Yellowstone River Compact Commission
Technical Advisory Committee – VIRTUAL ONLY
10AM-12PM, April 14, 2025
FINAL Meeting Minutes

1.) Introductions

Wyoming: David Schroeder, Josh Fredrickson, and Michelle Hubbard, (State Engineer's Office, SEO); Chris Brown and Abigail Boudewyns (Wyoming Attorney General's Office).
Montana DNRC: Jake Mohrmann, John Lunzer, Mark Elison, Morgan Case
United State Geologic Survey (USGS): John Kilpatrick, Aaron Fiaschetti, Theo Barnhart, Scott Whiteman, Stacy Kinsey
Bureau of Reclamation (Reclamation): Liz Cresto, Brooks Stephens, Clayton Jordan, David Merrell
North Dakota: Joe Nett, Bryce Klasen
NRCS: Eric Larson, Kevin Foley, Jeff Coyle, Lexi Landers
NOAA/NWS: Tony Anderson, Todd Chambers, Scott Dummer, Jane Fogleman, Celia Hensley
Montana Climate Office: Kevin Hyde
Northern Cheyenne Tribe: Jason Whiteman
Tongue River Water Users: Art Hayes

2.) Review of the Agenda

No modifications were made.

3.) Hydrologic Updates

a. 2025 Runoff Forecast (Eric Larson-NRCS)

Mr. Eric Larson summarized the precipitation and snow conditions. In Water Year 2025 (WY25) the precipitation started off slow but picked up in December/January and continued throughout the winter and early spring with most basins having ~90%-100% of median precipitation in April. Mr. Larson described the snowpack in most basins ranged from 80%-105% of median and the snowpack in WY25 is significantly better than Water Year 2024. The 50% exceedance for volumetric streamflow forecasts for most basins ranged between 78% and 104%.

b. Climate Forecast (Todd Chambers-NOAA)

Mr. Todd Chambers compared the forecasted three-month outlook of April 2024 to the actual precipitation and temperature outlook- overall the forecast generally predicted the climate and temperature trends. Mr. Chambers reported that February 2025 was a very wet month, especially in the Big Horn Basin and the Tongue and Powder Basins, which up to that point were on the drier side. Temperatures in the Yellowstone Basin were higher than normal in April. Overall, soil moisture was close to normal, with a few sub-basins reporting a deficit. Mr. Chambers reported a transition to ENSO-neutral in the summer and La Niña conditions becoming more

probable for the late summer, early Fall. The volume forecast for throughout the basin were all significantly below the median; the Tongue River showed a 26% deficit.

c. Hydrologic Update (Scott Whiteman, USGS)

Mr. Scott Whiteman presented the streamflow conditions throughout the Yellowstone Basin. Overall, the streamflow throughout the basin ranged between the lower portion of normal to slightly below normal at the beginning of WY25.

4.) Reservoir Operations and Storage Update

a. Reservoirs and Rivers of Special Interest:

i. Big Horn Reservoir (Clayton Jordan, BOR)

Mr. Clayton Jordan summarized the median inflow forecast for Yellowtail was 795KAF, which is below average. The reservoir is expected to fill provided that inflows are near median. Reclamation will continue to update the forecasts and adjust operations as needed. Mr. Jordan noted a public meeting on May 8th,2025.

ii. Buffalo Bill/ Boysen Reservoirs (Liz Cresto, BOR)

Ms. Liz Cresto and Mr. Jordan provided an update for the spring operating plans at Buffalo Bill and Boysen Reservoirs. Due to low precipitation during summer and the irrigation demand in 2024 the carryover was low going into WY25: Bull Lake is at 48% of average, Boysen was at 94% and Buffalo Bill was at 93%. Median inflow forecasts were 580 KAF and 608 KAF for Boysen and Buffalo Bill Reservoirs, respectively, and both are expected to fill.

iii. Lake DeSmet (Dave Schroeder, WY)

Mr. Dave Schroeder reported that as of April 1, Lake DeSmet was storing 195 KAF, 83% of capacity. The diversion tunnel opened on April 7th to begin filling the lake to approximately 90%. Mr. Schroeder noted that Lake DeSmet is not the best barometer for basin conditions as it typically carries over a large portion of storage.

iv. Tongue River Reservoir (John Lunzer, MT)

See Agenda Item 5.

v. Cooney and Glacier Reservoirs (John Lunzer, MT)

Mr. John Lunzer reported that Glacier Lake is still under snow and ice; Cooney Reservoir is likely close to full.

5.) Montana Call Guide Updates – John Lunzer

Mr. Lunzer reported that Tongue River Reservoir's current capacity was 59 KAF. Montana let Wyoming know on March 21 that they did not anticipate a call due to reservoir storage, winter conditions and the forecasted inflows. The gage on the dam was down during the winter but was replaced and data should be available on STAGE. Mr. Schroeder expressed appreciation for the early notification of no call and for having the sensor replaced.

