

RECLAMATION

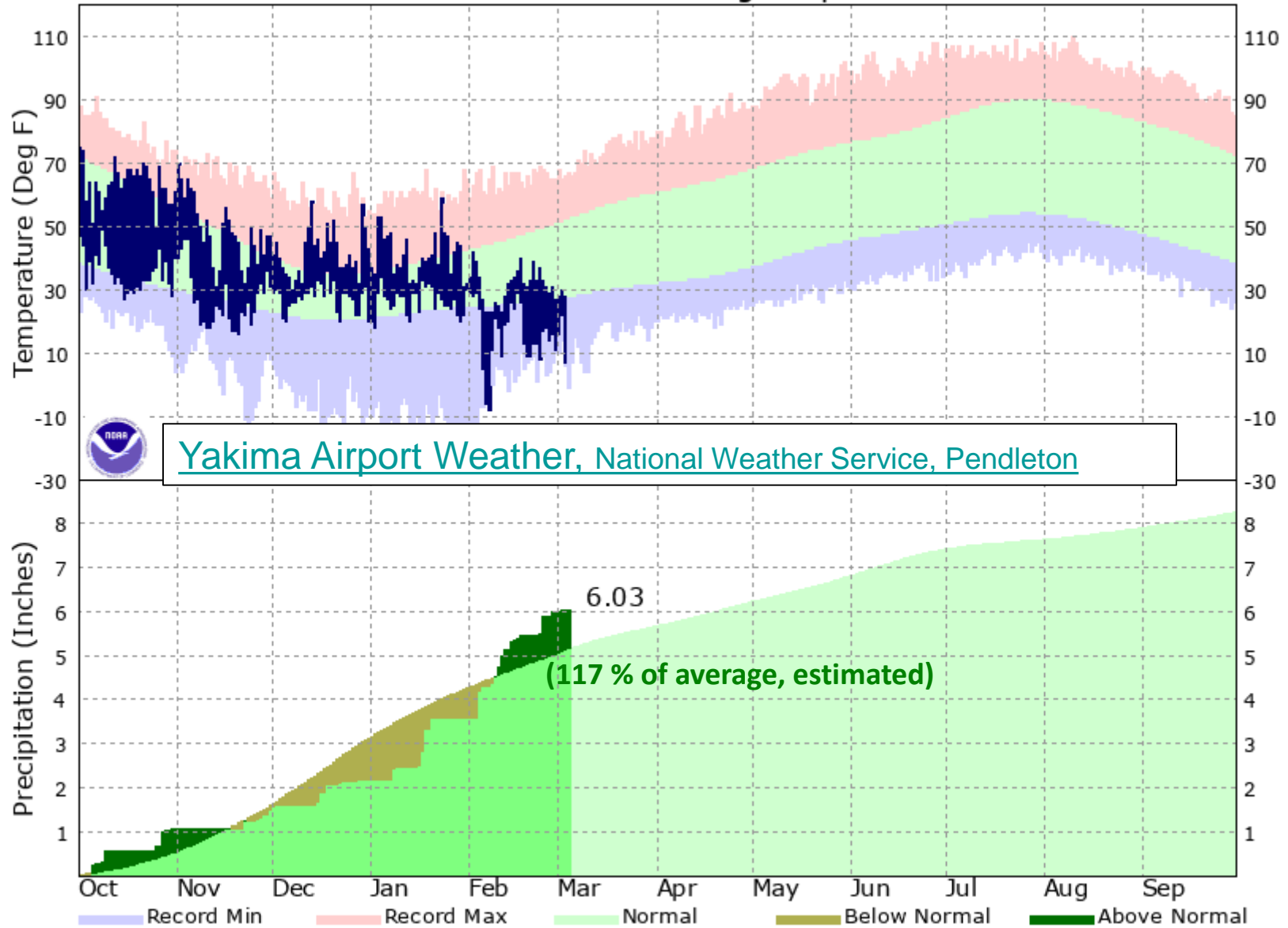
Managing Water in the West

