

**Groundwater Management Districts Association (GMDA)  
Summer 2019 Meeting—Salt Lake City, UT  
Dick Ehrman, Dan Schulz**

Dan Schulz, Director Gary Hellerich, and I attended GMDA's summer meeting in Salt Lake City. A bulleted summary of the conference follows:

States represented: NE, CO, MS, LA, NM, TX, KS, UT

NRDs represented: LPS, CP, UBB, LPN, LL, LE

**Wed., June 5, 2019:**

- Dan and I shadowed the Kansas contingent for a few hours to gather information on how they arranged this conference, since Nebraska is organizing the Winter 2020 meeting in Ft. Lauderdale, FL
- The welcome reception in the evening provided the usual opportunity for networking with other states members

**Thur., June 6, 2019:**

Welcome remarks by Everett Kissler, GMDA President from CO

James Greer, UT Division of Water Rights

- UT water is managed by the Departments of Natural Resources and Environmental Quality
- UDEQ is responsible for water quality and drinking water, while UDNR covers water resources and water rights
- Western UT is a closed basin draining to the Great Salt Lake & Sevier Lake, while eastern UT drains to the Green and Colorado River basins
- UT is the 2<sup>nd</sup> driest state after NV, but slow drainage from snowmelt in the mountains has meant that water is generally available and fairly cheap
- An interesting historical context of water management from the Mormon settlement (1847) to the present; Brigham Young declared that there would be NO private ownership of water!
- NO wells are currently exempt from having to obtain a water right, which I found amazing, as a result, most of UT is currently closed to new ground water development
- UT currently requires ground water management plans somewhat similar to NE with goals of limiting withdrawals, protecting aquifers, and protecting water quality
- A useful overview of UT's involvement in Colorado River issues

Rachel Shilton, UT Division of Water Resources

- UT state water planning originated in 1963
- There is a statewide plan and 11 basin-specific plans
- A recent legislative audit showed that Water Resources and Water Rights data don't match, so a Water Strategy Planning group was formed; recommendations were forwarded in 2017
- Advisory Group from a wide variety of stakeholders (government, academia, public, Tribes, etc.)
- UT population is projected to double from current 3M to about 6 M in 2065, so population growth and climate change are important parts of the planning process; statewide water budget is included

- State Water Plan final is due in 2020

Scott Paxman, Weber Basin Water Conservation District (WBWCD)

- WBWCD consists of 5 counties covering about 2800 square miles east of Ogden
- District manages about 20 wells for municipal, industrial, & irrigation (mostly parks & golf courses)
- WBWCD implemented household metering program in past few years—even though rates are flat, use dropped about 40% after metering!
- District is also implementing aquifer storage & recovery for about 1500 acre-feet/year
- A really interesting story about exploring for new ground water sources!
  - 1 test hole, 2000' deep, \$490K—yielded 1 gpm!
  - 1 test hole, 1130' deep, \$610K—no water!
  - 1 test hole, 1100' deep, \$1.9M—yielded 500 gpm
  - So, they spent almost \$3M to get a moderate sized well! (We're lucky in NE!)
- Historical overdevelopment of shallower aquifers has yielded measurable ground subsidence up to 3 cm/year
- WBWCD is implementing wellhead protection—100' proximal radius protection zone plus 5, 10, and 20 year time of travel zones (similar to NE)
- Also they're dealing with historical ground water contamination from Hall Air Force Base (solvents, fuel, etc.) and dry cleaning industry (solvents)

Fred Jones, City of Garden City KS

- Garden City's water supply is split between the Ogallala and Dakota aquifers; production averages about 1.1B gallons/year
- Treatment (mostly from Dakota wells) by reverse osmosis (about 50% of total production), mainly to deal with sulfur & TDS
- KS caps municipal use; Garden City is capped at 7000 acre-feet/year (which is about twice their current use so they have room for growth)
- An interesting study on three homes on a per acre basis rather than per person (which is standard):
  - Garden City average is 14 gallons/square foot!
  - Converted to gallons/person/day, this is about 160-230 gallons/person/day; the trend is downward

Daniel McCool, Author & Retired Professor, University of Utah

- An interesting & controversial speaker—he started off noting that he's a tenured/retired professor so he can say what he wants!
- "The only constant is change."
- Noted that institutions (like government) are great at making incremental changes, but we are living in an era of non-incremental (rapid) change
- With the colonization of western America, institutions developed under conditions of plenty; McCool thinks this era is over and we are entering an era of scarcity
- This scarcity will affect personal freedoms
- "8 Hard Truths":
  - All dams are temporary (noted about 80K large and 2.5 million small dams in US)
  - We cannot have infinite growth in a finite system
  - There's no "more" water—only water "from someplace else"

