

DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

# MAJOR GROUND-WATER FLOW SYSTEMS IN THE GREAT BASIN REGION OF NEVADA, UTAH, AND ADJACENT STATES

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## REGIONAL AQUIFER SYSTEMS OF THE GREAT BASIN



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## INTRODUCTION

This atlas is one of several reports that are products of an analysis of regional aquifer systems in the Great Basin of Nevada, Utah, and adjacent States. The Geological Survey program of regional aquifer-system analyses is a nationwide study of ground-water systems on a regional scale. The program is intended to establish a framework of geologic, hydrologic, and geochemical information for each regional aquifer system studied. As of 1985, studies have been started or completed in 19 areas. The scope of the Great Basin Regional Aquifer-System Analysis is outlined by Harrill and others (1983). The purpose of this report is to bring the findings of several studies together into a map report that discusses regional aspects of ground-water flow in the Great Basin, delineates the major ground-water flow systems, and briefly describes some of their characteristics.

This atlas is Chapter C of a three-part series. Chapter A delineates and describes hydrogeologic units in the Great Basin region, and Chapter B shows the generalized distribution of hydraulic potential.

## THE STUDY AREA

The Great Basin region discussed herein includes about 140,000 mi<sup>2</sup>, largely in Nevada and Utah, but with smaller components in Arizona, California, Idaho, and Oregon (fig. 1). The study area generally conforms to the Great Basin region as shown by Stewart (1980, p. 7); however, it includes an area of southeastern Nevada that is tributary to the Colorado River, and it excludes some of the Great Basin parts of southeastern California and southern Oregon and the headwater areas of some of the principal drainages in the Sierra Nevada and Wasatch Range. The study area is characterized by generally north-trending mountain ranges more than 50 miles long, separated by alluvial and fluviolacustrine basins. Most mountain ranges are 5 to 15 miles wide and rise 1,000 to 5,000 feet above the adjoining basin floors, which are also 5 to 15 miles wide. The area has had a complex geologic history that includes major episodes of sedimentation, igneous activity, orogenic deformation, and continental rifting. Major tectonic activity beginning about 17 million years ago involved extensional faulting that formed the major basins and ranges which characterize the

