

Date: April 26, 2022

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 2021 in the South Platte River Basin

Colorado's Plan for Future Depletions (CPFD)—Annual Review 2021

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 2021 accounting. These assumptions were updated last year 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 last year's 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 April 20, 2022 report is attached to this report and shows a population for January 1, 2021 in the South Platte River Basin of 4,072,389, an increase of about 2.2% per year since 1997. From this current SDO Report, the percent distribution of population by region is 27%, 62% 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 5th source of reuse mainly through exchange and a 6th 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 2021

SPWRAP, Inc.--South Platte Water Related Activities Program is a non-profit group of mainly municipal Colorado water users collecting assessments (\$1.14 per tap in 2021) 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 2021, these water supply subgroups for the February-July period total 19,070 acre-feet with an average annual since start of program of 32,800 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
Avg	2,265

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
Avg	5,064

On the average annual basis, adequate retimed accretions (5,064 ac-ft) available to replace depletions (2,265 ac-ft).

FIGURE 1

Based on **Population Increase** from July 1, 1997 to:
1,470,218

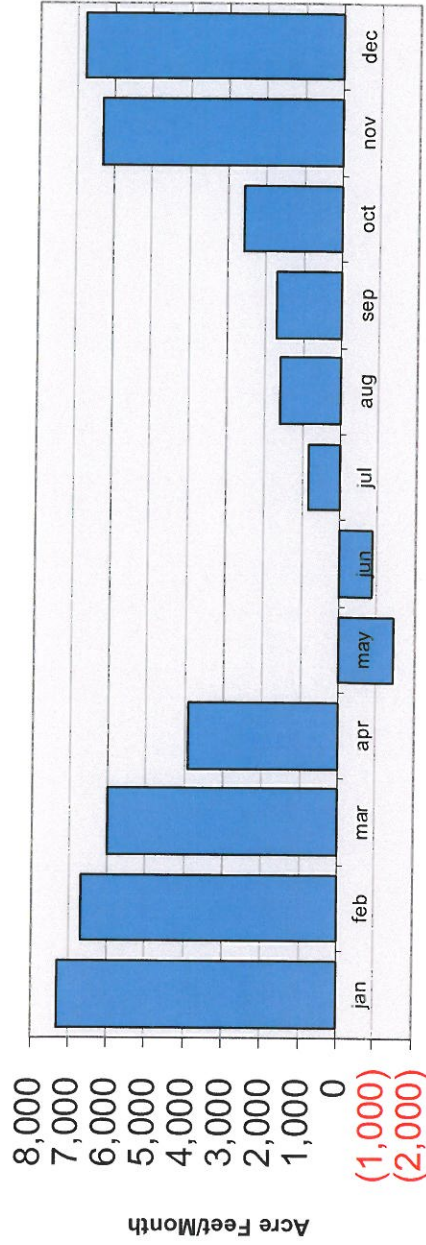
July 1, 2021

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

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

Based on original Transit Loss Assumptions, Paragraph C of CPFD

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	5310	4992	4380	3600	2217	1632	1266	1560	1305	1908	4495	4750	37,413
Nontributary Groundwater	397	395	396	524	432	245	205	207	164	269	489	494	4,219
In-basin Agricultural Conversion	71	71	68	155	310	172	125	125	125	68	62	71	1,424
Conservation	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Reuse	(23)	(23)	(48)	(274)	(877)	(348)	(632)	(569)	(237)	(148)	(21)	(23)	(3,225)
New Native South Platte Flow Development	1540	1241	1203	(93)	(3528)	(2571)	(118)	285	341	468	1279	1467	1,512
Total Accretions/Depletions	7,295	6,676	5,998	3,912	(1,446)	(870)	846	1,608	1,698	2,566	6,304	6,758	41,343
Total Accretion/Depletion, cfs	119	119	98	66	(24)	(15)	14	26	29	42	106	110	

(2,316) May+Jun
Total

39,508 Oct-Apr
Total

Regional % Water Supply "Mix"

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. Conversion	23.6%	12.4%	0%
Conservation	19.9%	29.7%	30.5%
Water Reuse (Exchange)	0.4%	12.8%	12.2%
Native S. Platte Flow Development (first use after July 1, 1997)	6.3%	6.7%	8.1%
Total	100.0%	100.0%	100.0%



COLORADO
Department of Local Affairs
Office of the Executive Director

April 20, 2022

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 2021 and forecast for January 1, 2022 and population increase for the period. The population is expected to increase by 42,764 in the whole South Platte River Basin between January 1, 2021 and January 1, 2022.

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, 2021 = 1,372 and January 1, 2022 = 1,360, and the expected decline to be 12 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 2020 work and released November 2021. 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.

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 April 2022.

Counties	SDO Jan 2021	SDO Jan 2022 Forecast	Pop. Change 2021-22
Boulder	331,879	333,457	1,579
Broomfield 55%	41,456	42,483	1,027
Larimer	361,159	364,899	3,740
Logan	21,371	21,386	15
Morgan	29,094	29,220	126
Phillips	4,540	4,547	7
Sedgwick	2,404	2,401	-3
Washington	4,825	4,831	6
Weld	335,601	343,939	8,338
Total Northern Region	1,132,327	1,147,163	14,835
Arapahoe 90%	590,998	595,542	4,545
Adams	521,864	526,773	4,909
Broomfield 45%	33,919	34,759	840
Clear Creek	9,384	9,393	10
Denver	721,371	729,195	7,824
Gilpin	5,811	5,815	4
Jefferson	582,880	584,741	1,861
Park	17,390	17,435	45
Total Central Region	2,483,615	2,503,653	20,038
Arapahoe 10%	65,666	66,171	505
Douglas	364,450	371,298	6,849
Elbert	26,331	26,868	537
Total Southern Region	456,446	464,337	7,891
South Platte River Basin Total	4,072,389	4,115,153	42,764
Jackson	1,372	1,360	-12

SDO - State Demography Office, November 2021