- “Inexpensive water” is becoming an oxymoron (and maybe always has been)
- We’re currently characterized by water polarization—in the west, farmers use 80% of the water but in the future water will be transferred from ag to suburbia
- In the near future, there will be water marketing in the entire west
- Prior appropriation laws must be changed so farmers are rewarded rather than penalized for conservation
- The Federal government is \$22T in debt (compare to \$1T in 1980)—this will affect EVERYTHING
- McCool invented a term for cities dependent on the Colorado River—“Catastropolis”; these cities have 40M people (from Cheyenne to Tijuana) but are likely to have massive shortages
- “Water crisis” is NOT the same as a “water MANAGEMENT crisis”—which is what McCool says we have
- He finished with a short piece on John Wesley Powell (one of the first directors of the US Geological Survey!)
  - Powell was three things: explorer, innovator, and social dogmatist (inflexible; couldn’t see past his dogma/prejudice)
  - Which of these three will WE be going forward? Interesting question!

Niel Allen, Utah State University

- Annual precipitation in UT varies from about 5” in the desert to 61” in the mountains!
- Ag in UT uses about 80% of the state’s water; about 1.2 M acres are irrigated (compare to 10+ M in NE)
- Interesting comparison of large to small farms:
  - 5.2% of the farms (540 large farms) cover 49.5% of irrigated land
  - 63.8% of farms (6,610 small farms) cover only 8.6% of irrigated land

Matt Yost, Utah State University

- An overview of ag water optimization efforts in UT: partial irrigation, advanced irrigation, crop genetics, irrigation scheduling, no-till, and cover crops—things we’ve been doing a long time in NE!
- “4 R’s of Irrigation”: Right source, right rate, right place, right time
- UT raises a lot of alfalfa, so they’re researching small grain planting after alfalfa—only ¼ of fields needed applied nitrogen
- Biochar—charcoal-like product of pyrolysis of wood chips (also produces oil and gas)
  - Evaluation of biochar as a soil amendment; early results indicate some positive effect BUT not at all currently economic—about \$100/acre (\$10/ton @ 10 tons/acre)
- Familiar analysis of irrigation technology from flood to various sprinklers to subsurface drip

NE Caucus

- Main topic—organization of Winter 2020 meeting in Ft. Lauderdale, FL
- Also voted to support current GMDA mission statement

**Fri., June 7, 2019**

**GMDA Board Meeting**

- Reports from member states
- Discussion of GMDA as ongoing ground water caucus for National Water Resources Association (NWRA)
- Discussion of adding ground water quality as a focus of GMDA (to supplement ground water quantity, which has historically been GMDA's emphasis)
  - I was appointed to be on a three-person committee for ground water quality along with representatives from NM and CO
- Additional discussion/approval of GMDA mission statement and priorities
  - Mission statement: "To protect and preserve ground water quality and quantity for future generations, GMDA promotes conservation, conjunctive use, public education, and state sovereignty."

**Orin Feril, Big Bend Ground Water Management District #5 (KS)**

- Interesting and valuable overview of KS water law
  - Prior appropriation for everything
  - Role of Chief Engineer—VERY powerful
  - Surface and ground water are covered under the same law
- Southwest KS has seen significant ground water declines since mid 1990s
- Case study: Quivira National Wildlife Refuge (QNWR)/Rattlesnake Creek (south-central KS)
  - QNWR has been designated as a wetland of international importance
  - Rattlesnake Creek watershed about 665K acres; about 156K acres of this is irrigated, but they are currently using less than their authorized allocation
  - 96% of the irrigation in watershed is junior to QNWR's right!
  - In 2000, Rattlesnake Creek Partnership was formed to address water availability concerns for QNWR and irrigation
  - 2010—GMD #5 completed a high-resolution ground water model (VERY large area—almost 1/8 of the State of KS!)
  - 2016—KS Division of Water Resources determined an impairment to QNWR and recommended reductions of use and/or augmentation
  - As a result, GMD #5 submitted two augmentation plans, but both were declined
  - 2017—new submittal from GMD #5 with both streamflow augmentation and irrigation BMPs/retirement of irrigated acres
  - Disagreements over model results; everybody is currently waiting for remedy—there will likely be a court case and the possibility of direct administration by DWR

