


Date: April 28, 2020

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 2019 in the South Platte River Basin

## **Colorado's Plan for Future Depletions (CPFD)—Annual Review 2019**

**BASIS:** Mitigate the adverse impacts of new water related activities 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 2019 accounting.** The following assumptions were used in 2018 and again in 2019. Assumptions are to be updated every 5 years which would be in 2019. A questionnaire to update assumptions was sent to SPWRAP municipal members with a due date of March 6, 2020. However, due to the State of Colorado COVID-19 stay-at-home order only 24% of the questionnaires have been returned. An updated report with any changes in the assumptions will be available sometime in 2020 and used in the 2020 CPFD Annual Review.

- (1) South Platte Basin in Colorado divided into North, Central, and South Regions based on counties.
- (2) Population Increase by Region since July 1, 1997 (baseline) via Colorado State Demographer (SDO) reports. The current SDO April 14, 2020 report provided to the WAC shows a population for January 1, 2019 in the South Platte River Basin of 4,012,782, an increase of about 2.2% per year since 1997.
- (3) GPCD--Gross Water Use ac-ft/person/year remains at 0.2504.
- (4) % Water Source Mix by Region of 6 sources; 5 measured divertible sources (transbasin imports, nontributary groundwater, agricultural conversion, reuse, and native post-1997 S. Platte flow development) plus water conservation as a source. Each source has a monthly accretive and/or depletive effect. See attached Figure 1 for graph of depletive and accretive effects.
- (5) Monthly effects are routed to the Colorado-Nebraska Stateline using administrative routing loss factors.

## **CPFD Operations through 2019**

SPWRAP, Inc.--South Platte Water Related Activities Program is a non-profit group of mainly municipal Colorado water users collecting assessments (\$1.02 per tap in 2019) 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 2019, these water supply subgroups for the February-July period total 45,180 acre feet with an average annual since start of program of 35,340 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
Avg	2,261

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
Avg	5,082

On the average annual basis, adequate retimed accretions (5,082 ac-ft) available to replace depletions (2,261 ac-ft).

# FIGURE 1

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

**July 1, 2019**

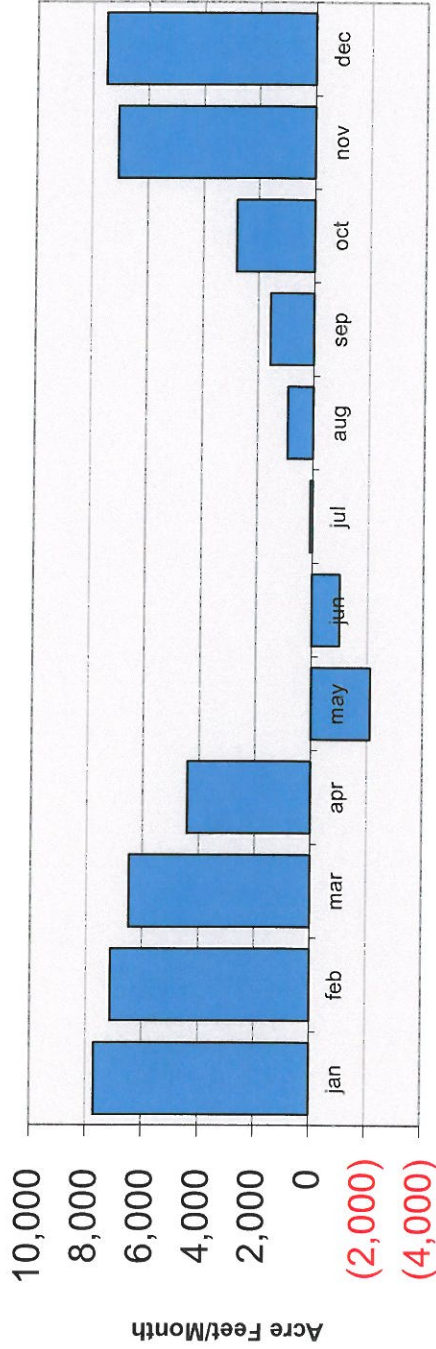
Based on GPCD (ac-ft/person/year): **0.2504**

**1,382,218**

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	
"New" Transbasin Imports	4739	4455	3908	3213	1978	1456	1129	1392	1164	1703	4011	4239	33,388	
Nontributary Groundwater	1454	1447	1451	1920	1583	898	751	757	602	985	1792	1811	15,451	
In-basin Agricultural Conservation	78	78	74	170	340	188	138	138	138	75	68	78	1,562	
Water Reuse	0	0	0	0	0	0	0	0	0	0	0	0	0	
Native South Platte Flow Development	(68)	(68)	(140)	(794)	(2,539)	(1,009)	(1,830)	(1,648)	(687)	(428)	(60)	(68)	(9,339)	
Total Accretions/Depletions	1513	1220	1182	(92)	(3,467)	(2,526)	(116)	280	335	460	1257	1441	1,486	
	7,716	7,131	6,476	4,417	(2,105)	(992)	71	919	1,552	2,794	7,067	7,501	42,548	
Total Accretion/Depletion, cfs	125	127	105	74	(34)	(17)	1	15	26	45	119	122		

**(3,098)**  
May+Jun  
Total

**43,103**  
Oct-Apr  
Total

### Regional % Water Supply "Mix"

	Northern	Central	Southern
"New" Transbasin Imports	31.9%	23.3%	21.0%
Nontrib. Groundwater	0%	9.8%	40.7%
In-basin Agric. Conservation	33.4%	3.9%	0%
Water Reuse	18.9%	29.4%	18.8%
Native S. Platte Flow Develop.	11.1%	28.7%	13.7%
Total	4.6%	5.0%	5.6%
	100.0%	100.0%	100.0%