Wood River Water Collaborative Minutes
February 27, 2018

Action Items in Yellow

Attendees:
Keri York, Patti Lousen, Cassie Lundergreen, Donna Pence, Amp May, Kodi Farnworth, Josh Johnson, Justin Stevenson, Pat Purdy, Chris Johnson, Kevin Lakey, Greg Loomis, Mark Davidson, Pat McMahon, Pete VanDerMuelen, Brett Stevenson, David Stephenson, Carl Pendleton, Amy Trujillo, Kira Finkler, Peter Anderson, Ron Abromavich (phone), Sharon Lee, Larry Schoen

Presentation by Kodi Farnworth of WorldWide Ag Systems (see attached presentation)
- Worldwide Ag Systems is a new business out of Carey specializing in farm technology for water conservation, specifically farm shots, moisture sensors, and drip irrigation

Farm Shots
- Farm shots are drone satellite Infrared imagery to help determine irrigation needs up to two weeks prior to visible plant stress
- Stotz Equip. (American Falls) has the rights to farm shots in Idaho, Worldwide Ag purchases

Moisture Sensors
- Many current sensors require reading a probe after crop is planted and before harvest
- Baseline sensors (Boise) use a high electricity pulse to tell moisture content in multiple soil layers
- Can be installed vertically to determine a soil moisture profile; even if surface is dry, roots may have enough moisture

Subsurface Drip
- Advantages
    - Can irrigate small areas independent of each other and not accessible to pivot
    - Can save 30-40% water while maintaining or increasing yields and decrease power by 50%
    - Lifespan is at least 25 years
    - Can still irrigate to the surface with drip for germination
- Installation
    - Want to install tube, not tape – tube is too thick for rodents to chew through; rootguard prevents roots from penetrating
    - Works best in conjunction with soil moisture sensors to know the application rate
    - Install with tractor, not trenching
    - Can install 8” – 24” deep, depending on tillage. Drip tube typically at 6-24” depth depending on tilling and planting needs.
    - Saves labor costs if converting from a wheel line system
    - Subsurface costs typically at $1100-1800 per acre includes everything: filters, sensors, tubing
    - Need minimum 30 – 50 psi, use a pressure regulator, may need booster pump
    - Water filters can be disc, sand, or screens

- Biggest issues are with incorrect filter sizing, drip tube size, matching drip emitters with soil type, water quality, and winterization
- One project installed in Hazelton, 2 mi. south of the freeway, installed drip to reduce labor costs on sugar beets
- As an alternative, can install drag lines on pivot
- Can also use Smart Pivot or Variable Rate Irrigation (VRI) to water at different speeds throughout field

Costs

-rough costs per acre were discussed. The group discussed:

- subsurface drip irrigation with moisture sensors could be $1100-$1800/acre, depending on soil type
-pivot corners subsurface with moisture sensors: $1100-$2500/acre
-standard 7-tower pivot, smart sensor system with existing pivot = roughly $30,000
-pivot dragline system with smart sensor system = roughly $55,000
-compared to $1400/acre to get an acre wet with a regular standard pivot, and with the additional water and/or power savings

NRCS Special Project Application – Chris Johnson

- This would build off the existing VRI program in Blaine, Jerome, and Lincoln counties
- New application would include subsurface drip irrigation, VRI, and tailwater recovery systems to reuse runoff water to pump up and irrigate fields a second time
    - Drip irrigation would be cost-shared at $750/acre in year 1
    - VRI would be for 14 systems in year 1, pays for initial cost of $58,000 for installation and maintenance for following two years; covers costs of field mapping
    - One tailwater recovery system off the Big Wood in Lincoln County
- Can use outside engineering support – Chris to send list of technical service providers to Mark and Keri
- Should know about this application in 4-6 weeks

- There was discussion about the cost incentive to save water and implement these practices
    - Drip irrigation is twice as costly as a new pivot, but save on power and labor costs
    - ROI Payback needs to be within 4-5 years to make feasible
    - Financing beyond NRCS cost-share would make more attractive
    - Banks have confidence in pivot installation and payback; don't for these systems yet
    - What cost/acre do NGO's need to estimate to supplement action

- There was discussion about what happens to the conserved water when these systems are implemented; could help resolve water conflicts if less water is applied to ground

- The NRCS RCPP program should be rolled out soon – meeting on March 8th to discuss
- The program will fund ground to surface conversions, pivot end gun removal, fallowing, and flood irrigation enhancements
- Available to ESPA, including Big and Little Wood River basins

