

# RECLAMATION

*Managing Water in the West*

## Bighorn Lake/Yellowtail Dam Operations

November 5, 2015



U.S. Department of the Interior  
Bureau of Reclamation

# BIGHORN BASIN WATER SUPPLY & RESERVOIR OPERATIONS MEETING

Billings, Montana  
November 5, 2015

## Introduction and Purpose of Meeting

Tom Sawatzke, Acting Area Manager, Montana Area Office

## Water Supply Outlook & Reservoir Operations

WYAO - Boysen & Buffalo Bill Operations

MTAO - Yellowtail Operations

Agency Reports

## Bighorn River System Issues Group Meeting

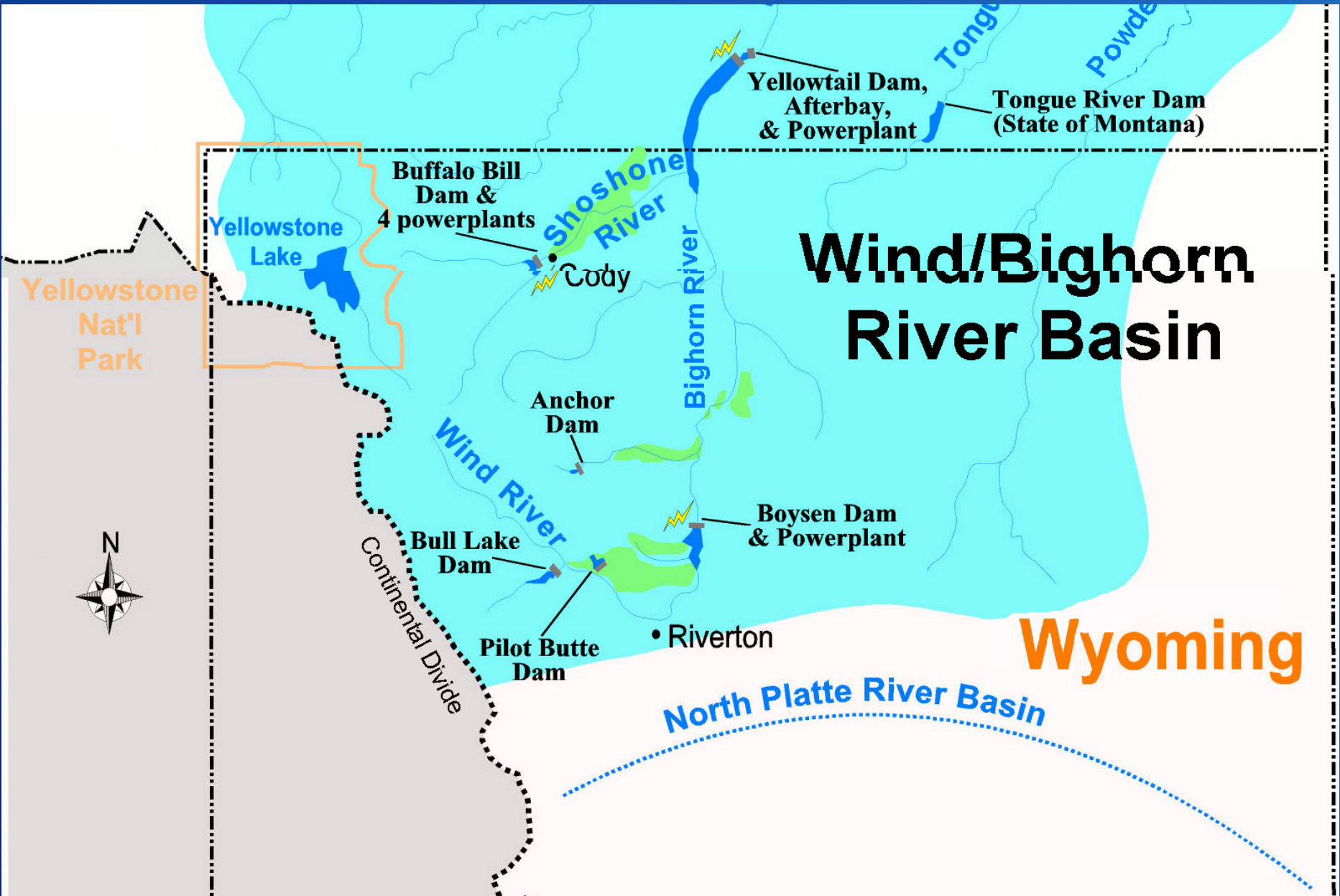
Sediment Control Project

Crow Tribe Water Rights Settlement

Yellowstone River Conservation District Council

Operating Criteria

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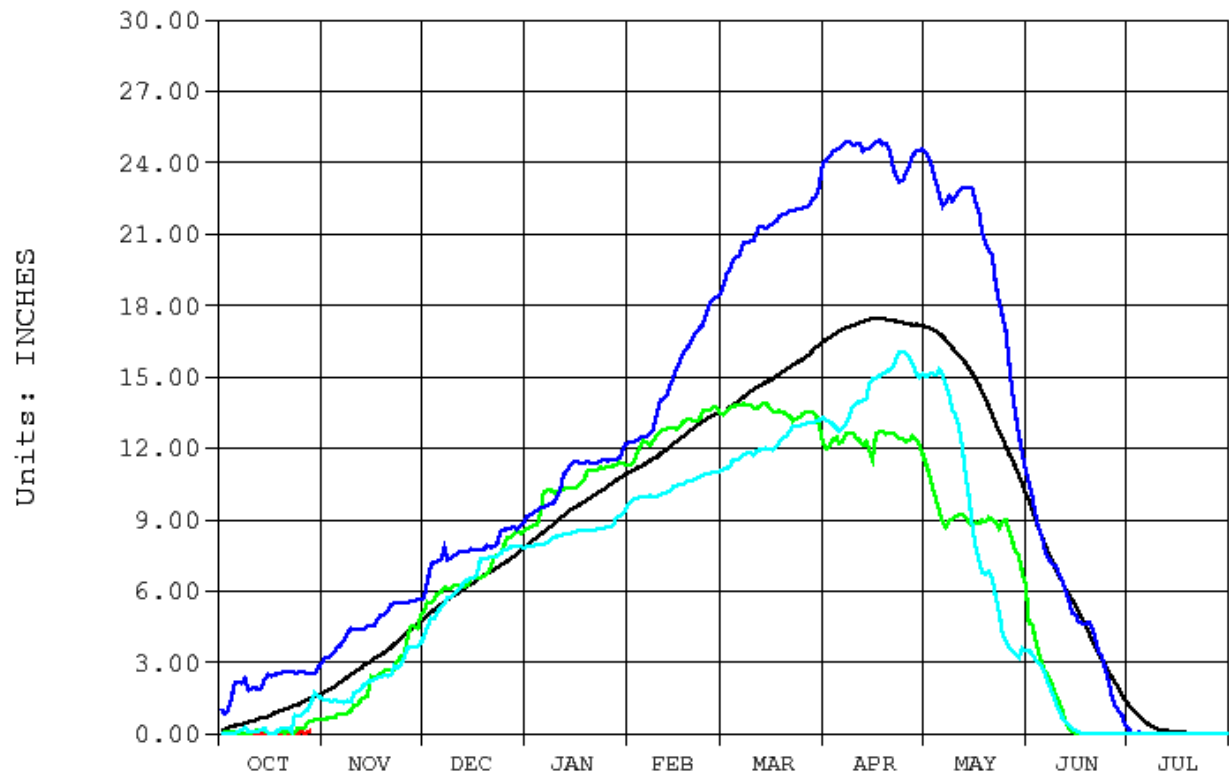


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# Basin above Buffalo Bill Reservoir

## Snow Water Equivalent

Archive Data From 1-OCT Through 31-JUL  
 Plotted 10/28/2015 13:34 (Provisional Data Subject to Revision)

