

Date: April 27, 2023

To: Governance Committee (GC), Water Advisory Committee (WAC) and Executive Director's Office (EDO) of the Platte River Recovery Implementation Program (PRRIP)

From: Jon Altenhofen, P.E., Colorado Water User Member, WAC

Memo Subject: Colorado's Annual Depletion Report for 2022 in the South Platte River Basin

## **Colorado's Plan for Future Depletions (CPFD)—Annual Review 2022**

**BASIS:** Mitigate the adverse impacts of new water related activities in the South Platte River Basin in Colorado on FWS Target Flows and on Program Water Projects by replacing monthly net depletions in river flow caused by population growth since July 1, 1997, on an average annual basis. Artificial groundwater recharge captures and retimes monthly net river accretions resulting from population growth into months of net river depletions (May and June) to offset such depletions. The Table below shows that adequate mitigation has occurred.

**The following basic assumptions used for 2022 accounting.** These assumptions were updated in 2020 with the PRRIP requirement that updates occur every 5 years with the last update in 2015. A Questionnaire was sent to municipal members of SPWRAP in 2020. Appendix A of the 2021 Report summarizes the 2020 Questionnaire analysis which is the basis of the assumptions below. These assumptions will be used for the first five years (2020-2024) of the PRRIP Extension.

- (1) Process still based on South Platte Basin in Colorado divided into North, Central, and South Regions based on counties and data collected and analyzed by Region.
- (2) Population Increase by Region since July 1, 1997 (baseline) via Colorado State Demographer (SDO) reports. The current SDO March 25, 2023 report is attached to this report and shows a population for January 1, 2022 in the South Platte River Basin of 4,086,677, an increase of about 2.1% per year since 1997. From this current SDO Report, the percent distribution of population by region is 28%, 61% and 11% for the North, Central and South Regions, respectively.
- (3) GPCD--Gross Water Use ac-ft/person/year at 0.1771 (down from 0.2504 prior to 2020 due to more conservation).
- (4) % Water Source Mix by Region of 6 sources; 4 basic sources of transbasin imports, nontributary groundwater, agricultural conversion and new native South Platte flow development plus a 5<sup>th</sup> source of reuse mainly through exchange and a 6<sup>th</sup> source of water conservation. Each source has a monthly accretive and/or depletive effect. See attached Figure 1 for graph of depletive and accretive effects and resulting net effect at the Stateline at Julesburg.
- (5) Monthly effects are routed to the Colorado-Nebraska Stateline using the same administrative routing loss factors.

### **CPFD Operations through 2022**

SPWRAP, Inc.--South Platte Water Related Activities Program is a non-profit group of mainly municipal Colorado water users collecting assessments (\$1.26 per tap in 2022) to pay for Colorado's water obligations for PRRIP in partnership with the State of Colorado where the State covers other Program costs. SPWRAP obtains creditable

river accretions for use in Colorado's Plan for Future Depletions from (1) dedicated groundwater recharge projects collaboratively developed and operated by SPWRAP, Inc. and (2) by paying for creditable accretions not used by existing recharge plans.

Colorado's Plan for Future Depletions also states in Section I.H.1., that new water related activities would not be covered by this plan after the average annual water supply to serve Colorado's population increase from the subgroups of "Wastewater Exchange/Reuse" and "Native South Platte Flows" (first used post-1997) exceeds 98,010 acre-feet on an average annual basis during the February-July period. For 2022, these water supply subgroups for the February-July period total 19,412 acre-feet with an average annual since start of program of 31,845 acre-feet so less than the limit of 98,010 acre-feet.

