

Columbia-Cascades Area Office  
Yakima, Washington

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For Release: March 7, 2013

## Yakima Basin Water Supply - March Forecast Released

YAKIMA, Wash. - The Bureau of Reclamation's March 2013 Total Water Supply Available (TWSA) forecast for the Yakima Basin indicates that there will be a full water supply for both senior and junior water rights.

"At this time the water supply for the basin is expected to be near to slightly below normal," said Yakima Project River Operations Supervisor Chuck Garner. "February snowfall was below average until a series of storms hit the Cascades bringing amounts closer to normal. We're anticipating spring conditions will have a significant impact on the final water supply."

Reclamation will present water supply forecasts monthly through July. Specific water delivery levels will not be determined until later in the year after reservoir storage begins to decline.

The March TWSA forecast is based on flows, precipitation, snowpack, and reservoir storage as of March 1, along with estimates of future precipitation and river flows. Other future weather conditions that determine the timing of the run-off and the demand for water are also critical in determining streamflows, prorationing, and the extent to which the reservoirs fill.

"The Yakima Basin weather outlook is favorable and the reservoir system storage on March 1st was a healthy 122 percent of average," Garner said. "We expect the reservoirs to fill and the runoff to provide for early season demands."

In the event that spring precipitation is unfavorable and runoff is below average, there still should be an adequate supply, but since weather conditions can be unpredictable at times Garner recommends that water conservation always be a consideration in the Yakima Basin.

For more information visit our website at <http://www.usbr.gov/pn/hydromet/yakima>

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*Reclamation is the largest wholesale water supplier and the second largest producer of hydroelectric power in the United States, with operations and facilities in the 17 Western States. Its facilities also provide substantial flood control, recreation, and fish and wildlife benefits. Visit our website at [www.usbr.gov](http://www.usbr.gov).*



**River Operations Meeting Agenda**  
**Thursday, March 7, 2013, 10:30 AM**  
**Yakima Field Office Conference Room**

- I. Review February meeting notes (Garner)
- II. Daily Operations (Kreuter)
  - a. System status
  - b. Weather outlook
- III. Water management issues (Lynch)
  - a. Hydrologic conditions and TWSA
  - b. System Operations Outlook (FC, Fish flows, refill, etc)
  - c. Conservation water will expire on March 31.
- IV. Irrigation districts (Kreuter)
  - a. Water-up dates
  - b. March water rights/flood rights/frost control
  - c. Requests for moving water
  - d. 48 hour notice of flow changes
- V. Fish status and outlook (Hubble)
  - a. Roza Dam Reach Survival Study
  - b. Spring flows, freshets & smolt passage flows
  - c. Fish count report
- VI. Other projects (Garner)
  - a. Security
- VII. Next meeting
  - a. April 8, @ 10:30am, YFO conference room
  - b. May 6, @ 10:30 am, YFO conference room
- VIII. Lamprey presentation following the mtg. (Ralph Lampman)



**HAVE A HAPPY DAY!!!**

Draft River Operations Notes  
Monday, February 4, 2013 @ 10:30 AM  
Yakima Field Office Conference Room

Attendees:

Ken Hasbrouck, KRD	Dave Bos, SVID	Rick Dieker, YTID
Ron Van Gundy, RID	Tom Monroe, RID	Dave Brown, COY
Justin Harter, NSID	Virgil Lallashute, WID	Stuart Crane, YNW
David Child, YBJB	Steve George, YRB	Alex Conley YBF&W
Robert Smoot, YVC	LouAnn Leitch, SMID	Nathan Draper, SMID
Con Higley, KID	Chuck Garner, YFO	Chris Lynch, YFO
Quentin Kreuter, YFO	Teresa Merriman, YFO	Joel Hubble, YFO

1. The January 7, 2013, meeting notes were approved as written. (Garner)
2. Daily operations (Kreuter)
  - a. Kreuter summarized the 6 am status. Storage is at 65% of capacity which is 131% of average. Clear Lake water surface elevation added for fish study. No tuck at Roza Dam due to ice, expect this week to be put back in tuck with one panel down. Should be tucked for the rest of the season. Decreasing outflows at Bumping due to low inflow.
  - b. Normal to cool temperatures and low precipitation for the next 10-14 days, no significant runoff event forecasted in that period.
3. Water management issues (Lynch)
  - a. Total System precipitation for Oct-Jan was 121.8 in, 89.8% of average (1981-2010); SWE on Feb 1 was 130.9, 85% of average. For Oct-Jan, System inflow volume was 101% of average at 436 KAF while Parker unregulated flow volume was 798 KAF, 96% of average. System storage on Feb 1 was 694 KAF, 132% of average. Steve George did note that he has seen lots of bare ground when flying over the Yakima basin.
  - b. CPC outlook for winter 2012-13, ENSO-neutral conditions continue. Three month range for the winter/spring shows below normal temps and equal chance for above or below normal precip.
  - c. Winter flow (cfs) targets for the this winter and spring are as follows: KEE 80-100; YRCW 90-100; EASW 200; CLE 230; TICW 75-100; BUM inQ-180+; YRPW 600, 800, RBDW 400-500.
  - d. The SOAC saved portion of YRBWEP conservation water, of about 10 KAF, is still available for use before Mar 31.
  - e. Operations: Spill from the projects this spring and summer will be coordinated to meet flood control, fish flow needs and irrigation demands to the best extent possible. The YFO will do modeling of system operations to determine what amount of spill can be used ahead of time for spring outmigration flow enhancement.
  - f. Refill ratios based on USBR Forecast: KEE 2.35, KAC 2.11, CLE 2.76, BUM 6.30, RIM 3.55. Cle, Bum, and Rim are expected to fill based on the Feb forecast. Kee and Kac are likely to fill but do show some chance of coming up short of filling depending on timing of runoff, demands, and reservoir balance.
4. Irrigation districts (Kreuter)
  - a. Special operations: None.

- b. Tentative Startup dates: WIP and RID 17<sup>th</sup>, and SVID 20<sup>th</sup> or 21<sup>st</sup>.
- 5. Fish status (Hubble)
  - a. Fish count report: low water temps produce low movement in the steelhead at Prosser, and 9 fish counted at Roza since July 1, 2012
  - b. Roza Reach Study: nothing new since last meeting. Experimental target flows for Low condition: 500-600 cfs, High condition 1200-1500 cfs, 5-7 days of steady flow. The Joint Board approved funding for the Roza Reach Study.
  - c. Facilities: Yakama Nation is installing an above ground portable raceway at Roza Dam for summer Chinook and they are getting Chandler set up to pump water from river when canal is down for maintenance. Pat Monk will be using an acoustic array to monitor sockeye smolts behavior at Lake Cle Elum in April.
- 6. Other Projects (Garner)
  - a. Security: On Elevated Threat Alert, please report unusual activities or vandalism.
- 7. Next meetings
  - a. Thursday, Mar 7<sup>th</sup>, 2013 @ 10:30 AM, YFO Conference Room
  - b. Monday, April 8<sup>th</sup>, 2013 @ 10:30 AM, YFO Conference Room

7-MAR-2013 07:01:31 US BUREAU OF RECLAMATION  
 YAKIMA PROJECT  
 SYSTEM STATUS AT 06:00

RESERVOIR	FOREBAY ELEVATION	CONTENT	TOTAL CAPACITY	PERCENT CAPACITY	RESERVOIR INFLOW	RESERVOIR RELEASES
		AF	AF	%	CFS	CFS
Keechelus	2494.00	104230.	157800.	66.	264.	95.
Kachess	2249.66	184928.	239000.	77.	251.	48.
Cle Elum	2205.18	283028.	436900.	65.	475.	234.
Bumping	3403.79	10192.	33970.	30.	138.	143.
Rimrock	2901.82	142662.	198000.	72.	304.	90.
Clear Creek	3011.42					
TOTALS		725040.	1065400.	68.	1432.	609.

IRRIGATION DIVERSIONS		RIVER FLOWS	
	CFS		CFS
Kittitas	0.	Yakima River at Crystal	110.
Roza	0.	Yakima River at Easton	374.
Yakima-Tieton	0.	Yakima River at Cle Elum	710.*
Wapato	0.	Teanaway River at Forks	325.
Sunnyside	0.	Yakima River near Horlick	1359.
MAJOR USERS TOTAL	0.	Yakima River blw Roza Dam	660.
Westside	0.	Naches River nr. Clf'Dell	484.
Naches-Selah	0.	Tieton Rvr near Cnl Hdwks	120.
OTHERS ABOVE PARKER	300.	Naches River near Naches	681.
TOTAL ABOVE PARKER	300.	Yakima River near Parker	2767.
		Yakima River near Prosser	1962.
		* = estimated value	
Kennewick	0.		

OTHER CANAL DIVERSIONS

Wapatox	0.
Roza	1130. 100% generation, gate tucked, one panel down
Chandler	1415. 100% generation

UNREGULATED TRIBUTARY & RETURN FLOW ABOVE PARKER - - 2459. CFS

OPERATIONAL COMMENTS: Storage is 121.8% of average (1981-2010).

