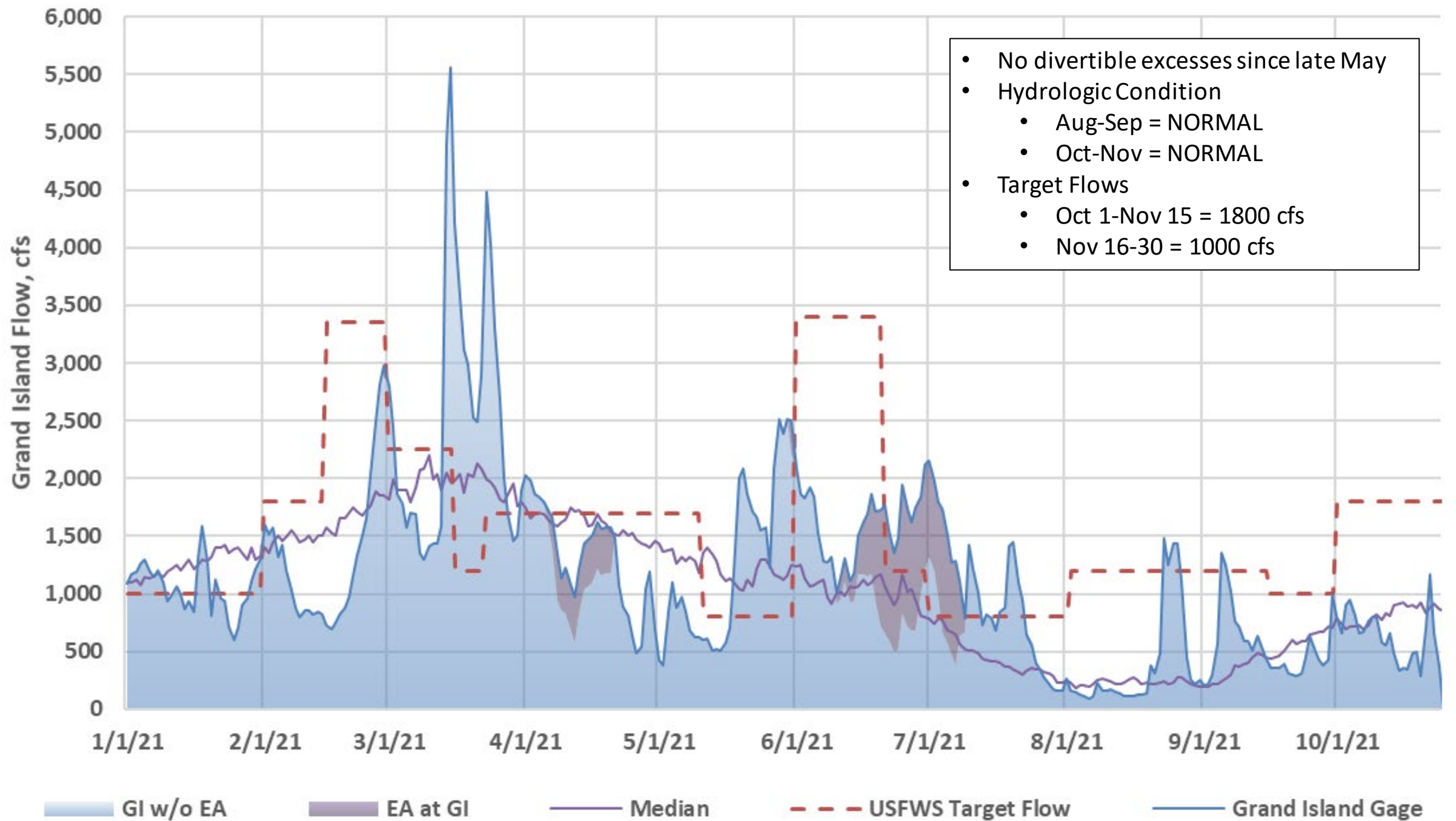


Platte Basin Hydrology Update

PRRIP Water Advisory Committee

October 26, 2021

Seth M Turner, PE



U.S. Drought Monitor

High Plains

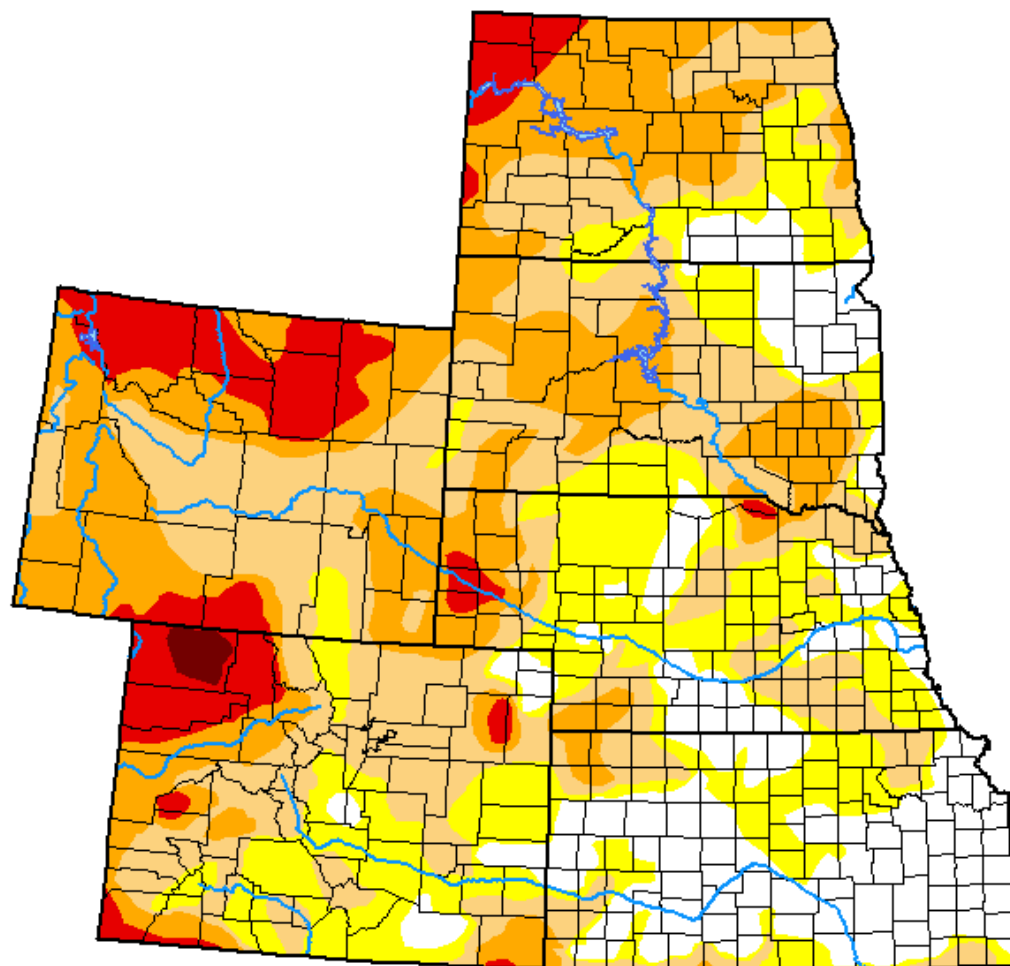
October 19, 2021

(Released Thursday, Oct. 21, 2021)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	16.82	83.18	62.08	32.80	8.67	0.40
