Colorado Division of Water Resources
2021 Annual Report
Water Division 5

Heart Lake

Colorado River Basin

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Division Engineer

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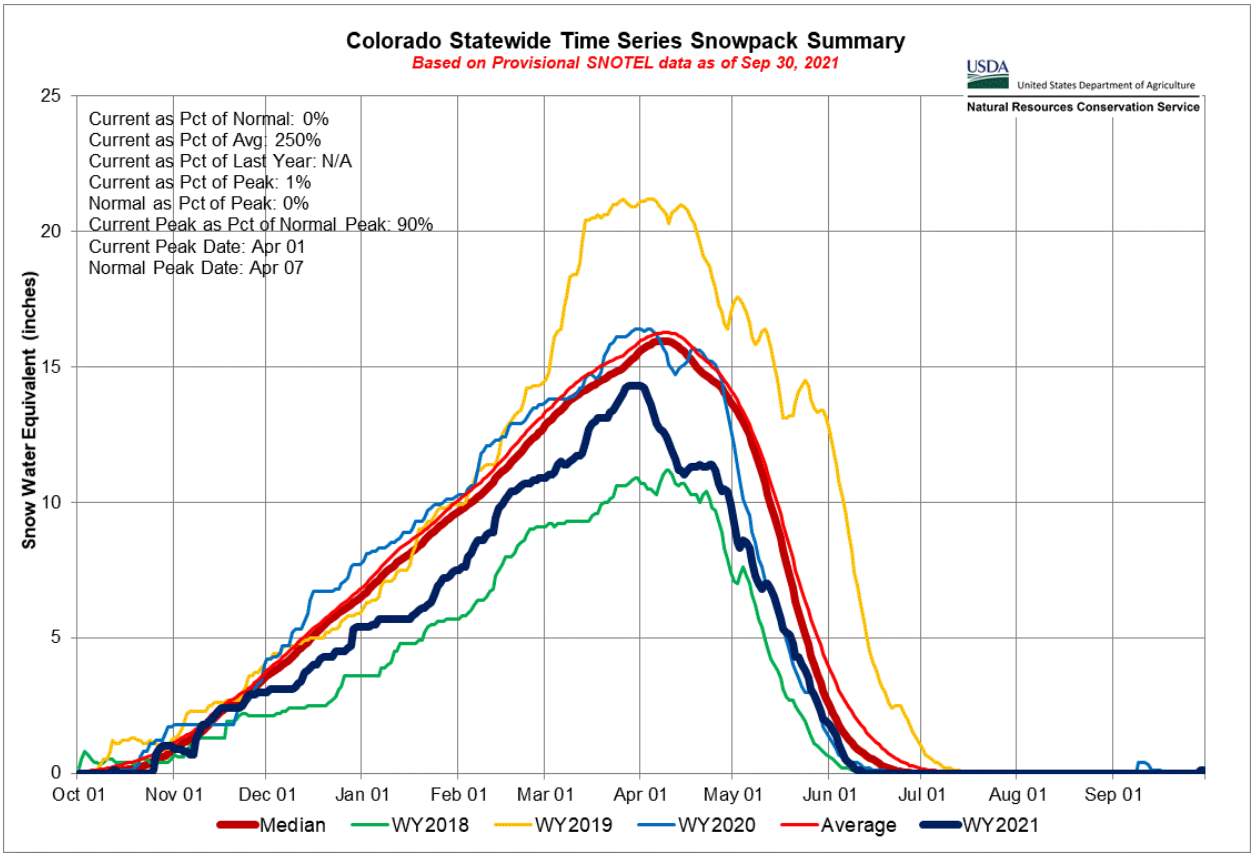
This report is submitted pursuant to C.R.S. § 37-80-105(1)(d) and is the statistical summary of the diversions and other operations of Water Division 5 of the Division of Water Resources.

Surface Water Supply

Water supply in 2021 was strained by the very dry soil moisture conditions that resulted from the lack of a monsoon in 2019, low snowpack, multiple fires, and no monsoon in 2020. Reservoir storage began the year below but near the median. As shown in the graph immediately below, snowpack trended below average over the winter. Streamflow forecasts began the forecasting season at about two thirds of average and decreased to about 50% of average by the June 1st forecast, see the table below.



2021 forecast (most probable undepleted runoff), April-July in KAF

	March 1st		April 1st		May 1st		June 1st		Average Undepleted
	Flow	% avg	Flow	% avg	Flow	% avg	Flow	% avg	
Dotsero	910	65%	915	65%	765	55%	745	53%	1400
Cameo	1490	63%	1540	66%	1200	51%	1140	49%	2350

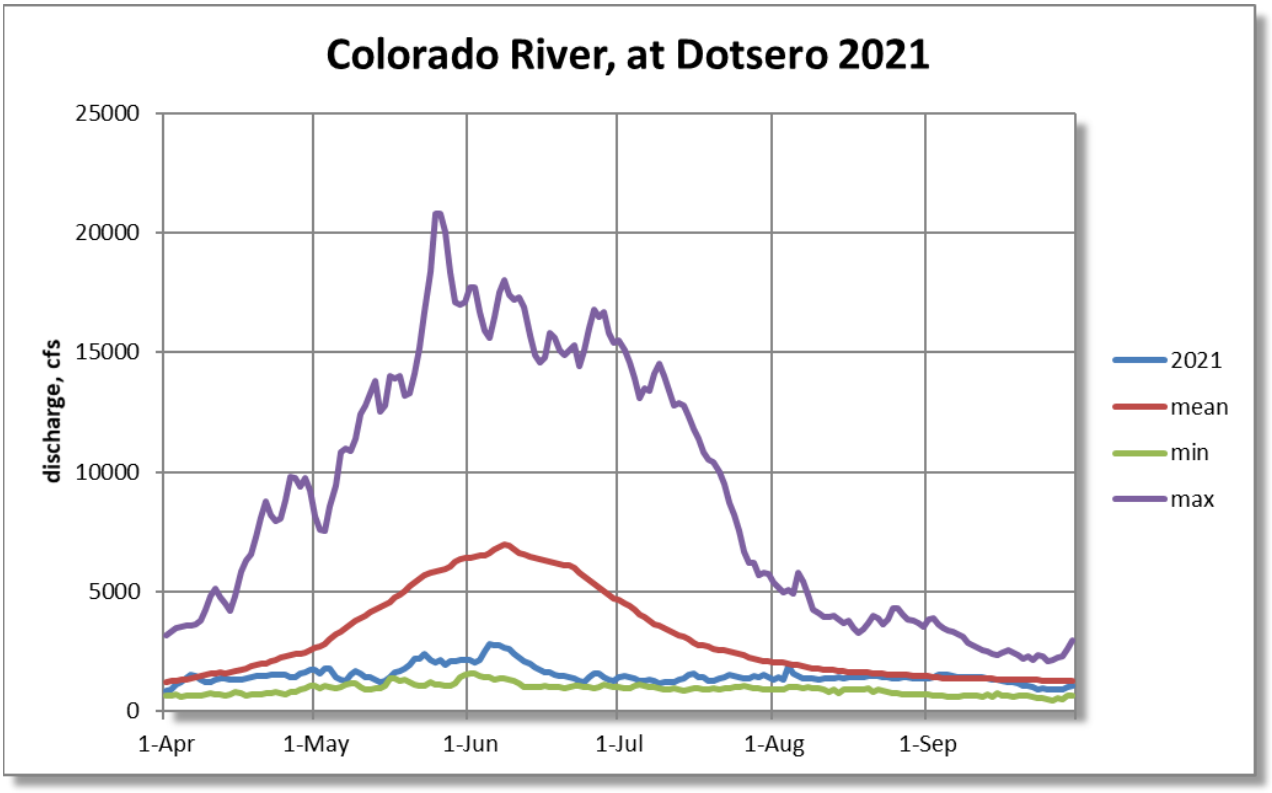
Starting the year with below normal reservoir storage along with a low snowmelt runoff produced low streamflows the entire summer. Once again, the low, late summer natural flows in August and September were mitigated on the mainstem with releases for the endangered fish