Inflow to the five reservoirs is 92% and releases from the five are 81% of average.

Unregulated flow for the Yakima River nr. Parker is 86% and observed flow is 82% of average.

Inflow to the five reservoirs for the month of February is 54KAF, or 52% of average and releases from the five is 34KAF, or 79% of average.

Unregulated flow for the Yakima River nr. Parker for the same period is 55KAF, or 55% of average and observed flow is 125KAF, or 62% of average.

Precipitation at the five reservoirs for the month of March to date is 2.84 inches, or 13.7% of the month's average and 70.5% of the month's average to date.

Precipitation for the period October 1st - March 6th is 140.54 inches, or 84.9% of average.

NRCS Snotel sites for the upper Yakima basin are reporting 94% of average and lower basin sites are reporting 101% of average with Morse Lake not reporting.

Snow showers likely in the mountain passes this morning with 1-2 inches of new snow possible by evening. Highs today in the mid 30's. Friday, partly sunny with highs in the mid 30's.

Mostly sunny in the valley today with highs in the low 50's. Tonight, partly cloudy and 28. Friday, mostly sunny with highs in the low to mid 50's.

No system changes are scheduled for today.

For further information contact the River Operator at 509-575-5848, ext: 219, or click on the link below to visit our homepage.

River Operations Meeting today at 10:30 in the Yakima Field Office conference room.

Hope you have a nice day!!!!!! :)

