AGENDA

IDAHO WATER RESOURCE BOARD

Upper Snake River Advisory Committee Meeting No. 4-23
Thursday, April 13, 2023
10:00 a.m. (MST)

Meeting Location(s):

BOISE
Water Center Conf. Room 602B
322 E. Front St.

-or-

ONLINE via Zoom - Click here to join our Zoom Meeting
Dial in Option: +1 (253) 215-8782
Meeting ID**: 860 8548 7210** Passcode**: 673668**

Brad Little
Governor

Jeff Raybould
Chairman
St. Anthony
At Large

Jo Ann Cole-Hansen
Secretary
Lewiston
At Large

Dale Van Stone
Hope
District 1

Albert Barker
Boise
District 2

Dean Stevenson
Paul
District 3

Brian Olmstead
Twin Falls
At Large

Marcus Gibbs
Grace
District 4

Patrick McMahon
Sun Valley
At Large

1. Introduction and Attendance
2. Weather Forecast (NOAA)
3. Snow Pack / Streamflow Forecasts (NRCS)
4. Water Supply / Operations Update (USBR)
5. Idaho Power Company
    a. Operations Update
    b. Cloud Seeding Update
6. Water District 01 Briefing
7. IWRB Managed Recharge Operations
8. New Business
9. Adjourn

Committee Members – Brian Olmstead

Americans with Disabilities: The meeting will be held online. If you require special accommodations to attend, participate in, or understand the meeting, please make advance arrangements by contacting Department staff by email jennifer.strange@idwr.idaho.gov or by phone at (208) 287-4800.

322 East Front Street • P.O. Box 83720 • Boise, Idaho 83720-0098
Phone: (208) 287-4800 Fax: (208) 287-6700 Website: idwr.idaho.gov/IWRB/

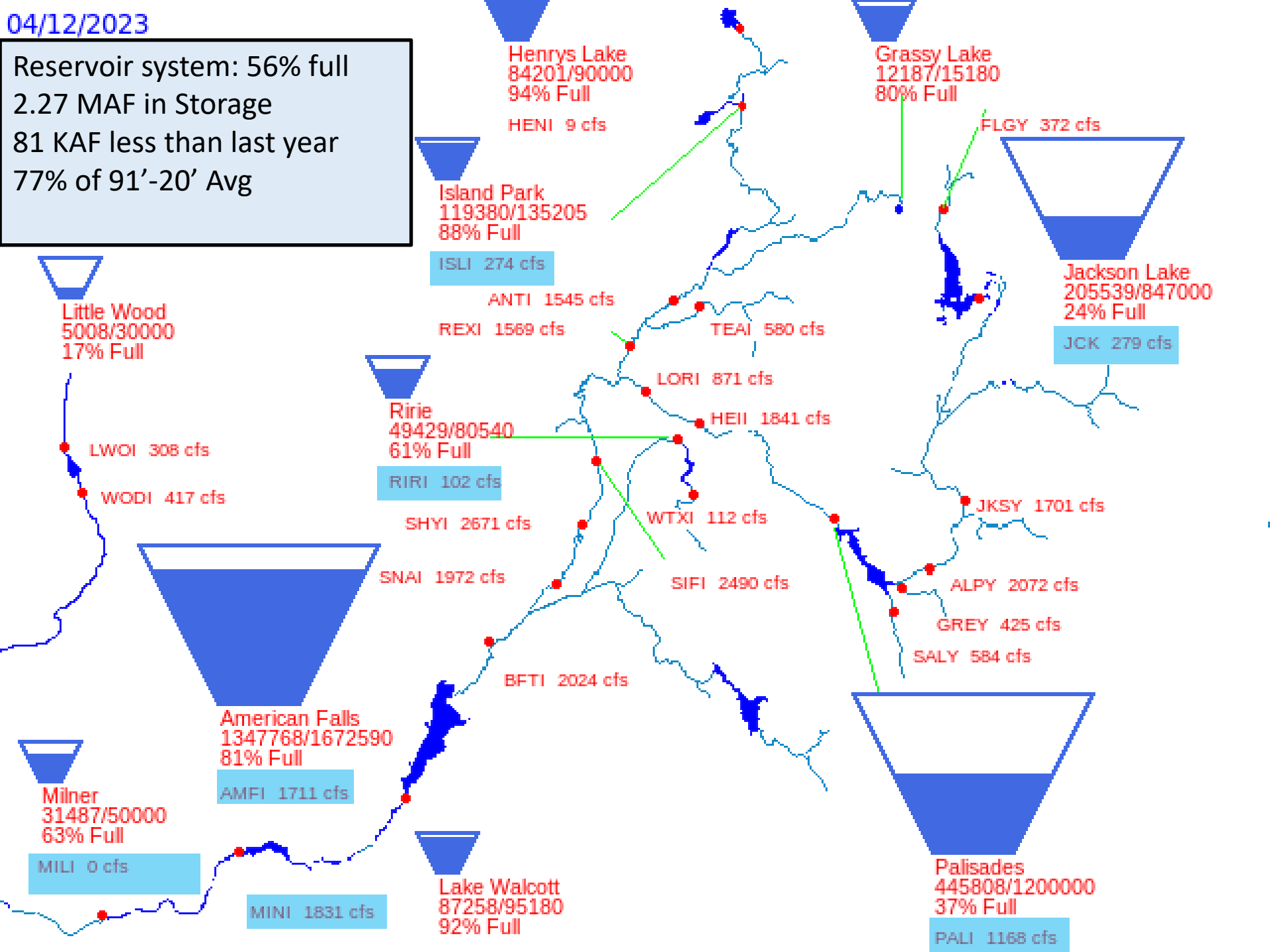
BUREAU OF RECLAMATION

Upper Snake Advisory Committee Meeting
April 13, 2023

Upper Snake Reservoir Operations

04/12/2023

Reservoir system: 56% full
2.27 MAF in Storage
81 KAF less than last year
77% of 91'-20' Avg



April Forecasts

CURRENT MONTHLY FORECAST SUMMARY
APR 1, 2023

FORECAST POINT	FORECAST PERIOD	1991-2020 AVERAGE (KAF)	FORECAST (KAF)	PERCENT NORMAL
*** HEISE	APR-JUL	3304	3700	112%
JACKSON LAKE	APR-JUL	770	816	106%
ISLAND PARK	APR-JUL	200	228	114%
TETON	APR-JUL	347	378	109%
*** RIRIE	APR-JUN	55	105	192%
*** LITTLE WOOD	APR-JUL	72	130	181%

* Coordinated with USACE

Upper Snake Flow Augmentation Outlook

Rainbow Chart/
Common Pool

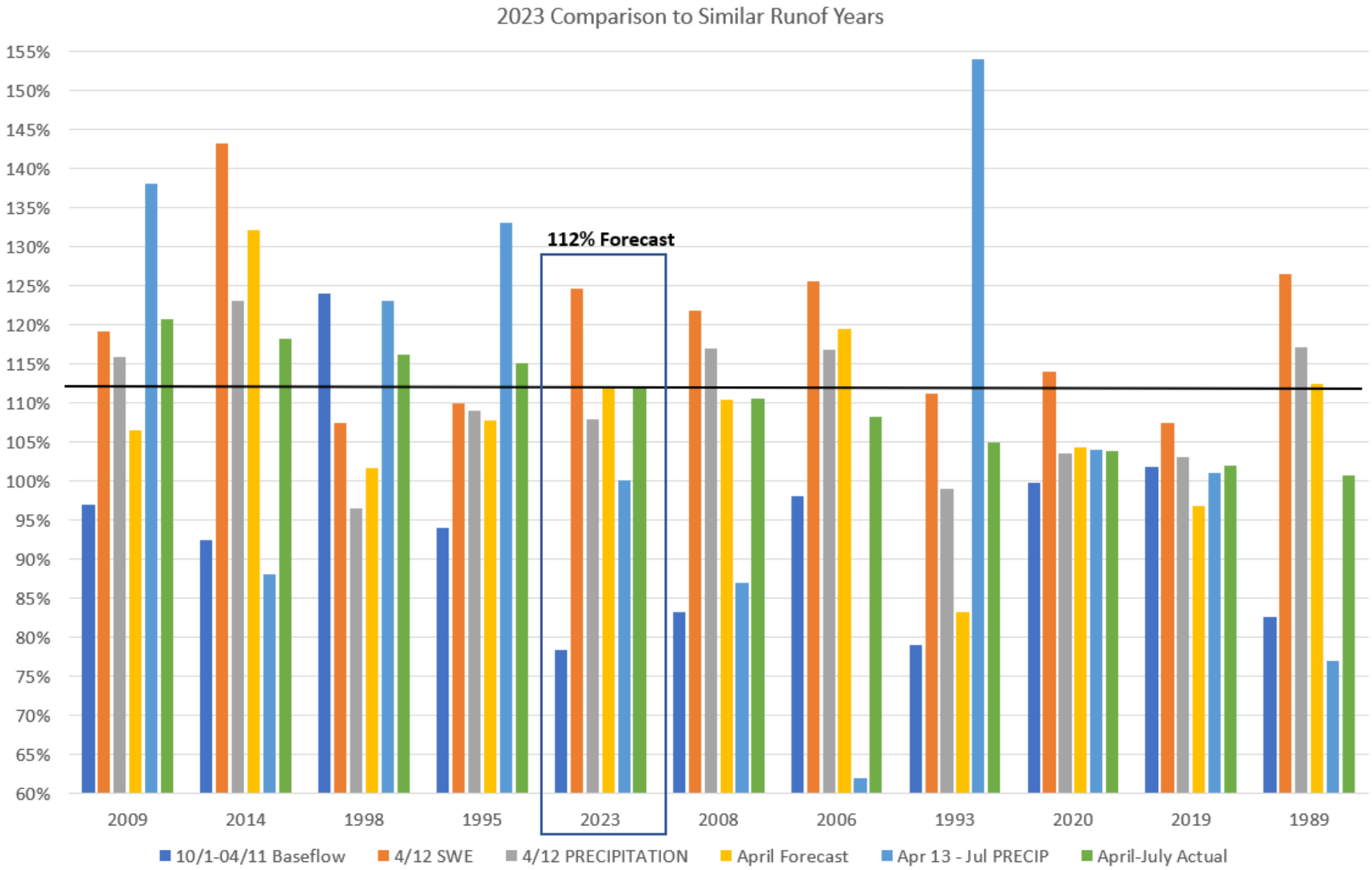
<u>2023 Carryover</u>
728 KAF
(includes 20 KAF
rented to
supplemental pool
In WY 2020)

TABLE 1: Water District 1 Flow Augmentation Rental Chart					
October 31st	April 1 to Sept 30 Heise Forecast (1000s AF)				
Midnight	0	2,920	3,450	4,208	5,042
Carryover	to	to	to	to	or
1000s AF	2,919	3,449	4,207	5,041	greater
0 - 599	0	0	0	150000	185000
600 - 899	0	0	60000	150000	185000
900 - 1499	0	60000	60000	150000	185000
1500 - 2099	0	100000	150000	185000	185000
2100 - 2599	0	100000	150000	205000	205000
2600 - 2999	0	185000	185000	205000	205000
3000 - 3199	60000	185000	185000	205000	205000
> 3199	100000	185000	185000	205000	205000

