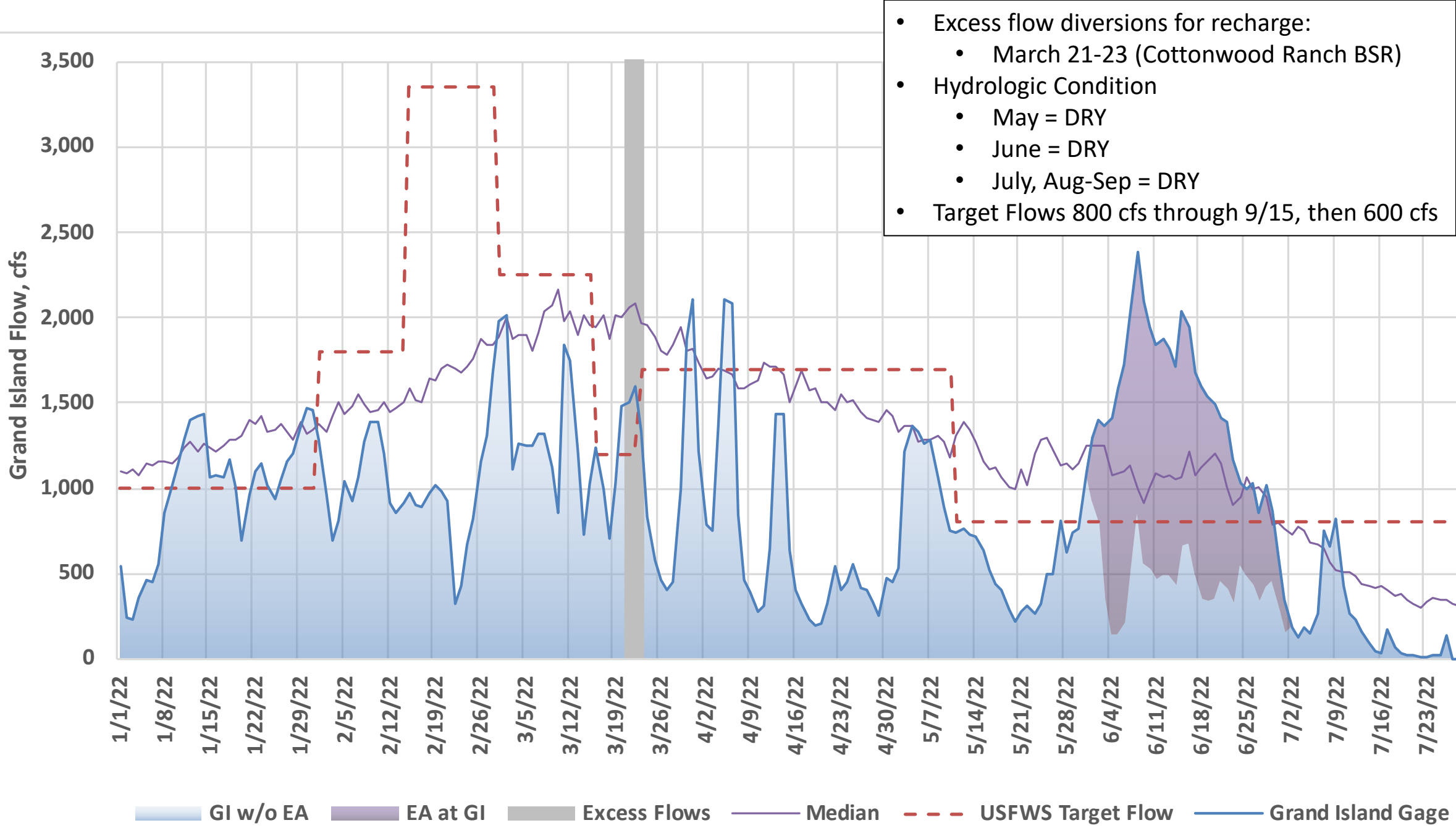


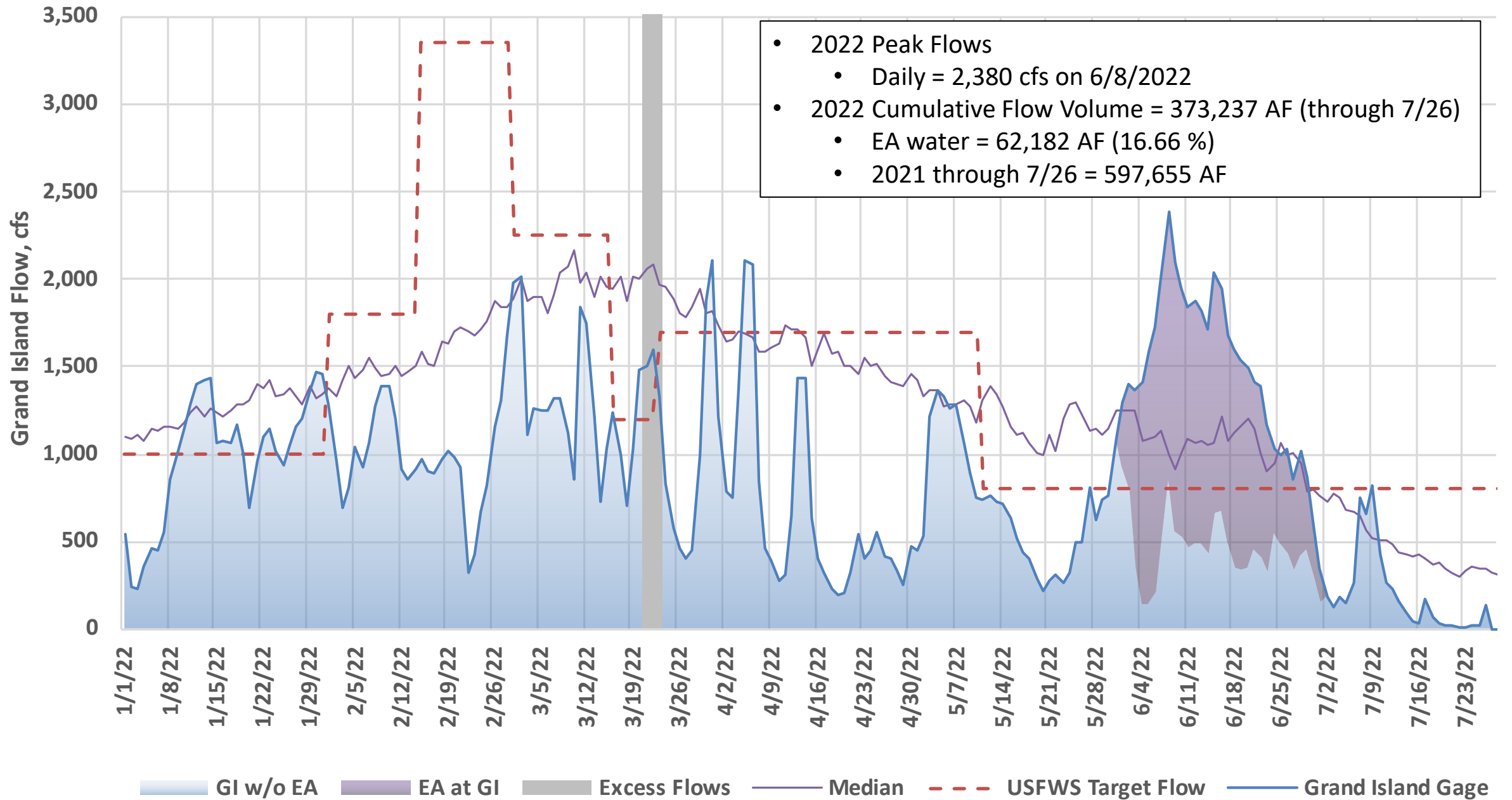
# Platte Basin Hydrology Update

PRRIP Water Advisory Committee

August 2, 2022

Ed Weschler, E.I.





# U.S. Drought Monitor

## High Plains

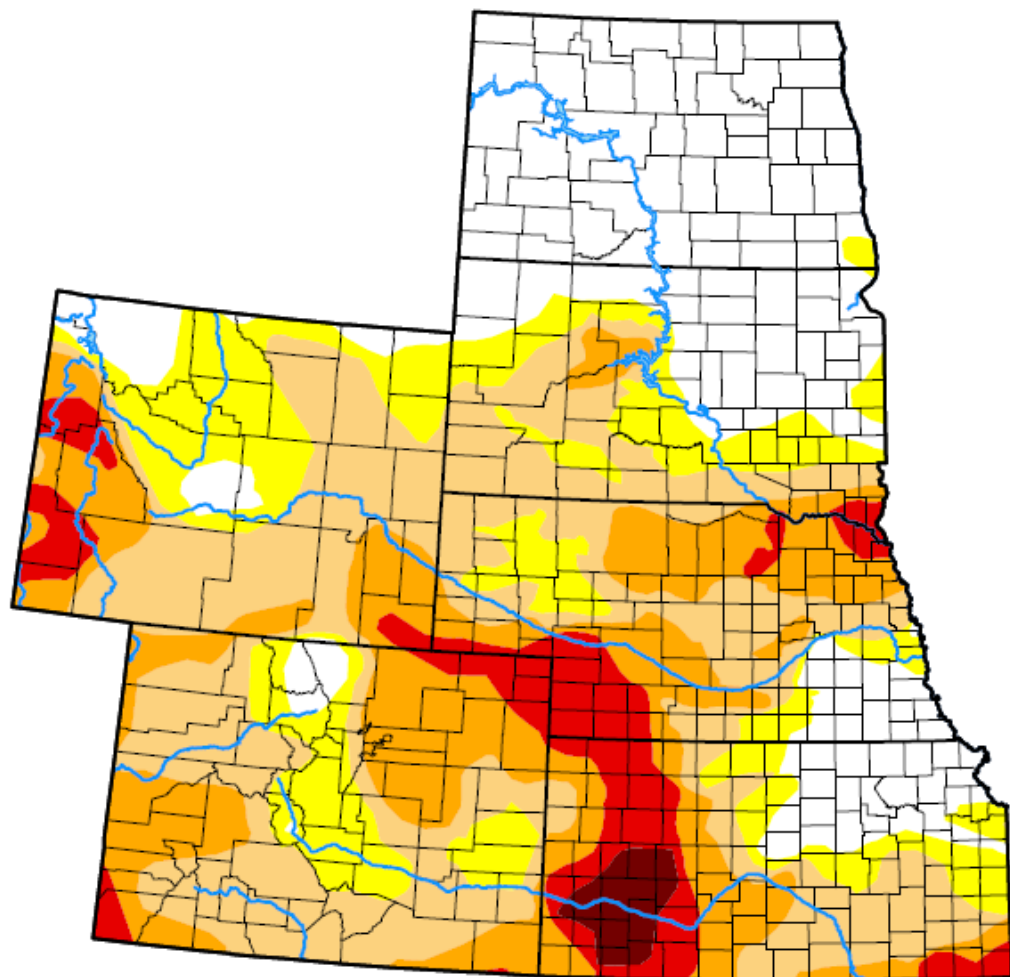
July 26, 2022

(Released Thursday, Jul. 28, 2022)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	27.22	72.78	56.12	27.24	8.45	1.28
Last Week 07-19-2022	27.46	72.54	54.54	26.93	7.13	0.45
3 Months Ago 04-26-2022	14.33	85.67	75.36	47.03	11.67	0.44
Start of Calendar Year 01-04-2022	12.84	87.16	64.81	34.56	8.63	0.00
Start of Water Year 09-28-2021	14.24	85.76	63.58	43.69	18.57	0.86
One Year Ago 07-27-2021	28.07	71.93	57.34	43.19	21.94	4.61



