

HIGHLIGHTS FOR NOVEMBER 2018

DAKOTAS AREA OFFICE

November precipitation was above average in the Heart River Basin with 161 percent and 144 percent of average precipitation at Dickinson and Heart Butte Dams, respectively. Within the Cheyenne, Grand and James River basins precipitation was varied, ranging from 44 percent of average at Jamestown Reservoir to 130 percent of average at Angostura Reservoir.

November inflows in the Heart River basin were varied, with 47 percent of average inflow at Dickinson and 113 percent of average inflow at Lake Tschida. For the Cheyenne River basin, inflows were varied, ranging from zero at Keyhole Reservoir to 287 percent of average at Angostura Reservoir. The James and Grand River basins exhibited varied inflows, with 70 percent of average at Jamestown Reservoir and 113 percent of average at Shadehill Reservoir.

Reservoir storage in the Heart River basin finished the month above average; 136 percent of average for Dickinson Reservoir, and 104 percent of average at Heart Butte Reservoir. Storage in the Cheyenne River basin was above average at the end of November, ranging from 117 percent of average at Deerfield and Pactola Reservoirs to 253 percent of average at Keyhole Reservoir. Storage at Shadehill and Jamestown Reservoirs was above average for the end of November, showing 119 percent and 111 percent of average, respectively.

EASTERN COLORADO AREA OFFICE

Precipitation was mostly above average over the Colorado-Big Thompson Project (CBT) during November. The Lake Estes Reservoir weather station reported the lowest precipitation at 64 percent of average, while Green Mountain Reservoir had the highest at 166 percent of average.

Inflows were varied over the CBT during November. The inflow to Willow Creek Reservoir was the lowest at 70 percent of average. The inflow to Lake Granby Reservoir was the highest at 117 percent of average.

The Lake Granby storage of 441,300 AF on December 1 was 28,300 AF above average and 79,600 AF lower than one year ago on this date. Terminal reservoir storage in Carter Lake and Horsetooth Reservoir was 82 and 88 percent of average, respectively. The November end-of-month CBT storage water in Green Mountain, Lake Granby, Carter Lake, and Horsetooth Reservoir was 632,200 AF; 40,200 AF below average.

Precipitation was varied over the Fryingpan-Arkansas Project (Fry-Ark) during November. The Ruedi Reservoir weather station reported the lowest precipitation at zero inches, while Turquoise Reservoir had the highest at 199 percent of average.

Native inflows were much above average over the Fry-Ark during November. The inflow to Ruedi Reservoir was the lowest at 61 percent of average. The inflow percentage for the other reservoirs was absurdly high because of relatively low average values, ranging from 0.3 to 25.6 acre-feet. The actual inflows range from 227 acre-feet (15,142 percent of average) at Twin Lakes Reservoir to 13,738 acre-feet (53,664 percent of average) at Pueblo Reservoir.

Reservoir storage is below average for the Fry-Ark. Ruedi Reservoir is the lowest at 75 percent of average. Pueblo Reservoir is the highest at 127 percent of average. The total November end-of-month storage in the four reservoirs is 439,200 AF, 98 percent of average.

MONTANA AREA OFFICE

Precipitation during November was varied in the Upper Missouri River basin, ranging from 45 percent of average at Canyon Ferry Reservoir to 207 percent of average at Gibson Reservoir. Inflows were about average ranging from 86 percent of average at Gibson Reservoir to 109 percent of average at Canyon Ferry. Reservoir storage is about average, and ranges from 95 percent of average at Canyon Ferry Reservoir to 112 percent of average at Lake Elwell Reservoir.

For the Milk River Basin, the precipitation was above average, ranging from 114 percent of average at Fresno Reservoir to 120 percent of average at Sherburne Reservoir. The inflows were below average, ranging from 77 percent of average at Fresno Reservoir to 82 percent of average at Sherburne Reservoir. End-of-month storage ranges from 83 percent of average at Sherburne Reservoir to 121 percent of average at Nelson Reservoir.

November precipitation was 133 percent of average at Yellowtail Dam. Inflows were 126 percent of average. Storage was normal at 96 percent of average.

NEBRASKA-KANSAS AREA OFFICE

November precipitation was varied in the Republican River Basin, ranging from 49 percent of average at Keith Sebelius Reservoir to 132 percent of average at Enders Reservoir. Inflows were varied and ranged from 9 percent of average at Bonny Reservoir to 139 percent of average at Keith Sebelius Reservoir. Ignoring Bonny Reservoir, which has been drained for Compact compliance, storage ranges from 41 percent of average at Enders Reservoir to 126 percent of average at Keith Sebelius Reservoir.

For the Solomon Basin, the precipitation was below average, ranging from 65 percent of average at Kirwin Reservoir to 77 percent of average at Webster and Glen Elder Reservoirs. The inflows were well above average, ranging from 195 percent of average at Glen Elder Reservoir to 538 percent of average at Webster Reservoir. End-of-month storage ranges from 107 percent of average at Glen Elder Reservoir to 224 percent of average at Webster Reservoir.

For the Smokey Hill, Niobrara, and Lower Platte Basins, precipitation was mostly below average, ranging from 23 percent of average at Cedar Bluff Reservoir to 180 percent of average at Box Butte Reservoir. The inflows were varied, ranging from 71 percent of average at Davis Creek Reservoir to 179 percent of average at Cedar Bluff Reservoir. End-of-month storage ranges from 61 percent of average at Cedar Bluff Reservoir to 102 percent of average at Davis Creek Reservoir.