# RECLAMATION

*Managing Water in the West*

**Yakima Basin**

**River Operations Meeting**

**March 7, 2013, WY 2013**

***Presented by:***

**Chuck Garner – River Operations Supervisor**

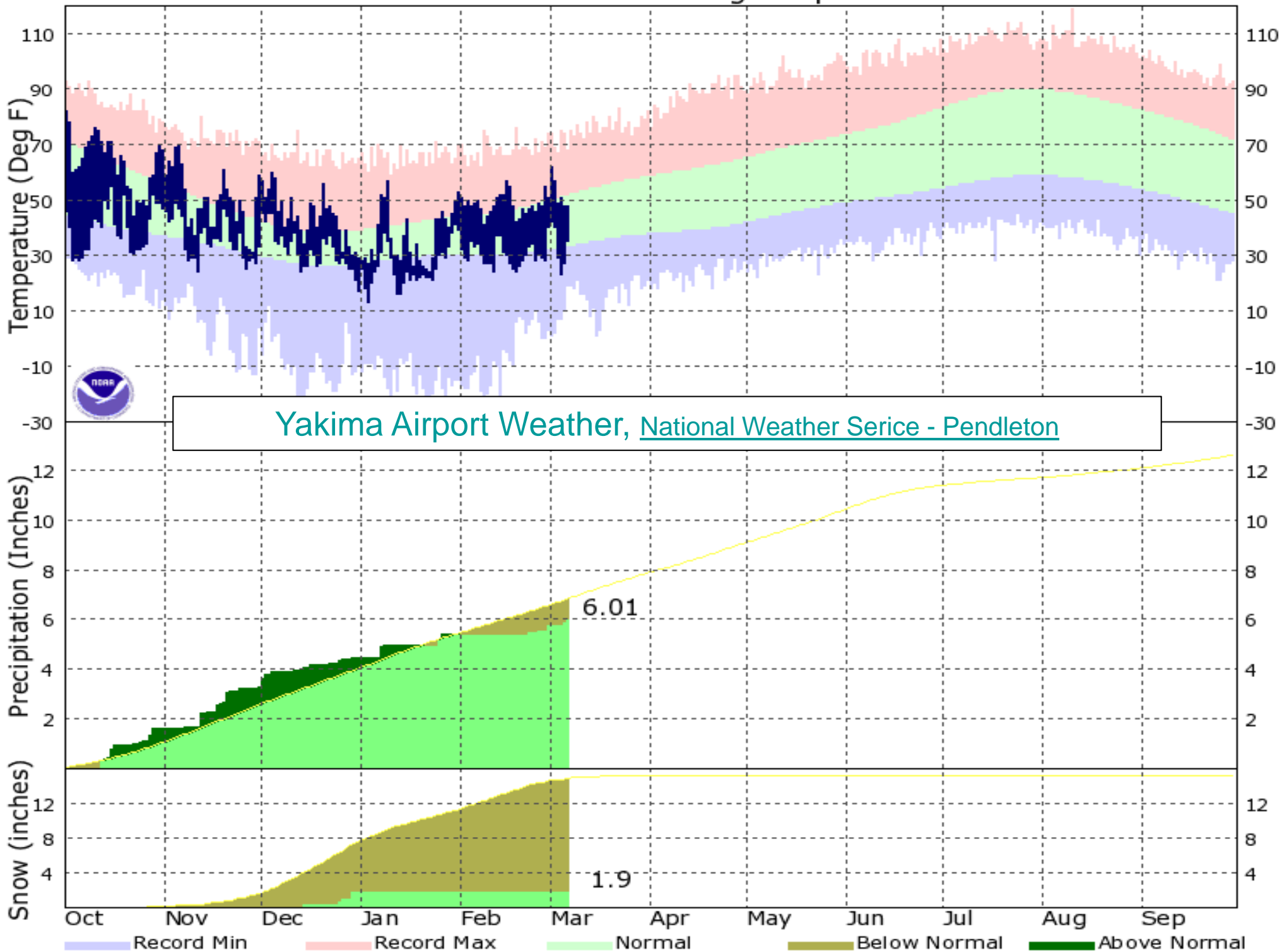
**Quentin Kreuter – River Operator**

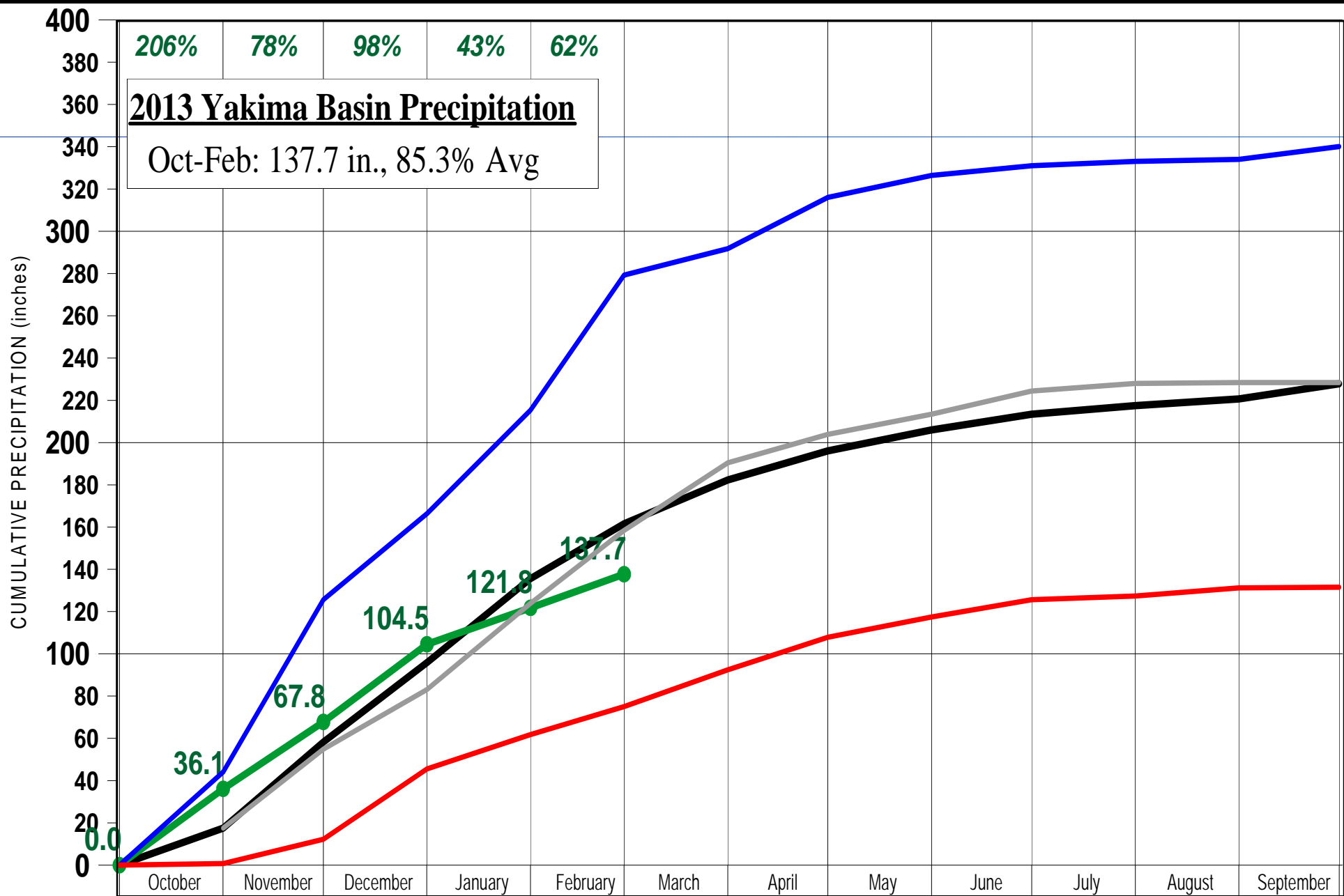
**Chris Lynch – Civil Engineer, PE**



U.S. Department of the Interior  
Bureau of Reclamation

# KPDT - Oct 2012 Through Sep 2013



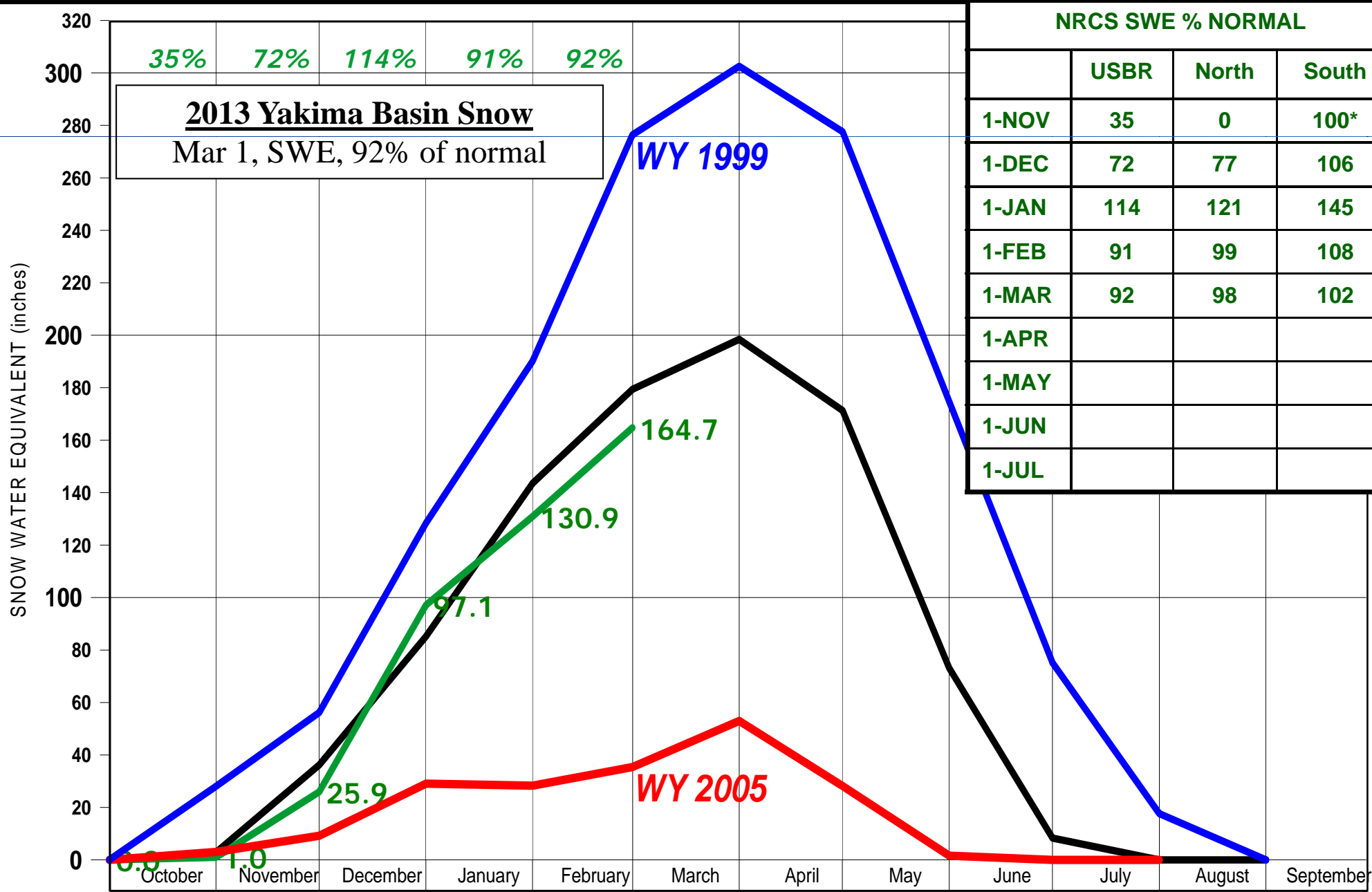


- WY 2013 PRECIP
- AVERAGE PRECIP
- MAXIMUM PRECIP
- MINIMUM PRECIP
- WY 2012 Precip

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

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





**LEGEND**

- WY 2013
- AVERAGE
- Low Year
- High Year

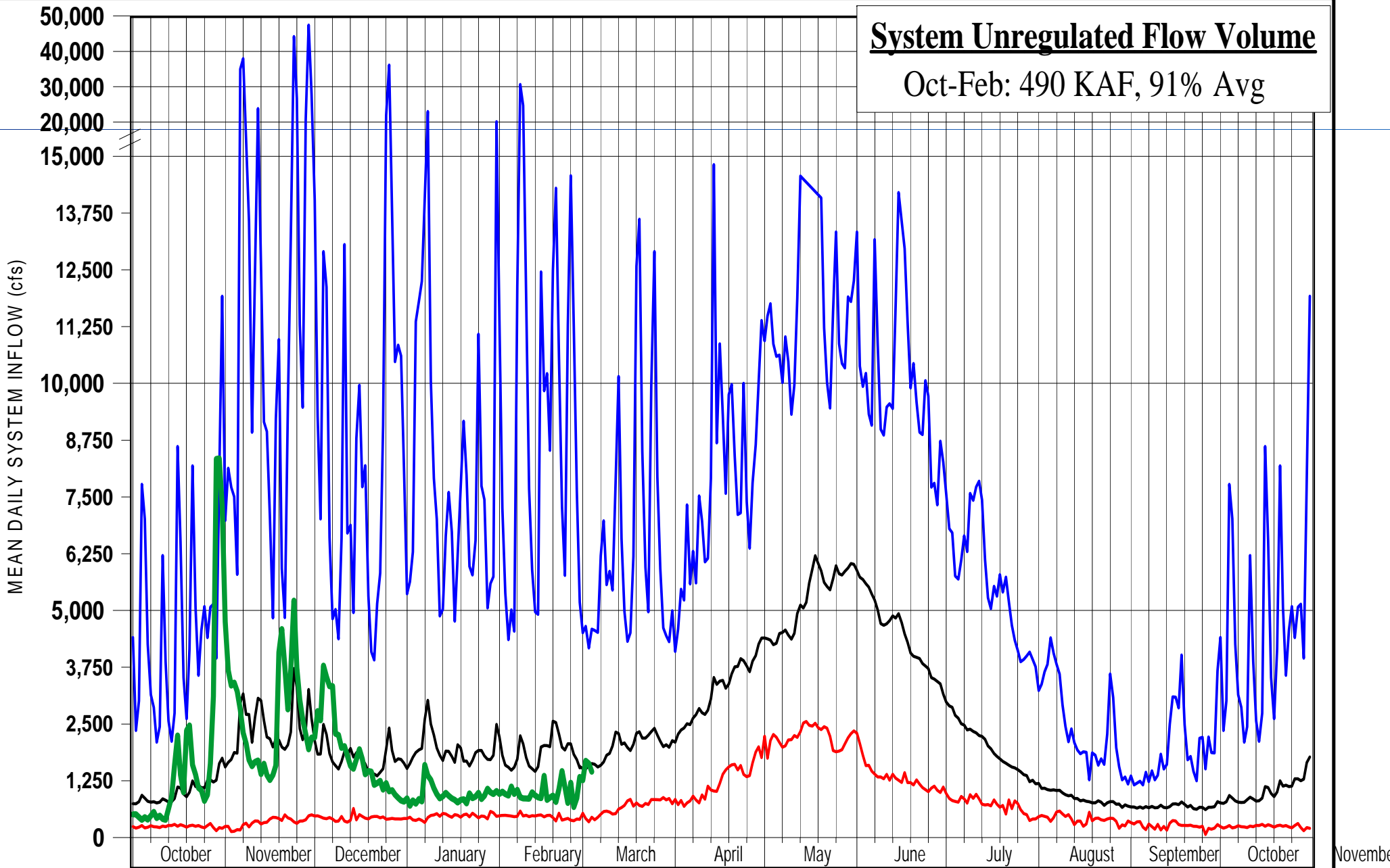
**YAKIMA BASIN  
WY SNOW WATER**

Average based on the greater of 1971-2000 or P.O.R.-1995.  
Totals derived from 7 Yakima forecast sites  
(no Cayuse), Corral, Stampede, Olallie, Fish, Bumping, Domerie, Tunnel Avenue

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# System Unregulated Flow Volume

