AgKnowledge

Meeting the needs of Idaho's greatest resource—Its people

Water

Computer model of aquifer lets water users run what-if scenarios

Karl Dreher, director of the Idaho Department of Water Resources, calls Idaho's intensively reformulated, recalibrated computer model of the Eastern Snake River Plain aquifer "probably the best tool we could have developed to do what we need to do." Based on 22 years of data, it allows its users to evaluate the interconnections between Idaho's groundwater use and surface-water supplies.

"We've tried to wring every last drop out of the data, and I think we've done a pretty good job," says Donna Cosgrove, UI assistant professor of biological and agricultural engineering. Cosgrove is one of three water researchers from UI's Idaho Water Resources Research Institute who spent nearly four years overhauling the model. Now, an interim legislative subcommittee appointed by Gov. Dirk Kempthorne is relying on the IWRRI modelers to run what-if scenarios of potential practices and policies.

One scenario—doing nothing differently for the next 22 years—shows that outflows from the aquifer exceed inflows by about 180,000 acre-feet a year. That's only 3 percent of a 6-million-acre-foot annual aquifer recharge, but the difference is cumulative—and it accelerates during drought. "Will we see continual decline if drought continues? You bet we will," says Cosgrove.

Another scenario examines the impacts of curtailing groundwater use by water-right priority date. Future analyses will project the effects of managed recharge, continuous conversion to sprinkler systems, continued drought, and other scenarios.

"We can't turn the clock back," says Cosgrove. "We need to look for sound aquifer management practices"—sound practices that follow from sound science.

Contact Cosgrove at cosgrove@if.uidaho.edu.

Surface water supplies tuned to district needs

Over 2 million acres of southern Idaho farm and ranch lands get their irrigation water from snowmelt and reservoir storage. In the past, these surface-water irrigators have relied on basin-wide estimates to project their upcoming season's water supplies. Now, UI agricultural engineer Brad King and economist Chris McIntosh have developed a statistical approach that projects the probability and severity of water shortages down to the irrigation-district level in major potato-producing areas. The projections, available on the Web January through April each year, take into account each district's water-rights priority dates.

Potato growers who know they'll be short of water can use linked information developed by potato scientists Steve Love and Jeff Stark to select less water-demanding varieties of crops and to make water-stretching changes in their management. The URL is *http://extension.ag.uidaho.edu/droughtpredict/*.

Contact King at bradk@uidaho.edu.

DID YOU KNOW?

3.3 MILLION. The number of irrigated pasture and crop acres in Idaho—6% of the Gem State's total 53 million acres.

*Source: 2002 USDA Census of Agriculture

120 acre-feet of water = 1 Magic Valley job

Irrigation provides water for the Magic Valley's crops and livestock. When these commodities are harvested, processed, and sold, income flows into the local economy.

UI Extension educators Bill Hazen and Bob Ohlensehlen analyzed the economic impacts of water use for six Magic Valley counties last fall. They found that 4.9 million acre-feet of water produced $1.9 billion in crops, livestock, and processed food products—$387 for every acre-foot of water diverted.

Calculating further, they determined that 288 acre-feet of water support one job in agricultural production or processing—for a total of 17,000 jobs—and the resulting economic activity funds 24,000 additional jobs.

Altogether, say Hazen and Ohlensehlen, every 120 acre-feet of water used in the six-county area for agricultural production and processing creates a job somewhere in the Magic Valley economy.

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