

# YELLOWSTONE RIVER COMPACT COMMISSION

## WYOMING

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## UNITED STATES

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U. S. Geological Survey  
3162 Bozeman Avenue  
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## MONTANA

JAN LANGEL  
ADMINISTRATOR  
Water Resources Division  
Montana Dept. of Natural Resources and  
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Honorable Mark Gordon  
Governor of the State of Wyoming  
Cheyenne, Wyoming 82002

Honorable Greg Gianforte  
Governor of the State of Montana  
Helena, Montana 59620

Honorable Doug Burgum  
Governor of the State of North Dakota  
Bismarck, North Dakota 58501

Dear Governors:

Pursuant to Article III of the Yellowstone River Compact, the Commission submits the following sixty-eighth annual report of activities for the period ending September 30, 2019.

### **Minutes of December 4, 2019**

Members of the Yellowstone River Compact Commission convened December 4, 2019, at 8:00 a.m. In attendance were Mr. John Kilpatrick, U.S. Geological Survey (USGS), Chairman and Federal Representative; Mr. Greg Lanning, Wyoming State Engineer's Office (SEO) and Commissioner for Wyoming; and Mr. Jan Langel, Montana Department of Natural Resources and Conservation (DNRC) and Commissioner for Montana. Also in attendance were Ms. Samantha Swartz, Mr. Loren Smith, Mr. David Schroeder, and Ms. Amelia Rothleutner, SEO; Mr. Mark Elison, Ms. Christine Schweigert, Ms. Melissa Schaar, and Mr. Brian Holling (via phone), DNRC; Mr. Chris Brown, Wyoming Attorney General's Office; Mr. Art Hayes, Jr. and Ms. Shanny Spang Gion, Tongue River Water Users Association (TRWUA) ; Mr. Jason Whiteman, Northern Cheyenne Tribe (NCT); Mr. Clayton Jordan, U.S. Bureau of Reclamation (USBR); Mr. Todd Chambers (via phone), National Weather Service (NWS); and Mr. Kirk Miller and Mr. Seth Davidson, USGS.

Chairman Kilpatrick called the meeting to order at 8:00 a.m.

Mr. Kilpatrick welcomed the attendees. Those in attendance and on the phone introduced themselves.

Mr. Greg Lanning was introduced as the new Wyoming Commissioner.

Mr. Kilpatrick asked for a review of the proposed agenda for acceptance.

Mr. Lanning requested that Agenda Item 10 be renamed "Update on Wyoming Water Development Projects".

Mr. Langel requested the appointment of Ms. Schweigert and Ms. Schaar to the Technical Advisory Committee be added to Agenda Item 8.

Mr. Brown requested the discussion of the Lake DeSmet feasibility study and potential lease between the Northern Cheyenne Tribe and the State of Wyoming be added to Agenda Item 11.

The revised agenda was approved.

Mr. Kilpatrick requested a report on the Commission budget.

Mr. Miller presented a document (Appendix A) detailing the operational costs for fiscal year (FY) 2020 and estimated future costs.

Mr. Smith asked about the different costs of Compact gages versus other agreements.

Mr. Kilpatrick replied that these USGS gages are part of the Compact and have been grandfathered in with a higher USGS funding contribution than is typically available to current agreements.

Mr. Miller added that these gages are part of a joint-funding agreement that is separate from other gages within the WSEO and MTDNRC networks.

Mr. Smith commented that future budget costs are included in this report for WSEO and MTDNRC to plan their biennial budgets.

Mr. Lanning asked if each year's increase was due to inflation costs.

Mr. Miller responded that inflation and the USGS funding being held flat is the reason for the approximate 3% increase each year.

Mr. Lanning asked if this agreement is bound by a term.

Mr. Miller replied that the WSEO portion is an annual agreement on the federal fiscal year and the MTDNRC portion is renewed each Montana State fiscal year. Mr. Miller also mentioned that multi-year agreements are a possibility for interested cooperators.

The budget was approved.