Surface Water Predictions Above Magic – Keri, Kevin, Ron (see attached presentation)

- The purposes of being able to predict surface water above Magic are to help producers better plan for crops and surface water supplies to better manage the overall water supply, including groundwater
- By using estimated surface water demand, the NRCS Surface Water Equivalent, and the NRCS Surface Water Supply Index, we can compare historical data to determine similar previous years to help predict the current year's shut-off dates for 1886 and 1883 water rights

Estimating Surface Water Demand Above Magic

- Delivery records from 2017 diversions above Magic estimate 176,381 acre-feet; probably some double counting in this estimate because some diverted water is recharged into the system
- Total irrigated acres above Magic per NRCS and estimate of Municipal, HOA, small farms using ET rate of 3 estimates 134,493 acre-feet
- Using 2015 demand estimates per delivery blocks completed by Kevin, Mark, and Patti, estimates 121,455 acre-feet
- If add groundwater into latter two estimates, probably closer to 176,000 acre-feet estimate
- There may be other data to help estimate, such as OSU study and METRIC analysis

NRCS Snow Index Data

- Per the Surface Water Equivalent (SWE) data on Feb 22, the Big Wood is at 84.5 inches; probably higher now with recent snow events
- Similar years per SWE are 2002 and 2013

NRCS Surface Water Supply Index

- If we look at similar years per the SWE; or demand estimates, we can predict the exceedance forecast
- 2002 and 2013 are at approximately 60% exceedance forecast, meaning that there is a 60% chance that adequate water supply will meet 153,000 – 154,000 acre-feet
- Depending on what you use for demand estimates, we are probably somewhere around 70% exceedance forecast

Shutoff Dates for 1886 and 1883 Water Rights and Corresponding Delivery and Stream Flow at Hailey

- Kevin put together a spreadsheet with dates when 1886 and 1883 priority dates shut off and corresponding flows at Hailey gauge
- If we look at similar years according to SWE or demand, we can estimate shutoff dates and flow at Hailey gauge
- We can then look back at the SWSI and estimate what the exceedance levels are for those dates for a level of confidence in shutoff dates
- The similar SWE years of 2002 and 2013 had 1886 shutoff dates between 7/3 and 7/8, corresponding with demand around 153,000 – 154,000 acre-feet. 1883 shutoff dates were 7/11 and 7/12. The SWSI gave an approximate 60-65% exceedance of meeting demand for those years
- In drier historic years, 1883 water rights were cut off closer to 1886 rights; in decent water years all 1886 rights were cut off from the 3rd week of June to 1st week of July

- Once peak flow hits the Hailey gauge, we can use the flow data in Kevin's spreadsheet to further narrow down the window of expected shutoff dates for 1886 and 1883 water rights
- Until we know how melting occurs, it is difficult to be precise because snowpack melt affects surface water supplies later in the summer and shutoff dates

Discussion

- Members agreed that this is useful information, if packaged in a readable way. Keri and Kevin will work on a few tables and narrative to be posted on the website in the next couple of weeks.
- There was discussion around how groundwater supply and aquifer levels could provide additional useful information. This was also discussed at the groundwater model subcommittee after the meeting. Keri will call Jim Bartolino at USGS to see how we might gather and incorporate such information.
- Producers will likely try to increase soil moisture if know shutoff is coming
- If we can pair this information with expected date of allocations below Magic, we could come up with a full management scenario
- the new legislation for IDWR director to approve early release through delivery systems can only occur in emergency declarations

Updates and Announcements

- There is a meeting on March 8th to discuss the NRCS's roll out of the new RCPP program, which includes ground to surface conversions, fallowing, end gun removal, and flood irrigation improvements in the ESPA and the Big Wood drainage. Peter and Mark will attend and follow up with the group.
- The discussion on group formatting will be put off until the next meeting

Next Meeting: Wednesday, April 4th at 10 am at The Nature Conservancy Office

- Leah Meeks from Bureau of Reclamation will attend to discuss grant opportunities and how WRWC projects can fit into those programs and match with other funding sources
- The NGO groups will work with members to discuss potential projects in general categories with some specific examples
- There will be a field tour afterwards to one or two project sites with Leah Meeks
- Larry would also like to talk about a subcommittee forming to advise Big Wood watershed planning, in conjunction of a discussion of other watershed councils formats by Mark Davidson