


Date: April 30, 2019

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 2018 in the South Platte River Basin

Colorado's Plan for Future Depletions (CPFD)—Annual Review 2018

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.

No changes in basic assumptions for 2018-2019 accounting. The following assumptions have not changed and will be used for future years.

- (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 State Demographer (SDO) report. The current report provided to the WAC shows a population for January 1, 2018 in the South Platte River Basin of 3,952,791, 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 2018

SPWRAP, Inc.--South Platte Water Related Activities Program is a non-profit group of mainly municipal Colorado water users collecting assessments (\$0.90 per tap in 2018) 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" exceeds 98,010 acre feet during the February-July period. As of 2018, these water supply subgroups for the February-July period total 43,300 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
Avg	2,191

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
Avg	5,023

On the average annual basis, adequate retimed accretions (5,023 ac-ft) available to replace depletions (2,191 ac-ft).

FIGURE 1

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

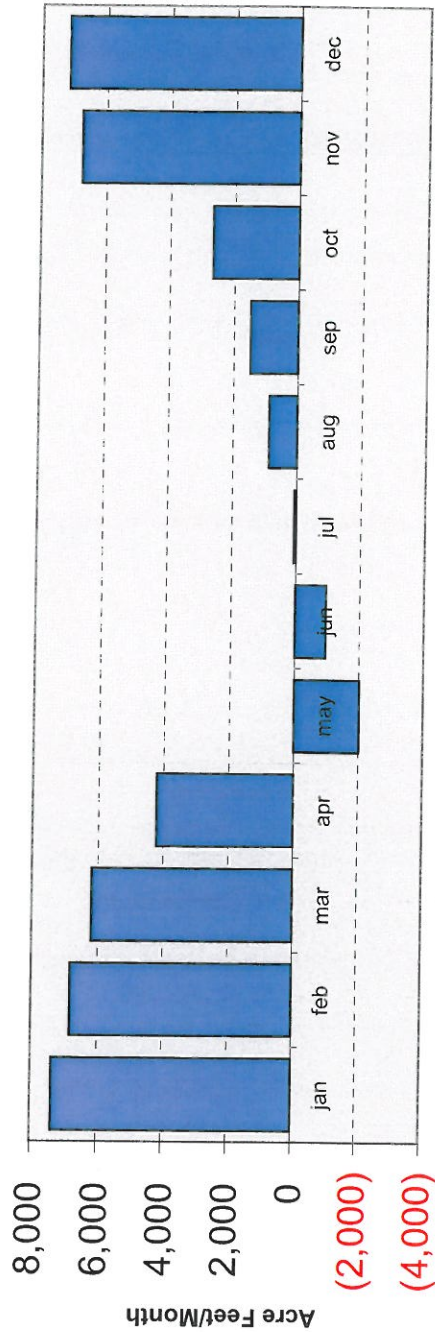
July 1, 2018

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

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	4534	4262	3740	3074	1893	1393	1081	1332	1114	1630	3838	4056	31,946
Nontributary Groundwater	1381	1375	1378	1824	1504	853	714	719	572	935	1702	1720	14,678
In-basin Agricultural Conversion	75	75	71	163	326	180	132	132	132	72	65	75	1,496
Conservation	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Reuse	(65)	(65)	(134)	(762)	(2434)	(967)	(1755)	(1579)	(658)	(410)	(57)	(65)	(8,952)
Native South Platte Flow Development	1447	1166	1130	(88)	(3315)	(2416)	(111)	268	320	440	1201	1378	1,421
Total Accretions/Depletions	7,372	6,813	6,185	4,212	(2,027)	(956)	60	872	1,479	2,666	6,749	7,164	40,590
Total Accretion/Depletion, cfs	120	122	101	71	(33)	(16)	1	14	25	43	113	117	

(2,983)
May+Jun
Total

41,161
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. Conversion	33.4%	3.9%	0%	
Conservation	18.9%	29.4%	18.8%	
Water Reuse	11.1%	28.7%	13.7%	
Native S. Platte Flow Develop.	4.6%	5.0%	5.6%	
Total	100.0%	100.0%	100.0%	