Mr. Schroeder presented new and historic surface-water rights information including identification of which are pre- and post-January 1, 1950 water rights. In addition, Mr. Schroeder provided a USB flash drive of this information to the Commissioners, their designees, and the Compact Secretary.

Mr. Schroeder asked the Commissioners for guidance on this information exchange which was mandated by the Final Judgment and Decree.

Mr. Langel would like the Technical Advisory Committee (TAC) to examine the issue and proposed that only updates to the reports be exchanged each year.

Mr. Schroeder agreed this was possible but cautioned that that method could present a challenge with version control.

Mr. Schroeder continued that the Final Judgment and Decree decided that each state shall produce groundwater pumping information in the Tongue and Powder River Basins upon request. Mr. Schroeder noted that neither state has issued a request for this information.

Mr. Brown clarified that after the Judgment and Decree, both states issued an open-ended request for the groundwater information.

Mr. Brown commented that this topic had been discussed at the 2018 annual meeting and both states questioned the value of this request based on the scarcity of groundwater information collected by Wyoming and Montana in Tongue and Powder River Basins. However, a resolution on how this information needed to be shared was never reached.

Mr. Langel proposed that an information exchange of groundwater activities in the Tongue and Powder River Basins be conducted every five years.

Mr. Lanning agreed that proposal would be acceptable as minimal groundwater use takes place in these basins.

Mr. Elison noted that the TAC plans to workout formats, times, deadlines, and content of these reports for the Commission.

Mr. Lanning added that the exchange of information should be more formal than emails in order to track and document the exchange.

The Commissioners made a formal request that the TAC examine this issue and provide a format and timeline for the exchange of groundwater information in Tongue and Powder River Basins. In addition, the Commissioners from Wyoming and Montana accepted the lack of information change for the past year.

Mr. Kilpatrick requested the streamflow conditions and reservoir contents reports.

Mr. Miller presented a report of the 2019 water year streamflows of Compact gages (Appendix B).

Mr. Davidson presented a 2019 water year summary of reservoir contents of interest to the Commission (Appendix C).

Mr. Kilpatrick requested an update on the 2019 water year administration highlights from Wyoming.

Mr. Lanning stated that Mr. Schroeder and Mr. Smith would be providing the updates for their Divisions.

Mr. Smith reported that Division III streamflows were approximately 115 percent of average. Stream administration was required on five different streams and occurred later than normal for the basin. Overall, it was a good year with plenty of water and minimal regulation.

Mr. Schroeder provided highlights of the Powder River and Tongue River Basin. In the Tongue River Basin, there was poor snowpack into the late spring, however many rain and snow showers took place in May. As a result of the amount and timing of precipitation, the area west of Sheridan flooded. Streamflows were 120-160 percent of average and minimal regulation was needed in the basin. Tongue River Reservoir filled on May 17 and Montana did not need to make a call under the Compact. A seep in Cross Creek Reservoir's dam was repaired and the monitoring instrumentation is back online as of September. A new gage was installed on Wilderness Creek in the Big Goose drainage. The Powder River Basin received late spring precipitation which staved off regulation until late July. Lake DeSmet initiated releases early as rights were filled by May 20. A new streamgage was constructed on the North Fork Powder River below Dull Knife Reservoir. In summary, Division II saw an abundance of water and minimal regulation.

Mr. Lanning noted forecasting will be difficult for unusual weather like that observed this year.

Mr. Schroeder added that Todd Chambers and the National Weather Service provided good forecasting and public outreach.

Mr. Kilpatrick asked for an update of the 2019 water year administration highlights from Montana.

Mr. Langel presented a handout (Appendix D).

Mr. Holling provided a report of the reservoirs operated by MTDNRC. Tongue River Reservoir reached 50,000 acre-feet (ac-ft) of storage on January 22, 2019 with additional gains in February and March. The dam began spilling on May 19 and continued until July 17, 2019. The reservoir peaked at an elevation of 3,431 ft in June and returned to the 50,000 ac-ft level in September and continued to drop during the fall. The current storage of the reservoir was approximately 50,000 ac-ft.