Oct-Feb: 490 KAF, 91% Avg

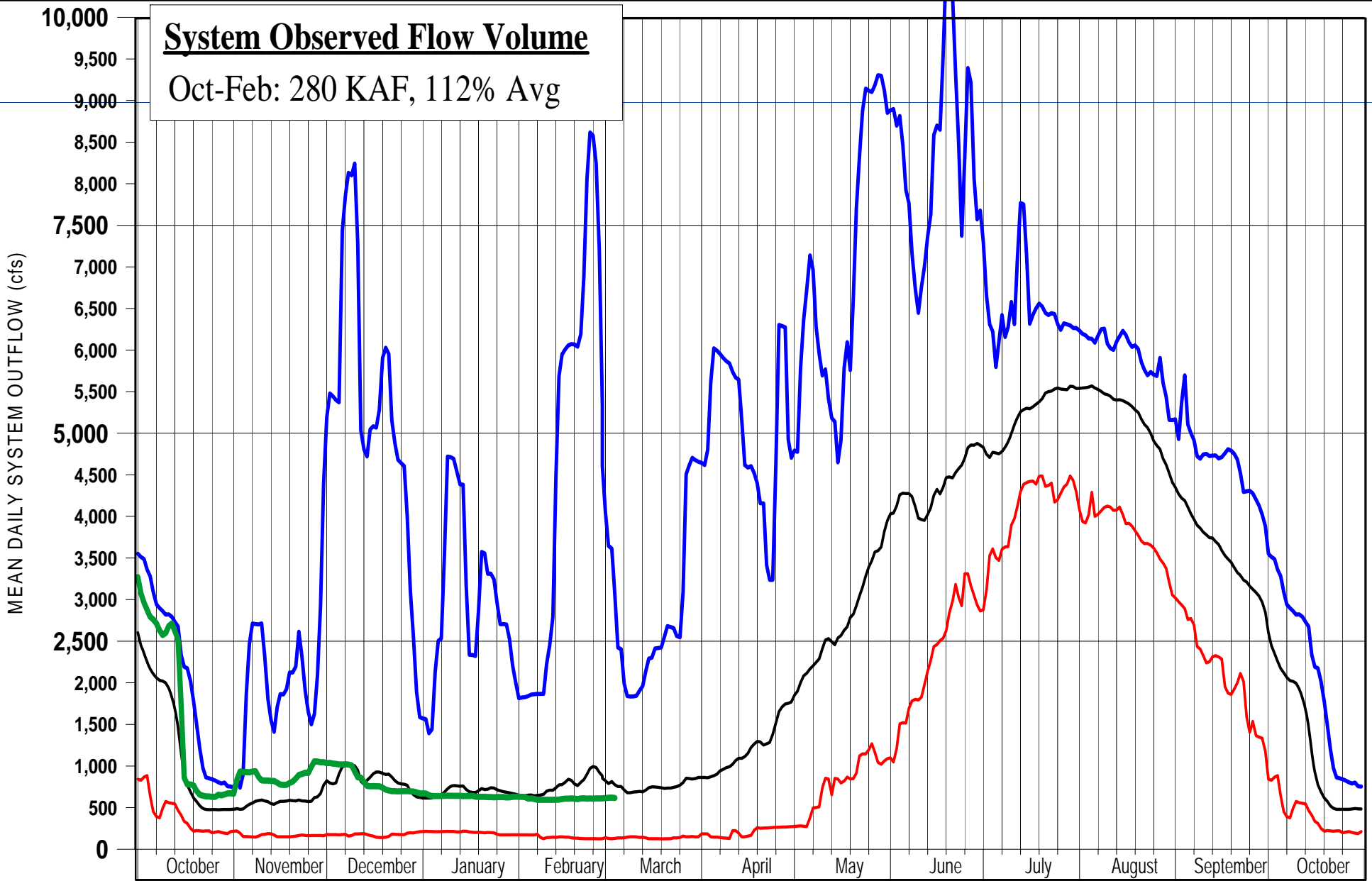


## LEGEND

- WY 2013 QU
- AVERAGE QU
- MAXIMUM QU
- MINIMUM QU

## SYSTEM RESERVOIRS SUM OF INFLOWS SUMMARY HYDROGRAPH WATER YEARS 1981-2010

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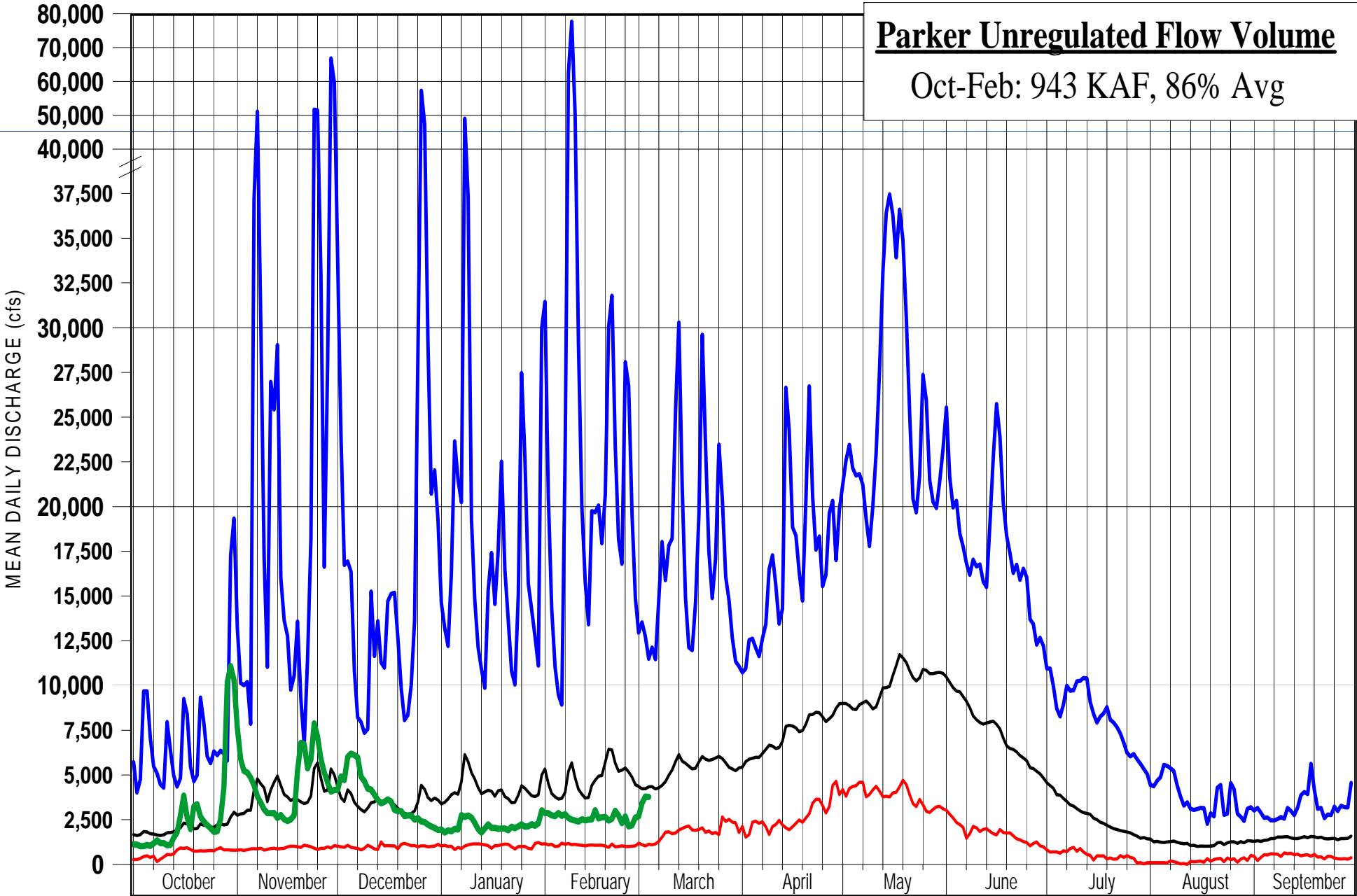
- LEGEND**
- WY 2013 QD
  - AVERAGE QD
  - MAXIMUM QD
  - MINIMUM QD

**SYSTEM RESERVOIRS  
SUM OF OUTFLOWS  
SUMMARY HYDROGRAPH  
WATER YEARS 1981-2010**

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# Parker Unregulated Flow Volume

