



— BUREAU OF —  
RECLAMATION

# Upper Snake above Brownlee Flow Augmentation Operation – 2021 Review

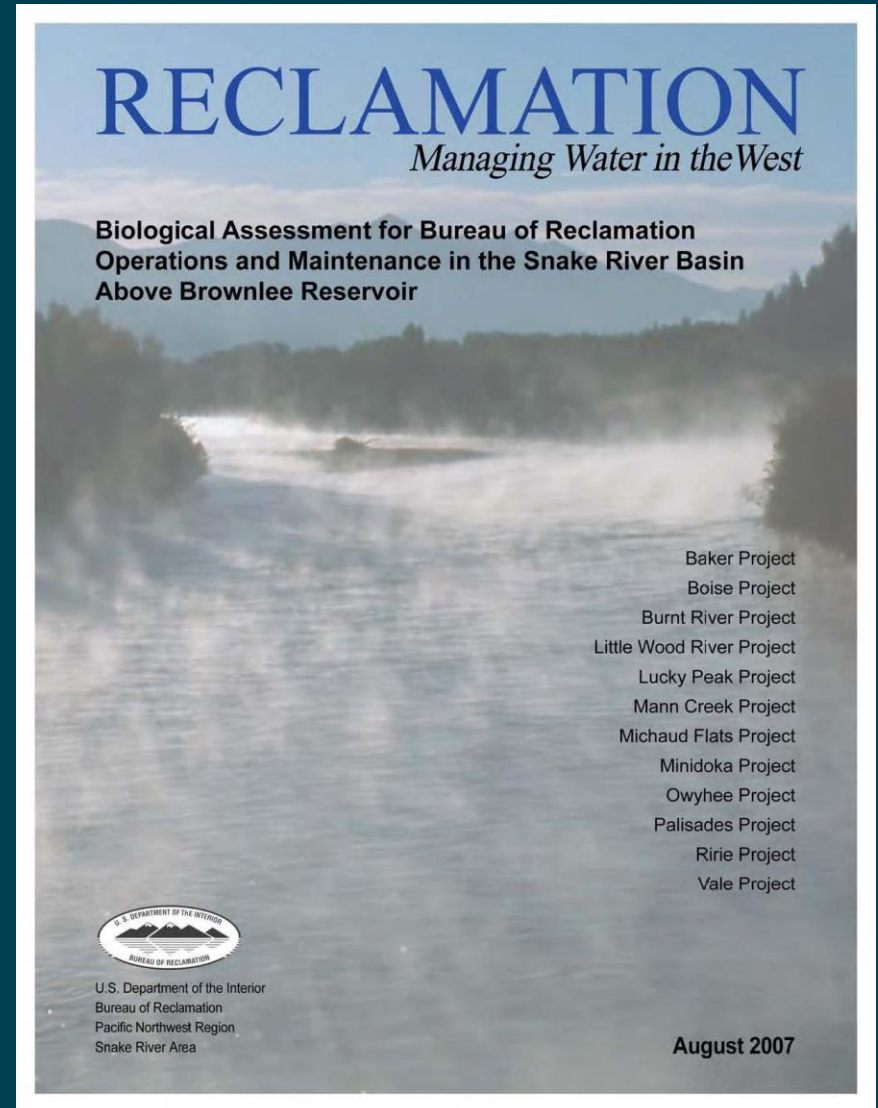
Joel Fenolio

Water Management

Bureau of Reclamation – CPN Region

December 1, 2021

TMT Year End Review



# Overview

- Basin conditions
- Historic Timeline
- Sources of Flow Aug 2021
- Flow Aug Releases
- Current Basin Specific Implementation



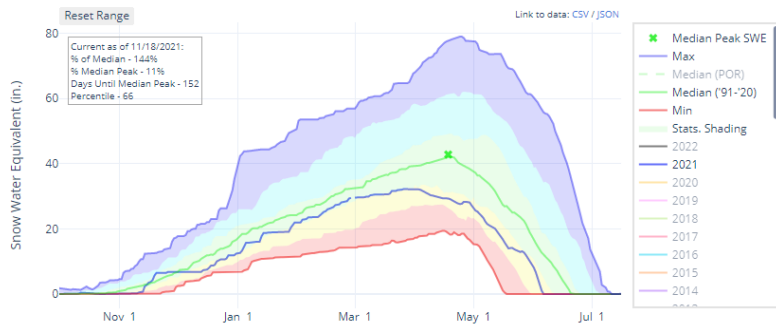
# 2021 November 1 Carryover

At the end of the 2020 irrigation season (November 1, 2020), the carryover storage into the 2021 season was as follows:

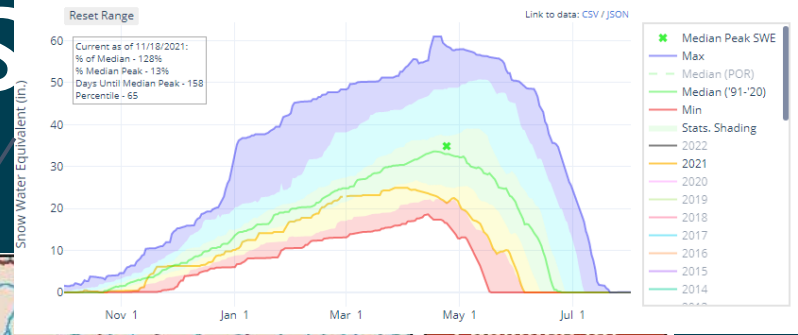
Upper Snake above Milner Dam	1,984,638 acre-feet (111% of Average)
Boise River system	387,587 acre-feet (106% of Average)
Payette River system	452,451 acre-feet (96% of Average)



SNOW WATER EQUIVALENT AT DEADWOOD SUMMIT

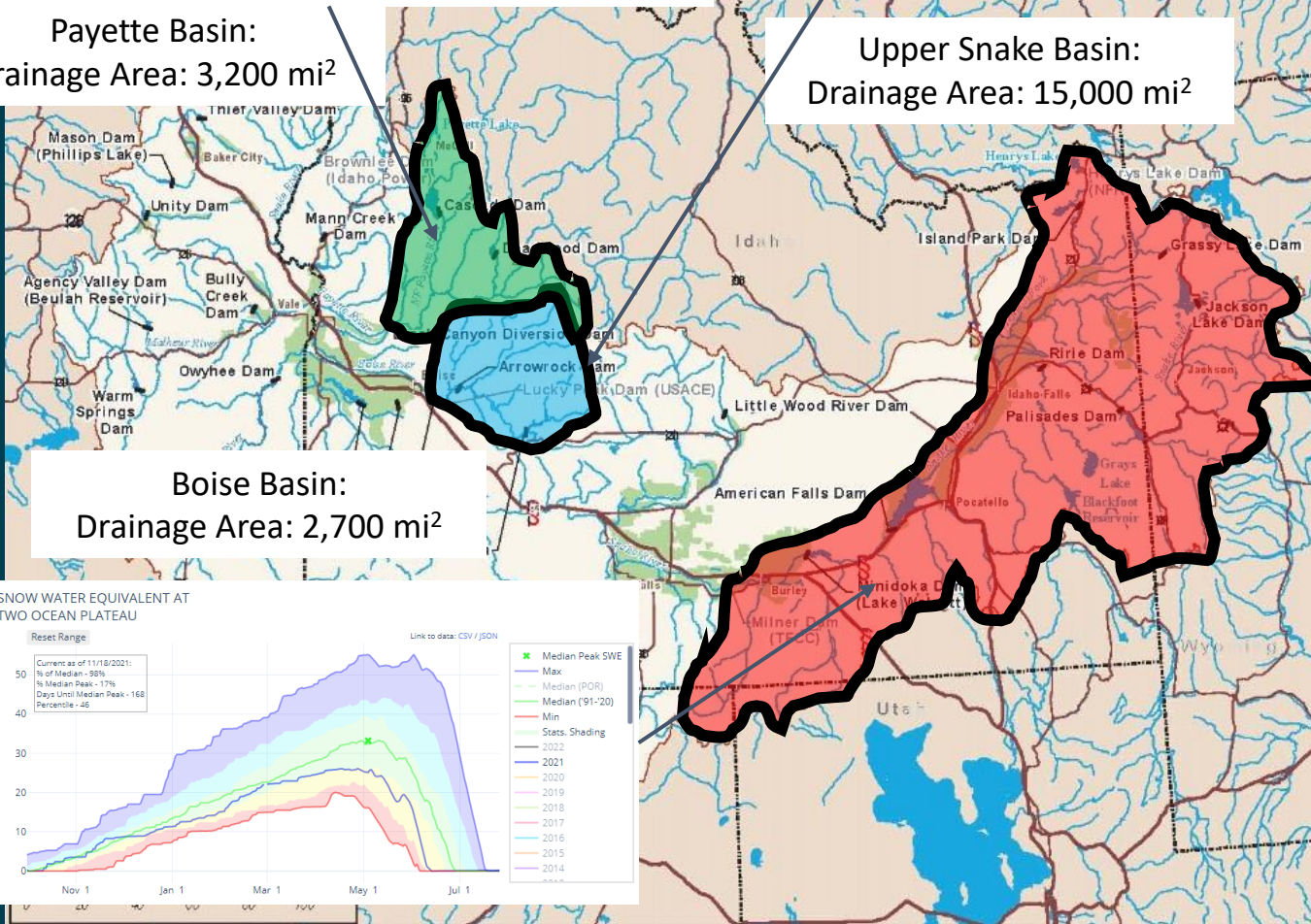


SNOW WATER EQUIVALENT AT VIENNA MINE



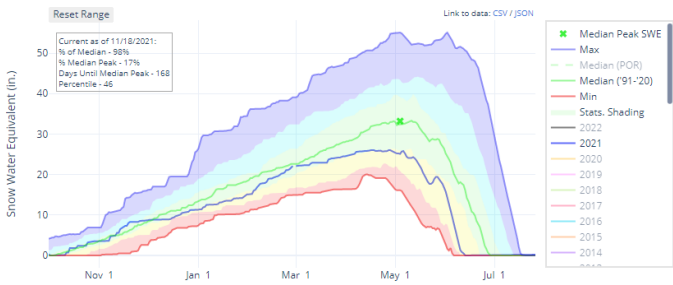
**Payette Basin:**  
Drainage Area: 3,200 mi<sup>2</sup>