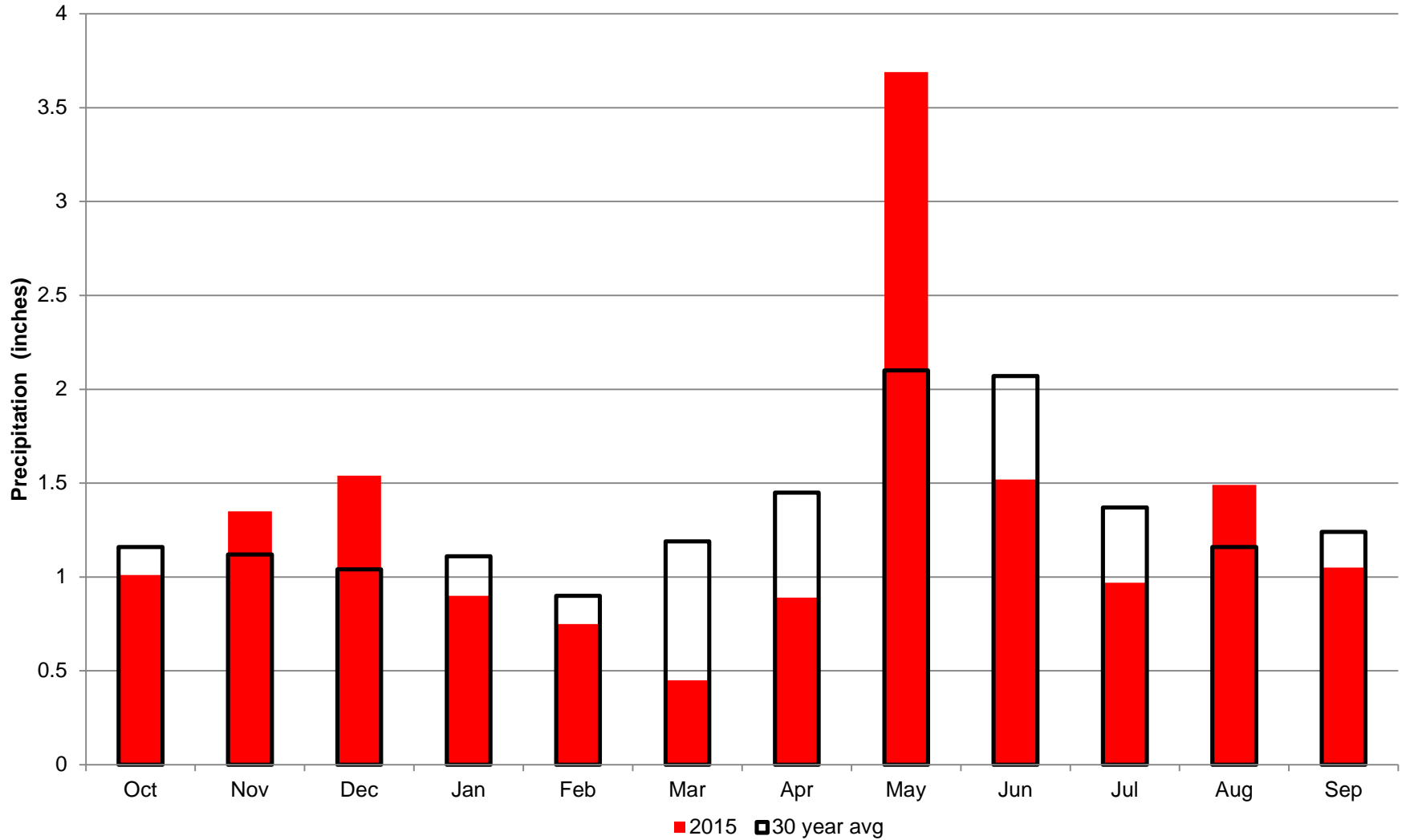


BBR Buffalo Bill Reservoir, Shoshone River near Cody, WY  
 SE\_AVG Snow Water Equivalent Average (inches)  
 SE Snow Water Equivalent (inches)  
 2016 2015 2014 2013