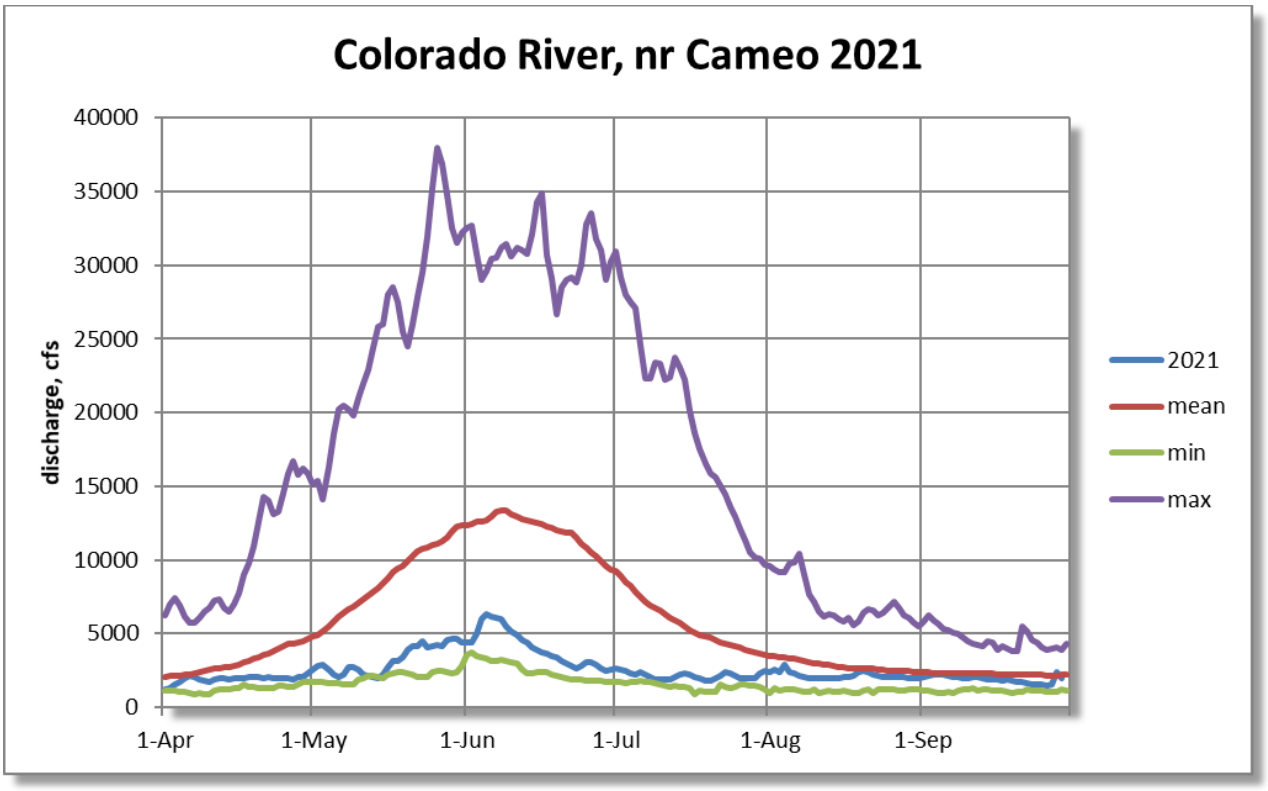
recovery program, leaving gaged flow below but much closer to average for those two months. See the table below for a comparison of actual to historical average runoff.

2021 Gaged (depleted) flows, KAF

	April-July			April-September		
	Flow, KAF	% avg	Historic avg	Flow, KAF	% avg	Historic avg
Dotsero	387	41%	947	547	48%	1,131
Cameo	684	44%	1,780	928	44%	2,089

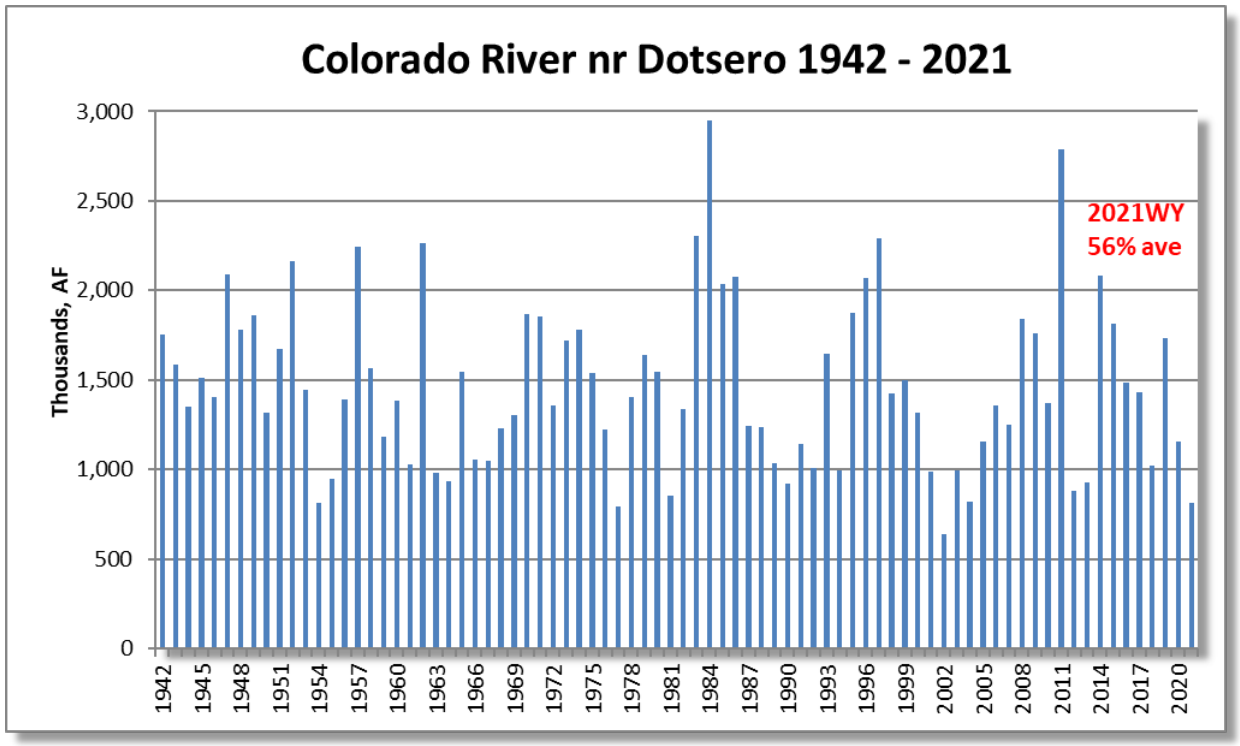
The following hydrographs of daily average flows for the Colorado River near Dotsero and the Colorado River near Cameo depict the extremely poor runoff conditions for the year.

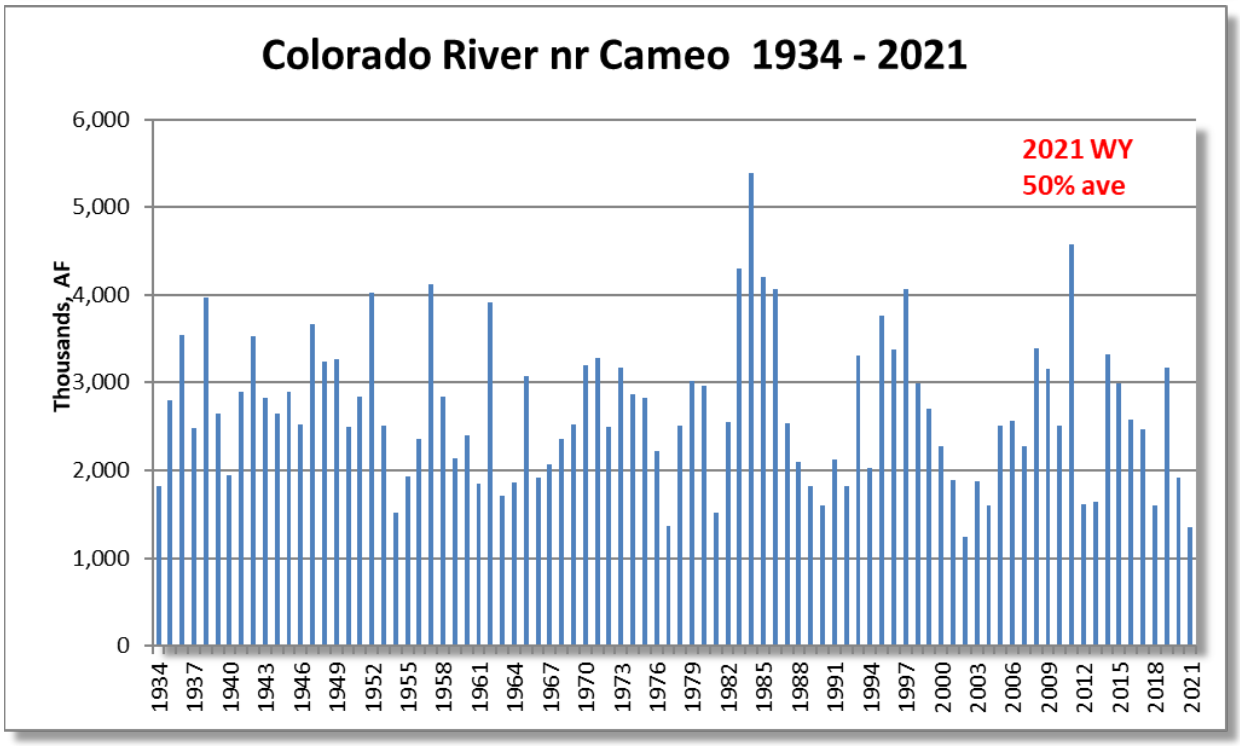




The 2021 water year ended with gaged flow for the Colorado River near Cameo ranking as the 2nd driest year in 88 years of record. The flow for the Colorado River near Dotsero ranked as the 4th driest in 80 years of record.

Below are the Colorado River near Dotsero and the Colorado River near Cameo gaged flow histograms for comparison of the 2021 water year with previous years of record.