### Intensity:



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:

Curtis Riganti  
National Drought Mitigation Center



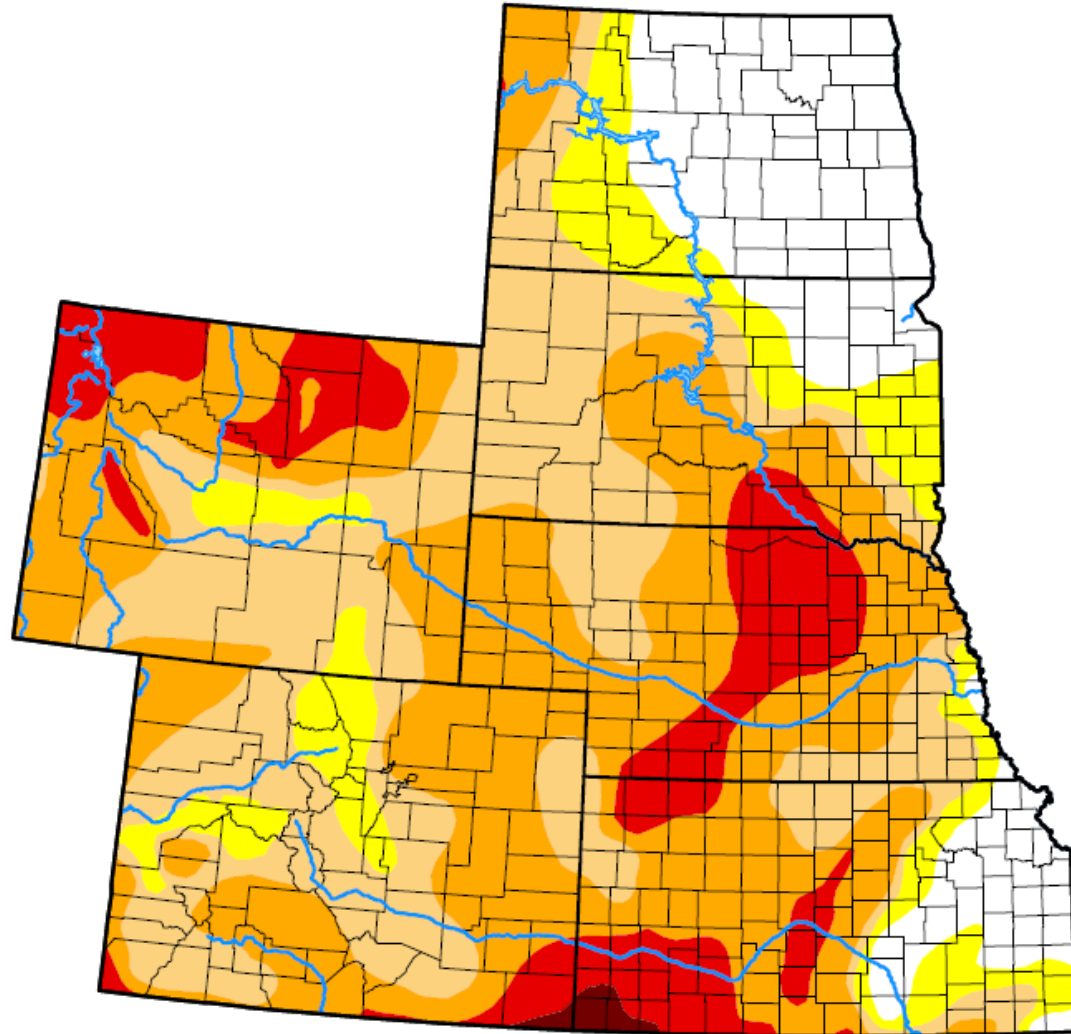
[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

## U.S. Drought Monitor

# High Plains

April 26, 2022

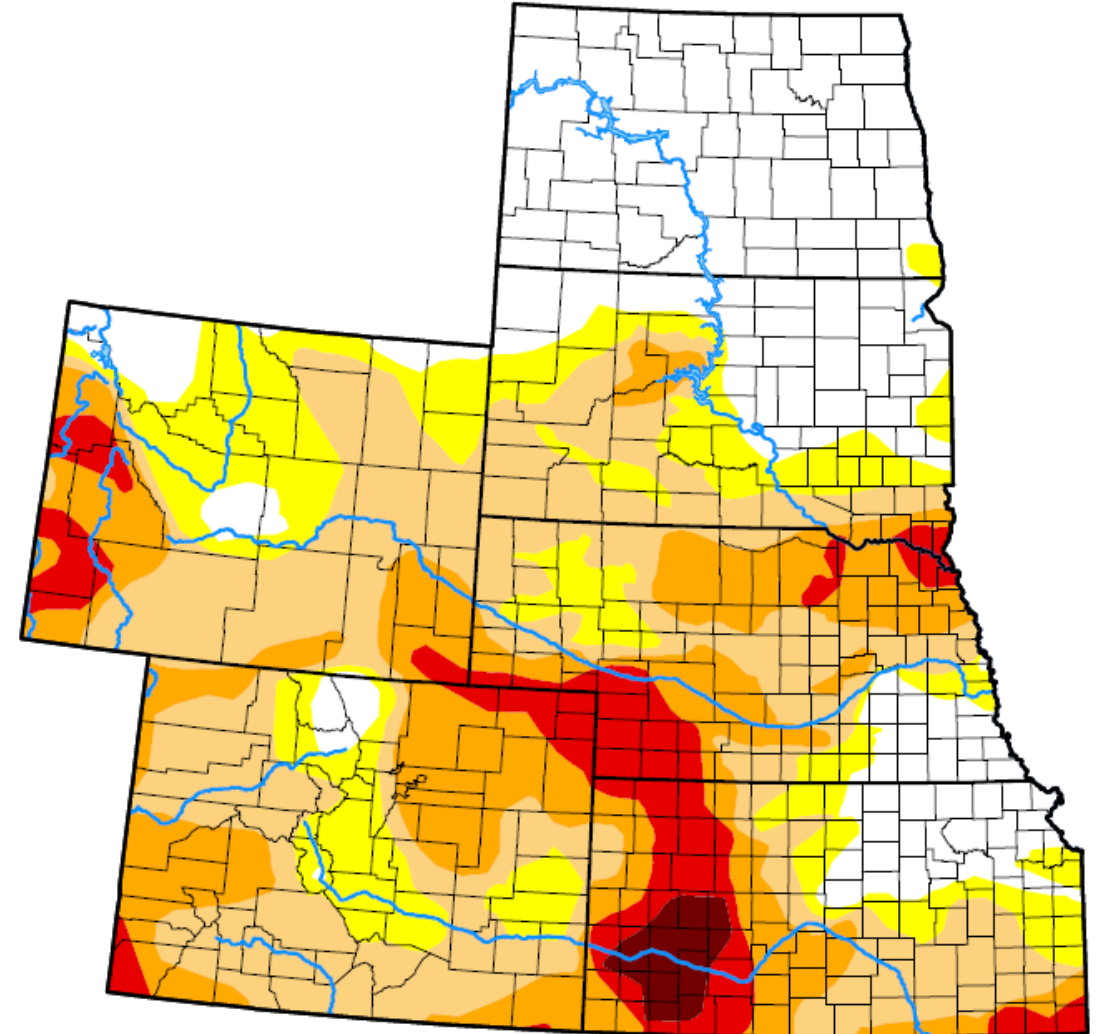
### Intensity:



## U.S. Drought Monitor

# High Plains

July 26, 2022



# U.S. Drought Monitor West

**July 26, 2022**

(Released Thursday, Jul. 28, 2022)

Valid 8 a.m. EDT

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	16.72	83.28	72.69	55.74	29.12	6.51
<b>Last Week</b> <i>07-19-2022</i>	16.73	83.27	73.44	57.69	30.16	6.68
<b>3 Months Ago</b> <i>04-26-2022</i>	5.08	94.92	91.28	74.95	32.80	3.84
<b>Start of Calendar Year</b> <i>01-04-2022</i>	3.68	96.32	89.29	64.90	23.85	3.94
<b>Start of Water Year</b> <i>09-28-2021</i>	2.21	97.79	89.60	75.38	52.46	18.40
<b>One Year Ago</b> <i>07-27-2021</i>	5.90	94.10	90.29	79.44	58.72	21.80

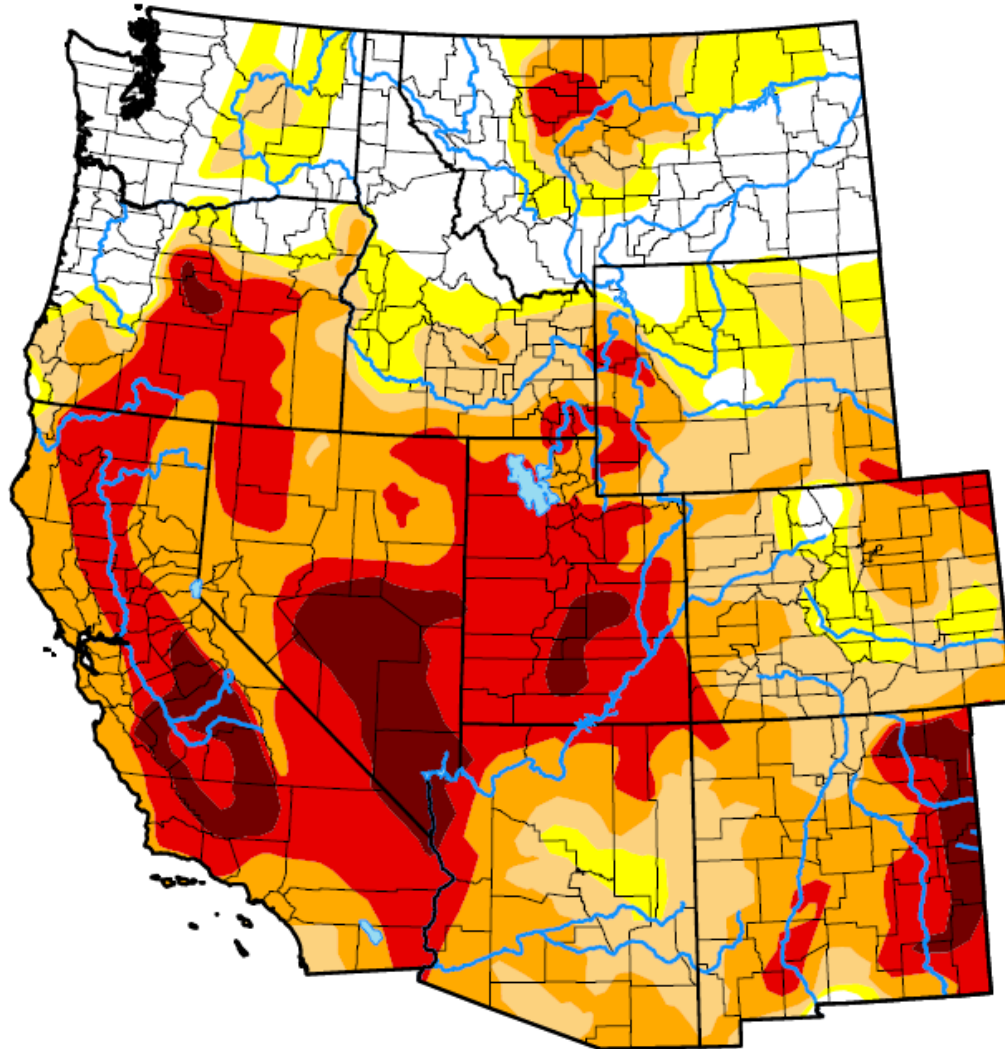
## Intensity:

 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:

Curtis Riganti  
National Drought Mitigation Center



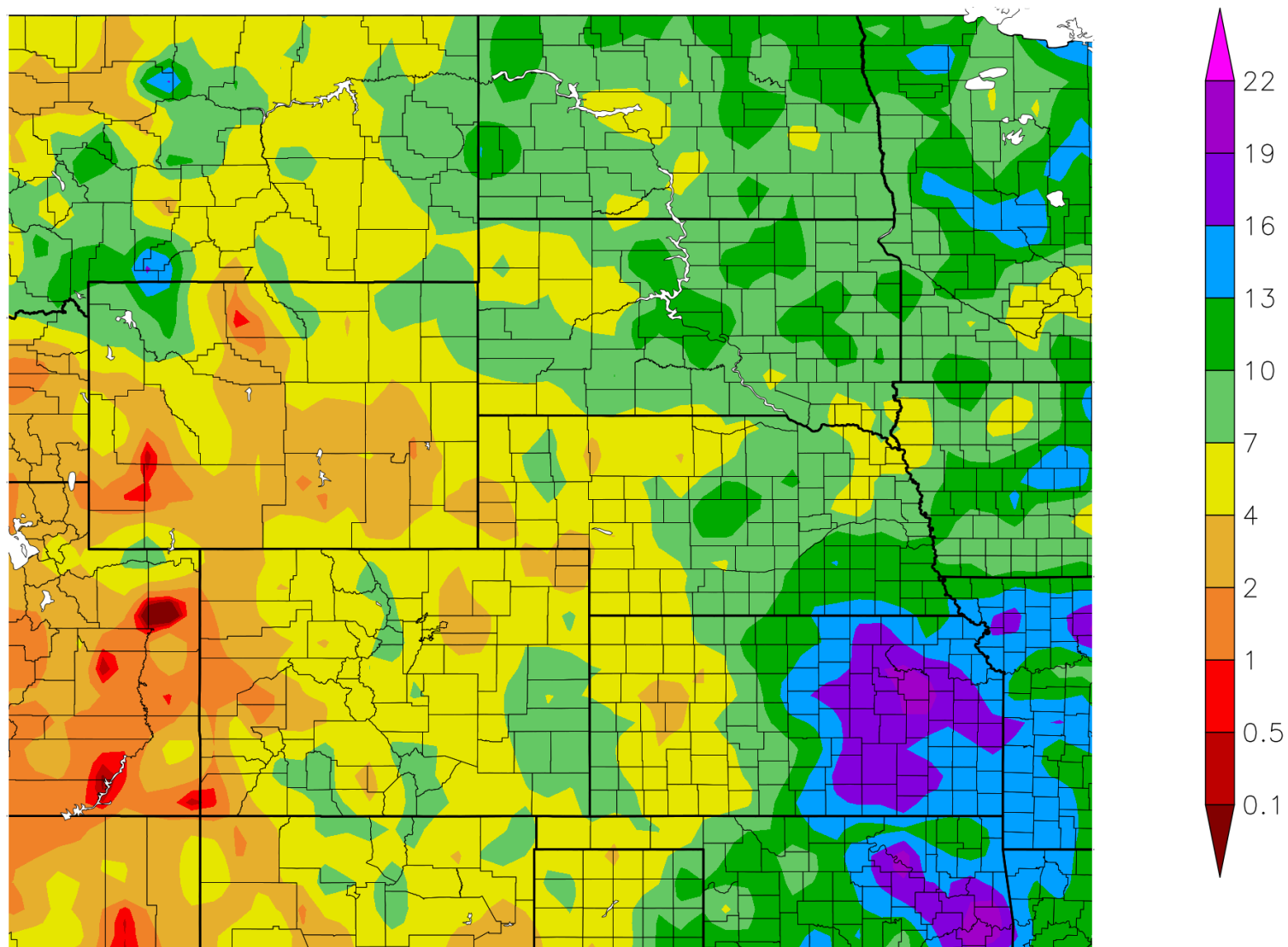
[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)



