

Ogallala-High Plains Aquifer Newsletter

Ogallala-High Plains

Kansas Geological Survey
Website on the Ogallala-High
Plains

[http://www.kgs.ku.edu/
HighPlains/index.shtml](http://www.kgs.ku.edu/HighPlains/index.shtml)

Northwest Kansas GMD 4
Enhanced Management

[http://www.gmd4.org/
EnhancedMgt/protocol.htm](http://www.gmd4.org/EnhancedMgt/protocol.htm)

Recharge and Water Use in the Ogallala-High Plains Aquifer

Estimated natural recharge in the High Plains aquifer ranges from a half inch in the west to nearly 2 inches heading east toward central Kansas (Figure 1). This trend is consistent with variable precipitation throughout the state, with lesser amounts in the extreme west that increase as you head east. Since water recharge amounts are small compared to the amount used, most areas of use (Figure 2) exceed the recharge rate.

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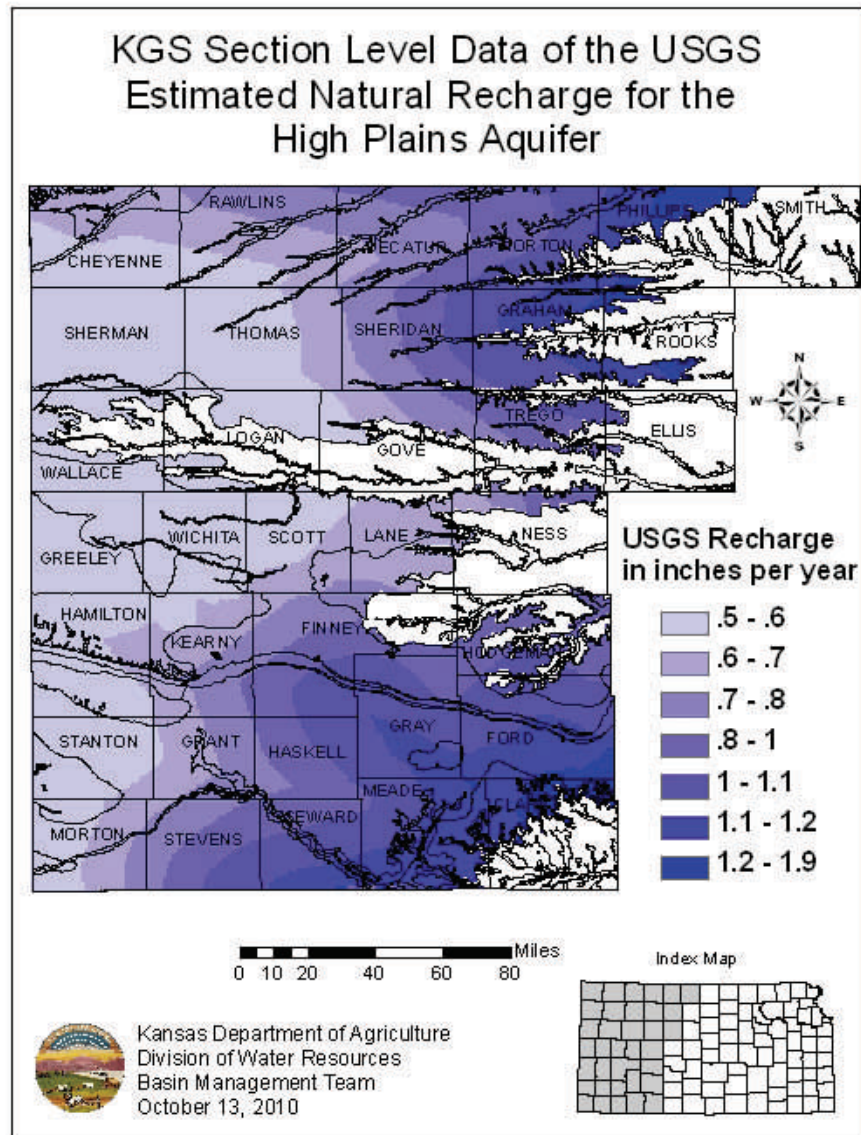


Figure 1: Estimated natural recharge for the High Plains aquifer.