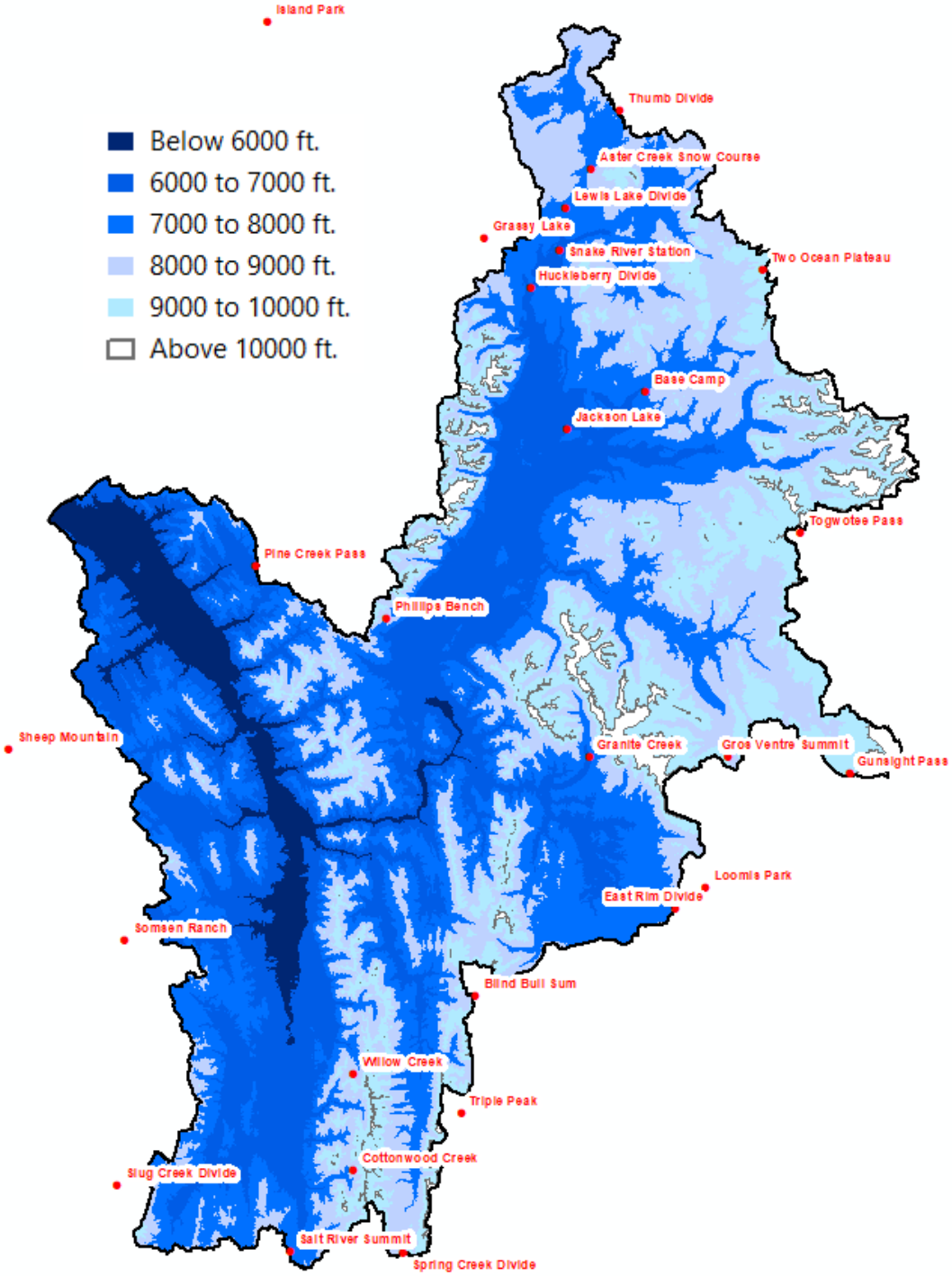
Avg. is 3,851 KAF (April through September)
4,208 to 5,041 KAF equates to between **109.3% and 131%**
2023 April 1 to September 30 Forecast came in at 4,309 KAF

Heise Runoff Comparison

April through July Runoff		
		% Diff. of 2023 Forecast
1997	6,092,791	64.7%
2011	5,413,025	46.3%
2017	5,400,910	46.0%
1986	5,263,913	42.3%
1996	4,930,898	33.3%
1982	4,881,797	31.9%
2018	4,259,351	15.1%
1999	4,252,586	14.9%
1984	4,239,858	14.6%
1983	4,176,768	12.9%
2009	3,990,689	7.9%
2014	3,909,838	5.7%
1998	3,840,676	3.8%
1995	3,807,690	2.9%
2023 Forecast	3,700,000	0
2008	3,653,563	-1%
2006	3,580,139	-3%
1993	3,468,242	-6%
2020	3,435,414	-7%
2019	3,369,082	-9%
1989	3,330,140	-10%
1985	2,991,888	-19%
2012	2,891,834	-22%
1991	2,841,660	-23%
2015	2,737,849	-26%
2005	2,704,736	-27%
2000	2,646,111	-28%
2016	2,606,586	-30%
2010	2,604,377	-30%
1981	2,516,840	-32%
2003	2,492,535	-33%
2022	2,392,856	-35%
1990	2,374,970	-36%
2004	2,372,675	-36%
2002	2,362,628	-36%
1988	2,314,439	-37%
2013	2,276,827	-38%
1987	2,156,417	-42%
2021	2,149,850	-42%
1994	2,005,907	-46%
2007	1,910,361	-48%
1992	1,697,420	-54%
2001	1,658,860	-55%


2023 Comparison to Similar Runof Years
155%
150%
145%
140%
135%
130%
125%
120%
115%
110%
105%
100%
95%
90%
85%
80%
75%
70%
65%
60%
112% Forecast
2009
2014
1998
1995
2023
2008
2006
1993
2020
2019
1989
10/1-04/11 Baseflow
4/12 SWE
4/12 PRECIPITATION
April Forecast
Apr 13 - Jul PRECIP
April-July Actual

	Area Sq. Mi.	% of Total
Above 10000 ft.	214	4%
9000-10000 ft.	744	13%
8000-9000 ft.	1428	25%
7000-8000 ft.	1700	30%
6000-7000 ft.	1340	23%
Below 6000 ft.	298	5%
Total	5724	100%



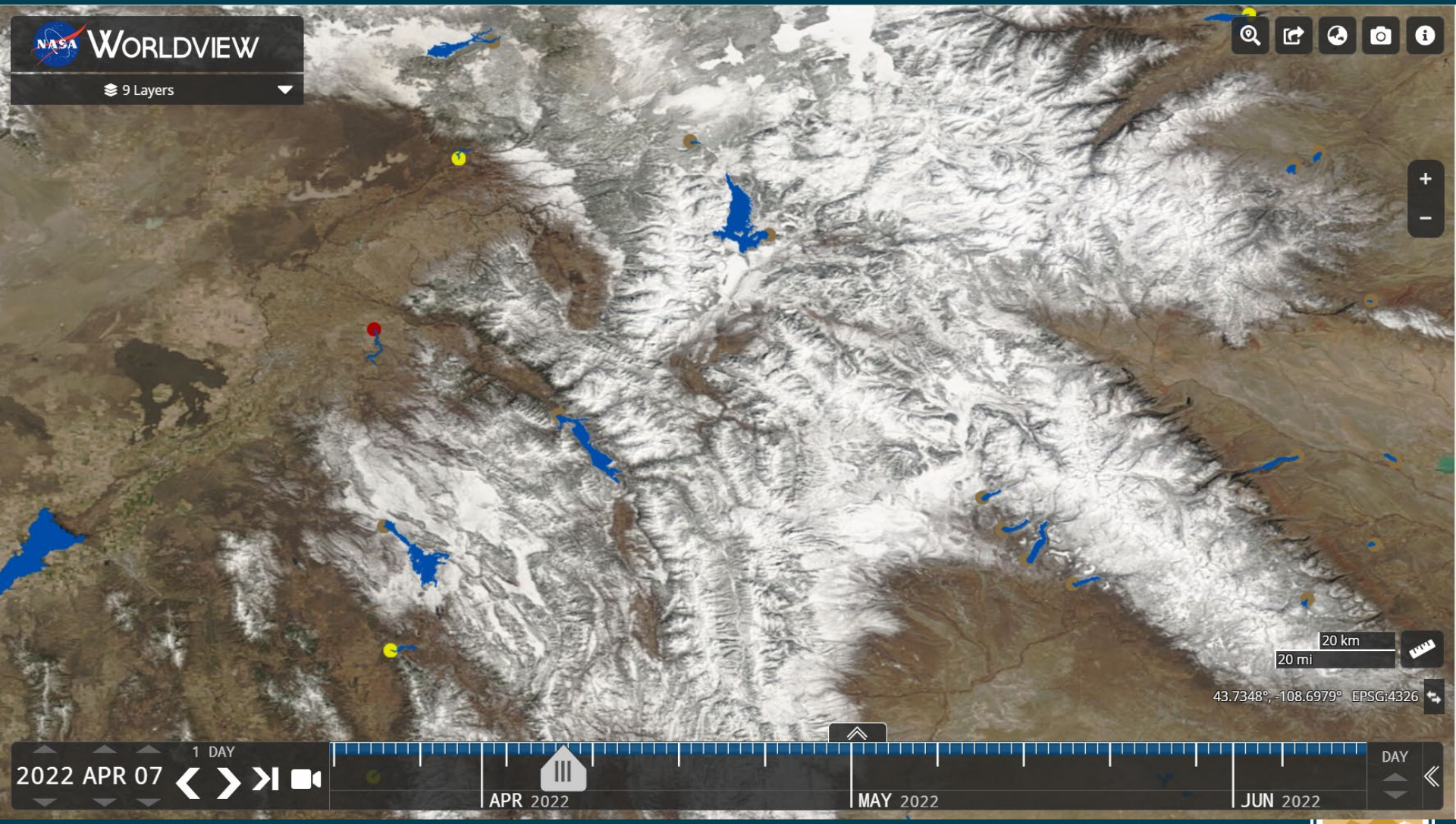
			SWE										
			2009	2014	1998	1995	2023	2008	2006	1993	2020	2019	1989
9000-10000 ft.	Gunsight Pass	9820	122%	160%			107%	100%	103%		108%	105%	
	Togwotee Pass	9580	121%	136%	101%	105%	95%	121%	110%	95%	120%	104%	124%
	Two Ocean Plateau	9240	131%	135%	95%	118%	105%	132%	123%	83%	109%	105%	109%
	Spring Creek Divide	9000	116%	145%	90%	106%	123%	101%	131%	120%	109%	93%	131%
8000-9000 ft.	Gros Ventre Summit	8750	118%	113%	120%	117%	100%	107%	102%	110%	104%	72%	115%
	Blind Bull Sum	8650	115%	148%	103%	102%	112%	110%	123%	98%	111%	100%	116%
	Triple Peak	8500	111%	156%	96%	86%	117%	121%	133%	108%	124%	107%	120%
	Loomis Park	8240	115%	168%	118%	85%	114%	115%	133%	118%	100%	100%	130%
	Phillips Bench	8200	112%	134%	105%	116%	114%	135%	137%	114%	118%	112%	144%
	Willow Creek	8080	129%	141%	101%	106%	142%	122%	125%	107%	134%	112%	132%
7000-8000 ft.	Thumb Divide	7980	135%	131%	106%	134%	128%	128%	123%	101%	114%	123%	125%
	East Rim Divide	7930	106%	157%	128%	85%	116%	98%	106%	124%	110%	102%	132%
	Lewis Lake Divide	7850	103%	126%	100%	134%	117%	118%	137%	101%	90%	115%	142%
	Cottonwood Creek	7670	136%	146%	100%	100%	117%	126%	141%	109%	117%	101%	107%
	Salt River Summit	7640	127%	144%	126%	104%	172%	119%	133%	115%	119%	112%	102%
	Grassy Lake	7265	106%	133%	99%	121%	113%	121%	125%	109%	107%	103%	129%
	Base Camp	7060	105%	159%	101%	138%	128%	144%	133%	98%	112%	118%	157%
6000-7000 ft.	Snake River Station	6920	113%	130%	111%	126%	118%	134%	121%	109%	118%	113%	
	Somsen Ranch	6800	139%	134%	127%	100%	215%	144%	133%	147%	125%	130%	105%
	Granite Creek	6770	121%	167%	115%	106%	139%	139%	142%	146%	131%	122%	156%