# Precipitation (in)

## 5/3/2022 – 7/31/2022

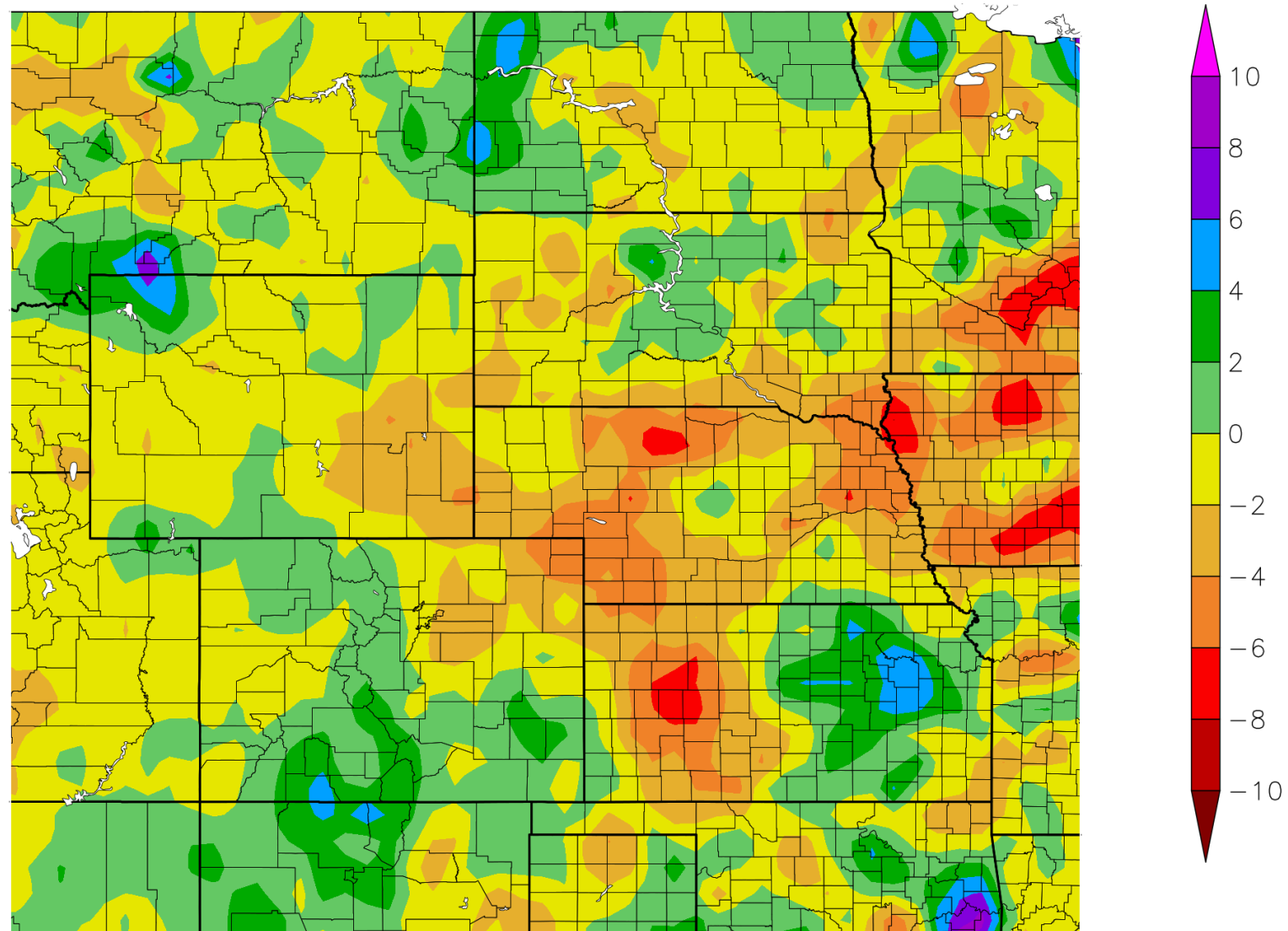
Courtesy of  
UNL CropWatch



# Departure from Normal Precipitation (in)

## 5/3/2022 – 7/31/2022

Courtesy of  
UNL CropWatch

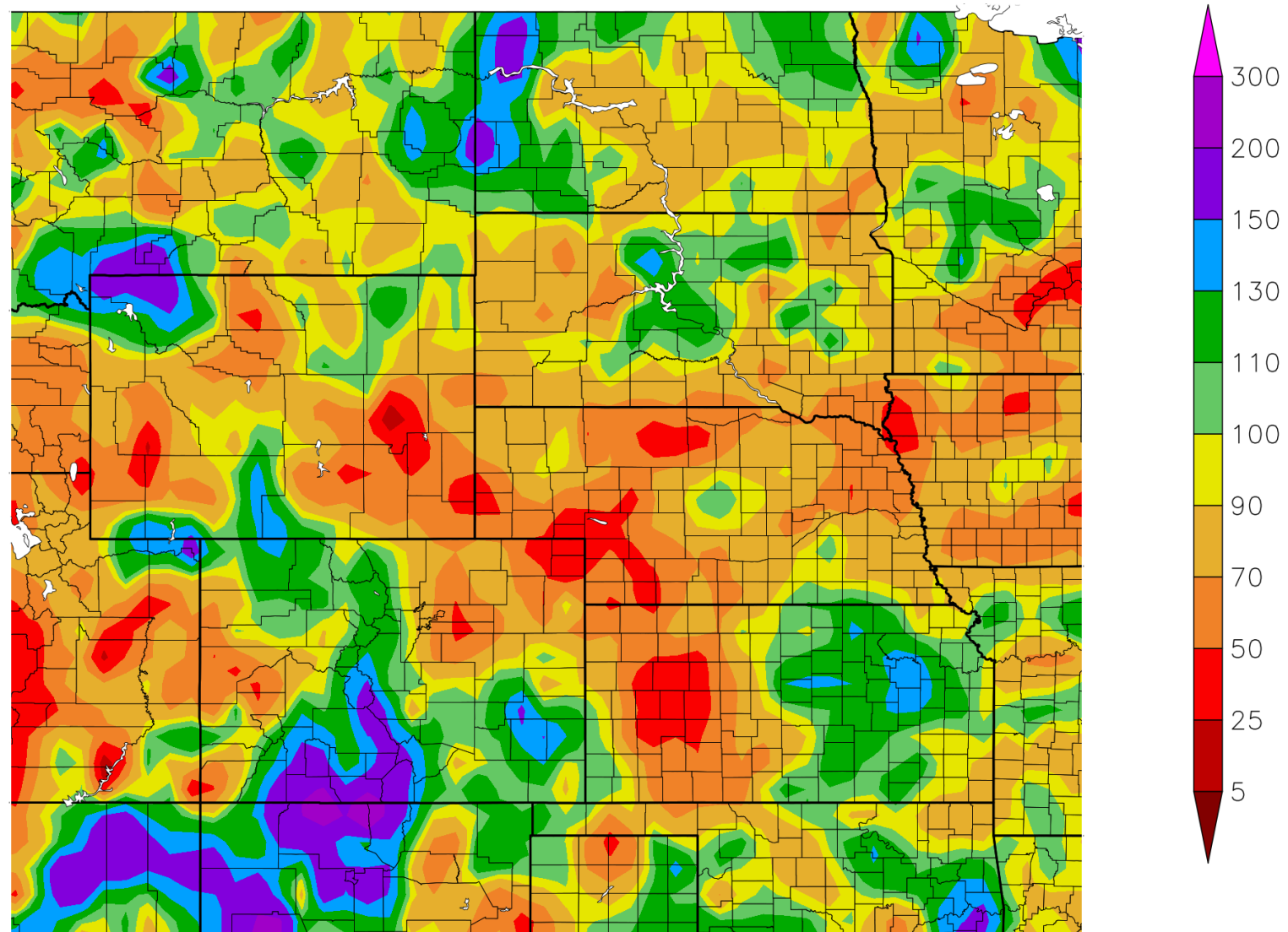




# Percent of Normal Precipitation (%)

## 5/3/2022 – 7/31/2022

Courtesy of  
UNL CropWatch

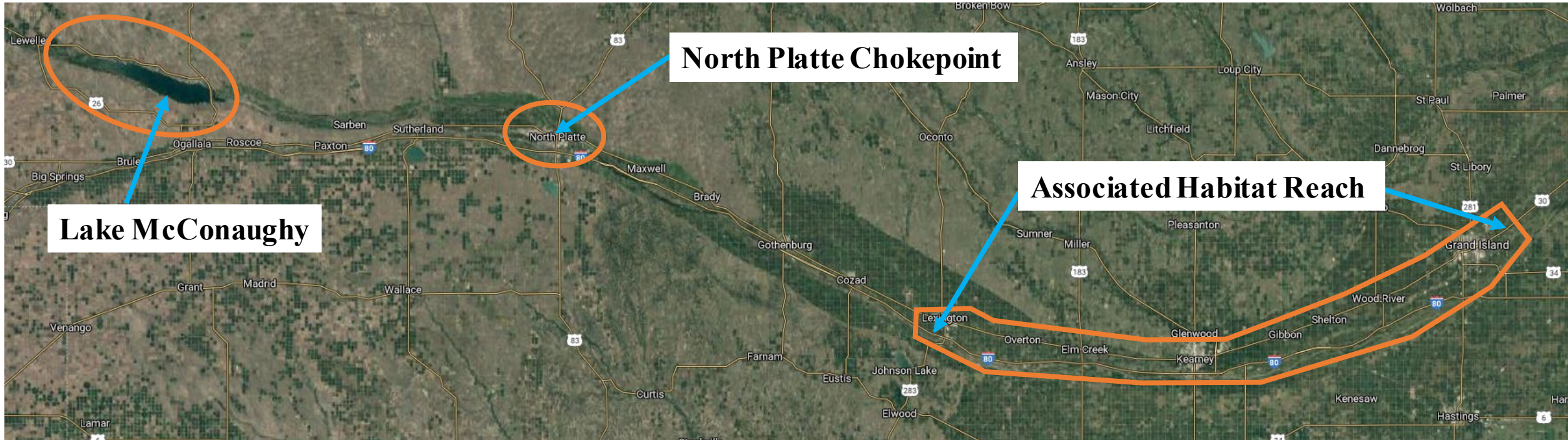


# North Platte Chokepoint

Seth Turner and Jason Farnsworth  
Platte River Recovery Implementation Program  
Water Advisory Committee Meeting  
August 2, 2022



# North Platte Chokepoint



# Program Goals

- Achieve and maintain 3,000 cfs through North Platte chokepoint
  - Governance Committee Alternative in FEIS (2006)
  - Program Document, Section III.E.2.d.iii (2006)
  - Addendum to the Program Document – First Increment Extension, Section II.B. (2017)
- Must remain below NWS flood stage
  - Program Document (Adaptive Management Plan, Environmental Account)
  - CNPPID's 1998 FERC license

# Diminished flow capacity at North Platte

- Reduced median and peak flows
- Increased sediment deposition
- Development in the floodplain
- Vegetation growth, primarily phragmites

Year	Flood Stage (ft)	Discharge (cfs)
1986	6.0	5420
1994	6.0	3804
2002	5.7	1980
2003	5.7	1812
2007	5.7	1163
2008	6.0	1557
2018	6.0	1930
2022	6.0	1775*
*Avg shift-adjusted capacity		

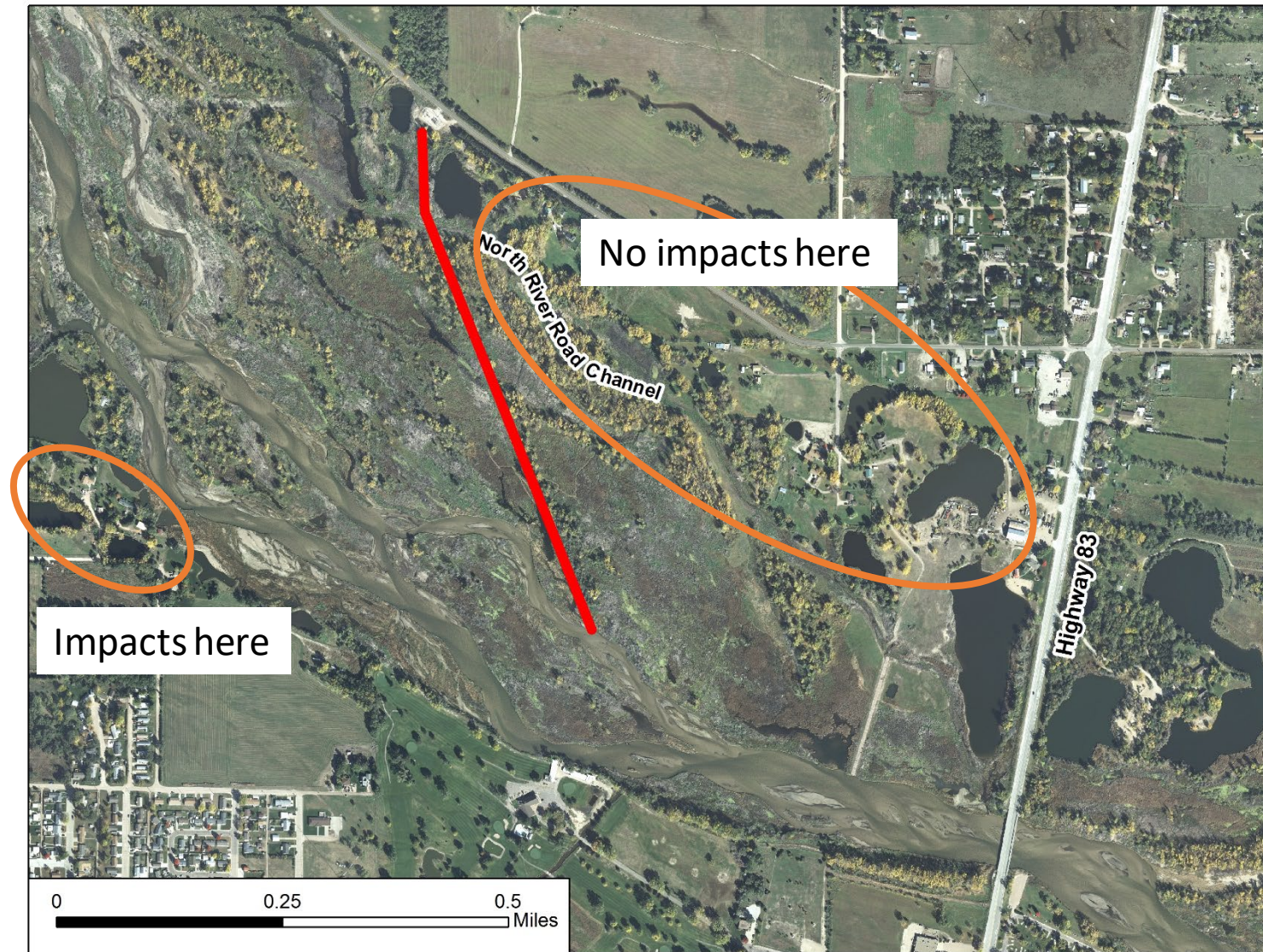
# Chokepoint – First Increment Summary

- Early plans to clear, reopen flow paths (landowner resistance)
- HEC-RAS, sediment transport modeling (upstream, downstream)
- Evaluated buyouts, flood easements (policy conflicts)
- Extensive vegetation treatment (continues to present)
- Flow tests and monitoring (2009, 2013, 2020)
- Focus on implementing institutional solutions (minimize flood impacts, potential basis for increasing flood stage)
- Conceptual large-scale engineering solutions (channel widening, dredging, jetties)



# Chokepoint Flood-Proofing Projects and Flow Test

- Flood-proofing
  - Whitehorse Creek Drainage Project (2014)
  - State Channel Rehabilitation (2018)
- Flow Test
  - EA release July 13-24, 2020
  - Stages from 6.0 ft to > 6.5 ft
  - Flood-proofing projects worked
- National Weather Service
  - Declined to raise flood stage
  - Revised flood impacts definitions



