

Groundwater Recharge Recapture Project

WAC Meeting

5/5/2020

Early Concepts

- The general idea of augmentation wells is not new to the Program ...

Water Management Study, 2008:

- *“Option 1: Active Groundwater Pumping from High Groundwater Areas”*

WAC minutes, May 2012:

- *“Besson thought maybe the Program could pump groundwater to the river for credit and use a recharge project to build up the groundwater mound...”*

Cook Well



- Approved score of 160 AF/Yr
- Construction expenditures = \$47,000
- Annual expenditures = \$3,500 (variable)

Recapture Network

Memo to GC (regarding Cook well), May 2015:

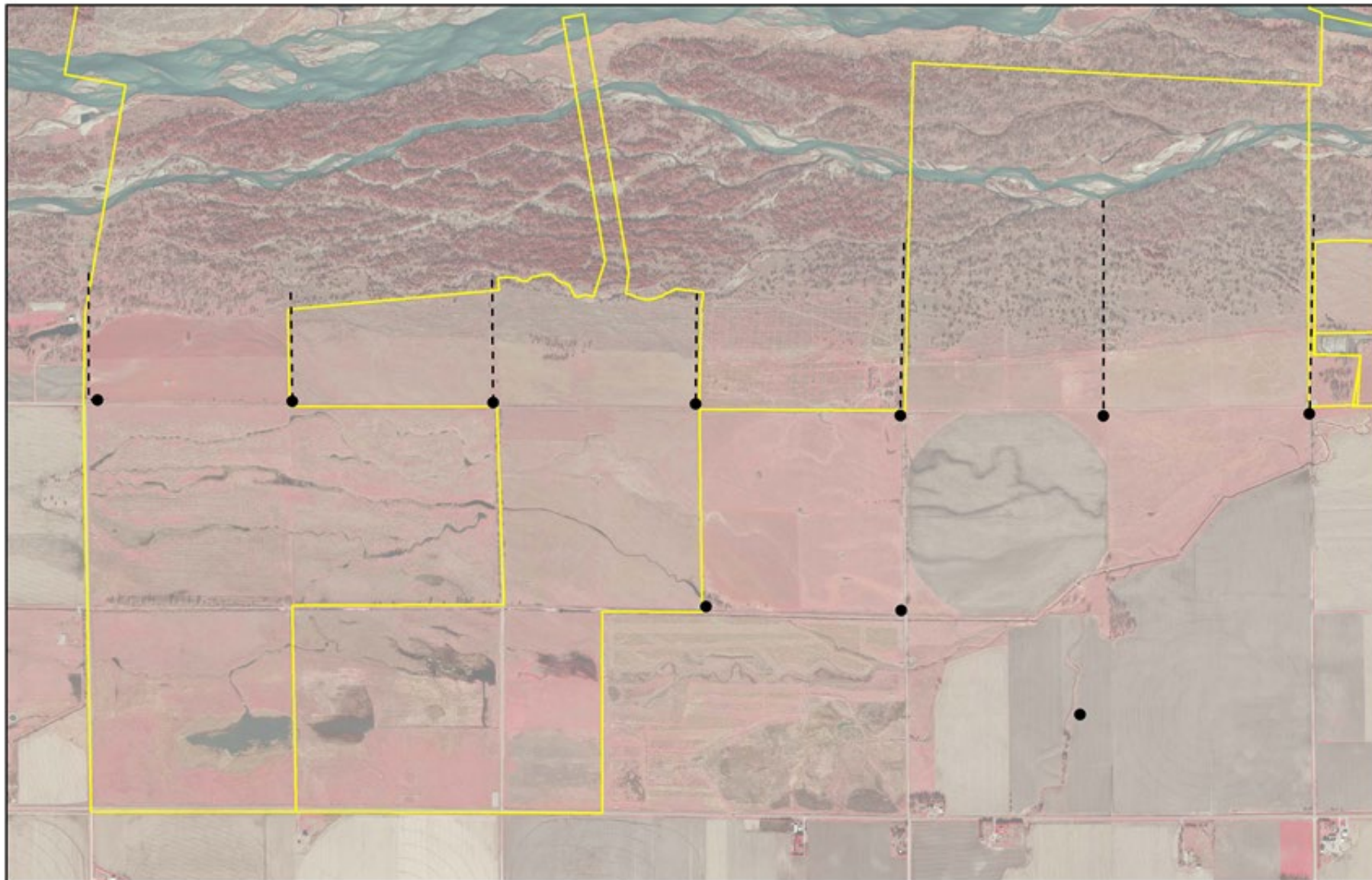
- *“After the pilot is conducted in 2015/2016, the ED Office intends to compile data regarding groundwater levels, drain levels, pumping volumes and estimated scores and provide the information to the WAC. The groundwater pumping project could be expanded in the future, if supported by the WAC and GC.”*
- Have been talking w/ NRDs and DNR over last year about how to expand recapture project
- Phase I: Pilot sized recapture “network” ... more than 1 well
- Phase II: Regional recapture network

CWR Recapture Network

- Recapture network downstream/gradient of CWR recharge project

Benefits:

- Pilot project with “network” of several wells
- Re-time accretions from Phelps, Elwood and CWR recharge projects
- Controllable water adds for flexibility (test flows, etc.)
- Dewatering
- Rural support for fire departments



CWR Area Recharge Recapture Network Non-Variance Scenario

Conceptual/Draft for Review

Legend

- Recapture Well Locations
- - - Return Pipeline Alignment
- Program Property Boundary



0 0.25 0.5 Miles

Date:
1/31/2020

CWR Recapture Network

- Yield = 150 AF/yr (preliminary model)
- Cost = \$85,000 to \$112,000 per well
- Costs/agreements are in negotiations
 - Network likely owned (via a buy-back) and operated by NRD
 - Program pays via a Water Service Agreement
 - NRD operates per WSA and for their and landowner benefits