**Upper Snake Basin:**  
Drainage Area: 15,000 mi<sup>2</sup>



**Boise Basin:**  
Drainage Area: 2,700 mi<sup>2</sup>

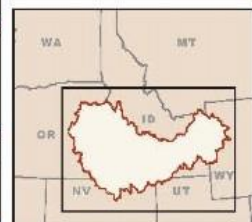
SNOW WATER EQUIVALENT AT TWO OCEAN PLATEAU



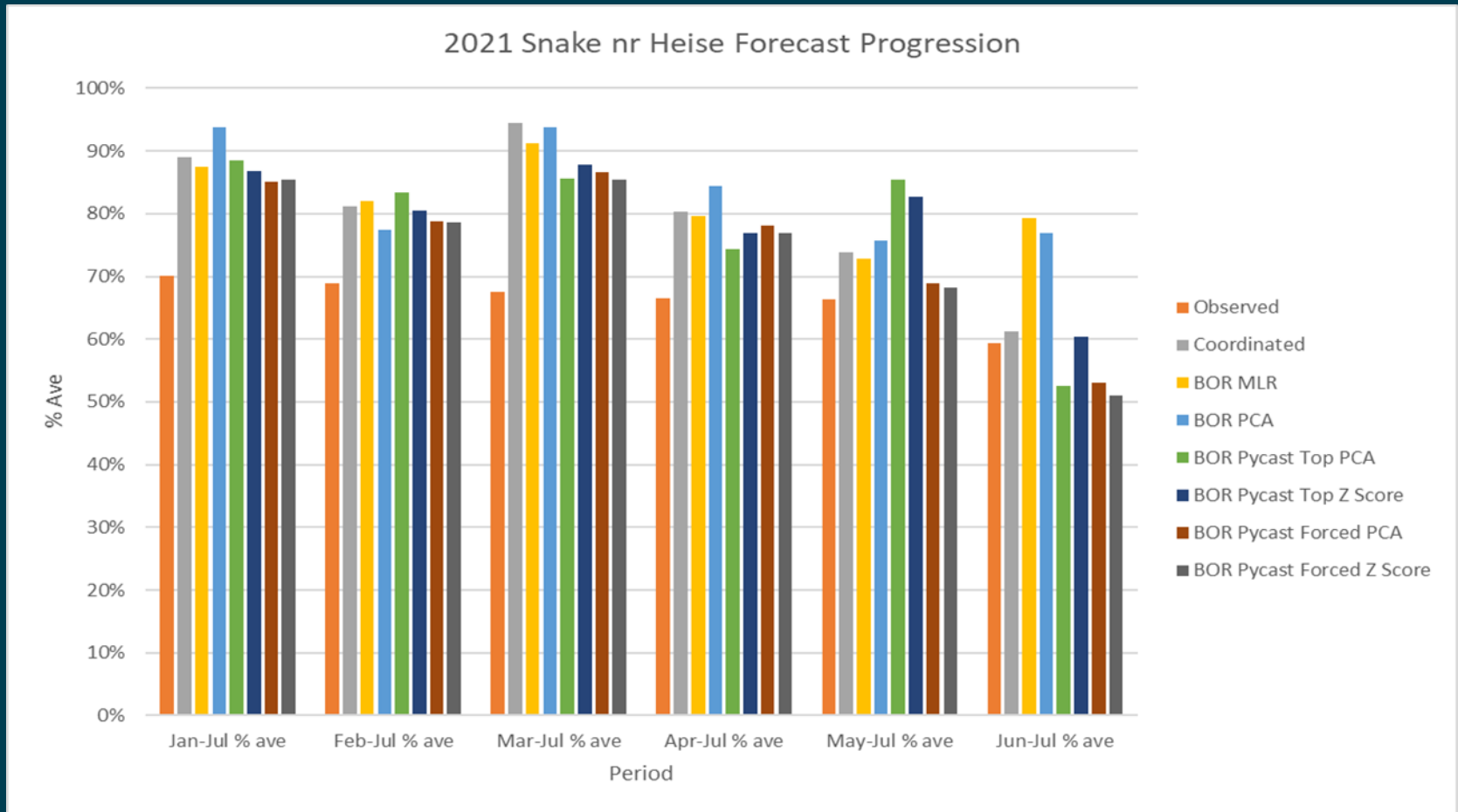
**Reclamation for  
Bureau of  