Last Week 10-12-2021	15.46	84.54	64.91	40.58	17.03	0.46
3 Months Ago 07-20-2021	27.78	72.22	56.04	42.66	21.60	4.90
Start of Calendar Year 12-29-2020	3.82	96.18	82.46	50.36	27.09	5.71
Start of Water Year 09-28-2021	14.24	85.76	63.58	43.69	18.57	0.86
One Year Ago 10-20-2020	1.75	98.25	72.19	45.10	23.64	4.46



Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

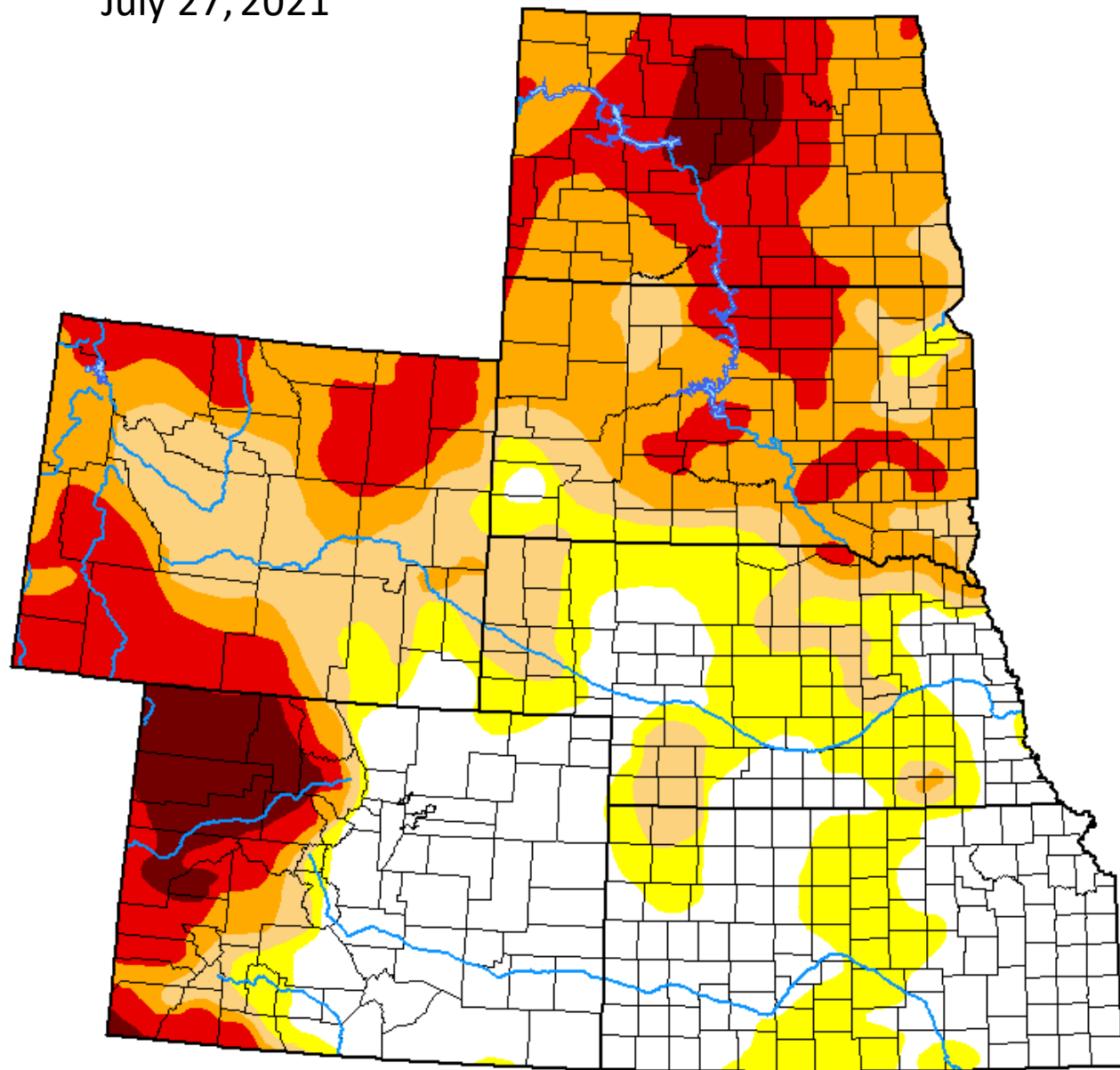
Author:

Brad Pugh
CPC/NOAA

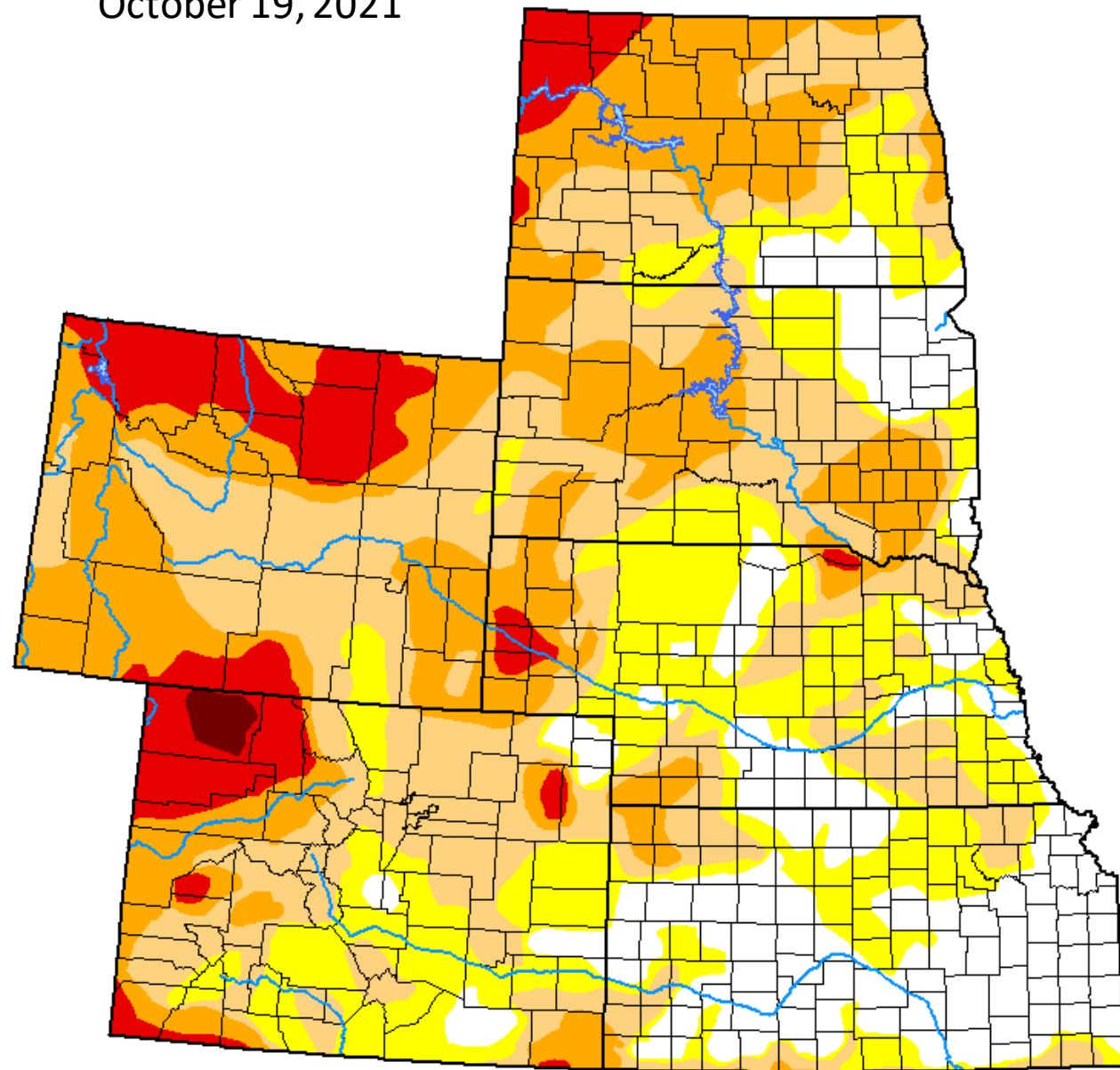


droughtmonitor.unl.edu

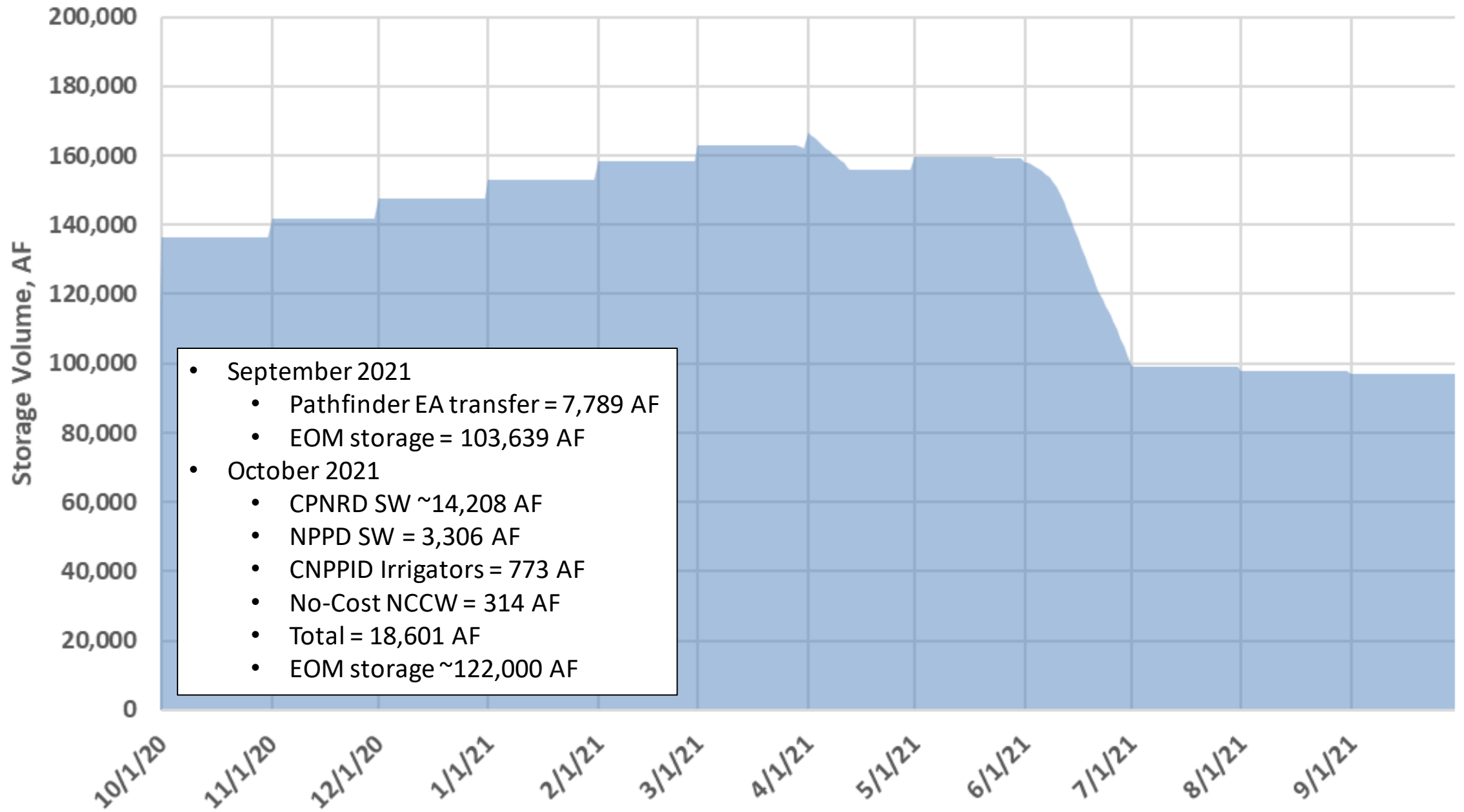
July 27, 2021



October 19, 2021

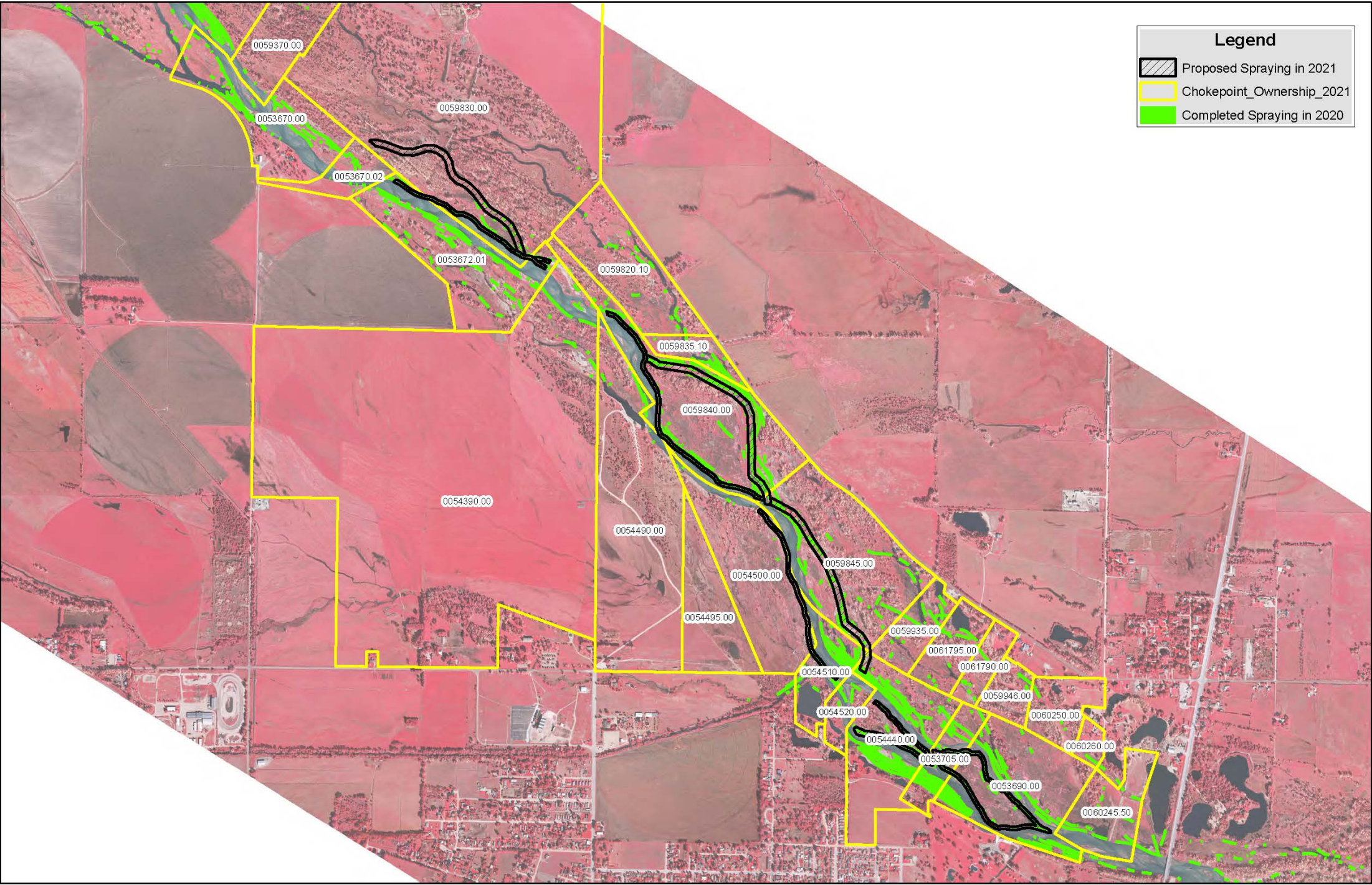


Lake McConaughy EA Storage



North Platte Chokepoint

Final
2021
Vegetation
Treatment
Map



North Platte Chokepoint

- 2021 Activities
