Surface Water Predictions
Above Magic
=
Better Water Management and
Crop Planning

Surface Water Demand Above Magic

- Delivery Estimates 2017 and ET per NRCS

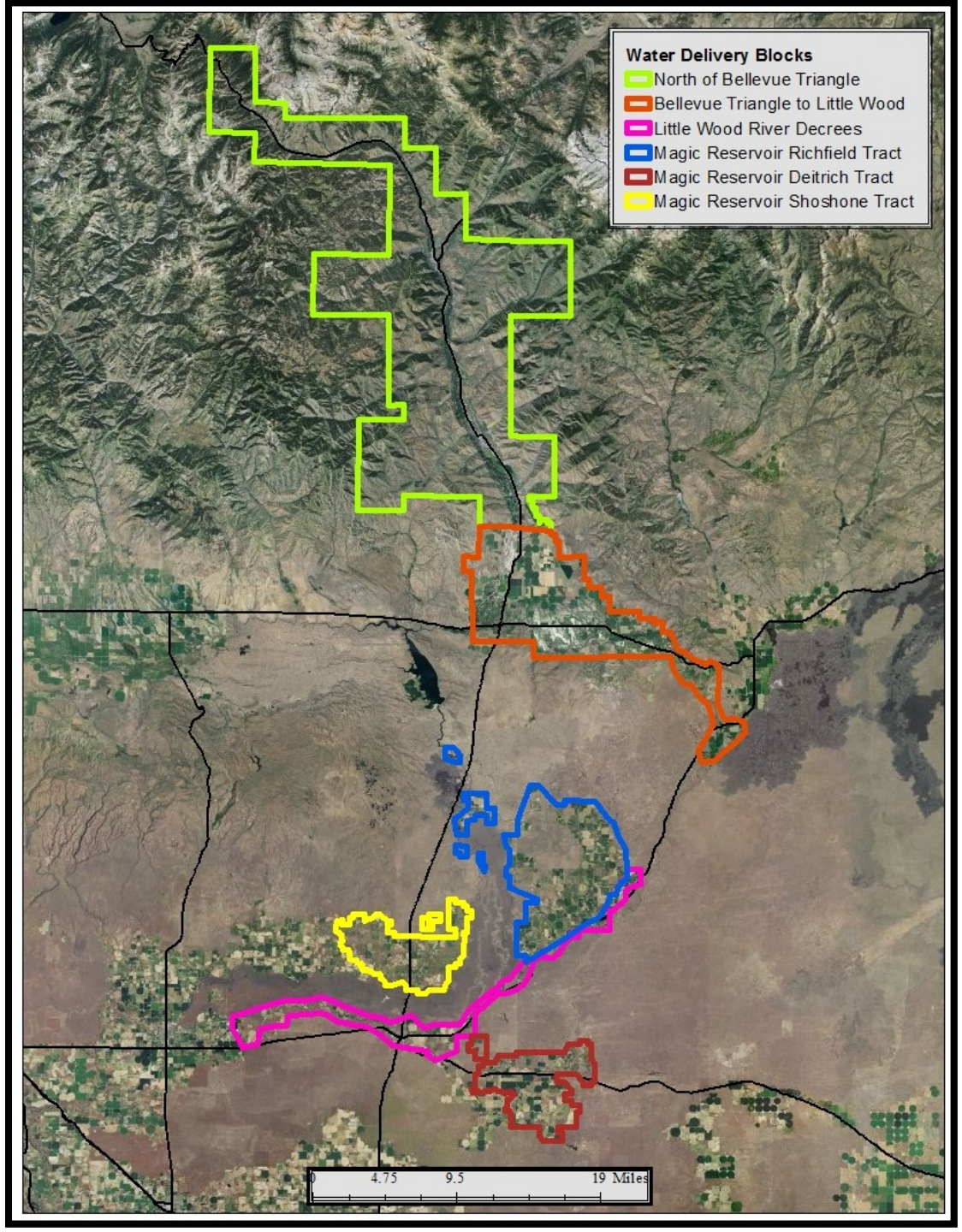
Total Diversions Silver Creek above Richfield	23285	Acre Feet
Galena GWD Diversions (Includes municipals)	14957	Acre Feet
South Valley GWD Diversions	25146	Acre Feet
Big Wood Above Magic	108459	Acre Feet
Total diversions Upper Big Wood Valley	**176,381**	**Acre Feet**
Total Irrigated Acres in the Big Wood Basin (above Magic Reservoir)	44623	Acres
Average use per acre in Southern Idaho as per IDWR	**2.5**	**Acre feet**
Total anticipated use	**111,558**	**Acre feet**