Reclamation  
Projects**  
*in the  
Snake River Basin  
above  
Brownlee Reservoir*

- Reclamation Dam
- Other Dam
- Reclamation Project Areas
- Upper Snake River Basin

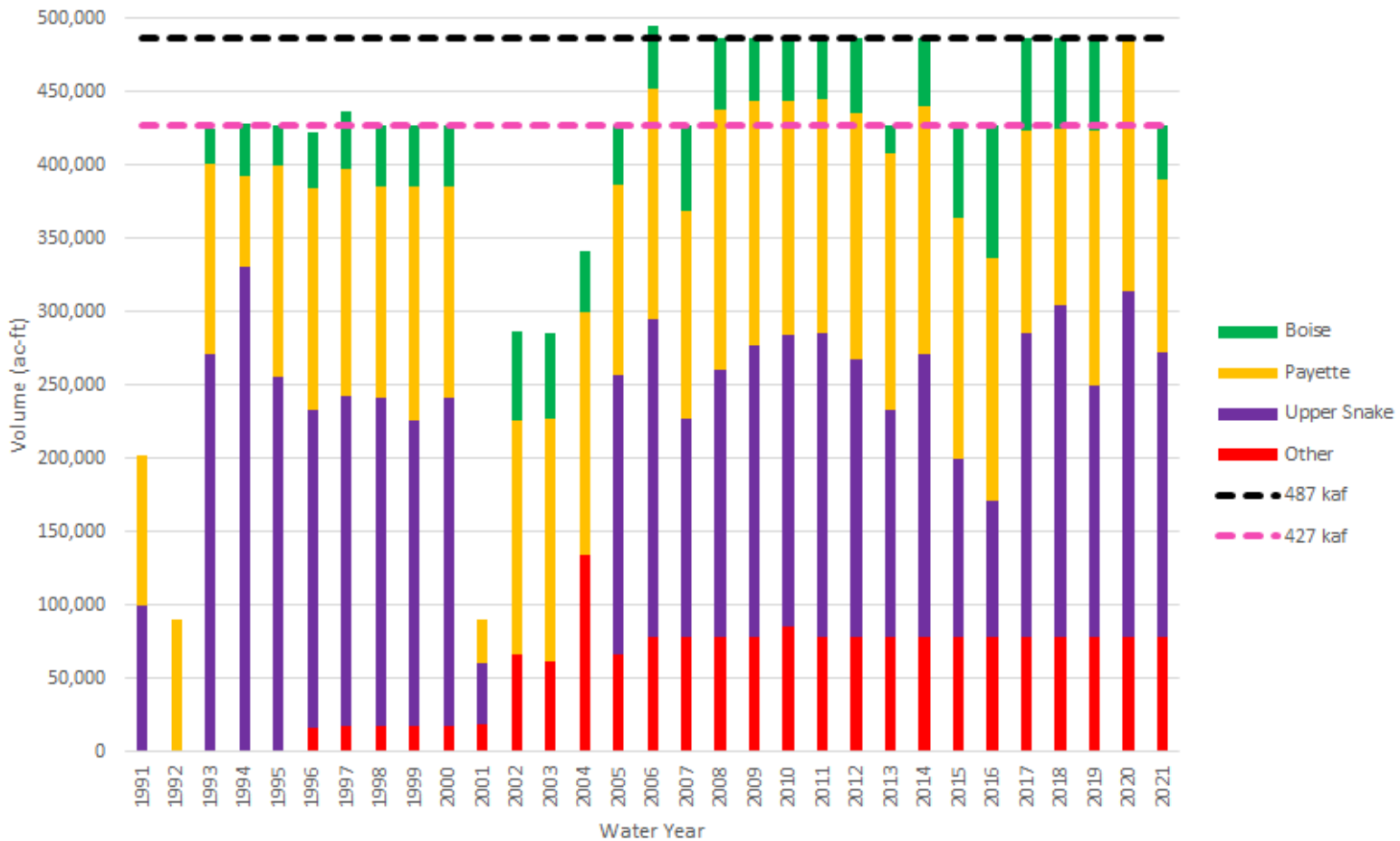
Source:  
Bureau of Reclamation P/R Region GIS  
October 2004