OKLAHOMA-TEXAS AREA OFFICE

November precipitation was below average over the Arkansas River Basin, ranging from 27 percent of average at Sanford Reservoir to 42 percent of average at Cheney Reservoir. Inflows were varied, ranging from 50 percent of average at Norman Reservoir to 213 percent of average at Cheney Reservoir. Storage in the Arkansas River basin is above average and ranges from 100 percent of average at Sanford Reservoir to 129 percent of average at Cheney Reservoir.

For the Red River Basin, the November precipitation was below average, ranging from 14 percent of average at Mountain Park Reservoir to 48 percent of average at McGee Creek Reservoir. The inflows ranged from zero at Mountain Park Reservoir to 112 percent of average at Arbuckle Reservoir. Storage in the Red River basin ranges from 92 percent of average at Altus Reservoir to 142 percent of average at Mountain Park Reservoir.

For the Nueces, Colorado and Washita Basins, the precipitation was below average, ranging from five percent of average at Twin Buttes Reservoir to 64 percent of average at Choke Canyon Reservoir. The inflows were varied, ranging from zero at Foss Reservoir to 273 percent of average at Choke Canyon Reservoir. Storage in these basins ranges from 85 percent of average at Choke Canyon Reservoir to 139 percent of average at Twin Buttes Reservoir. Only two reservoirs in this area are below 100 percent capacity.

WYOMING AREA OFFICE

Precipitation during November was above average in the North Platte River Basin, ranging from 100 percent of average at Guernsey Reservoir to 155 percent of average at Glendo Reservoir. Inflows were below average, ranging from 27 percent of average at Pathfinder Reservoir to 91 percent of average at Glendo Reservoir. Reservoir storage is above average, and ranges from 105 percent of average at Glendo Reservoir to 149 percent of average at Guernsey Reservoir.

November precipitation was above average in the Bighorn River Basin. November precipitation ranged from 132 percent of average at Boysen Reservoir to 147 percent of average at Buffalo Bill Reservoir. Reservoir inflow in the Bighorn basin was varied, ranging from 59 percent of average at Bull Lake Reservoir to 120 percent of average at Buffalo Bill Reservoir. Storage in the Bighorn Basin is above average, ranging from 107 percent of average at Boysen Reservoir to 112 percent of average at Bull Lake Reservoir.

CORPS OF ENGINEERS REPORT

The November runoff above Sioux City was 1.2 MAF, 118 percent of average. The 2018 runoff forecast in the Missouri River Basin above Sioux City, Iowa is 41.3 million acre feet (MAF), 163 percent of average. If this forecast is realized, the 41.3 MAF of runoff will be third highest runoff in 120 years of record-keeping (1898-2017), exceeded only in 1997 and 2011.

The Missouri River main stem reservoir system (System) storage was 57.1 MAF as of December 1, occupying 1.0 MAF of the 16.3 MAF flood control zone. The remaining stored flood waters will be evacuated over the winter and all flood control storage will be available by the start of the 2019 runoff season. System storage peaked on July 8 at 68.4 MAF, occupying 12.3 MAF of the designated 16.3 MAF of flood control storage.

Reservoir Forecasts

- **Gavins Point Dam** releases averaged 56,700 cfs during November. Releases are currently being reduced by 3,000 cfs per day until the winter release rate of 20,000 cfs is reached around December 11. The Gavins Point reservoir ended November at elevation 1206.8 feet and will be near 1207.5 feet during the winter months.
- **Fort Randall Dam** releases averaged 53,000 cfs in November. Releases will be adjusted as necessary to maintain the desired reservoir elevation at Gavins Point. The outlet tunnel is scheduled to be closed on December 6 and all releases will be made through the powerhouse. The reservoir level was at 1,337.4 feet at the end of November, falling 9.0 feet during the month. The reservoir will gradually be refilled during the winter to increase winter hydropower generation at Oahe and Big Bend.
- **Big Bend Dam** releases averaged 42,100 cfs in November. Releases are expected to average 24,500 cfs and the reservoir will remain near its normal elevation of 1,420.0 feet during December.
- **Oahe Dam** releases averaged 45,600 cfs during November. Releases are expected to average 24,400 cfs in December. The outlet tunnels were shut down on November 29 and all releases are currently being made through the powerhouse. The reservoir ended November at elevation 1,607.2 feet, falling 3.5 feet during the month. The reservoir level is expected to decline approximately another 0.9 foot during December.
- **Garrison Dam** releases averaged 28,000 in November. Releases are currently 21,000 cfs and will be reduced to 16,000 cfs near mid to late-month to prepare for possible river freeze-in at Bismarck. Once an ice cover is established, releases will be gradually increased to 24,500 cfs. The reservoir level was 1,840.2 feet at the end of November, a reduction of 1.5 feet from the end of October. The reservoir level is expected to continue declining through December and be near elevation 1,839.5 feet at the end of the month.
- **Fort Peck Dam** releases averaged 11,700 cfs during November. Releases were increased from 12,000 cfs to 12,500 cfs in early December and will remain at that rate during the month. The spillway was closed on November 8 and all releases are now being made through the powerhouse. The reservoir level was 2,238.6 feet at the end of November, declining 1.4 feet during the month. The reservoir level is expected to continue declining through December and be near elevation 2,236.8 feet at the end of the month.

The six mainstem power plants generated 1,108 million kWh of electricity in November. Typical energy generation for November is 738 million kWh. The power plants are projected to generate 12.4 billion kWh of electricity this year, 133 percent of the long-term average, 9.3 billion kWh.