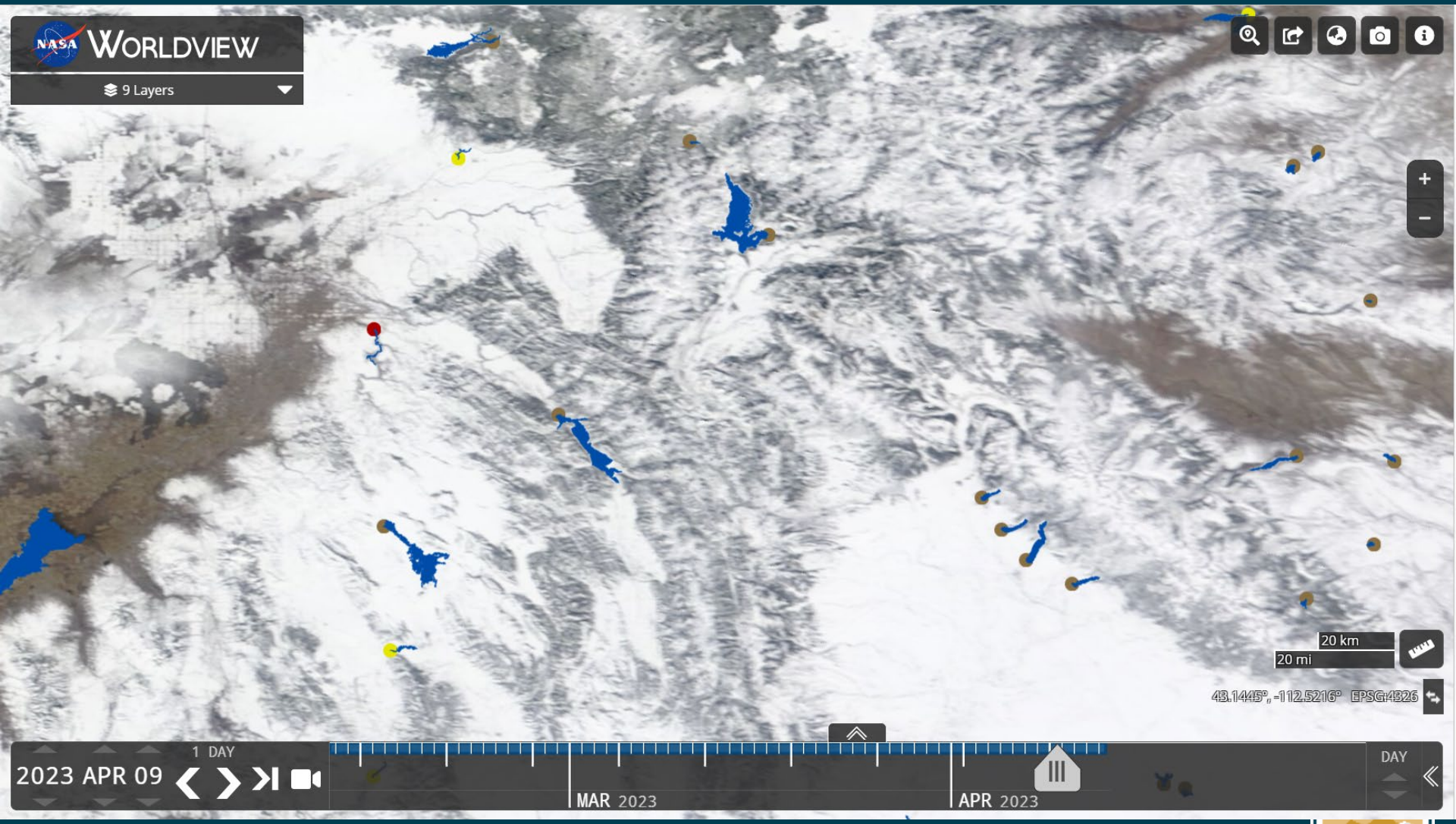
			PRECIPITATION										
			2009	2014	1998	1995	2023	2008	2006	1993	2020	2019	1989
9000-10000 ft.	Gunsight Pass	9820	120%	135%	0%	0%	96%	108%	112%	0%	99%	113%	0%
	Togwotee Pass	9580	125%	135%	100%	112%	88%	126%	109%	93%	113%	103%	119%
	Two Ocean Plateau	9240	114%	125%	104%	131%	100%	125%	111%	93%	100%	99%	125%
	Spring Creek Divide	9000	119%	141%	99%	104%	127%	108%	136%	110%	108%	101%	116%
8000-9000 ft.	Gros Ventre Summit	8750	131%	119%	119%	126%	94%	121%	109%	110%	107%	102%	121%
	Blind Bull Sum	8650	117%	133%	114%	117%	110%	108%	126%	117%	93%	107%	138%
	Triple Peak	8500	108%	148%	91%	100%	107%	120%	126%	102%	107%	101%	119%
	Loomis Park	8240	116%	148%	108%	98%	103%	113%	124%	108%	112%	101%	124%
	Phillips Bench	8200	115%	129%	102%	122%	115%	138%	132%	108%	113%	123%	135%
	Willow Creek	8080	124%	125%	101%	112%	110%	122%	125%	102%	111%	108%	112%
7000-8000 ft.	Thumb Divide	7980	122%	104%	101%	138%	108%	121%	112%	100%	97%	108%	128%
	East Rim Divide	7930	111%	137%	114%	101%	108%	105%	109%	115%	90%	104%	123%
	Lewis Lake Divide	7850	105%	121%	101%	137%	122%	123%	124%	106%	99%	118%	146%
	Cottonwood Creek	7670	129%	136%	97%	113%	112%	104%	127%	105%	118%	104%	109%
	Salt River Summit	7640	106%	119%	118%	118%	127%	105%	123%	110%	100%	102%	109%
	Grassy Lake	7265	103%	113%	102%	128%	111%	127%	125%	104%	99%	108%	123%
	Base Camp	7060	100%	132%	104%	134%	104%	140%	131%	100%	96%	109%	136%
6000-7000 ft.	Snake River Station	6920	120%	25%	40%	37%	102%	89%	23%	62%	109%	28%	95%
	Somsen Ranch	6800	117%	107%	101%	123%	132%	105%	122%	113%	94%	110%	120%
	Granite Creek	6770	117%	131%	114%	128%	86%	132%	130%	123%	106%	113%	142%