# June 2022 GC Meeting

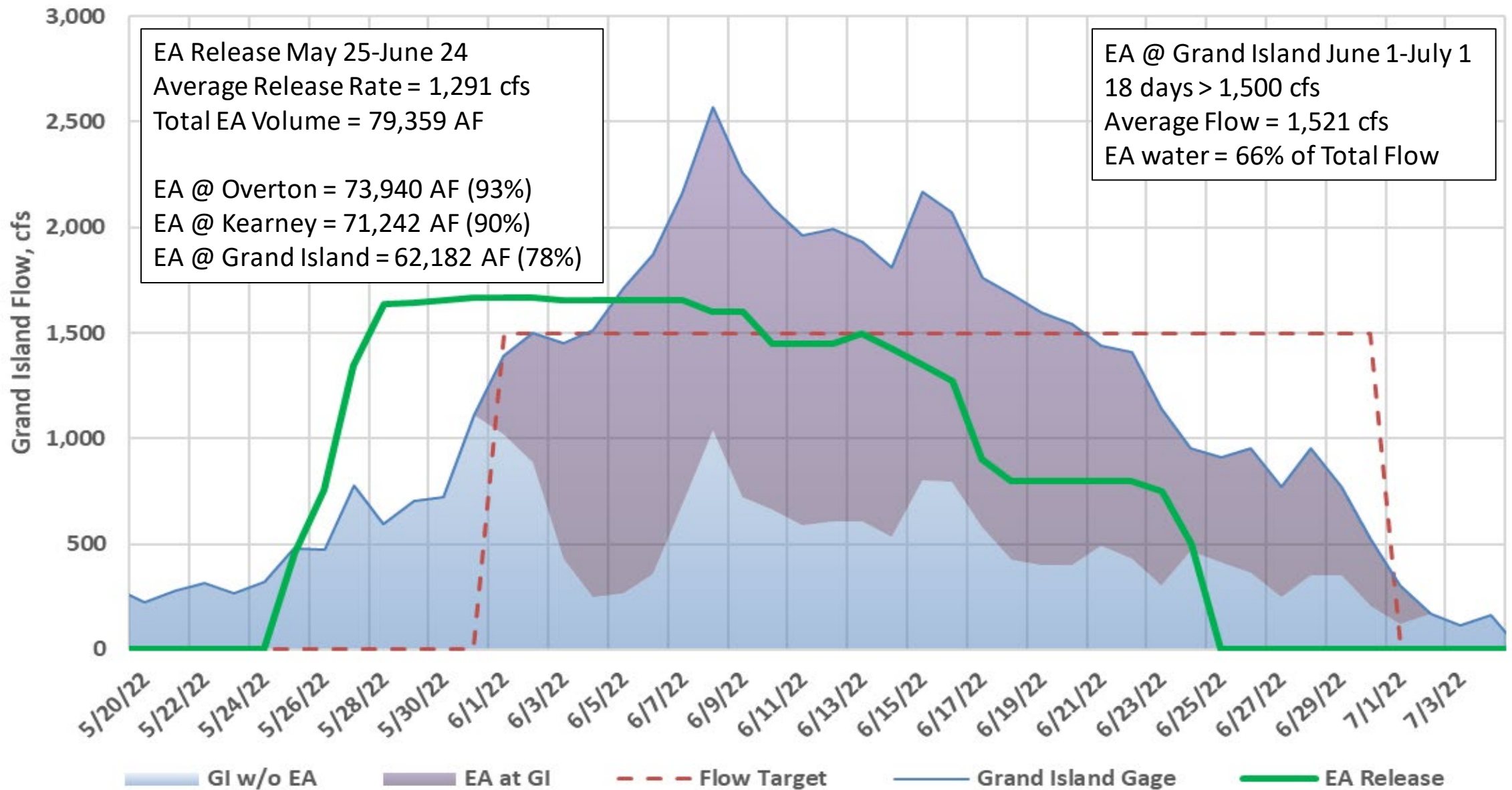
- Chokepoint Planning Workgroup (2021)
  - Reviewed First Increment efforts
  - Large bypass canal emerged as only guaranteed solution
- Land rights remain largest hurdle
  - 50-60 individual parcels in chokepoint reach
  - 9-16 landowners impacted by potential bypass alignment (including UPRR)
  - Program has no authority to condemn
- Governance Committee
  - No stakeholder organization willing to sponsor large project
  - No appetite to use eminent domain
  - How much capacity actually needed to accomplish Program goals?

# Chokepoint Framing Document

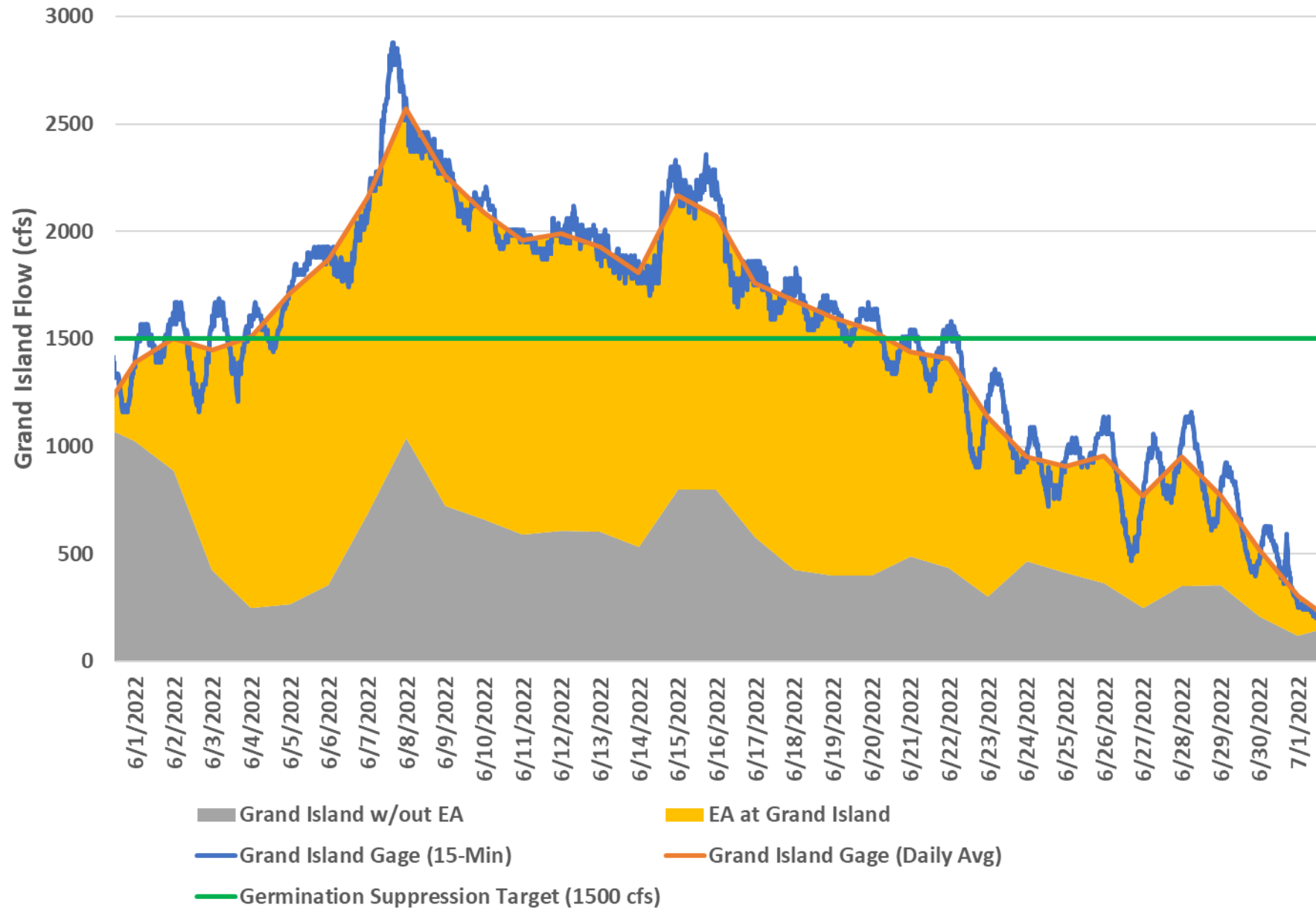
# EA Releases for Germination Suppression



