

Grand Valley Water Bank Meeting

October 13, 2016

Ute Water

Notes

Welcome and Introductions

Hannah Holm, Coordinator of the Hutchins Water Center at Colorado Mesa University welcomed the participants and noted that the meeting was convened by the Water Center in collaboration with Grand Valley Water Users Association Manager Mark Harris and Aaron Derwingson on behalf of the Water Bank Work Group. She also recognized representatives of other members of the Water Bank Work Group, including the Colorado River District, the Southwest Conservation District, Tri-State Energy, and Denver Water.

Why Talk about Water Banking?

Dan Birch, Deputy General Manager of the Colorado River District, gave the introductory presentation on the motivations behind the water banking work. He noted that:

- The Colorado River System is fully used.
- In Colorado, the Front Range has significantly more population and votes than the Western Slope.
- There is a very real threat of “buy & dry.”

Dan then argued that there were two choices for how to respond:

1. Wait and see, and possibly have a solution imposed.
2. Be at the table to craft a solution that avoids crisis, protects our essential uses and, hopefully, provides a net benefit to farmers and agricultural communities.

Dan also argued that the problem should not just be solved by West Slope agriculture, but that the burden should be shared.

Grand Valley Water Users participation in Water Bank pilot projects: activities and the thought processes behind them

Overview – Mark Harris, Grand Valley Water Users Association

Mark Harris, Manager of the Grand Valley Water Users Association, provided an overview of the Grand Valley Water Users Association (GVWUA) conserved consumptive use project. He began by stating that the motivation to engage in the project was the fact that potential future water supply issues are too critical to ignore. These include the potential for climate change that could reduce the amount available and/ or the timing of water availability as well as competition from other water users.

Mark said that GVWUA was seeking both protection and benefit from the project:

- Protection for GVWUA water rights.
- Protection from poor/ crisis planning.

- Participate in solving the problem of potential for critical low water levels in Lake Powell proactively before the federal government does.
- Develop tools for dealing with reduced flow, for whatever reason they may occur.

Mark also noted the importance of not damaging others' interests, and of doing multi-use/ multi-beneficiary projects. He stated that irrigation infrastructure improvements benefit other interests as well as farmers.

Mark then discussed the GVWUA's conserved consumptive use project, explaining that "conserved consumptive use" is the portion of water that normally would have been consumed by an irrigator through plant growth and evaporation, but instead is dedicated to another purpose.

Mark noted that at this point, there is no "buyer" for the conserved consumptive use resulting from the pilot project; the project was a pilot to address other elements of running such a project:

- Legal due diligence to determine that participation would not jeopardize water rights.
- Feasibility of cost, management and administration.
- Level of interest in participation among producers.

For the 2017 irrigation season, the \$1 million conserved consumptive use project will be funded 20% by an Alternative Transfer Mechanism (ATM) grant from the Colorado Water Conservation Board; 50% from The Nature Conservancy; and 30% from the Water Bank Work Group.

Under other pilot projects, producers Alan Ferris and Joe Bernal have experimented with rotational fallow and split season and deficit irrigation respectively.

Fallowing experiments - Alan Ferris, Producer

Alan Ferris introduced himself by saying that he has been a farmer all his life and is a CSU graduate. He said he first experimented with rotational fallowing by letting some ground rest sometimes when he was producing seed corn, and it seemed to increase yields.

Alan noted that fallowing was not a new idea, and that references can even be found to it in the Bible, Chapter 23 in Exodus, where fallowing was advised to improve the soil and to allow gleaning.

Alan reported that he fallowed last year and grew corn on that ground this year. There were some weed issues, with thistle in particular, but that once that was under control, the corn plants in the thistley area actually grew taller than the rest. He said it may be premature to assess the benefits of fallowing, but he's pleased and expects a yield increase, which he believes results from micronutrients being released by resting the soil.

Alan noted that it was necessary to control weeds, through chemical and mechanical means, and that was a bigger problem in 2015 with spring rains.

Alan noted the following benefits of fallowing in addition to a subsequent bump in yields:

- Fallowing made it easier to do primary tillage, with a whole season to do it in, and prep soil in the fall for the next crop, as well as have less chance of compaction.
- Fallowing for 3 years would enable a transition to certified organic production.

- Early season fallowing allows the ability to plant a fall crop, like winter peas to fix nitrogen. Joe Bernal had tried fall radishes, which can act like a soil fumigant.
- Fallowing for a year ends root worm issues for fields previously planted in continuous corn.
- There are opportunities for winter grazing and habitat.