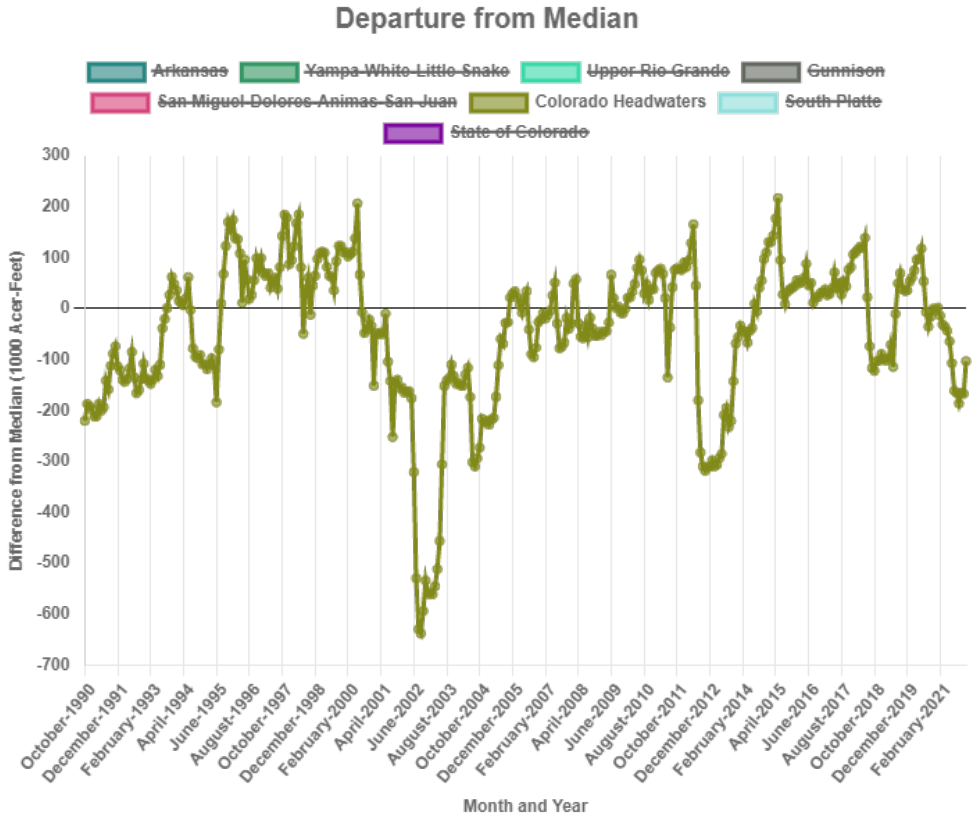


The 2021 water year began with storage in the basin's major reservoirs at about 35,000 acre-feet less than median, and ended with significantly below average storage at about 166,000 acre-feet less than median. Comparison of end-of-year storage for each year, beginning with the extremely dry year of 2012, is shown in the table below. The physical capacity of these reservoirs is 1,220,000 acre-feet.

Storage Comparison of Major Reservoirs

	30-Sep 2012	30-Sep 2013	30-Sep 2014	28-Sep 2015	30-Sep 2016	30-Sep 2017	30-Sep 2018	30-Sep 2019	30-Sep 2020	30-Sep 2021
Dillon Reservoir	198,924	245,855	247,209	251,680	249,814	245,197	199,825	244,919	235,500	212,700
Granby Reservoir	333,593	371,008	522,187	500,314	487,231	518,992	463,575	485,699	401,300	328,500
Green Mtn Res	76,719	107,058	115,215	112,410	107,507	106,317	70,430	117,751	88,200	69,400
Ruedi Reservoir	66,071	86,080	87,909	81,779	77,901	80,421	64,620	84,045	70,600	62,000
Williams Fork Res	48,379	73,041	88,275	88,530	81,544	75,384	80,870	81,938	82,100	66,600
Wolford Mtn Res	31,711	44,523	65,992	44,931	53,363	56,872	37,055	54,271	57,600	40,400
Total	755,397	927,565	1,126,787	1,079,644	1,057,360	1,083,183	916,375	1,068,623	935,300	779,600

Reservoir storage departure from median end of month storage since October 1990 is graphically depicted below. Data used includes Dillon, Granby, Green Mountain, Homestake, Ruedi, Shadow Mountain, Vega, Williams Fork, Willow Creek, and Wolford Mountain reservoirs. The active capacity of these reservoirs is 1,230,000 acre-feet, and physical capacity is 1,315,000 acre-feet.



The basin's major reservoirs did not reach physical fills in 2021 with the exception of Dillon Reservoir. Due to upstream out of priority storage to Green Mountain Reservoir, Dillon Reservoir did not achieve a paper fill, however, Green Mountain Reservoir did achieve a paper fill. Wolford would have reached a physical fill except for bypasses that occurred in June to help reduce stream temperatures as part of Learning by Doing to mitigate damages to the fishery along the Colorado River in the Kremmling area. Wolford Reservoir did achieve a paper fill. The table below lists key reservoirs in the basin and their maximum storage for the year.

Reservoir Name	Capacity, AF	Max Storage, AF	Max Storage, Date
Dillon	257,304	259,687	8/5/2021
Granby	543,758	469,655	7/7/2021
Green Mountain	154,645	107,311	7/11/2021
Homestake	43,505	40,367	11/1/2020
Rifle Gap	13,602	8,919	4/28/2021
Ruedi	102,369	83,251	7/11/2021
Williams Fork	96,822	84,788	7/28/2021
Wolford Mountain	65,993	65,161	6/7/2021
Vega	33,800	17,646	5/28/2021

In summary, the well below average runoff in 2021 for Water Division 5 was the result of below average snowpack. Demands on reservoir storage left the basin's major reservoirs with significantly less storage at the end of the irrigation season than the previous year approaching the storage levels from the extremely dry year of 2012.

Surface Water Administration

Green Mountain Reservoir

During 2021, Green Mountain Reservoir was administered pursuant to the Green Mountain Reservoir Fill Protocol. A critical principle of the protocol is a "Fill Plan" prepared by the USBR, allowing the Green Mountain Power Plant to operate where storable inflows delivered to the power plant do not account against a paper fill of the reservoir. Though conditions were poor, projections indicated undepleted inflow to Green Mountain was sufficient to fill the reservoir with some excess to operate the power plant during the fill season. The final revised 2021 Fill Plan was distributed via email on June 15, 2021, and did allocate 6.73 KAF of Green Mountain's inflows to power that were projected to be in excess of the 100 KAF required to complete a fill of the reservoir anticipated on July 10th. With inflow allocated to power, Denver Water and Colorado Springs Utilities diverted pursuant to their rights as interference to the Green Mountain Power right.

By decree the Green Mountain Reservoir start of fill is declared between April 1 and May 15 of each year by the USBR. Generally, only the driest of years have an April start of fill, while most years trend toward a May 15th start of fill. For 2021, the start of fill was declared on May 1, 2021. Typically, once the Shoshone Power Plant call goes off the river, Green Mountain Reservoir will exercise its refill rights to store prior to the declaration of start of fill. However, due to the low flow conditions in the Grand Valley, the Cameo Call came on from April 14, 2021, through April 29, 2021, senior to Green Mountain Reservoir's refill rights. Further, during

the April call period, 5,048 acre-feet of HUP Surplus releases were made to enhance the flows in the 15 mile reach of the Colorado River above the confluence with the Gunnison River and below the tailrace of Orchard Mesa Irrigation District's hydro pumping and power operations (15-Mile Reach). On June 23, 2021, the Green Mountain Reservoir 154,645 acre-foot storage right was declared satisfied pursuant to the Green Mountain Fill Protocol. To prevent an uncontrolled spill, Green Mountain Reservoir typically will begin passing inflows prior to reaching a physical fill – this did not occur in 2021. The maximum physical storage in the reservoir was 107,311 acre-feet on July 11, 2021. With Green Mountain Reservoir achieving a paper fill but not a physical fill, Denver and Colorado Springs owed a substitution volume of 37,818 acre-feet. The end of the fill season was declared on August 20, 2021, pursuant to paragraph II.A.3.b of the Green Mountain Reservoir Fill Protocol. Calls with a priority senior to August 1, 1935, occurred on July 21, 2021, and July 28, 2021, but did not last for seven consecutive days as required by the protocol. This was due to monsoonal moisture coming into the area during this period increasing streamflows and allowing the call to relax to a more junior priority. This delay in the declaration of the end of the fill season also delayed the ability of the Cities to quantify and begin making substitution releases, which caused challenges coordinating those substitution releases given their decreed constraints.

Shoshone Power Plant

The Shoshone Power Plant was offline in some capacity for one reason or another for a majority of 2021. On April 5, 2021, one of the units at Shoshone went down. Flows were sufficient to meet the demand of the operating unit causing the call to be removed from the system and initiating the Shoshone Outage Protocol to maintain 1250 cfs at the Dotsero Gage. It was anticipated that the down unit would be repaired and back online in July. Unfortunately, the heavy monsoon rains brought debris flows down from the burn scar of the 2020 Grizzly Creek Fire, initially causing problems with debris build up at the diversion dam and debris getting into the tunnel and power plant causing the operating unit to trip offline. Later debris flows were more significant placing debris on the highway and in the river between the Shoshone diversion dam and the power plant causing access issues as well as taking out sections of the power transmission lines and causing large rock debris to get stuck in the diversion tunnel. On October 20, 2021, Shoshone was back up and running after being down for more than six months and their call was placed on the river. The total call days by the Shoshone Power Plant during the 2021 irrigation year was only 162 days.

Mainstem Administration and Operation of the OMID Check Case

Snowpack was not evenly distributed throughout the Colorado River basin. More snowpack accumulated at the higher elevations, which feed the eastern most tributaries of the basin. The combination of low snowpack to the west in the lower elevations, warming temperatures in the Grand Valley, cooler temperatures in the higher elevations, and Shoshone being down caused irrigation demands in the Grand Valley to increase faster than streamflows. A Cameo Call was placed on April 14, 2021, and extended through April 29, 2021, lasting for 16 days. This was the longest April Cameo Call on record, exceeding the 5 days of April call in 2002.

The Cameo Call was again placed on July 11th and remained on throughout most of the irrigation season coming off on October 20th. For the second year in a row, April demand on the Green Mountain Reservoir Historic Users Pool (HUP) caused the Grand Valley Entities to reduce their

demand beginning on August 21, 2021, allowing them to preserve the HUP through the end of the irrigation season and carry some into the spring of 2022.