Costs vs Other WAP Alternatives

			Project evaluated over 50 years				Project evaluated over extended First Increment					
			Net present value of total cost	Annual equivalent cost	Score (acre-feet)	Annual cost, \$/acre-foot	Net present value of total cost	Annual equivalent cost	Score (acre-feet)	Annual cost, \$/acre-foot		
Up-front capital costs			Annual O&M									
Excess flows, controllable												
Slurry walls			\$ 9,800,000	\$ 182,440	\$ 13,634,092	\$ 529,896	2,800	\$ 189	\$ 11,066,301	\$ 926,986	2,800	\$ 331
Recapture Wells (Marshall)			\$ 1,130,000	\$ 143,500	\$ 4,649,988	\$ 180,724	1,500	\$ 120	\$ 2,670,861	\$ 223,729	1,500	\$ 149
Excess flows, non-controllable												
Broad scale recharge			\$ 5,300,000	\$ 372,250	\$ 13,521,783	\$ 525,531	4,000	\$ 131	\$ 8,387,775	\$ 702,615	4,000	\$ 176
Phelps County recharge				\$ 194,970	\$ 5,011,137	\$ 194,760	2,700	\$ 72	\$ 2,322,142	\$ 194,518	2,700	\$ 72
Elwood Reservoir recharge				\$ 547,598	\$ 14,074,098	\$ 546,997	2,800	\$ 195	\$ 6,521,720	\$ 546,302	2,800	\$ 195
Water leases, controllable												
CNPPID irrigator lease				\$ 659,250	\$ 16,962,347	\$ 659,250	1935	\$ 341	\$ 7,870,084	\$ 659,250	1935	\$ 341
Potential North Platte lease												
Other projects, controllable												
Pathfinder Municipal Account				\$ 546,000	\$ 14,048,451	\$ 546,000	6,350	\$ 86	\$ 6,518,113	\$ 546,000	6,350	\$ 86

Note: The net present value and annual equivalent value of project cost are calculated as per guidance provided by the Water Resource Council's "ECONOMIC AND ENVIRONMENTAL PRINCIPLES AND GUIDELINES FOR WATER AND RELATED LAND RESOURCES IMPLEMENTATION STUDIES"

Phase I and Phase II

- Phase I
 - Recommend 5 – 6 wells downstream of CWR
 - Costs/score scale linearly (in Phase I)
- Phase II
 - Work w/ DNR and NRD
 - Need to discuss PRRIP goals, objectives, limitations, etc.
 - Costs/score do NOT scale linearly (in Phase II) ... need to be creative

Both projects depend on continued recharge operations

Permitting

- Permit required from Tri-Basin NRD.
- Well pumping ≤ 1000 gpm require 600' spacing.
- Environmental well requires public presentation of permit and opportunity for public comment.
- TBNRD Board approval.
- Pumping limited to recovery of recharge diversions.
- No ACOE permit for rip-rap placed within historic banks.
- No NPDES (NDEE) permit required for groundwater pumping.

Landowner Agreements

- Installation/Operation of wells at Cottonwood Ranch specified in interlocal agreement between PRRIP & TBNRD.
- NRD will secure easements from private landowners.
- Two landowner options. 10 yr / 20 yr easement.
- Easements self-renew w/ agreement of both parties.
- \$2500/yr/site over 10 years OR \$3000/yr/site over 20.

Operations

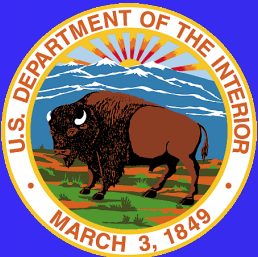
- General operating rules will be agreed upon before operations begin.
- NRD operates the wells at request of PRRIP.
- Pumping could be limited based on which REA rate plan is selected. (anytime interruptible vs non-controlled)
- Remote well operation using commercial SCADA system. (FieldWise)
- Dedicated observation wells monitor groundwater levels.
- Flowmeters record pumping output.

Timeline

- June 2020: Interlocal agreement approval by PRRIP (GC meeting) & TBNRD.
- Fall 2020: Phase I wells & pipelines installation.
- Winter 2020/21: Electrical connection and controls.
- Spring 2021: Phase I wells ready to operate.
- Phase II planning in 2020/21, and installations begin Fall 2021 – ongoing through 2022.

New Federal Depletions

**Water Advisory Committee
Meeting
May 5, 2020**



**U.S. Fish and Wildlife Service
Regions 5 & 7
Water Resources**



Federal Depletions Plan

- Purpose
- Federal Depletions Definition
 - What are they?
 - What they are not?
- Coverage
- Current Uses

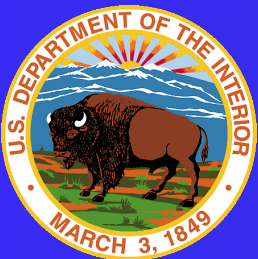


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Federal Depletions Plan

- Approach for offsetting or preventing the impacts of new federal water related activities on the:
 - Occurrence of target flows; and
 - Program effectiveness in reducing shortages to target flows



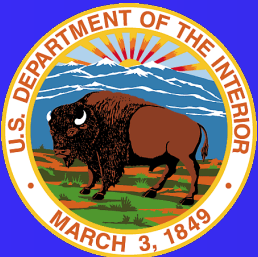
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New Federal Depletion

- Definition
 - A new water related activity¹ implemented by federal agencies that primarily provide a “national benefit” to the general public

¹...“water related activities” means activities and aspects of activities which (1) occur in the Platte River basin upstream of the confluence of the Loup River with the Platte River; and (2) may affect Platte River flow quantity or timing, including, but not limited to, water diversion, storage and use activities, and land use activities.