Questions addressed to Alan included the following:

- What was the difference in water use in the season following fallowing? A: there was a reduction in the water table during fallowing, possibly causing an increase in irrigation to fill the soil profile again.
- Were cover crops used, and if not, were there problems with runoff and wind erosion? A: corn stalks were left in the field; there wasn't much erosion or dust coming off the field.
- Was the crop yield benefit the next season seen even with bare ground fallowing? A: yes.

Agronomic perspective and conserved consumptive use program details – Luke Gingerich, J-U-B Engineering

Luke Gingerich with J-U-B Engineering reported on some research results of experiments conducted by Perry Cabot, Water Specialist with the Colorado Water Institute at Colorado State University, as well as more details of the GVWUA program.

Luke said that Joe Bernal had participated in studies with Perry on the consequences and benefits of deficit irrigation on alfalfa. He reported that Joe was unenthusiastic about the results, because his equipment designed for fully-irrigated, thick stands of alfalfa was not well utilized on thinner stands of deficit-irrigated alfalfa. However, Perry gathered useful information from the study that would be transferable to other situations.

For GVWUA's Conserved Consumptive Use Program, Luke described the process of assessing crop types and water use to arrive at this "negotiated science-based assumption" of how much consumptive use could be reduced in a year of fallowing: 2.8 ac-ft/ac for full fallow.

In addition to how much water would be saved, GVWUA also wanted to develop the answers to where that water would go, why, when and how, and how it would affect the operations of GVWUA.

For 2017, 10 participants were chosen by lottery out of a pool of 13 potential participants. It was limited to farm operators with 120 or more acres under irrigated cultivation, and dispersed across the valley. Payment was based on participation, not the amount of water saved. Approximately \$700,000 is going to farmers, \$300,000 to GVWUA for administration and infrastructure improvements.

There are several options: full fallow, fallow until October, fallow until September, and fallow until August. Participation is divided roughly 50/ 50 between full fallowing and other options. 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. Another option that may be added at some point would be an option for spring pasture irrigation. Total conserved consumptive use water is estimated at 3,200 acre feet: a drop, but an important first drop.

The CSU research accompanying the project are an important tool to build confidence.

The following questions were addressed during the q&a period:

- What qualifies as fallowing? A: no consumptive use, was a need to be very strict to ensure there wasn't any doubt or waffling about what qualified; leaving plant material is encouraged, but it can't be actively growing: no green.
- Why was the geographic spread important? A: to minimize the aesthetic impacts.
- What kinds of crops were included, any orchards/ vineyards? A: only forage and row crops.
- How is conserved water accounted for? A: it is aggregated at the dam, and sent through the hydropower plant, and then put back into the 15 mile reach (critical habitat for endangered fish). The savings maxes out at about 15cfs in July, which is too little to be measured through GVWUA's infrastructure, but can be accounted for by the Division of Water Resources.
- Why aren't you banking the conserved water? A: There isn't a legal mechanism for banking it in a reservoir upstream; it is actually being banked in Powell – since GVWUA is so close to the state line, the reality is that it is unlikely to get picked up downstream by another user.
- Where will the money come from when you run out of grants? A: There will need to be a buyer.
- Orchards could actually participate, during the period when they are ripping out and replenishing orchards. A: that's one of several additions to the program that could be made.
- How do you protect the water rights? A: By calling the conserved portion of the right for hydropower instead of irrigation.
- How do you avoid speculation? A: some built in protection with the federal water right, which is attached to the land; also worked only with people who were actually farming land – not with landowners who lease land to others to farm. Even with a federal water right, someone could buy the land and choose not to irrigate it, letting the water flow downstream, so it's not total protection from buy & dry.
- What is the maximum amount that people think is reasonable, without too much impact to vendors and the community? A: about 20-25% of irrigated acreage is the maximum most people think is reasonable. Aesthetics come up pretty often. Hopefully supporting profitability in agriculture will ultimately benefit vendors. If there's a crisis, cuts could get a lot more draconian.
- The Grand Valley, even if all acreage were fully fallowed, couldn't on its own prevent or respond to a crisis, so is there talk of expanding the program further? A: It's more challenging upstream, with smaller ditch systems and more complicated logistics and different agriculture, but other places within and beyond the West Slope would need to take part – including municipalities. There are still lots of issues to resolve. This experiment is providing some learning that may be useful for other systems.
- Can you work with both pre and post compact rights? A: you can work with any right to prevent a compact curtailment crisis; in the event of a compact curtailment, only pre-compact rights would matter. But most agricultural water rights on the West Slope are pre-compact anyway.

Perspectives from Outside the Grand Valley – panel

Klamath Water Bank – Dan Keppen, Family Farm Alliance

Dan Keppen of the Family Farm Alliance began by giving some background information on the Family Farm Alliance and noting that the Alliance had done a policy paper on the Colorado River capturing the perspectives of their members in the basin. He then described the water controversies in Oregon's Klamath Basin and the Klamath Water Bank that resulted.