Mr. Schroeder asked if historical data is available for Tongue River Reservoir.

Mr. Holling replied that MTDNRC would be able to provide that data upon request.

Mr. Smith inquired if the reservoir data are transmitted.

Mr. Holling answered that a modem is used to retrieve data from their instrumentation, but MTDNRC is looking to upgrade the system.

Mr. Kilpatrick asked for a report of the Technical Advisory Committee activities.

Mr. Lanning nominated Ms. Swartz to the TAC.

Mr. Langel nominated Ms. Schaar and Ms. Schweigert to the TAC.

Mr. Kilpatrick asked MTDNRC if there would be a lead contact for the TAC from Montana.

Mr. Langel replied that Ms. Schaar would fulfill that role.

Mr. Smith commented that the TAC suffered from the loss of Mr. Chuck Dalby and Ms. Beth Callaway from the Committee and welcomed the new TAC members.

Mr. Smith noted that to his recollection there has never been an official nomination of appointment to the TAC.

Mr. Kilpatrick agreed that the TAC membership has been less formal and asked who the active members are.

Mr. Smith replied that historically for Wyoming, the Superintendents of WSEO Divisions II and III as well as a representative from the Interstate Streams Division in Cheyenne have been members.

Mr. Elison added that MTDNRC has three members on the TAC also.

Mr. Kilpatrick asked if other Federal agencies are members.

The attendees noted that employees of the NWS, USBR, USGS, and US Natural Resources Conservation Service partnered with the TAC.

Mr. Kilpatrick stated that the TAC has been assigned important tasks by the Commission including making recommendations on how to follow mandates from the Final Judgment and Decree and improving forecasting methods to assist with the administration of the Compact. Mr. Kilpatrick asked if the TAC needs to be reformulated or needs some additional support from the Commission fulfill its purpose.

Mr. Elison replied that the TAC should be well positioned to fulfill the tasks assigned to it with the newly appointed members.

Mr. Elison noted that the TAC made significant progress on improving forecasting in the Tongue River Basin by working with Federal partners, and most recently efforts with the USBR seem most promising.

Mr. Smith commented that there is an opportunity to work more with Federal partners and noted the work that the USBR-Mills office is performing in relation to lowland snowpack and elevation banding to improve forecasting.

Mr. Kilpatrick expressed a desire to help the TAC accomplish the tasks assigned to it and encouraged the TAC to make recommendations and requests for assistance to the Commission.

Mr. Jordan mentioned that the USBR is also looking at more accurate forecasting and working on developing better management practices based on the risk associated with forecasting error.

Mr. Kilpatrick noted that the USGS has multiple modeling efforts that could be tapped to assist the TAC.

Mr. Kilpatrick requested an update on Bighorn Lake operations.

Mr. Smith described the Riverware simulation modeling work being done over the past 3 years with the Bureau of Reclamation. One of the deficiencies of old reservoir management system was a monthly time step which made reaction to model results slow. During extreme years the timestep was later decreased to 15-days and now a daily timestep model has been created in Riverware. The Bighorn Lake operating plan has been fully incorporated into the latest model. The old system and new model will be run parallel

starting on January 1, 2020; however, decisions will be made using the old model until a comfort level is reached.

Mr. Jordan clarified that the new model will be used for decisions. Not only does the new model provide a smaller timestep it is more automated and requires less user input than the old model allowing for more scenarios to be run.

Mr. Smith noted that a new, similar Riverware based model is being developed for Boysen Reservoir.

Mr. Kilpatrick asked if there was a reservoir simulation model from the Army Corps of Engineers (ACoE) that served as the physical model and Riverware was ran as an accounting model from that information?

Mr. Jordan replied that the NRCS and NWS are the sources for inflow forecast data that Bighorn Lake uses for operations. The ACoE run-off models are separate, however they are in the process of updating them.