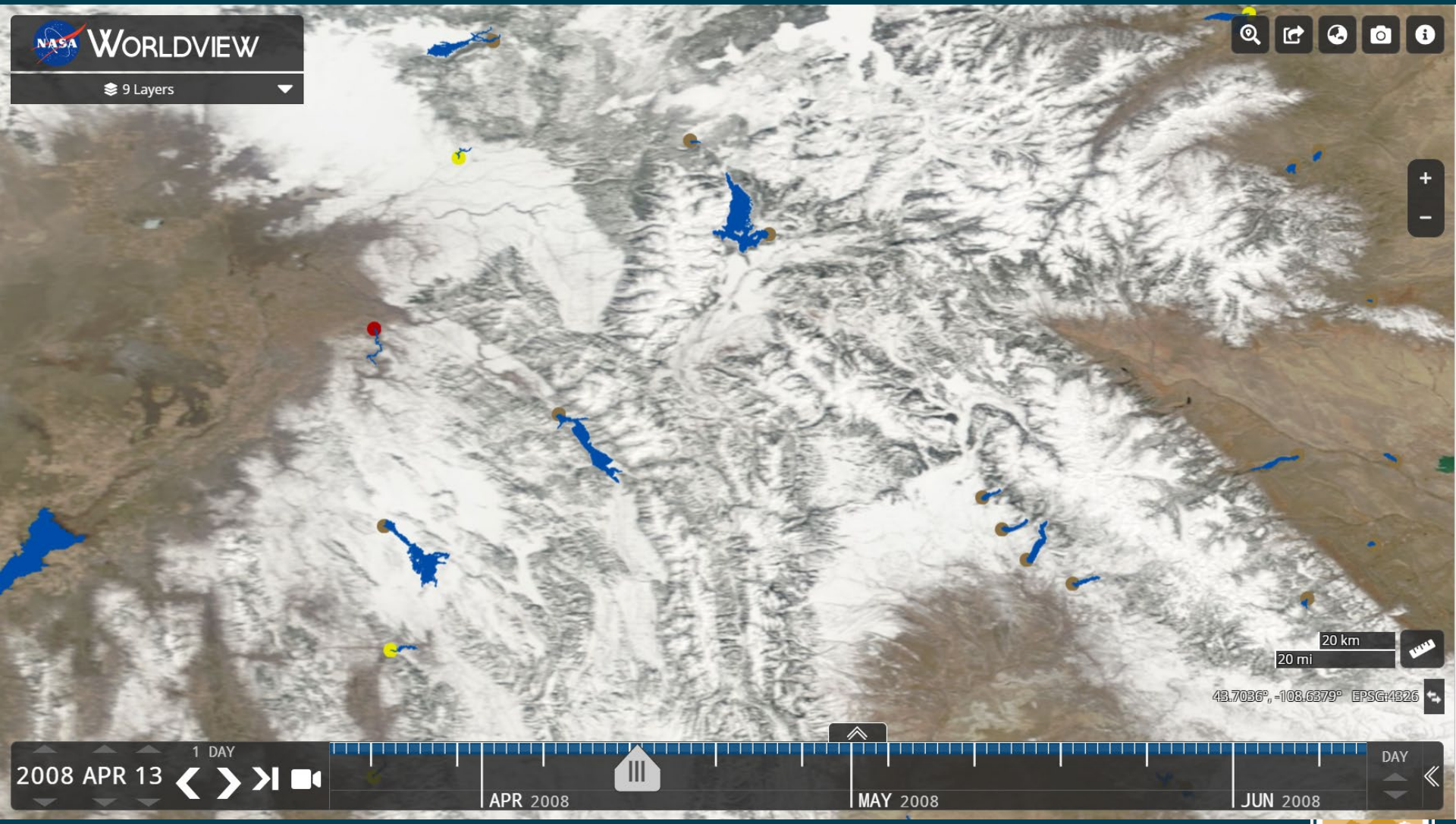
Elevation Bands Comparison

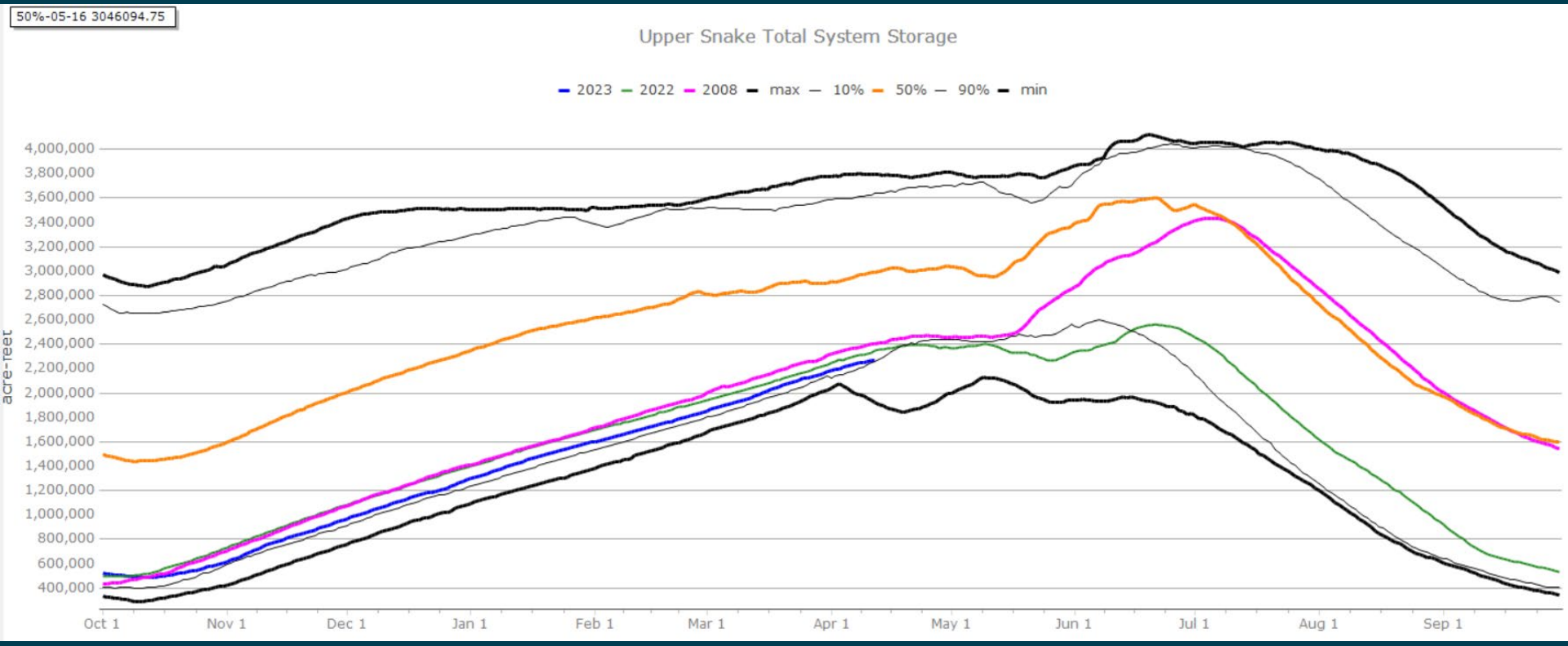
	SWE										
	2009	2014	1998	1995	2023	2008	2006	1993	2020	2019	1989
9000-10000 ft.	123%	144%	96%	110%	108%	113%	117%	99%	111%	101%	121%
8000-9000 ft.	117%	143%	107%	102%	116%	118%	125%	109%	115%	100%	126%
7000-8000 ft.	117%	142%	109%	117%	127%	122%	128%	108%	110%	111%	128%
6000-7000 ft.	125%	144%	118%	110%	158%	139%	132%	134%	125%	122%	130%

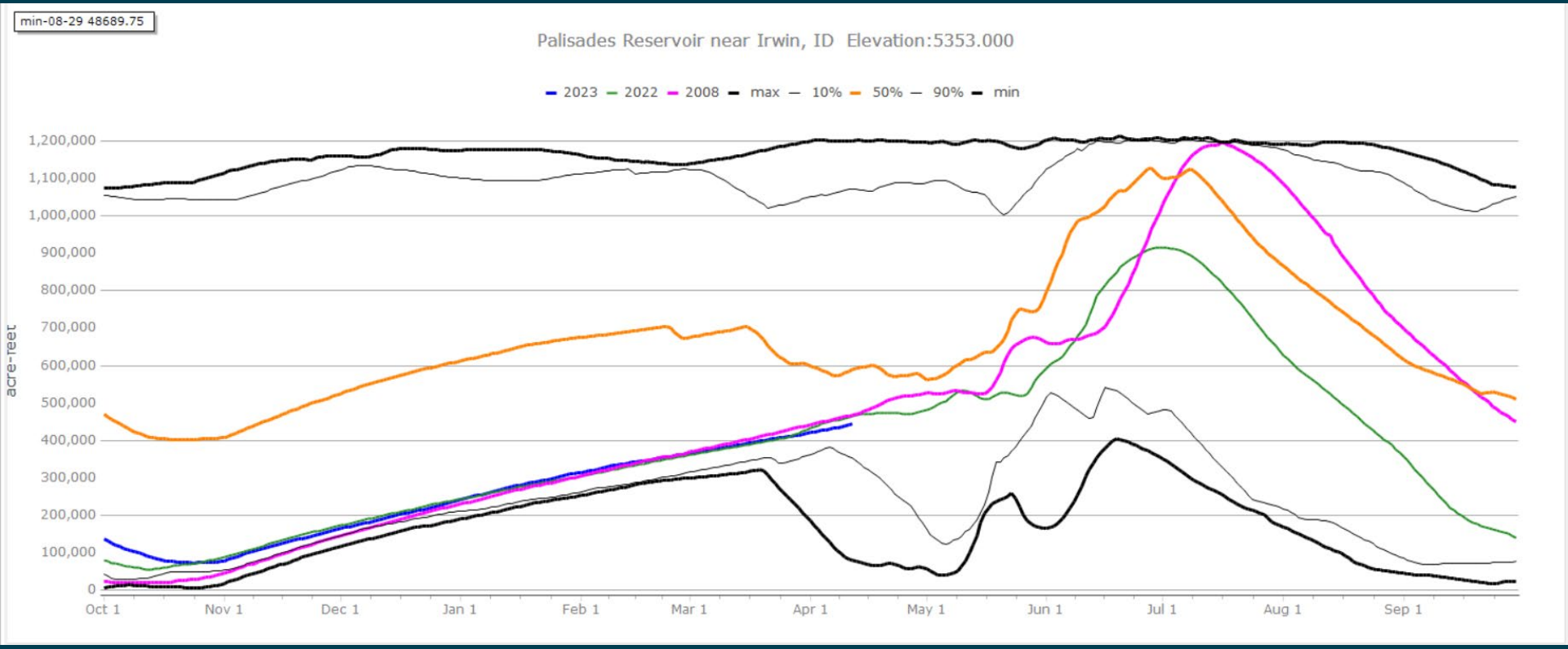
	PRECIPITATION										
	2009	2014	1998	1995	2023	2008	2006	1993	2020	2019	1989
9000-10000 ft.	119%	134%	76%	87%	103%	117%	117%	74%	105%	104%	90%
8000-9000 ft.	118%	134%	106%	112%	106%	120%	124%	108%	107%	107%	125%
7000-8000 ft.	111%	123%	105%	124%	113%	118%	122%	106%	100%	107%	125%
6000-7000 ft.	118%	87%	85%	96%	107%	109%	91%	99%	103%	84%	119%

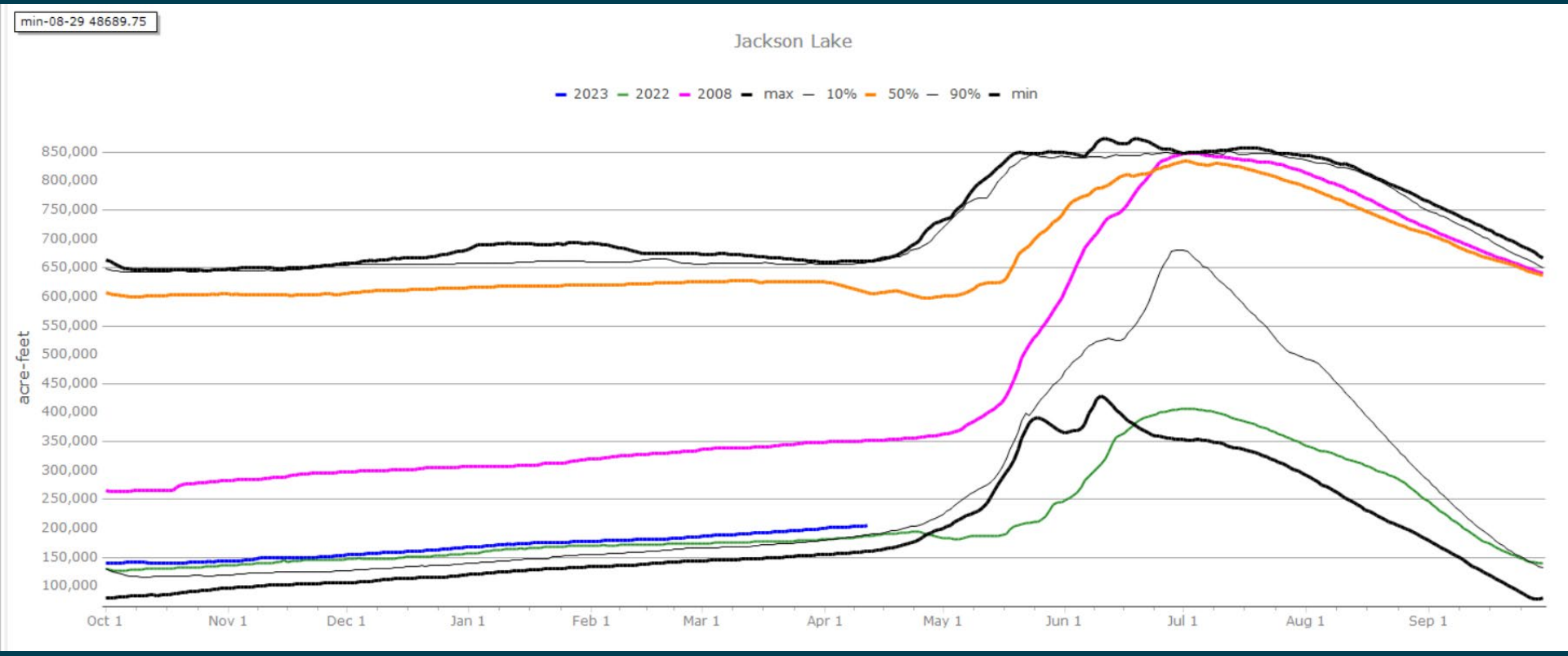

NASA WORLDVIEW
9 Layers
20 km
20 mi
43.7348°, -108.6979° EPSG:4326
1 DAY
2022 APR 07
APR 2022
MAY 2022
JUN 2022
DAY