 - Coordination with PVWMA and Lincoln County Weed Superintendent to get landowner permissions
 - Sprayed ~43 acres upstream of Hwy 83 bridge
 - Riverbanks, dry side channels, perimeter of islands
- 2022 Activities
 - Disking of same areas
 - As-needed maintenance of State Channel berm

PRRIP Water Projects Accounting Update

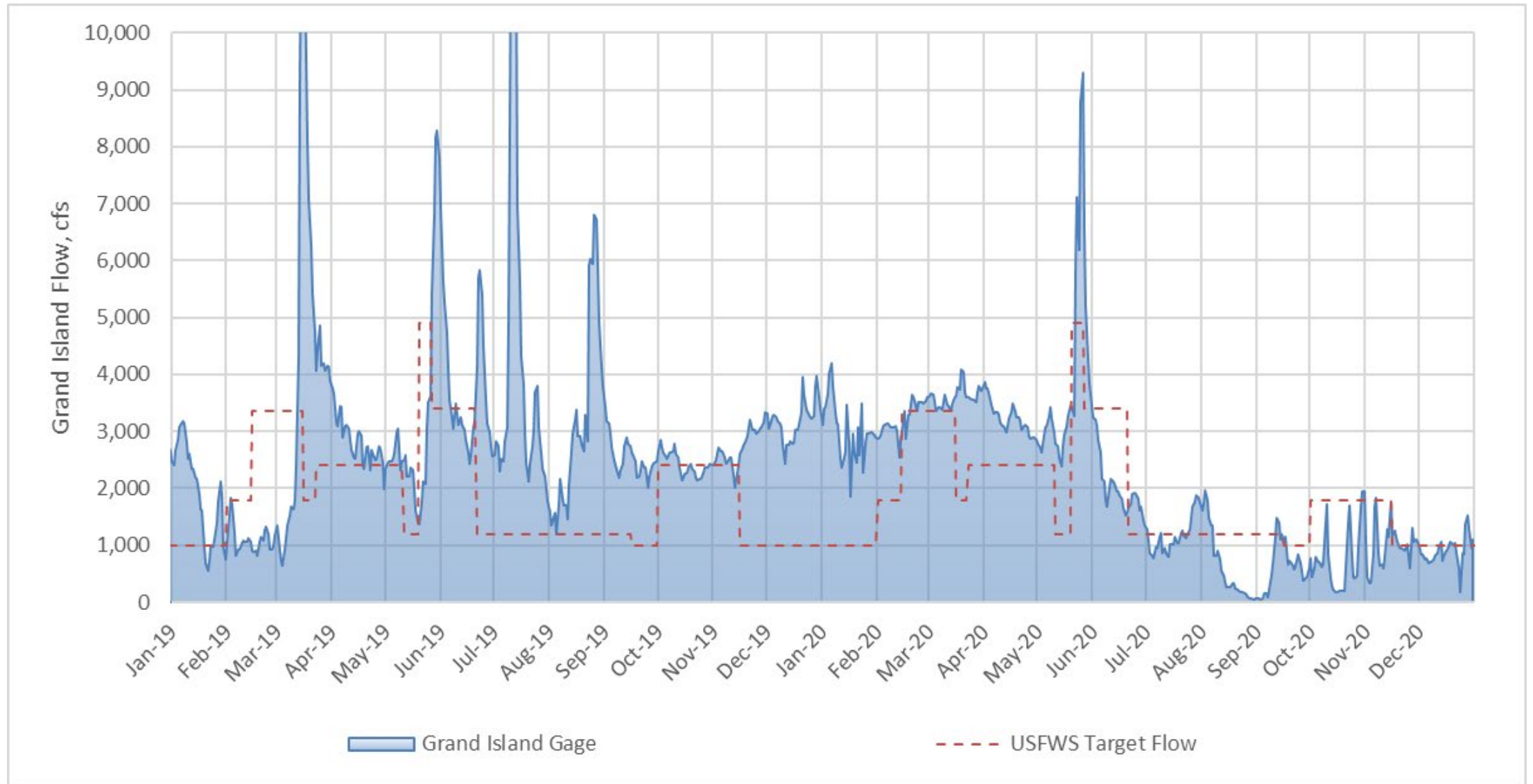
Water Advisory Committee

October 26, 2021

Overview

- Previous accounting through 2018
- Updated analyses
 - Thorough review of data sources and calculations for all years
 - Added 2019 and 2020 water projects operations
- Two types of projects
 - Groundwater recharge
 - Contributions to Lake McConaughy EA