Mr. Miller noted that more sophisticated models typically have additional data needs and if those needs are identified they should be submitted to the TAC to consider for recommendations to the Commission.

Mr. Kilpatrick asked for a report on the Upper Missouri Monitoring Network.

Ms. Swartz replied that the recent flooding in the Missouri River Basin prompted the ACoE to increase monitoring at low elevation (plains) sites. The ACoE has approached WSEO with a proposal to install up to 55 weather stations in the Wyoming portion of the Missouri River Basin. WSEO is also looking at improving the four current weather stations that monitor humidity, temperature, and precipitation by adding soil moisture and snow depth sensors. ACoE plans to deploy a basic installation every 500 square miles and an upgraded installation every 1,000 square miles and has already selected the locations.

Mr. Smith noted that by coordinating this effort with the WSEO, NWS, and ACoE all parties would improve their datasets and that the sites could be chosen to provide the highest benefit to all.

Ms. Swartz replied that there are ongoing conversations with the ACoE to finalize the specifics about placement of new stations and funding.

Mr. Langel asked if the Commission has ever made recommendations to other Federal and State agencies to encourage cooperation with the Yellowstone River Compact Commission and other partners.

Mr. Smith replied that the Commission has done so in the past, generally through letters of support.

Mr. Kilpatrick agreed and was supportive of a letter to the ACoE.

Mr. Lanning noted that the approach to selecting locations for new ACoE meteorological stations has been scientific so far. Mr. Lanning then asked if the intent of this recommendation was to suggest the proposed sites be placed closer to existing locations and resources?

Mr. Langel replied that the purpose would be to provide input on the placement of these stations so they could be useful to both the Commission and ACoE.

Mr. Lanning agreed that a letter is appropriate and asked if the ACoE has initiated any requests for input.

Ms. Swartz responded that there has lately been a lapse in communication with the ACoE due to a vacant position.

Mr. Lanning moved that the Commission prepare a letter to the ACoE to encourage cooperation with the YRCC. The motion passed.

Mr. Brown and Ms. Swartz were assigned to work on a draft letter for the Commissioners' input.

Mr. Brown noted that Article 3D of the Compact requires the Secretary of the Army to cooperate with the Commission in collecting data necessary for the administration of the Compact.

Mr. Kilpatrick requested an update from each state on water-rights adjudication in the basin.

Mr. Langel provided a summary of adjudication activities in Montana. The 2017 Montana Legislature passed House Bill 10 which reopened claim filing for water rights claims from 1979-1982. During that time instream stock, instream direct, and certain groundwater water rights were exempt from filing. The Legislature decided to give users an opportunity to file for those rights. The deadline was June 30, 2019. 25,000 claims were filed from across the State as a result. MTDNRC currently does not have the staff or resources to process these claims and is working with the Water Court to determine how to address them. For basins of interest to the Commission, the Powder River, Tongue, and Bighorn Basins received approximately 180 claims, 350 claims, and 230 claims, respectively.

Mr. Smith provided a summary for WSEO Division III. Division III saw 107 new surface-water proofs of appropriation taken and seven new groundwater rights inspected, Staff completed 36 dam safety inspections, and verified 121 proposed NRCS projects in water-year 2019. In addition, Division III processed 22 surface-water change petitions and two groundwater petitions.

Mr. Schroeder provided a summary of WSEO Division II. Division II continues to manage the after effects of coal-bed methane development by working with operators and landowners to reclaim, decrease capacity, or convert past reservoirs to stock facilities. Division II staff performed 79 reservoir inspections and completed 107 dam safety inspections. In addition, 35 reservoirs were adjudicated, and 17 stock reservoirs were endorsed as having been built within the terms of their permits. Division II adjudicated 21 pump/pipeline diversions, four ditch enlargements, and five groundwater adjudications. Division II finalized 18 surface water petitions and three groundwater petitions. Division II verified approximately 20 NRCS projects.

Mr. Kilpatrick requested an update of the Wyoming Water Development Projects.