Surface Water Demand Above Magic

- NRCS crop data and GGWD surface water use
  - NRCS

	Acres
Forage	24,739
Barley	15,158
Wheat	1,700
Spring Wheat	1,700
	43,297

  - Municipal, HOA, small farm use – est. 10,500 acres
  - **Total: 53,797 x 3 ET = 134,493 acre-ft**



Water Use by Delivery Block in Acre Feet — **Water Demand**

North of Bellevue Triangle

Surface Water	*17,430*
Groundwater	*15,000*
SUB-TOTAL	**32,430**

Bellevue Triangle to Little Wood Confluence

Surface Water Big Wood River	*82,490*
Surface Water Silver Creek	*21,525*
Groundwater	*30,000*
SUB-TOTAL	**134,015**

Big Wood Magic Reservoir

Richfield Tract	*132,000*
Deitrich Tract	*44,000*
North Shoshone Tract	*44,000*
SUB-TOTAL	**220,000**

Big Wood Decrees below Magic Total	**24,873**

Little Wood Decrees (Richfield to Gooding) Total	**15,414**
GRAND TOTAL	**426,732**

Total:
121,455 acre-ft

Snow Index

Big Wood Basin 7 Station Snow Index Big Wood River above Hailey

USDA

SNOTEL Site	1981-2010 Normals Jan	Feb	Mar	Apr	May	Jun	Daily SWE Starts Year
CHOCOLATE GULCH	5.3	8.5	10.8	11.7	5.8	0.0	1994
DOLLARHIDE SUMMIT	10.0	14.3	18.5	21.7	21.6	12.6	1982
GALENA	10.0	14.3	18.5	21.7	21.6	12.6	1983
GALENA SUMMIT	8.6	12.1	15.4	18.7	17.1	5.4	1982
HYNDMAN	5.2	7.8	9.9	11.9	6.2	0.0	1981
LOST-WOOD DIVIDE	7.9	12.4	15.9	18.5	13.7	0.0	1982
VIENNA MINE	13.2	20.1	24.8	30.2	30.8	19.5	1981
Sum	**60.2**	**89.5**	**113.8**	**134.4**	**116.8**	**50.1**	*****
1981-2010 Averages	**8.6**	**12.8**	**16.3**	**19.2**	**16.7**	**7.2**	*****
1981-2010 Medians	**8.6**	**12.4**	**15.9**	**18.7**	**17.1**	**5.4**	*****

SWE = Snow Water Equivalent, units = inches

Year	Jan Index Total	Feb Index Total	Mar Index Total	Apr Index Total	May Index Total	June Index Total	Quality Flag
61	53.6	48.7	73.1	95.9	84.4	*****	est
62	80.7	79.8	108.4	130.6	93.1	*****	est
63	37.4	47.1	80.3	100.5	109.9	*****	est
64	53.9	86.3	89.1	122.2	115.0	*****	est
65	160.7	172.7	188.2	201.2	190.7	*****	est
66	34.5	67.5	81.9	101.1	62.7	*****	est
67	61.9	108.3	121.0	146.1	174.2	*****	est
68	44.3	73.4	90.9	97.7	78.5	*****	est
69	74.4	140.8	175.3	184.2	137.3	*****	est
70	41.3	86.2	98.3	126.3	136.8	*****	est
71	101.6	134.7	150.0	182.6	177.8	*****	est
72	83.2	120.2	151.3	161.3	162.1	*****	est
73	47.3	67.7	75.6	94.4	81.2	*****	est
74	102.3	139.1	155.3	198.6	199.7	*****	est
75	50.0	69.2	105.1	149.6	174.7	*****	est
76	66.3	75.1	95.1	128.5	132.7	*****	est
77	4.0	12.4	16.8	33.0	4.8	*****	est
78	85.9	102.1	130.3	121.0	141.1	*****	est
79	32.7	42.4	76.3	89.6	88.2	*****	est
80	44.3	90.1	113.6	136.8	109.3	*****	est
81	57.6	63.8	77.0	101.4	76.1	*****	est
82	99.8	112.1	142.2	179.4	186.7	112.6	est
83	89.9	94.9	132.7	181.1	176.0	96.0	est
84	87.9	76.5	97.8	118.5	123.4	51.9	est
85	86.3	72.3	93.9	107.2	73.0	16.3	est
86	53.7	73.0	142.6	158.1	138.4	57.4	est
87	21.0	37.4	48.8	69.4	19.1	0.0	est
88	42.4	55.9	68.1	82.5	54.0	*****	est
89	64.7	78.9	88.1	128.2	98.6	18.7	est
90	21.2	51.6	67.7	78.1	46.5	18.8	est
91	31.7	34.9	37.7	76.1	77.2	38.9	est

