Division 1
Annual Report

Tarryall Reservoir - Dist. 23
Photo taken by Garver Brown

Irrigation Water
Year 2018

TABLE OF CONTENTS

WATER SUPPLY AND ADMINISTRATION

Water Supply Conditions

November 2017 through January 2018

Conditions during the first quarter of Irrigation Year 2018 in Division 1 started warmer and drier than normal in most of northeast Colorado. Temperatures were above average to well above average for the entire first quarter of the Irrigation Year in 2018. Precipitation, was below average in November through December, but the basin welcoming above normal precipitation for much of the month of January. Although the South Platte basin snowpack is the highest in the state, it is still below average at 84% of average on February 1.

With the slightly below average precipitation events leading into the Irrigation Year, only a small portion of the basin was noted in the USDA Drought Monitor rated as "Moderate Drought" or D1 in the month of November. However, the early dry and warmer than average conditions, throughout the basin were evident within the majority of the basin to a drought rating of "Abnormally Dry" throughout much of the basin, with portions escalating to "Severe Drought" (D2) on February 1.

River flows at the two key index gages on the South Platte, Kersey and Julesburg, are used as a measure of conditions of the South Platte River basin. During the November through January period the Kersey gage located downstream of Greeley on the South Platte River was above the normal long term average averaging 1,040 cfs for the month of November and 887 cfs for the month of January, representing 139% and 130% of the long term mean flows. The Julesburg stream gage located near the stateline was below the long term mean at 201 cfs (60% of long term mean) and above the long term mean at the end of January with an average flow of 887 cfs (173% of long term average).

One positive to the above average temperatures during the November through January quarter, was above average streamflows and operable ditches commonly experience icing and conveyance issues during this time period. A result of this was a good start to diverting water into storage throughout, overall storage in the South Platte was good throughout the period. The end of the first quarter of the Irrigation Season resulted in the storage contents in 32 index reservoirs, as a percent of capacity, was 77% (long term average 70%).

February through May 2018

Temperatures were cooler than normal in February. However, this trend reversed in March with temperatures warmer than normal throughout the basin. April temperatures were cooler than normal in the eastern two-thirds of the basin, with warmer than average temperatures in the western third of the basin. Temperatures were above average throughout the basin during the month of May. Precipitation was wetter than average during the month of February. March found the basin divided with the eastern and southern portions of the basin drier than average and the northwest and central near normal. April precipitation was above normal on the eastern third of the basin, with the western two-thirds experiencing below normal precipitation. A bright spot was the above normal precipitation throughout the basin during the Month of May.

The snow water equivalent (SWE) increased during the month of February from 84% of average to 89% of average. However the warmer than average temperatures in March decreased the SWE down to 83% of average. April SWE increased to 91% of average, peaking on April 22 which is 4 days sooner than the historic average peak SWE. Above average temperatures throughout the basin increased the runoff of snowmelt, resulting in the snowmelt runoff peaking 2 weeks earlier than the historic average.

As might be expected from the precipitation conditions discussed above, the USDA Drought Monitor for northeast Colorado improved during the month of February ending with a rating of D1 (moderate drought) in most of the south and easterly portion of the basin, with the remainder of the area of D0 (Abnormally Dry), with the remainder of the basin the same as February. The central portion of the basin improved slightly with the areas of D0 and D1 reduced, except for the continued dry areas in Counties of Clear Creek, Douglas and Park Counties.

The flows in the South Platte River at the Julesburg and Kersey index gages were more variable than the Drought Monitor conditions. The flows for the period were the following percentages of average; Kersey gage – February 103%, March 101%, April 49% and May 98%. The below average precipitation during the period mentioned above resulted in well below average flows at the Julesburg gage as follows: February 107%, March 34%, April 36% and May 41%.

Even with the low river flows just discussed, the calls on the South Platte mainstem were surprisingly near normal for most of the period. There was no call below Chatfield Reservoir during the months of February through March, with the tributaries more senior than average. April started with no call on the river and then went more senior as expected for an average year on the mainstem. May resulted in normal calls to free river towards the end of the month below Metro Denver. However, a call remained on the mainstem above Metro Denver.

