

### **Breakout Group 3**

Linwood Peele

Molly Magnuson

Jack Norlund

Ginger Pugh

Tony Willardson

Mabel Jones

Cheryl Buchwald

Cheryl Deter

Forrest Melton (note taker)

# 1. Data Gaps / Data Challenges

- Time required to visit fields for compliance inspections where metering is required
- No reporting on water use / need better information on use of water that is diverted
- Data on baseline conditions for conservation efforts
- Water use by agriculture (especially during dry years)
- Groundwater conditions and aquifer characteristics
- Consumptive use (vs diversions) and projections for the future

## WUDR / WaDE

- WUDR support has been highly valuable in supporting data migration efforts that have created opportunities to develop new applications that enhance utility and access to data
- States could use help with communicating to agricultural stakeholders about the benefits of having accurate information on water use by agriculture

## 2. QA/QC and Data Standards

- Key need for 2020 and beyond: Water use for oil and gas operations and well development (NM)
- Need national effort to standardize classification / categories for reporting of water use and protocols for aggregation (e.g., how to consistently report use with more detailed categories, not just commercial, residential, M&I, agricultural) → current reporting categories are highly variable from state to state
- Best practices for QA/QC of historic data
- Standards for reporting error / uncertainty for different types of water use data?
- USGS technical service center / virtual help desk to answer questions, help with best practices, and coordinate the community?

### 3. Water Use Reporting Systems

- Information on strengths/weaknesses and costs for different technical solutions would be helpful
- NM planning to allow water users to enter meter readings online in the near future

## 4. Temporal / Spatial Scales for Water Use Data

- Different state statutes require reporting at different time intervals (monthly, quarterly, annual)
- In general, the longer the reporting interval, the higher the chance of error in reporting (meter failures, etc.)
- Monthly seems like a reasonable time interval (daily is too cumbersome; annual is too long and makes it harder to catch errors; reporting can be annually, but at a monthly timestep)
- Biggest challenge for North Carolina is getting the locational information for the site-specific water use reports from agriculture
- Spatial resolution → dependent on use; in general HUC 8 is a good resolution for aggregation, but need site specific info especially for groundwater pumping and reporting for agricultural water use at the field scale
- Folks like monthly USGS webinars → productive and interesting discussions

## Data Access Challenges

- Kansas, Time spent visiting fields is a challenge – is the meter an approved meter, is it installed correctly, are there any unlawful diversions
- Wyoming: No reporting on water use; different basins have used different methods to estimate water use for basin study plans; data from consultants and have also used Earth Engine; products delivered by consultants don't provide opportunity for QA/QC → need for a long-term, iterative process
- Wyoming: state does have a water rights database, but it is not stored in a spatial database
- Wyoming: has standards for data collection and working on a master database for information on point of diversion and other water rights information
  - 30 years of data from local irrigation districts on infrastructure, conveyances, modeling of wet/dry/normal years with limited metadata and no standards
- North Carolina: Key challenge is getting access to information about agricultural water use → Dept of Ag conducts surveys, but information is aggregated
  - During a normal year there is little ag water use; but during a drought year there can be very intensive water use that is not well measured or characterized
- New Mexico: In priority basins have good info on water use; but in other basins there is less info; need better characterizations of groundwater use and aquifer characteristics and conditions; data associated with tribal water use is a key gap
- North Dakota: missing information need to determine what water is used for (e.g., cities selling water to mining operations)
- Determining baseline conditions for conservations
- Utah: Understanding consumptive use (and projected future consumptive use) vs total amount diverted

## Most Important Data and Data Standards

- North Carolina: very strict QA/QC for municipal use (engineer's will follow up to check on any changes >2%); but for other uses, such as hydropower, quality is much more variable especially during very wet/dry years
- Kansas: Have pretty strict standards for metered sites, and data is pretty accurate; Harder to QA/QC historic data
- North Dakota: Need national effort to standardize classification / categories for reporting of water use and protocols for aggregation (e.g., how to consistently report at lower level categories, not just commercial, residential, industrial, agriculture)
- New Mexico: lot of interest in water use for oil and gas operations and well development