

IRRIGATION NEWS

Paying Attention to Groundwater

Groundwater is important to all Valley residents. The use of this resource by cities and rural homeowners as well as farmers who lack surface water rights has caused the average depth of groundwater to decline over many years. The issue of groundwater was a critical component within the legislation that created the Kings River Conservation District (KRCD) back in 1951. Local leaders recognized the importance of this resource and the need to manage it correctly for the benefit of all within the Kings River service area.

The issue is so important that the risk of the state placing controls on extraction of groundwater is very real. Already, a legislative bid was made to require flow meters on any well that pumps more than 25 acre-feet of water per year. Such requirements are already in place in Riverside, Ventura, San Bernardino and Los Angeles counties. KRCD, in cooperation with local agencies, is seeking to preserve local control over the aquifers within the Tulare Lake sub-basin, which includes the Kings River, by demonstrating that adequate management objectives are being developed.

The regions traditional strategy for addressing the falling water tables was constructing recharge ponds, to take advantage of those years when the Kings benefited from an abundant snowpack.

In 1995, KRCD created Groundwater Management Area "A" (Area A) for the purposes of quantifying the groundwater conditions within the region and developing recommendations for its mutually beneficial management. This was over and above the annual groundwater reports the District began publishing in 1986. Area A extends from the area around the City of Kerman to the border of Westlands Water District, then southeast along the James Bypass of the Kings River and east toward Caruthers.

Groundwater Management Area "B" (Area B) was established shortly afterward. This area is defined by the eastern boundary of Westlands, the southern boundary of Area A, and continuing southeastward toward Riverdale. Within each of these areas, local landowners have granted KRCD permission to take depth to groundwater readings twice per year to evaluate the condition of the aquifer.

The result of the work done in these areas has identified a significant depression within the water table. A recharge feasibility project is currently under way with the cooperation of the local interests. This project is described on the back page.

The area south of the Kings River contains a substantially different geologic makeup than that found north of the river. Multiple aquifers are present, and local growers have tapped into each of them over the years. The presence of multiple

aquifers has made the mapping of groundwater levels difficult at best. A new management area was defined (Area C) to research this area further. Area C extends from the Kings River south, running west of the City of Lemoore, to the north end of the Tulare Lake bed near Stratford. Here, cooperating growers have allowed the installation of permanent monitoring wells to provide individual aquifer data, and other landowners are being contacted for data collection from existing production wells.

In 2002, the KRCD began an effort to integrate the three plans into one with common objectives, but retaining individual control of the original areas with the local agencies. This was done in accordance to rule changes for grant eligibility from the Department of Water Resources, as imposed by changes in state law.

The first step was the creation of the Lower Kings River Basin Advisory Panel (BAP). The Lower Kings service area is that portion of the Kings River downstream from Kingsburg. This panel uses a consensus-based approach to groundwater management, so that any projects implemented by the panel would be equitable, affordable and locally controlled. Approved projects need to have far-reaching local and regional benefits. All local public agencies (irrigation districts, incorporated cities, counties) and ditch/water companies were invited to participate. Fifteen entities have elected to participate.

The result of work done by the BAP was the Groundwater Management Plan (GWMP). The GWMP, as currently drafted, seeks to address several issues in regards to groundwater, some of which are listed here:

1. Control of saline intrusion.
2. Identification and management of wellhead protection areas and recharge areas.
3. Mitigation of conditions of overdraft.
4. Replenishment of groundwater extracted by water producers.
5. Facilitating conjunctive use operations (use of surface and pumped water to maximize the economic benefit of the water source).
6. Review of land use plans and coordination with land use planning agencies to assess activities, which create a reasonable risk of groundwater contamination.

The GWMP reflects how the various water interests within the Kings River service area can come together to forge solutions to mutual problems for the betterment of all. By adopting the plan, the member agencies remain eligible for state grants to help defray the costs of infrastructure construction or feasibility studies for future projects. Groundwater does not recognize artificial boundaries drawn upon a map; the management of this resource must be inclusive of all affected interests. ♠

Strategy Mapped to Aid Lower River Water Table

Groundwater has long been a necessary supplement to the surface water supplies within the San Joaquin Valley. The Valley's rivers run hard and high during the spring and early summer, only to become dry during the late summer and fall. This pattern forced early growers to utilize the accumulated groundwater to sustain their crops during the summer months or to simply survive in this climate.

Organized efforts to preserve and augment the groundwater supply have been taking place locally for over 80 years, mostly as an effort to take advantage of the highly variable flows from the Kings River prior to the construction of Pine Flat Dam. Early farmers knew that the generous flows they saw this year might not be there the next, so they sought to capture the water when it was available, and tap into the stored groundwater when it wasn't. Today, such practices are called water banking or conjunctive use. Back then it was just planning ahead.

Some regions of the Kings River service area do not receive a reliable surface supply of water. These reaches had limited water rights, or none at all. In some cases, losses in the river channel were so high that the water would not reach growers in sufficient quantities. Only during exceptionally wet years, such as 2004-2005 rainfall season, does water from the Kings flow far enough downstream to reach these growers in sufficient quantities to support widespread agricultural production. Yet, this land is extremely fertile, and supports a diverse production system. Well water is a primary source for many growers in this area.

The consequence of this fact is that the water levels within this region have decreased rapidly. By doing a systematic survey of selected production wells, the Kings River Conservation District (KRCDD) was able to map out areas of concern. Work was then begun to formulate practical solutions. Two options have emerged

as being the most feasible for utilizing the surplus waters available in wet years to mitigate the conditions present.

The first solution is called "in-lieu" recharge. This is where the any source of available surface water (floodwater, imported surface waters) is used in place of the normally pumped groundwater. The use of the surface supply reduces or eliminates the demand on the aquifer, allowing it to recover naturally. Some areas may even permit the temporary impounding of water for deep percolation. The potential for natural recovery in this area is high, given the large difference in measured groundwater levels over a relatively short distance. The key factor is time. The primary limiting factor is a lack of necessary infrastructure to transport the surface water to local growers within the impacted area when such supplies are available.

The second option is a direct recharge of the groundwater through percolation basins. Here, floodwaters are removed from the river channel and held in shallow ponds that can be farmed like any other field when not used for recharge. Currently, a small pilot project is being conducted in the McMullin Recharge Area to evaluate the recharge potential. The study should be completed by the end of 2005.

The best solution is likely to be a combination of both approaches, impounding as much water as possible for recharge and diverting the balance for use instead of pumping. The ability to arrest or even reverse the trends in the local groundwater tables benefits all who depend upon this vital resource.

Should you have any questions regarding the KRCDD's efforts for groundwater management, or any irrigation related question, please contact Eric Athorp at (559) 237-5567, ext. 117.♠

AgLine Menu Options

In order to make your usage of the AgLine phone system easier, here is a quick guide to the menu options. The Agline phone number is (559) 237-4800.

Option 1 is **Reference ETo**, as measured at the Kearney Ag Station, Parlier.

Options 2, 3 and 4 relate to Tree and Vine crops. **Option 2** is the **Predicted water use** for the next 7 days, **Option 3** is the **Actual water use** for the last 7 days, and **Option 4** is for **Season to Date**.

Options 5, 6 and 7 relate to field crops.♠

IRRIGATION N E W S KRCDD

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Irrigation News, a bimonthly
publication of the Kings
River Conservation District

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