SUMMARY OF COLORADO RIVER MAINSTEM CALLS
2021 IRRIGATION YEAR

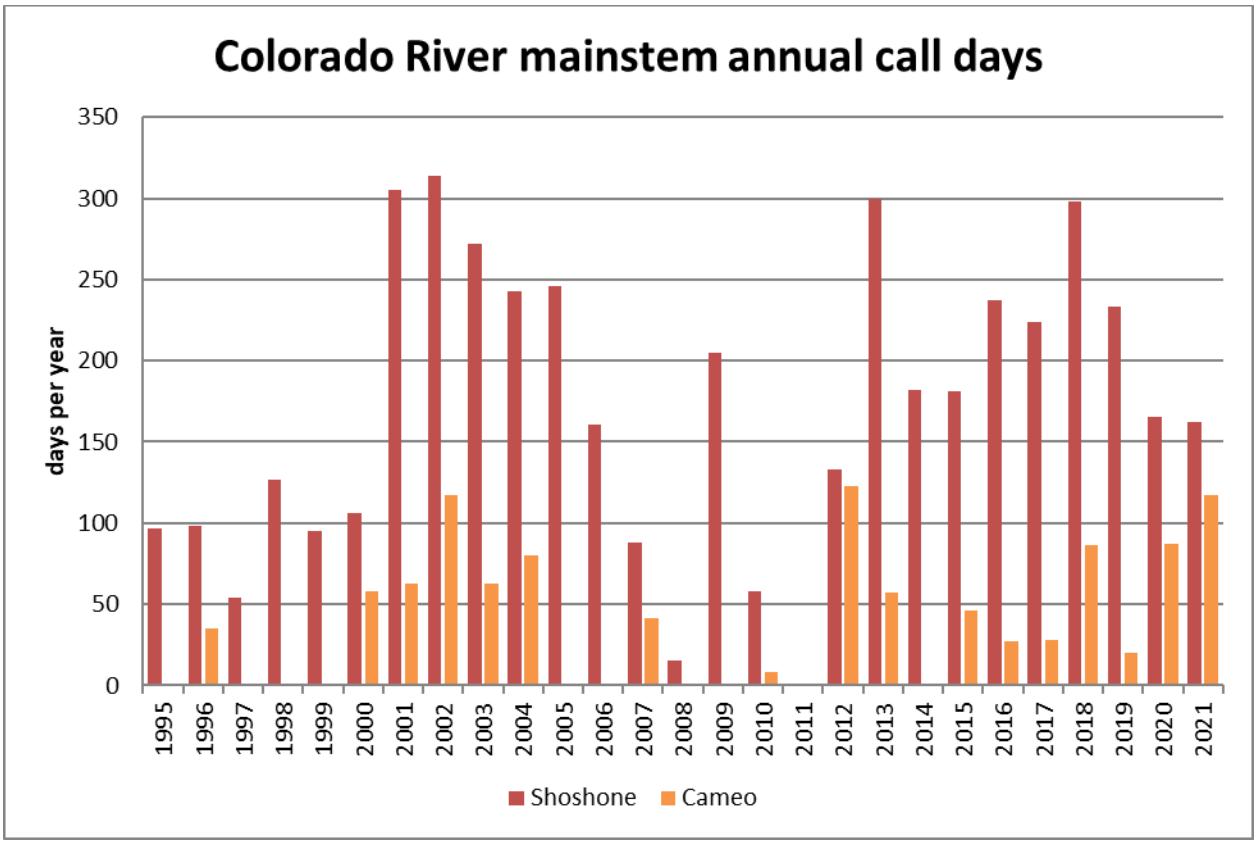
STATUS OF CALL AT THE SHOSHONE POWER PLANT
(As determined using the Colorado River near Dotsero gage)

DATE ON	THRU	NO. DAYS CALL ON/OFF	CALLING RIGHT	DECREED AMT.	SWING PRIORITY	SWING PRIORITY ADMIN. NO.	COMMENTS
11-01-20	11-05-20	5	Free River	---	---	---	
11-06-20	04-04-21	150	Shoshone Power Plant	1,250 cfs	---	20427.18999	
04-05-21	04-13-21	9	Free River	---	---	---	ShOP 04-05-21 through 04-29-21
04-14-21	04-29-21	16	Grand Valley Canal	119 cfs	CBT Alva B Adams Tunnel	31258.00000	ShOP 04-05-21 through 04-29-21
04-30-21	07-10-21	72	Free River	---	---	---	ShOP 06-23-21 through 10-19-21
07-11-21	07-11-21	1	Grand Valley Canal	119 cfs	Ruedi Reservoir	39291.00000	ShOP 06-23-21 through 10-19-21
07-12-21	07-12-21	1	Grand Valley Canal	119 cfs	CBT Alva B Adams Tunnel	31258.00000	ShOP 06-23-21 through 10-19-21
07-13-21	07-14-21	2	Grand Valley Canal	119 cfs	Green Mountain Reservoir	38635.00000	ShOP 06-23-21 through 10-19-21
07-15-21	07-16-21	2	Grand Valley Canal	119 cfs	Ruedi Reservoir	39291.00000	ShOP 06-23-21 through 10-19-21
07-17-21	07-18-21	2	Grand Valley Canal	119 cfs	Green Mountain Reservoir	38635.00000	ShOP 06-23-21 through 10-19-21
07-19-21	07-19-21	1	Grand Valley Canal	119 cfs	Con-Hoosier Tunnel	35927.00000	ShOP 06-23-21 through 10-19-21
07-20-21	07-20-21	1	Grand Valley Canal	119 cfs	CBT Alva B Adams Tunnel	31258.00000	ShOP 06-23-21 through 10-19-21
07-21-21	07-21-21	1	Grand Valley Canal	119 cfs	---	30895.23491	ShOP 06-23-21 through 10-19-21
07-22-21	07-22-21	1	Grand Valley Canal	119 cfs	CBT Alva B Adams Tunnel	31258.00000	ShOP 06-23-21 through 10-19-21
07-23-21	07-23-21	1	Grand Valley Canal	119 cfs	Williams Fork Reservoir	31359.00000	ShOP 06-23-21 through 10-19-21
07-24-21	07-25-21	2	Grand Valley Canal	119 cfs	Con-Hoosier Tunnel	35927.00000	ShOP 06-23-21 through 10-19-21
07-26-21	07-27-21	2	Grand Valley Canal	119 cfs	CBT Alva B Adams Tunnel	31258.00000	ShOP 06-23-21 through 10-19-21
07-28-21	07-28-21	1	Grand Valley Canal	119 cfs	---	30895.23491	ShOP 06-23-21 through 10-19-21
07-29-21	07-29-21	1	Grand Valley Canal	119 cfs	Williams Fork Reservoir	31359.00000	ShOP 06-23-21 through 10-19-21
07-30-21	07-30-21	1	Grand Valley Canal	119 cfs	Con-Hoosier Tunnel	35927.00000	ShOP 06-23-21 through 10-19-21
07-31-21	07-31-21	1	Grand Valley Canal	119 cfs	Green Mountain Reservoir	38635.00000	ShOP 06-23-21 through 10-19-21
08-01-21	08-02-21	2	Grand Valley Canal	119 cfs	Ruedi Reservoir	39291.00000	ShOP 06-23-21 through 10-19-21
08-03-21	08-07-21	5	Grand Valley Canal	119 cfs	Green Mountain Reservoir	38635.00000	ShOP 06-23-21 through 10-19-21
08-08-21	08-09-21	2	Grand Valley Canal	119 cfs	Con-Hoosier Tunnel	35927.00000	ShOP 06-23-21 through 10-19-21
08-10-21	08-12-21	3	Grand Valley Canal	119 cfs	CBT Alva B Adams Tunnel	31258.00000	ShOP 06-23-21 through 10-19-21
08-13-21	08-17-21	5	Grand Valley Canal	119 cfs	---	30895.23491	ShOP 06-23-21 through 10-19-21
08-18-21	09-20-21	34	Grand Valley Canal	730 cfs	Grand Valley Project	22729.21241	ShOP 06-23-21 through 10-19-21
09-21-21	09-26-20	6	Grand Valley Canal	119 cfs	---	30895.23491	ShOP 06-23-21 through 10-19-21
09-27-21	09-28-21	2	Grand Valley Canal	730 cfs	Grand Valley Project	22729.21241	ShOP 06-23-21 through 10-19-21
09-29-21	10-19-21	21	Grand Valley Canal	119 cfs	---	30895.23491	ShOP 06-23-21 through 10-19-21
10-20-21	10-31-21	12	Shoshone Power Plant	1,250 cfs	---	20427.18999	

