Grand Valley Farmers Participate in Drought Planning Effort

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It's been very dry in Colorado's mountains this fall. It's still early, and the snowpack could catch up to "normal," but when I flew over those mountains on November 15, they were brown. Just the barest dusting of white covered the highest ridges and north-facing slopes.

This delayed onset of winter has provided a sobering backdrop to ongoing discussions about what to do if the Colorado River Basin slips back into severe drought with Lakes Powell and Mead, the two largest reservoirs in the basin, already half-empty.

EFFORTS TO PROTECT THE COLORADO RIVER SYSTEM AND THOSE WHO DEPEND ON IT

If Lake Mead drops too low, farms and cities in the lower basin that have become accustomed to steady water supplies will have to drastically cut back. If Powell drops too low, Glen Canyon Dam will be unable to keep generating power or maintain sufficient releases to honor the 1922 agreement between the states that share the river. No one knows exactly how upstream water users would be affected in that scenario, but if it's a crisis reaction, it's unlikely to be pretty. The environment could take a hit as well: low lake levels would make it impossible to conduct periodic high releases designed to mimic historical floods in order to benefit habitat conditions in the Grand Canyon.

In the lower Colorado River Basin, discussions among Arizona, California and Nevada have centered around who will cut their water use, by how much, and at what "trigger" levels in Lake Mead. This is necessary even without an intensified drought, because lake levels keep falling even with normal water deliveries from Lake Powell. The degree of drought just ratchets the urgency up or down.

In the upper Colorado River Basin, which straddles Colorado, Utah, Wyoming and New Mexico, there is no single outlet at the top of the system that can be cranked up or down. Instead, there are thousands of drainages feeding into the Colorado River, with widely dispersed ranches, farms and communities taking sips and gulps along the way, including some sizeable straws pulling water across the Continental Divide to Colorado's Front Range.

A recent modeling effort coordinated by the Colorado River District concluded that if we were to experience another drought like the one of the early 2000's, with the reservoirs levels as low as they are now and without any additional conservation, Lake Powell could essentially be drained in just a few years.

Efforts are underway to figure out how to craft a demand management system that can entice upper basin water users to voluntarily dial back their consumption, and get paid for it, in order to keep Powell from falling to critically low levels.

As it turns out, that's complicated. For an agricultural demand management system to work for farmers, it needs to provide adequate compensation, not impede long-term operations, have simple paperwork, and not put water rights at risk. For irrigation providers, it needs to

pay its own way, be easy to manage, and not put water rights at risk. And for such a system to work for communities, you can't have large swaths of fields left brown and unkempt, supply dealers left without customers, and farmworkers left jobless.

GRAND VALLEY ACTIVITIES

A pilot project in Western Colorado's Grand Valley is testing an approach to cutting back agricultural water use that seeks to work for everyone.

The location, just east of the Utah state line, is significant. About half of the water that flows into Lake Powell flows through Colorado's Grand Valley first, some of it flowing through the river, and some detouring through irrigation ditches and farm fields before returning. Much of the water diverted does not return, of course, instead getting transpired through leaves of alfalfa, corn, or grass, or plumping up peaches and wine grapes.

The Grand Valley Water Users Association (GVWUA), the biggest irrigation provider in the valley, is managing the pilot project to reduce that water consumption. At an October meeting to explain the pilot program to other regional water managers and irrigators, GVWUA manager Mark Harris said that the potential for future water shortages is driving the organization's participation in the pilot.

For the 2017 irrigation season, GVWUA will conduct the $1 million pilot with funding from the Colorado Water Conservation Board, The Nature Conservancy, and the Water Bank Work Group. The Water Bank Work Group is conducting long-term research on the viability of various demand management options and includes the Colorado River Water Conservation District, the Southwestern Water Conservation District, The Nature Conservancy, Tri-State Generation and Transmission, and the Front Range Water Council.

In 2017, 10 farm operators dispersed across the valley, each with 120 or more acres under irrigated cultivation, will participate in the GVWUA program. There are several options: full fallow, fallow until October, fallow until September, and fallow until August. The option of fallowing until October is popular, because it allows establishing a winter wheat crop for the next year. This is particularly important when there isn't certainty about whether the program will continue the following year. Full fallowing, if continued for multiple years, could provide the opportunity for farmers to transition fields to certified organic production and sell their products for higher prices.

The total reduction in water consumption achieved by the GVWUA pilot is predicted to be 3,200 acre feet: only a drop, but an important first drop to test the system. So far, the project appears to be on course work well for the participating farmers and the GVWUA. There is adequate compensation, management isn't too complicated, and water rights are protected. Research indicates that temporary fallowing is more likely to benefit soil fertility than harm it. And in order to ensure that producers renting land wouldn't be pushed off by landowners choosing program payments over farmers' rental payments, the program was limited to people who were actively working the land.

Making the program acceptable for the rest of the community isn't too complicated at this small scale, although some eyebrows may be raised at the odd brown field in the spring. If brought to sufficient scale to meaningfully benefit Lake Powell, however, this would become a more significant consideration. Harris believes that the program would have to limit participation to no more than 25% of the acreage GVWUA irrigates in order to avoid unacceptable impacts to the community.

In the meeting about the GVWUA program, several people voiced concern that agriculture was being expected to shoulder the burden of bringing supply and demand back into balance in the Colorado River Basin. Some cities are, in fact, also participating in programs to cut diversions to protect the reservoirs, and most have made large strides in conservation in recent decades. However, there is still a feeling that they can do more, particularly in the area of integrating land use and water planning.

If snow piles up in the mountains at reasonable levels over the next few years, it will buy time to fine tune and gradually scale up programs like the one GVWUA is testing, as well as experiments underway in other settings and on other crops, like high mountain hay meadows. Bolstering administrative capacity to coordinate a broad suite of such programs and developing legal mechanisms to ensure that conserved water reaches Lake Powell without being intercepted by other users must occur before such programs can be effective at a large scale.

If a moderate amount of conserved water is sent to Lake Powell each year, or retained in upstream reservoirs, it will reduce the chances that more drastic cuts will be needed in any one year – avoiding the deepest impacts to agriculture and communities.

If the mountains keep staying brown late into the fall, however, the upper basin's demand management efforts will have to accelerate significantly. Under that scenario, it will be harder to keep everyone happy.

Learn more about the Hutchins Water Center at Colorado Mesa University:
http://www.coloradomesa.edu/water-center/