In 1990, 2.2 million people were supplied by ground water from the High Plains aquifer with total public-supply withdrawals of **332 million** gallons per day.

The quality of water in the High Plains aquifer generally is suitable for irrigation use but, in many places, the water does not meet U.S. Environmental Protection Agency drinking-water standards with respect to several dissolved constituents (dissolved solids/salinity, fluoride, chloride, and sulfate). Only sparsely scattered water-quality data (except Texas) are available for pesticides, volatile organic compounds, and trace metals in the High Plains aquifer system. Nutrient data are available, to a varying degree, across the aquifer.



The High Plains in eastern Colorado

Beginning in 1999 and continuing for a period of 6 years, the High Plains Regional Ground Water Study will intensively investigate the quality of ground-water resources within the study area. Investigations will begin in the Central High Plains and move to the Southern High Plains and Northern High Plains as the project progresses (figure 2). The first and most areally extensive component of the intensive study phase is the "Occurrence and Distribution Assessment." The goal of this assessment is to characterize, in a nationally consistent manner, the broad-scale geographic variations of ground-water quality related to major contaminant sources and background conditions.



page. It includes information and figures describing the areal extent of the aquifer, the geology of the aquifer, ground-water flow direction within the aquifer, various uses of the ground-water resources, precipitation, various uses of the land overlying the aquifer, and the spatial distribution and amount of water-level declines and increases.

### **Current/Past Activities**

Activities—current and past—are described on this page and will be updated as the project progresses through the High Plains region. Work began in the central High Plains region and will progress to the southern and then the northern High Plains regions. A listing of the objectives, approach, timing, and targeted constituents is included for each activity. Studies and activities from previous fiscal years also are included on the page to indicate what already has been accomplished in each area of the High Plains.

### **Significant Findings**

Significant findings and conclusions from the individual studies and publications are posted on this page; for example, rates of occurrence and distribution of selected chemicals, extent of natural and anthropogenic factors affecting ground-water quality in different hydrogeologic units within the High Plains aquifer, and scientific knowledge gained from process-oriented studies.

### **Data**

All chemical, physical, and spatial data collected during the course of the High Plains Regional Ground-Water Study are made available to the public on this page. The chemical and physical data for each sampling site are organized by study activity and are available as tables for browsing or ASCII files for downloading for use in other computer programs such as



spreadsheets or statistical packages. The data include: (1) physical information such as water-temperature measurements, electrical conductivity, and well-construction information; (2) chemical data from all ground- and surface-water sites; and (3) quality-control data associated with each sampling effort. The home page and data are updated as additional data become available.

The spatial data sets are geographic information system (GIS) themes that are available in a variety of formats for use in a GIS. Spatial data include themes such as streams, roads, cities,

geology, population, and precipitation. More data sets will become available as they are developed and reviewed.

### **Publications**

All abstracts and some complete publications of the High Plains Regional Ground-Water Study are available on this page. These include factsheets, reports, abstracts of journal articles, and meeting abstracts and/or papers. The publications are available as viewable HTML documents within the browser or viewable/downloadable PDF documents that retain all original document formatting.

### **Other High-Plains Links and Other Agencies Working in the High Plains Area**

Information about links to other web sites associated with the High Plains are on these two pages. These links are identified as Federal or State government, commercial/organization, education, or other. Specifically, the page entitled "Other Agencies Studying High Plains Ground-Water Resources" lists links to web sites of other entities that are actively involved in studies related to the ground-water resources of the High Plains.

—Sharon L. Qi

### **FOR MORE INFORMATION**

Information on technical reports and hydrologic data related to the NAWQA Program can be obtained from:

Project Manager  
High Plains NAWQA  
U.S. Geological Survey  
Denver Federal Center, MS 415  
Denver, CO 80225  
(303) 236-4882

High Plains NAWQA home page: [http://co.water.usgs.gov/nawqa/hpgw/HPGW\\_home.html](http://co.water.usgs.gov/nawqa/hpgw/HPGW_home.html)

*The U.S. Geological Survey (USGS) is conducting an assessment of the ground-water quality in the High Plains aquifer as part of its National Water-Quality Assessment (NAWQA) Program. The long-term goals of NAWQA are to describe the status and trends in the quality of a large representative part of the Nation's surface- and ground-water resources, and to identify major factors that affect the quality of these resources. The NAWQA Program focuses on water quality in more than 50 major river basins and aquifer systems across the Nation. The assessment activities in the High Plains NAWQA study area began in 1998.*