May and June Depletions (acre-feet) at Stateline from population growth:

2007	1,410
2008	1,552
2009	1,679
2010	1,807
2011	1,949
2012	2,055
2013	2,281
2014	2,420
2015	2,568
2016	2,728
2017	2,858
2018	2,983
2019	3,098
2020	2,264
2021	2,316
2022	2,351
Avg	2,270

Managed groundwater recharge retimed accretions (ac-ft) into May and June at Stateline for replacement supplies:

2007	3,277
2008	1,470
2009	4,220
2010	5,790
2011	6,545
2012	2,219
2013	1,845
2014	6,827
2015	7,653
2016	7,918
2017	5,714
2018	6,802
2019	5,789
2020	4,811
2021	5,079
2022	3,027
Avg	4,937

On the average annual basis, adequate retimed accretions (4,937 ac-ft) available to replace depletions (2,270 ac-ft).



**FIGURE 1**

Based on **Population Increase** from July 1, 1997 to: **July 1, 2022**

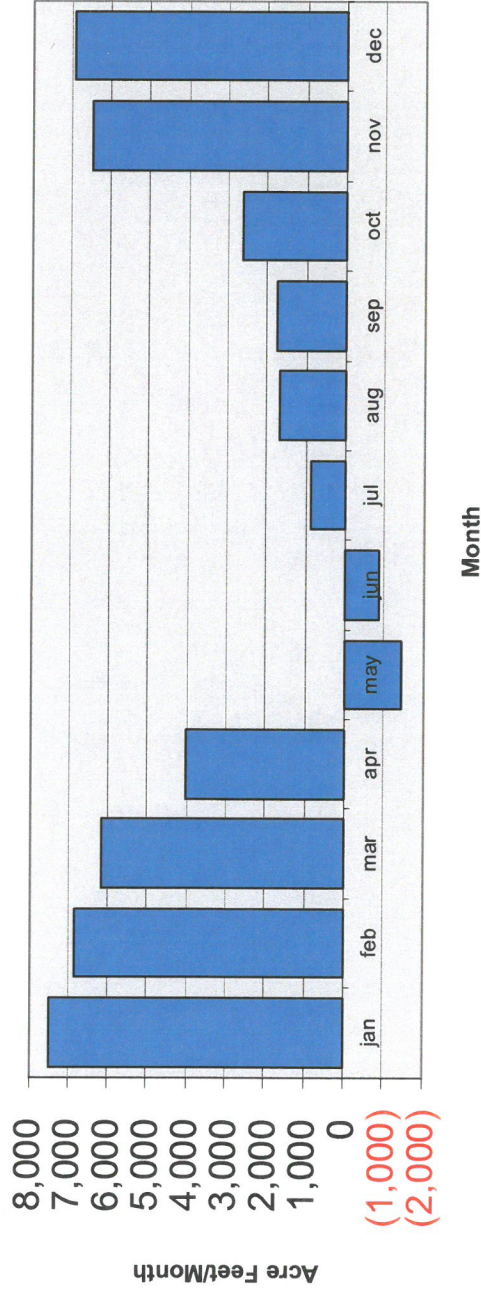
Based on **GPCD (ac-ft/person/year)**: **0.1771**

**1,503,930**

Based on **average % water supply sources** (see table below)

Based on **original Transit Loss Assumptions, Paragraph C of CPF**

**Cumulative Accretions/Depletions Effects at Julesburg**



(Acre-Feet Per Month); Negative values in ( )

Seasonal Accretions/Depletions	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	total
Transbasin Imports	5442	5116	4488	3690	2271	1672	1297	1598	1337	1956	4606	4867	38,340
Nontributary Groundwater	406	404	405	536	442	251	210	211	168	275	500	506	4,315
In-basin Agricultural Conservation	73	73	70	159	319	176	129	129	129	70	64	73	1,463
Water Reuse	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Reuse (Exchange)	(24)	(24)	(49)	(279)	(891)	(354)	(642)	(578)	(241)	(150)	(21)	(24)	(3,277)
South Platte Flow Development	1575	1269	1230	(95)	(3609)	(2629)	(121)	292	348	479	1308	1500	1,547
Total Accretions/Depletions	7,472	6,838	6,144	4,011	(1,467)	(884)	872	1,652	1,741	2,629	6,457	6,922	42,388
Total Accretion/Depletion, cfs	122	122	100	67	(24)	(15)	14	27	29	43	109	113	