Grand Island Flow, 2019-2020



Tamarack I

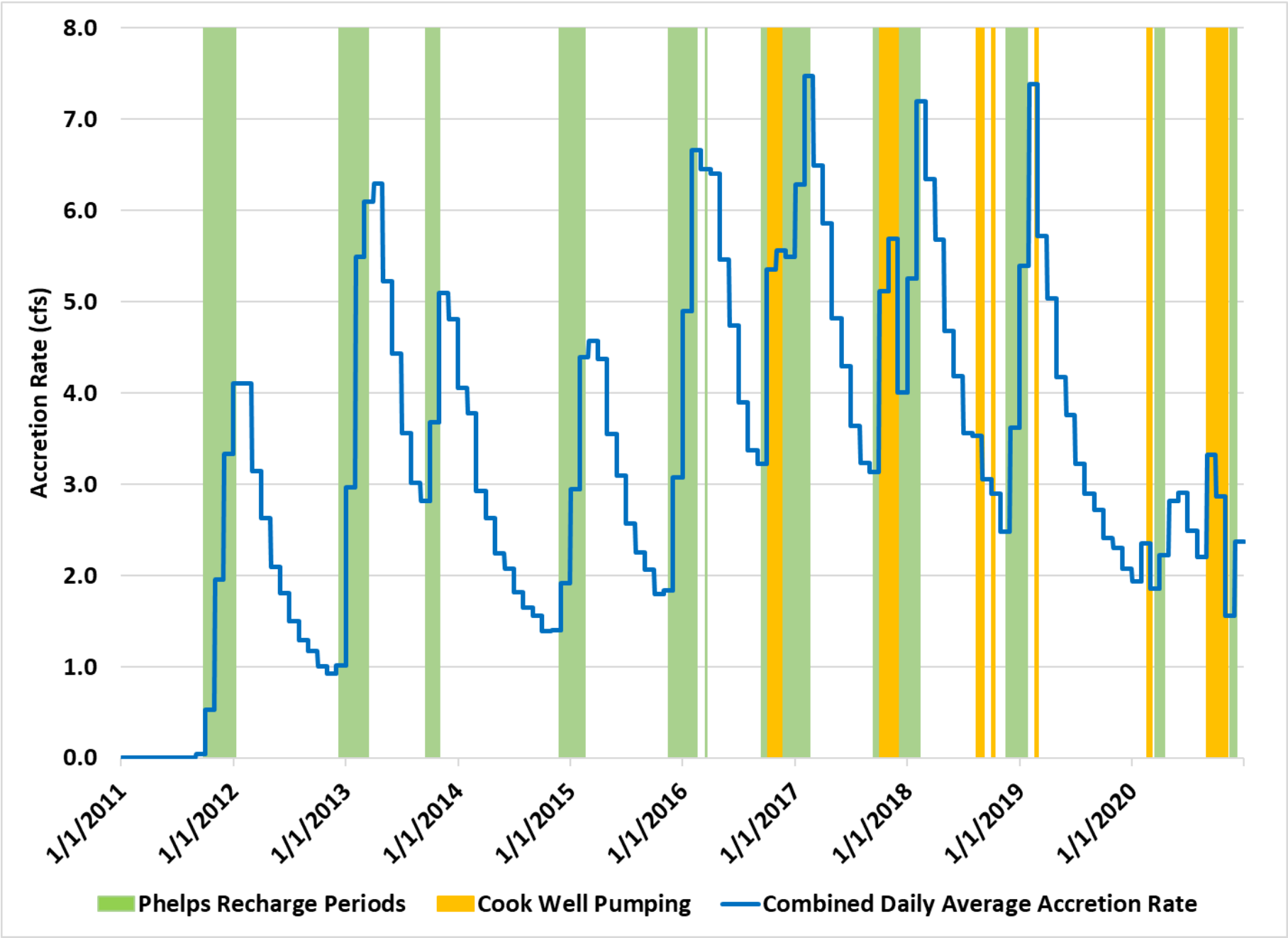
- Colorado's contribution to initial state projects
 - 16 dedicated riverside wells, Heyborne lift station, 10 recharge ponds (40%)
 - Recharge credits leased from private wells and ditches (60%)
- Report to WAC in May each year
 - Includes credits for shortage reduction *at CO-NE state line*
 - EDO adds routing to Grand Island

Irrigation Year	Tamarack I Credits for Shortage Reduction at State Line (AF)	Tamarack I Credits Routed to Grand Island (AF)
2019	7,500	6,700
2020	6,500	5,800
Average, 2008-2020	8,100	7,200

Phelps Recharge + Cook Well

- Lower diversions in 2019 and 2020
 - 14 months (Jan 2019-Mar 2020) with no diversions due to high groundwater
 - Diverted for 27 days in March-April 2020 before irrigation season
 - Only a few short periods with excesses since then
- Cook well pumping
 - 2019 = 26 AF
 - Almost full year with out pumping because few periods of shortage
 - 2020 = 217 AF
 - Pumped continuously September-October