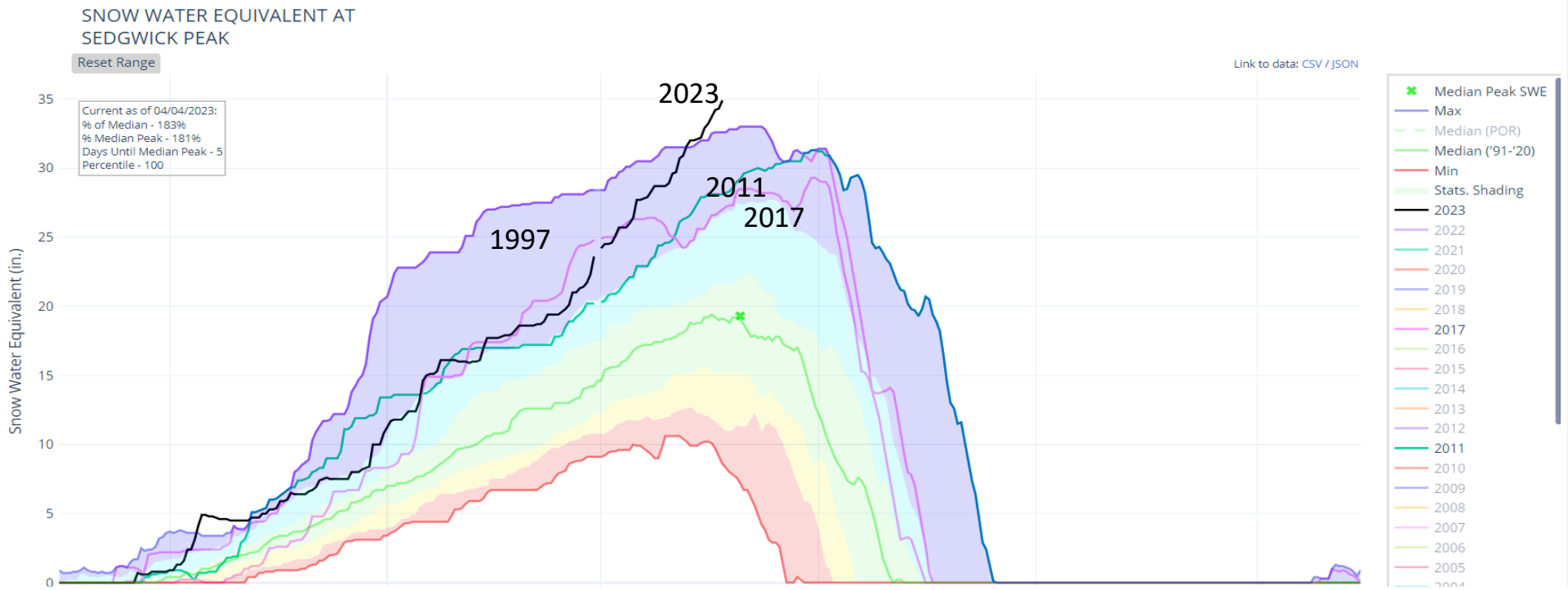

NASA WORLDVIEW
9 Layers
20 km
20 mi
43.1445°, -112.5216° EPSG:4326
1 DAY
2023 APR 09
MAR 2023
APR 2023
DAY

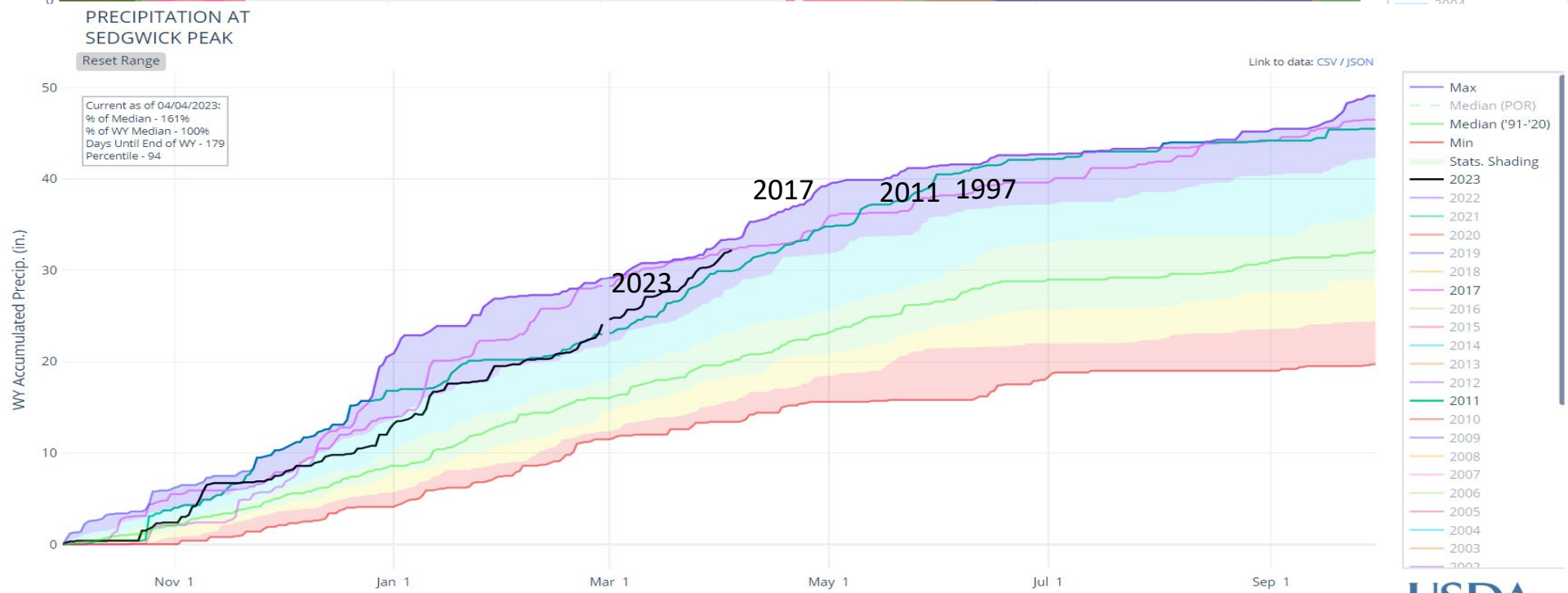

WORLDVIEW
9 Layers
20 km
20 mi
43.7036°, -108.6379° EPSG:4326
1 DAY
2008 APR 13
APR 2008
MAY 2008
JUN 2008
DAY

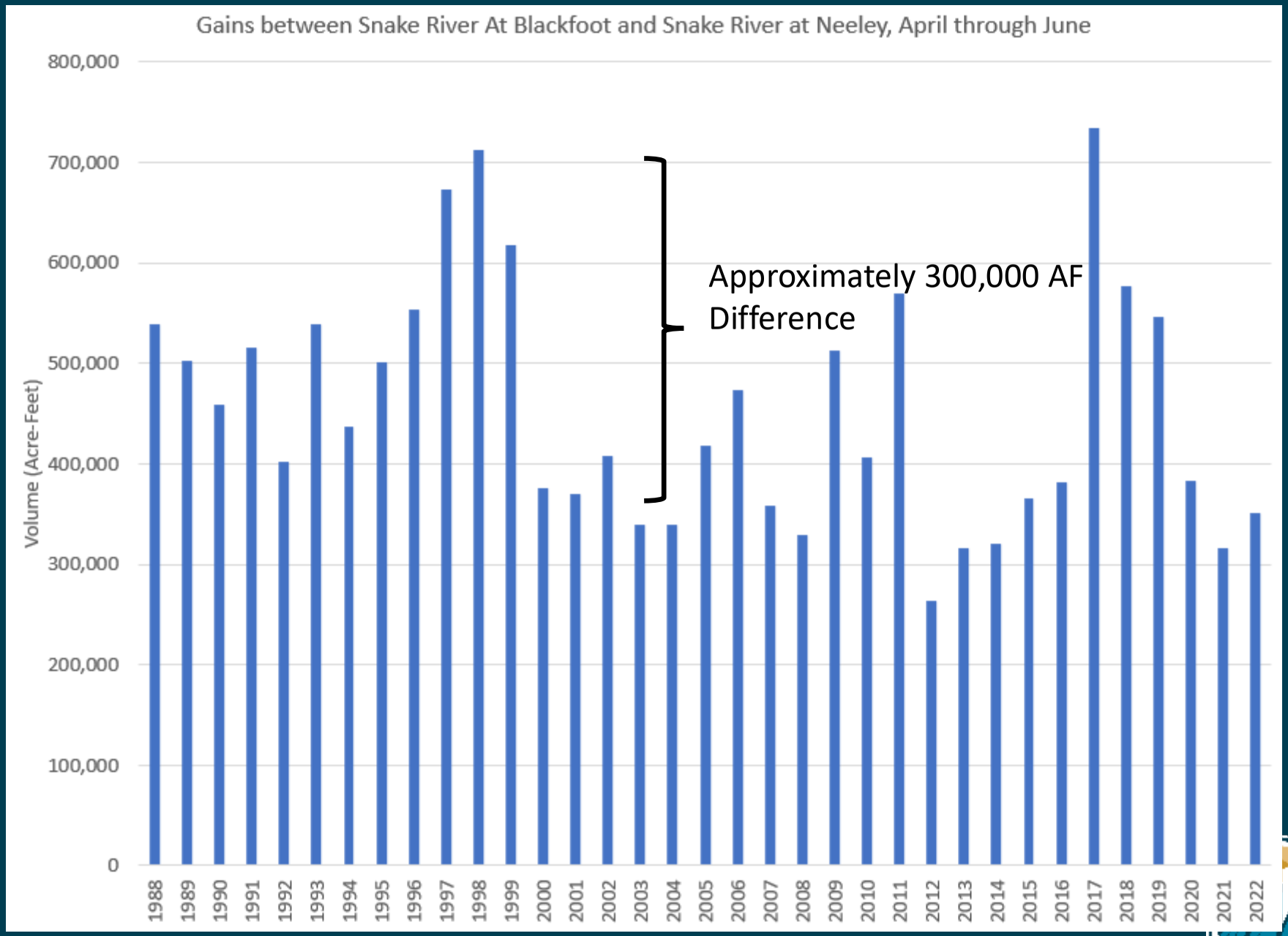

50%-05-16 3046094.75
Upper Snake Total System Storage
2023
2022
2008
max
10%
50%
90%
min
acre-feet
4,000,000
3,800,000
3,600,000
3,400,000
3,200,000
3,000,000
2,800,000
2,600,000
2,400,000
2,200,000
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1

