

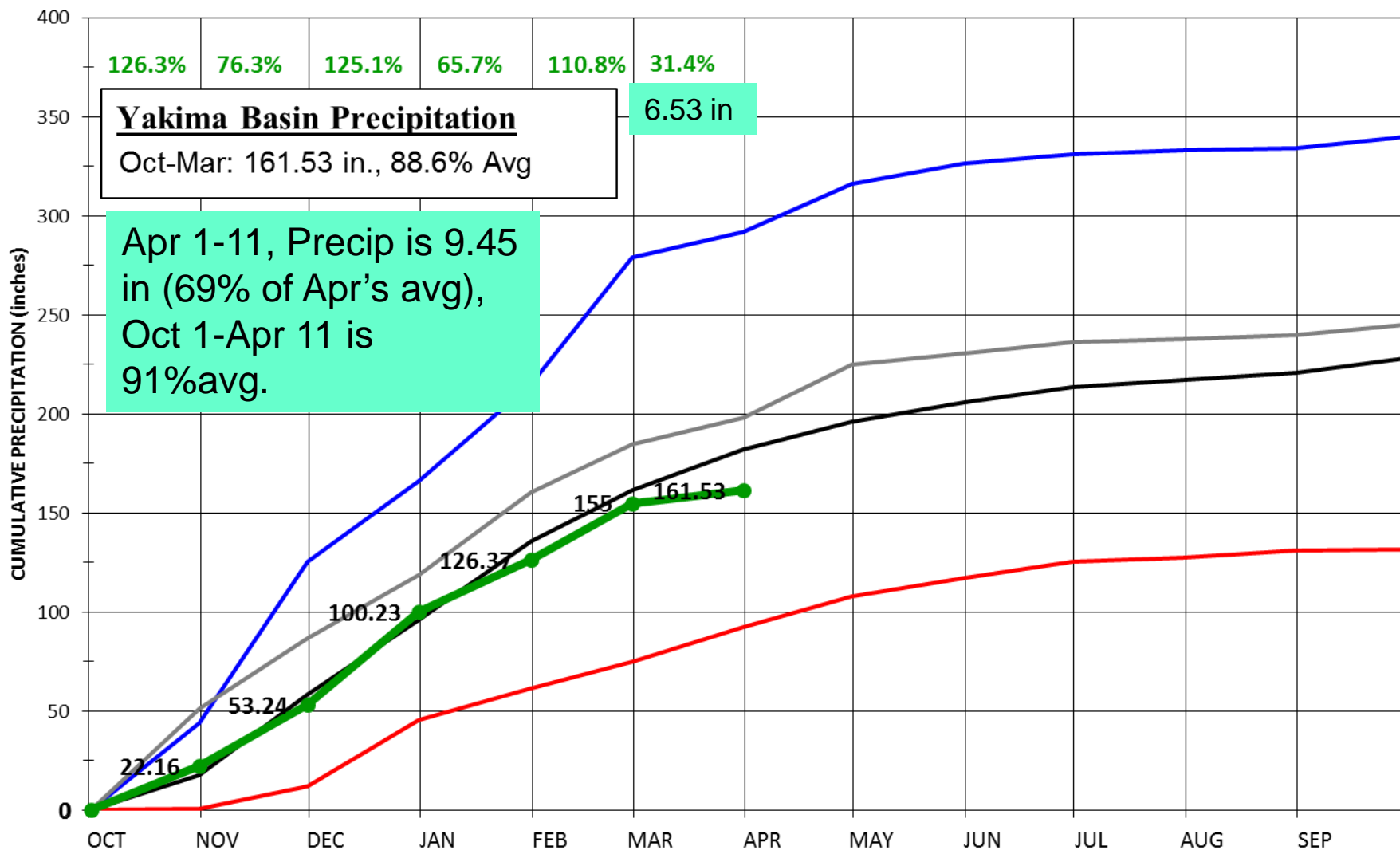
# RECLAMATION

*Managing Water in the West*

## **Yakima Basin WY 2019 TWSA & River Operations Meeting, April 4, 2019**



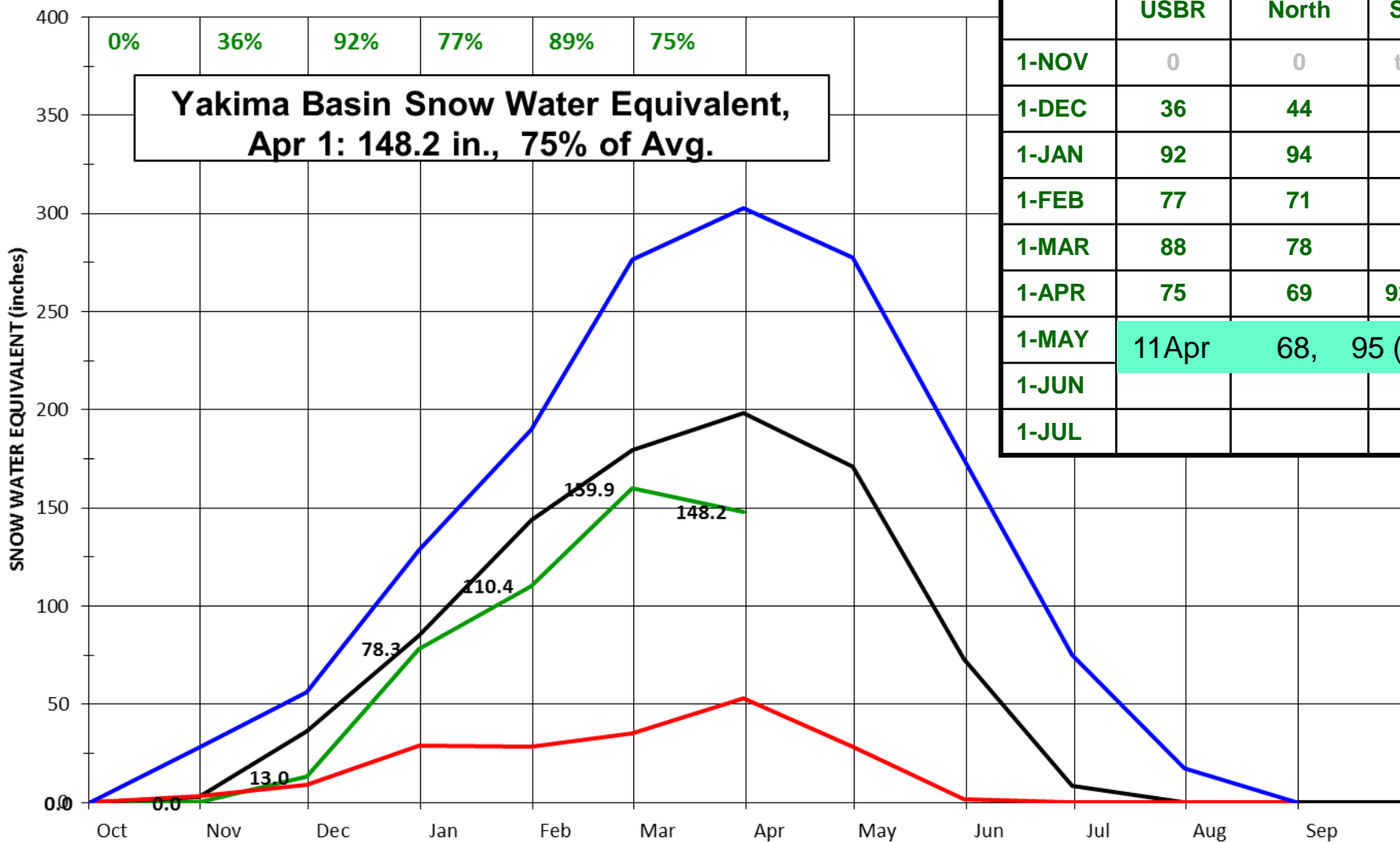
U.S. Department of the Interior  
Bureau of Reclamation



- Maximum
- Average
- Minimum
- WY2018
- WY2019

**YAKIMA BASIN**  
Combined Cumulative Precipitation  
5 Reservoir Sites  
WATER YEARS 1981-2010

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF RECLAMATION  
YAKIMA FIELD OFFICE  
1917 MARSH ROAD  
YAKIMA, WA 98901