Phelps Recharge + Cook Well

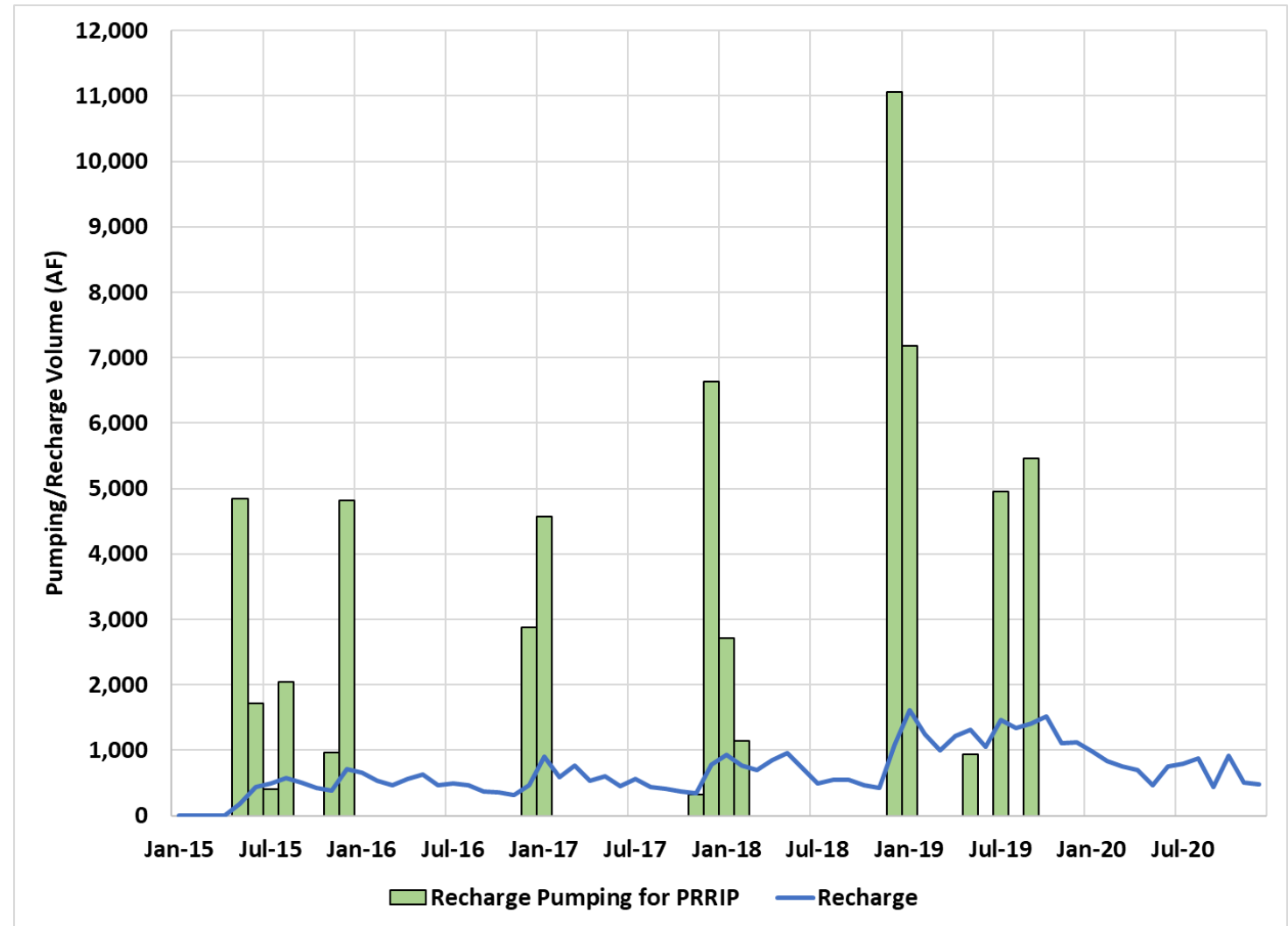


Phelps Recharge + Cook Well (through 12/31/2020)

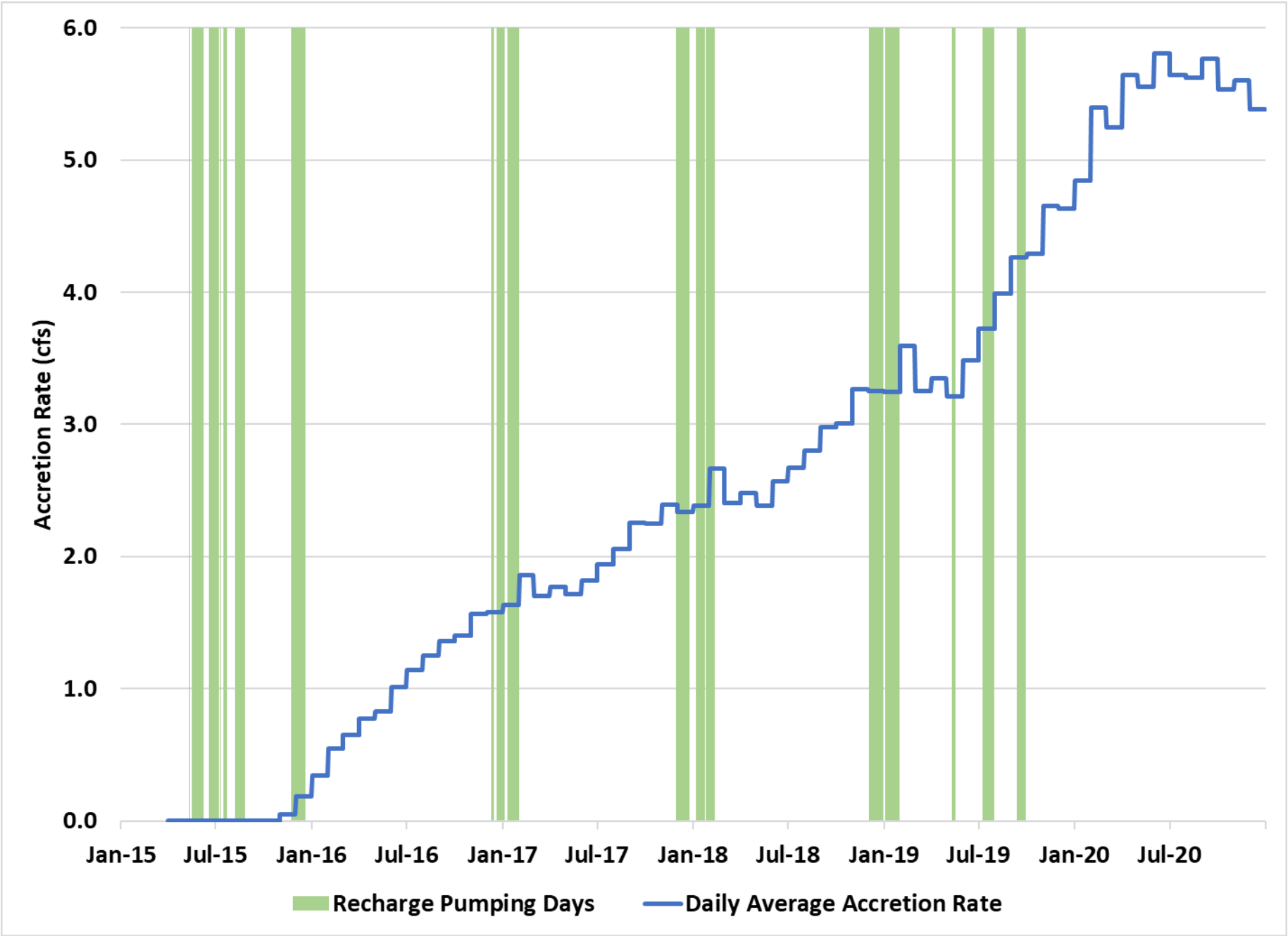
- Total recharge, 2011-2020 = 32,300 AF
- Total river returns, including Cook well = 24,000 AF
 - Total return flows at Grand Island = 20,800 AF
 - Total reductions to target flow deficits at Grand Island = 10,700 AF
- Volume remaining in aquifer = 8,300 AF