Oct-Feb: 943 KAF, 86% Avg



### LEGEND

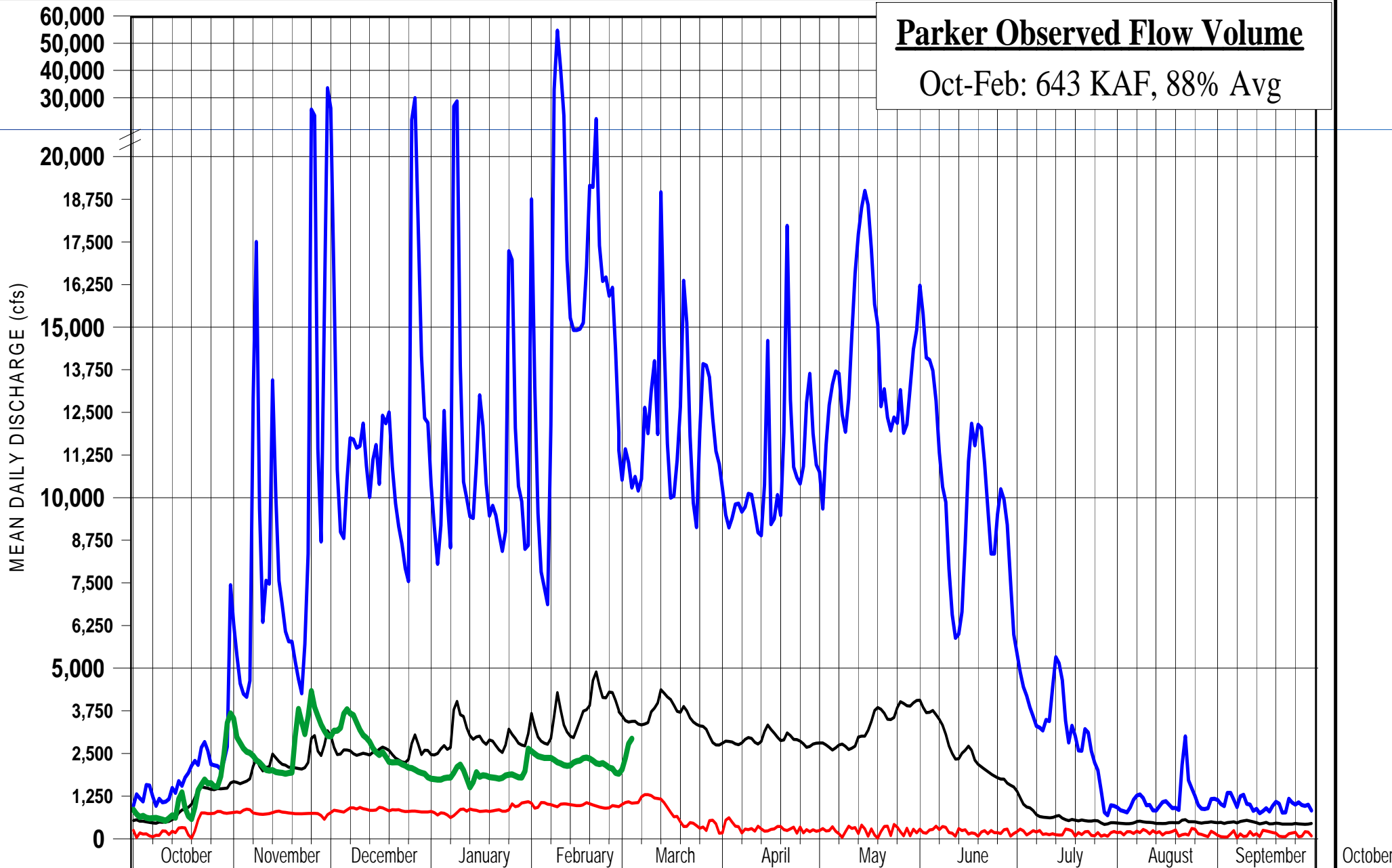
- WY 2013 QU
- AVERAGE QU
- MAXIMUM QU
- MINIMUM QU

## YAKIMA RIVER NR PARKER MEAN DAILY NATURAL DISCHARGE SUMMARY HYDROGRAPH WATER YEARS 1981-2010

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# Parker Observed Flow Volume

Oct-Feb: 643 KAF, 88% Avg



## LEGEND

- WY 2013 QD
- AVERAGE QD
- MAXIMUM QD
- MINIMUM QD

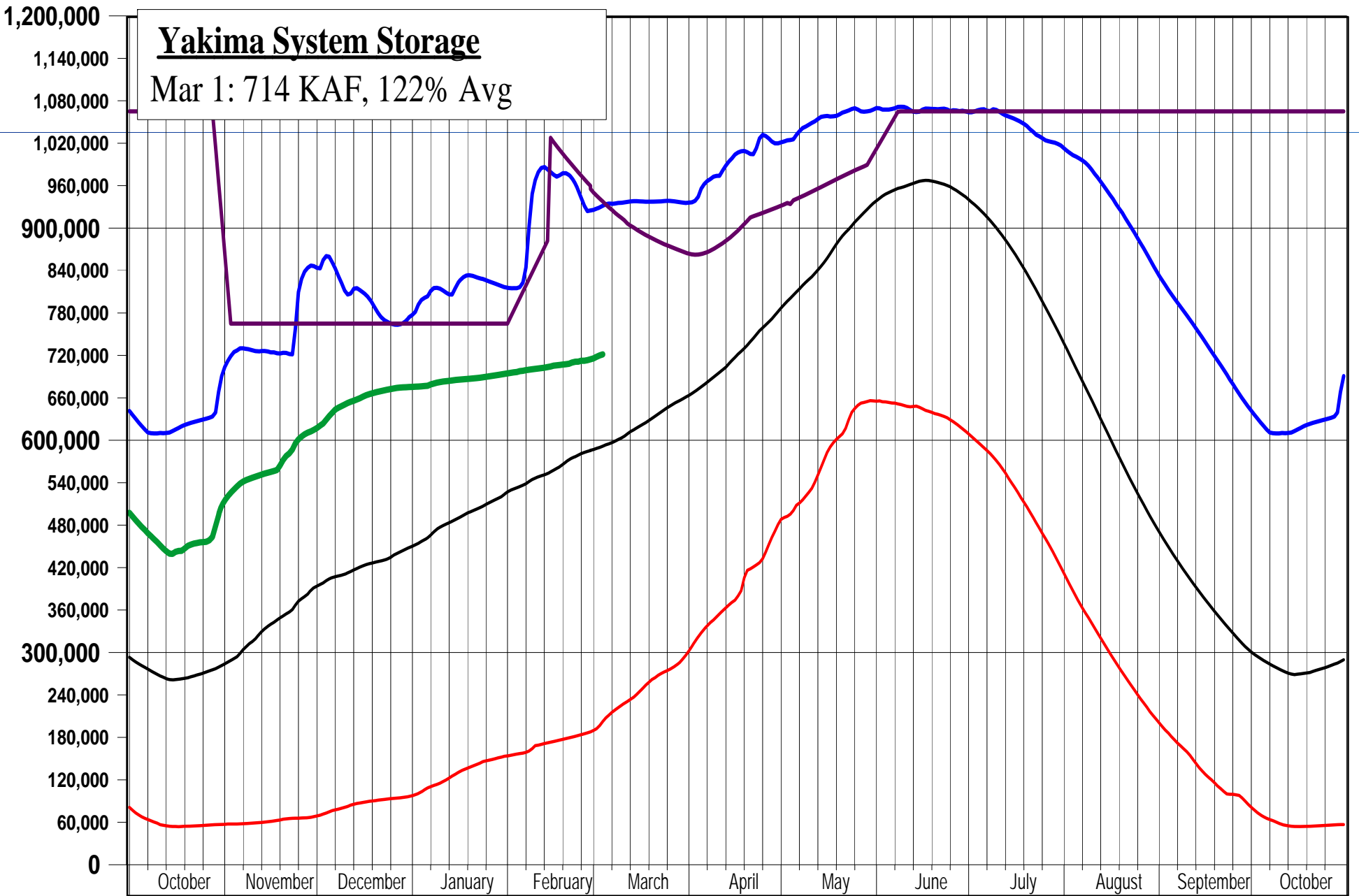
## YAKIMA RIVER NR PARKER MEAN DAILY REGULATED DISCHARGE SUMMARY HYDROGRAPH WATER YEARS 1981-2010

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# Yakima System Storage

Mar 1: 714 KAF, 122% Avg

SYSTEM RESERVOIR STORAGE CONTENT (acre-ft)