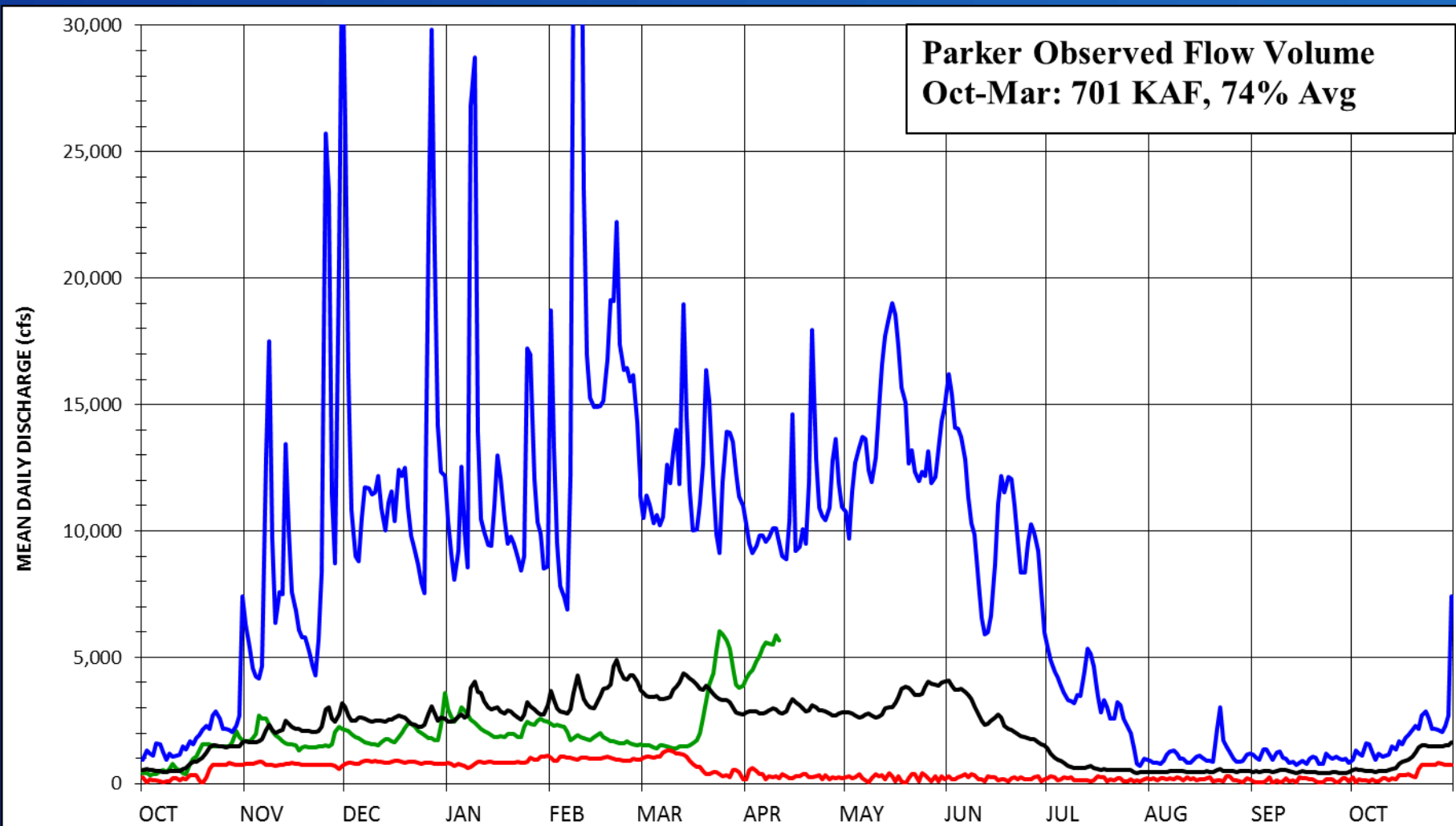
NRCS SWE % AVG			
	USBR	North	South
1-NOV	0	0	trace
1-DEC	36	44	45
1-JAN	92	94	94
1-FEB	77	71	85
1-MAR	88	78	97
1-APR	75	69	92 (79)
1-MAY	11Apr	68,	95 (84)
1-JUN			
1-JUL			

— Water Year 2019  
— Average  
— Low Year (2005)  
— High Year (1999)