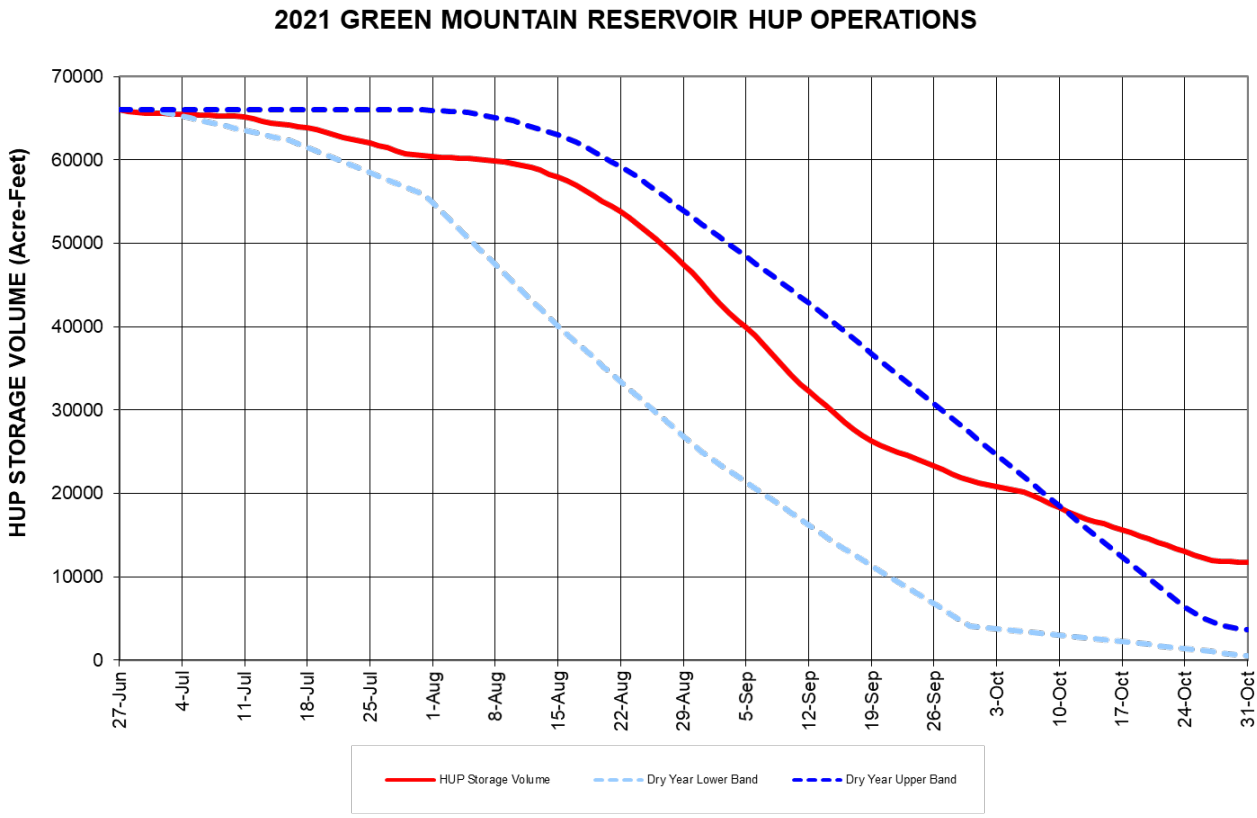
STATUS OF CALL IN THE GRAND VALLEY
(As determined using the Colorado River near Cameo gage)

DATE ON	THRU	NO. DAYS CALL ON/OFF	CALLING RIGHT	DECREED AMT.	SWING PRIORITY	SWING PRIORITY ADMIN. NO.	COMMENTS
11-01-20	04-13-21	164	Free River	---	---	---	
04-14-21	04-29-21	16	Grand Valley Canal	119 cfs	CBT Alva B Adams Tunnel	31258.00000	
04-30-21	07-10-21	72	Free River	---	---	---	
07-11-21	07-11-21	1	Grand Valley Canal	119 cfs	Ruedi Reservoir	39291.00000	
07-12-21	07-12-21	1	Grand Valley Canal	119 cfs	CBT Alva B Adams Tunnel	31258.00000	
07-13-21	07-14-21	2	Grand Valley Canal	119 cfs	Green Mountain Reservoir	38635.00000	
07-15-21	07-16-21	2	Grand Valley Canal	119 cfs	Ruedi Reservoir	39291.00000	
07-17-21	07-18-21	2	Grand Valley Canal	119 cfs	Green Mountain Reservoir	38635.00000	
07-19-21	07-19-21	1	Grand Valley Canal	119 cfs	Con-Hoosier Tunnel	35927.00000	
07-20-21	07-20-21	1	Grand Valley Canal	119 cfs	CBT Alva B Adams Tunnel	31258.00000	
07-21-21	07-21-21	1	Grand Valley Canal	119 cfs	---	30895.23491	
07-22-21	07-22-21	1	Grand Valley Canal	119 cfs	CBT Alva B Adams Tunnel	31258.00000	
07-23-21	07-23-21	1	Grand Valley Canal	119 cfs	Williams Fork Reservoir	31359.00000	
07-24-21	07-25-21	2	Grand Valley Canal	119 cfs	Con-Hoosier Tunnel	35927.00000	
07-26-21	07-27-21	2	Grand Valley Canal	119 cfs	CBT Alva B Adams Tunnel	31258.00000	
07-28-21	07-28-21	1	Grand Valley Canal	119 cfs	---	30895.23491	
07-29-21	07-29-21	1	Grand Valley Canal	119 cfs	Williams Fork Reservoir	31359.00000	
07-30-21	07-30-21	1	Grand Valley Canal	119 cfs	Con-Hoosier Tunnel	35927.00000	
07-31-21	07-31-21	1	Grand Valley Canal	119 cfs	Green Mountain Reservoir	38635.00000	
08-01-21	08-02-21	2	Grand Valley Canal	119 cfs	Ruedi Reservoir	39291.00000	
08-03-21	08-07-21	5	Grand Valley Canal	119 cfs	Green Mountain Reservoir	38635.00000	
08-08-21	08-09-21	2	Grand Valley Canal	119 cfs	Con-Hoosier Tunnel	35927.00000	
08-10-21	08-12-21	3	Grand Valley Canal	119 cfs	CBT Alva B Adams Tunnel	31258.00000	
08-13-21	08-17-21	5	Grand Valley Canal	119 cfs	---	30895.23491	
08-18-21	09-20-21	34	Grand Valley Canal	730 cfs	Grand Valley Project	22729.21241	
09-21-21	09-26-20	6	Grand Valley Canal	119 cfs	---	30895.23491	
09-27-21	09-28-21	2	Grand Valley Canal	730 cfs	Grand Valley Project	22729.21241	
09-29-21	10-19-21	21	Grand Valley Canal	119 cfs	---	30895.23491	
10-20-21	10-31-21	12	Free River	---	---	---	

SWING PRIORITY = MOST JUNIOR WATER RIGHT, EITHER TOTALLY OR PARTIALLY IN PRIORITY, U/S OF THE CALLING STRUCTURE

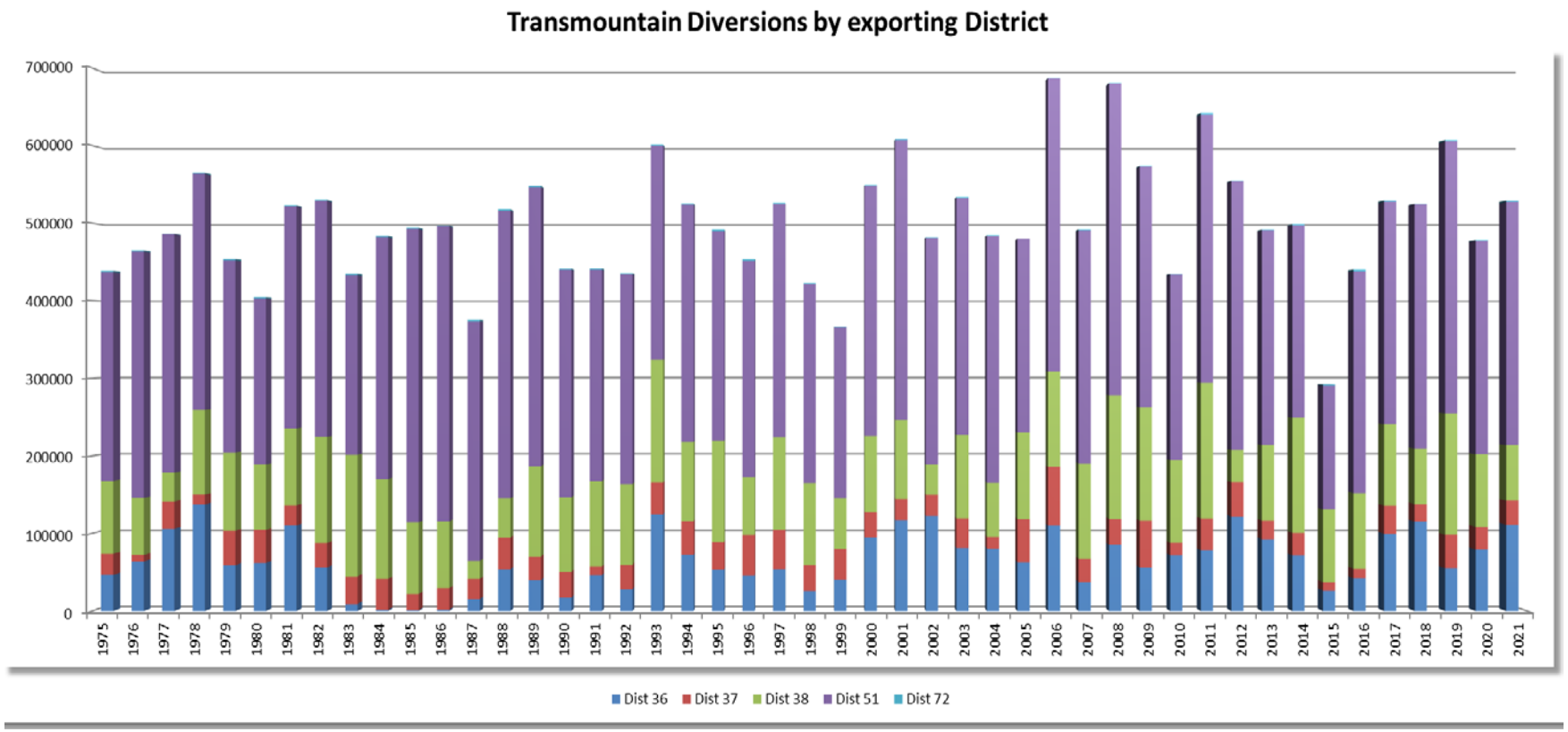


Releases from the HUP for beneficiaries were maintained within the drawdown curves of the stipulation in the OMID "check case" until October 7, 2021, allowing the HUP managing entities to declare that there would be surplus HUP water. Total HUP releases for beneficiaries was 54,713 acre-feet. Surplus releases for the 15-Mile Reach totaled 6,967 acre-feet. The irrigation year ended with 11,207 acre-feet of HUP remaining above the 500 acre-feet minimum needed for winter replacements. Late October surplus releases were limited due to October precipitation increasing streamflow and not needing all of the surplus to meet the streamflow targets for endangered fish habitat protection.