Mr. Smith provided a report of the projects within Division III as per the the previous governor's water strategy. The Hydrographer's Manual has been completed for four years. The Credible Data issue has mostly been satisfied with the WSEO annual hydrographer reports and other efforts to release data. Division III has two "Ten in Ten" projects; Levitt Reservoir sponsored by Shell Valley Watershed Improvement District and Alkali Creek Reservoir for the Nowood Watershed Improvement District. There is an existing Levitt Reservoir with a total capacity of 643 ac-ft, however and a new dam will be constructed to increase the total capacity to 6,604 ac-ft. 5,104 ac-ft will be available for irrigation and the

remaining amount will be held in a conservation pool. NEPA is complete and the final EIS was published by BLM in May. The final design for the project is on-going with bidding expected to begin in late 2020. Construction will take two years and the first fill is expected in 2023. This reservoir will supply late season irrigation for Shell Valley. The Levitt project is a \$46 million project, 96% grant and 4% loan. Alkali Creek Reservoir in the Paint Rock and Medicine Lodge Creek drainage is sponsored by the Nowood Watershed Improvement District and will have a 8,000 ac-ft capacity, 6,000 ac-ft for irrigation with the remaining 2,000 ac-ft held in conservation. NEPA is complete the final EIS was published by BLM in May. A contractor is performing additional modeling of the flows of the Nowood River as Wyoming Game and Fish had concerns about dewatering of the Nowood River and the potential for idle acres being reactivated. This is a \$59 million project which is more than was projected due to difficult foundation conditions. Once the funding is in place, the project could be ready to bid by the end of 2021, putting the first fill in 2024.

Mr. Langel asked how these reservoirs would be filled?

Mr. Smith replied that that the reservoirs would be filled with winter flows, however Levitt would also use high spring flows. Alkali would store water from Alkali Creek where it is on channel as well as its primary fill sources of Medicine Lodge Creek and Paint Rock Creek through the Anita Ditch. Leavitt Reservoir will be filled from Beaver Creek a tributary to Shell Creek.

Mr. Schroeder reported that there is one reservoir identified for the “Ten in Ten” Project in Division II, Bull Creek Reservoir. This project has seen little movement as there are prohibitive project costs, placing the project total at over \$100 million. Clear Creek would be the source by either drilling a mile-long tunnel or using the City of Buffalo’s municipal diversion through a pipeline. The storage would be approximately 15,000 ac-ft with beneficial uses for French Creek irrigators, the City of Buffalo, and recreation. The project is pursuing Federal funding.

Mr. Schroeder then continued with a report of reservoir elevation gages that are of interest to the Commission. All gages are now functioning after the Cross Creek Reservoir gage had to be moved to a deeper pool.

Ms. Swartz provided an update of the weather modification project. There were no modifications this year in the Bighorn Mountains. This was the first year aerial cloud seeding was performed as part of this project and the Medicine Bow and Sierra Madre Mountains were the targets.

Mr. Kilpatrick asked for an update on the Wyoming water planning and other activities.

Ms. Swartz reported that Wyoming is developing a Statewide water infrastructure database with the final report due this month. The goals are to have a direct method of assessment of water needs in the State and create a means of communicating those needs to partners and the public.

Ms. Swartz continued by reporting about work on the National Hydrography Dataset for the USGS StreamStats web application which will conclude December 2020.

Mr. Brown wished to inform the Commission and those present that the State of Wyoming purchased approximately 62,000 ac-ft of Lake DeSmet as part of Wyoming’s Water Plan. The State is exploring ways to utilize that water, including the feasibility of using that water as a replacement for water owed to

Montana under a call. Wyoming may also engage in discussions with the Northern Cheyenne to reach an agreement for an exchange of Tongue River Reservoir water or other interests.

Mr. Elison noted that conveyance loss and timing issues are potential issues.

Mr. Kilpatrick opened discussion of the YRCC Annual Report and website.