Overall storage in the South Platte continued ahead of normal throughout the period. The end of month storage contents in the 32 index reservoirs, as a percent of capacity, was; February – 82% (long term average 74%), March – 85% (long term average 80%), April - 86% (long term average 82%) and May – 96% (long term average 83%).

June through August 2018

The weather pattern from May, of above average temperatures continued through June. The lone bright spot was portions of the basin receiving above average precipitation varying from 50% to 200% of the monthly historical average. However, July and August experienced below average temperatures, with overall dry conditions continued from previous months.

The Division 1 USDA Drought Monitor ratings lagged the above average temperatures and below average precipitation pattern from the end of May into June, with an increase in severity of drought in the southern mountains and foothills from a rating of DO (abnormally dry) in May to a rating of D1 (moderate drought); and increasing from a rating of D2 (severe drought) to D3 (extreme drought). The Drought rating went down slightly from June's rating into July and August with a rating of D0 (abnormally dry) in the westerly mountains and foothills throughout the Front Range area; with a reduction in the rating in the southerly portion of Division One in the mountains and foothills in Gilpin, Clear Creek and Park Counties to D1 (moderate drought); and a reduction from a Drought Rating of D2-D3 (extreme drought) in portions of Lincoln, El Paso, Teller and Park Counties down to a rating of D1-D2 (moderate - severe drought).

The flows in the South Platte River at the Julesburg and Kersey index gages reflected the above average temperatures, below average precipitation and increased demand for water during the heart of the Division 1 irrigation season. The flows for the period were the following percentages of average; Kersey – June 37%, July 46%, and August 49%; Julesburg – June 16%, July 37%, and August 79%.

The generally drier conditions during this period, below average snow pack and early runoff peaking nearly two weeks earlier than the average peak were reflected in the river calls on the South Platte during the months of June, July and August. The South Platte mainstem moved off free river toward the end of May, with no free river conditions on the mainstem of the South Platte River during the June through August time period. The call on the South Platte mainstem went more senior during June starting with a 1908 call below Metro Denver, a 1876 call during the middle of the month, ending the month with a senior 1872 call. This continued into July with an 1871 senior call on the mainstem, with some welcomed precipitation in late July seeing the mainstem go more junior with an 1881 near mid-August, however ending the month with a senior 1876 call on the mainstem. Of note, the Julesburg flows were below the 120 cfs that triggers curtailment of Colorado water rights junior to June 14, 1897 in Water District 64 under the South Platte River Compact during this period as follows: June 13 through June 18th returning June 28th and continuing until the end of July; and 11 days in early August, return on beginning August 27th for the remainder of the month. That curtailment was done to keep Colorado in compliance with the terms of the Compact. Many of the tributaries being more senior than the South Platte mainstem calls during this period, with some mountainous areas experiencing near historic low stream flows.

The above average precipitation in June resulted in South Platte storage remaining good during the period, especially because the relatively wet start to June and August reduced demand for reservoir releases significantly. The end of month storage contents in the 32 index reservoirs, as a percent of capacity, was just below average for June – 96% (long term average 90%), July – 85% (long term average 88%) and August – 78% (long term average 79%).

September and October 2018

Temperatures during September continued the above average pattern from previous months, with precipitation continuing the below average pattern. However, October welcomed below average temperatures throughout much of the basin and near average precipitation throughout much of the basin. Of note were the very dry southerly mountainous areas experiencing dry conditions and record low stream flows finally had below average temperatures and above average precipitation during October. Along with the cooldown came much welcomed snow occurring on the plains near mid-October and in the mountainous and foothill areas at the beginning of October.

The overall USDA Drought Monitor rating for Division 1 remained fairly constant from the previous period ending in August, with the only change to the areas of Morgan and Washington Counties no longer in a drought condition.

