

Side Wadis Basin

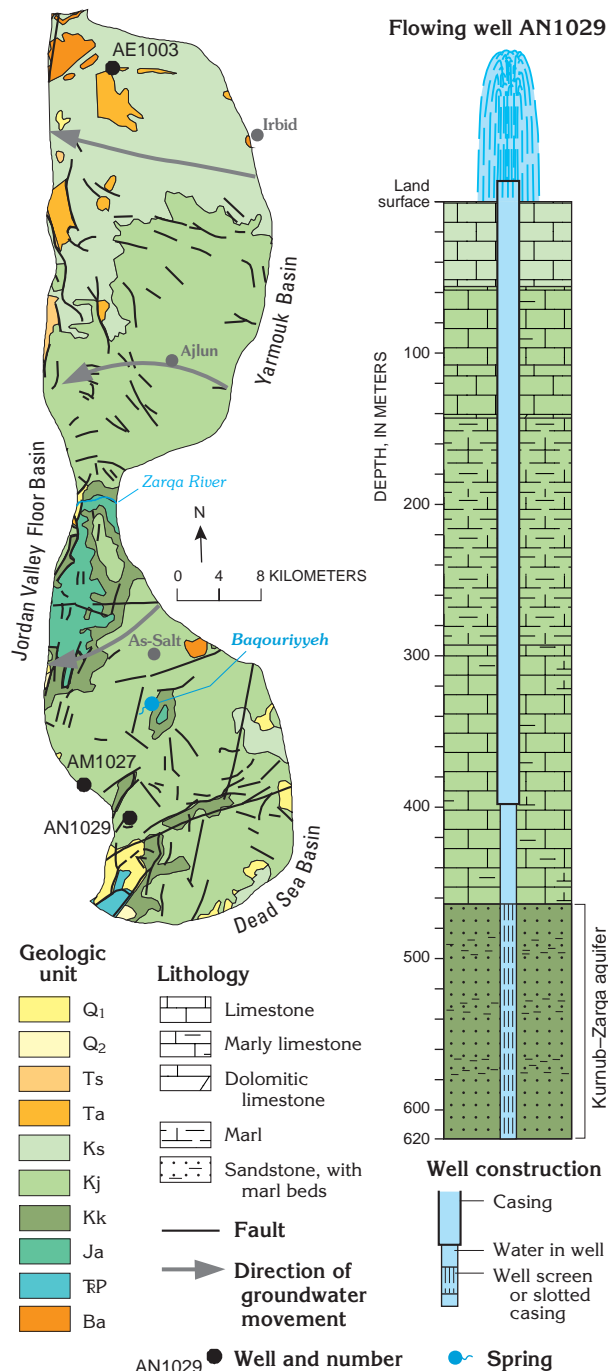


The Side Wadis Basin includes the deeply-incised wadis that flow into the Jordan Valley along the Eastern Escarpment of the Jordan Rift Valley. The basin is subdivided into: (1) the 1,300 km² Ajlun area, north of the Zarqa River, and (2) the 1,200 km² As-Salt area, extending from the Zarqa River southward to the Dead Sea. The basin is underlain by limestone, chert, chalk, dolomite, and marl of the Belqa and Ajlun Groups (geologic units Kj, Ks, and Ta), and sandstone of the Kurnub Group (geologic unit Kk). Groundwater is the principal source of freshwater in the basin, and is withdrawn primarily from:

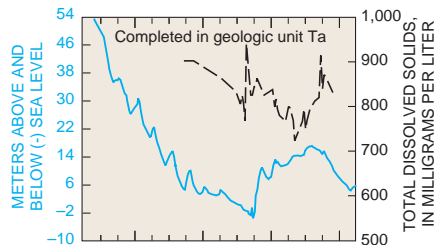
- the Amman–Wadi Sir aquifer system, consisting of limestone and chert of geologic unit Ks;
- the Hummar aquifer, consisting of dolomitic limestone of geologic unit Kj; and
- the Kurnub–Zarqa aquifer, consisting of sandstone, limestone, and dolomitic limestone of geologic units Kk and Ja.

The Amman–Wadi Sir aquifer system is the principal source of water supply, with secondary supplies available from the Hummar and Kurnub–Zarqa aquifers. Exploitation of the Hummar and Kurnub–Zarqa aquifers is limited by low permeability and recharge rates, and by deep water levels that range from 10 to 150 m below land surface.

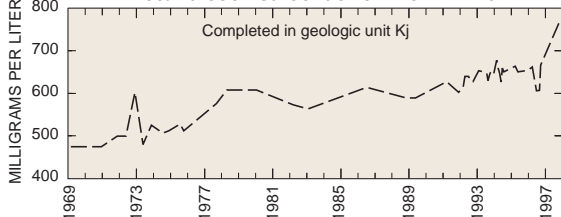
Groundwater is recharged by precipitation at an average volume of 15 MCM/yr. A groundwater mound near Ajlun replenishes the Amman–Wadi Sir aquifer



Water level and dissolved solids for Well AE1003



Total dissolved solids for Well AM1027



Groundwater levels in the basin respond to pumpage—levels in well AE1003, in the northern part of the basin, declined about 46m during 1983–97. The sharp rise during 1992 corresponds to a period of heavy rainfall. Although pumping has resulted in water-level declines in parts of the basin, northern areas seem to have a water surplus that potentially could supply additional domestic withdrawals.

In the northern part of the basin, dissolved solids concentrations in well AE1003 generally declined since 1988. Pronounced water-level and dissolved solids concentration rises during 1992 were in response to a period of heavy precipitation that resulted in increased recharge. In the southern part of the basin, dissolved solids concentrations in well AM1027 generally rose during 1969–97, largely in response to infiltration of treated wastewater effluent.

Well AN1029, in the southern part of the basin, shows construction characteristics for a typical well completed in the Kurnub–Zarqa aquifer. In this well, water is obtained from sandstone between the depths of 464 and 620 m. Water flows from the well at an average rate of 20 L/s, and has an artesian head of 100 m above land surface.

system and groundwater flows westward toward the Jordan Valley. The water either appears as springs, such as Baqouriyeh, on the lower slopes of the escarpment, or flows through the subsurface to the alluvial deposits of the Jordan Valley Floor.

Groundwater in the Side Wadis Basin is of variable quality, with dissolved solids concentrations generally ranging from 200 to 400 mg/L. In some areas, concentrations in the Amman–Wadi Sir aquifer system are as high as 750 mg/L.