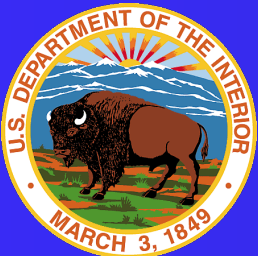


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Example of New Federal Depletions

- Include, new consumptive water uses in
 - National Forests, Refuges, Parks, Monuments, and Historic Sites, including recreational, habitat improvement, administrative, and emergency uses
 - Federal facilities which provide benefits that are primarily national in scope, such as national security, national research and development activities

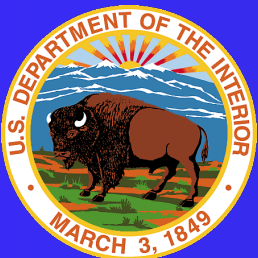


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Outside Scope of the Federal Depletions Plan

- Plan doesn't not include:
 - Impacts of past and future vegetation management by the USFS in the Platte River basin
 - Large new federal depletions (e.g., federal depletions measured in thousands of acre-feet per year)
 - For example: new or enlarged reservoirs, large well fields, large surface water diversions, or other large-scale activities for a "national benefit"

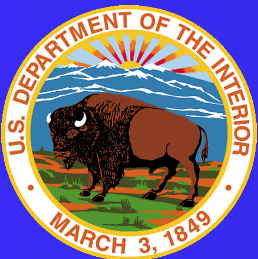


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Outside Scope of the Federal Depletions Plan (continued)

- Water conservation activities implemented on privately-owned agricultural lands in the Platte River basin that may result in new depletions
 - For example: water and land conservation activities



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Not Obviously a Federal or State Depletion?

- Final classification of the project will be made by the FWS in coordination with the Platte River Governance Committee
- States retain the right to determine whether the activity may be covered by that state's plan

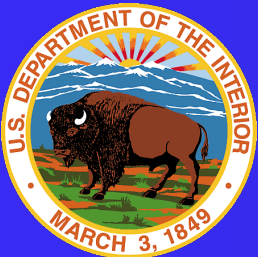


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Maximum Coverage for Federal Depletions

- 350 acre-feet annually for each state (Wyoming, Colorado, and Nebraska)
 - For duration of first increment (includes extension)
 - States work with cooperating federal agencies to secure water

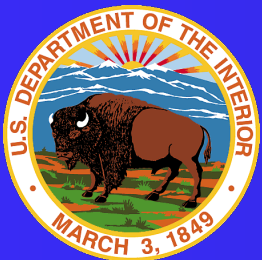


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Replacing and Offsetting Federal Depletions

- Retire an equivalent federal depletive activity
- Provide funding to appropriate parties to offset depletion
 - For example, payment to SPWRAP
- Other means
 - For example, lease augmentation water

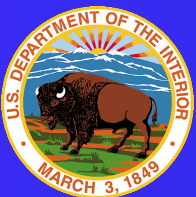


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Federal Agencies' 2019 Use

Agency	2019 Total Use (acre-feet)	MOA	Purpose
USFWS	3.1	Yes	Bison at Rocky Mtn Arsenal
FHWA	1.2	Yes	Minute Man Missile Roads
USFS	none	Yes	NA
BLM	none	Yes	NA
WAPA	none	Yes	NA
DOE	none	No	NA



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Nebraska New Depletion Plan

Annual Report and Key Elements

PRRIP Water Advisory Committee Meeting
May 5, 2020

Jessie Winter
NeDNR Integrated Water Management Coordinator



Outline

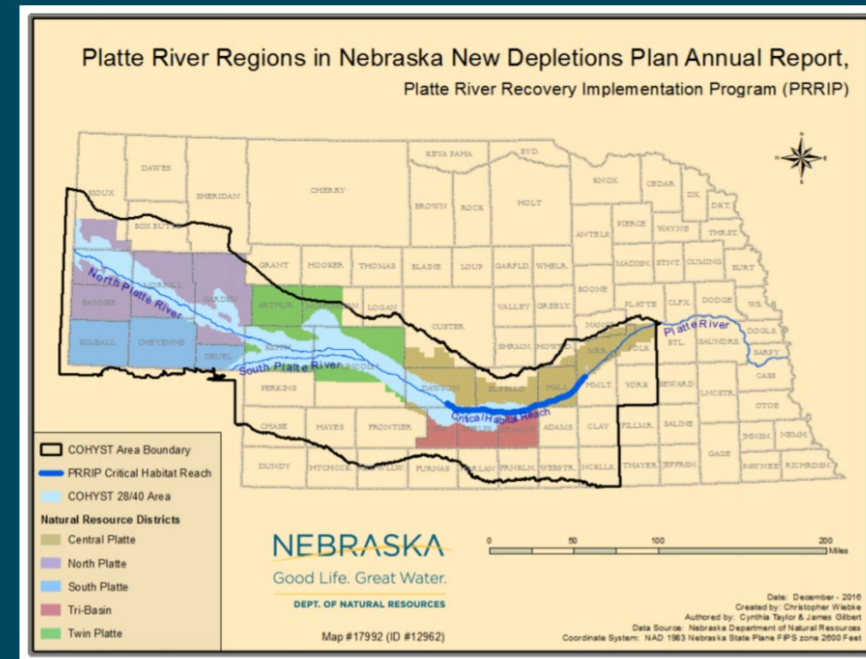
- NNDP Key Elements
- Annual Report on 2018 Permitted Activities
- 2019 Robust Review

Key Provisions of the NNDP

- Prevent or mitigate new depletions to target flows due to new or expanded uses of water after July 1, 1997
 - This is also required by Nebraska state laws, and even require further progress toward a “Fully appropriated” condition
- Implemented through actions taken by NeDNR or the NRDs
 - NeDNR is responsible for surface water
 - NRDs are responsible for groundwater
- Yields of WAP projects may be reserved by Nebraska for offsets

Geography of the NNDP

- NNDP goes down to Chapman
- Report new permits, depletions, and mitigations upstream of and within the critical habitat area
- 28/40 primarily for reporting purposes
 - Robust Review assesses all depletions in the basin, required under state laws, and the entire modeled area



Target Flows

- Table from NNDP used to determine what needs to be protected

<i>Time Period</i>	Target Flow (cfs)	
	<i>Wet and Normal Periods</i>	<i>Dry Periods</i>
Jan. 1 to Jan. 31	1,000	600
Feb. 1 to Feb. 14	1,800	1,200
Feb. 15 to March 15	3,350	2,250
March 16 to March 22	1,800	1,200
March 23 to May 10	2,400	1,700
May 11 to May 19	1,200	800
May 20 to June 20	3,700(wet) 3,400(normal)	800
June 21 to July 31	1,200	800
August 1 to Sept. 15	1,200	800
Sept. 16 to Sept. 30	1,000	600
Oct. 1 to Nov. 15	2,400(wet) 1,800(normal)	1,300
Nov. 16 to Dec. 31	1,000	600

