

MEETING MINUTES
Yellowstone River Compact Commission
Technical Advisory Committee Spring Meeting
Thermopolis, Wyoming
April 7, 2015

The meeting was called to order at 8:30 a.m. by Sue Lowry.

1. Introductions

Meeting participants were introduced to the group. Beth Ross recently joined the State Engineer's Office to replace Jodee Pring. She will be participating in Technical Advisory Group meetings moving forward on behalf of the State of Wyoming. A full list of in-person and remote GoTo Meeting attendees can be found in Appendix 1.

2. Additions/Revisions to Agenda

No agenda additions or revisions were made.

3. Hydrologic updates

Wayne Berkas reported on the current conditions for numerous stream gages throughout the Yellowstone River System. Normal conditions were reported for the gages at Clarks Fork, Little Bighorn, Tullock, Tongue River at state line, Miles City, Middle Fork and Moorhead at state line (both almost at below normal conditions). Kirk Miller reported that many sites were pushing about 75% of normal, and some pushing new maximum conditions due to early snowmelt. Bull Lake and Shell Creek were above normal. Art Hayes confirmed that no TRWUA irrigation was occurring at that time.

4. 2015 runoff forecasts

Wyoming -- Lee Hackleman with the NRCS in Casper, WY reported on Wyoming water supply conditions:

- Wind River Basin
 - Snow water equivalent (SWE) measurements throughout the basin ranged from 6-106%. Basin-wide SWE was 68% of median. The SWE peak occurred on March 12 which is about one month earlier than average. Precipitation was at 81% of average; last year at this time the basin was at 128%. At this time, water supply conditions in the basin were approaching all-time lows.
- Bighorn River Basin
 - The conditions for the basin were looking slightly better with SWE ranging from 47-106% and a median of 84%. Peak SWE was reached on March 25th (compared to April 12th in 2014). Precipitation was at 87%.
- Shoshone River Basin
 - This basin looked to be in the best shape in terms of snowpack with a range of 32-94% and median of 77% of SWE and peak SWE occurring on March 1st (compared to April 18th in 2014). Precipitation was at 95%.
- Yellowstone River Basin

- The entire basin SWE ranged from 43% - 106% with an 84% median. SWE peaked on March 25th (average occurs on April 22nd). Precipitation was at 91%. The Clarks Fork was the only tributary in the basin at above 100%.
- Powder River Basin
 - SWE ranged from 68-100% with a median at 85% and a peak that occurred on March 11th (average is April 11th). Precipitation was at 87% of normal; last year's SWE was at 159%.
- Tongue River Basin
 - This basin saw SWE ranging from 0-88% with a median of 77% that peaked on March 10th (average occurs on April 8th). The snowpack was nearing its lowest peak ever and forecasts for Tongue River Reservoir inflow were likely to be at 50% of normal (146k AF).

Mr. Hackleman noted anecdotally that this year seemed as dry as 1977. Loren Smith commented that he had never seen a snowpack like this year, which had a hard crust, few crystals, and wet/dense snow that would likely melt fast. Carmine LoGuidice also commented that it was too hot to conduct snow survey the prior week due to a lot of soil infiltration because of little to no frost and slush.

Montana -- Luke Zukiewicz with the NRCS in Bozeman, MT gave a PowerPoint presentation on the conditions in Montana's portion of the basin.

- Upper Yellowstone
 - SWE was reported at 81% of normal. Some higher elevations retained snowpack but some substantial declines were seen since March 1st.
 - January brought temperatures well above normal (i.e.- 71°F on January 25th) with snowpack declines in the upper Yellowstone in February. By March, temperature forcing and sunny days contributed to substantial snowmelt.
- Basin-wide
 - SWE variability was high as of April 1st. Monthly precipitation ranged from 0-74% on average. The Wind River basin was the second lowest on SNOTEL record. Clarks Fork was the only above normal segment in the basin.
 - Overall, it was shaping up to be an anomalous dry year for Montana due to lack of snowfall and low elevation snowmelt. Basinwide precipitation was 43% of average, and Wyoming's portion to-date was 92%. Streamflow forecasts were ranging from 82-86%.