During both September and October, the flows at the Kersey and Julesburg index gages were better than previous months, but overall below the long term historic average flows. The Kersey flows for the period were the following percentages of average; September 70% and October 92%. The Julesburg flows for the period were the following percentages of average; September 44% and October 40%.

The warm and dry conditions that continued from August into September also continued the mainstem calls with the South Platte Compact Call 1897 being on 22 of 30 days in September, going off on September 26th and remaining off throughout the month of October. The calls above Chatfield continued into the dry September with an 1864 priority, going more junior in October controlled by a more junior call below Chatfield Reservoir by mid-October. The call on the South Platte mainstem below Chatfield began September with a 1871 calling right, going more junior to a 1909 call at the Burlington Canal by October 6th. The lower South Platte was controlled by a 1922 call at the beginning of October, going more junior by mid-October to a circa 1990 - 2000's junior reservoir fill right and recharge.

The warmer and drier conditions through September led to a significant draw on reservoirs, with the storage volumes at the end of Irrigation Year 2018 slightly below the long term average. The end of month storage contents in the 32 index reservoirs, as a percent of capacity, was September at 72% (long term average 75%) and October at 69% (long term average 73%).

Well Administration – South Platte River Basin

The South Platte Well Measurement Rules (Case No. 11CW292) were finalized in water court, with a required compliance date of 12/31/2015. Compliance with the Rules initially required approximately 6,400 wells within the scope of the South Platte Measurement Rules to either be equipped with a measurement device that is verified as accurate, primarily a totalizing flow meter, or declared as inactive. Great effort by the Division One Ground Water Team and other key Division One staff has been focused on maintaining compliance for wells in decreed augmentation plans, approximately 3500, and bringing wells not covered by a decreed augmentation plan into compliance with the Rules. The staff continues to work with augmentation plans and well users to allow more efficient and effective reporting and recording of well diversions and status for more than 4,000 wells.

Efforts continued throughout 2018 in the administration of the South Platte Measurement Rules, including the Well Team conducting approximately 95 installed flow meter verification field tests, processing over 630 measurement tests into DWR's database, the inventory of more than 300 wells, inspection of more than 200 wells filed as inactive in accordance with the Measurement Rules, and responding to many questions from water users. The well team recertified 23 certified well meter testers and approved two

new certified well meter testers. These efforts support the requirements of the South Platte Well Measurement Rules, and other Basins Ground Water Measurement Rules, that measurement devices be verified by a person qualified by the State Engineer.

The well enforcement program continued administration by sending out approximately 150 Notice of Violation and Cease and Desist Orders. Additionally, the team mailed out 400 Notices for Expiring Flow Meter Tests and Flow Meter correction factor notifications. The Well Team continued efforts in support of the upcoming 2020 Abandonment List, providing field inspections and research.

Well Administration – Republican River Basin

The Republican River Well Team continued their efforts of administering the Republican River Basin Groundwater Measurement Rules (Rules) in 2018, including conducting approximately 120 well measurement device verification field tests, inventory of approximately 600 wells, and field inspection of approximately 130 wells filed as inactive in accordance with the Rules. The well team assisted with Well Tester certification classes, and conducted in-field one-on-one recertification of approximately 30 certified well testers. These efforts support the requirements of the Republican River Compact Area Well Measurement Rules, and other Basins Ground Water Measurement Rules, that measurement devices be verified by a person qualified by the State Engineer.

Well Team enforcement efforts continued with the Greeley office and Republican field crew distributing approximately 53 Notice of Violation and Orders to Cease & Desist. Additionally, 360 Notices for Expiring Meters and 600 Annual Usage Reporting Forms were mailed to well users in the basin.

The Republican River well team continues work related to the Republican River Compact, including monitoring and verifying the accuracy of the currently operating Republican River Compact Pipeline; verification and coordination of measurements of the official delivery measurement flume for the Compact Pipeline; and publishing official diversion records of all high capacity wells within the Republican River Ground Water Measurement Rules boundaries. The well team staff continued to assist the State Engineer in Public Meetings and outreach in Advisory Committee meetings being held as part of the Republican River Compact Use Rules rulemaking process, which are anticipated to be filed with the Division One Water Court in January 2019. In addition, in coordination with the State and Division Engineer's offices, the Republican River staff worked closely with the USGS on three stream flow compact gages and the Bureau of Reclamation regarding the administration of stream flows through Bonny Reservoir.