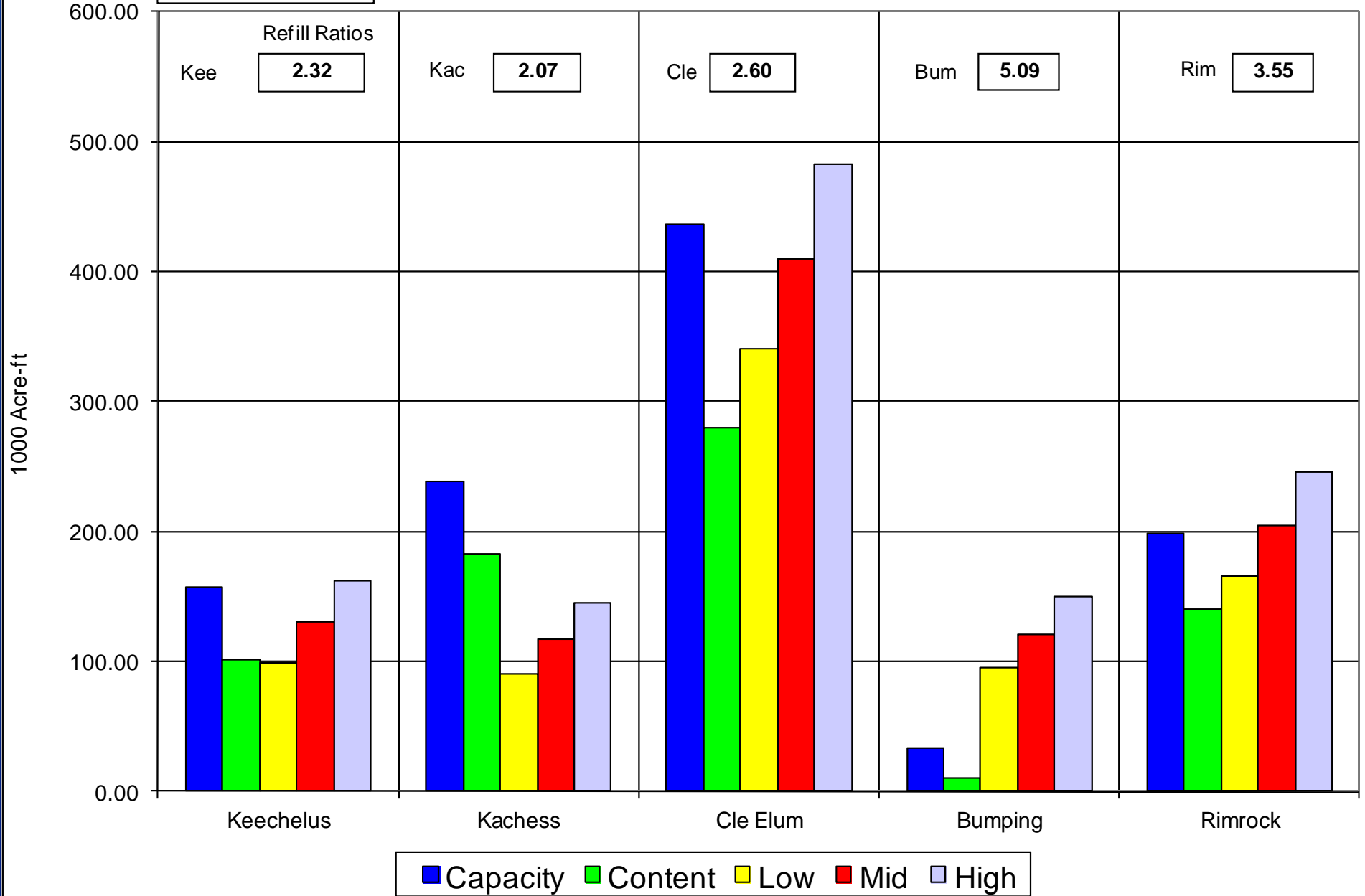
- WY 2013 AF
- AVERAGE AF
- MAXIMUM AF
- MINIMUM AF
- Flood Control Guide, provisional

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

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

March 2013

### Runoff Forecast to Reservoir Space Available



Adopted average forecast

# March's April 1, 2013 TWSA ESTIMATE

## April 1 - September 30

<b>Parameter*</b>	<b>+/-/=</b>	<b>50%</b>	<b>100%</b>	<b>150%</b>
Apr 1-Sep 30 Natural Flow at Parker est.	+	1369	1813	2257
Return Flow Estimate	+	350	370	380
April 1, Reservoir Content	+	751	762	772
TWSA	=	<b>2470</b>	<b>2945</b>	<b>3409</b>
SEP 30 EST RESERVOIR CONTENT	-	<b>120</b>	<b>254</b>	<b>440</b>
FLOW OVER SUNNYSIDE DAM	-	230	381	660
TWSA FOR IRRIGATION	=	2120	2309	2309
NONPRORATABLE ENTITLEMENT	-	1070	1070	1070
REMAINING TWSA	=	1050	1239	1239
PRORATABLE ENTITLEMENT		1239	1239	1239
% RATIO= REMAINING TWSA/PRORATABLE ENTITLEMENT		<b>85%</b>	<b>100%</b>	<b>100%</b>
TITLE 12 FLOW REQUIREMENTS, cfs	<b>April</b>	<b>300</b>	<b>500</b>	<b>600</b>
Total Parker Target FLOW, cfs ***		408	608	708

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

\*\*\* State & YRBWEP Trust, Acquisition, & Conservation additions to Title XII flow range from 108 to 119 cfs.

# RECLAMATION



## March's April 1, 2013 TWSA Comparison

### April 1 - September 30

Parameter	"+/-/="	March 2013	March 2012	March 2009
Apr 1-Sep 30 Natural Flow at Parker est.	+	1813	2140	1683
Return Flow Estimate	+	370	375	375
April 1, Reservoir Content	+	762	842	852
TWSA	=	2945	3357	2910
SEP 30 EST RESERVOIR CONTENT*	-	254	419	240
FLOW OVER SUNNYSIDE DAM	-	381	629	361
TWSA FOR IRRIGATION	=	2309	2309	2309
NONPRORATABLE ENTITLEMENT	-	1070	1070	1070
REMAINING TWSA	=	1239	1239	1239
PRORATABLE ENTITLEMENT		1239	1239	1239
% RATIO- REMAINING TWSA/PRORATABLE ENTITLEMENT		100%	100%	100%
TITLE XII FLOW REQUIREMENTS, cfs	April	500	600	500
TOTAL FLOW REQUIREMENT AT PARKER, cfs **		608	677	528

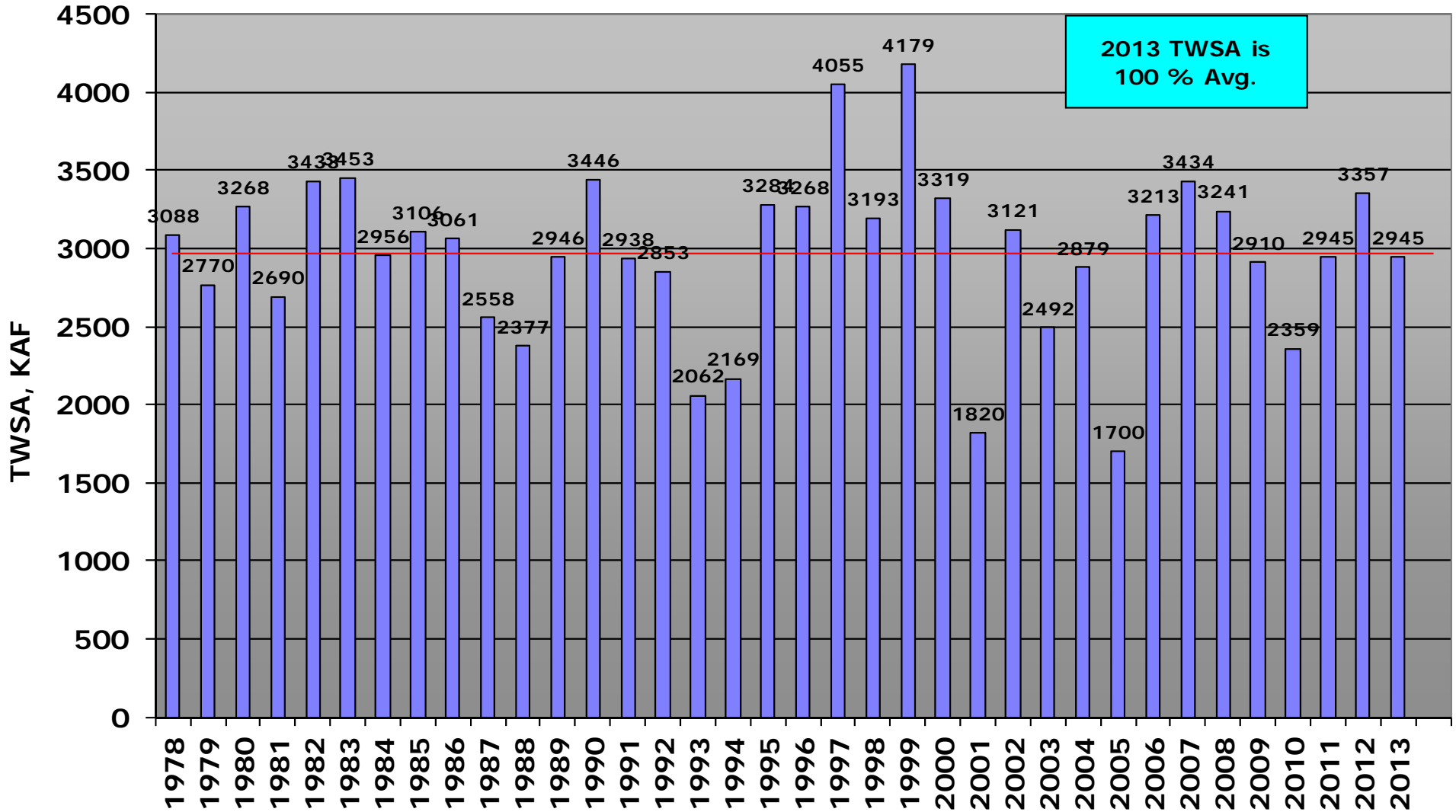
\*Values are in 1,000 ac-ft unless otherwise specified.