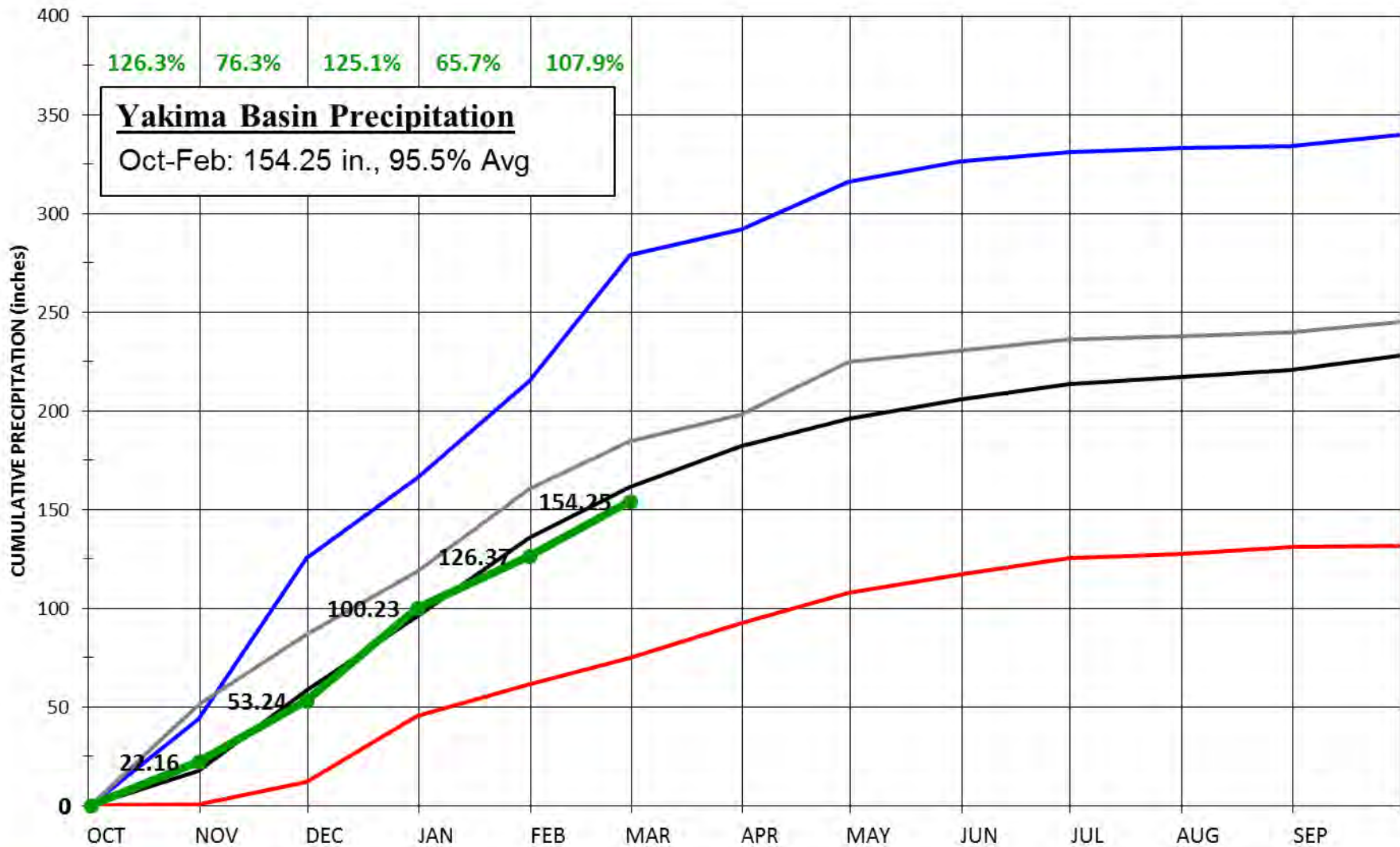
Yakima Basin WY 2019 TWSA & River Operations Meeting, March 7, 2019