**Ian Lyle, National Water Resources Association**

- Traditional overview of Congressional activity; this time w/ emphasis on new Democrat-controlled House
- Discussion of Maui County (HI) case regarding ground water injection and possible effects on nearby ocean water; US government is claiming this is an effect on navigable water so perhaps there's a federal nexus
- Discussion of appropriations for USACE, USBOR, etc.
- Description of Booker/Feinstein Senate bill on drought resilience—wide-ranging, but also has money for storage and conveyance

- Overview of proposed Green New Deal and possible consequences for water resources; lots of issues not directly related to water but some opportunities for progress

#### Dr. John Tracy, Texas A&M University/Ogallala Water Coordinated Ag Project

- Familiar information on Ogallala ground water characteristics and water level declines
- 97% of water withdrawn from Ogallala is for ag
- Kansas State U survey of farmers using Ogallala (227 counties in 6 states)
  - 7,700 surveys sent out, 15.9% (1,226) response, which is considered good
  - Range of responses but most depend on historical declines in Ogallala; e.g. in TX 83% of respondents said water level declines are serious but only 42% in NE
  - Key response: many farmers said they're concerned about water conservation but a majority said they don't save ground water because it would reduce production
- A good description/discussion of the NE TAPS competition—farmers, ag groups, agencies work with a demo field in central Nebraska and use a variety of techniques to maximize profit rather than production
- Overview of Ogallala Summit—an interesting meeting emphasizing local ground water managers and farmers (unfortunately it doesn't apply to LPSNRD!)

#### Tour of Kennecott/Rio Tinto Copper Mine

- This was one of the BEST field trips I've ever been on (of course, that's coming from a geologist!)
- A few fun facts re the mine (which is in the mountains west of Salt Lake City):
  - It's the largest man-made excavation in the history of the world
  - Mining began in 1903; current estimates indicate that mining can continue for at least another 65 years (so nearly 200 years of continuous mining)
  - When mining began, the mountain top was 5,000' above the land surface; currently the bottom of the open pit is 3,000' below the land surface!
  - In addition to the materials pushed directly out of the mine, tailings have been spread over 20 square miles to a depth of several to a few tens of feet
  - In addition to copper, the mine produces gold, silver, molybdenum, and a variety of sulfide minerals
  - Daily production of copper is on the order of several hundred tons, making Rio Tinto one of the major copper suppliers in the world
  - The trucks that haul the ore are amazing! Each truck can haul 320 tons of ore in one load; they're powered by diesel-electric motors and go about 15 mph; they have 6 wheels—each tire on these is \$60,000 and they only last 6 months!

So, in summary, this was a really interesting and productive (not to mention FUN) conference. Thanks for the opportunity to attend!

**NATURAL RESOURCES CONSERVATION SERVICE  
REPORT TO THE  
LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT  
June 19, 2019**

**PERSONNEL:**

- Sydney Abbot, Pheasants Forever Wildlife Biologist, is leaving the staff to pursue an opportunity in private industry. Her last day in the Lincoln Office was June 7<sup>th</sup>.

**LAND TREATMENT:**

- Staff continues to take applications for the LPSNRD Land Treatment Program. The deadline for fall applications is July 1<sup>st</sup>. They are also taking applications for the LPSNRD Cover Crop program which has a sign-up deadline of October 1<sup>st</sup>.
- Spring construction of conservation practices has been completed and the Conservation Technicians are busy certifying completion and payment. They will begin layout for practices signed up for the Summer Conservation Program in the next few weeks.

**PROGRAMS:**

- EQIP – Staff is continuing to work on contract obligations for FY19 as we receive additional funds.
  - 41 applications - \$696,500 in requests
  - Lancaster – 5 contracts - \$98,983 obligated
  - Cass – 6 contracts - \$186,226 obligated
- CRP – The Farm Service Agency (FSA) is currently accepting offers for Continuous CRP (Signup 52) through August 23<sup>rd</sup>. There have been some significant changes regarding cost-share, annual payments, and eligible practices. Interested producers should contact their local FSA office.
- Emergency Conservation Program (ECP) – The Cass County staff continues to complete field reviews for producers that received damage due to the cyclone bomb blizzard, heavy rains, and flooding. Cass County has received 27 applications so far and the signup deadline is July 29<sup>th</sup>. Interested producers should contact the Cass County FSA office for more information.

**UPCOMING EVENTS:**

- July 4<sup>th</sup> – Independence Day!

***Cory Schmidt - District Conservationist***