In addition, the Republican River well team has been busy assisting the Designated Basins Team in the administration of well permit volume limits by investigating dozens of wells and posting and documenting Orders on approximately 4 wells that exceeded their annual limitation in the 2018 Irrigation Year. These Orders are being administered by the Designated Basins Team in Denver, and require the reduction of the annual pumping limits for 2019 Irrigation Year by the amount over-pumped in 2018.

COMPACT ADMINISTRATION

Division One is responsible for administration of the State of Colorado's obligations under the South Platte River Compact, the Republican River Compact, the Laramie River Decree, and the Sand Creek Agreement (1997 Addendum) to meet the requirements of those respective documents.

Under the terms of the South Platte River Compact, if there is not 120 cfs in the South Platte at the state line between Colorado and Nebraska between April 1 and October 15, Colorado will curtail all diversions in the Lower Section of the river with priority dates junior to June 14, 1897. There were 67 days of South Platte Compact call during the 2018 Irrigation Year, which is similar to the number of days recorded in Irrigation Year 2017.

During Irrigation Year 2018 the Republican River Compact was administered by staff in both Division One and the Denver Office in conjunction with the Republican River Water Conservation District and delivered a total of 13,617 acre-feet to the Colorado/Nebraska state line. On August

24, 2016 the Republican River Compact Administration approved a final resolution establishing Colorado's permanent approval of the Republican River Compact Compliance Pipeline, and beginning January 1, 2017 the operation of the pipeline became subject to the terms and conditions as described in the aforementioned resolution. Continuing to assist with Compact compliance, diversions by surface water rights junior to the signing date of the Compact (December 31, 1942) in the Republican River basin within Colorado continue to be curtailed.

As mentioned previously, the State Engineer anticipates filing the Republican River Compact Use Rules with the Division One Water Court in January 2019. The purpose of the Rules is to provide the procedures by which the State Engineer will evaluate, approve, and administer plans for compliance to ensure that Colorado's use of water meets the requirements of the Republican River Compact and the terms and conditions of the Final Settlement Stipulation in Kansas v. Nebraska & Colorado.

During Irrigation Year 2018 Division One personnel regulated all diversions in the Laramie River basin in compliance with the terms of the U.S. Supreme Court decree in *Wyoming v. Colorado*. Division One personnel also regulated Sand Creek in compliance with the terms of the Sand Creek Agreement.

COMMUNITY INVOLVEMENT

Division One personnel continued to be active and involved in many issues important to the water community. When requested or needed, Division One personnel attended, participated in, and presented at ditch company meetings, conservancy district meetings, groundwater management district meetings, Colorado Water Congress, Colorado Bench Bar Association, and in numerous meetings with water users, realtors, and homeowner groups. In addition, Division One personnel continued to assist the Natural Resources Conservation Service (NRCS) with snow survey measurements.

Meetings of the South Platte Basin RoundTable, Metro Basin RoundTable, and Republican River Water Conservancy District are also regularly attended by Division One personnel. This past year, Division One staff continued to participate by attending and contributing to regular meetings of the South Platte Basin Roundtable Groundwater Technical Subcommittee and to the South Platte River Basin Storage Study and multi-use project efforts.

Outside of office work, Division One personnel in the Republican River Basin volunteer as a firefighter and EMT. The Division One chapter of Colorado Water Officials Association continued to contribute to its scholarship fund, in memory of former Division Engineer W.G. Dugan Wilkinson, and awarded another $500 scholarship to a deserving student in the Watershed Science program at Colorado State University.