Dan explained that in 2001, for the first time in 95 years, irrigators faced a complete curtailment in order to leave sufficient water in the reservoir and river for fish. This management decision was controversial, and the biological basis for it was questioned.

The Water Bank was set up to pay people for idling land or substituting groundwater pumping. It was some insurance against uncertain supplies. Paying people to idle land led to problems with dust; groundwater pumping could be unsustainable and affecting older wells.

Subsequently, downstream dams (used only for hydropower, not irrigation or flood control) have been removed, lessening scrutiny on ag users, and on March 1 forecasts are used to let water users know how much water they are allocated. The Water Bank can supplement that as needed. There's been criticism of the program in the Sacramento Bee; the Family Farm Alliance's perspective can be found at kwa.org or FamilyFarmAlliance.org.

Lower Gunnison System Conservation – Tom Kay, Producer in the North Fork Valley

Tom Kay, an agricultural producer in the North Fork Valley in the Gunnison Basin, introduced his talk about pilot projects by saying they are pilot projects, not panic projects, and one of their biggest benefits is the relationship building that results. Tom noted that the System Conservation Pilot in the Uncompahgre Valley is paid for by the Lower Basin.

Tom reported that in the Uncompahgre, they tried to avoid "brown and down," or full fallowing, because of the impact on property values and other factors, but instead provide participants with just 1 foot of water/ acre (instead of 3 or 2.8), and let them do what they want to with it. They can use it in the spring to put down a cover crop, getting carbon into the ground.

While the Grand Valley project is paying \$560/ acre, the Uncompahgre project is paying \$400/ acre.

For a transition to certified organic production, producers can get paid to use just 1 foot of water/ acre for three years and then start growing the same crops as before organically – same cultivation and storage, just no chemicals – for a much higher return.

So far it's only involved 3 farmers and 100 acres total, so it isn't scaled yet. Additional questions include how much funding would it take to scale up the program. Another issue Tom noted is that pilots sunset – you build relationships, and then the program goes away.

Tom noted that there's also work underway on grass deficit irrigation.

Yampa System Conservation Pilot – Geoff Blakeslee, Carpenter Ranch, The Nature Conservancy

Geoff Blakeslee, Manager of the Carpenter Ranch owned by The Nature Conservancy (TNC), described the 2015 System Conservation Pilot Project that the ranch participated in. The Carpenter

Ranch is at 6,400 feet in elevation on the Yampa River, and ground is leased to a local family that runs cattle and produces hay.

Geoff described studies that led up to the pilot project, including a Yampa-White Basin Roundtable agricultural water needs assessment that identified what rights could be vulnerable. The Water Bank Work Group and Colorado Water Conservation Board Alternative Transfer Mechanism (ATM) grants offered opportunities.

TNC partnered with Trout Unlimited, the Routt County Conservation District and CSU Extension partnered on an ATM grant to develop opportunities to put ranchers together to address shortages and look at the impact on return flows of moving water use from one place to another. Downstream users were concerned that fallowing and efficiency projects could reduce the late-season return flows that they depend on. The project identified potential transactions, but there was no funding to implement them and no transactions have been consummated yet.

An analysis was commissioned on Carpenter Ranch water rights, evaluating fallowing, split season, etc., concluding that irrigation in the early season would keep the return flows intact. The ranch grows perennial grass hay, and they wanted to look at fallowed and nonfallowed hay yield and recovery to see the overall impact on the crop.

The next step, with the System Conservation Pilot, was to ask if the lessee would be interested in participating. The lessee partners included a banker who did careful analysis, and the labor savings and compensation worked out well. The conclusion was that this was an opportunity to diversify income and save labor.

The early feasibility studies indicated that there would be high enough production to run a certain number of cows; split season is better than completely turning the water on and off. They harvested one hay crop and then had regrown, by adjusting management, they could make it work.

Concerns/ positions on System Conservation

The session concluded with the following concerns and comments being raised:

- Why should farmers bear the burden? Municipalities have to do something, too. They are conserving, but need to do more.
- Land use planning needs to be addressed at some point.
- The price of water needs to be fair.
- The impacts to communities and businesses is a concern; Palo Verde Irrigation District has tried to come up with incentives that work for the community.
- Locally-driven solutions are important.
- The Endangered Species Act issue and potential for federal solutions should be kept in mind.
- If agriculture is saving water, how are we supposed to double the food supply?
- Need to get more young people in agriculture.
- Supply enhancement still needs to be explored, like Wyoming storage projects, reusing produced water from oil and gas development.

Looking ahead - panel discussion

The final session of the day was a panel discussion with the following panelists: Mark Harris, Aaron Derwingson, Dan Birch, Luke Gingerich, Mike King.