SWE

22-Feb-18

7.2	CHOCOLATE GULCH
17.7	DOLLARHIDE SUMMIT
10.1	GALENA
13.3	GALENA SUMMIT
5.7	HYNDMAN
10.2	LOST-WOOD DIVIDE
20.3	VIENNA MINE
84.5	**Sum**

Snow Index as of Feb 22 compared To March 1 data.

So far similar to 2013 & 2002 SWE on for March 1

92	56.9	51.1	69.2	70.6	34.4	0.0	est
93	59.9	84.5	108.7	131.1	140.0	29.6	est
94	28.6	36.9	62.2	62.5	38.8	4.0	1st
95	65.1	99.6	115.3	162.2	163.7	103.4	1st
96	76.8	97.1	122.9	139.9	137.7	85.3	1st
97	157.0	175.9	184.2	197.8	187.8	73.0	1st
98	32.7	70.4	92.9	104.2	93.5	53.9	1st
99	72.6	88.2	138.4	144.4	133.0	62.1	1st
00	36.2	64.3	96.4	107.9	70.9	16.3	1st
01	43.1	44.8	53.0	56.9	40.5	0.0	1st
02	62.6	73.6	85.4	102.9	86.3	17.0	1st
03	70.0	77.9	93.1	118.6	120.6	39.1	1st
04	63.6	73.6	98.3	93.4	51.7	13.4	1st
05	54.5	59.4	64.3	83.5	67.8	17.6	1st
06	93.0	116.0	138.2	167.3	171.6	61.5	1st
07	56.6	55.1	75.2	73.9	44.2	0.8	1st
08	56.5	88.9	103.2	119.2	114.5	33.9	1st
09	52.3	59.6	75.8	105.9	88.6	18.7	1st
10	38.7	51.4	58.3	80.3	69.4	40.3	1st
11	67.8	67.2	80.5	120.8	136.5	82.9	1st
12	46.3	65.4	79.3	122.8	77.3	24.2	1st
13	85.1	80.9	85.9	95.0	66.4	10.2	1st
14	34.4	53.6	101.5	136.4	109.8	17.9	1st
15	67.5	83.5	103.9	90.1	49.7	4.2	1st
16	75.8	104.0	114.5	151.5	86.3	18.8	1st
17	61.6	107.6	201.8	233.7	232.9	98.4	1st
18	49.0	72.2	**84.5**				1st

baed on feb 22

est Index value is at least partially represented by estimated SWE value at SNOTEL site.

1st Index value is represented by measured SWE value at SNOTEL site.