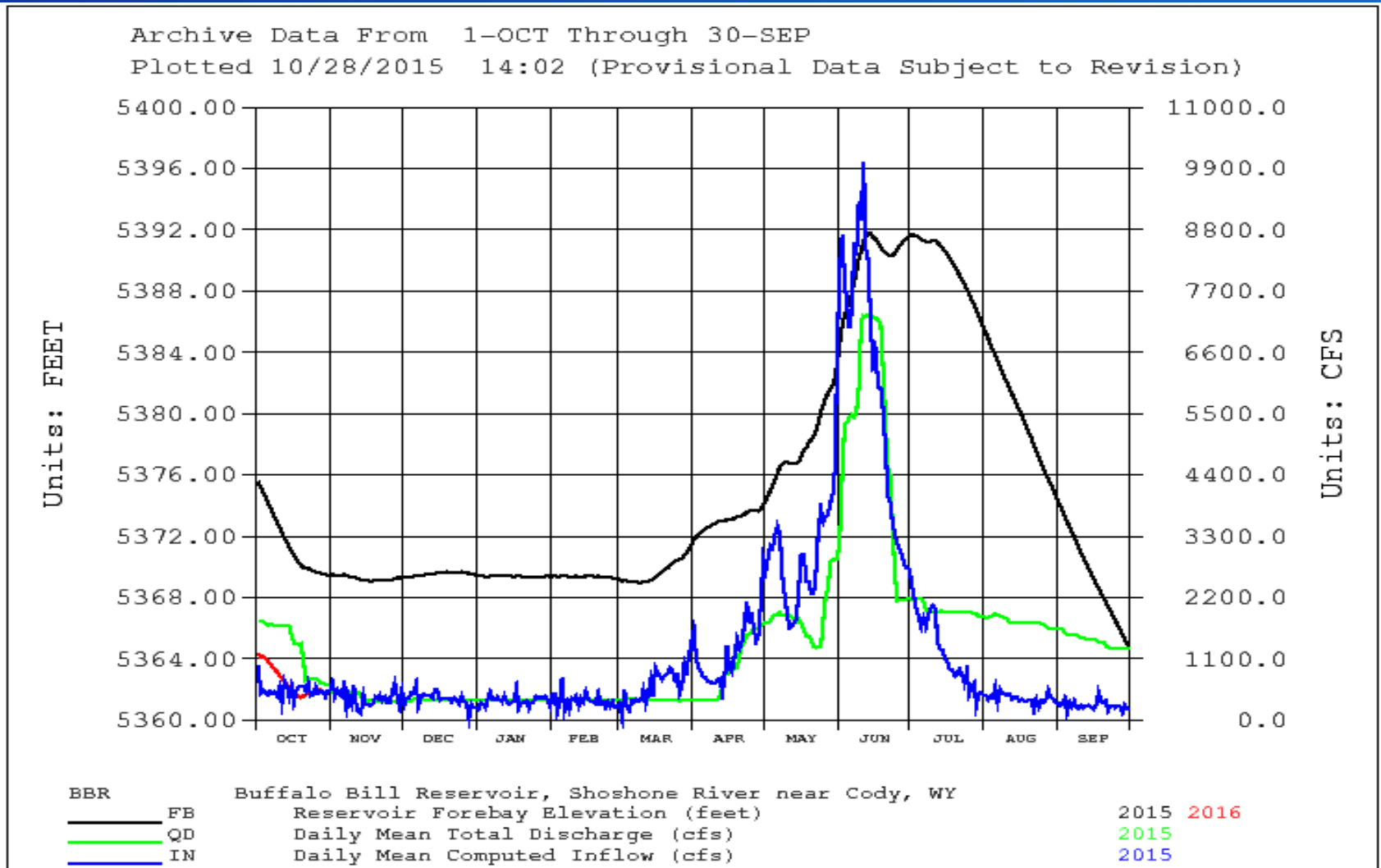
Water Year	April-July Inflow (acre-feet)
2013	576,500
2014	1,062,400
2015	696,400 (103% of avg)
2016	???
<b>Average = 677,800</b>	