Mr. Schroeder noticed that the website had been updated and the Annual Reports were difficult to find, including reports after 2016. Mr. Schroeder asked for background information and a progress update.

Mr. Davidson replied that the new look was due to national USGS efforts that required updated webpage formats. With the new format, there are new permissions to edit the webpage and other individuals must be contacted to make any changes.

Mr. Davidson informed the Commission that the 2017 Annual Report is in editorial review and should be available early 2020. The 2018 report will incorporate the updated Table 10 and should be available mid-2020. The goal for the 2019 report is to have available before the December Annual Meeting in 2020. The 2019 TAC meeting notes will also be posted on the website.

Mr. Kilpatrick requested that a Resolutions of Appreciation be read.

Mr. Lanning announced that he was honored to recognize the service of Mr. Patrick T. Tyrrell to the Yellowstone River Compact Commission and read the Resolution (Appendix E) as part of the official record of the meeting. Mr. Lanning motioned that the Resolution be approved. The motion passed.

Mr. Kilpatrick invited comments from the public.

Mr. Whiteman recognized the importance of the YRCC and noted that the Northern Cheyenne Tribe are intermingled in the Compact even though they are not a signatory. While the NCT has a water rights through a Compact with the State of Montana and their water rights are approved by Congress, there is a role for them to fulfill in with the Yellowstone River Compact.

Mr. Hayes stated that the TRWUA board has expressed concerns about salinity in the Tongue River and is interested in initiating a study to determine the sources. The TRWUA is also interesting in looking at privately funded off-channel storage sites.

Ms. Spang Gion noted that the TRWUA is investigating climate adaptation projects on a basin-wide scale and has been in discussions with the North Central Climate Adaptation Science Center. The hope is to start a project under the TRWUA or the Tongue River Watershed Alliance which is part of the Montana Watershed Coordination Council.

The Commission decided to hold the next YRCC Annual Meeting in Montana (location to be determined) on December 2, 2020.

The Technical Advisory Committee proposed a meeting date of April 9, 2020 in Montana (location to be determined).

Mr. Kilpatrick asked for final comments from the attendees.

Ms. Swartz noted that she was looking forward to the letter of support for the ACoE.

Ms. Spang Gion proposed a topic for the next TAC meeting to discuss the data and science-based projects being completed by non-State and Federal agencies and how they could be used by the Commission.

Mr. Langel stated that the second annual Montana Water Summit will be held March 2 and 3, 2020.

Mr. Brown asked who in Montana to be in communication with as the feasibility study for Lake DeSmet progresses. Mr. Langel responded that he would like to be the point of contact.

Mr. Schroeder added that a public meeting concerning the feasibility study will be held in the near future and he will be providing Montana with that information.

Mr. Davidson welcomed any future input on the YRCC website.

Mr. Jordan stated that the Department of Interior is reorganizing according to river basins. While Montana and Wyoming are restructured in different basins, the operations at Bighorn Lake will remain the same.

Mr. Whiteman noted that the NCT developed a final draft of a water lease plan that will be a template for future water use availability efforts. In addition, the NCT would be interested in purchasing two meteorological stations.

Mr. Schaar stated she was excited to be part of the YRCC TAC.

Mr. Kilpatrick adjourned the meeting at 11:35 a.m.



Greg Lanning  
Commissioner for Wyoming



Jan Langel  
Commissioner for Montana



JOHN KILPATRICK  
2020.11.25  
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John M. Kilpatrick  
Chairman and Federal Representative

## Yellowstone River Compact Commission Budget

### FY 2020 costs

Clarks Fork Yellowstone River at Edgar	\$16,810
Little Bighorn River near Hardin	16,810
Bighorn River above Tullock Creek, near Bighorn	16,810
Tongue River at Miles City	16,810
Powder River near Locate	16,810
Report	31,250
	\$115,300