# Summer 2022 EA Release for Germination Suppression

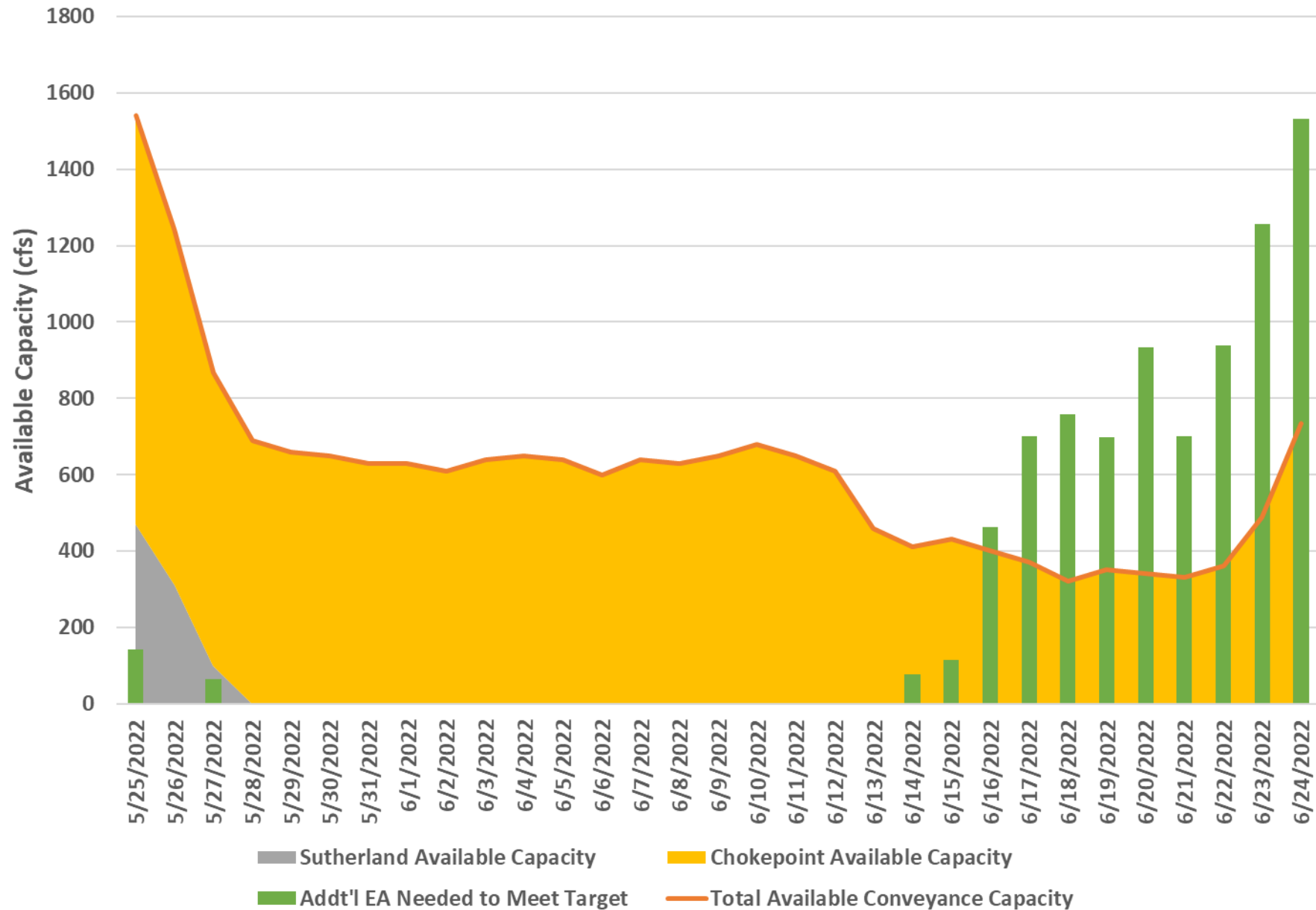


06770500 Platte River near Grand Island (2022)

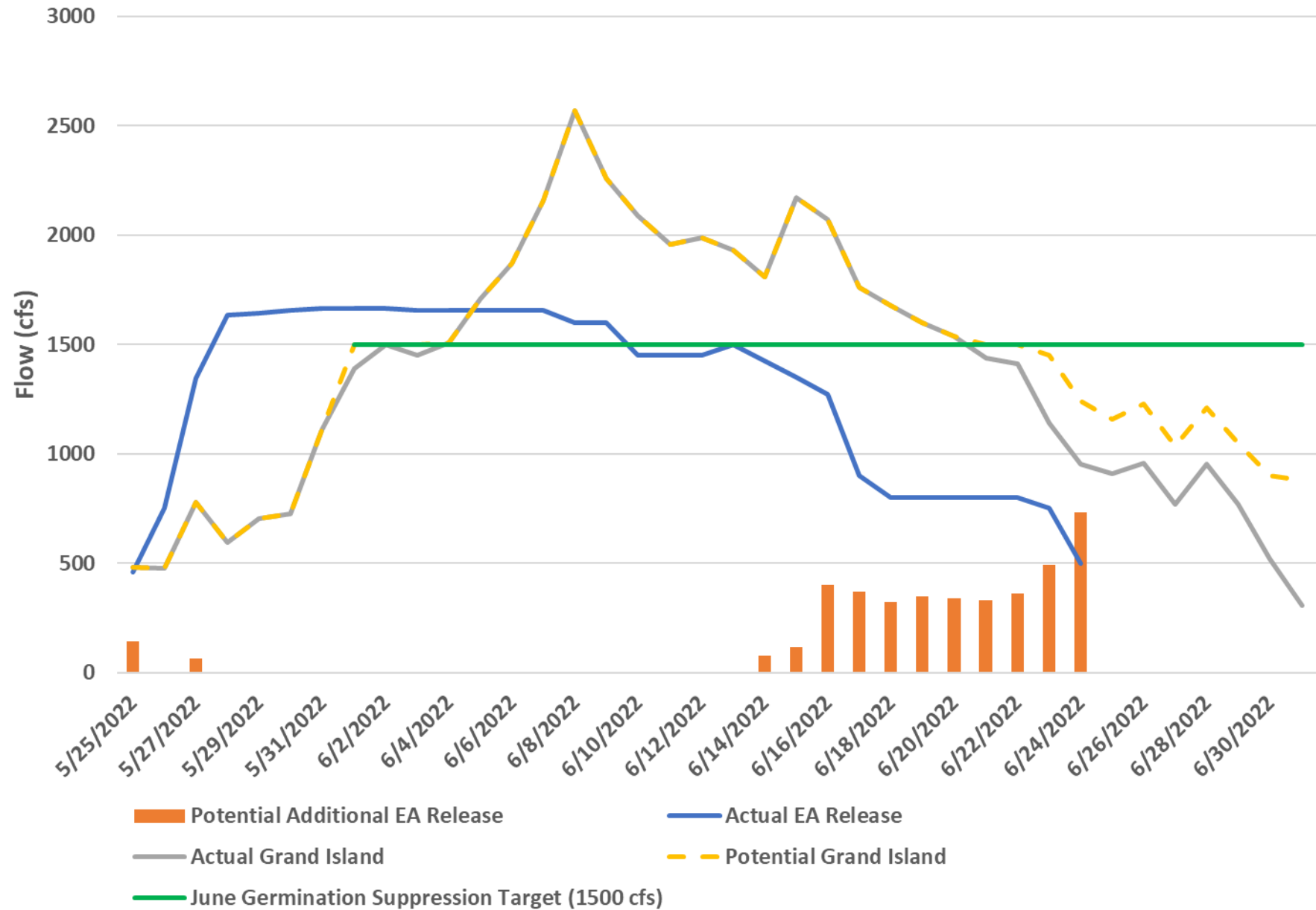




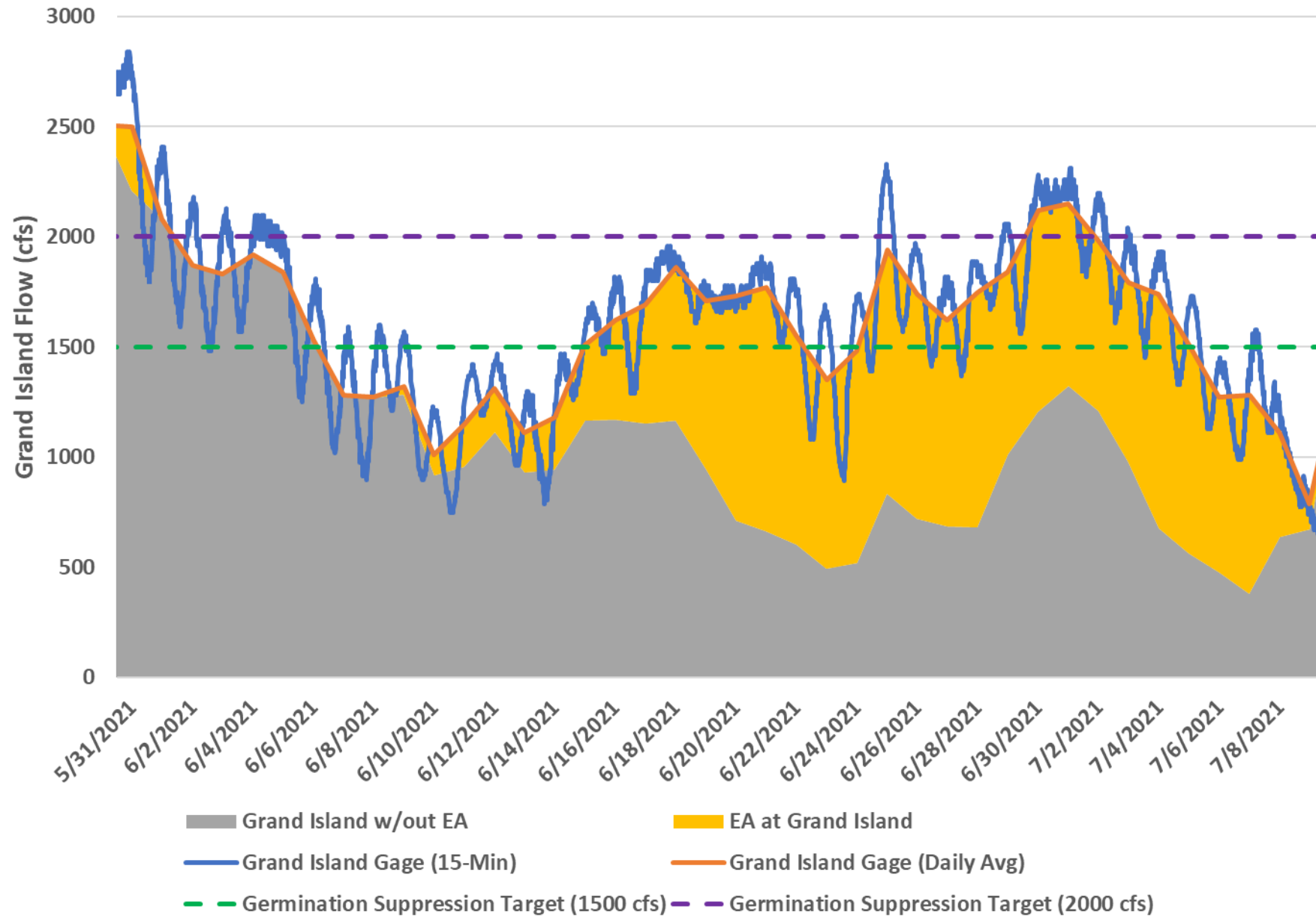
Additional Capacity Available for EA Release (2022)