U.S. Department of the Interior
Bureau of Reclamation

KYKM - Oct 2018 Through Sep 2019





Yakima Basin Precipitation
 Oct-Feb: 154.25 in., 95.5% Avg

- Maximum
- Minimum
- WY 2019
- Average
- WY2018

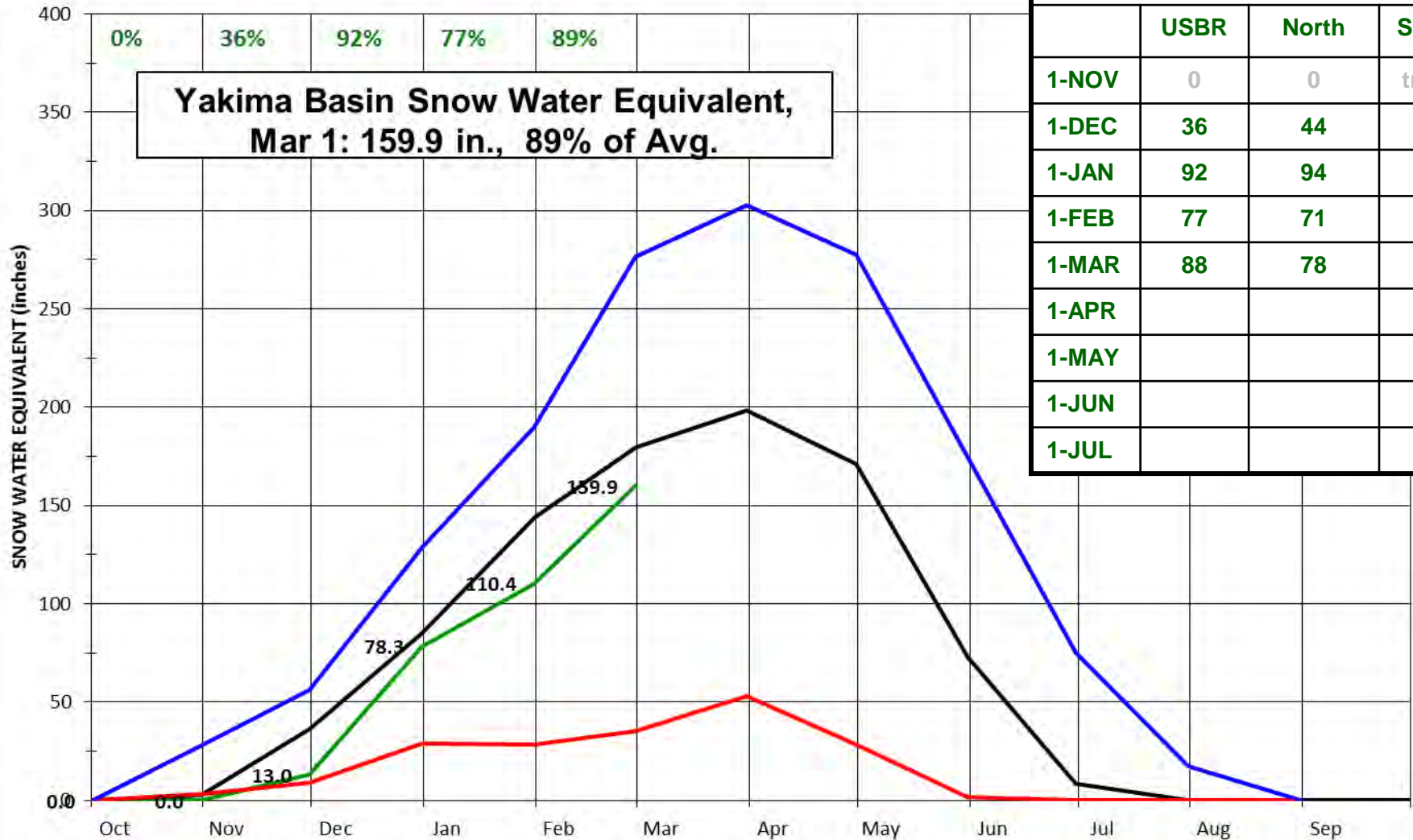
YAKIMA BASIN
 Combined Cumulative Precipitation
 5 Reservoir Sites
 WATER YEARS 1981-2010

