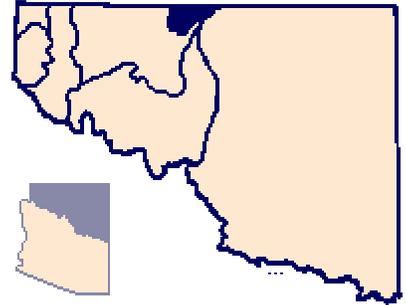


PARIA BASIN

The Paria basin occupies 390 square miles in north-central Arizona within the Plateau uplands province (Figure 10). High desert plateaus and incised canyons dominate the landscape. The basin is bounded on the north by the Arizona-Utah state line, on the south and west by the Vermillion Cliffs, and on the east by the Colorado River. Elevation ranges from a high of 7,100 feet above mean sea level on the Paria Plateau to 3,200 feet above mean sea level along the Colorado River.

Most of the groundwater issues to small springs around the perimeter of the basin where it is consumed by evapotranspiration. The Colorado and Paria Rivers constitute the only perennial rivers in the basin.



Characteristic of the Colorado Plateau, the geologic make-up of the Paria Basin consists of a gently-sloping sequence of limestone, sandstone, and shale formations. Groundwater is present in several aquifers that are made up of one or more of these formations. In the Paria Plateau, groundwater generally moves from south to north and is discharged to springs in the canyon of the Paria River. A portion however, moves south toward the Vermillion Cliffs which form the southern boundary of the basin. Discharge to springs along the Cliffs is estimated to be about 3,500 acre-feet per year (Levings and Farrar, 1978). The exact location of the groundwater divide is unknown due to lack of data in the area. Water levels in wells on the Paria Plateau range from 515 feet to 1,500 feet below land surface. In the Wahweap area, groundwater levels have responded to the filling of Lake Powell. A rise of almost 350 feet was documented by Levings and Farrar (1978) in the vicinity of the lake.

Groundwater development has been relatively small. There is an estimated 1.5 million acre-feet of groundwater in storage to 1,200 feet below land surface and 50 acre-feet were pumped in 1985 (Arizona Department of Water Resources, 1988). The N-aquifer, composed of Navajo Sandstone, Kayenta Formation, and Moenave Formation, is the primary aquifer in the area. Most wells are from 620 to 1,500 feet deep and yield from 30 to 1,400 gallons per minute for domestic and public supply. The largest yields come from wells which penetrate fracture zones (Levings and Farrar, 1978).

Water quality varies across the basin. In the Paria Plateau, water samples contain less than 300 milligrams per liter of dissolved solids. In the Wahweap area, dissolved solids concentrations generally exceed the recommended secondary maximum contaminant level of 500 milligrams per liter.