Sue Lowry inquired if manual sites could be incorporated into the Wyoming snowpack report. Luke confirmed that the northern half of manual data reports is available. Loren Smith also stated that manual and SNOTEL data are posted on Wyoming's Snow website to include the Wind River Basin.

NOAA -- Chris Jones from the National Weather Service office in Riverton provided NOAA weather updates:

- A ridge of high pressure intensified high temperatures in the area driving the mean temperature up. The temperature for the water year was in the warmest 10% range.
- Above normal temperatures were contributing to earlier snowmelt, already peaked snowpack and probably below normal precipitation forecasts for the remainder of 2015.

- The El Niño pattern was projected to be weak through the fall with a possibility to strengthen toward the end of the year.
- The April 2015 outlook showed a 30% chance for above normal precipitation.

Carmine LoGuidice commented that the Tongue River peak flows would likely occur sooner than normal; Mr. Jones stated that the potential for river flooding was 25%.

Other federal agencies -- There was no attendance from other federal agencies.

5. Reservoir Operations and Storage

- Bighorn, Buffalo Bill, Boysen Reservoirs – Loren Smith, WY
 - Bighorn -- Current storage was at 84% of capacity (859k AF); the April 1st forecast was for 675k AF.
 - Buffalo Bill – Current storage was at 75% of capacity, which was about normal. The forecast was for 81% of average.
 - Boysen – The reservoir was at 80% of capacity and in good shape for carryover storage. The April 1st forecast was down from March 1st forecast. Bighorn and Midvale irrigation canals were already turned on at the time of this meeting.
 - Bull Lake – Storage was in good shape and at normal levels. Storage was beginning at the time of this meeting.
 - Greybull – The three reservoirs were full at the time of this meeting and deemed to be in good shape for storage.
- Lake DeSmet – Carmine LoGuidice, WY
 - The reservoir stored water all winter and was almost at full capacity at the time of this meeting. Ownership issues have been settled for the reservoir and that Johnson County is the owner of most of the appropriations. The Wyoming Game & Fish Department lease was completed in 2014 for about 60k AF.
- Tongue River Reservoir – Art Hayes, TRWUA
 - Over the course of the winter storage was around 50k AF. At the time of the meeting storage was 57,626 AF with 95 cfs outflows. Releases were being held back until a call would be made.
- Tributaries to Clark’s Fork – Kevin Smith, MT
 - Cooney Reservoir needed to fill another 7 feet until full.

6. *Montana v Wyoming Special Master’s Report*

Sue Lowry reported that the Special Master’s Report was delivered in December 2014. The deadline for both states to file exceptions was April 9th.

7. Reservoir assignment (Table 10)

A discrepancy in Bureau of Reclamation reported numbers and “dead pool” amounts in Table 10 were discussed at the Spring 2014 TAC meeting. It was suggested at this meeting that the title for the “Usable Contents” column in the report be changed to “Total Contents” and that a footnote should be added to indicate that the numbers reflect maximum including deadpool. An additional column could also be added to reflect “Total Permitted.” Loren Smith and Wayne Berkas agreed to coordinate how to make these changes for the 2014 Annual Report.

8. Produced water quality trends in the Tongue and Powder River Watersheds

Steve Sando from the USGS Wyoming-Montana Water Science Center in Bozeman, MT presented on coalbed methane produced water effects on water quality in the Tongue and Powder River Basins. A key conclusion of the work is that CBM development had a significant effect on water quality (e.g. increased SAR, sodium and alkalinity) in the Powder River at Arvada, Wyoming and Moorehead and Locate, Montana USGS stations. A link to the summary of his research can be found [here](#).

9. Coalbed Natural Gas

Montana – Amy Steinmetz reported that few natural gas wells remain in production in the basin. The Montana DEQ is starting a TMDL study on the entire Tongue River and will model at what is happening there. They are still waiting on EPA approval on electrical conductivity.