UNITED STATES
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 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			
1-MAY			
1-JUN			
1-JUL			

**Yakima Basin Snow Water Equivalent,
Mar 1: 159.9 in., 89% of Avg.**



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

**YAKIMA BASIN WATER YEAR
SNOW WATER EQUIVALENT**

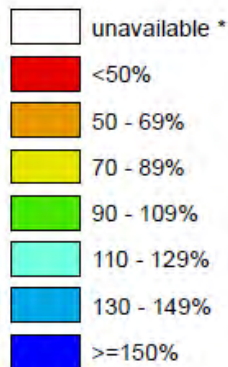
Average based on greater of 1971-2000 or POR-1995
Totals derived from 7 Yakima forecast sites
Corral, Stampede, Olallie, Fish, Bumping, Domerie, & Tunnel Avenue

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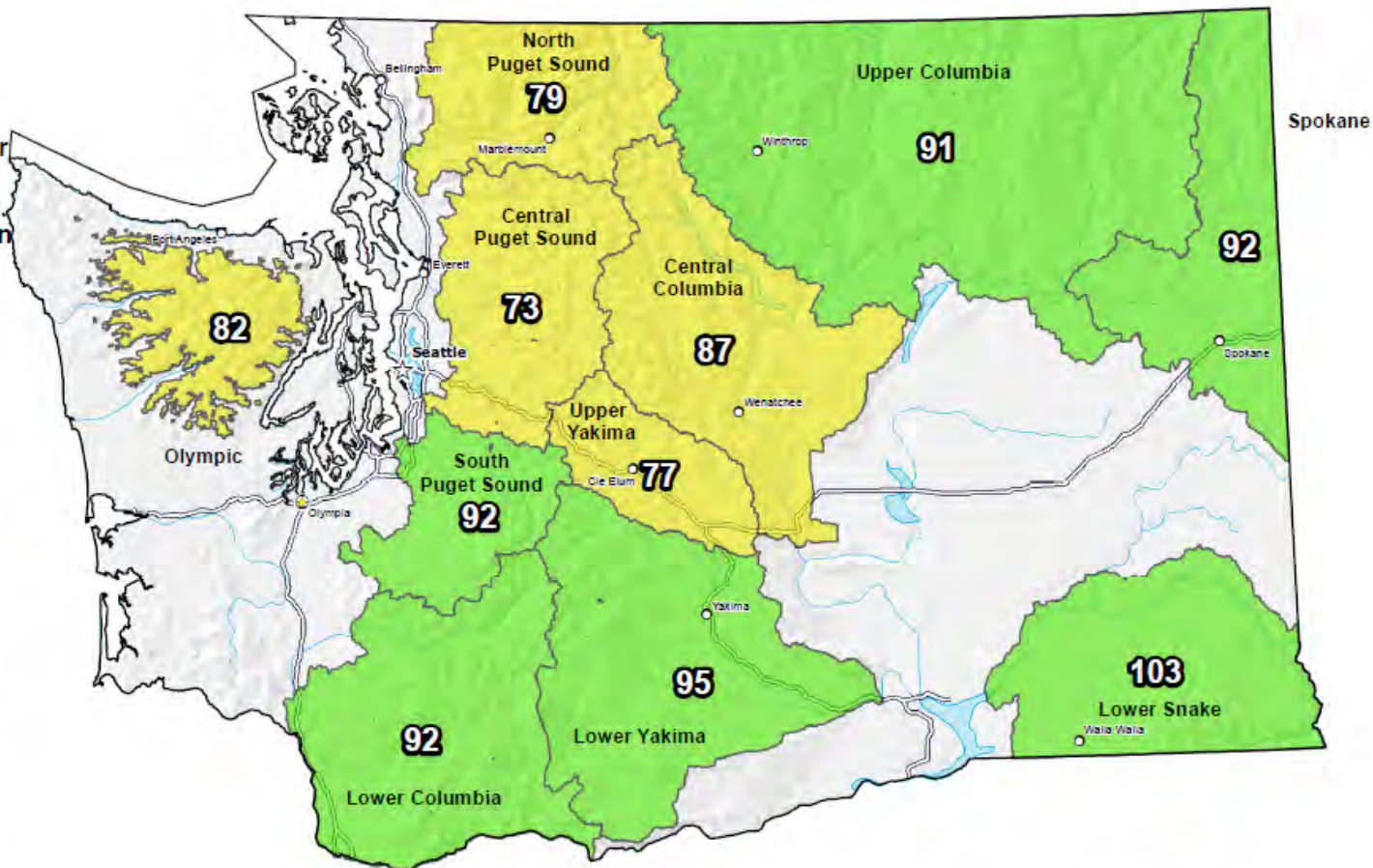
Washington SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Mar 11, 2019