# 2015 Monthly Precipitation above Buffalo Bill Reservoir

## Shoshone River Basin Precipitation



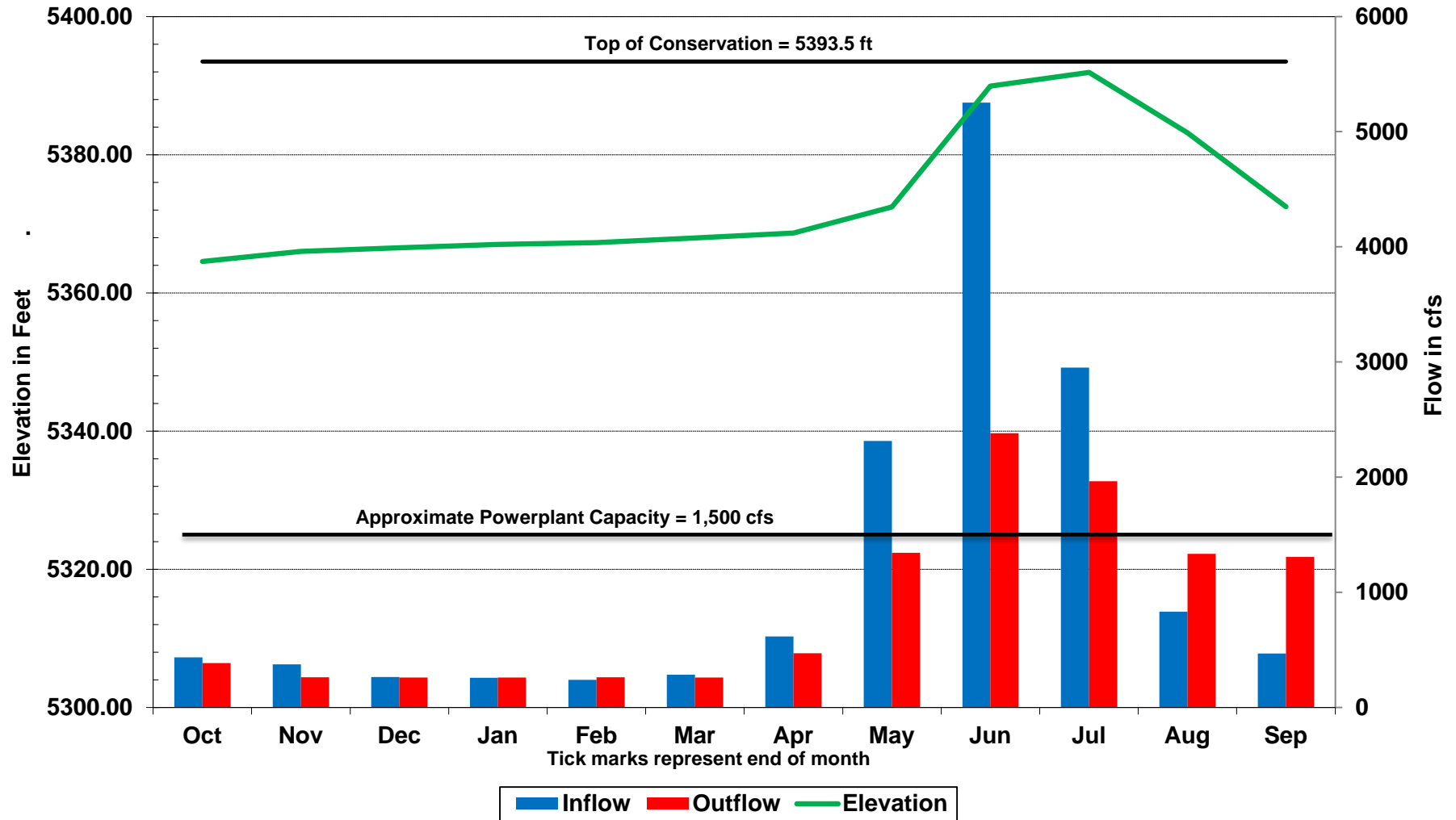
# Buffalo Bill Reservoir 2015 Operations





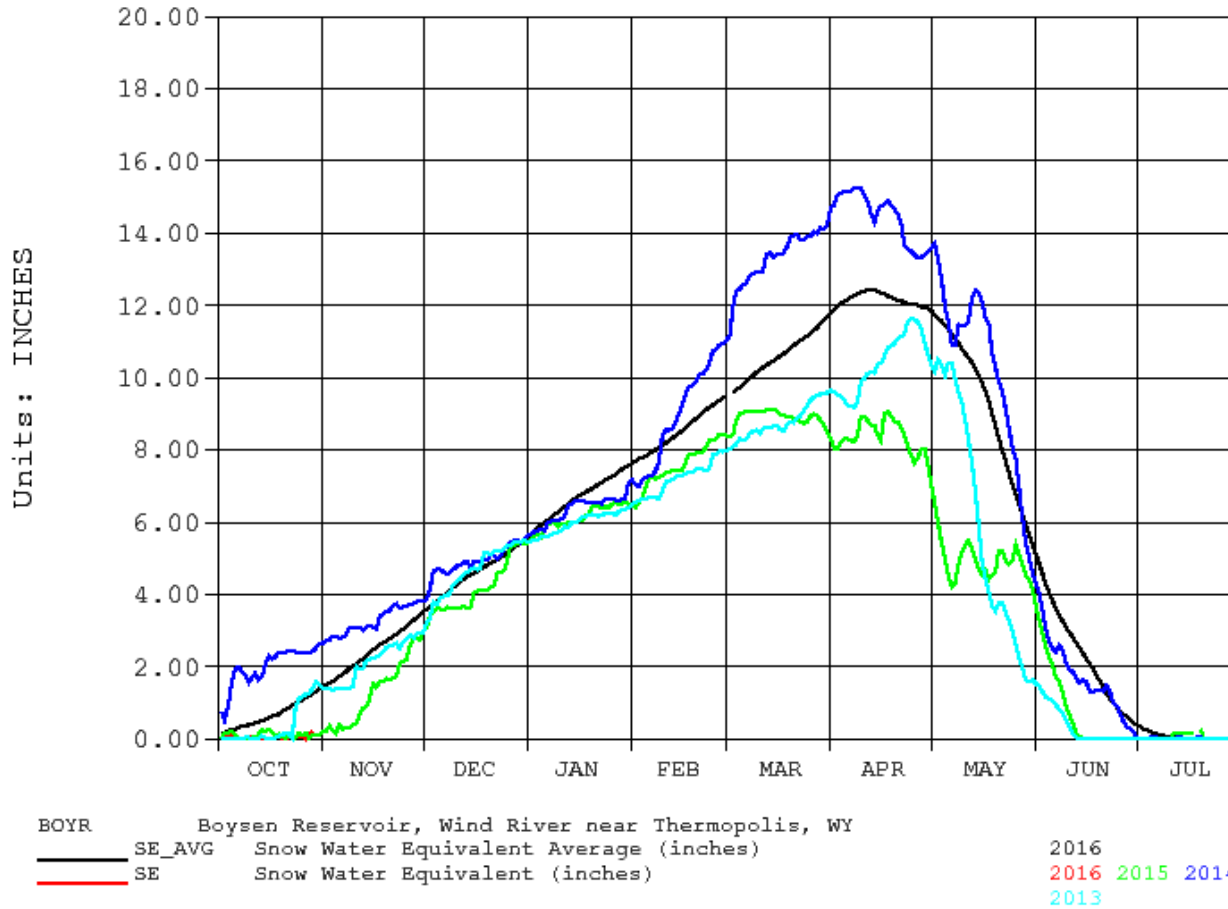
# 2016 Buffalo Bill Reservoir Operations