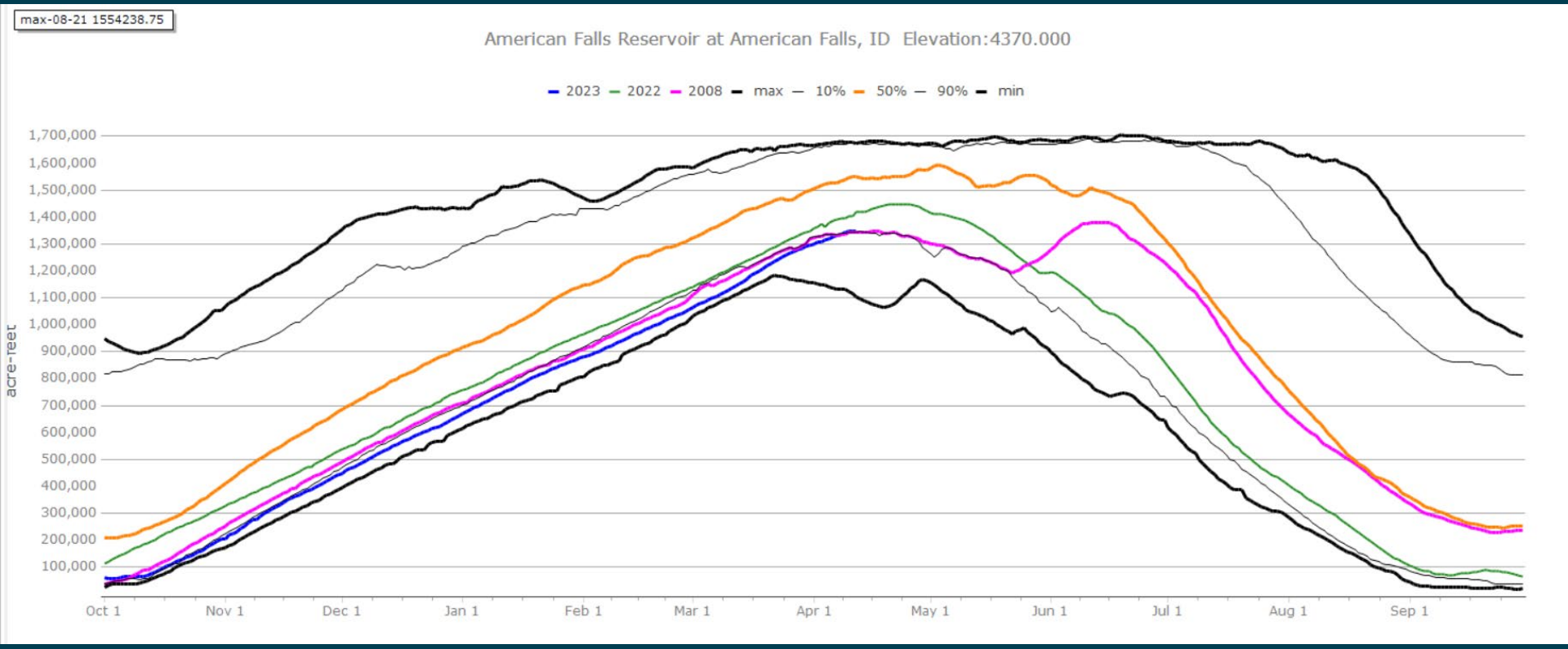

min-08-29 48689.75
Palisades Reservoir near Irwin, ID Elevation:5353.000
2023
2022
2008
max
10%
50%
90%
min
acre-feet
1,200,000
1,100,000
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1


min-08-29 48689.75
Jackson Lake
2023
2022
2008
max
10%
50%
90%
min
acre-feet
850,000
800,000
750,000
700,000
650,000
600,000
550,000
500,000
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1


SNOW WATER EQUIVALENT AT SEDGWICK PEAK
Reset Range
Link to data: CSV / JSON
Current as of 04/04/2023:
% of Median - 183%
% Median Peak - 181%
Days Until Median Peak - 5
Percentile - 100
2023
2011
2017
1997
Snow Water Equivalent (in.)
0
5
10
15
20
25
30
35
Median Peak SWE
Max
Median (POR)
Median ('91-'20)
Min
Stats. Shading
2023
2022
2021
2020
2019
2018
2017
2016
2015
2014
2013
2012
2011
2010
2009
2008
2007
2006
2005


PRECIPITATION AT SEDGWICK PEAK
Reset Range
Link to data: CSV / JSON
Current as of 04/04/2023:
% of Median - 161%
% of WY Median - 100%
Days Until End of WY - 179
Percentile - 94
2017
2011
1997
2023
WY Accumulated Precip. (in.)
0
10
20
30
40
50
Nov 1
Jan 1
Mar 1
May 1
Jul 1
Sep 1
Max
Median (POR)
Median ('91-'20)
Min
Stats. Shading
2023
2022
2021
2020
2019
2018
2017
2016
2015
2014
2013
2012
2011
2010
2009
2008
2007
2006
2005
2004
2003


Gains between Snake River At Blackfoot and Snake River at Neeley, April through June
Volume (Acre-Feet)
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Approximately 300,000 AF Difference


max-08-21 1554238.75
American Falls Reservoir at American Falls, ID Elevation:4370.000
2023
2022
2008
max
10%
50%
90%
min
acre-feet
1,700,000
1,600,000
1,500,000
1,400,000
1,300,000
1,200,000
1,100,000
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1

Meetings Outlook

- April IDWR Water Supply Meeting
- April Upper Snake Advisory Committee Meeting
- May IDWR Water Supply Meeting
- May Upper Snake Advisory Committee Meeting
- May 18-19 Upper Snake Public Information Meeting and Windshield Snow Survey
- June IDWR Water Supply Meeting
- June Upper Snake Advisory Committee Meeting
- Monthly meetings between USBR and WD1 to coordinate

For More Information

Snake River Area Office

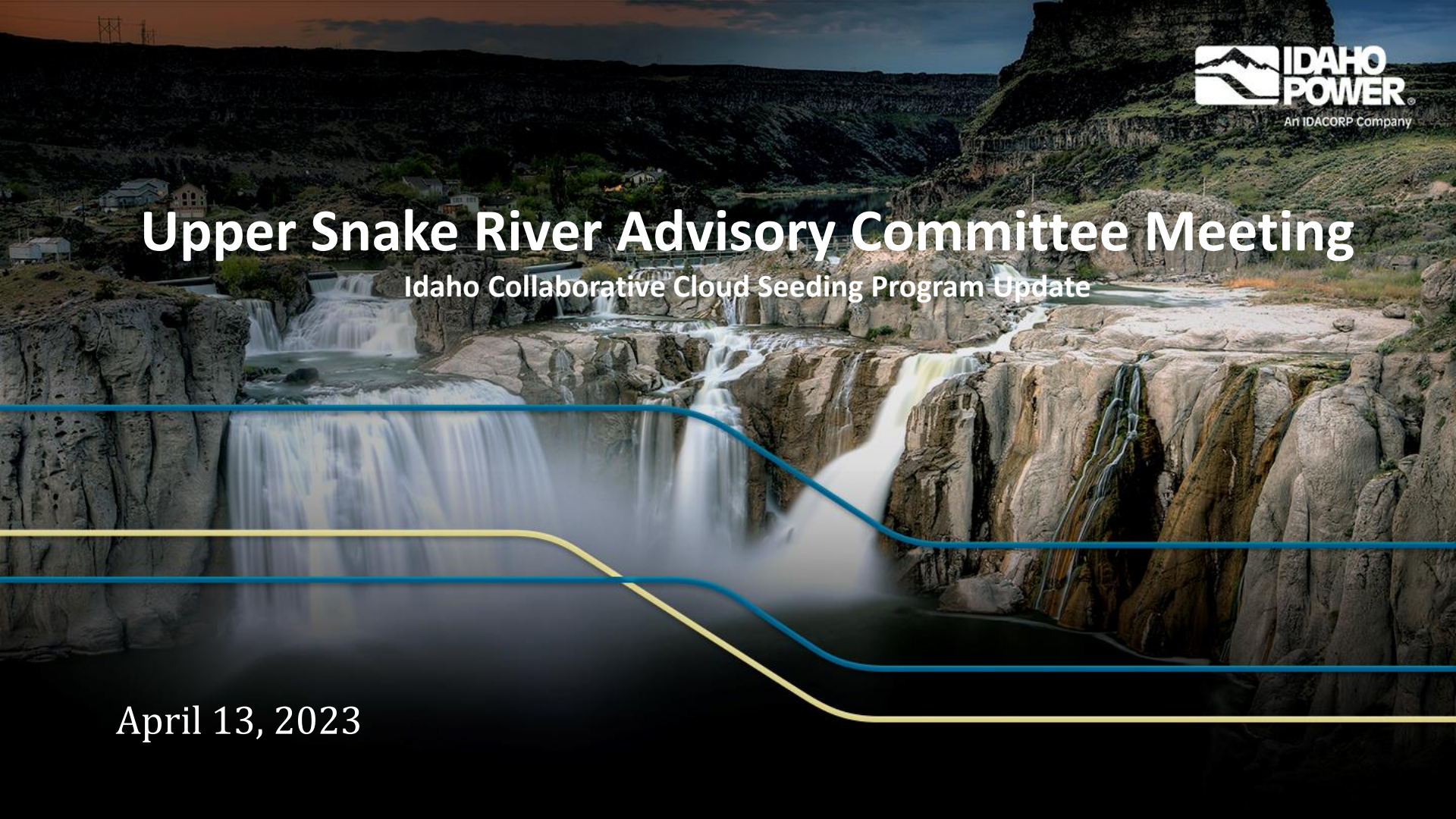
- Lanie Paquin - Area Manager
  208-383-2246
  mpaquin@usbr.gov

Upper Snake Field Office

- Mike Hilliard – Assistant Area Manager
  208-678-0461 (x34)
  mhilliard@usbr.gov
- Brian Stevens – Water Operations Supervisory Civil Engineer (x24)
  bstevens@usbr.gov
- Jeremy Dalling - Water Operations Civil Engineer (x25)
  jdalling@usbr.gov
- Darrin Fredrickson - Staff Assistant (x17)
  dfredrickson@usbr.gov