Key Provisions of the NNDP

- COHYST model and other tools will be used to determine amount, timing, and location of depletions and effectiveness of offset projects
- Annual reporting requirements
 - New permitted uses, depletions, mitigations
- Five year analyses
 - Land use inventory
 - Assess sufficiency of offset measures
 - Nebraska's "Robust Review" – to be conducted in 2023 and 2027

Key Provisions of the NNDP

➤ Part V – Tasks Remaining to be Completed

- Reported on to GC
 - December 2, 2008. memo to the GC
 - 2009 update memo to the GC
 - Evaluation of Historic Streamflow in Excess of State Protected Flows and Target Flows Report
 - January 6, 2012, memo to the GC
 - Updates given in other annual update reports to the GC or in the Robust Review
- All of these items have been completed

NNDP Annual Reporting Requirements

- Permitted new and expanded uses of surface water
- Permitted new and expanded uses of groundwater
- Depletions due to new and expanded uses
- Mitigations for those depletions

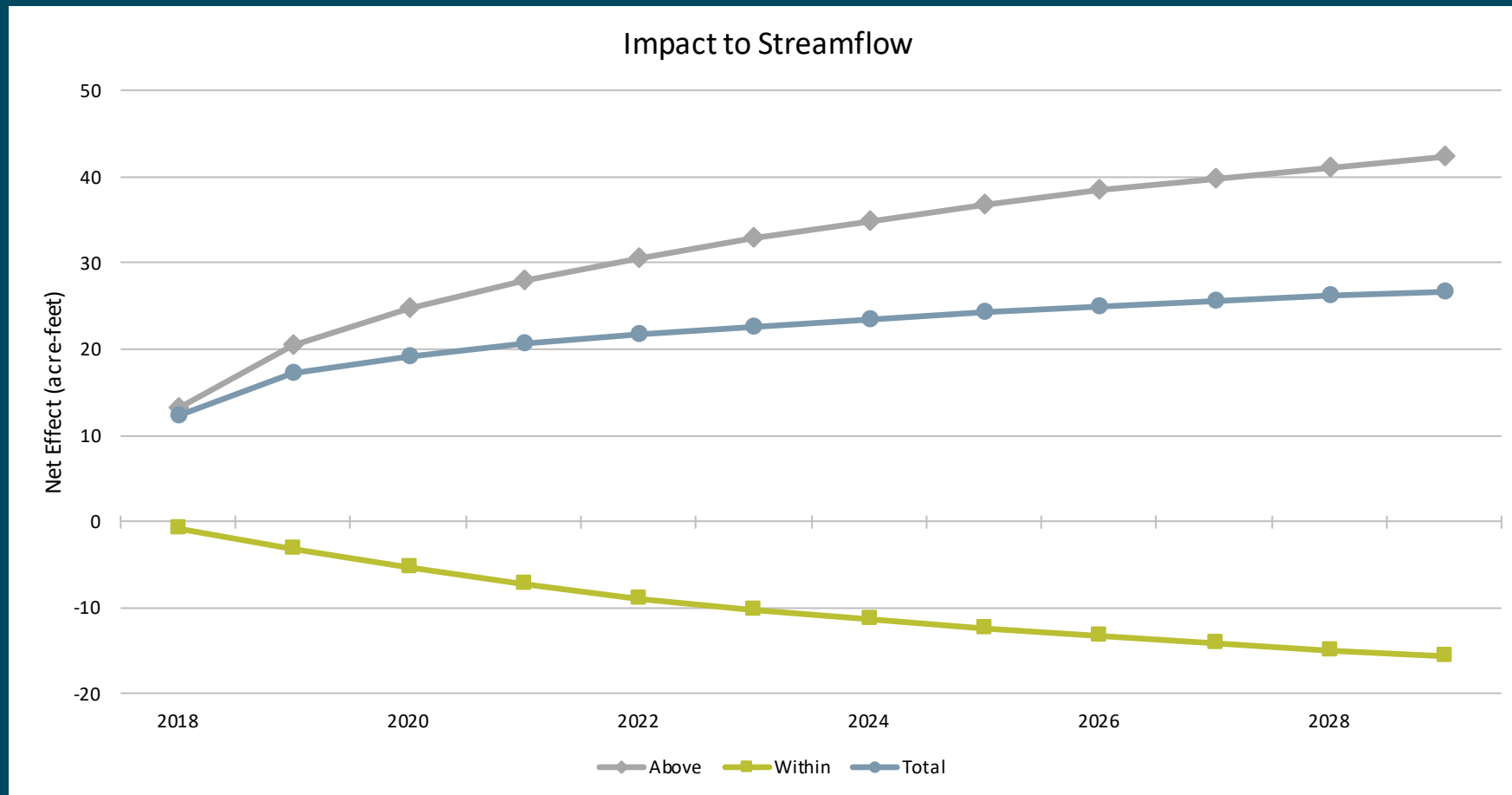
2018 New Permitted Water Uses

Type of Permit	Number Issued
Groundwater Transfers	43
Groundwater Wells	35
➤ New Wells	➤ 2
➤ Replacement Wells	➤ 25
➤ Supplemental GW Wells	➤ 8
Groundwater Variances	5
Surface Water Appropriations	4
➤ Recharge (Temporary)	➤ 3
➤ Road Construction (Temporary)	➤ 1

Collective Depletion and Mitigation

- Given the nature of the permits issued, only the GW transfers required further evaluation
- New use initiated and existing use retired, but location changes so impacts to stream can be different
- Net impact is positive

Estimated Net Impacts



Update and Robust Review

- Nebraska's update covers items not reported on in the Annual Report
- This year's features the Robust Review
 - Comprehensive evaluation of changes in post-1997 water use activities through 2013
 - Assessed permitted activities and non-permitted activities
 - Changes in irrigated acres
 - Livestock and human populations
 - Small reservoirs and sandpits
 - Impacts of management actions and mitigation measures
- Robust Review shows that Nebraska has mitigated post-1997 depletions
- Nebraska is in full compliance with NNDP and achieving Milestone 9 of the Extension document
- Future Robust Reviews in 2023 and 2027

Update and Robust Review

Year	Total Upstream of Elm Creek (af)	Total Upstream of Chapman (af)	Management Actions (af)	Total Upstream of Elm Creek (af)	Total Upstream of Chapman (af)
2020	-7,300	-1,700	7,850	750	6,350
2021	-7,600	-1,900	7,850	550	6,150
2022	-7,900	-2,100	7,850	250	5,950
2023	-8,200	-2,300	7,900	0	5,800
2024	-8,400	-2,500	18,950	10,750	16,650
2025	-8,700	-2,700	18,950	10,550	16,450
2026	-9,000	-2,900	18,950	10,250	16,250
2027	-9,300	-3,100	18,950	9,950	16,050
2028	-9,600	-3,300	34,900	25,600	31,800
2029	-9,800	-3,500	35,000	25,400	31,700

NEBRASKA

Good Life. Great Water.

