

# Nebraska Ground Water Regulators Seek to Increase Stream Flow by Retiring Acres

Water is plentiful and in high demand in Nebraska, facts illustrated by the state's position as the nation's leader in irrigated acres, having surpassed California in recent years. Balancing water demands with the need to ensure that it is available for generations to come is the job of the state's Natural Resources Districts (NRDs)—the only system of its kind nationally that allows for regional management of ground water. Increasingly, that effort by some NRDs, in coordination with the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), includes reducing the number of irrigated acres, especially in areas where stream flow and compliance with an interstate compact are chief concerns.

"We've regulated ground water use since the 1970s and have learned it takes an array of tools to meet interstate compact obligations and responsibly manage water supplies, while also allowing producers to thrive," said Jasper Fanning, manager of the Upper Republican NRD which includes three counties in far southwest Nebraska that have about 450,000 irrigated acres. "Retiring irrigated acres, especially those with immediate and substantial impacts on stream flow, is a key, but admittedly expensive, part of a multifaceted management strategy."

Recently, the Upper Republican NRD announced it would partner with NRCS to launch an irrigation retirement program, using \$1 million in NRCS funds and \$1.75 million from the NRD's tax on irrigated acres.

The partnership is expected to last four more years with possibly millions more from the NRD and NRCS. As a result, all three of the NRDs in the 9,060-square-mile Republican River basin, which has 1.2-million irrigated acres, now have programs to retire irrigated acres. No additional irrigation development is allowed in the basin.

The retirement programs are all partnerships with NRCS under its Agricultural Water Enhancement Program (AWEP). The regional-management structure of the NRD system has allowed each of the NRDs to tailor a program that fits its part of the basin, so the programs differ.

Craig Derickson, state conservationist with the NRCS said, "The NRDs are the perfect partner to assist us in implementing the Agricultural Water Enhancement Program. Through AWEP, farmers receive technical and financial assistance to improve the efficiency of their irrigation systems. AWEP contracts cover a portion of the cost incurred to convert from irrigated land to dry land and also help producers convert to higher-efficiency irrigation equipment. The Natural Resources Conservation Service is proud to work with the NRDs to establish partnership agreements that will help conserve one of Nebraska's most precious natural resources—its water."

The Middle Republican NRD has extensive experience with retirement programs, realizing their value early on and utilizing a variety of funding mixes and payment criteria over the past five years. The district has gone from



a program that utilized federal, state, and local dollars in 2007, to one that solely used local money in 2008, to the current program that is a blend of local and federal dollars under the successful AWEP partnership.

Under the ongoing AWEP program that began in 2009, nearly 4,200 acres have been temporarily retired from irrigation, and nearly 1,300 acres permanently retired.

“We realized early on that a retirement program could help balance water supplies with water uses and mitigate impacts to stream flow caused by ground water pumping,” said Dan Smith. “It fits well into our plan of reducing consumptive uses of water to the greatest degree practically and economically feasible and achieving sustainability, while being small enough in scale that there isn’t a significant erosion of the tax base effecting local political subdivisions.”

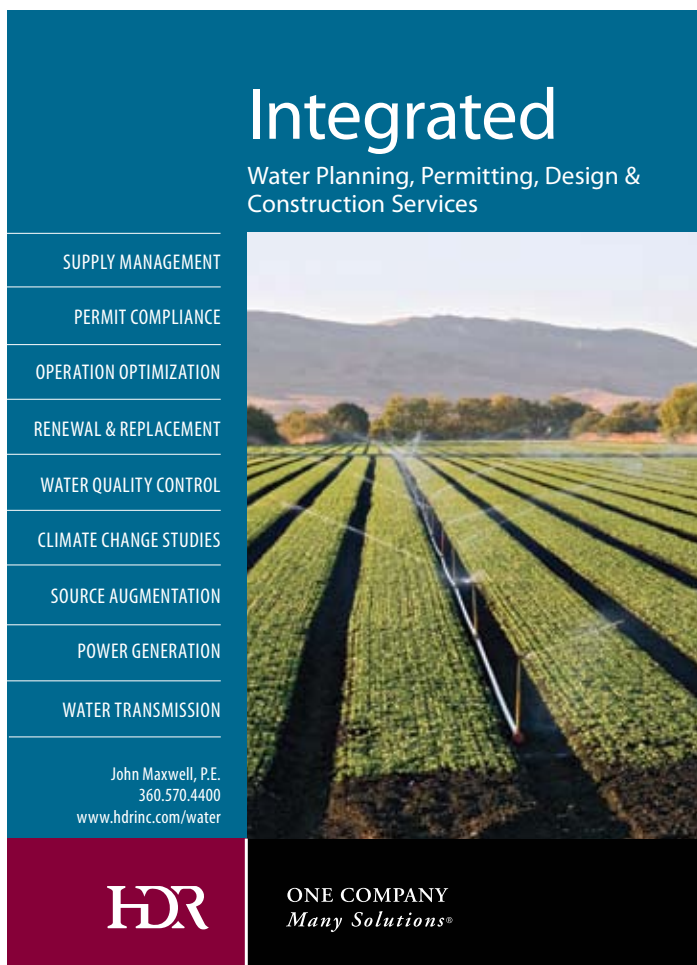
Both the Middle and Upper Republican NRDs are trying to target acres where irrigation has a significant impact on stream flow. Landowners with wells that ground water modeling shows deplete stream flow by at least 48 percent of the amount pumped over a 50-year period get a higher payment from the Middle Republican NRD than landowners with wells that have a so-called stream flow depletion factor of less than 48 percent.

Rising commodity prices of course have had an effect

on the program, motivating the NRD to increase payments to attract landowners to the program.

In its AWEP partnership, payments from the Upper Republican NRD are based on the acre-feet of stream flow estimated to be gained from retiring eligible acres. The formula used to calculate the acre-foot benefit to stream flow includes the 50-year stream flow depletion factor of a particular well and the amount of water pumped in recent years as a predictor of what will be pumped in the future. The higher the impact a well has on stream flow, the higher the payment. Interest in the program has been strong despite the booming ag economy—about three times more acres have applied for the program than can be accepted this year with the money available.

Currently, nine AWEP project areas cover the heavily irrigated regions across Nebraska. Project areas were selected using several factors including emphasis on water conservation activities. AWEP operates through contracts with producers to plan and implement conservation practices in project areas established through partnership agreements. Producers with land located in the project areas may apply to participate in AWEP at their local NRCS office. Additional information is available at [www.nrcs.usda.gov/programs/awep/](http://www.nrcs.usda.gov/programs/awep/).



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