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In Kansas, the most extensive water use from the Ogallala aquifer occurs in southwest Kansas, as shown by the high-density areas in Figure 2. In these areas, the average use per 2 mile radius ranges from 226 acre-feet to 922 acre-feet, with some individual rights averaging several thousand acre-feet of use per year since 1990. Other areas with high use correspond to regions of Groundwater Management District #4, where six high-priority areas have been designated. In comparison, the average use per 2 mile radius in these areas ranges from about 65 acre-feet to 225 acre-feet, with some individual rights averaging near 500 acre-feet per year since 1990. The recharge and water use density data is available on the [KGS Section Level Database](#). Additional maps of the Ogallala-High Plains aquifer in Kansas, including estimated usable lifetime and saturated thickness, are available on the [Kansas Geological Survey website](#).

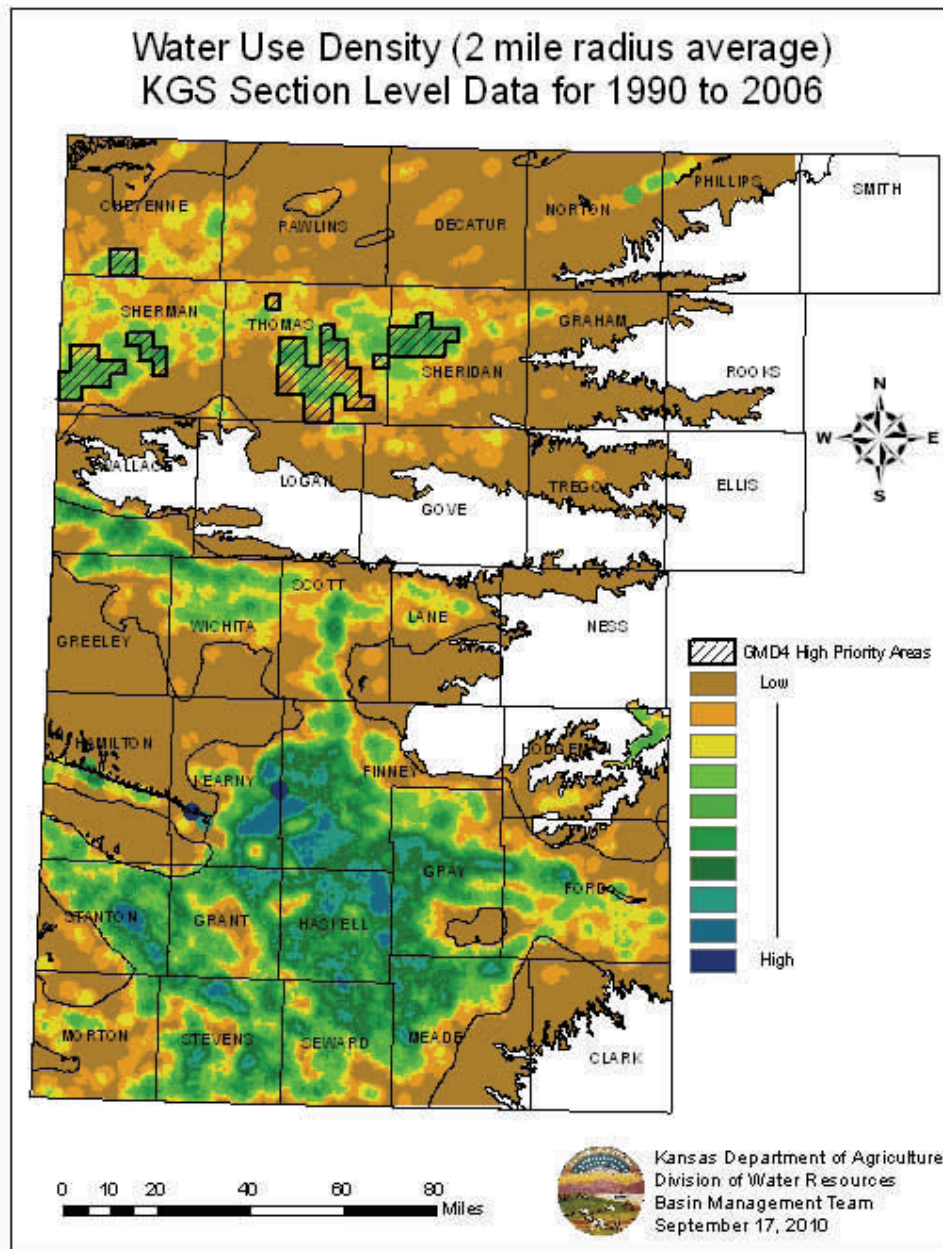


Figure 2: Water use density in the Ogallala-High Plains aquifer.

Agricultural Water Enhancement Program Update

In July 2010, the USDA Natural Resources Conservation Service announced that three [Agricultural Water Enhancement Program](#) projects would be funded in Kansas. The projects are developed to support farmers and ranchers who conserve water and improve water quality. The groundwater management district projects that were funded are listed in Table 1.

Table 1: Kansas Agricultural Water Enhancement Program project awards.

Name of Organization/Partner	Description of Project	FY 2010 Fund Request
Big Bend Groundwater Management District #5 (GMD 5)	Reduce water use by addressing resource concerns relating to aquifer overdraft and insufficient flows in a water course.	\$572,844
Northwest Kansas Local AWEPP Partnership District #4 (GMD 4)	Slow the water table decline rate in specifically designated aquifer subunits and to extend the economic life of the local aquifer.	\$2,666,666