DEPT. OF NATURAL RESOURCES

THANK YOU

Jessie Winter, NeDNR Integrated Water Management Coordinator

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dnr.nebraska.gov



North Platte River Basin

Colorado's Annual Report for 2019

Platte River Recovery Implementation Program

Jojo La, Endangered Species Policy Specialist
Colorado Water Conservation Board

May 5, 2020



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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

- Jackson County: Small quantity of water
 1. Irrigation as high as **134,467 acres** in any one year
 2. Small population: **Baseline = 2022 people**
 3. Limited industry
 4. Piscatorial, wildlife, and other environmental uses



II.D. New Water Related Activities

1. Irrigation as high as **134,467 acres** in any one year
2. Municipal:
 - **Population exceeds baseline of 2022 people**
 - **0.2504 acre-feet per capita per year, 35% CU**
3. Industrial Use:
 - **Post-1997 industrial uses**
4. Piscatorial, wildlife, and other environmental uses:
 - **Post-1997 uses**



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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II.F. Monitoring and Reporting

1. Annual Reporting

- Irrigated acreage
- Irrigation storage
- Transbasin diversions
- Population in Jackson County
- Non-nexus piscatorial, wildlife, and other environmental uses (which are not incidental to irrigation uses)
- New industrial uses occurring since 1997



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NORTH PLATTE RIVER BASIN

USE OF WATER IN COLORADO

WATER YEAR 2019

The State of Colorado reports the following use of water from the North Platte River Basin for the period October 1, 2018 to September 30, 2019. This report is made pursuant to Paragraph IX of the decree of the Supreme Court of the United States, entered October 8, 1945, in the case of State of Nebraska vs. Wyoming and Colorado, as amended.

Total area of land irrigated in Jackson County, Colorado	112,464 Acres
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Total amount of water stored for irrigation in Jackson County, Colorado	14,863 AF
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Amount of water exported from the North Platte River Basin, Jackson County, Colorado by:

Michigan Ditch	6,156 AF
Cameron Pass Ditch	<u>248 AF</u>

Annual Total	6,404 AF
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10-Year Cumulative Total	32,737 AF
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State Demographer: Population

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, 2019 = 1,388 and January 1, 2020 = 1,380, and the expected decline to be 8 people. With changes these small and margins of error, the population is considered to be flat.



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NORTH PLATTE ANNUAL ACCOUNTING FORM FOR YEAR 2019

- | | | | | | |
|---|---------------|---|---------------------------|---|-----------|
| 1. Irrigated acres during year: | 112,464 acres | X | 0.83 acre-feet (af)/acre* | = | 93,345 af |
| 2. Population during year: | 1,388 people | X | 0.088 af/person** | = | 122 af |
| 3. Total new post-1997 industrial uses: | | | | = | 960 af |
| a) Oil and gas well development and operations by SandRidge Energy equaled 960 acre-feet of consumptive depletions for 2019. | | | | | |
| 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	=	94,452 af
BASELINE CU	=	111,785 af
ANNUAL CU UNDERRUN(-)	=	-17,332 af

2019 Annual Report

- Colorado is meeting its depletion plan
- **Total consumptive use was less than the baseline**
- **UNDERRUN = -17,332 acre-feet**



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THANK YOU
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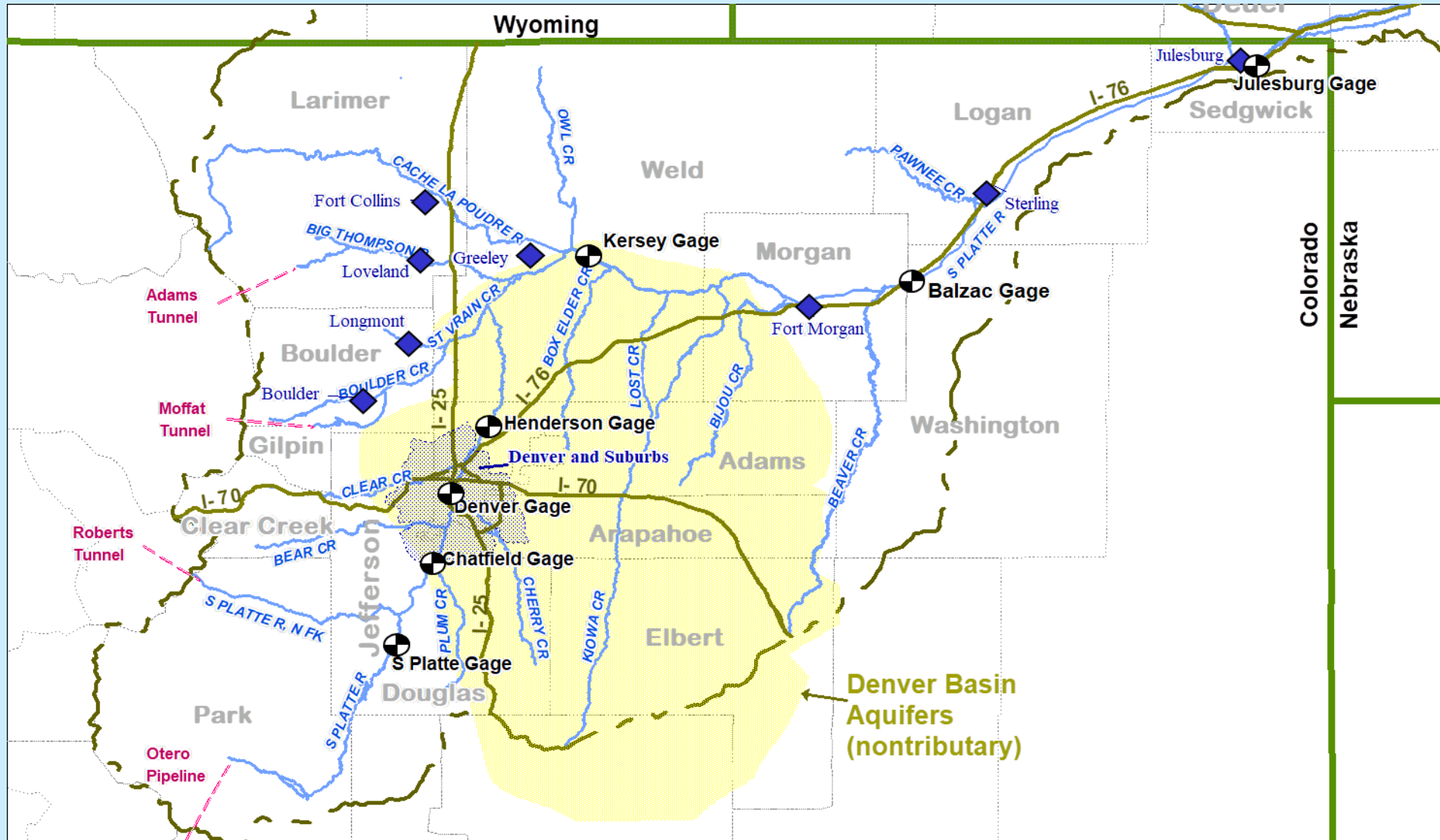
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Colorado Plan for Future Depletions (CPFD): South Platte Basin