Elwood Recharge

- Invoiced diversions
 - 2019 = 18,539.1 AF
 - 2020 = 0 AF
- Bank seepage issue
 - CNPPID worked with consultant to diagnose and repair in 2020
 - No recharge diversions after September 2019 until March 2021



Elwood Recharge



Elwood Recharge (through 12/31/2020)

- Volume pumped in for Program recharge, 2015-2020 = 62,644 AF
 - Volume lost to evaporation = 5,200 AF
 - Volume of reservoir seepage/recharge = 48,600 AF
 - Volume remaining in the reservoir = 8,900 AF
- Total river returns above Overton = 10,900 AF
 - Total return flows at Grand Island = 9,500 AF
 - Total reductions to target flow deficits at Grand Island = 4,000 AF
- Volume remaining in aquifer = 37,700 AF

Cottonwood Ranch Broad-Scale Recharge

- Test fill operations in 2020
 - July, August, September
 - Used Lake McConaughy EA water (360.6 AF)
- No diversions of excess flows yet
- Accounting procedures still being developed

CPNRD Canal Recharge

- Thirty Mile, Cozad, Orchard-Alfalfa canals
- First recharge operations in April-May 2011
- Lease agreement with Program, 2013-2019
 - Billed for calculated lagged accretions
 - Total return flows at river = 10,753 AF
 - Average = 1,536 AFY
- EDO used data from CPNRD's 2017 spreadsheets to complete routing to Grand Island
 - Total return flows at Grand Island = 9,000 AF
 - Total reductions to target flow deficits at Grand Island = 4,100 AF
- New WSA effective in 2020
 - Bill for net recharge
 - Total = 2,950 AF
 - New URFs to be developed from updated COHYST

NPPD Canal Recharge

- Gothenburg and Dawson County canals
- Combined net recharge
 - 2019 = 6,369 AF
 - 2020 = 2,817 AF
 - Total, 2015-2020 = 29,284 AF
 - Average, 2015-2020 = 4,881 AF
- URFs to be developed from updated COHYST

Lake McConaughy EA Sources

- Storable Natural Inflows (2007)
- No-Cost NCCW (2007)
- Pathfinder EA (2012)
- Pathfinder Municipal Account Lease (2012)
- CNPPID Irrigator Lease (2016)
- CPNRD Surface Water Lease (2018)
- NPPD Surface Water Lease (2019)

Lake McConaughy EA

Year of Operation	Net Accruals to EA (AF)	Net Losses (AF)	Total EA Releases (AF)	EA Volume Reaching Grand (AF)	Reductions to Deficits (AF)
2019	99,831	9,746	5,653	5,105	900
2020	110,172	12,632	109,307	87,491	43,900
Total, 2007-2020	950,762	212,104	710,253	539,586	411,000
Average, 2007-2020	67,912	15,150	50,732	38,542	29,400
Total, 2012-2020	773,509	111,838	622,804	484,034	376,400
Average, 2012-2020	85,945	12,426	69,200	53,782	41,800

Water Projects Acquisition Summary

- In-Kind/Unpaid sources = 868,000 AF
 - Lake McConaughy 10% of Storable Natural Inflows = 612,400 AF
 - Pathfinder EA releases = 251,800 AF (~87% reaches Lake McConaughy)
 - No-Cost NCCW = 3,800 AF
- Paid sources >300,000 AF
 - Includes all other recharge/leasing projects except Tamarack

Program Flow Contributions, 2007-2020

Project/Source	Total River Contributions [AF]	Program Water at Grand Island [AF]	Program Deficit Reductions at Grand Island [AF]
Return Flows from WAP Recharge*	45,700	39,300	18,800
Tamarack**	271,500	232,700	96,600
Lake McConaughy EA Releases	710,300	539,600	411,000
TOTAL =	1,027,400	811,600	526,400
*Includes Phelps+Cook, Elwood, CPNRD canals			
**Based on accretions at CO-NE state line			

Also at end of 2020...

- 153,000 AF in Lake McConaughy EA
- 8,900 AF in Elwood Reservoir
- 46,000 AF from Phelps/Elwood recharge in aquifer storage
- Accounting incomplete for ~33,000 AF recharge



Please provide any comments
on memo by
Tuesday, November 16

turners@headwaterscorp.com