Colorado's Plan for Future Depletions

Platte River Recovery Implementation Program

Kara Scheel
Colorado Water Conservation Board

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Colorado's Plan for Future Depletions

Attachment 5 Section 9

I. South Platte River Basin
II. North Platte River Basin

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I. South Platte River Basin

I.A. Population Estimates

1997 Population baselines:

1. Northern Region: Boulder, Weld, Larimer, Washington, Morgan, Sedgewick, Logan, Phillips (701,470)
2. Central Region: Denver, Jefferson, Adams, Clear Creek, Gilpin, Park (1,766,207)
3. Southern Region: Arapahoe, Douglas, Elbert (194,602)

"Colorado State Demographer reports the actual population in each region (which shall be the Population Baseline for the next succeeding reporting period), and an estimate of the projected Population Increase for the next succeeding reporting period."

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I. South Platte River Basin

I.B. Water Use Effects and Assumptions

Gross per capita water use (2020) = 0.1771 AF/person/year

Source	Northern Region	Central Region	Southern Region	Accretive (or Depletive) Effect
New Transbasin Imports	40%	30%	20%	64%
Nontributary Groundwater	0%	10%	50%	68%
Ag. to Urban Conversion	35%	5%	0%	10%
Conservation	5%	15%	10%	0%
Wastewater Exchange/Reuse	10%	25%	10%	(41%)
Native South Platte Flows	10%	15%	10%	(27%)

I.C. Transit Loss assumptions

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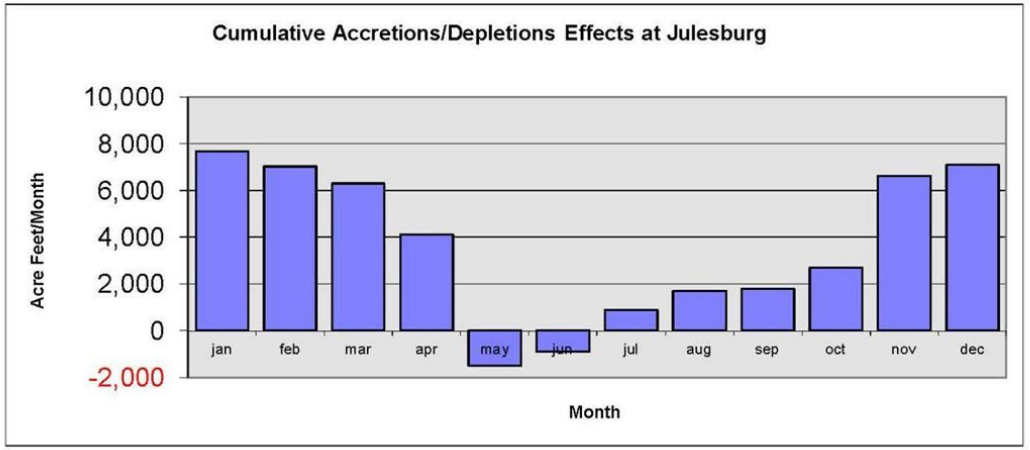
FIGURE 1

Based on Population Increase from July 1, 1997 to: July 1, 2023 Based on GPCD (ac-ft/person/year): 0.1771

1,541,623

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

Based on original Transit Loss Assumptions, Paragraph C of CPFD



(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	5578	5244	4601	3782	2328	1714	1329	1638	1370	2005	4722	4989	39,301		
Nontributary Groundwater	416	414	415	550	453	257	215	217	172	282	513	518	4,423		
In-basin Agricultural Conversion	75	75	71	163	327	181	132	132	132	72	65	75	1,500		
Conservation	0	0	0	0	0	0	0	0	0	0	0	0	0		
Water Reuse	(24)	(24)	(50)	(286)	(913)	(363)	(658)	(593)	(247)	(154)	(22)	(24)	-3,359		
New Native South Platte Flow Development	1614	1301	1261	(98)	(3699)	(2695)	(124)	299	357	491	1340	1538	1,586		
Total Accretions/Depletions	7,659	7,010	6,298	4,111	(1504)	(906)	894	1,694	1,785	2,695	6,619	7,096	43,450	-2,410	41,488
														May+Jun	Oct-Apr
Total Accretion/Depletion, cfs	125	125	102	69	(24)	(15)	15	28	30	44	111	115		Total	Total

Regional % Water Supply "Mix"

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

I.F. Determination of Cumulative Effect

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I. South Platte River Basin

I.G. Mitigation of Cumulative Effect

"…Colorado will, in each Reporting Period, undertake such re-regulation projects within Colorado as are necessary to shift water flows at a point upstream from the Colorado-Nebraska state line and downstream from the last diversion in Colorado, from periods of net accretion to periods of net depletion."

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I.H. ESA Compliance

"Except as described below, qualifying new water related activities that are in the South Platte Basin and are operated on behalf of Colorado water users are covered by the Colorado plan for future depletions."

1. New water related activities would not be covered by this plan after the average annual water supply to serve Colorado's population increase from "Wastewater Exchange/Reuse" and "Native South Platte Flows" exceeds 98,010 AF during the Feb - July period"

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I.H. ESA Compliance (exceptions cont.)