WAC Meeting May 5, 2010; Jon Altenhofen, PE, NCWCD, Colorado Water User Rep to WAC



Populations for 3 Regions Based on Counties

CPFD computations based on population increases since July 1, 1997 for the 3 regions





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Department of Local Affairs
Office of the Executive Director

Colorado Population Estimates and Forecasts - Platte River Recovery Implementation Program
Source: State Demography Office, Department of Local Affairs April 2020.

Counties	SDO Jan 2019	SDO Jan 2020 Forecast	Pop. Change 2019-20
Boulder	326,995	329,743	2,747
Broomfield 55%	38,662	39,590	927
Larimer	352,739	357,477	4,738
Logan	21,937	22,097	160
Morgan	28,614	28,832	218
Phillips	4,262	4,251	-11
Sedgwick	2,269	2,253	-15
Washington	4,726	4,721	-6
Weld	318,944	328,321	9,377
Total Northern Region	1,099,149	1,117,285	18,136
Arapahoe 90%	589,232	595,372	6,140
Adams	515,672	524,366	8,694
Broomfield 45%	31,633	32,392	759
Clear Creek	9,693	9,751	58
Denver	723,371	733,400	10,029
Gilpin	6,104	6,114	11
Jefferson	581,297	584,585	3,288
Park	18,675	18,912	237
Total Central Region	2,475,677	2,504,892	29,215
Arapahoe 10%	65,470	66,152	682
Douglas	345,733	351,476	5,743
Elbert	26,753	27,782	1,029
Total Southern Region	437,956	445,410	7,454
South Platte River Basin Total	4,012,782	4,067,588	54,806

Impacts on river flows from population growth computed from yearly population increases since July 1, 1997
(2.2% per year from graph below) Multiplied by Monthly constant factors in Table 1