Snake River Operations Web Sites

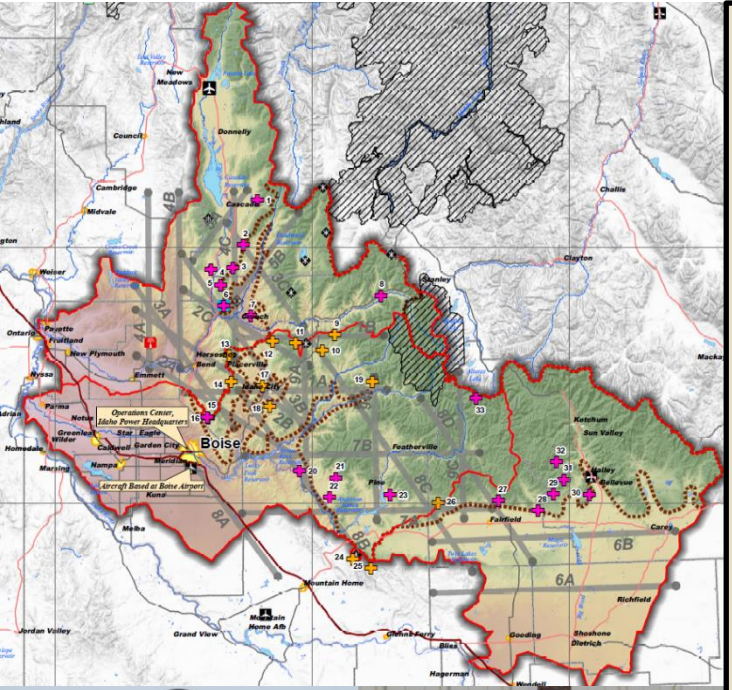
- Upper Snake water information site - http://www.usbr.gov/pn/hydromet/uppersnake/index.html
- USBR HydroMet - http://www.usbr.gov/pn/hydromet/
- Northwest River Forecast Center - http://www.nwrfc.noaa.gov/rfc/
- NRCS SNOTEL Data - http://www.id.nrcs.usda.gov/snow/



Upper Snake River Advisory Committee Meeting

Idaho Collaborative Cloud Seeding Program Update

April 13, 2023



WY 2023
Idaho Collaborative Cloud Seeding Program

Central Mountains

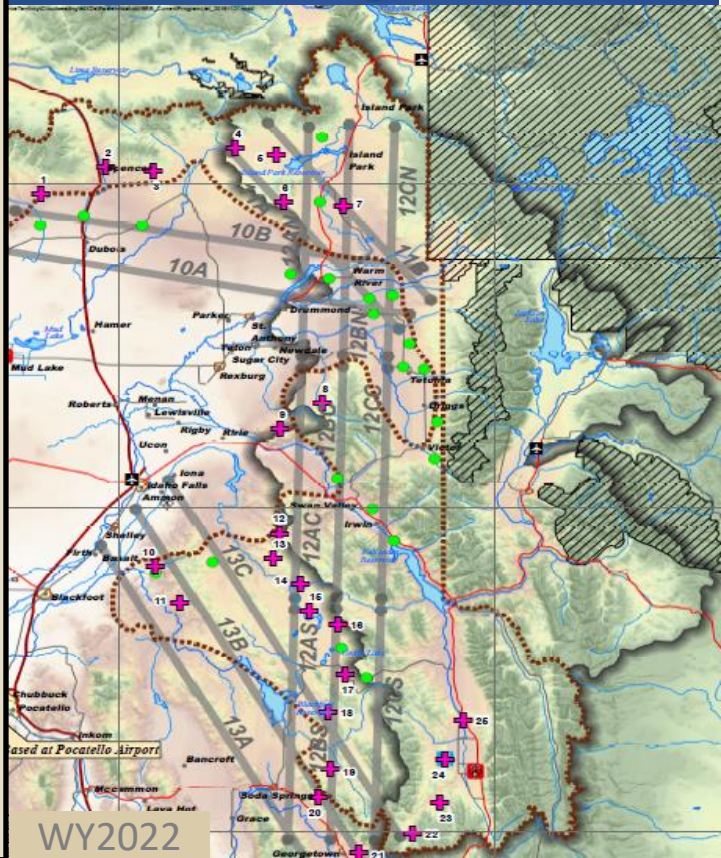
- 32 IPC Remote Ground Generators
- 2 Aircraft

Upper Snake

- 25 IPC Remote Ground Generators
- 1 Aircraft
- 25 Let It Snow Manual Ground Generators

Across the Program

- High Resolution WRF Weather Model
- WRF-WxMod Module
- High Resolution weather instrumentation



WY2022

Cloud Seeding Operations March 2023

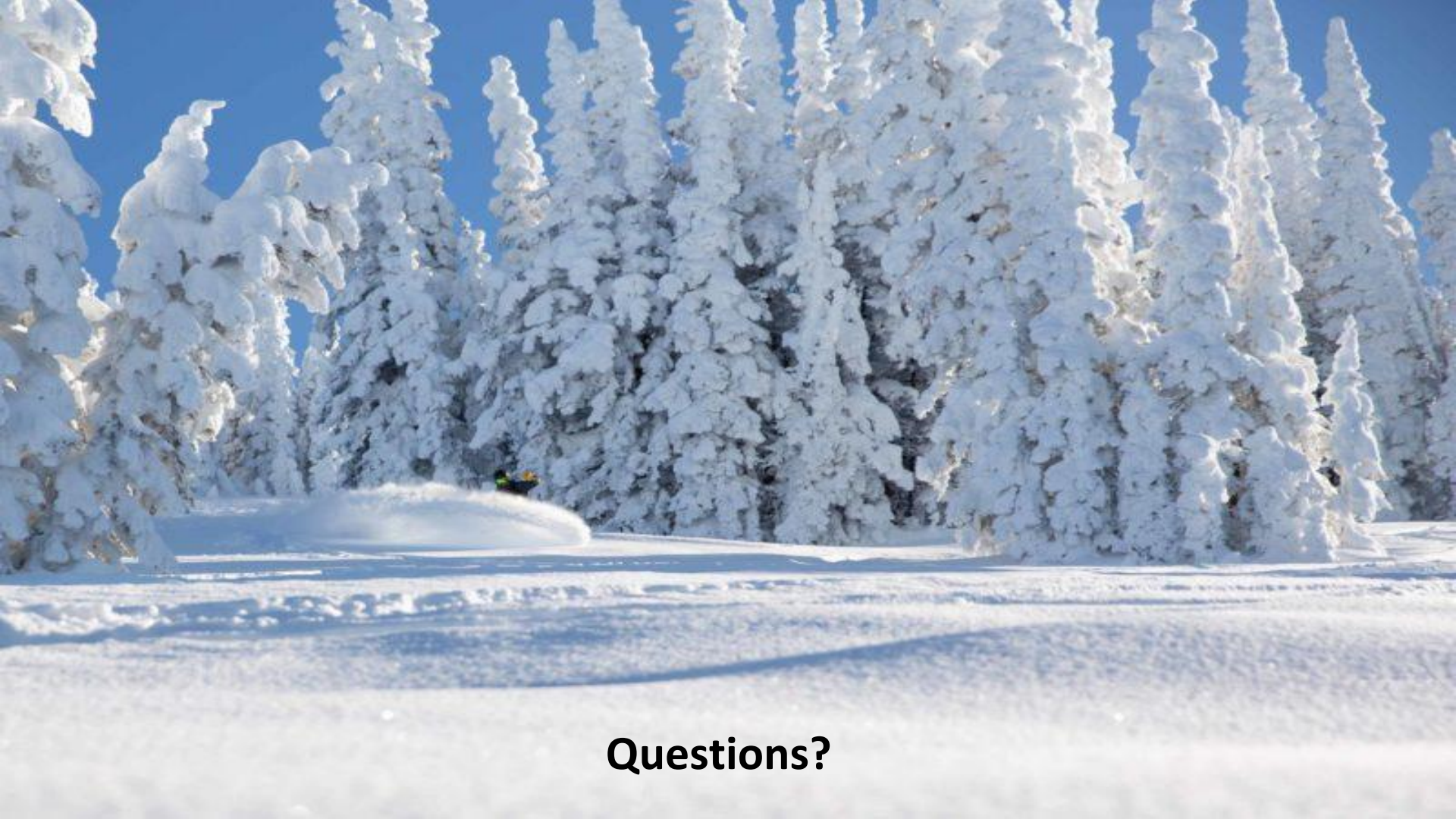
	7 Years of Operation (WY2016-22) March			WY2023 March
	Max	Mean	Min	
Central Mountains				
Number of Generator Hours	657	231	0	585
Number of Flight Hours	34	11	2	10
Number of BIPs	209	52	0	48
Number of EJs	829	227	0	60
Number of Total Days Where Seeding Occurred	9	6	3	7
Number of Days That Ground Seeding Occurred	8	4	0	6
Number of Days That Airborne Seeding Occurred	6	3	1	2

	7 Years of Operation (WY2016-22) March			WY2023 March
	Max	Mean	Min	
Upper Snake				
Number of Generator Hours	649	196	4	236
Number of Flight Hours	7	3	0	10
Number of BIPs	24	7	0	15
Number of EJs	17	2	0	0
Number of Total Days Where Seeding Occurred	10	5	1	8
Number of Days That Ground Seeding Occurred	10	5	1	7
Number of Days That Airborne Seeding Occurred	4	1	0	2

Cloud Seeding Operations WY2023

	7 Years of Operation (WY2016-22)			WY2023
	Nov-March			Nov-March
	Max	Mean	Min	
Central Mountains				
Number of Generator Hours	4822	2209	417	3415
Number of Flight Hours	266	138	44	106
Number of BIPs	1542	683	119	378
Number of EJs	9535	4191	587	2286
Number of Total Days Where Seeding Occurred	77	46	23	49
Number of Days That Ground Seeding Occurred	66	36	13	38
Number of Days That Airborne Seeding Occurred	50	27	12	26

	7 Years of Operation (WY2016-22)			WY2023
	Nov-March			Nov-March
	Max	Mean	Min	
Upper Snake				
Number of Generator Hours	3413	1558	445	1840
Number of Flight Hours	119	55	14	58
Number of BIPs	707	265	13	246
Number of EJs	2177	881	0	1363
Number of Total Days Where Seeding Occurred	65	38	18	38
Number of Days That Ground Seeding Occurred	57	33	14	31
Number of Days That Airborne Seeding Occurred	36	18	6	14



Questions?