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median



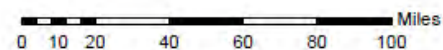
* Data unavailable at time of posting or measurement is not representative at this time of year



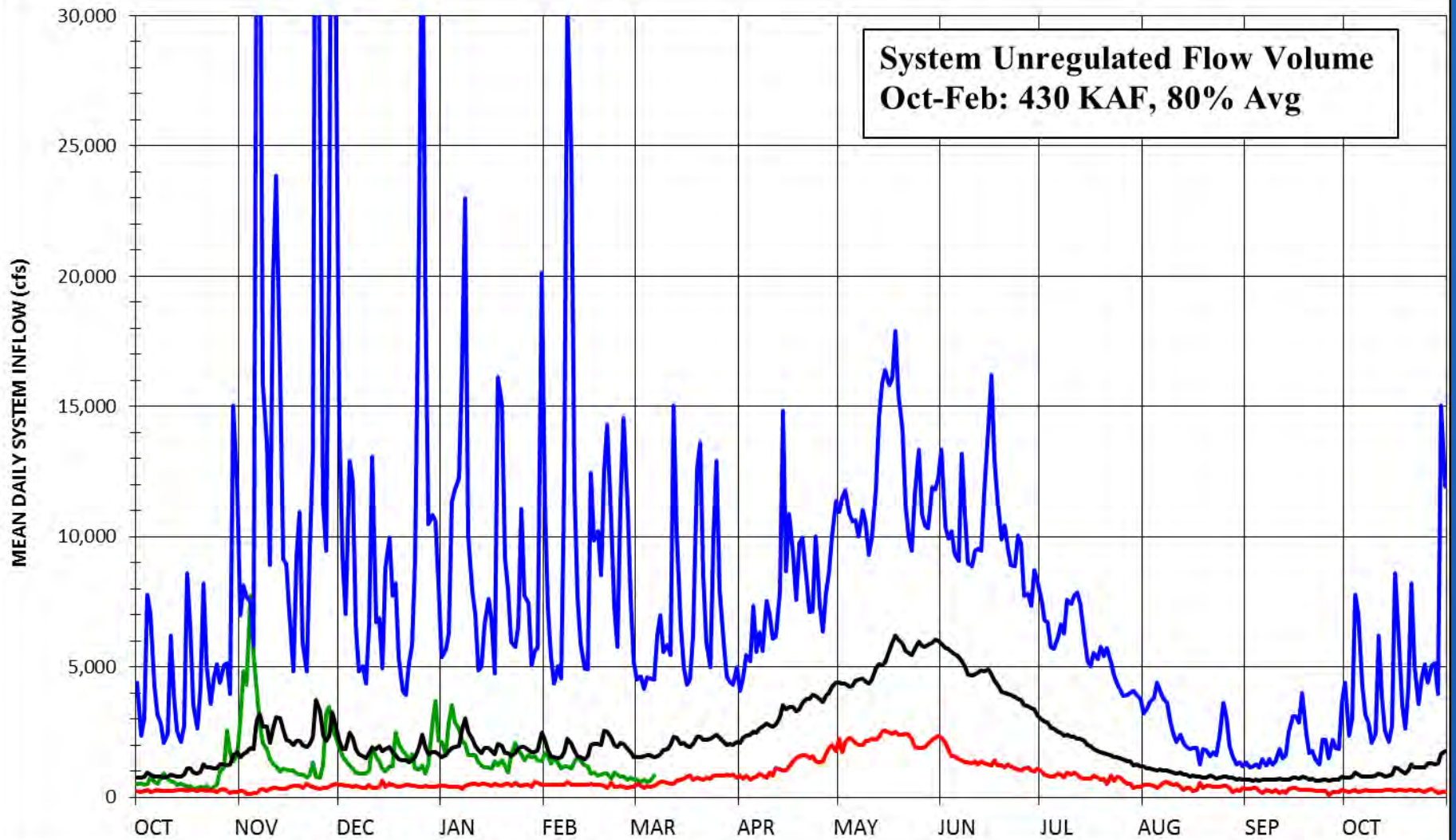
Provisional Data
Subject to Revision



The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).



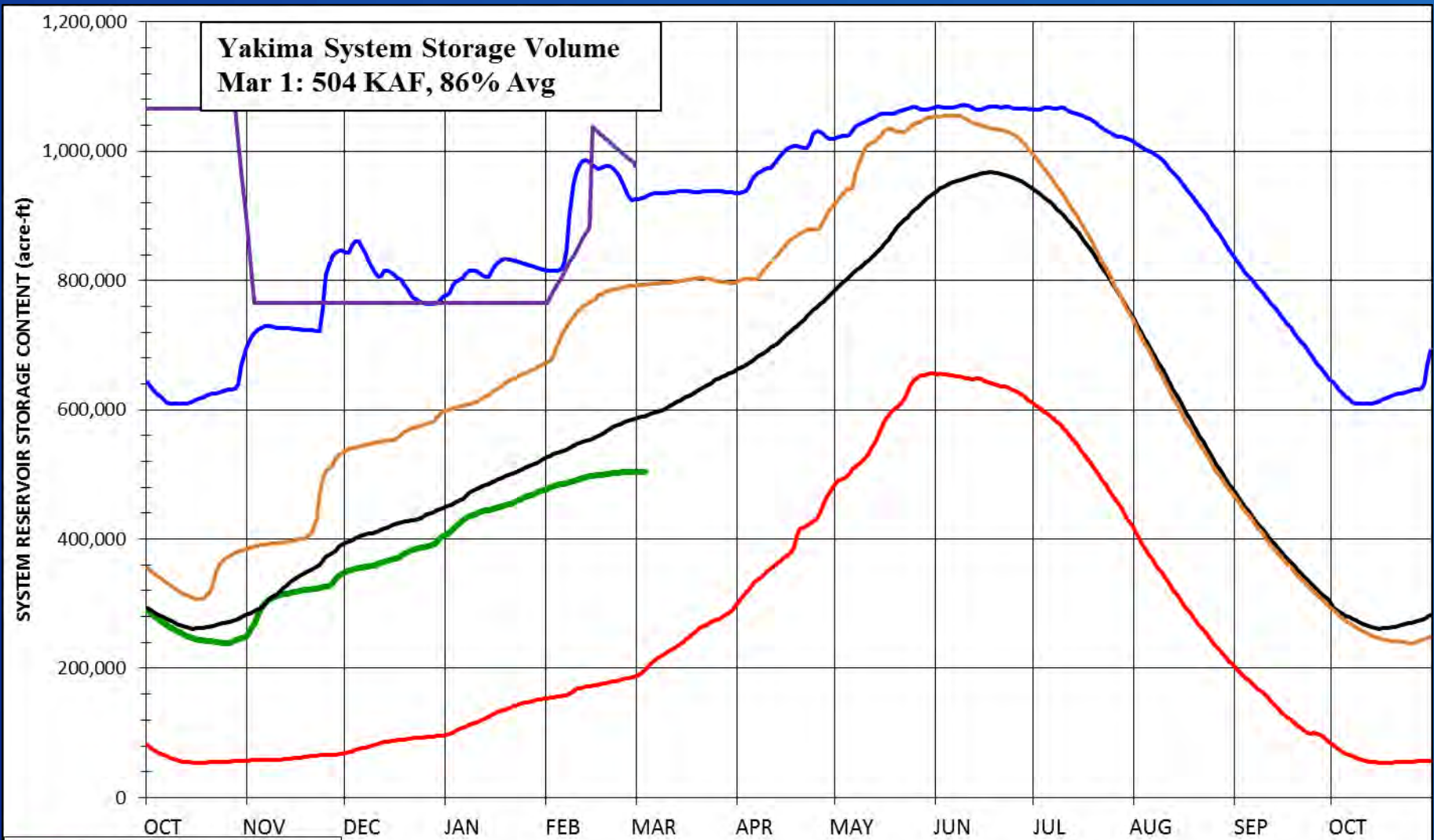
Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>