Wyoming – Beth Ross reported that due to reduced activity, Wyoming Oil and Gas Conservation Commission and DEQ bonds are being utilized for reclamation. Carmine LoGuidice added that some wells are being reclaimed but most are being converted to stock watering wells with a reduction in total volume. Kirk Miller stated he would like to get more GIS-formatted information on the cumulative number of permitted ponds in the Powder River Basin that may have an effect on streamflow characteristics and peak flows. Mr. LoGuidice confirmed that the WSEO's ePermit database would be the most useful which would provide latitude and longitude coordinates for reservoir locations that have been inspected. Sue Lowry stated that the SEO and WDEQ may have internally generated GIS maps and data generated that have useful information on Powder River tributaries. Loren Smith also mentioned that a private consulting firm has developed a proprietary web-based GIS interface of water rights information for Wyoming, in addition to other states, that could be accessed for a fee.

10. Upper Missouri Streamflow Study

Sue Lowry and Mark Elison reported that a current USGS study is looking at reconstruction flow and groundwater levels using cottonwood tree rings along the Missouri River. The results from this study are not available yet but she offered to share them when available.

11. State line monitoring well network update

Wayne Berkas informed the group that the Montana Bureau of Mines and Geology statewide network of monitoring wells has been in place since the 1970s. The network expanded to capture information about groundwater level drawdown due to coalbed methane development in Montana and Wyoming. A report on the findings is issued around this time every year and can be found on the Bureau of Mines website.

12. State Adjudications

Montana – Kim Overcast reported that on the Tongue River, no provisional surface water rights were granted in 2014. On the Powder River there were concerns about soil salinity. A recent MOU between the DNRC and MT DEQ requires a water right pre-determination by the DNRC before final subdivision plat approval will be granted by DEQ. All small groundwater notices must be reviewed and limitations on the quantity of water for these rights are designed to help limit the number of new wells. For closed basins, mitigation for consumptive use and the rate/time/location must be put in place and go through the DNRC.

Wyoming – Carmine LoGuidice reported that there were 62 surface water adjudications during the last year in Division II. Forty six were in the Yellowstone Basin, most were stock reservoirs and some were irrigation rights. There were 131 stock endorsements in the Division with 19 in the Yellowstone Basin. Loren Smith reported 62 inspections remaining in Division III with 19 proofs completed since January 2015. The majority were small domestic water rights and no big irrigation rights. There were 21 instream flow filings on the inventory but those will likely take four years to adjudicate. His staff is adding temporary instream flow gages to collect data on the 8-9 segments that are monitored now. A Wyoming Water Development Commission study is evaluating potential additional storage sites for the Wind River Basin, which may mean new present-day permitting awards for Wind River Tribes who are the project sponsors.

13. YRCC Website

Wayne Berkas will post 2014 TAC meeting minutes when finalized.

14. 2016 TAC meeting

Montana is set to host the next TAC meeting. It was decided to hold the meeting on April 12th, location to be determined.

The conference call and Go To meeting concluded at 11:45am.

Appendix 1:
 Yellowstone River Compact Commission
 Technical Advisory Committee Spring Meeting Attendees
 Conference Call and GoTo Meeting
 April 7, 2015

Name	Agency	Email
Wayne Berkas	USGS	wrberkas@usgs.gov
Mark Anderson	USGS	manders@usgs.gov
Loren Smith	WY SEO	loren.smith@wyo.gov
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Art Hayes	Tongue River Water Users Assoc.	browncattle@rangeweb.net
Chuck Dalby	MT DNRC	cdalby@mt.gov
Kevin Peterson	MT DNRC	kpeterson@mt.gov
Amy Steinmetz	MT DEQ	asteinmetz@mt.gov
Kirk Miller	USGS	kmiller@usgs.gov
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Sue Lowry	WY SEO	sue.lowry@wyo.gov
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