### YAKIMA BASIN WATER YEAR SNOW WATER EQUIVALENT

Average based on greater of 1971-2000 or POR-1995  
 Totals derived from 7 Yakima forecast sites  
 Corral, Stampede, Olallie, Fish, Bumping, Domerie, & Tunnel Avenue

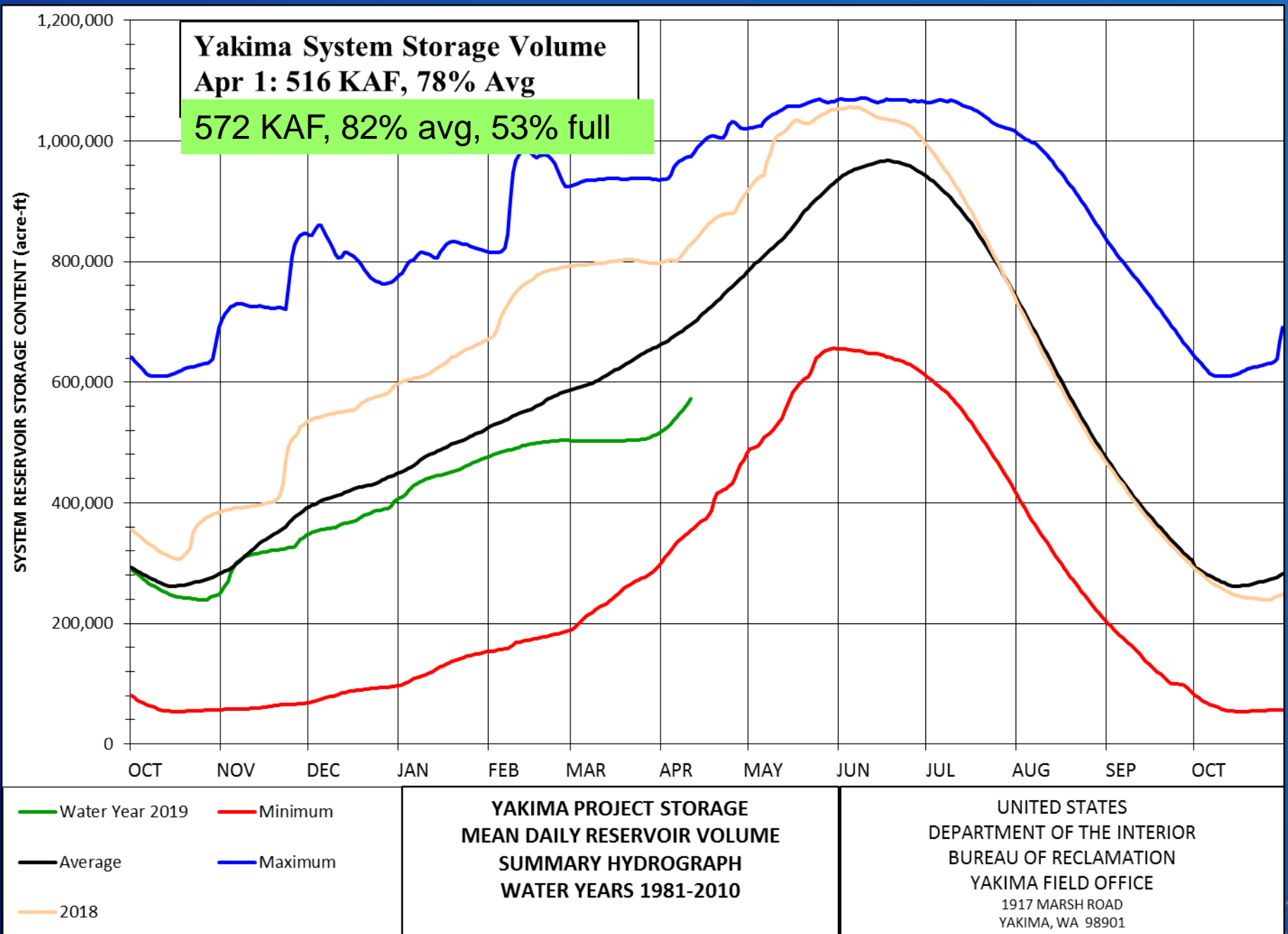
UNITED STATES  
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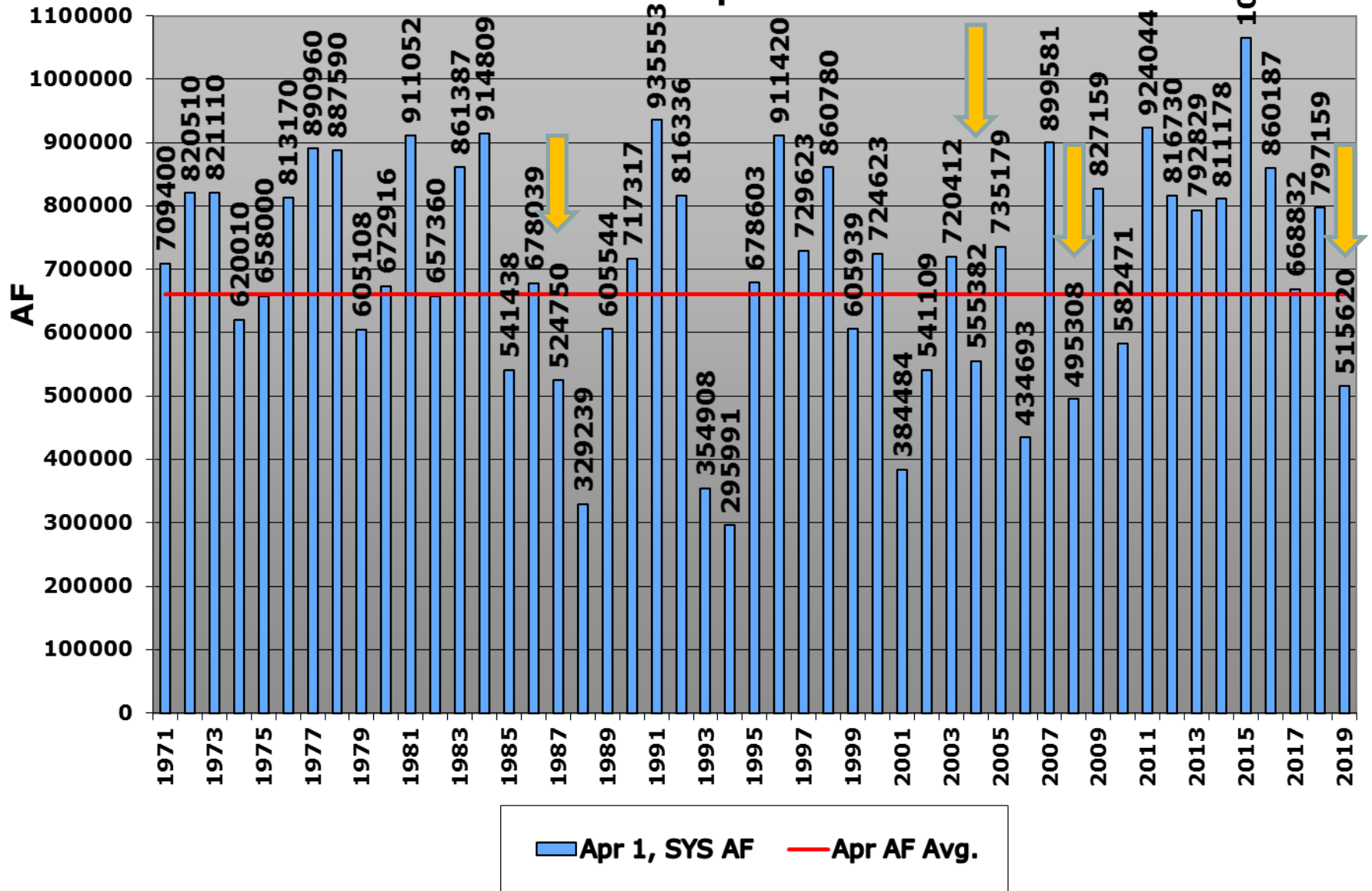
— Water Year 2019  
— Minimum  
— Average  
— Maximum