2018 TRANSMOUNTAIN DIVERSION SUMMARY - INFLOWS (November 2017 - October 2018)

COLORADO
Division of Water Resources
Department of Natural Resources

TRANSMOUNTAIN DIVERSIONS INTO THE SOUTH PLATTE BASIN IN COLORADO

IRRIGATION YEAR 2018 (November 2017 - *October 2018), *Provisional

FROM THE COLORADO RIVER BASIN

	2017		2018										
NAME	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	TOTAL
Adams Tunnel*	1133.00	4804.00	10137	13937	16289	14422	16131	9542	10313	11965	6410	13023	128,106.00
Berthoud Pass Ditch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	154.33	53.28	0.00	0.00	0.00	207.61
Boreas Pass Ditch	0.00	0.00	0.00	0.00	0.00	0.00	0.05	31.18	5.06	0.00	0.00	0.00	36.29
Grand River Ditch	0.00	0.00	0.00	0.00	0.00	0.00	1139.00	4376	1288	338.3	89.30	1.00	7,231.60
A. P. Gumlick Tunnel **	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.10	0.00	0.00	0.00	0.00	53.10
Moffat Tunnel	686	386.0	347	266.8	246.4	527.6	10963	5154	2641	1337	1258	1316	25,128.8
Roberts Tunnel	0.00	0.00	0.00	0.00	783.40	3688	5747	9315	8096	7989	10903	6140	52,661.40
Straight Creek Tunnel	4.53	4.65	4.67	3.57	3.42	4.22	15.50	31.36	13.14	6.89	4.93	4.30	101.18
Vidler Tunnel	0.00	0.00	0.00	0.00	0.00	0.00	4.08	97.40	32.61	1.21	0.00	0.00	135.30
TOTALS FROM THE COLORADO RIVER BASIN (DAY-CFS) IY2018													213,661.28
TOTALS FROM THE COLORADO RIVER BASIN (ACRE-FT) CY2018													423,797.15

*West slope water only **Direct release to Clear Creek only. All other flow included in Moffat Tunnel

FROM THE LARAMIE RIVER BASIN

	2017		2018										
NAME	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	TOTAL
Bob Creek Ditch	0.00	0.00	0.00	0.00	0.00	0.00	158.00	23.49	0.00	0.00	0.00	0.00	181.49
Columbine Ditch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deadman Ditch	0.00	0.00	0.00	0.00	0.00	1.80	408.5	183.0	31.25	1.12	0.00	0.00	625.67
Laramie-Poudre Tunnel	0.00	0.00	0.00	0.00	0.00	0.00	51.00	3376.1	2152	890	246.00	0.00	6,715.10
Skyline Ditch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS FOR THE LARAMIE RIVER (DAY-CFS)													7,522.26
TOTALS FOR THE LARAMIE RIVER (ACRE-FT, 19,875 AF per CALENDAR Year Allowed Under Laramie River Agreement)													14,920.40

	2017		2018										
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	TOTAL
Wilson Supply Ditch (Gage)	0.00	0.00	0.00	0.00	0.00	1.70	1008.2	279.4	50.72	1.35	0.00	0.00	1,341.37
minus Deadman Ditch	0.00	0.00	0.00	0.00	0.00	1.80	408.50	183.0	31.25	1.12	0.00	0.00	625.67
= SAND CREEK DIVERSION	0.00	0.00	0.00	0.00	0.00	-0.100	600	96	19.5	0.23	0.00	0.00	715.70
TOTALS FROM THE LARAMIE RIVER BASIN (DAY-CFS)													8,237.96
TOTALS FROM THE LARAMIE RIVER BASIN (ACRE-FT)													16,339.99

FROM THE NORTH PLATTE RIVER BASIN

	2017		2018										
NAME	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	TOTAL
Cameron Pass Ditch	0.00	0.00	0.00	0.00	0.00	0.00	0.95	48.80	0.09	0.00	0.00	0.00	49.84
Michigan Ditch	55.58	36.07	28.32	23.16	20.44	25.45	491.5	988.00	324.00	136.7	59.01	59.0	2,247.23
TOTALS FROM THE NORTH PLATTE RIVER BASIN (DAY-CFS)													2,297.07
TOTALS FROM THE NORTH PLATTE RIVER BASIN (ACRE-FT)													4,556.24

