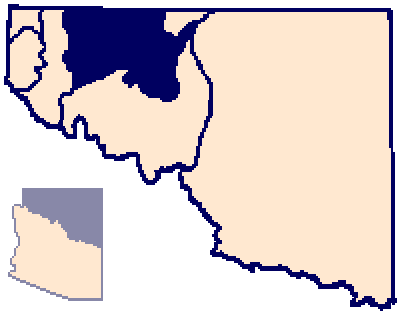
KANAB PLATEAU BASIN



The Kanab Plateau basin covers about 4,470 square miles of north-central Arizona (Figure 10). Ponderosa pine-covered plateaus, semi-arid plains and incised canyons dominate the landscape. The basin is bounded to the north by the Arizona-Utah border, on the south and east by the Colorado River, and on the west by the Hurricane Cliffs. Elevation ranges from a high of 9,100 feet above mean sea level on the Kaibab Plateau to a low of 1,600 feet above mean sea level at the downstream end of the Colorado River.

Kanab Creek dissects the basin and forms the major surface-water drainage in the area, however, the majority of the stream course is ephemeral, flowing only in response to rainfall or snowmelt. Numerous springs in the Grand Canyon sustain baseflow to tributaries of the Colorado River. The volume of groundwater which issues from the larger springs totals over 160 acre-feet per year (After Levings and Farrar, 1978 and Levings and Farrar, 1979).

The Kanab Plateau basin contains a flat-lying to gently-sloping sequence of alternating sandstones, limestones, and shales. Groundwater is obtained from several aquifers which are made up of one or more of these formations. Many of the aquifers overlie each other but are generally not hydraulically connected. Groundwater movement is geologically controlled, moving from recharge areas downward until a relatively impermeable unit is encountered where it accumulates. Faults throughout the area act as avenues for both vertical and lateral migration of groundwater. Springs issue where faults or saturated units are incised by canyons. Tapeats Creek and Bright Angel Creek make up the largest natural discharges in the basin, with baseflows of 60 and 21 cubic feet per minute, respectively (Johnson and Sanderson, 1968). These two creeks constitute about 75% of the natural groundwater discharge from the basin.

Groundwater development in the basin has been small. Approximately 2,010 acre-feet were withdrawn in 1985 (Arizona Department of Water Resources, 1988). Most wells have been drilled for domestic and stock purposes, however, most of the groundwater pumped in the basin is used for irrigation. Many different geologic formations have supplied small quantities of water to wells but occurrence is variable. Alluvium along the washes in the Short Creek - Cane Beds area has been the most productive, yielding up to 200 gallons per minute to irrigation wells (Levings and Farrar, 1979).

Water quality throughout the area is generally acceptable for domestic and livestock use, however, sulfate and dissolved solids concentrations can be high locally.