Big Wood above Hailey SWSI — Adequate Water Supply Not Available or Known

Station ID	Station Name	Period	Data Type	Years	# of Years	
13139510	Big Wood R at Hailey	Apr-Sep	strm	1981-2017	37	Units KAF

ENSO Classification
SE Strong El Nino - EN Mild El Nino - N Neutral - LN Mild La Nina - SL Strong La Nina

Rank	Year	Enso	Stream Flow Apr-Sep	Reservoir 31-Jan	Streamflow + Reservoir Sum	Non-Exceedance Probability	SWSI
13	2011	SL	321	0	321	66%	1.3
2018 10% Chance Exceedance Forcast		LN	290	0	290	64%	1.2
14	2012	LN	272	0	272	63%	1.1
15	2009	N	259	0	259	61%	0.9
16	2005	EN	242	0	242	58%	0.7
17	1981	N	237	0	237	55%	0.4
18	2016	SE	236	0	236	53%	0.2
19	2010	EN	221	0	221	50%	0.0
20	2003	EN	221	0	221	47%	-0.2
2018 30% Chance Exceedance Forcast		LN	220	0	220	46%	-0.3
21	1985	N	205	0	205	45%	-0.4
22	2008	N	199	0	199	42%	-0.7
23	1989	SL	198	0	198	39%	-0.9
24	2000	N	190	0	190	37%	-1.1
2018 50% Chance Exceedance Forcast		LN	175	0	175	36%	-1.2
25	2014	N	162	0	162	34%	-1.3
26	2015	EN	159	0	159	32%	-1.5
27	2013	N	154	0	154	29%	-1.8
28	1991	N	153	0	153	26%	-2.0
29	2002	N	153	0	153	24%	-2.2
30	1990	N	147	0	147	21%	-2.4
2018 70% Chance Exceedance Forcast		LN	137	0	137	20%	-2.5
31	2004	N	136	0	136	18%	-2.6
32	1987	N	134	0	134	16%	-2.9
33	1988	SE	130	0	130	13%	-3.1
34	2007	EN	117	0	117	11%	-3.3
35	2001	LN	104	0	104	8%	-3.5
36	1992	EN	103	0	103	5%	-3.7
37	1994	SE	91	0	91	3%	-3.9
2018 90% Chance Exceedance Forcast		LN	89	0	89	1%	-4.1