**YAKIMA RIVER NEAR PARKER  
MEAN DAILY REGULATED DISCHARGE  
SUMMARY HYDROGRAPH  
WATER YEARS 1981-2010**

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF RECLAMATION  
YAKIMA FIELD OFFICE  
1917 MARSH ROAD  
YAKIMA, WA 98901



# Yakima Basin Storage Historical Comparison



# Yakima Subbasin forecasts

Runoff, AF and % of Average

April, 2019	low	Adopted	high	low	Adopted	high
Parw	1107888	1466642	1800654	0.67	0.88	1.08
kee	74936	101810	126470	0.65	0.88	1.09
kac	66274	86914	109790	0.63	0.83	1.05
cle	266414	324280	390266	0.69	0.84	1.02
bum	80458	103339	125413	0.70	0.90	1.10
rim	143482	172068	202168	0.77	0.92	1.08
Yumw	498079	630153	767343	0.66	0.83	1.01
Nacw	468138	626975	745512	0.67	0.89	1.06

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# April 1, 2019 TWSA ESTIMATE

April 1 - September 30

Parameter*	+/-/=	Low	Adopted	High
Apr 1-Sep 30 Natural Flow at Parker est.	+	1213	1590	1941
Return Flow Estimate, est	+	335	335	350
April 1, Reservoir Content, est	+	516	516	516
TWSA	=	2064	2441	2806
SEP 30 EST RESERVOIR CONTENT	-	76	76	76
FLOW OVER SUNNYSIDE DAM	-	210	337	501
TWSA FOR IRRIGATION	=	1778	2027	2229
NONPRORATABLE ENTITLEMENT	-	1070	1070	1070
REMAINING TWSA	=	708	957	1159
PRORATABLE ENTITLEMENT		1239	1239	1239
% RATIO= REMAINING TWSA/PRORATABLE ENTITLEMENT		57%	77%	94%
TITLE XII FLOW TARGET, cfs	April	300	300	400
Added flow available, cfs **		111	121	125
Non-storeable Portion of added flow, cfs		14	14	14
Storable portion of added flow, cfs		98	108	111

\*Values are in 1,000 ac-ft unless otherwise specified.

\*\* State & YRBWEP Trust, Acquisition, & Conservation additions to Title XII flow range from 111 to 125 cfs.