WSEO	\$32,675
MDNRC	\$32,675
USGS	\$49,950

### Estimated future cost

Year	WSEO	MDNRC	USGS	Total
FY 2021	\$33,665	\$33,665	\$49,950	\$117,280
FY 2022	\$34,655	\$34,655	\$49,950	\$119,260
FY 2023	\$35,690	\$35,690	\$49,950	\$121,330
FY 2024	\$36,780	\$36,780	\$49,950	\$123,510

## Appendix B

### Streamflows at Yellowstone River Compact streamgages, water year 2019.

1. Clarks Fork Yellowstone River at Edgar, Montana; minus diversions to White Horse Canal
  - 965,700 ac-ft
  - 81 year period of record
  - 13<sup>th</sup> largest; 85.0<sup>th</sup> percentile; 128 percent of average (statistics for Clarks Fork River unadjusted streamflows)
  - Record low year was WY2001 with 466,660 acre-ft
  
2. Bighorn River near above Tullock Creek near Bighorn, Montana; minus Little Bighorn River near Hardin, Montana; plus Agency Canal Tailwaste near Hardin, Montana; and adjusted for change in contents in Bighorn Lake
  - 3,127,700 ac-ft
  - 53 year period of record
  - 13<sup>th</sup> largest; 76.9<sup>th</sup> percentile; 123 percent of average (statistics for Bighorn River unadjusted streamflows)
  - Record low year (with adjustments) was WY2002 with 923,000 acre-ft
  
3. Tongue River at Miles City, Montana
  - 501,300 ac-ft
  - 76 year period of record
  - 6<sup>th</sup> largest; 93.3<sup>rd</sup> percentile; 168 percent of average
  - Record low year was WY1961 with about 41,400 acre-ft
  
4. Powder River near Locate, Montana
  - 733,700 acre-ft
  - 81 year period of record
  - 6<sup>th</sup> largest; 93.7<sup>th</sup> percentile; 177 percent of average
  - Record low year was WY2004 with about 57,400 acre-ft

Total adjusted streamflows for the four basins in WY2019 was 5,328,400 ac-ft

Compare to 6,276,300 ac-ft in WY2018 and 6,498,000 ac-ft in WY2017

## Storage in main reservoirs as of September 30, 2019

### **Reservoirs completed after January 1, 1950**

Bighorn Lake	999,265 acre-ft	(change of 47,166 acre-ft)
Boysen Reservoir	647,649 acre-ft	(change of -5,317 acre-ft)
Anchor Reservoir	463 acre-ft	(change of -28 acre-ft)

### **Reservoirs existing on January 1, 1950**

Bull Lake	86,068 acre-ft	(change of 4,403 acre-ft)
Pilot Butte Reservoir	16,088 acre-ft	(change of -449 acre-ft)
Buffalo Bill Reservoir	487,014 acre-ft	(change of -2,370 acre-ft)
Tongue River Reservoir	48,476 acre-ft	(change of -877 acre-ft)

Contents of the above reservoirs at end of water years:

Water Year	Contents (acre-ft)
2019	<sup>1</sup> 2,285,023
2018	<sup>1</sup> 2,242,495
2017	2,449,580
2016	2,015,000

<sup>1</sup>The WY 2019 and WY 2018 values are not a direct comparison to previous years due to the difference of reporting “contents” instead of “useable contents”.

## Storage in additional reservoirs as of September 30, 2019

Contents of additional reservoirs at the end of water years:

Water Year	Contents (acre-ft)
2019	382,958
2018	366,614
2017	413,920

Appendix D

**Water Right Activity in the Yellowstone Basin, Montana  
12/2018 to 12/2019**

**Clarks Fork Basin**

1 new permit from ditch waste water

2 changes to points of diversion

37 602's (mostly in the Rock Creek drainage that is closed to new appropriations)

2 605's

**Yellowstone – Clarks Fork to Big Horn**

4 new permits

2 from groundwater for west Billings subdivisions

2 from UT to the Yellowstone River

74 602's (mostly in the Billings area)

2 605's

**Big Horn Basin** (Closed to new appropriations by Crow Compact)

5 changes (3 for points of diversion, 2 conversions from flood to center pivot sprinklers)