Similar years according to snow index

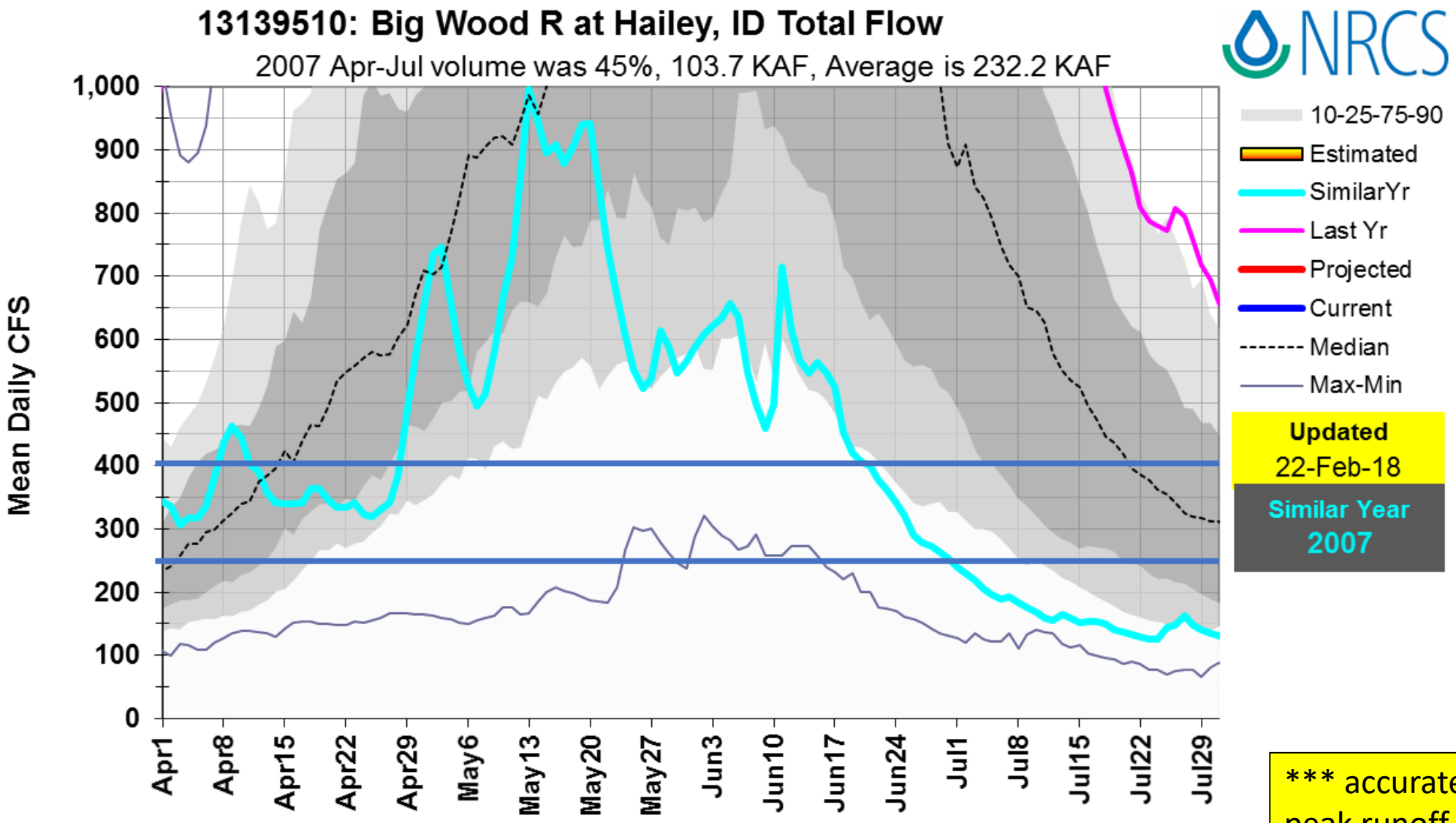
Similar years according to water use

Date	Ac Ft x 1000 April - Sept	Date on which BW@H hit 650 cfs	Date on which first 1886 priorities cut	Flow @ BW@H when 1886 water cut	Date on which BW@H hit 350 cfs	Date on which first 1883 priorities were cut	Flow @ BW@H when 1883 water cut	Peak Cfs Hailey
1981	237	7/7/1981	7/20/1981	346	7/17/1981	8/26/1981	170	6/9/1981
2016	236	6/26/2016	7/12/2016	398	7/15/2016	7/26/2016	231	6/9/2016
2010	221	7/14/2010	7/28/2010	366	7/30/2010	8/16/2010	236	6/7/2010
2003	221	7/2/2003	7/9/2003	427	7/14/2003	8/7/2003	189	5/31/2003
1985	205	6/21/1985	7/8/1985	351	7/15/1985	8/7/1985	241	5/26/1985
2008	199	7/7/2008	7/14/2008	427	7/19/2008	8/6/2008	187	5/20/2008
1989	198	6/23/1989	7/13/1989	398	7/15/1989	8/3/1989	195	5/10/1989
2000	190	6/21/2000	7/5/2000	362	7/6/2000	7/26/2000	210	5/25/2000
2014	162	6/16/2014	7/10/2014	363	7/11/2014	7/21/2014	220	5/28/2014
2015	159	6/20/2015	7/6/2015	307	7/2/2015	7/21/2015	207	6/9/2015
2013	**154**	**6/19/2013**	**7/8/2013**	**345**	**7/8/2013**	**7/11/2013**	**296**	**5/15/2013**
1991	153	6/30/1991	7/17/1991	324	7/17/1991	8/2/1991	194	6/12/1991
2002	**153**	**6/27/2002**	**7/3/2002**	**413**	**7/6/2002**	**7/12/2002**	**266**	**6/1/2002**
1990	147	7/2/1990	7/14/1990	352	7/14/1990	7/30/1990	212	6/10/1990
2004	136	6/12/2004	7/7/2004	371	7/8/2004	7/31/2004	177	6/6/2004
1987	**134**	**6/12/1987**	**6/26/1987**	**331**	**6/26/1987**	**8/18/1987**	**160**	**5/17/1987**
1988	130	6/20/1988	7/4/1988	304	7/2/1988	7/19/1988	190	6/5/1988
2007	**117**	**6/5/2007**	**6/25/2007**	**321**	**6/24/2007**	**7/10/2007**	**168**	**5/13/2007**
2001	104	5/31/2001	6/19/2001	334	6/15/2001	7/30/2001	131	5/26/2001
1992	103	5/11/1992	5/14/1992	533	6/8/1992	7/6/1992	248	5/9/1992
1994	91	6/6/1994	6/16/1994	368	6/17/1994	6/28/1994	228	6/1/1994

