

□ *Editor's note: This is one of two stories that appeared in the Kearney Hub looking at the value of water. See story: For UNO study, multi-layered maps utilize sales data and GIS technology to look at water value. PAGE 4.*

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HOLDREGE—Too many variables make it impossible to put an exact, universal value on water, according to Karina Schoengold, an assistant professor of natural resources and environmental economics at the University of Nebraska-Lincoln.

“Unfortunately, there’s no single answer,” she said at the Holdrege Water Conference earlier this month. The best guides are trades, leases and sales in mature water markets in states west of Nebraska, particularly Colorado and California.

Schoengold said most people think of irrigation when water value issues are discussed, but there also are deals made for municipal, environmental, industrial and recreation uses.

In a free market that allows water trading between different uses, “we should see a similar value of water, if it’s the same quantity and the same place.”

It’s not that simple.

For example, she said irrigation water might be leased for \$60 per acre-foot (AF)—the amount to cover one acre of land 12 inches deep, or 325,851 gallons. However, officials in a city experiencing drought might be willing to pay \$200 for that same amount of water.

“We know value is determined in part by scarcity,” Schoengold said. There can be a negative value if there’s too much water and flooding.

Other value factors include whether a region is arid or has fluctuations of wet and dry periods, timing (growing season versus winter), and water quality.

Schoengold said economists have some methods to measure water’s value, based on the amount used for industrial or crop production.

They can chart irrigation value patterns using overall farm revenues, crop production and net return on yields. They can look at yield changes as the inches of water applied or number of irrigation cycles vary.

“This shows very clearly how scarcities make water more important,” Schoengold said.

Value also is reflected in ag land prices and water trading markets that show prices agreed upon by willing buyers and sellers.

Schoengold said the history of lake levels can be compared to lake use, visits per year and spending at local recreation-related businesses to help quantify water value for recreation.

Determining a water value for household uses such as lawn care requires surveys, she said.

Habitat benefits also are difficult to compute. “We can ask the question of how much it’s worth to people to have additional habitat ...,” Schoengold said. “We can’t ask the species.”

Water marketing systems vary, she said. For example, the Kansas formula uses location, type of use and percentage of consumptive use.

There’s a long history of water marketing in California and Colorado, while Nebraska’s examples come from just the past few years.

In the Republican Basin, the state purchased rights from the Nebraska Bostwick Irrigation District in 2006 and 2007 for water stored in Harlan County Lake. Also in 2007, the Upper, Middle and Lower Republican natural resources districts paid more than \$8.5 million for surface water from irrigation districts upstream of the lake.

The goal was to enhance streamflows to Kansas for Republican River Compact compliance.

“Sometimes the law and legal compacts take priority over economic values,” Schoengold said.

The Grand Island-based Central Platte NRD has the only established water bank in Nebraska.

Starting in late 2007, CPNRD officials have paid landowners for leases to permanently retire irrigation on farmland near the Platte River in the area west of Elm Creek that’s over-appropriated. Payments are \$2,000 to \$2,500 per acre-foot of water credit to the river, with about 1,000 AF in credits so far.

Another goal is to “bank” credits as offsets for future irrigation and-or industry development.

Overall in water markets of the West, there’s a larger volume of water being traded with leases than with sales, Schoengold said. Payments vary greatly, based on water use and location, but they average \$50 per AF for a one-year lease and \$2,444 for a water right sale.

In California, median sales are \$1,239 per AF in 2003 dollars. Nevada’s tremendous urban growth pushed sale prices to almost \$3,700 per AF. Colorado’s leases average \$19 per AF, but median sale prices are \$2,848, mostly for new developments along the Front Range.

Schoengold said there are market inconsistencies, variations based on water use and third-party impacts to consider, such as the affects on groundwater recharge if surface water use changes.

She reminded her audience that in Nebraska, legal ownership of all water resides with the state. “We allocate ‘use rights,’ not the water,” she said, even though that’s often looked at as ownership.