

Groundwater Concerns

B. OVER-PUMPING THREATENS GROUNDWATER-SURFACE WATER RELATIONSHIP

Lower Colorado Region Water Planning Group (Region K) – Region K recognized that one of the threats to the Colorado River is over-pumping of groundwater. The 2006 Region K Water Plan states: “The Carrizo-Wilcox aquifer’s primary water quantity concern is the water-level declines anticipated through the year 2060 due to increased pumping.” “The TWDB co-sponsored a study of the Central Texas portion of the Carrizo-Wilcox aquifer using a computer model to assess the availability of groundwater in the area.” “The simulated water-level declines in the Carrizo-Wilcox aquifer mainly reflect a pressure reduction within the aquifer’s artesian zone. Some dewatering takes place in the center of certain pumping areas. In addition, simulations indicate that drawdown within the confined portion of the aquifer will significantly increase the movement of groundwater out of the shallow, unconfined portions to the deeper artesian portions of the aquifer. **The relationships that currently exist between surface and groundwater may also change. Simulations indicate that the Colorado River, which currently gains water from the Carrizo-Wilcox aquifer, may begin to lose water to the aquifer by the year 2050.**”

Texas Parks and Wildlife Department -- TPWD has expressed its concerns about the potential impacts of groundwater use on springs and base flows to rivers and streams. In a presentation to the GMA-12 on May 10, 2007, the TPWD estimated that the Carrizo-Wilcox, Queen City and Sparta Aquifers in GMA-12 region will contribute 128 cfs (93,000 acre-feet per year) less flow to surface water bodies in 2060 as compared to 2002 (2007 estimate) with the then projected pumping rates (more recent estimates are 136 cfs; 98,460 ac-ft/yr). Based on this estimate the TPWD urged GMA-12 to include stream flow in the GMA-12’s desired future conditions metric and to 1) consider impacts to surface water during DFC deliberations, 2) include quantitative impacts to surface water in DFC definitions, and 3) improve the GAMs in their representation of Groundwater/Surface water interaction.

TPWD proposed that stream flow be used as a DFC metric because 1) stream-flows have a direct impact on the environment, 2) surface water rights have been authorized contingent on the historical stream-flow record, and 3) stream-flows are a highly visible characteristic of the Texas landscape. TPWD further emphasized the importance of springs because they support unique aquatic environments, including rare species, serve as a barometer of local aquifer conditions (canaries), are relatively inexpensive means of monitoring groundwater, and provide important base-flows to rivers. Base-flows, he emphasized, are dependent on aquifer discharge, are important component of natural flow regime, and support habitats during dry periods.