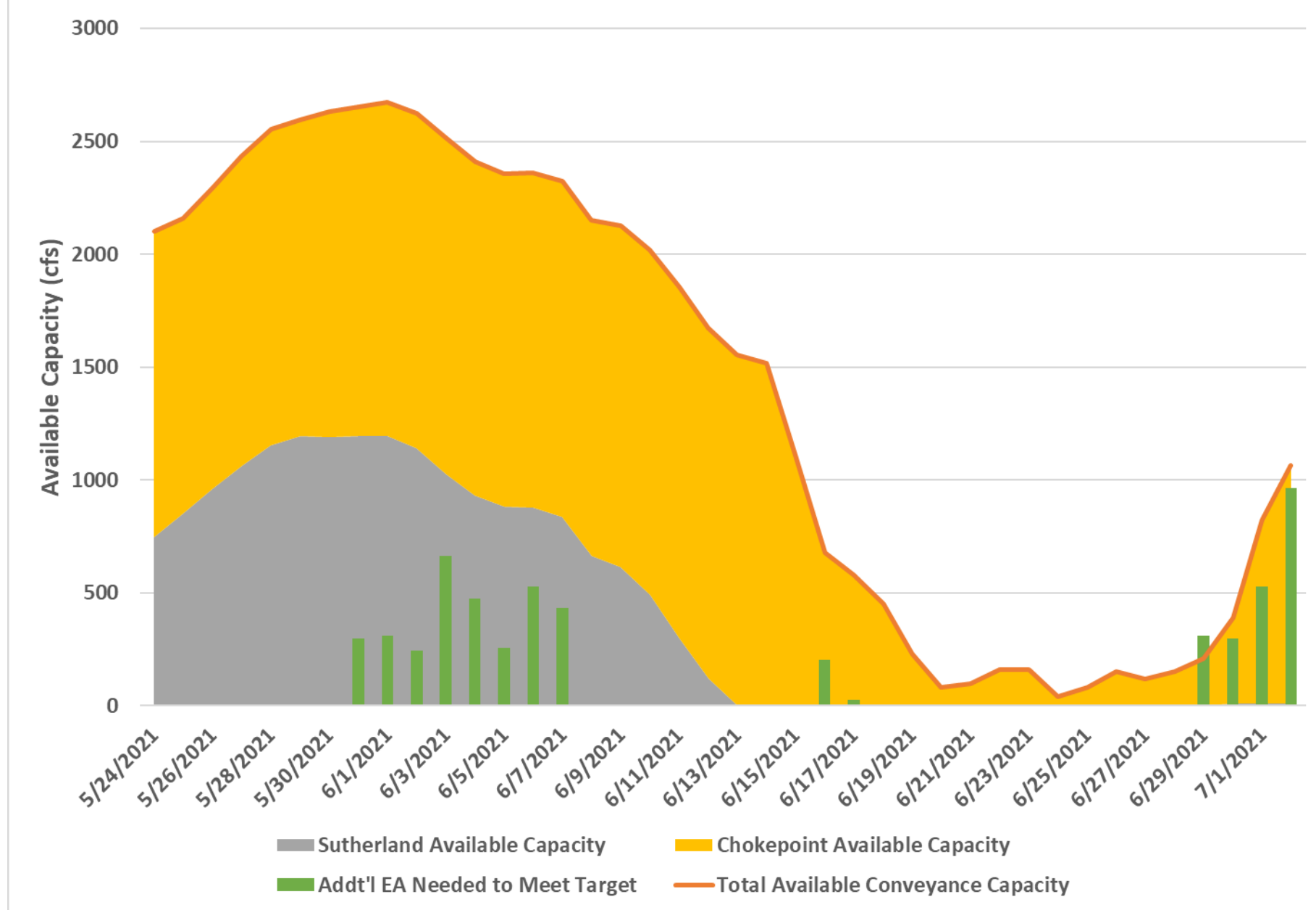
EA Release and Grand Island Flow (Actual vs Potential - 2022)



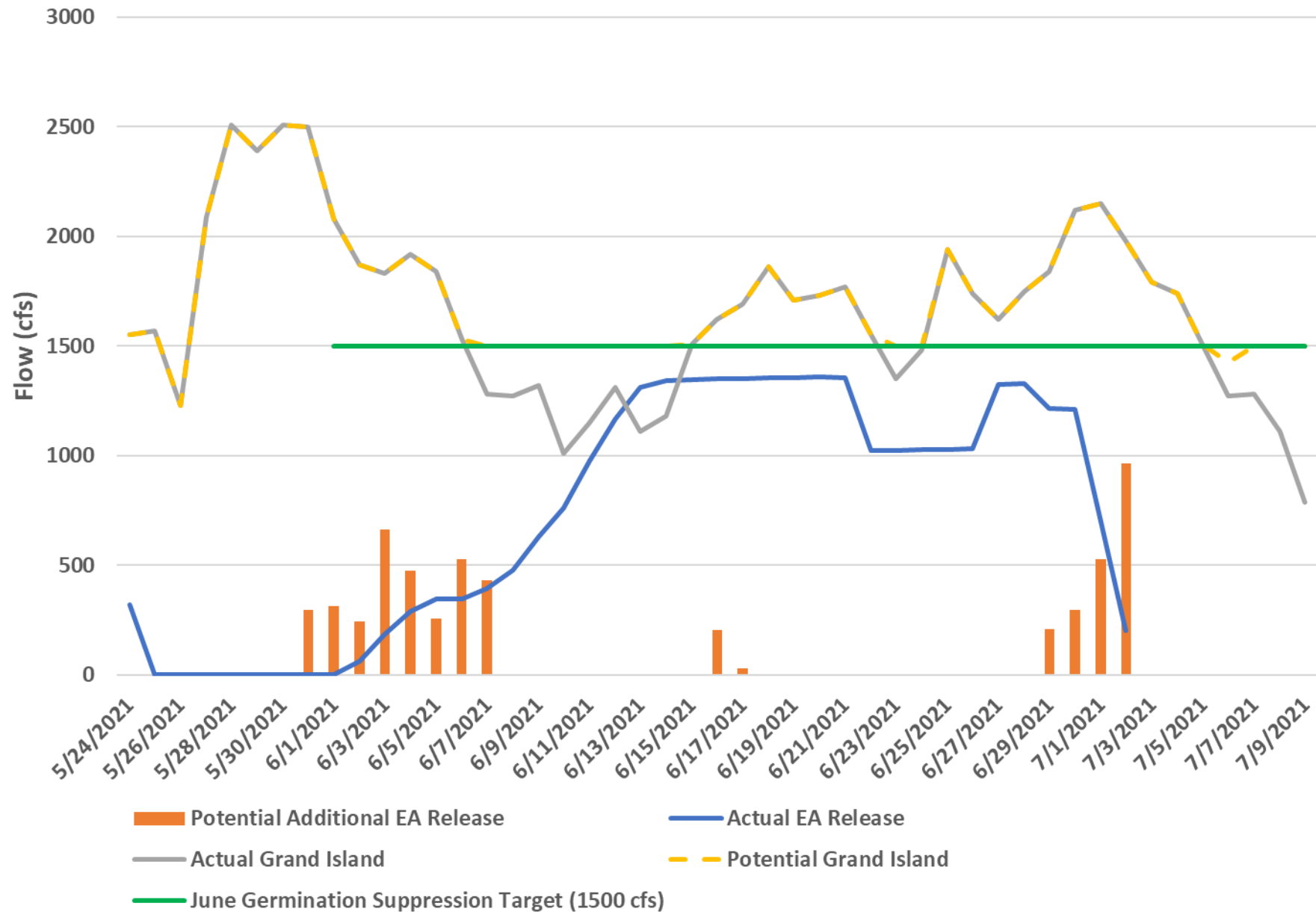
06770500 Platte River near Grand Island (2021)



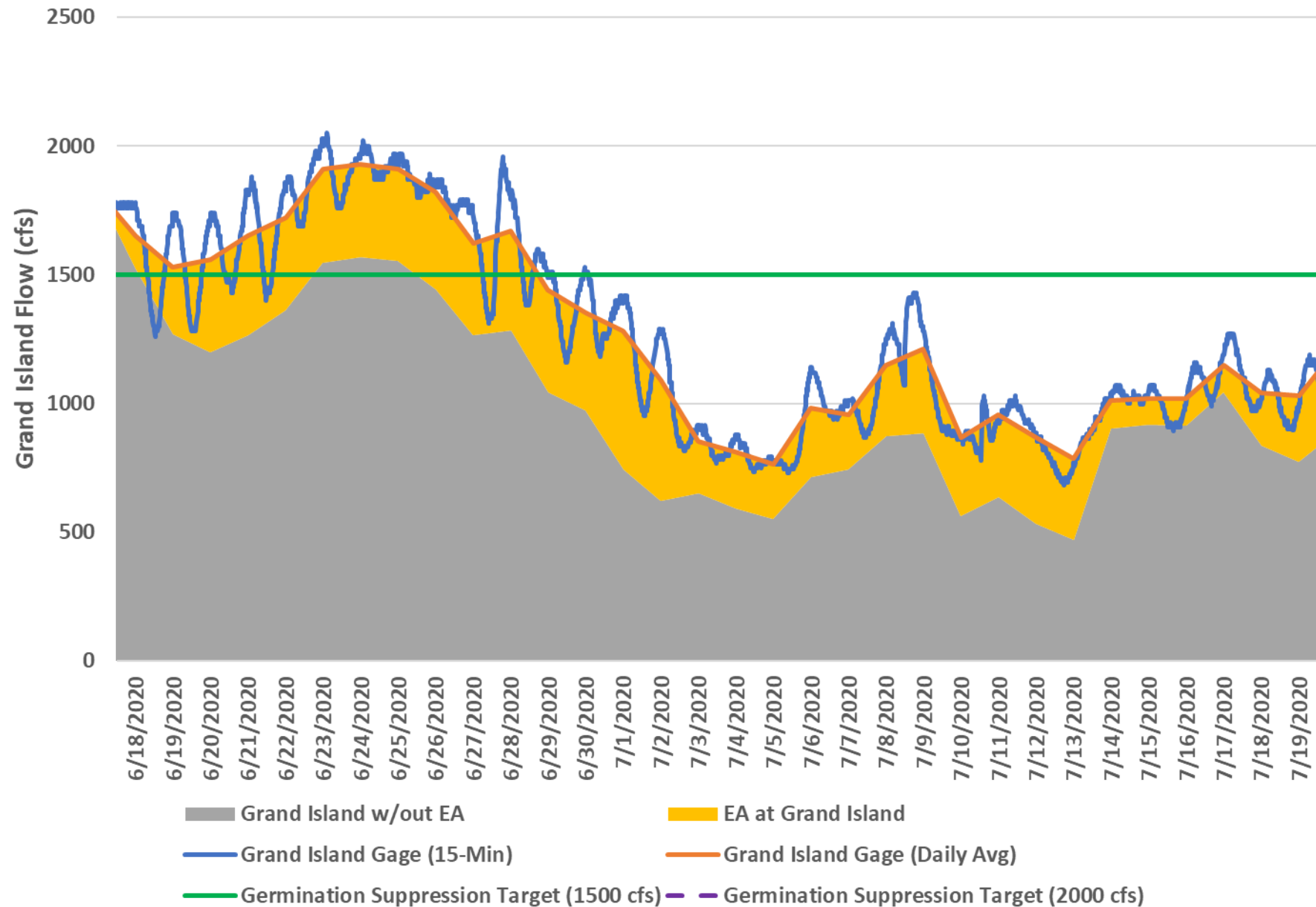
Additional Capacity Available for EA Release (2021)



EA Release and Grand Island Flow (Actual vs Potential - 2021)