6.) USGS Tongue River 2100 modeling updates – NCASC (Theo Barnhart-USGS)

Mr. Theo Barnhart shared they are currently working on building out the river system model in RiverWare. They are also building some natural flow estimates, which is useful for bias correcting the future streamflow estimates. They are working on a no cost extension for an additional year of outreach.

7.) Forecasting Improvements Discussion – Michelle Hubbard

Ms. Michelle Hubbard relayed that the Yellowstone River Compact Commission (YRCC) tasked the TAC to create a report for the Commissioners related to forecasting improvements in the basin. Mr. Scott Dummer shared that NOAA has made significant improvements to the unit graphs and routing between points in river forecast model for the Yellowstone Basin since the 2022 Upper Yellowstone River Flood. Mr. Jason Whiteman voiced his appreciation for the benefit and impact of the RiverWare model and data-driven forecasting on the Tongue River Water Management Plan and the importance to the Northern Cheyenne Tribe. Mr. Schroeder asked for an update related to the two new USGS snow stations. Mr. Barnhart relayed that locations were selected in the lower elevations in the Tongue River and Goose River basins for two new USGS snow stations to help augment the NRCS network. Mr. Barnhart was hopeful the new data would be online in the Fall of 2025 if everything goes smoothly. Mr. Barnhart added that the naturalized flow dataset will be included in the published report from the Tongue River 2100 project, which might be of use to NRCS and NOAA for improving forecasting. Mr. Chambers inquired whether the hydrologic forecasters were able to incorporate the new Army Corps weather stations into their forecasts. Ms. Lexi Landers replied that new stations need roughly twenty years of record before they can be incorporated into their forecast. Mr. Tony Anderson replied that in the short-term, they can benefit precipitation and snowpack estimates but in long-term modeling it will take time before they can help with water supply forecasts, except for a more accurate description of current conditions. Mr. Barnhart reported that he submitted a proposal to NASA for numerical modeling in the Tongue River, specifically to produce a geospatial dataset that may improve forecasting, but had not heard about the status. Ms. Landers emphasized that future weather has the biggest impact on forecasting improvements.

8.) Update to Annual Report – Open Discussion

The YRCC tasked the TAC to review the annual report and provide suggested edits or changes to the layout. Mr. Aaron Fiaschetti described potential changes/improvements to the report. The suggested edits include:

1. The meeting minutes are attached as an appendix with an overview of the water year, the work of the TAC, and any calls made included in the report;
2. Combine the stream gage operations and the summary of discharge for Yellowstone River Compact Sites into one section;

3. Include static stream gage information available as a link (Location, Drainage Area, Period of Record, etc.);
4. Combine reservoir contents with the month-end content of reservoirs; and
5. Providing links to the YRCC web page with the documents in the Appendix rather than attaching the documents to each annual report.

Mr. Fiaschetti, Ms. Hubbard and Mr. Mohrmann will work on a draft report encompassing the potential changes to the Annual report and share with the TAC members prior to the December YRCC meeting.

Mr. Fredrickson and Mr. Schroeder requested their agency affiliation to be changed to the Wyoming State Engineer's Office on the YRCC website.

9.) Northern Cheyenne Tribe's Drought Monitoring Program (Kevin Hyde, MT Climate Office, Jason Whiteman)

Mr. Kevin Hyde provided an update on the Drought Monitoring Program for the Northern Cheyenne Tribe on behalf of Mr. Jason Whiteman and the ongoing development of the Montana Mesonet network. In the Upper Missouri Basin in Montana, the Montana Climate Office is operating 43 stations in the Yellowstone drainage. Mr. Hyde reported the goal is to add eight stations in the Summer of 2025 while another 18 are planned for the Summer of 2026. These stations are a mix of HydroMet and AgriMet. Each station contains soil sensors to provide soil moisture monitoring. This network is largely a response to the 2011 flood in the Missouri River Basin. The Northern Cheyenne Tribe's Mesonet stations have 2 HydroMet and 2 Agrimet stations. The Climate office worked with the tribe to interpret the data and integrate the data from these stations into their water and drought management plans. All of the data are on the United States Army Corps of Engineers website under dam and water supply and regulation and are reported to the NWS to support forecasting. All data is public domain. The climate office developed a number of tools to interpret data over time and has integrated data into weekly drought assessments. The data was also used for research for drought assessment tools.

Mr. Jason Whiteman reported that the North Cheyenne Tribe has developed their own drought monitoring dashboard program using these sites, which includes a notification of varying levels of drought conditions. In extreme periods of drought the President of the tribe will also be notified.

10.) Upcoming Water User Meetings

Operations of Yellowtail Dam on May 8, 2025.

The Tongue River Advisory Committee will meet Wednesday April 16, 2025 and also met in March to discuss an annual operating plan. The group is working to develop a more formal document outlining irrigation water availability throughout the season.

11.) Confirmation of 2025 YRCC Meeting to be held in the afternoon on December 11 in Sheridan, Wyoming, with a virtual option available