## BUFFALO BILL RESERVOIR OPERATIONS Water Year 2016 Projection (October actuals)



# Basin above Boysen Reservoir Snow Water Equivalent

Archive Data From 1-OCT Through 31-JUL  
Plotted 10/28/2015 13:36 (Provisional Data Subject to Revision)

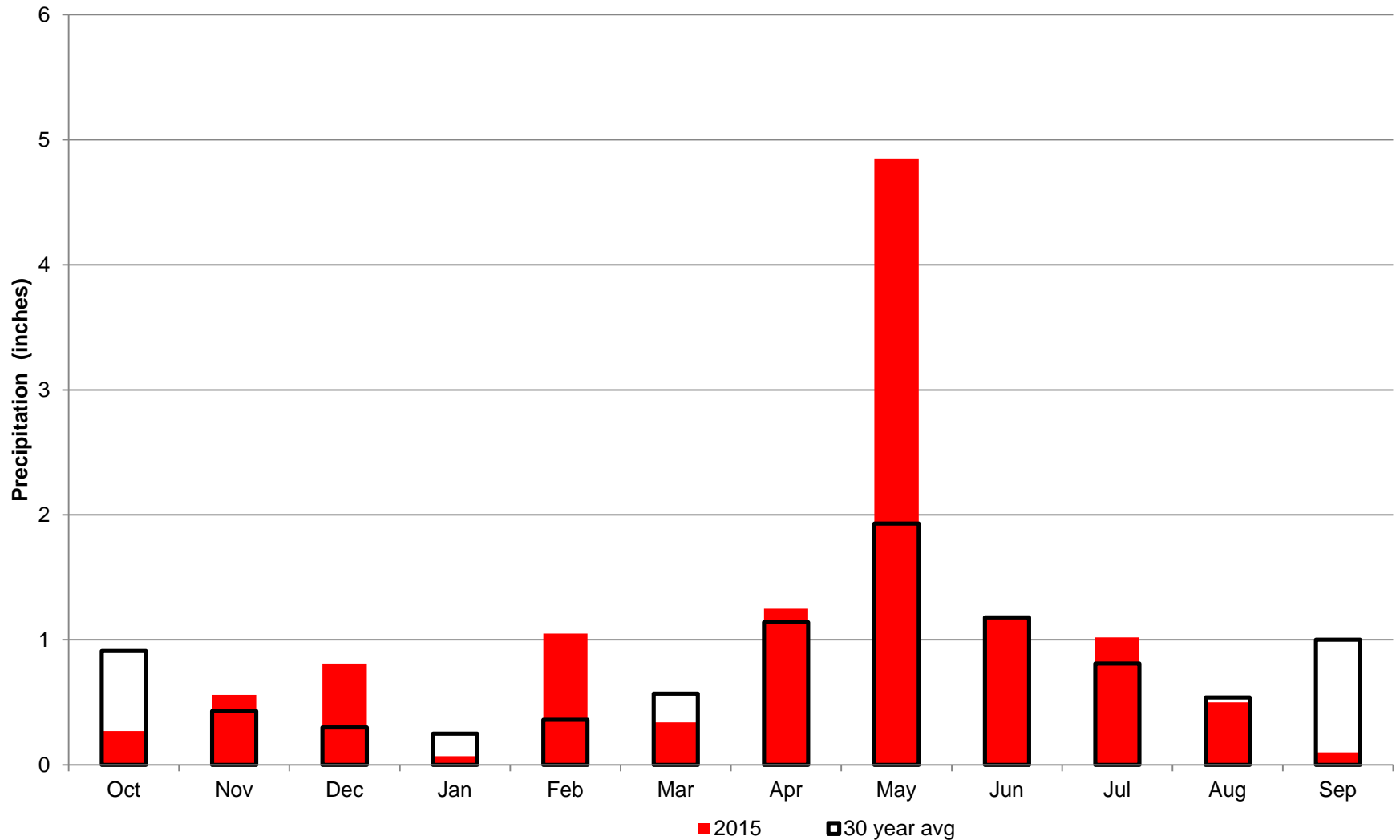


Water Year	April-July Inflow (acre-feet)
2013	216,300
2014	694,500
2015	749,700 (140% of avg)
2016	???
<b>Average = 533,800</b>	



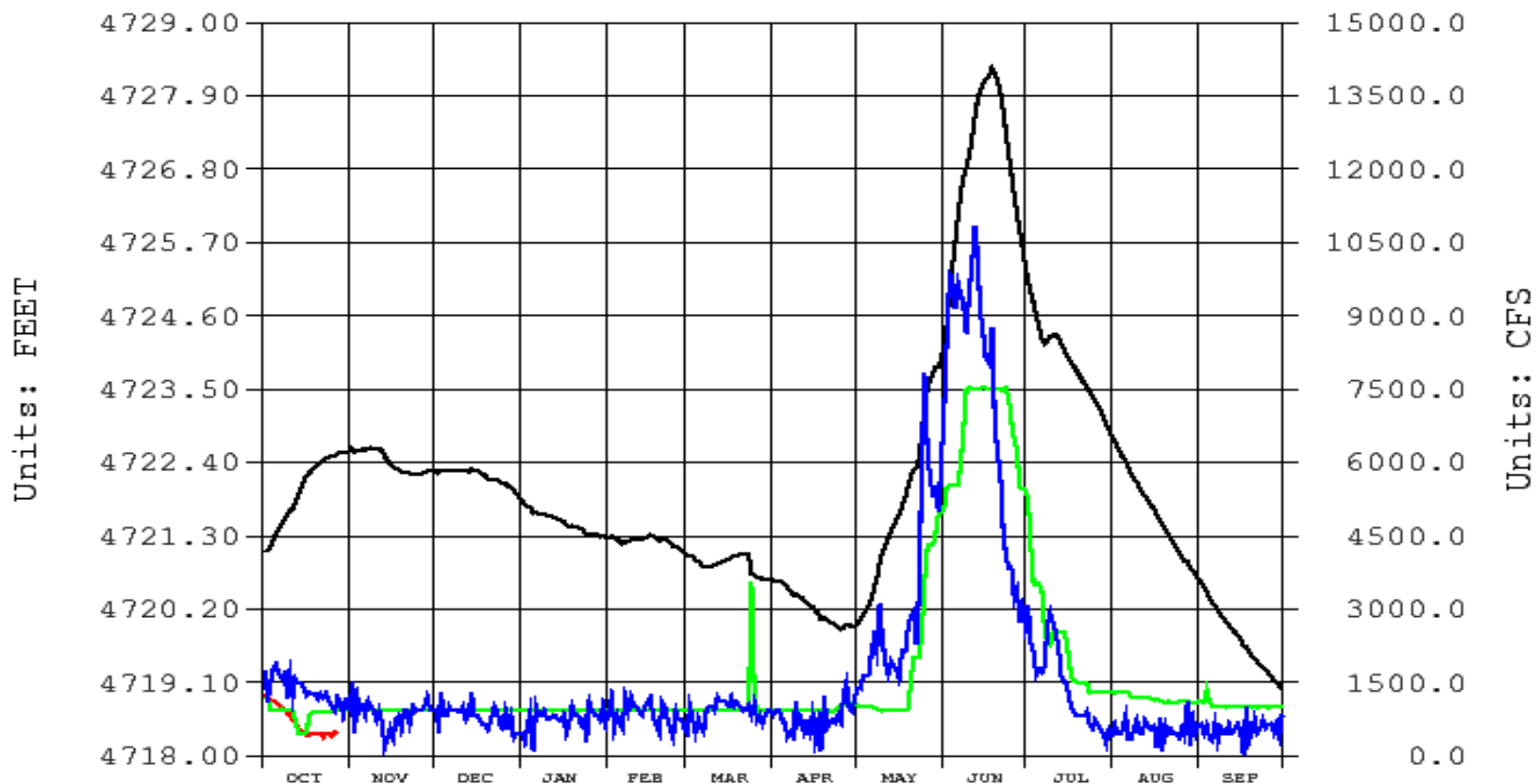
# 2015 Monthly Precipitation above Boysen Reservoir