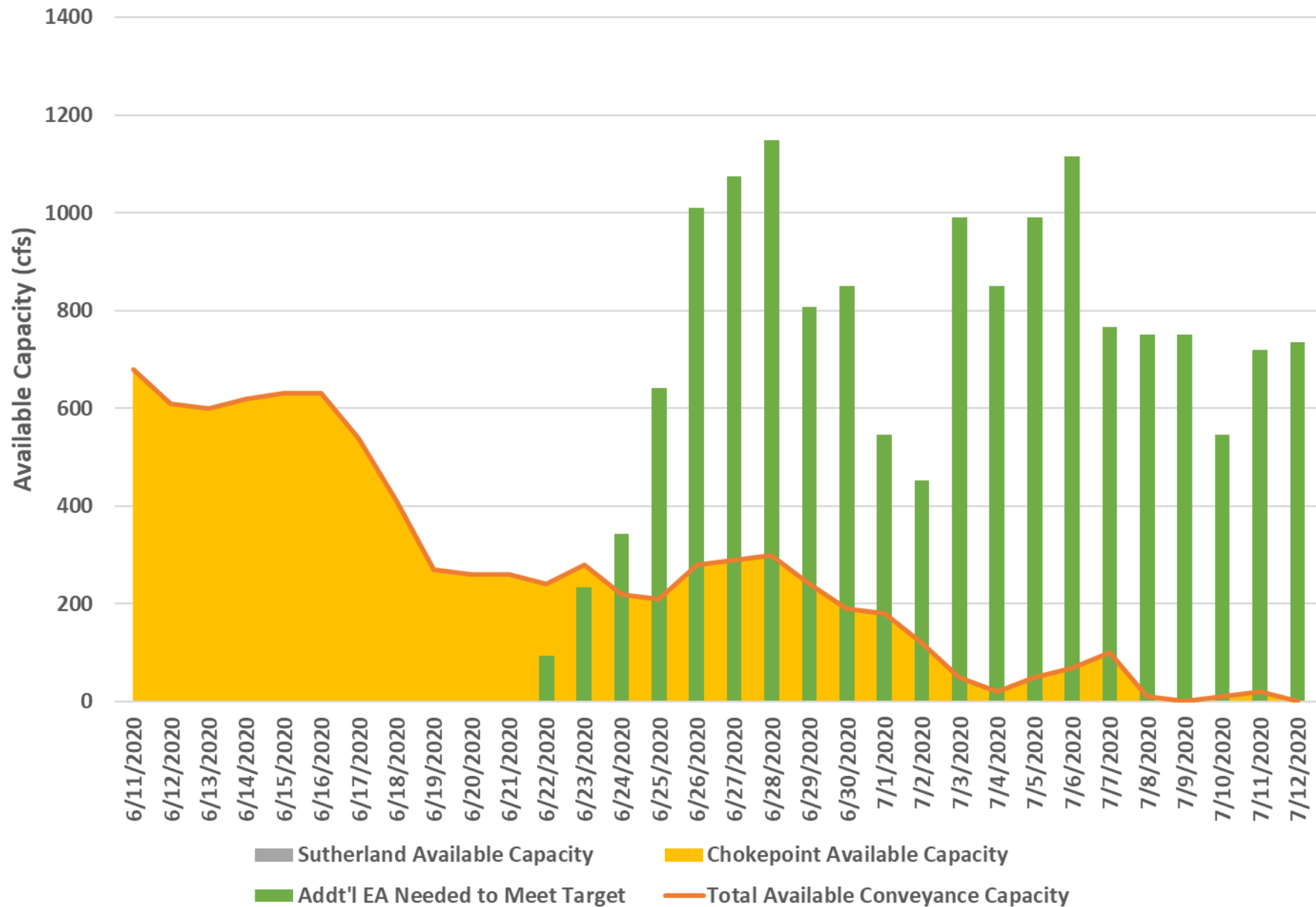


06770500 Platte River near Grand Island (2020)

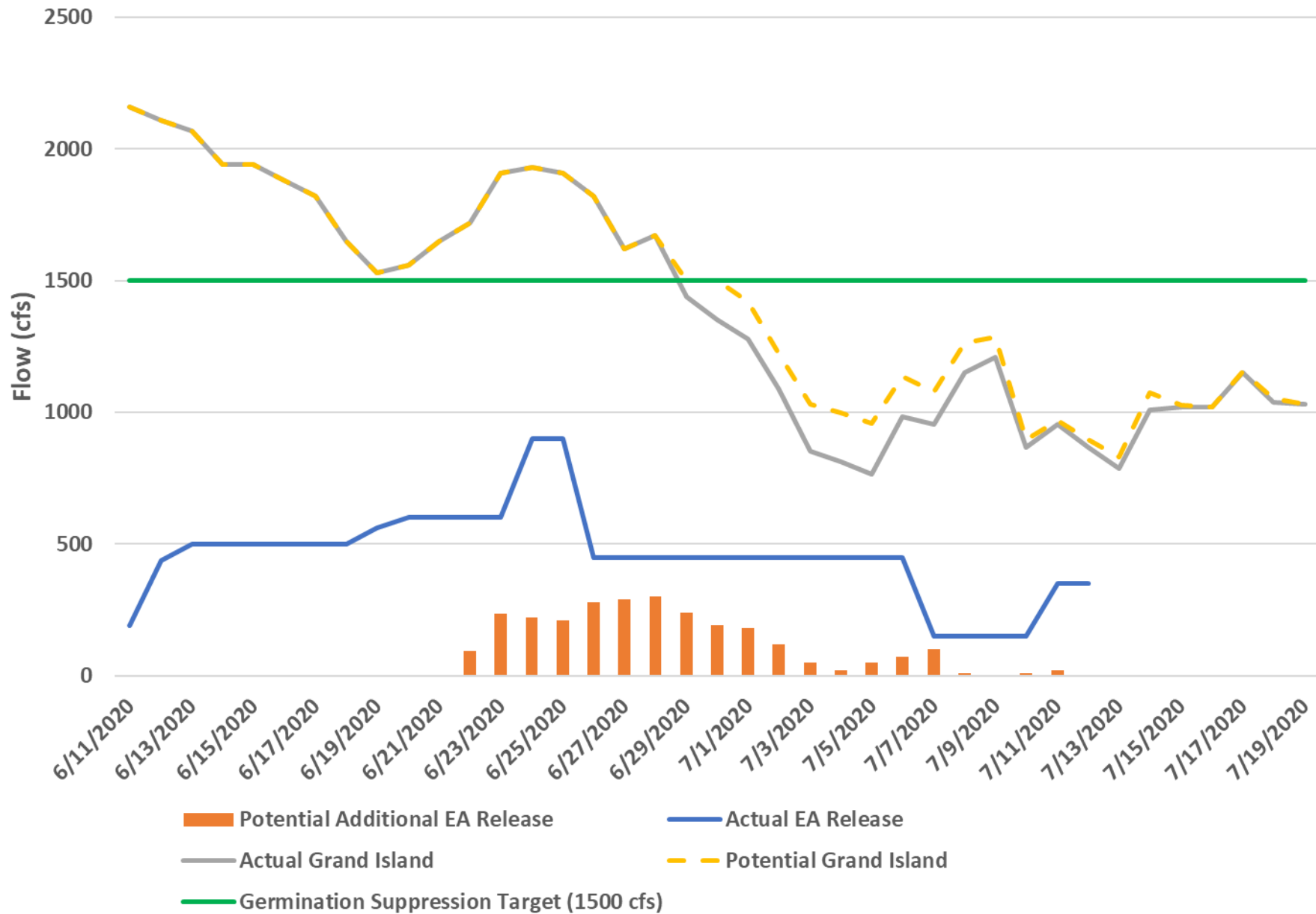




# Additional Capacity Available for EA Release (2020)



EA Release and Grand Island Flow (Actual vs Potential - 2020)



# EA Release Policies

- Bypass Agreement
  - EA water run through NPPD and CNPPID systems, returned in full
  - Power interference penalties for intentional bypass
- Sutherland Canal (~1600 cfs) and North Platte River (~1770 cfs)
  - Available capacity in Sutherland Canal filled first
  - Limited by NPPD North Platte hydro releases
- Capacity Constraints
  - No intentional violation of flood stage at North Platte (or other gages)
  - If irrigation/power demand goes up, EA release has to go down

# Lessons

- Coordination calls extremely valuable
- Be aggressive with flood stage limits
- Need as much water as possible at AHR to meet Science Plan goals

# Water Action Plan

Seth Turner

Platte River Recovery Implementation Program

Water Advisory Committee Meeting

August 2, 2022



# First Increment Water Objectives

- 130,000 AFY average annual reduction to target flow deficits at Grand Island
  - 3 Initial State Water Projects = 80,000 AFY
  - Water Action Plan = 50,000 AFY
- Extension Approach
  - Get to 120,000 AFY
  - Determine if next 10,000 AFY is needed

# Scored WAP Projects

- Score = capacity of a WAP project to reduce deficits to target flows
  - Based on model analyses
  - 1947-1994 OPSTUDY hydrology
  - Assumed project operations
  - Score values are 48-year averages, can negotiate based on multiple scenarios
  - Recommendation by Scoring Subcommittee, approval by GC

Project	Score (AFY)
Phelps County Canal groundwater recharge	2,700
Cook recapture well	160
No-Cost Net Controllable Conserved Water (NCCW)	260
Pathfinder Municipal Account lease	6,350
Elwood Reservoir recharge	2,800
CNPPID irrigator lease	1,900
TOTAL =	14,170

# Active Unscored Projects

- CPNRD surface water lease/exchange
- CPNRD canal recharge
- NPPD surface water lease/exchange
- NPPD canal recharge
- Cottonwood Ranch broad-scale recharge
- Recapture well network

# CPNRD Surface Water Lease/Exchange

- Started 2015, Modified 2018
- 1-year agreements since 2018
- Proposed Agreement
  - Prepaid 2022-2032
  - Annual lease volume around 14,200 AF (may change), credited to Lake McConaughy EA in October
  - Estimated score = 12,400 AFY

# NPPD Surface Water Lease/Exchange

- Started 2019
- 1-year agreements
- Proposed Agreement
  - Prepaid 2022-2032
  - Annual lease volume = 3,306 AF, credited to Lake McConaughy EA in October
  - Estimated score = 2,900 AFY



# CPNRD Canal Recharge

- Started 2013
- WSA expires 12/31/2024
- Diversions in only 1 spring or fall season since 2018
- Draft score analysis presented in April 2020, but never finalized
- Likely to sunset as Program WAP project

# NPPD Canal Recharge

- Started 2015
- WSA expires 12/31/2025
- Net recharge averaged 4,881 AF from 2015-2020
- 563 AF net recharge in January 2021, none since (lack of excess flows)
- Draft score analysis presented in April 2020, but never finalized
- May sunset as Program WAP project

# CNPPID Irrigator Lease

- Started with 2016 irrigation season
- Water leasing agreement ends with 2023 irrigation season (12/31/2023 expiration)
- Program receives 9 in/acre, credited to Lake McConaughy EA
- Originally paid \$220/acre
  - Enrollment peaked near 3,000-acre max (2,989 acres in 2020)
- Reduced price to \$100/acre
  - Enrollment dropped by 2/3 (1,030 acres in 2021)
  - Slight rebound (1,157 acres in 2022)
- Likely to sunset as Program WAP project (eliminates approved score)

# Other Proposed WAP Projects

- CNPPID surface water lease
  - Same pool previously offered as NCCW, declined by GC in 2013
  - Completely new terms
- Elwood Reservoir outlet to Plum Creek
- Cottonwood Ranch BSR + Recapture Network + Net Proposed Changes reach 120,000 AFY.