**(2,351)**  
May+Jun Total  
40,473  
Oct-Apr Total

**Regional % Water Supply "Mix"**

	Northern	Central	Southern
Transbasin Imports	49.8%	38.2%	4.8%
Nontributary Groundwater	0%	0.2%	44.4%
In-basin Agric. Conservation	23.6%	12.4%	0%
Water Reuse (Exchange)	19.9%	29.7%	30.5%
Native S. Platte Flow Development (first use after July 1, 1997)	0.4%	12.8%	12.2%
Total	6.3%	6.7%	8.1%
Total	100.0%	100.0%	100.0%



**COLORADO**  
**Department of Local Affairs**  
Office of the Executive Director

March 25, 2023

Kara Scheel, P.E.  
Endangered Species Recovery Program Manager  
Colorado Water Conservation Board  
Colorado Department of Natural Resources  
1313 Sherman St. Room 721

Dear Ms. Scheel,

According to the Platte River Recovery Implementation Program the State Demography Office shall report annually population changes in each of the three regions and in Jackson County.

On the second page you will find a table with the defined regions and the State Demography Office (SDO) estimates for January 2022 and forecast for January 1, 2023 and population increase for the period. The population is expected to increase by 35,943 in the whole South Platte River Basin between January 1, 2022 and January 1, 2023.

You have also asked for the population estimates and forecasts for Jackson County for the same time period. Their estimates and forecasts are January 1, 2022 = 1,357 and January 1, 2023 = 1,352, and the expected decline to be 5 people. With changes this small, and margins of error, the population is considered to be flat.

Please be aware the estimates and forecasts are produced as vintages and will be revised annually. The data for these estimates and forecasts are based on vintage 2021 work and released November 2022. The estimates will change based on updates to administrative records. The forecast will change dependent upon economic and social conditions within the state and nationally. These data are available on our webpage at: [demography.dola.colorado.gov](http://demography.dola.colorado.gov).

Please contact me with any questions regarding the estimates and forecasts.

Regards,

*Elizabeth Garner*

Elizabeth Garner  
State Demographer  
Colorado Department of Local Affairs







Colorado Population Estimates and Forecasts - Platte River Recovery Implementation Program  
 Source: State Demography Office, Department of Local Affairs March 2023.

Counties	SDO Jan 2022	SDO Jan 2023 Forecast	Pop. Change 2022-23
Boulder	330,056	330,873	817
Broomfield 55%	41,755	42,173	418
Larimer	363,384	366,517	3,134
Logan	21,366	21,341	-25
Morgan	29,054	29,257	204
Phillips	4,481	4,462	-18
Sedgwick	2,323	2,324	1
Washington	4,857	4,856	-1
Weld	342,643	349,428	6,786
<b>Total Northern Region</b>	<b>1,139,916</b>	<b>1,151,232</b>	<b>11,316</b>
Arapahoe 90%	591,615	595,207	3,592
Adams	524,790	529,889	5,100
Broomfield 45%	34,163	34,505	342
Clear Creek	9,451	9,466	15
Denver	716,568	723,365	6,797
Gilpin	5,915	5,939	24
Jefferson	580,214	581,571	1,357
Park	17,772	17,925	153
<b>Total Central Region</b>	<b>2,480,488</b>	<b>2,497,867</b>	<b>17,380</b>
Arapahoe 10%	65,735	66,134	399
Douglas	373,151	379,272	6,121
Elbert	27,388	28,115	727
<b>Total Southern Region</b>	<b>466,273</b>	<b>473,521</b>	<b>7,248</b>
<b>South Platte River Basin Total</b>	<b>4,086,677</b>	<b>4,122,620</b>	<b>35,943</b>

SDO - State Demography Office, November 2022