Transmountain Diversions

Transmountain Diversions (TMDs) from Division 5 are primarily delivered to the South Platte and Arkansas Rivers with a minor diversion to the Gunnison River. Total exports from Division 5 for 2021 were 529,052 acre-feet. The volume is 51 KAF more than what was diverted in 2020, and more than both the average for the 1975-2020 period of 484,363 acre-feet and the 30 year average of 497,543 acre-feet. The poor runoff conditions were generally the limitation on most TMDs with a few exceptions. Denver Water's Blue River Diversion Project saw high demand due to poor South Platte Basin supplies requiring heavy draw on Dillon Reservoir. Denver's Moffatt Tunnel also was called upon to meet that demand and Gross Reservoir had space to store west slope diversions, and therefore bypassed very little water available at the collection systems in the Frasier and Williams Fork river basins.


Transmountain Diversions by exporting District
700000
600000
500000
400000
300000
200000
100000
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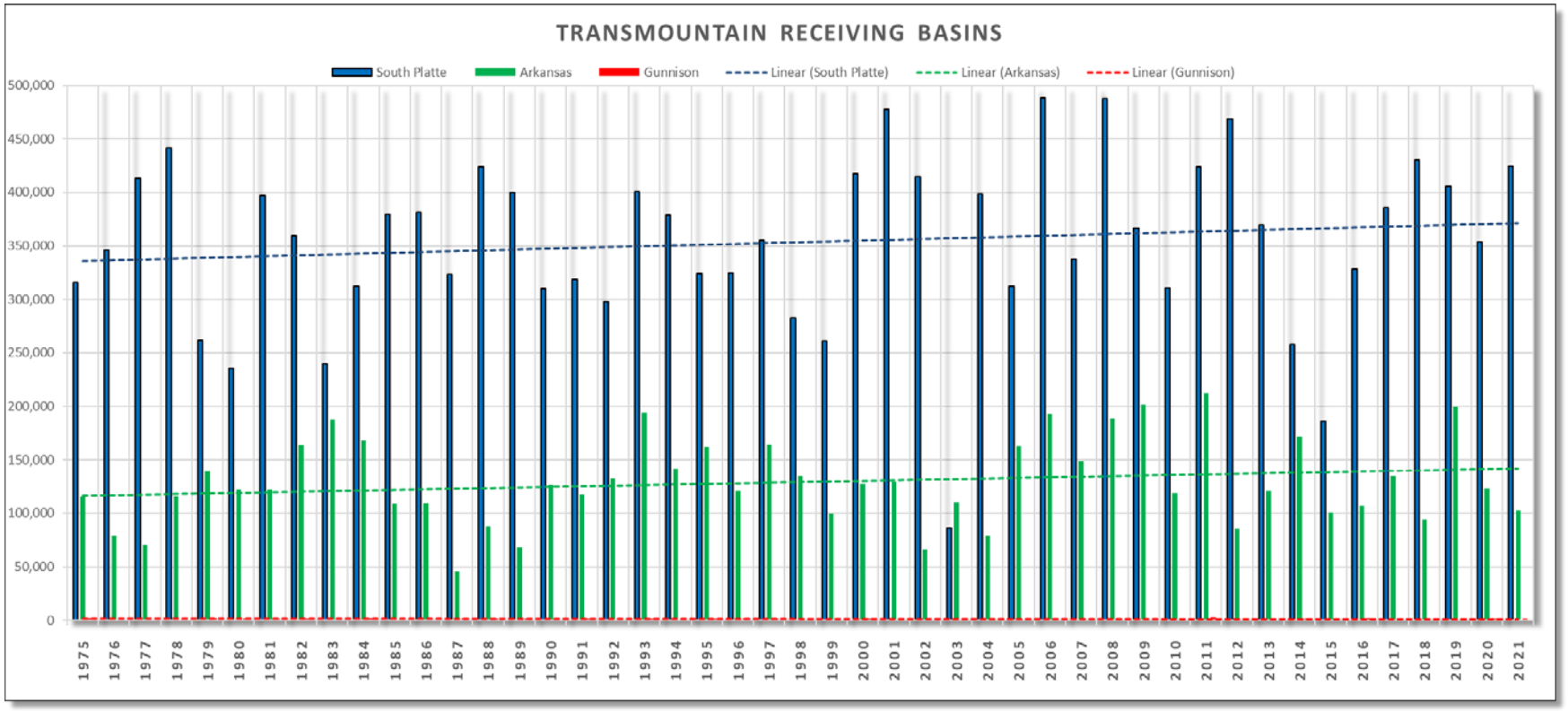
1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021
Dist 36
Dist 37
Dist 38
Dist 51
Dist 72


TRANSMOUNTAIN RECEIVING BASINS
South Platte
Arkansas
Gunnison
Linear (South Platte)
Linear (Arkansas)
Linear (Gunnison)
500,000
450,000
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300,000
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Surface Water Administration of Tributaries

The majority of Division 5's surface water administration, as measured by staff hours and operating costs, will always be the curtailment of water rights to satisfy local calls on the many tributaries with rights senior to those on the mainstem. The call chronology, stored in CDSS records, documents the administration of these tributaries. The total number of call changes recorded in CDSS on Division 5 tributaries (excluding the Colorado River mainstem calls) for irrigation year 2021 were 206. This is a slight decrease from the 218 in 2020, but far from the 2018 dry year call changes of 288. The number in all years does not fully represent the workload, as calls that are changed more than once a day during the tail end of snowmelt runoff are not recorded in the call chronology data. Further, shepherding storage releases is a major workload on these tributaries that are subject to calls, as many adjustments are made during a call with no call change. Calls for junior rights upstream of a senior call, often deemed a "call within a call," or in the CDSS terminology "non-consumptive calls" are generally for exchanges and non-consumptive rights such as hydropower or instream flows.

In September and October 2021, Eagle Park Reservoir Company completed field work for the Homestake Creek Transit Loss Study, while augmentation releases were made from Homestake Reservoir. The data collected during this study will add insight to the transit losses along Homestake Creek. This study's data will be added to the data collected during the State Line Delivery Pilot Reservoir Release conducted in 2020, with results published in 2021. Division 5 hydrographic staff assisted with the logistics of the field work and performed two streamflow measurements at the Homestake Reservoir Outflow gage (HOMOUTCO) during the study period. Study analysis results are anticipated in 2022.

Orders pursuant to C.R.S. §37-92-502

Only four administrative orders were issued in 2021. One for replacement of depletions caused by groundwater diversions at the Roadside Mine, two required entities to revise their accounting, and one was to curtail diversions and install a measuring device.

Augmentation Plan Administration

The Augmentation Plan Team assisted administration efforts by sending 54 written communications, attending 26 meetings/site visits, and issuing two orders requiring revisions to plan accounting. The type and severity of deficiencies that were addressed varied widely across the Division, but included both operational deficiencies (i.e. lack of adequate measurement devices, excess diversions, inadequate replacement sources, expired and/or canceled contracts for replacement water, etc.) and accounting deficiencies (i.e. lack of user-supplied data, inadequate accounting, calculation errors, etc.). The approach used by the Augmentation Plan Team to bring a water user into compliance with the terms and conditions of their respective decree(s) varies depending on the type, severity, and frequency of the deficiency, but generally begins with a less formal email correspondence to the water user to notify them of the first-time and/or minor deficiency. If the deficiency cannot be adequately resolved through informal communication, a formal Notice of Deficiencies is sent to the water user with a deadline to provide a response to the Division Engineer that includes a plan to address and resolve the deficiency moving forward. An administrative order is issued to the water user for those deficiencies where compliance cannot be achieved through a formal Notice of Deficiencies.