Benefits and drawbacks to participating in water banking or ATMs

The first question posed was “What are the potential benefits and drawbacks to participating in a water bank or other alternative transfer mechanism, and what information is necessary to assess this?” Mike, Mark and Luke were asked to provide responses, with others free to chime in.

Mike King, representing Denver Water, one of the participants in the Water Bank Work Group, asserted that we don’t want to lose control of our destiny, even if it isn’t exactly the destiny we want. He noted that Denver Water’s motivation for participating was to minimize risk. He noted that 50% of Denver Water’s supply is from the West Slope, and with growth predicted to be 50% over the next 25 years, it’s helpful that these West Slope supplies can be re-used. The downside is that this hardens demand on West Slope water, making it even more important that this supply remains reliable.

Mike noted that no one wanted the Lower Arkansas future, with the impacts of buy & dry.

He commented that lessons learned through the System Conservation Pilot include:

- Every place has its own challenges as lessons.
- Figuring out how to shepherd water to Lake Powell and getting credit for it there is a key nut to crack.
- Scalability is another key challenge.

Luke Gingerich noted the importance of conducting water rights investigations and learning how systems function under increased stress in order to be better informed in case we need to take action.

Mark Harris suggested that people try to consider interests instead of positions, and what we have to do as water leaders to avoid crisis. He argued that it would take the involvement of all affected parties to make good plans, and that we need to pay attention to our connection to the whole basin. He said his goals were to keep farmers farming and food being produced. He said we need to keep each other engaged, be careful, and look at the facts and social factors.

A question was asked about how many acres and how much money would be involved in a perfect world. For instance, the San Diego agreement allows fallowing up to 35% of the acres. Mark answered that for the Grand Valley, that can’t be known yet, but probably 20-25% would be the maximum that would be palatable. In terms of price, he said that would be the most complicated. He asserted that it would be unfair to price water just like another commodity, and the issue of equity within the system is very important. He also noted that a market takes 2 sides, and the purchaser has to be willing, no matter what is or isn’t reasonable.

Next Steps

The second question posed to the panel was “What next steps would optimize the potential for these kinds of projects to benefit the Grand Valley & the Western Slope?” This question was primarily directed to Dan Birch and Aaron Derwingson.

Aaron listed the following principles that should be followed going forward:

- Keep community issues front and center.
- Keep everyone engaged and at the table, all with skin in the game.
- Look at applying lessons learned here elsewhere, including administrative and legal issues.
- Legal issues: protections exist in Colorado for those participating in pilots, but we still need a shepherding mechanism and a legal mechanism for equitable participation.
- Also need to figure out how to pay for and keep the program going long term.

Dan argued for looking at the context of the basin overall, and contingency planning: the need to keep Lake Mead and Powell above critical levels. He reviewed that the contingency planning includes 3 elements:

- Extended operation of Colorado River Storage Project reservoirs.
- Augmentation, through cloud seeding and phreatophyte removal, which is ongoing.
- Demand management: the piece focused on at this meeting. Analysis indicated that 200,000 acre feet/ year could be required in the Upper Basin, with Colorado responsible for 51%, and 1 million acre feet/ year in the Lower Basin.

He said that coming up with 100,000 acre feet/ year, with maybe half that from agriculture and half from municipalities seems doable, although with agriculture it's difficult because you have to deal with lots of people.

Dan noted that one challenge is how to pay for that long term. Different magnitudes of effort will be required depending on the scenario. Another challenge is what can you reasonably do to mitigate the risk without shooting yourself in the foot. What the climate will do is a big unknown.

Mike King added that you get more resources to address the problem if it is understood as a Colorado problem, not just a West Slope problem, and that Northern and Denver definitely have skin in the game with about 600 acre feet/ year in transmountain diversions.

Mike also noted that the program has to be scalable, with the ability to ramp up and back down as needed, with appropriate triggers. He said Colorado is in a much better place to discuss this now than it was 20 years ago.

A question was asked about how much Denver Water can impact growth. Mike noted that Denver Water has a line around its service area, and that some other areas see any kind of land use regulations from the state as complete overreach. Denver can lead by example. Denver used less water in 2015 than in 1973, and leaves water in Dillon. Over the last 10 years, 500,000 acre feet of water has been left in Dillon Reservoir. Douglas County, meanwhile, is mining their groundwater.

A comment was made that developers are never at these meetings, and they need to address their impacts. It was also noted that food commodity prices will also affect the picture.

A question was asked about how to make these programs acceptable. The answer given was that it is a very emotive issue, since water is a farmer's most important input, and how you use it affects your neighbors. You can grow it from a small idea, build credible advocacy, and incorporate critical opinion. And have lots of long conversations.