# Basin Forecasts – Snake nr Heise



## Upper Snake above Brownlee Flow Augmentation Volumes 1991-2021



# Upper Snake Flow Aug Sources (2021)

SOURCE	AMOUNT (acre-feet)	DATES OF DELIVERY
<b>Upper Snake above Milner Dam</b>		
Reclamation Uncontracted Space	393	May 3 – June 1 and June 28 – July 12
Reclamation Powerhead Space	94,401	
Rentals – Attachment 1 Chart	100,000 <sup>A</sup>	
Rentals – Shoshone-Bannock Tribes	100	
<b>Subtotal</b>	<b>194,894</b>	
<b>Payette</b>		
Reclamation Uncontracted Space	81,734	June 16 – August 31
Rentals	36,530	
<b>Subtotal</b>	<b>118,264</b>	
<b>Boise</b>		
Reclamation Uncontracted Space	0	May 17 – June 7
Reclamation Powerhead Space	36,193	
Rentals	0	
<b>Subtotal</b>	<b>36,193</b>	
<b>Natural Flows</b>		
IWRB Lease (Idaho)	60,000 <sup>B</sup>	April 3 – August 31 <sup>C</sup>
Skyline Farms (Oregon)	17,649	
<b>Subtotal</b>	<b>77,649</b>	
<b>TOTAL</b>	<b>427,000</b>	

<sup>A</sup> The “Stipulated Augmentation Rental – Water District 01” Chart (see Attachment 1) specified Water District 01 would provide 100,000 acre-feet of flow augmentation rental.

<sup>B</sup> See section titled “Lease of Natural Flow Water Rights Below Milner Dam.”

<sup>C</sup> The IWRB Lease of 60,000 acre-feet is comprised of 49,500 acre-feet estimated to occur within the April 3 to August 31 period, and 10,500 acre-feet estimated to occur before and after the migration period. See section titled “Lease of Natural Flow Water Rights Below Milner Dam” for further explanation.