Similar years according to snow index

Similar years according to water use

Peak Stream Flow Graphs to Estimate Shut-Off Dates



*** accurate after peak runoff occurs

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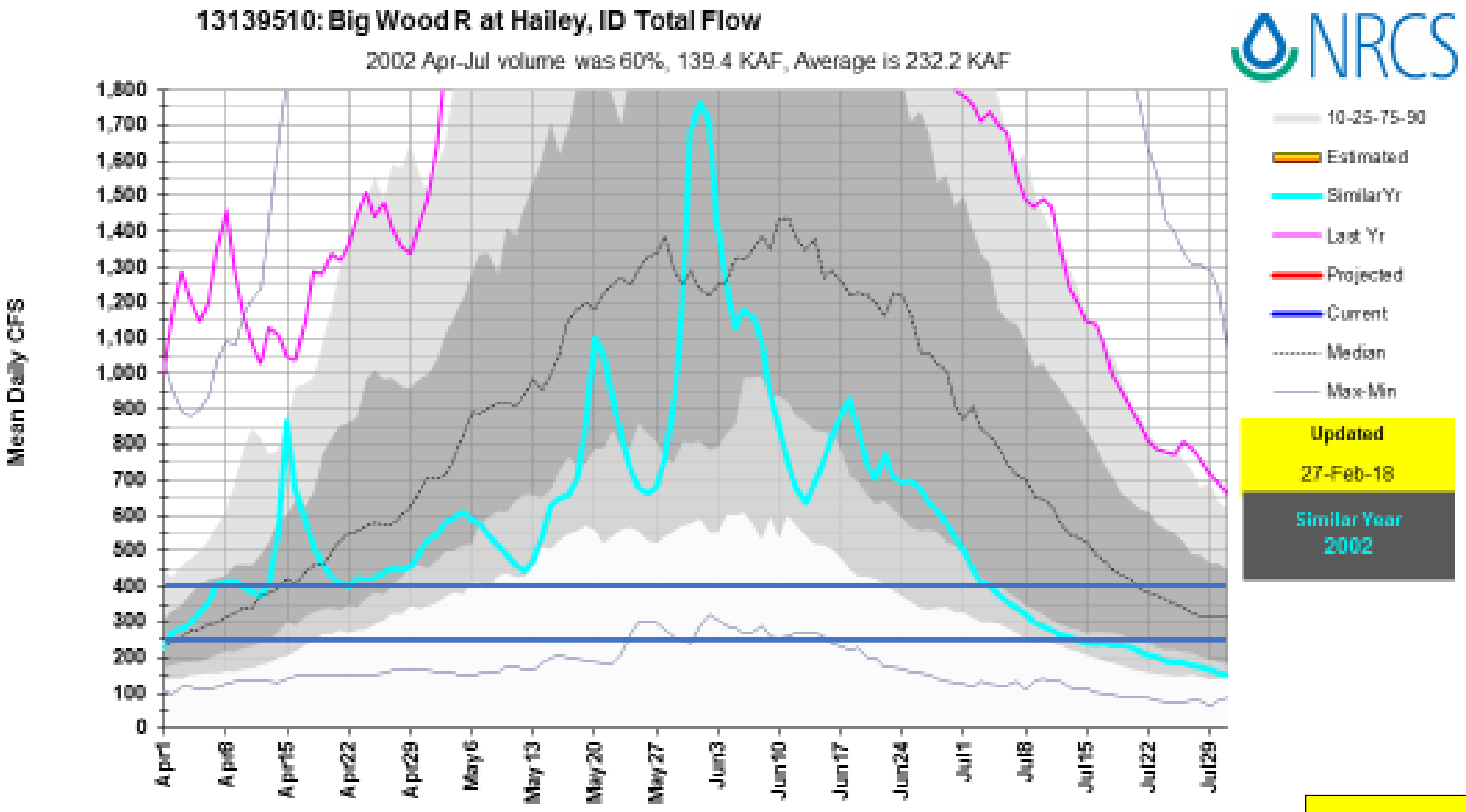