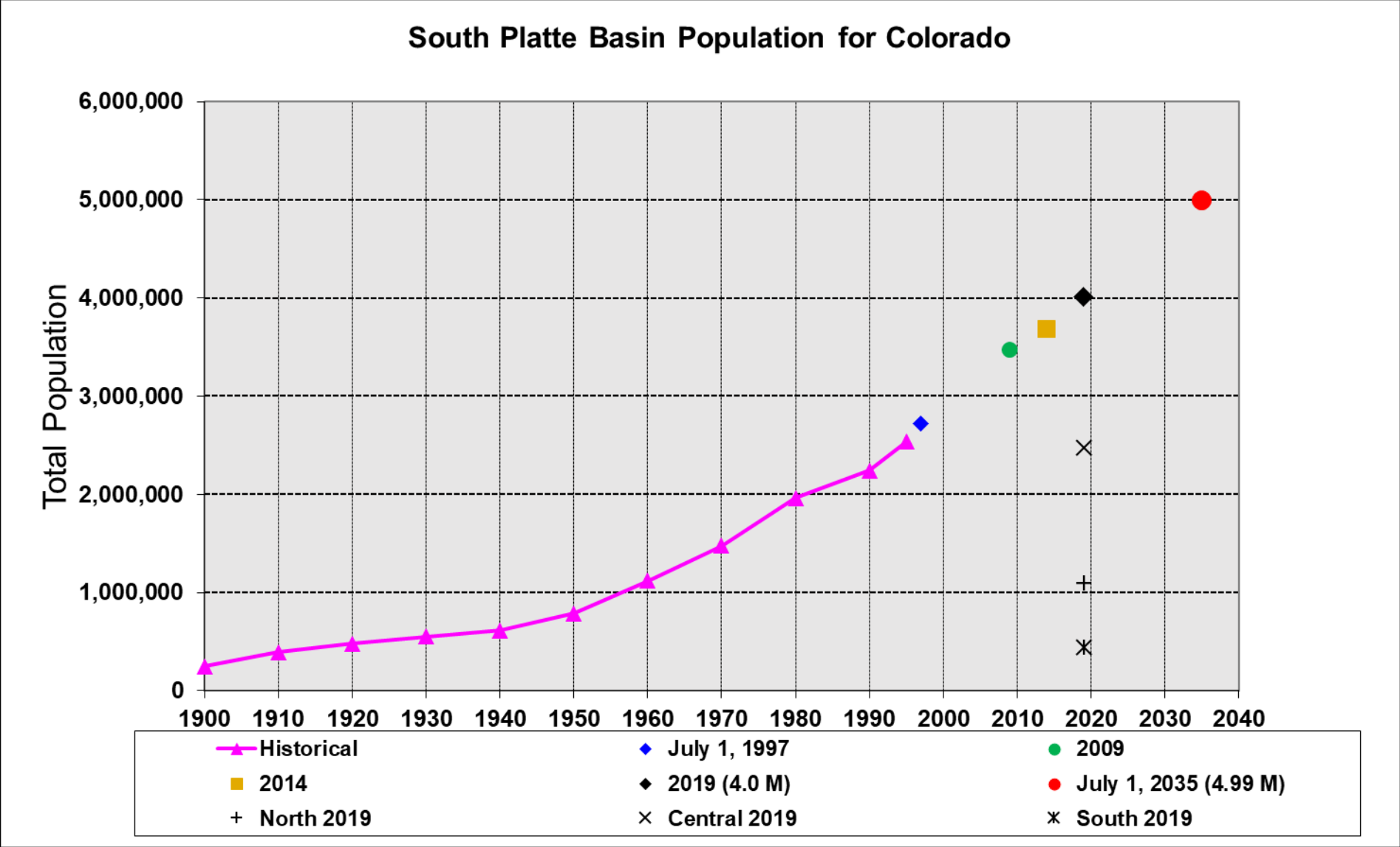
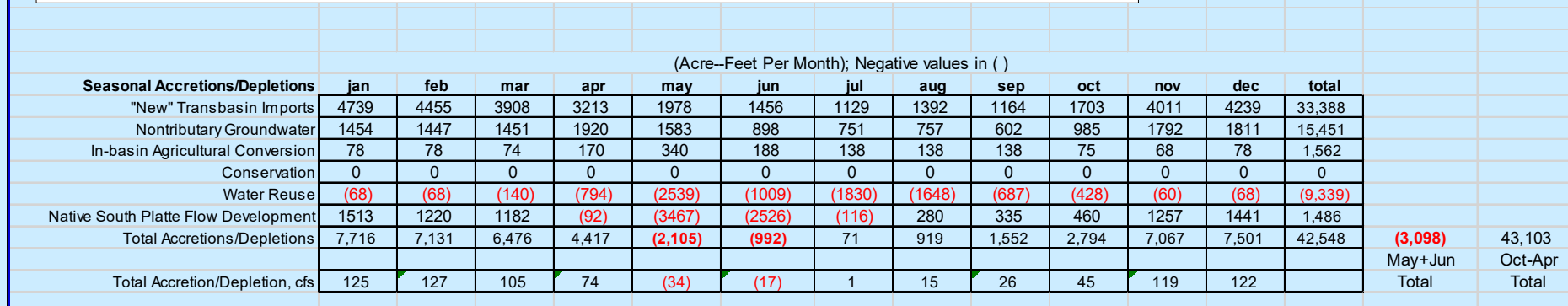


TABLE 1: FACTORS MULITPLIED BY POPULATION DIFFERENCES TO DETERMINE RIVER IMPACTS															
A	BY REGION; Population Difference between current and July 1, 1997 multiply by 0.2504 af/person = Total New Water Use since 1997 by Region (acre-feet)														
B	Regional % Water Supply "Mix" (Source); Revised/reviewed in 2009/2014 reports AND ALL ASSUMPTIONS WILL BE REVIEWED AGAIN IN A 2020 REPORT														
	Northern	Central	Southern	<u>Formula for Monthly Accretions / Depletions River Impacts by Region and Source</u>											
B1	31.9%	23.3%	21.0%	"New" Transbasin Imports	=A * B1 * C * D										
B2	0%	9.8%	40.7%	Nontrib. Groundwater	=A * B2 * C * D										
B3	33.4%	3.9%	0%	In-basin Agric. Conversion	=A * B3 * C * (0.10) [0.10=45%CU Irrig - 35%CU M&I]										
B4	18.9%	29.4%	18.8%	Conservation	0	Saved water goes to meet new growth with no significant change in ReturnFlows (RFs)									
B5	11.1%	28.7%	13.7%	Water Reuse	= -1 * A * B5 * C *(1 - D)										
B6	4.6%	5.0%	5.6%	Native S. Platte Flow Develop.	=(-1 * A * B6 * E) + (A * B6 * C * D)										
	100.0%	100.0%	100.0%	Total											
C	Average % use by month; C	jan 5%	feb 4%	mar 4%	apr 6%	may 11%	jun 10%	jul 14%	aug 16%	sep 13%	oct 7%	nov 5%	dec 5%	total 100%	
D	Monthly Municipal RF Factors; D	95%	95%	89%	73%	54%	51%	47%	50%	54%	67%	95%	95%		
E	Native S. P. Storage - Diversion Pattern; E	0%	0%	0%	5%	40%	50%	5%	0%	0%	0%	0%	0%	100%	
F	Administrative Transit loss % per mile for Kersey to Julesburg (157.4 miles)	0.02%	0.02%	0.05%	0.10%	0.30%	0.45%	0.50%	0.50%	0.50%	0.40%	0.10%	0.02%		
	Regions are accumulated monthly and then routed by % transit loss [1-(157.4 * F)] from Kersey to Julesburg (Results in Figure 1)														