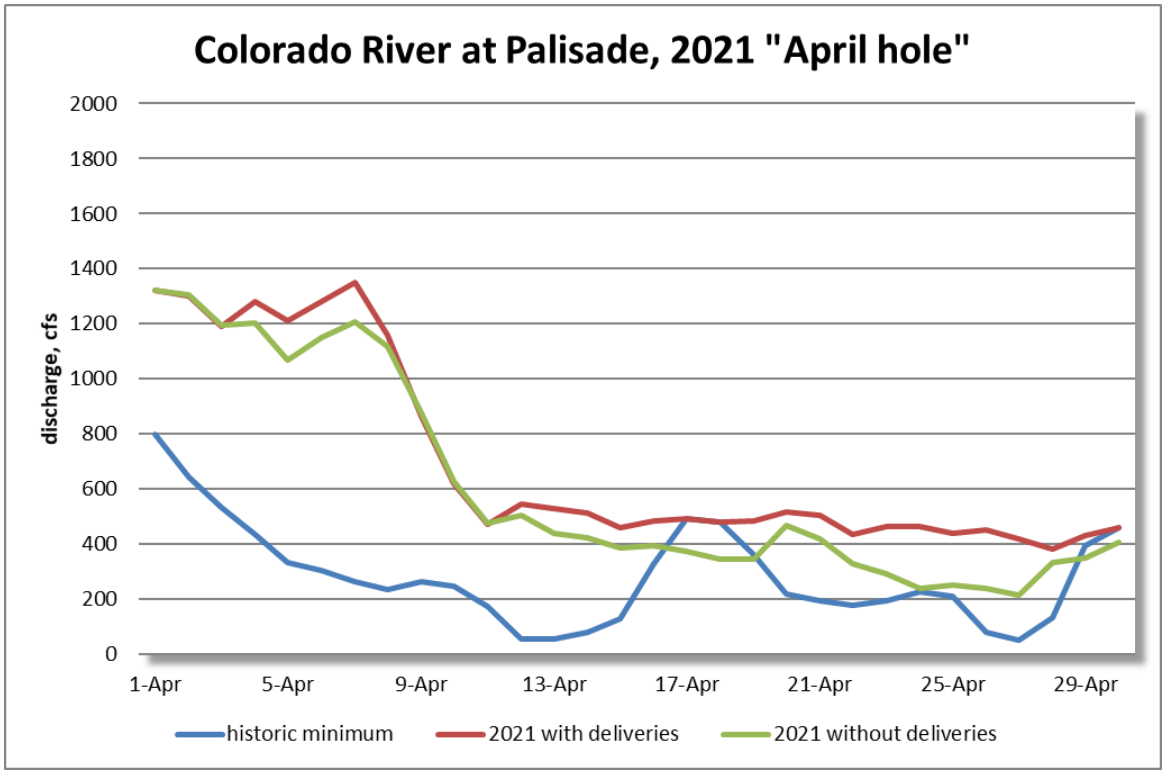
Administrative Exchanges

Formally, 19 administrative exchanges were approved pursuant to C.R.S. §37-83-104 in Division 5 for the 2021 Irrigation Year. Of the 19 approvals, 4 were revisions to the original requested and approved administrative exchange. The requested exchanges included several that have been approved in prior years for Clinton Reservoir (flood control), Grand County Road and Bridge, and three irrigation operations. Three administrative exchanges were approved for operations to mitigate the potential impacts of the Grizzly Creek and East Troublesome fires. The remaining approvals were first or second time approvals for construction projects or other short-term work.

Endangered Fish Recovery Program

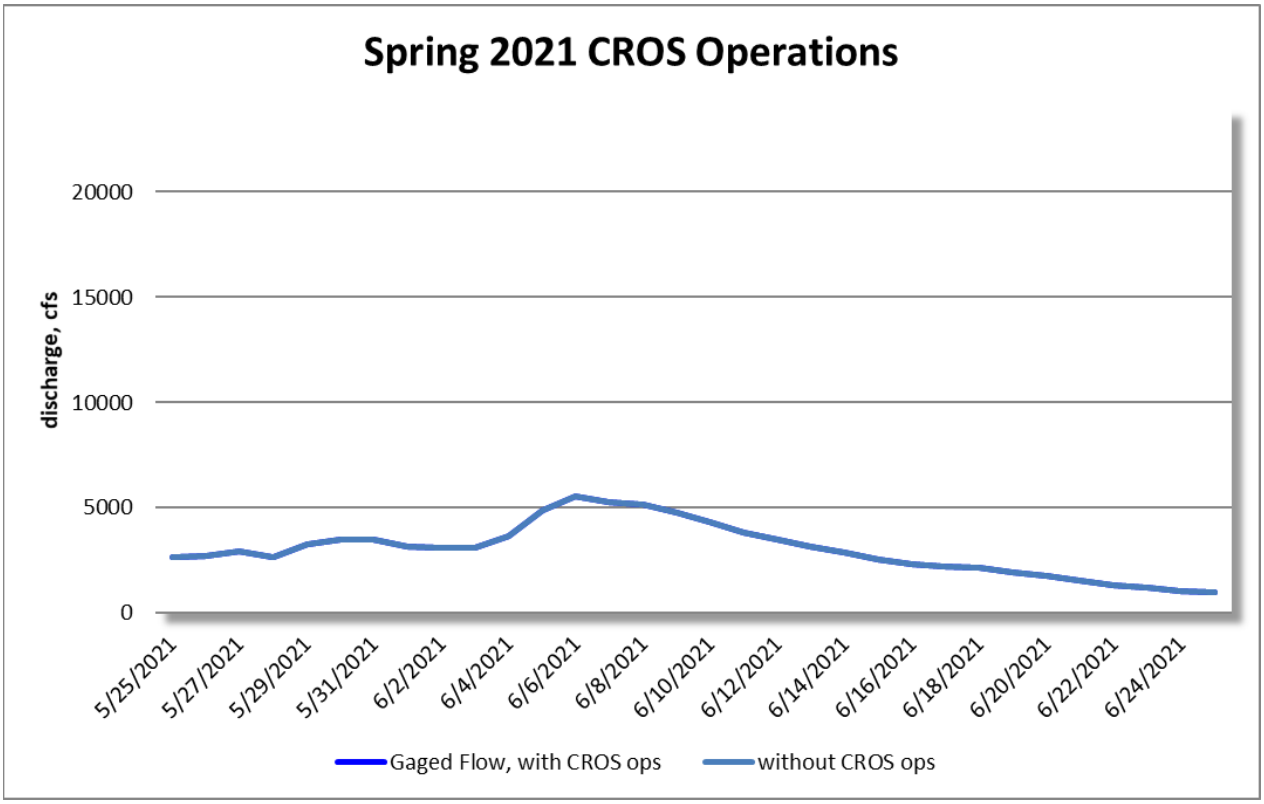
In April 2013, flows measured at the Colorado River near Palisade gage dropped as low as 55 cfs. The gage is at the head of the 15-Mile Reach, considered critical to the recovery program. The minimum flow target initially was 400 cfs for 2014. The United States Fish and Wildlife Service ("USF&WS") changed the absolute minimum flow to 500 cfs, which then was set as the new benchmark for the "April Hole." In 2019, the USF&WS requested the minimum flow be set at 810 cfs. In 2020, the USF&WS provided a technical basis for the beneficial use of an absolute minimum at 810 cfs. The 2020 guidance document was utilized in 2021 to help guide the use of available reservoir storage to enhance the flows in the 15-Mile Reach.

Planning of reservoir releases to enhance the flows in the 15-Mile Reach begins in March at the prior year's HUP wrap-up meeting. The discussions at that time of the year focus on planning to mitigate April Hole conditions if they occur. The graph below depicts the April 2021 flows compared to the historic minimum – note that this year's flows on April 17th, 18th, and 30th set the historic minimum flows on those dates. In April 2021, there was 5,048 acre-feet of HUP surplus water released to the 15-Mile Reach.