RECLAMATION



# April 1, 2019 TWSA Comparison

## April 1 - September 30

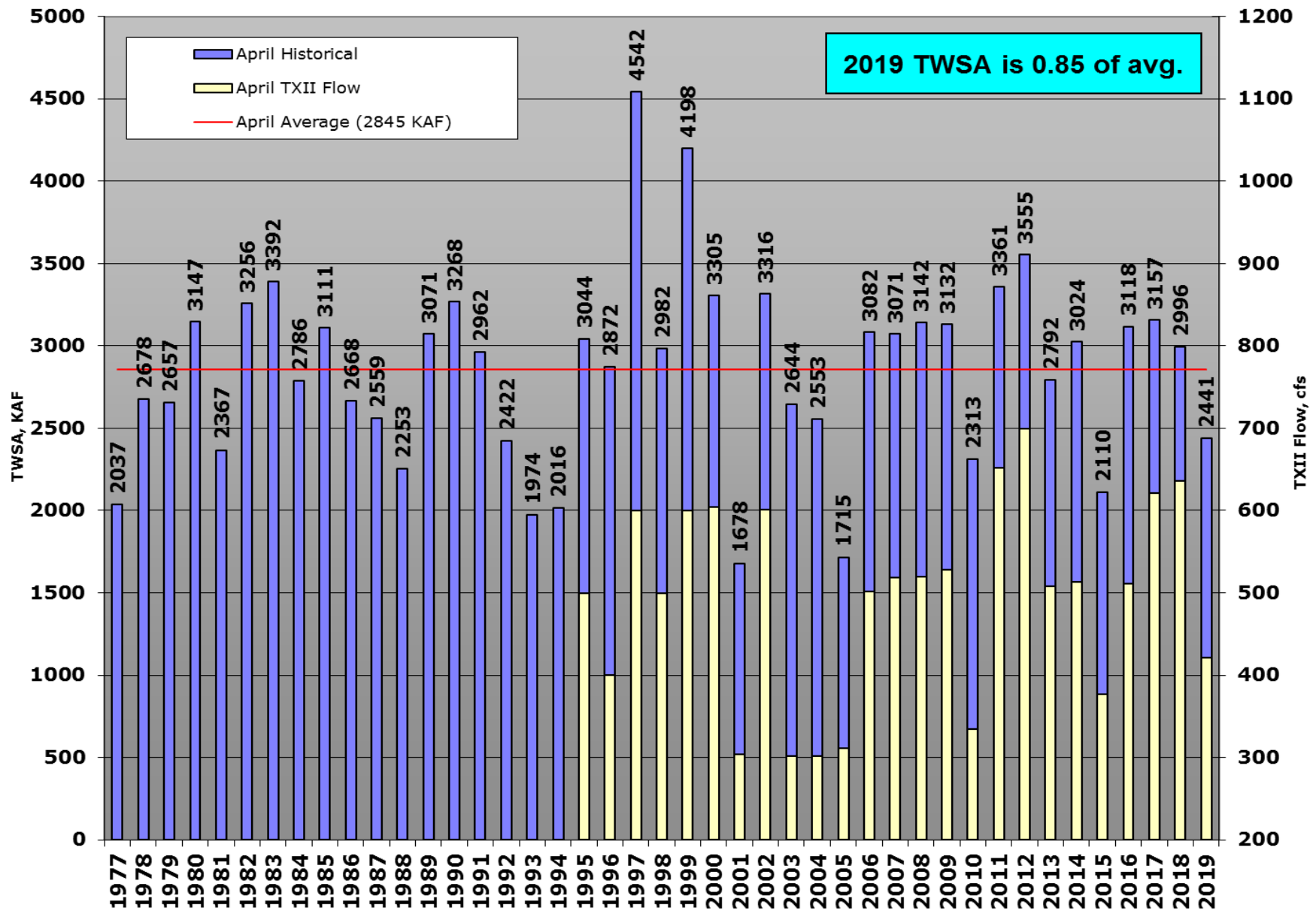
Parameter	" +/- / ="	Mar's 2019	Apr 2019	Apr 2018
Apr 1-Sep 30 Natural Flow at Parker est.	+	1850	1590	1849
Return Flow Estimate	+	335	335	350
April 1, Reservoir Content	+	566	516	797
TWSA	=	2752	2441	2996
SEP 30 EST RESERVOIR CONTENT*	-	76	76	137
FLOW OVER SUNNYSIDE DAM	-	486	337	550
TWSA FOR IRRIGATION	=	2189	2027	2309
NONPRORATABLE ENTITLEMENT	-	1070	1070	1070
REMAINING TWSA	=	1119	957	1239
PRORATABLE ENTITLEMENT		1239	1239	1239
% RATIO= REMAINING TWSA/PRORATABLE ENTITLEMENT		90%	77%	100%
TITLE XII FLOW REQUIREMENTS, cfs	April	400	300	500
TOTAL FLOW AVAILABLE AT PARKER, cfs ***		521	421	636

\*Values are in 1,000 ac-ft unless otherwise specified.

\*\*\* State & YRBWEP Trust, Acquisition, & Conservation additions to Title XII flow.