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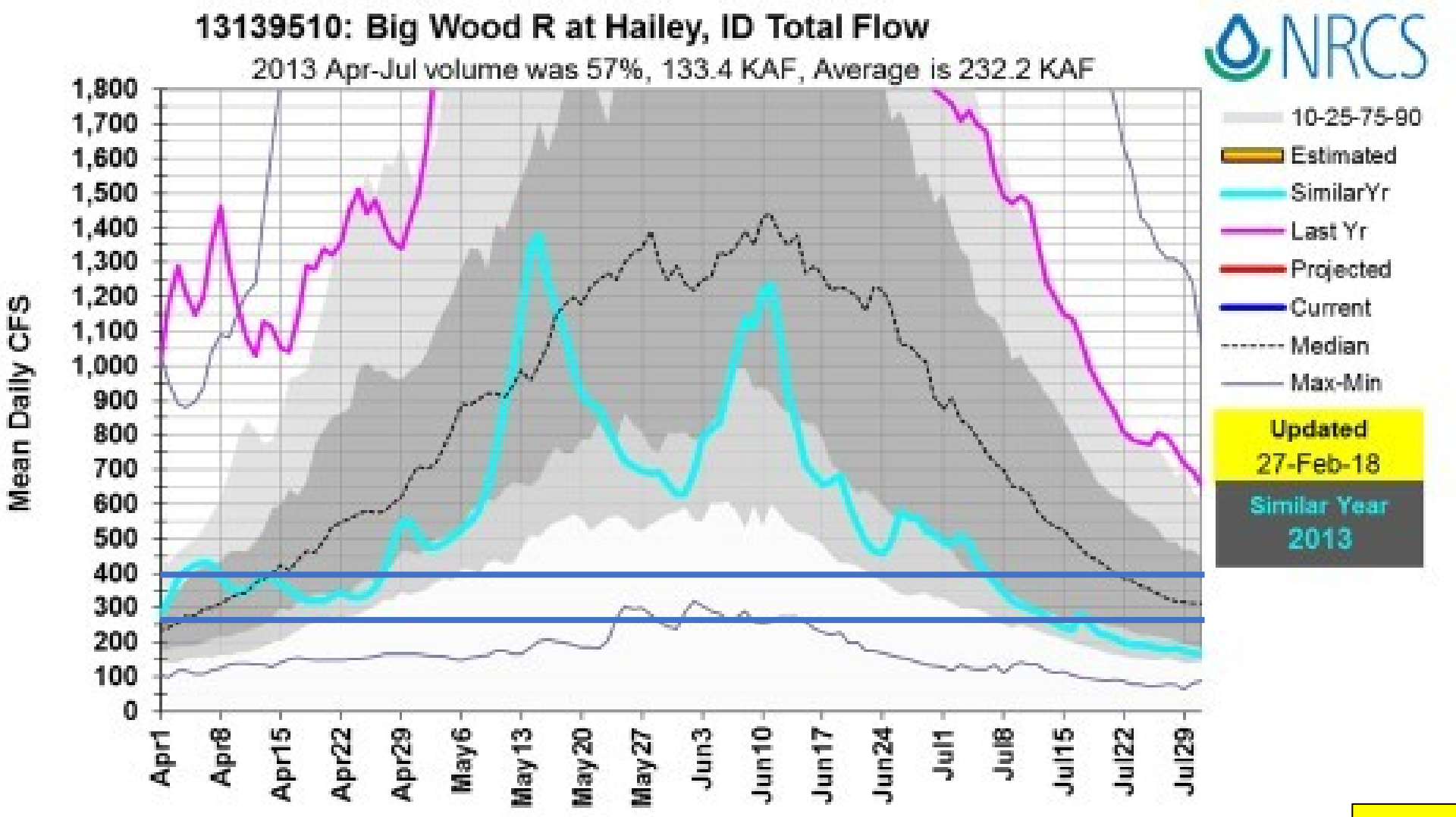

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