— Water Year 2019 — Minimum
— Average — Maximum

**YAKIMA PROJECT
 SYSTEM RESERVOIRS
 SUM OF INFLOWS
 SUMMARY HYDROGRAPH
 WATER YEARS 1981-2010**

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 YAKIMA FIELD OFFICE
 1917 MARSH ROAD
 YAKIMA, WA 98901



- Water Year 2019
- Minimum
- Average
- Maximum
- Flood Control Guide, provisional
- 2018

**YAKIMA PROJECT STORAGE
 MEAN DAILY RESERVOIR VOLUME
 SUMMARY HYDROGRAPH
 WATER YEARS 1981-2010**

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Yakima Subbasin forecasts

Runoff, AF and % of Average

March, 2019	Low	Adopted	High	Low	Adopted	High
Parw	1,343,932	1,887,271	2,527,447	0.68	0.95	1.27
kee	83,109	124,635	166,185	0.61	0.92	1.23
kac	76,261	114,315	152,795	0.62	0.93	1.24
cle	299,135	400,814	507,158	0.70	0.93	1.18
bum	89,393	118,151	152,625	0.70	0.93	1.20
rim	155,503	195,910	245,098	0.73	0.92	1.15
Yumw	576,824	783,362	992,453	0.66	0.89	1.13
Nacw	519,331	731,461	972,265	0.65	0.91	1.21

RECLAMATION

March's April 1, 2019 TWSA ESTIMATE

April 1 - September 30

Parameter*	+/-/=	Adopted
Apr 1-Sep 30 Natural Flow at Parker est.	+	1850
Return Flow Estimate, est	+	335
April 1, Reservoir Content, est	+	566
TWSA	=	2752
SEP 30 EST RESERVOIR CONTENT	-	
FLOW OVER SUNNYSIDE DAM	-	
TWSA FOR IRRIGATION	=	
NONPRORATABLE ENTITLEMENT	-	
REMAINING TWSA	=	
PRORATABLE ENTITLEMENT		
% RATIO= REMAINING TWSA/PRORATABLE ENTITLEMENT		
TITLE XII FLOW TARGET, cfs	April	
Added flow available, cfs ***		
Non-storeable Portion of added flow, cfs		
Storable portion of added flow, cfs		

*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.