Equus Beds Groundwater Management District #2 (GMD 2)	Address groundwater resources issues, specifically inefficient water use on irrigated land and aquifer overdraft.	\$1,135,000

The [GMD 5](#) program will remove end guns from center pivot irrigation systems and permanently retire the acres that were irrigated by those end guns. End guns are the least efficient part of the irrigation system. The targeted areas are within GMD 5 and include the Rattlesnake Creek Basin. GMD 5 has reported that they received more than 100 applications for this year’s program, indicating strong interest. Funding in 2010 will remove about 570 acres from irrigation.

[GMD 4](#) received 43 qualifying applications, 15 of which were approved and offered contracts. The approved applications were within the six high-priority areas (Figure 2). The 2,324 acres of land associated with the contracts have averaged 2,258 acre-feet of water applied per year for the past four years. Under the contract, the acres will not be irrigated for the next six years. GMD 4 is currently working with the 15 contract owners to explain the state’s Water Transition Assistance Program. The hope is that some or all of the applicants will use this program with the Agricultural Water Enhancement Program contracts to permanently retire the irrigated acres and water rights.

[GMD 2](#) plans to use its project award to help irrigators upgrade to more efficient systems. For instance, from flood irrigation to subsurface drip irrigation or center pivot. Also, financial assistance will be available to use irrigation water management plans, such as [KanSched](#). Irrigators could receive a one-time payment of \$650 per acre to convert to subsurface drip irrigation, or \$325 per acre to convert to center pivot, if eligible. An irrigation water management plan would pay \$10 per acre for three years. The deadline to submit applications to NRCS was August 13, 2010.