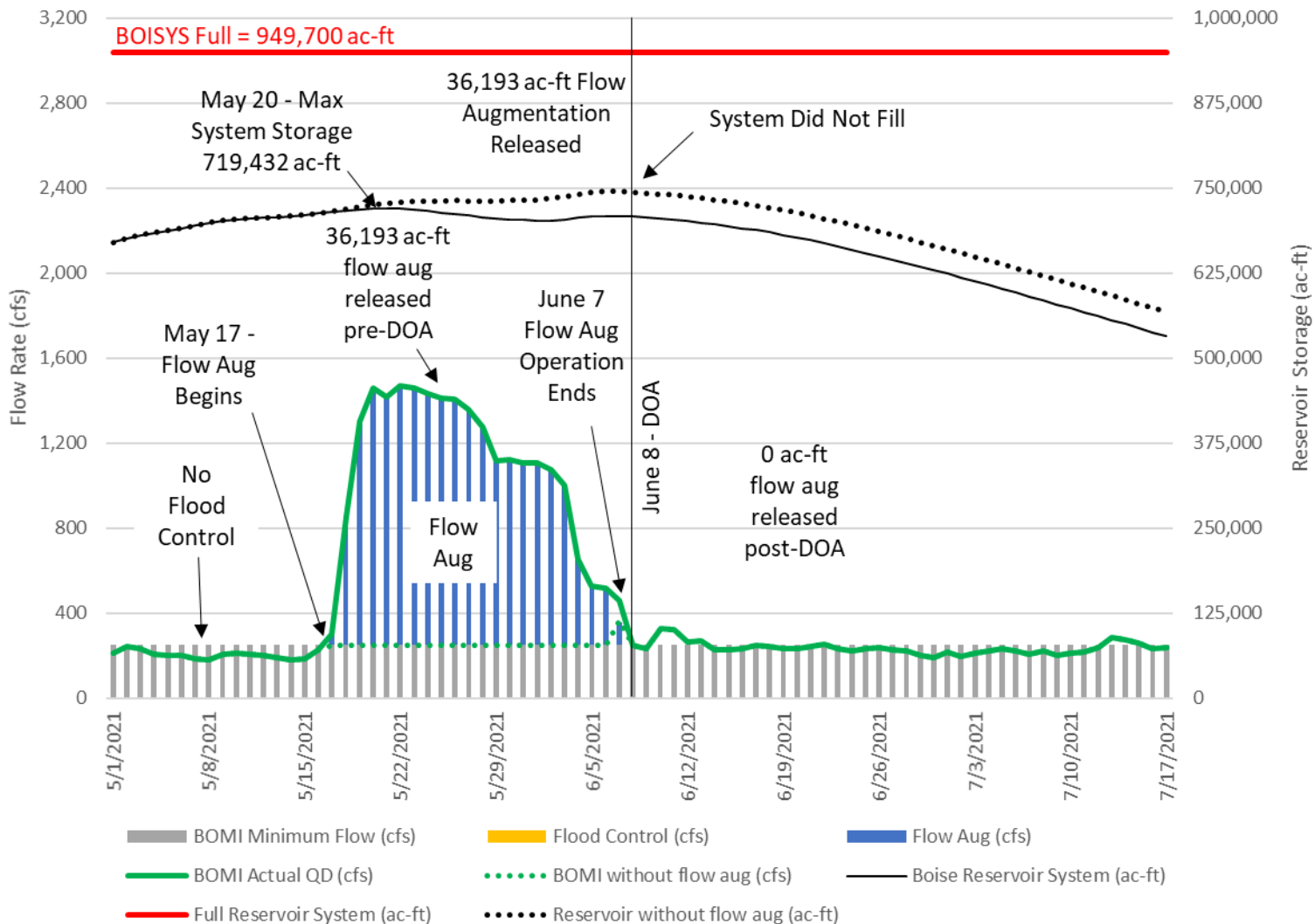
## Storage from the Boise, Payette, and Upper Snake

- Reclamation uncontracted space
- Rentals
- Powerhead (only to get to 427 kaf)