5 602's

2 605

**Yellowstone – Big Horn to Tongue**

1 change (add stock tanks)

11 602's

12 650's (Temporary Leases, all north of the Yellowstone. Statute expired June 30, 2019)

**Tongue River Basin**

13 602's

1 605

**Yellowstone – Tongue to Powder**

8 602's

Appendix D (continued)

### **Powder River Basin**

1 new permit (74 AC from Powder River)

2 changes (add stock tanks)

1 602

### **TOTALS**

6 new permits – 3 from UTs and 2 from groundwater for subdivisions

10 changes – mostly to add stock tanks or move PODs

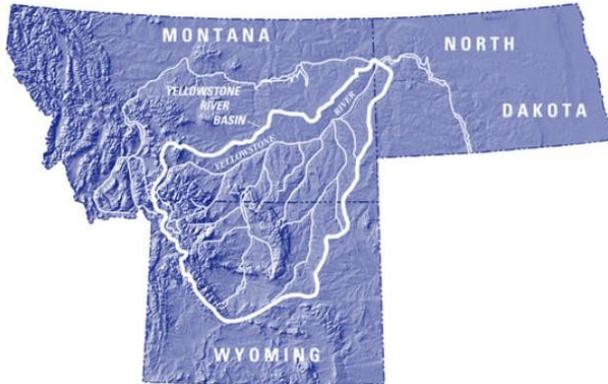
149 Completions of Groundwater Development (602)

7 Completions of Stock Reservoir (605)

12 Temporary Leases

3.3% of all activity is new appropriations.

81% of all activity is Completion of Groundwater Development (602)\



**RESOLUTION**  
of the  
**YELLOWSTONE RIVER**  
**COMPACT COMMISSION**  
In Appreciation  
of the  
Contributions of  
**Patrick T. Tyrrell**

**WHEREAS**, Patrick T. Tyrrell served on the Yellowstone River Compact Commission between 2001 and 2012 and later from 2016 to 2019; and,

**WHEREAS**, the Yellowstone River Compact Commission was established by the Yellowstone River Compact of 1950; and,

**WHEREAS**, the Yellowstone River Compact was entered into by the State of North Dakota, the State of Montana, and the State of Wyoming who desired to further interstate comity and to remove all causes of present and future controversy between those states and the persons in those states with respect to the waters of the Yellowstone River and its tributaries, and to provide for an equitable division and apportionment of those waters and to encourage the beneficial use and development thereof; and,

**WHEREAS**, the Commissioners and advisors of the Yellowstone River Compact Commission recognize that, as Wyoming State Engineer for nearly 20 years, and Wyoming's Commissioner for over 15 years, Mr. Tyrrell contributed greatly to the sound management of water in the greater Yellowstone River Basin; and,

**WHEREAS**, Mr. Tyrrell retired in early 2019 from his position as Wyoming State Engineer and Yellowstone River Compact Commission Commissioner for Wyoming; and,

**NOW, THEREFORE, BE IT RESOLVED** that the Yellowstone River Compact Commission, at its meeting held in Sheridan, Wyoming on December 4, 2019, does hereby express its gratitude and appreciation for Mr. Tyrrell's dedication to helping the Commission achieve its goals of intergovernmental cooperation during his tenure; and

**BE IT FURTHER RESOLVED** that the Commission wishes Mr. Tyrrell good health and much satisfaction and enjoyment of life in his retirement; and,

**BE IT FURTHER RESOLVED** that the Federal Representative and Chairman of the Yellowstone River Compact Commission is hereby directed to provide a copy of this Resolution to Mr. Tyrrell.

**APPROVED**, by unanimous action of the Yellowstone River Compact Commission this 4th day of December 2019 at Sheridan, WY.

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Greg Lanning  
Commissioner for Wyoming

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John M. Kilpatrick  
Chairman and  
Federal Representative

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Jan Langel  
Commissioner for Montana