2…. does not cover construction of a major on-stream reservoir located on the mainstem of the South Platte River anywhere downstream of Denver. In addition, the Colorado plan for future depletions does not cover hydropower diversion/return projects that divert water including sediments from the main stem of the South Platte River anywhere downstream of Denver, Colorado and return clear water to the South Platte River"

I.I. No power to Limit Colorado Water Rights

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I. South Platte CPFD - 2023 report

Section I.H.1.

Average annual water supply in "Wastewater Exchange/Reuse" and "Native South Platte Flows" for Feb - July 2023: 19,898 AF
(Avg. Annual since start of program: 31,049 AF) **< 98,010 AF limit**

2023
May-June depletions at Stateline: 2,410 AF
Managed GW recharge accretions May - June: 5,549 AF

Average (2007 - 2023)
May-June depletions at Stateline: 2,278 AF
Managed GW recharge accretions May - June: 4,973 AF

Accretions > Depletions

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II. North Platte River Basin

II.B. North Platte Decree

Decree in *Nebraska v. Wyoming*, 325 U.S. 589(1945), *modified*, 345 U.S. 981 (1953)

- Diverting water for **145,000 acres** in Jackson County during one irrigation season
- Storing **17,000 acre-feet** of water for irrigation purposes
- Exporting **60,000 acre-feet** of water

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II.C Existing Water Related Activities

- Irrigation up to **134,467 acres** in any one year
- Population of **2022 people**
- Pre-1997 piscatorial, wildlife, and other environmental uses

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II. North Platte River Basin

II.D. New Water Related Activities

- Irrigation above **134,467 acres** in any one year
- Municipal:
  - **Population exceeds 2022 people**
  - 0.2504 acre-feet per capita per year, 35% CU
- Industrial Use:
  - **Post-1997 industrial uses**
- Piscatorial, wildlife, and other environmental uses:
  - **Post-1997 uses**

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II. North Platte River Basin

II.E. North Platte Baseline

1. Annual depletion accounting overrun or underrun compared with baseline
2. If exceed baseline
   - **Replacement on a one-to-one basis**
   - **CO will provide mitigation plan approved by GC**

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DRAFT NORTH PLATTE ANNUAL ACCOUNTING FORM FOR YEAR 2023

1.	Irrigated acres during year:	93,998	acres	X	0.83	acre-feet (af)/acre*	=	78,018 af
2.	Population during year:	1,309	people	X	0.088	af/person**	=	115 af
3.	Total new post-1997 industrial uses:						=	77 af
4.	Total new post-1997 piscatorial, wildlife and environmental uses (PWEUs), not incidental to agriculture:						=	25 af

a) The decree issued in case number 10CW57 is for an absolute instream flow water right held by the CWCB to preserve the natural environment for 4.0 cfs (April 1 – July 15) and 0.7 cfs (July 16 – March 31). The CU is 0 af.

b) The decree issued in case number 10CW48 is for an absolute surface water right to maintain a 4.0-acre fish pond owned by Donald Right for 1 cfs. The diversion will occur during the irrigation season (June 1 to October 31). The CU is estimated from information from the court application and is 5.92 af for evaporation.

c) The decree issued in case number 13CW3018 is for an absolute instream flow water right held by the CWCB to preserve the natural environment for 3.6 cfs (May 1 – July 31), 1.0 cfs (August 1 – September 30) and 0.5 cfs (October 1 – April 30). The CU is 0 af.

d) The decree issued in case number 17CW3019 is for an absolute surface water right of 38.6 acre-feet for the Lake Creek Wetlands over 18.5 acres for wildlife propagation. Evaporative loss, CU, is 19.2 acre-feet.

TOTAL CU	=	78,235 af
BASELINE CU	=	111,785 af
ANNUAL CU UNDERRUN(-)	**=**	**-33,550 af**

II. North Platte - 2023 report

- Colorado is meeting its depletion plan
- **Total consumptive use was less than the baseline by 33,550 AF**

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Questions?

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* This 0.83 af/acre CU factor may be significantly higher if a high altitude crop coefficient is used. Current information demonstrates that the CU for irrigated pasture grass, assuming a full water supply, could be as high as 1.82 af/acre, or higher. Nevertheless, Colorado agrees to use the 0.83 af/acre factor for the first increment, and will not seek a change of this factor from the Governance Committee during the First Increment.

** 0.2504 af/person diversion X 35% CU = 0.088 af/person. (Based on applying South Platte Basin M&I assumptions to Jackson County as of July of the year that begins the increment [i.e. July 2007]. The 2007 South Platte Basin M&I per capita use was changed to 0.2504 af/person by the Governance Committee on October 13, 2009.)

Notes

1) If total af of CU ever totals more than 111,785 af (177 af for population baseline and 111,608 af for agricultural baseline) under the current set of assumptions, then Colorado would propose mitigation as described below. Note, this does not add in the CU for pre-1997 PWEUs or pre-1997 industrial uses because these uses will not be used to offset other types of uses that are new depletions.

2) Total annual overruns and under runs to these benchmarks will be quantified and reported. If a total overrun occurs, Colorado will provide a mitigation plan for the review and approval of the Governance Committee. The mitigation plan will identify the total annual overrun that occurred, and offer a means to replace the overruns in the year following the year the overruns occurred.