## Natural flows

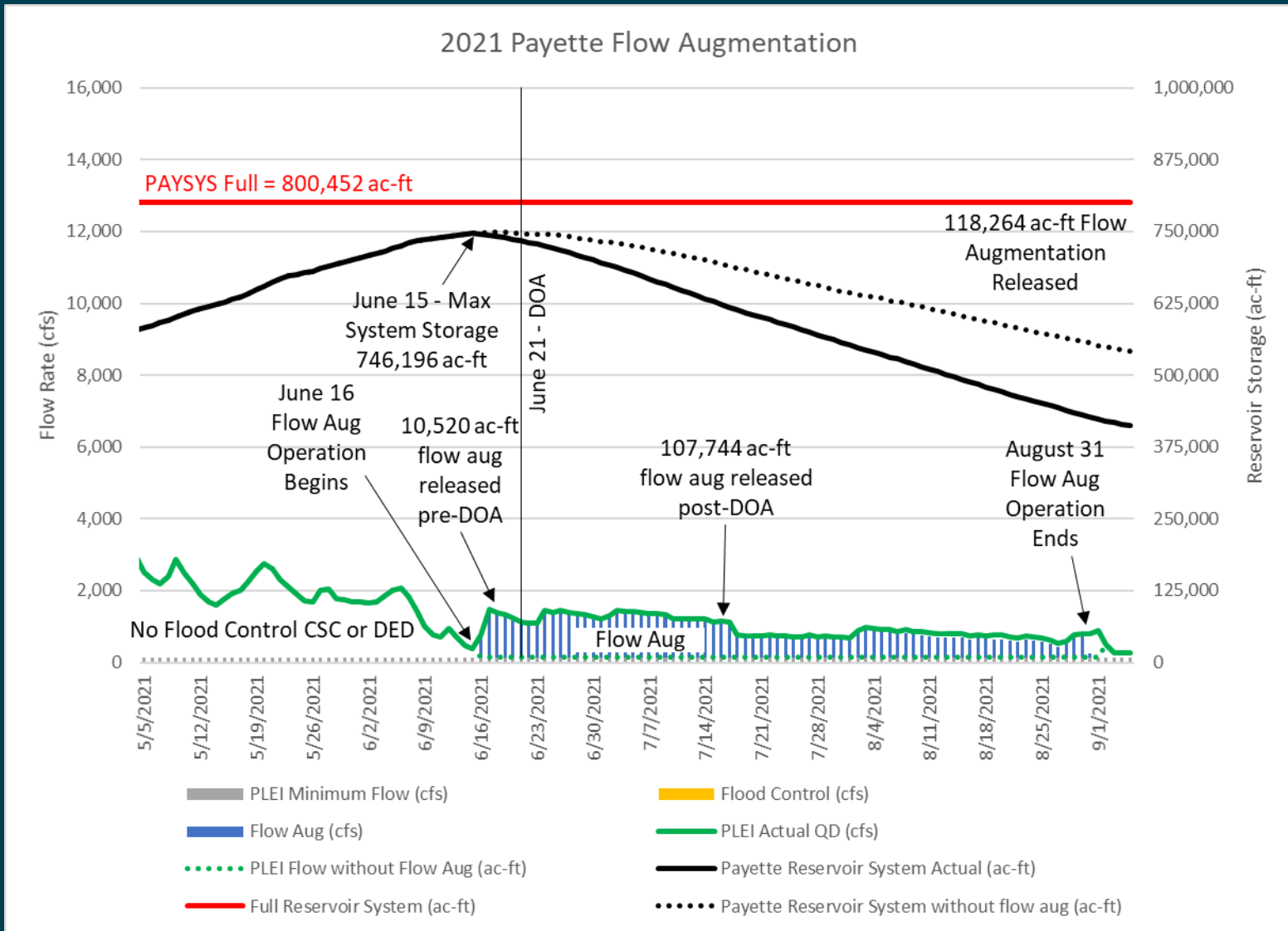
# Boise River Flow Augmentation

2021 Boise Flow Augmentation



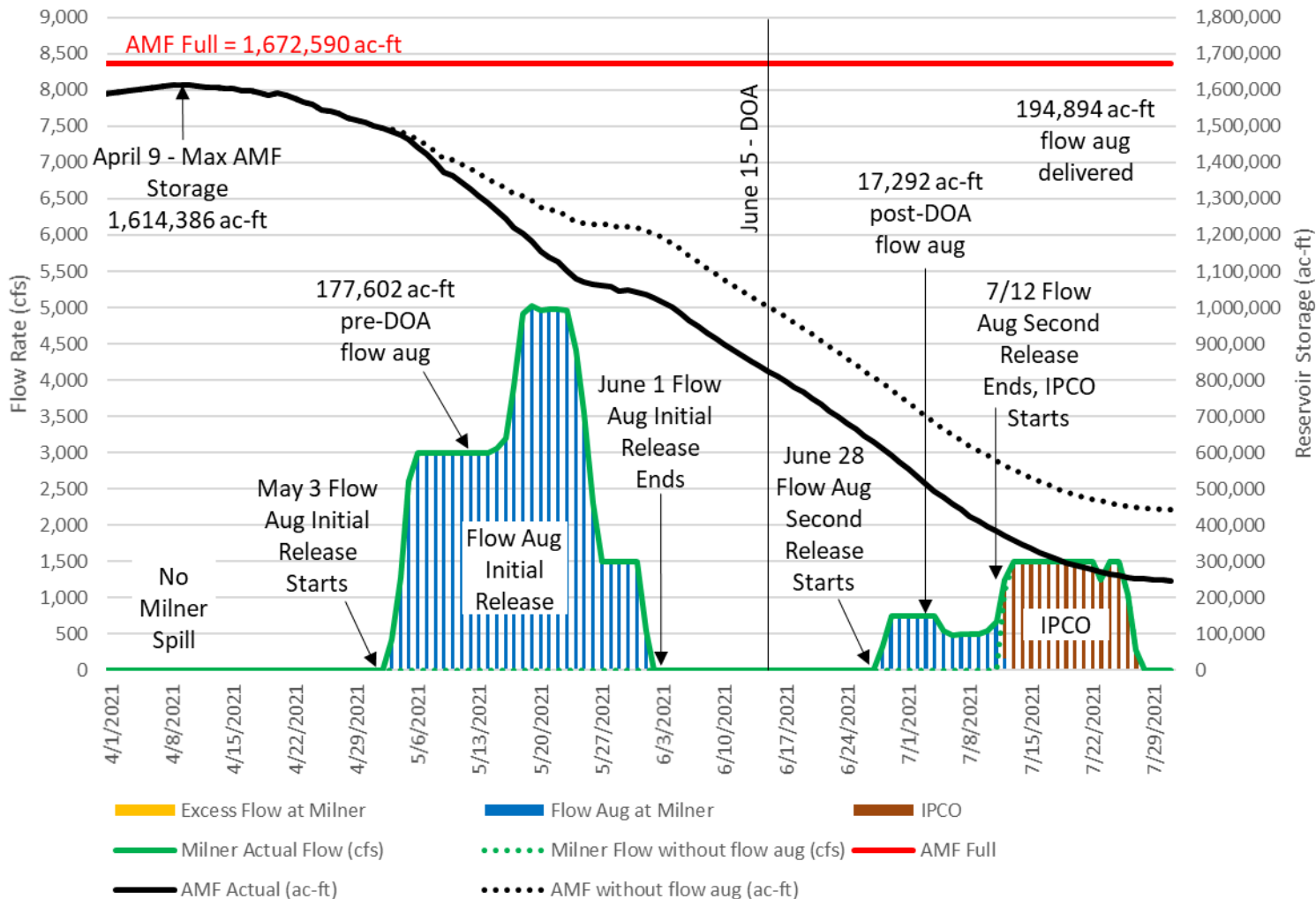


# Payette River Flow Augmentation



# Upper Snake Flow Augmentation

2021 Upper Snake Flow Augmentation



# 2022 - November 1 Carryover

At the end of the 2021 irrigation season (November 1, 2021), the carryover storage into the 2022 season was as follows:

Upper Snake above Milner Dam	827,241 acre-feet (46% of Average)
Boise River system	259,176 acre-feet (71% of Average)
Payette River system	393,424 acre-feet (83% of Average)



# Flow Augmentation Powerhead 2021 vs 2022

Flow Augmentation Amounts		
System and Source	2021 Volume (acre-feet)	2022 Volume (acre-feet)
<b>Upper Snake System</b>		
Palisades Powerhead	157,000	55,000
Rainbow Chart Rental		
<b>Total Upper Snake System</b>	<b>157,000</b>	<b>55,000</b>
<b>Natural Flows</b>		
Idaho	60,000	60,000
Skyline	17,649	17,649
<b>Total Natural</b>	<b>77,649</b>	<b>77,649</b>
<b>Payette System</b>		
Reclamation Uncontracted Space (Cascade and Deadwood)	95,608	95,608
<b>Total Payette System</b>	<b>95,608</b>	<b>95,608</b>
<b>Boise System</b>		
Anderson Ranch Powerhead	36,193	
<b>Total Boise System</b>	<b>36,193</b>	<b>-</b>
<b>Total</b>	<b>366,450</b>	<b>228,257</b>



# Questions?



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RECLAMATION

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