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

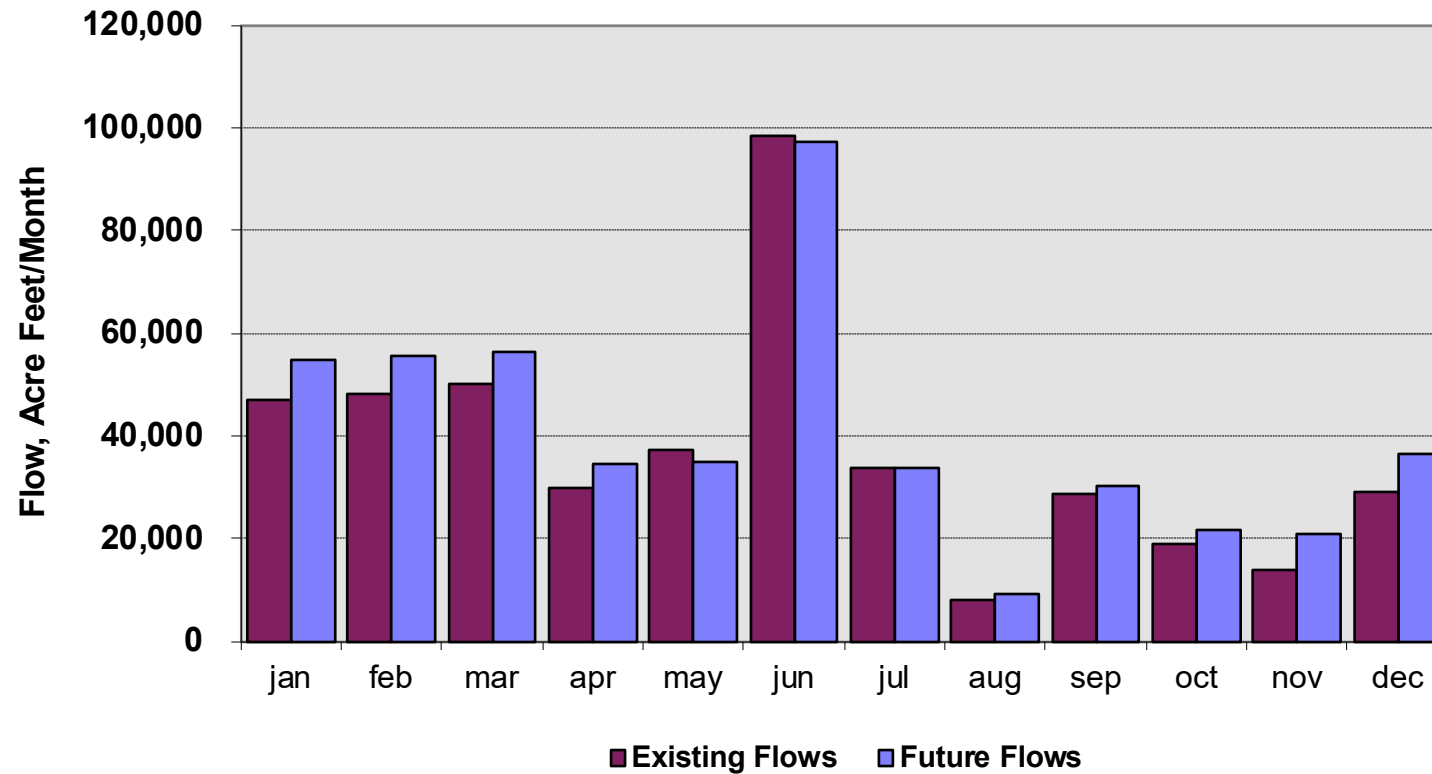
Based on original Transit Loss Assumptions, Paragraph C of CFPD



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

Months of net positive effect have diversions to recharge sites where the lagged accretions from this recharge back to the river in May and June replace the net negative effect. AWAS (Alluvial Water Accounting System) by IDS-CSU is used for accretion accounting (AWAS uses URF's, calibrated SDF or Glover parameters/image wells).

South Platte River at Julesburg



Based on Population Increase from July 1, 1997 to:

July 1, 2019

	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	total AF
Existing Flows, AF/month	47095	48238	49911	29980	37054	98359	33635	8051	28562	18964	13792	28867	442,507
Total Accretions/Depletions, AF/month	7716	7131	6476	4417	(2105)	(992)	71	919	1552	2794	7067	7501	42,548
Future Flows, AF/month	54811	55369	56387	34397	34948	97366	33707	8971	30113	21758	20860	36368	485,055
	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	
Existing Flows, cfs	766	861	812	504	603	1653	547	131	480	308	232	469	
Total Accretions/Depletions, cfs	125	127	105	74	(34)	(17)	1	15	26	45	119	122	
Future Flows, cfs	891	989	917	578	568	1636	548	146	506	354	351	591	

Note: Existing flows in this graph are averages for 1987-1996.

An existing flow average for 1997-2018 is 433,400 AF per year.



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TO: Governance Committee, Water Advisory Committee, and Executive Director's Office of the Platte River Recovery Implementation Program

FROM: Brian Macpherson, P.E., Water Resources Engineer
Jojo La, Program Manager, Endangered Species Policy Specialist
Interstate, Federal, and Water Information Section

DATE: August 19, 2019

ITEM: South Platte Net Changes in Irrigated Agricultural Acreage
Platte River Recovery Implementation Program

The Platte River Recovery Implementation Program requires the State of Colorado to report on "net changes in irrigated agricultural acreage, using readily available data" (Platte River Recovery Implementation Program, Attachment 5, Section 9, Colorado's Plan for Future Depletions, October 24, 2006, Last Updated December 1, 2015, Section I.D.). This memo provides the required information. The following table is the result of the delineation of irrigated acres within the South Platte River Basin based on work associated with the South Platte Decision Support System (SPDSS) for the irrigation years when data is updated and readily available. The total irrigated acreage in 2015 decreased by -106,961 acres since 1997. The irrigated acreage in SPDSS is currently updated every 5 years. For more information on the technical approach to acreage delineation, see Technical Task Memorandum 93.2 located at:

<https://dnrweblink.state.co.us/cwcb/0/doc/123659/Page1.aspx?searchid=5f99cfba-85ee-4b1c-be13-d2d3132a8cd7>

Table 1. South Platte River Basin Irrigated Acreage by Year

Basin	1956*	1976*	1987*	1997*	2001*	2005*	2010	2015
South Platte (acres)	977,604	1,012,133	980,501	916,218	908,925	829,475	857,733	809,257
Acreage Changes from previous updated year (acres)	0	34,529	-31,632	-64,283	-7,293	-79,450	28,258	-48,476

*The acreage values in Table 1 for 1956, 1976, 1987, 1997, 2001, and 2005 have been updated since the April 10, 2009 reporting due to ongoing corrections of field boundaries and irrigation status in the snapshot years and reflect the most accurate estimates.

Total irrigated acres in the South Platte River basin in Colorado have decreased 107,000 acres since 1997. It is estimated about 25% of that decrease is due to dry-up with agricultural to M&I conversions (the remaining decrease due to about 1000 less tributary wells resulting from tighter regulations).