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March's April 1, 2019 TWSA ESTIMATE

April 1 - September 30

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Apr 1-Sep 30 Natural Flow at Parker est.	+	1850
Return Flow Estimate, est	+	335
April 1, Reservoir Content, est	+	566
TWSA	=	2752
SEP 30 EST RESERVOIR CONTENT	-	76
FLOW OVER SUNNYSIDE DAM	-	486
TWSA FOR IRRIGATION	=	2189
NONPRORATABLE ENTITLEMENT	-	
REMAINING TWSA	=	
PRORATABLE ENTITLEMENT		
% RATIO= REMAINING TWSA/PRORATABLE ENTITLEMENT		
TITLE XII FLOW TARGET, cfs	April	
Added flow available, cfs ***		
Non-storeable Portion of added flow, cfs		
Storable portion of added flow, cfs		

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TWSA FOR IRRIGATION	=	2189
NONPRORATABLE ENTITLEMENT	-	1070
REMAINING TWSA	=	1119
PRORATABLE ENTITLEMENT		
% RATIO= REMAINING TWSA/PRORATABLE ENTITLEMENT		
TITLE XII FLOW TARGET, cfs	April	
Added flow available, cfs ***		
Non-storeable Portion of added flow, cfs		
Storable portion of added flow, cfs		

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April 1 - September 30

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Apr 1-Sep 30 Natural Flow at Parker est.	+	1850
Return Flow Estimate, est	+	335
April 1, Reservoir Content, est	+	566
TWSA	=	2752
SEP 30 EST RESERVOIR CONTENT	-	76
FLOW OVER SUNNYSIDE DAM	-	486
TWSA FOR IRRIGATION	=	2189
NONPRORATABLE ENTITLEMENT	-	1070
REMAINING TWSA	=	1119
PRORATABLE ENTITLEMENT		1239
% RATIO= REMAINING TWSA/PRORATABLE ENTITLEMENT		90%
TITLE XII FLOW TARGET, cfs	April	
Added flow available, cfs ***		
Non-storeable Portion of added flow, cfs		
Storable portion of added flow, cfs		

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March's April 1, 2019 TWSA ESTIMATE

April 1 - September 30

Parameter*	+/-/=	Adopted
Apr 1-Sep 30 Natural Flow at Parker est.	+	1850
Return Flow Estimate, est	+	335
April 1, Reservoir Content, est	+	566
TWSA	=	2752
SEP 30 EST RESERVOIR CONTENT	-	
FLOW OVER SUNNYSIDE DAM	-	
TWSA FOR IRRIGATION	=	
NONPRORATABLE ENTITLEMENT	-	
REMAINING TWSA	=	
PRORATABLE ENTITLEMENT		
% RATIO= REMAINING TWSA/PRORATABLE ENTITLEMENT		
TITLE XII FLOW TARGET, cfs	April	400
Added flow available, cfs ***		121
Non-storeable Portion of added flow, cfs		14
Storable portion of added flow, cfs		108

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March's April 1, 2019 TWSA ESTIMATE

April 1 - September 30

Parameter*	+/-/=	Low	Adopted	High
Apr 1-Sep 30 Natural Flow at Parker est.	+	1304	1850	2502
Return Flow Estimate, est	+	330	335	350
April 1, Reservoir Content, est	+	554	566	586
TWSA	=	2188	2752	3437
SEP 30 EST RESERVOIR CONTENT	-	76	76	372
FLOW OVER SUNNYSIDE DAM	-	300	486	756
TWSA FOR IRRIGATION	=	1812	2189	2309
NONPRORATABLE ENTITLEMENT	-	1070	1070	1070
REMAINING TWSA	=	742	1119	1239
PRORATABLE ENTITLEMENT		1239	1239	1239
% RATIO= REMAINING TWSA/PRORATABLE ENTITLEMENT		60%	90%	100%
TITLE XII FLOW TARGET, cfs	April	300	400	600
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

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