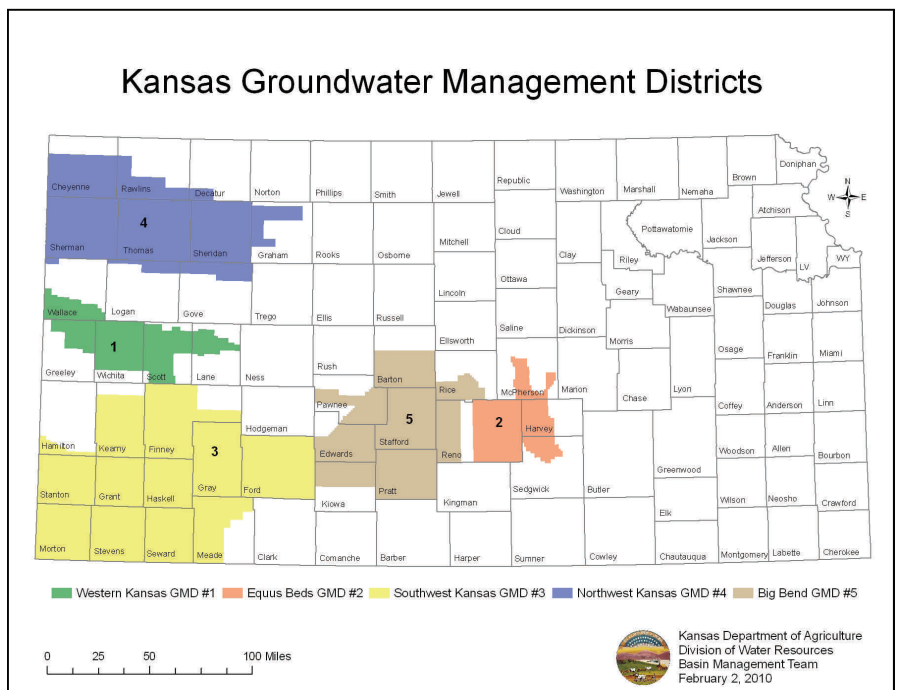


Figure 3: Kansas groundwater management districts.

BMT Mission Statement

To analyze aquifers and stream systems in targeted areas and collaborate with stakeholders to develop and assess water resource management tools and strategies to protect water rights and improve water resource sustainability.

Visit www.ksda.gov/dwr

Field Office News

Stockton

Staff from the Stockton field office have finished metering all diversions, but specifically all of those that are diverting water from the Ogallala-High Plains aquifer. This will give the [Republican River Compact Administration](#) groundwater model and the [Upper Solomon River models](#) new and more detailed information than has previously been available.

Compliance efforts in 2011 are expected to focus on the Beaver Creek basin (Figure 4), which, in addition to being included in the Republican River Compact Administration model domain, is one of the larger drainage areas within GMD #4.

Garden City

Staff in the Garden City field office have been working on:

- Random reinvestigations/meter reads
- Past blatant recurring overpumping meter reads
- Impairment investigations in Gray, Haskell and Meade counties
- Tri-annual well measurements in October
- Compliance investigations

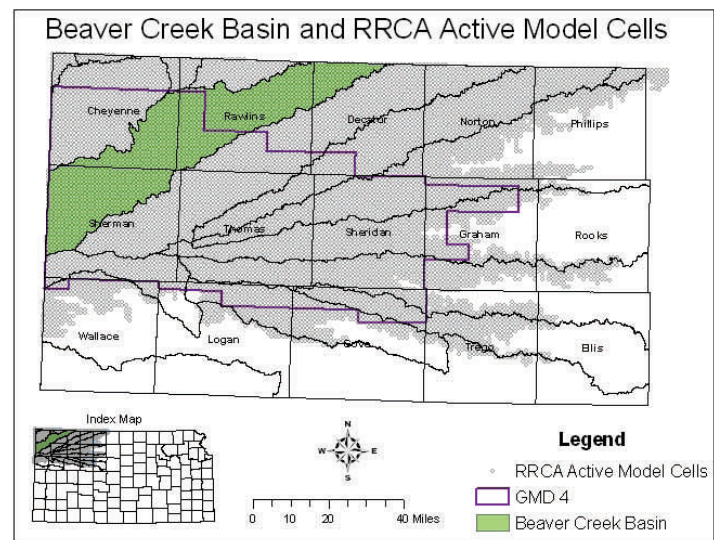


Figure 4: Beaver Creek basin and active Republican River Compact Administration model cells.