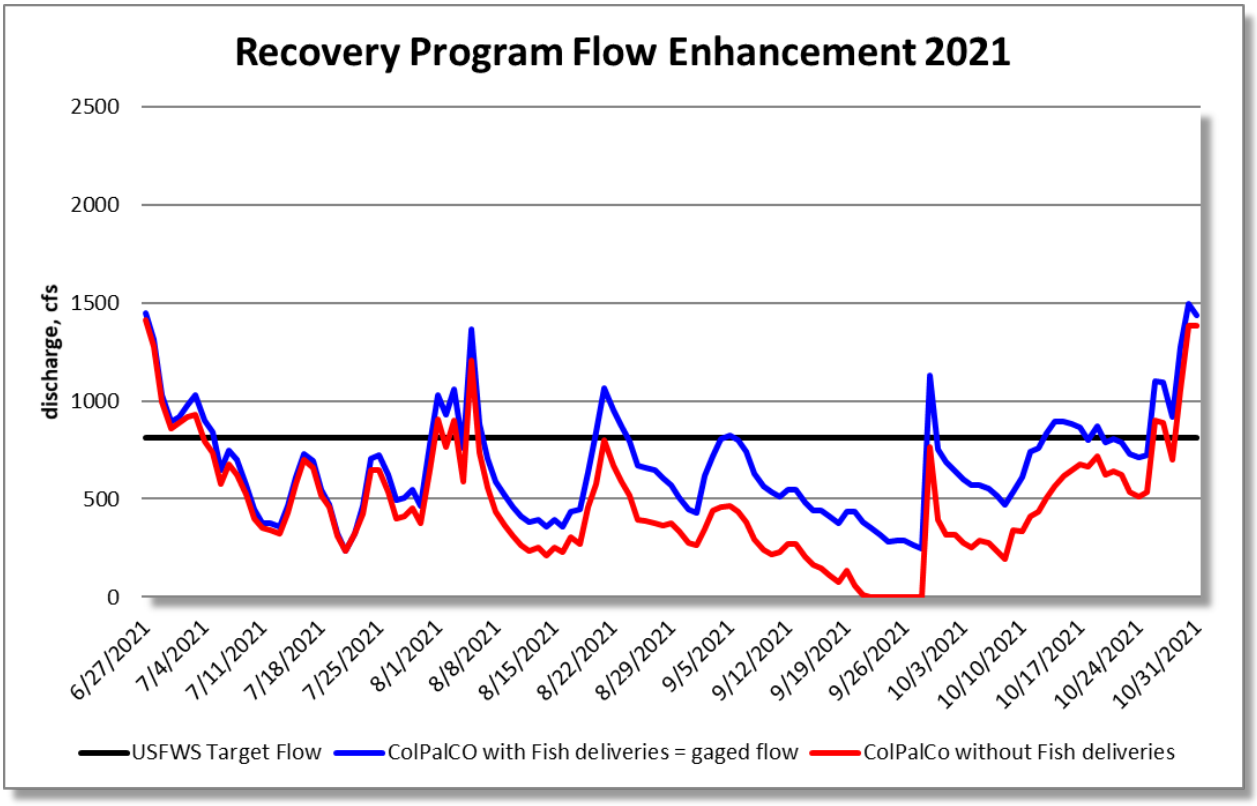


The Coordinated Reservoir Operations (CROS) program was established in 1995 as part of the Upper Colorado River Endangered Fish Recovery Program and patterned after less formal operations that Water Users and Division 5 began in the early 1990's. Preparation for CROS generally begins in March and is refined until triggered in May or June. The primary purpose of CROS is to enhance spring peak flows for a 10-day period in the 15-Mile Reach. The 15-Mile Reach is critical habitat for **THREE** endangered fish species: Razorback Sucker, Bonytail Chub, and the Colorado Pikeminnow (officially on November 17, 2021, the U.S. Fish and Wildlife Service reclassified the Humpback Chub from endangered to threatened reducing the count of endangered fish from four down to three). In years with sufficient snowpack, storage of inflows to the reservoirs can be re-timed to pass water downstream to benefit these fish without affecting reservoir yield. The goal of CROS is to time the bypass of storable inflows, release of storage, or other divertible flows at participating reservoirs and operators to enhance the peak at the Colorado River near Cameo gage, such that enhancement will result in flows that exceed 12,900 cfs, the minimum deemed to benefit the habitat, and flows that will not exceed 25,000 cfs, which is bank full in the Palisade-Grand Junction area. The decision to trigger CROS operations is made after managers of participating reservoirs are confident that bypasses at their individual reservoirs could be made prior to filling without impacting the yield of their storage rights, and the group determines CROS operations will fall within the acceptable range. Meetings usually become weekly as peak snowmelt runoff approaches.

CROS operations did not occur in 2021. The peak day for the Colorado River near Cameo was 6,350 cfs on June 6th. The operation of CROS is summarized graphically below.



With poor streamflow, Ruedi Reservoir did not fill, therefore the 4 out of 5 year pool was not available. After the fill season, it appeared unlikely that an HUP surplus declaration would be made. In 2021, limited reservoir water was available to the USF&WS to meet the Endangered Fish Recovery Program target flow for the Colorado River at Palisade gage set at the dry year minimum of 810 cfs. As with the previous three years, the intent was to set the target at one level for the entire late summer base flow augmentation period. Though set at the dry year target, lack of snowmelt runoff and persistent drought conditions prevented the 810 cfs target from being met most days throughout the augmentation period. Monsoonal rains at the end of July and early August as well as spot storms in August and September increased augmented flows above the 810 cfs target for short periods of time. The Recovery Program received water from pools in Ruedi, Wolford Mountain, and Granby reservoirs, along with releases in October via HUP surplus declaration from Green Mountain Reservoir. Management of the Government Highline Canal by the Grand Valley Water Users Association provided returns to the river above the 15-Mile Reach via the Palisade Pipeline. Considering transit losses, the total of augmented deliveries to the 15-Mile Reach was 48,309 acre-feet, with a maximum daily delivery of 301 cfs on September 17th through 22nd. Without deliveries, the minimum flow would have been 0 cfs on seven days.



East Troublesome Fire Burn Area Water Supply

The East Troublesome Fire began on October 14, 2020 and was fully contained on November 30, 2020. The fire is the second largest in Colorado history, burning 193,812 acres. A total of 366 residences and 214 outbuildings and commercial structures were destroyed or damaged. Recovery efforts to prevent debris flow and flash flooding, and to re-establish vegetation will require construction of detention ponds, re-drilling of water wells, and diversion of water in areas

where wells are permitted for household use only. Further, most properties do not have surface water rights for irrigation. Our research found 605 wells in the burn area, of which 395 were household use only. We also identified structures downstream of the burn area that would be impacted by debris flow. Solutions were needed to assist landowners in the recovery process without using wells for unpermitted purposes and/or diverting out-of-priority.

In 2021, Middle Park Water Conservancy District submitted their SWSP request to assist household use only well owners revegetate their properties through an umbrella SWSP pursuant to C.R.S. §37-92-308(5). A final review of the SWSP by DWR was not completed by the end of 2021. Administrative exchanges were also approved for Aspen Springs HOA and Northern Colorado Water Conservancy District to provide water for their operations to recover from the East Troublesome Fire.

Community Involvement

In 2021, COVID restrictions relaxed allowing for many of our meetings with water users groups to be in person again or offered in a hybrid approach with people in person and a web broadcast available. Staff attended regularly scheduled board meetings for Basalt Water Conservancy District, Collbran Water Conservancy District, Colorado River Water Conservation District (River District), Middle Park Water Conservancy District, and West Divide Water Conservancy District (West Divide). Staff also participated in a public meeting relating to the work that the River District and West Divide are pursuing to setup a regional augmentation supply on the Crystal River. The River District hosted their State of the River meetings virtually in the spring and several staff members attended and/or presented at. The River District's Annual Symposium in the fall was also attended in person and remotely by staff.

Water Court

For 2021, there were 187 new and 8 amended water court applications for a total of 195 applications. This is less than the 206 filed in 2020. Division 5 submitted 221 Summary of Consultation Reports to the Water Court in 2021, including those that were amended or supplemental. In our continued effort to help expedite court cases, nearly all consultations were filed within one week of the consultation meeting (well within the 35 day deadline), and only one was filed beyond 35 days due to an inadvertent oversight. Several cases were re-referred to the Water Court Judge. One amended application required amended written recommendations to the Judge.

General water court activities in Division 5 followed our plan to stay in our role as a technical advisor to the court and not prematurely enter cases as an opposer. The goal is to file very few Statements of Opposition. No Division 5 related Water Court cases were pending in front of the Supreme Court during 2021.

Abandonment List

The result of 2018-19 work in preparation for the 2020 Abandonment List left 243 water rights to be reviewed by the Division Engineer in the spring of 2020. The list was ultimately published on July 1, 2020, with 158 water rights in 154 structures proposed to be abandoned. The period for filing objections to the 2020 Abandonment List ran through June 30, 2021. Objections were received for 41 water rights and resulted in 23 water rights being removed. The Revised Abandonment List was prepared for publication by December 31, 2021, and included 135 water

rights associated with 131 structures. Water right owners have until June 30, 2022, to file a protest to the inclusion of their water right on the abandonment list with the Water Court. Activities to resolve any protests will begin in the back half of 2022.

Groundwater

Well Permitting and Well Drilling activity in 2021 decreased over the previous year. Division 5 groundwater permit applications for exempt and non-exempt wells are reviewed and approved by staff in both the Division 5 office and the Denver office. The following reflects the efforts of both offices. Well permitting activity was steady during 2021 receiving 792 applications with 717 water well permits approved. The approvals issued in 2021 include: 502 production well permits, 124 monitoring/observation well permits, 88 monitoring hole notice of intents, 2 gravel pits, and 1 geoexchange system loop field. This compares to 880 applications received and 822 permits issued in 2020. Drilling activity remained steady with 421 Well Construction Reports received in 2021, a slight decrease over last year where 445 Well Construction Reports were received.

Colorado River Cooperative Agreement

Major negotiation of the Colorado River Cooperative Agreement (CRCA) concluded in 2013 with the signing of the Green Mountain Reservoir Protocol and Protocol Agreement, leaving full implementation conditioned on resolution of several agreements and water rights applications, and a federal court decree. The completed pieces to the CRCA include:

- The main CRCA agreement signed in 2011,
- Green Mountain Fill Protocol, and Protocol Agreement signed in 2013,
- Water Court Case No. 10CW298 for Grand County's RCID,
- Water Court Case No. 11CW152 by Denver Water, Grand County, and the CWCB for a right of substitution using Fraser River diversions and Gross Reservoir in Water Division 1,
- Denver's "reverse exchange" decreed in Case No. 11CW21 allowing Dillon storage to be exchanged to the Moffatt Tunnel and Williams Fork Reservoir,
- Shoshone Outage Protocol Agreement signed June 2016,
- Water Court Case No. 06CW255, a diligence decree that also provides use of Dillon Reservoir for West Slope purposes and anywhere in the Denver Metro Area as defined in the CRCA,
- FERC approval of the enlargement of Gross Reservoir on July 17, 2020,
- The Federal Court effectively closed the case (regarding retained jurisdiction in the Consolidated Cases of the Blue River Decree) without any findings filed to recognize the Green Mountain Protocol as within the scope of the Blue River Decrees,
- Approval of Plans and Specifications for Construction of the enlarged Gross Reservoir on January 18, 2022.

Remaining CRCA items:

- A ruling in 13CW3077 requesting the Water Court recognize the Green Mountain Fill Protocol is within the scope of the Blue River Decree, and
- The final piece to the CRCA will be the construction of the enlargement of Gross Reservoir, which began at the beginning of 2022 and is expected to take four years.

Regarding Case No. 13CW3077, two objectors entered the case when the Amended Application was filed – City of Golden and Snake River Water District. Trial was set in the case for May 31 through June 3, 2022.

I respectfully submit the 2021 Annual Report on behalf of the Staff of Water Division 5, by

James R. Heath, Division Engineer
September 21, 2022