# RECLAMATION

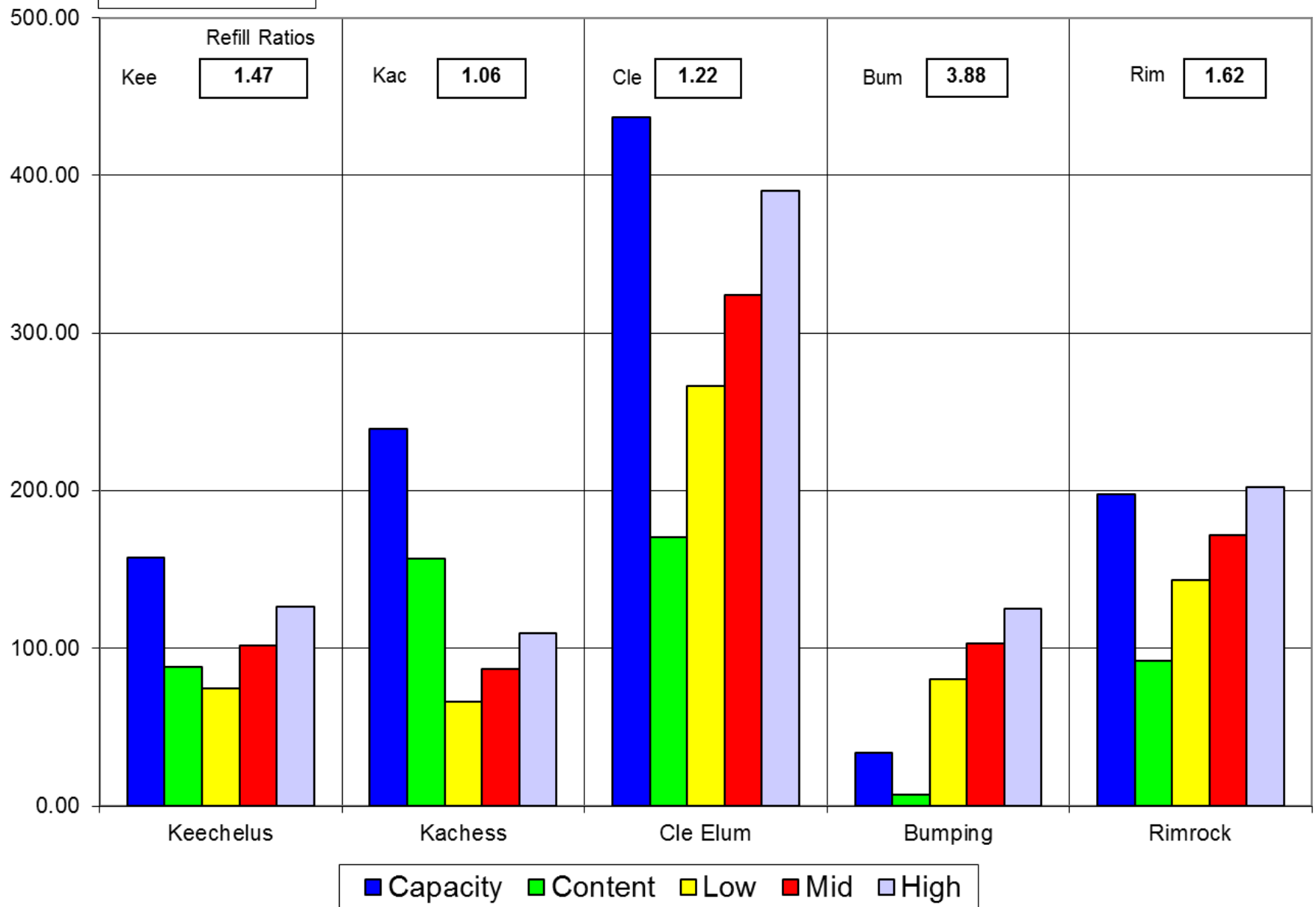
# Yakima Basin Historical TWSA's



April 2019

# Runoff Forecast to Reservoir Space Available

1000 Acre-ft



# RECLAMATION

# Reservoir Refill

% filled, Storage Max, Likely timing of max)

- Reach Cle spillway+2' fish flume in late May.
- Cle: 6% fill, 396 (294 to 437), 1<sup>st</sup> half of June
- Kee: 5% fill, 135 (101 to 158), late May-early June  
Kac: 5% fill, 217 (181 to 239), June
- Bum: 95% fill, 34 (31 to 34), late May or June
- Rim: 53% fill, 195 (146 to 198), June

RECLAMATION

# Yakima Basin Outmigration Flows

**Table 2-14. Minimum volume of water (acre-feet) that will be available in April and May during years when water prorationing levels are equal to or greater than 70% to provide outmigration flows. Outmigration flows are measured at Tieton Dam (RIM), Cle Elum Dam (CLE), and Yakima River at Easton gage (EASW).**

	Monthly Min. acre-feet for Outmigration Flows		
<b>April TWSA (MAF)</b>	<b>&lt; 2.36</b>	<b>2.36 - 3.13</b>	<b>&gt; 3.13</b>
<b>May TWSA (MAF)</b>	<b>&lt; 2.20</b>	<b>2.20 – 2.61</b>	<b>&gt; 2.61</b>
RIM	4,500	8,400	14,800
CLE	4,200	9,900	18,800
EASW	3,700	4,800	9,900

Easton (EASW) can be met from unregulated local inflow below Kee and Kac.

RECLAMATION

# River Operations Summary

- April Precip has been good to date.
- Snow pack is holding up okay.
- Reservoirs are actually filling.
- TWSA is 85% of average.
- Prorationing is 77%. (Range from 57% to 94%)
- Expect Prorationing to hold or improve in April.