SPECIAL CATEGORIES

	2017		2018										
NAME	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	TOTAL
Hoosier Pass Tunnel *	207.10	0.00	0.00	0.00	0.00	55.87	1282.9	1550.6	221.40	0.00	125.70	647.40	4,090.97
Aurora Homestake Pipeline**	1995.00	2356	2356	2084	123.00	959.00	2323	2191	1954.00	2216	0.00	0.00	18,557.00

* Diverts into Division One, but entire flow is piped to the City of Colorado Springs in Division 2
** Contains a Mixture of Colorado River Water and Water Transferred from the Arkansas River

2018 TRANSMOUNTAIN DIVERSION SUMMARY - DAYS ON (November 2017 - October 2018)

COLORADO
Division of Water Resources
Department of Natural Resources

TRANSMOUNTAIN DIVERSIONS INTO THE SOUTH PLATTE BASIN IN COLORADO

IRRIGATION YEAR 2018 (November 2017 - October 2018) **DAYS ON**

FROM THE COLORADO RIVER BASIN

	2017		2018										
NAME	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	TOTAL
Adams Tunnel*	17	21	31	28	31	30	31	30	31	31	30	31	342
Aurora Homestake	23	31	31	28	2	14	31	30	29	31	0	0	250
Berthoud Pass Ditch	0	0	0	0	0	0	0	25	24	0	0	0	49
Boreas Pass Ditch	0	0	0	0	0	0	1	30	15	0	0	0	46
Grand River Ditch	0	0	0	0	0	0	15	30	31	31	18	1	126
A.P. Gumlick Tunnel***	0	0	0	0	0	0	0	8	0	0	0	0	8
Hoosier Pass Tunnel	11	0	0	0	0	20	31	30	20	0	6	30	148
Moffat Tunnel**	30	31	31	28	31	30	31	30	31	31	30	31	365
Roberts Tunnel	0	0	0	0	24	30	31	30	31	31	30	31	238
Straight Creek Tunnel	30	31	31	28	31	30	31	30	31	31	30	31	365
Vidler Tunnel	0	0	0	0	0	0	11	25	31	6	0	0	73
TOTALS FROM THE COLORADO RIVER BASIN (DAYS-ON)													**2,010**

*West slope water only

**Includes all flow in August P. Gumlick Tunnel

***August P. Gumlick Release to Clear Creek

FROM THE LARAMIE RIVER BASIN

	2017		2018										
NAME	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	TOTAL
Bob Creek Ditch	0	0	0	0	0	0	23	10	0	0	0	0	33
Deadman Ditch	0	0	0	0	0	1	31	30	31	4	0	0	97
Laramie-Poudre Tunnel	0	0	0	0	0	0	24	30	31	31	16	0	132
Wilson Supply Ditch (Gage)	0	0	0	0	0	2	31	30	30	4	0	0	97
Skyline Ditch	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS FOR THE LARAMIE RIVER AGREEMENT (DAYS-ON)													**359**

FROM THE NORTH PLATTE RIVER BASIN

	2017		2018										
NAME	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	TOTAL
Cameron Pass Ditch	0	0	0	0	0	0	1	30	1	0	0	0	32
Michigan Ditch	30	31	31	28	31	30	31	30	31	31	30	31	365
TOTALS FROM THE NORTH PLATTE RIVER BASIN (DAYS-ON)													**397**

Table 2 – Water Court Activities and Staffing

Water Court Activities - Calendar Year 2018

New Applications made to Water Court this Year	271
Referee Rulings Reviewed	198
Decrees Issued by Court this Year	278

Staffing

Dam Safety Engineers	3
Water Resource Engineers	4
IT Professional	1
Engineering/Physical Science Techs/Assistants	10
Program Asst. I, Technician II & III	5
Physical Science Researcher/Scientist (PSRS)	4
Full-Time Water Commissioners	22
Permanent Part-Time Water Commissioners	1
Total Staff	**50**

Table 3 - Organizational Chart