\*\* State & YRBWEP Trust, Acquisition, & Conservation additions to Title XII flow range from 108 to 119 cfs.

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# TWSA Record

March Historical — March Average (2958 KAF)



# Extended Range Forecasting 30-90 Day

The ERF Company

“The overall pattern looks rather cool and unsettled into April but could change by May, although, I have some reservations that it will. Usually, when we see these drier Winter modes, we pay for it in the March thru May time frame, and it appears we are heading down that path again.” Phil Volker, March 1, 2013.

<u><i>Period</i></u>	<u><i>Temperature</i></u>	<u><i>Precipitation</i></u>
<b>Mar</b>	<b>Normal</b>	<b>Normal to above</b>
<b>Apr</b>	<b>Normal to above</b>	<b>Normal to above</b>
<b>May</b>	<b>Normal to above</b>	<b>Normal</b>

RECLAMATION

# Climate Prediction Center

- **Seasonal Outlook, WY 2013**

<u>Period</u>	<u>Temperature</u>	<u>Precipitation</u>
Mar	Below Normal	Equal Chance
3-Month	Below Normal	Normal to below
Summer	Normal to Abv	Normal to below

Most models forecast Niño-3.4 SSTs to remain between 0°C and -0.5°C through Northern hemisphere spring and to remain ENSO-neutral (between -0.5°C and +0.5°C) into the fall (Fig. 6).\*

–CPC, March 7, 2013.

<http://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/enso.shtml>

<http://www.nws.noaa.gov/climate/outlook.php?wfo=pdt&site=459465>

[http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/enso\\_advisory/](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/)

RECLAMATION

# Yakima Basin Flows

- **Winter Targets, WY 2013**

<u>Location</u>	<u>Target Flow (cfs)</u>
<b>Keechelus (KEE)</b>	<b>80-100</b>
<b>Crystal Springs (YRCW)</b>	<b>90-100</b>
<b>Easton (EASW)</b>	<b>200</b>
<b>Cle Elum (CLE)</b>	<b>230</b>
<b>Tieton River (TICW)</b>	<b>75-100</b>
<b>Bumping (BUM)</b>	<b>inQ-180+</b>
<b>Prosser (YRPW)</b>	<b>800, 600</b>

- **Reservoir carryover and precip threshold method**

- Nov 1, 2012 Sys storage is 507 KAF but used 525 KAF to account for October rain's runoff.
- A Non-Nino winter needs 39 inches, 50% of normal (81-10), precip in Nov-Dec. to indicate a full supply.
- The Yakima System received 68.4 inches or 87% of average in Nov-Dec. No change in flows called for.

# Yakima Basin Summary

- TWSA is right on average.
- 100% supply.
- Below normal precip in January and February.
- Snow is hanging in there.
- System storage is 122% of average.
- 10 KAF conservation water still available for winter use.
- Can use projected spill for fish flows.

# Fish Status Report

## Yakima Field Office- River Operations Meeting

### Provisional Data

March 7, 2013

## Fish Status

### Prosser Dam

- **The 2012-13 steelhead run:** Through February 26, 2013 was approximately 3,930 fish (Figure 1). Approximately 260 additional fish passed Prosser since the last reporting period on January 31<sup>st</sup>.
- There was a marked increase (260 fish) in adult steelhead upmigration past the dam from January 27 through February 26 that appears to be in response to an increase in river water temperature and a series of small freshets (see Figures 2 & 3).
- Water temperature increased 4° to 6° Fahrenheit during this period.
- Two natural freshets occurred: 2/1 with a change in flow of 549 cfs and 2/19 with a change in flow of 190 cfs.
- An increase in steelhead upmigration was associated with both freshets.

### Roza Dam

- **Steelhead 2012-13 run:** A total of 18 steelhead have been counted at Roza Dam since the first fish that was counted on September 7, 2012 (Figure 2). Half of these fish have passed since the beginning of February.

## Roza Dam Reach Survival Study Update

### Radio Telemetry

- The technical work group (BOR, YBJB, USGS, CFS, YN and NMFS) met February 6<sup>th</sup> and finalized the 2013 experimental design. The tentative release schedule is below:

Release Number	Scheduled Release Date	Target Flow (cfs)	Number of Fish
1	March 20 <sup>th</sup>	High flow- 1200 - 1500	50
2	March 28 <sup>th</sup>	Low flow- 400 - 600	50
3	Approx 2 <sup>nd</sup> week of April	High flow- 1200 - 1500	50
4	Approx 3 <sup>rd</sup> week of April	Low flow- 400 - 600	50
5	Approx 4 <sup>th</sup> week of April	Higher flow- 2000 - 2500	50

- Initial setup of the radio telemetry stations began last week.

## In-River Passive Integrated Transponder (PIT) Tag Detection Array System

- The YFO (Joel Hubble) and TSC (Cathy Karp) are working on a Service Agreement for project activities beyond March and through the end of the calendar year.
- The plan is to install the proto-type PIT tag detector array system March 18<sup>th</sup> and test it through about the end of May.

## Facility Activities

### Roza

- Yakama Nation has completed installation of two above ground raceways to acclimate juvenile summer Chinook adjacent to fish bypass live box.
- The west roller gate was tucked and the weir panels were raised February 5<sup>th</sup> to provide a surface flow over the dam.

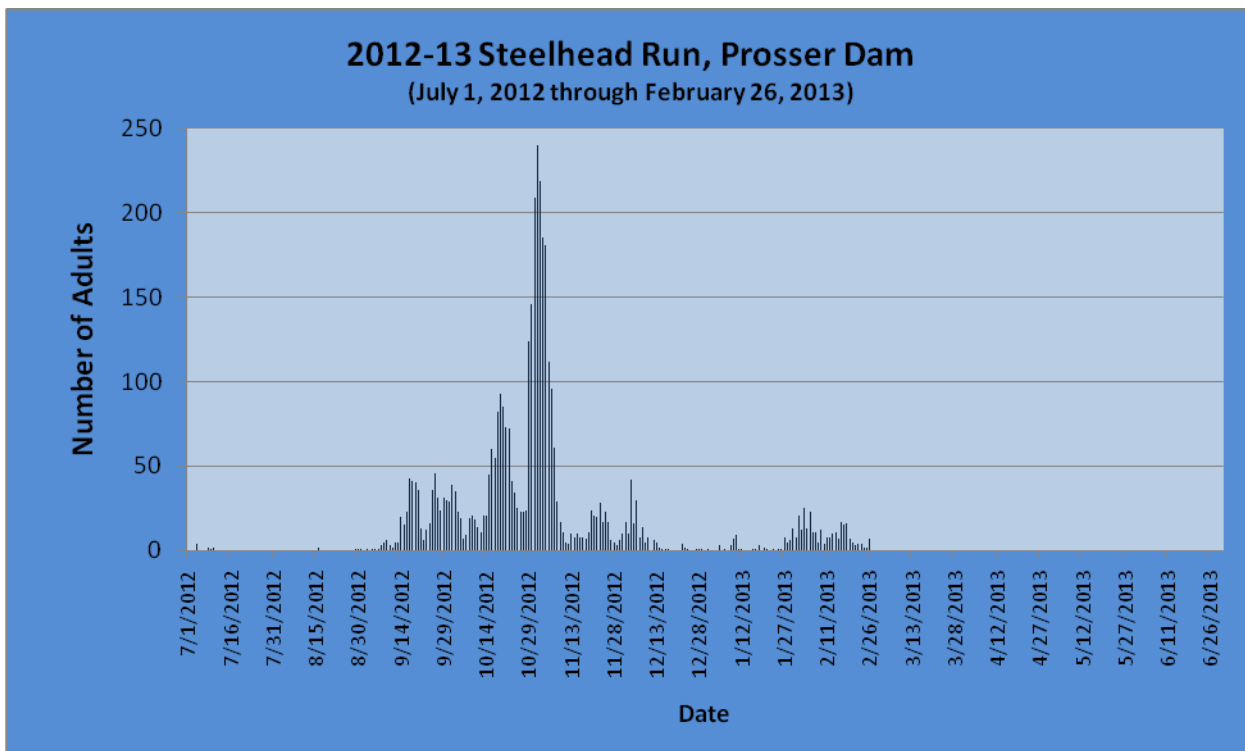


Figure 1. Prosser Dam steelhead 2012-13 fish run July 1, 2012 through February 26, 2013 .