ESPA Managed Recharge Program Update

Upper Snake River Advisory Committee Meeting

Wesley Hipke

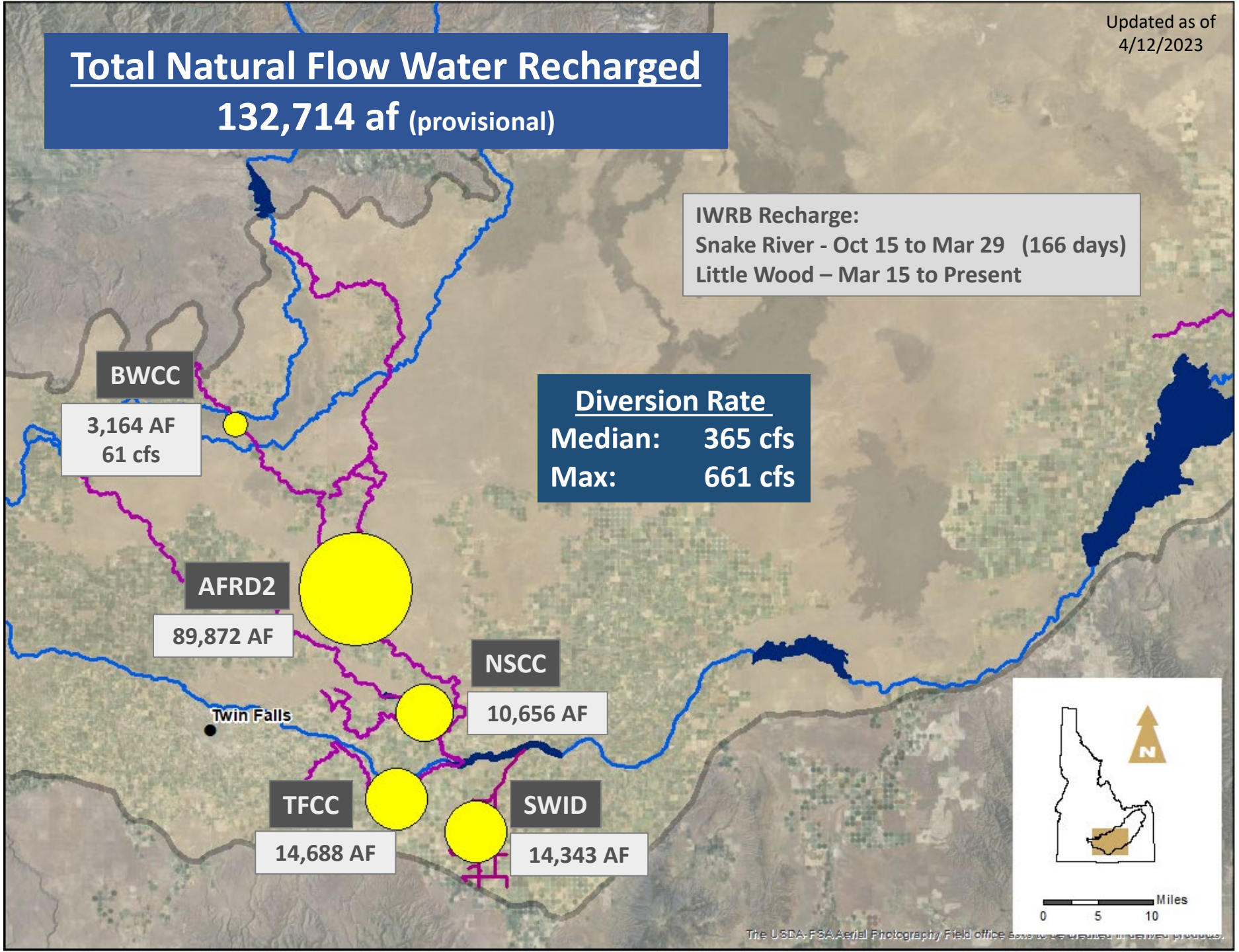
Water Projects Section Supervisor

April 12, 2023

Total Natural Flow Water Recharged

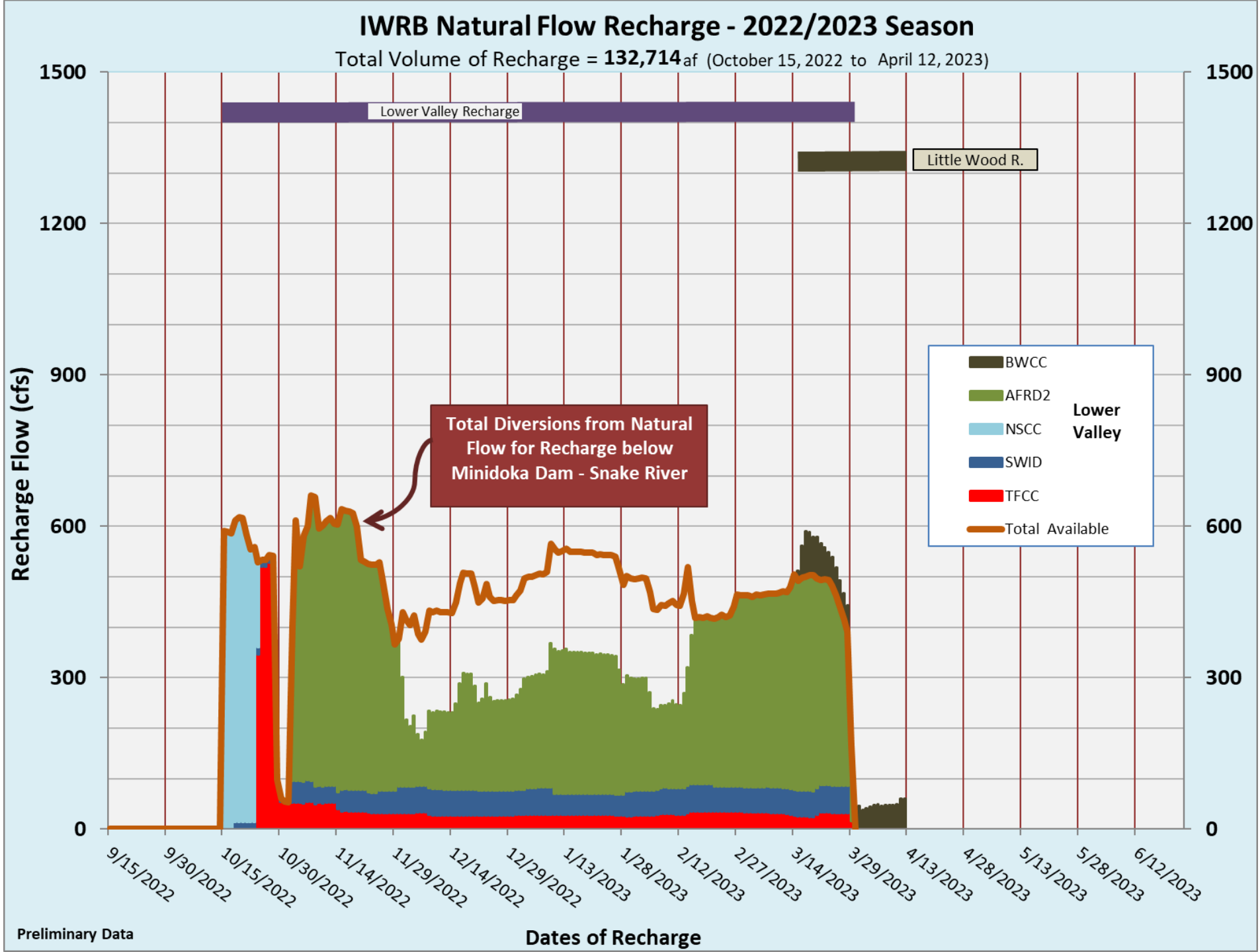
132,714 af (provisional)

Updated as of 4/12/2023

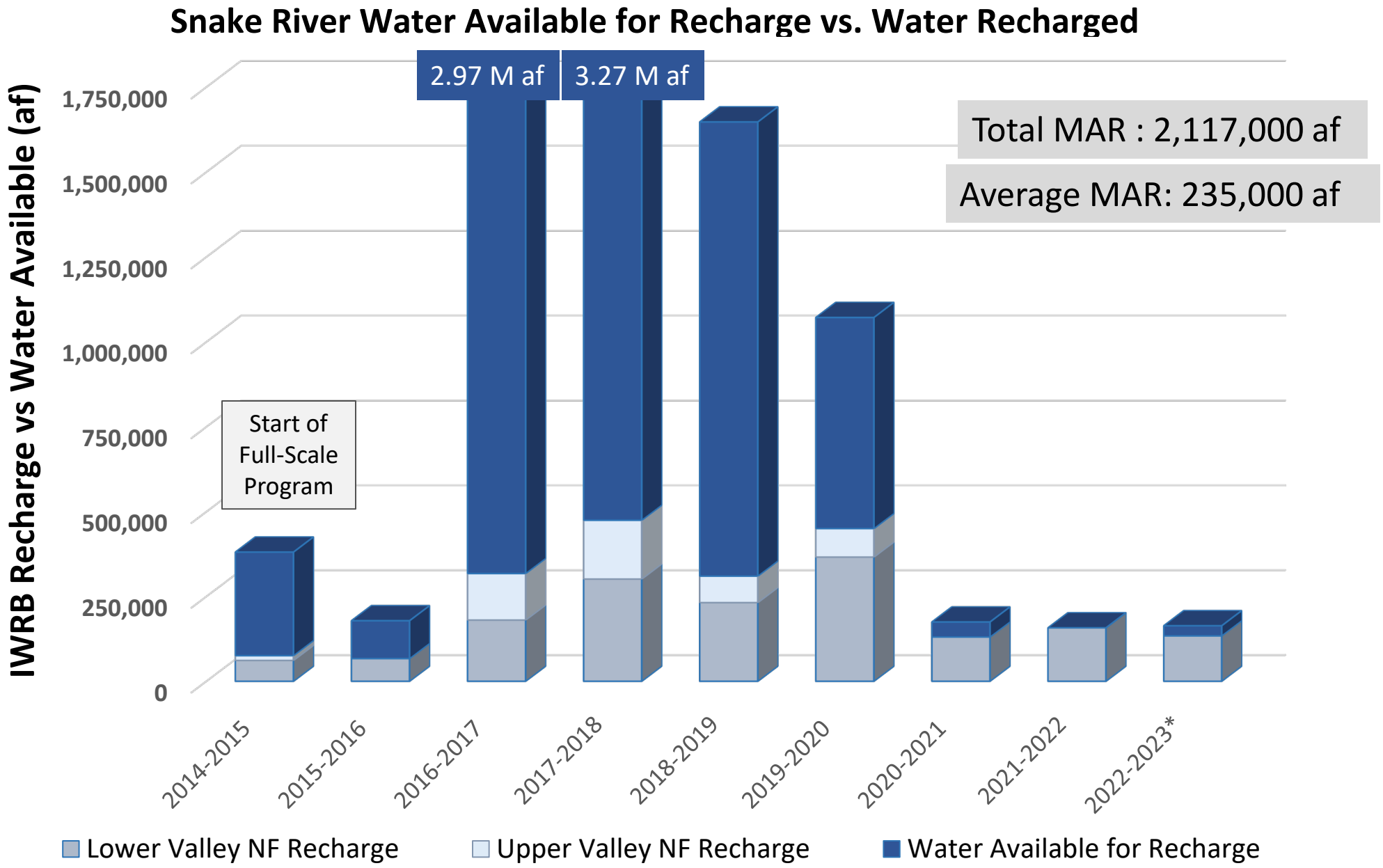


Estimated Start Date:

Milner-Gooding Canal 4/20



IWRB Recharge



Questions?