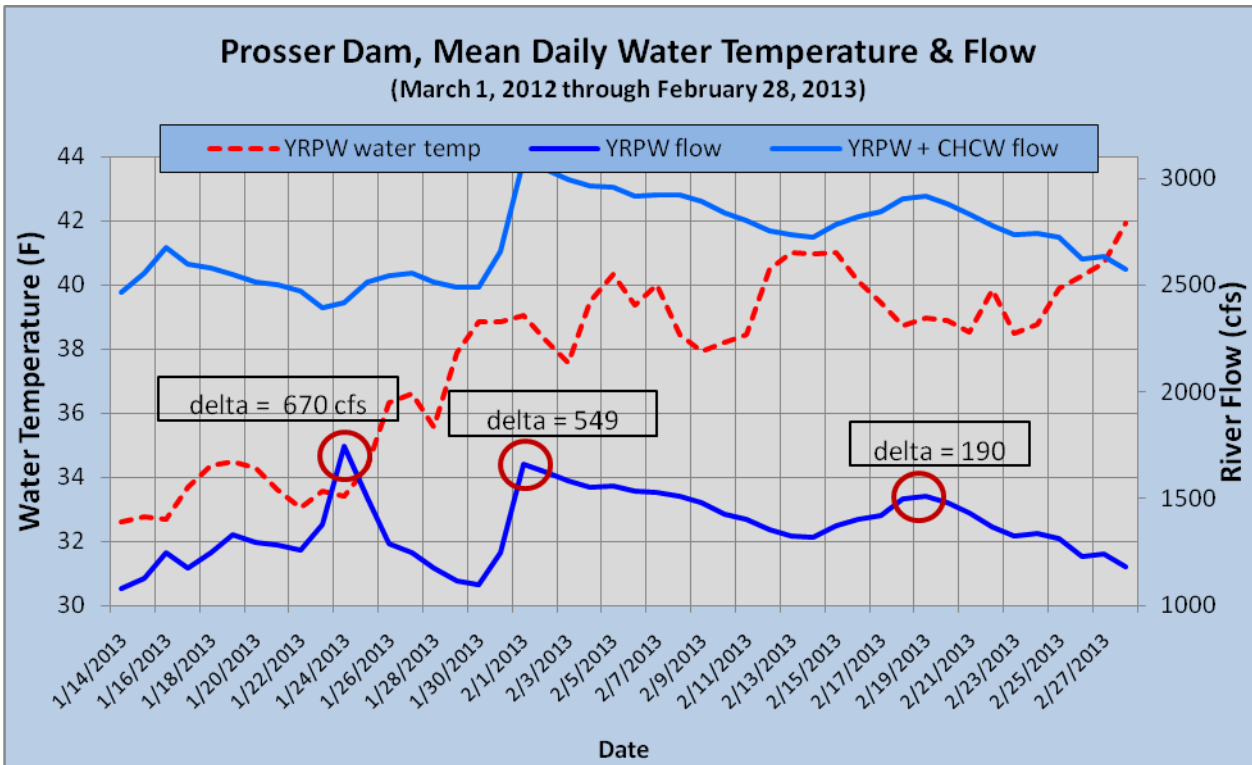


Figure 2. Water temperature and flow conditions from January 14 – February 28, 2013 at Prosser Dam.

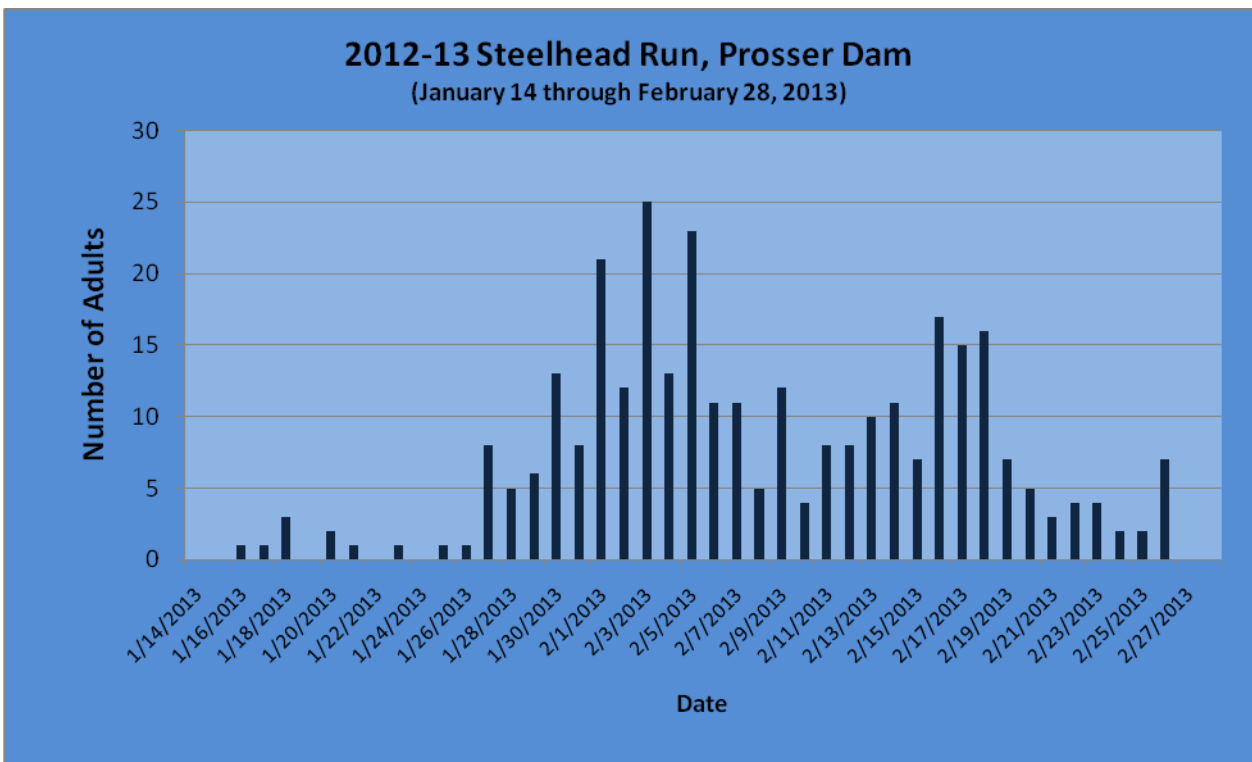


Figure 3. The response of adult steelhead upmigration to changes in river conditions, January 14 – February 28, 2013 (compare this figure with Figure 2).

### 2012-13 Steelhead Run, Roza Dam

(July 1, 2012 through March 1, 2013)

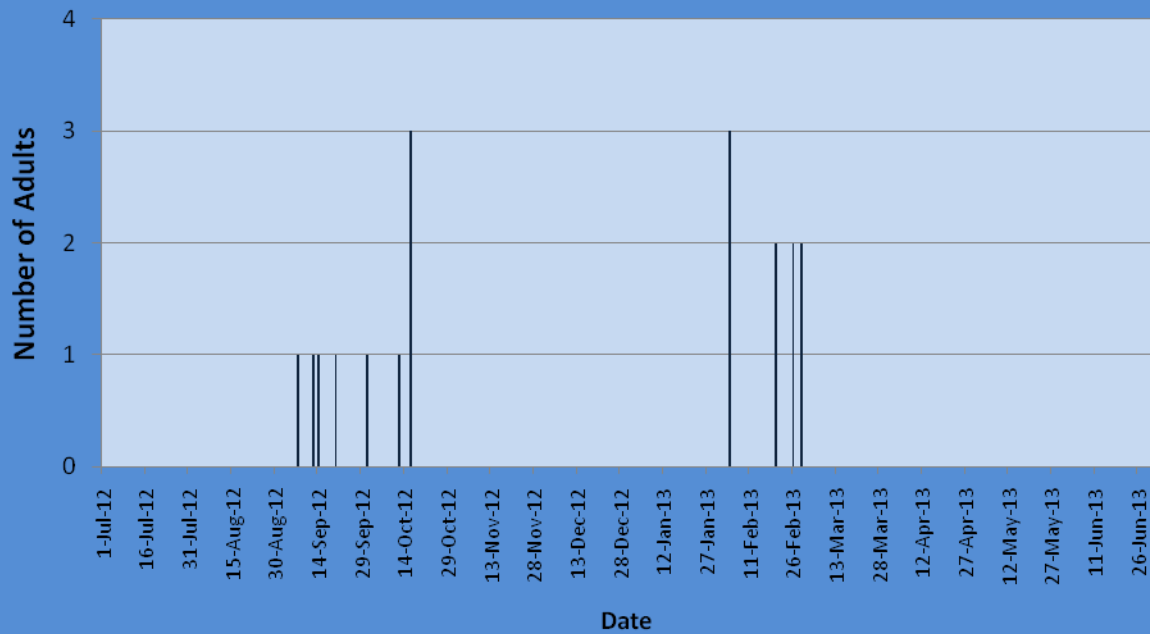


Figure 4. Roza Dam steelhead 2012-13 fish run July 1, 2012 through March 1, 2013 .