## Wind River Basin Precipitation



# Boysen Reservoir 2015 Operation

Archive Data From 1-OCT Through 30-SEP  
 Plotted 10/28/2015 14:00 (Provisional Data Subject to Revision)

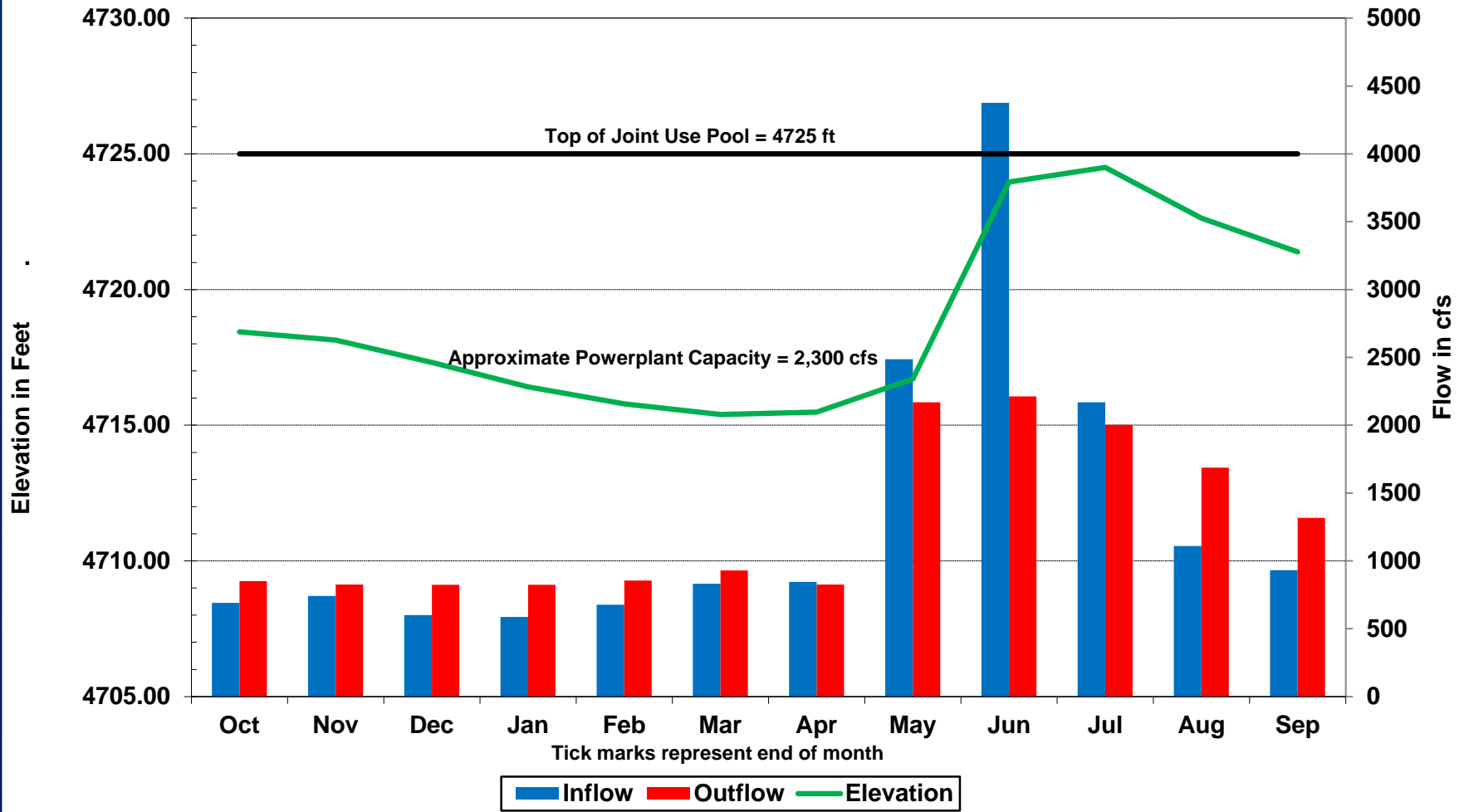


BOYR Boysen Reservoir, Wind River near Thermopolis, WY  
 FB Reservoir Forebay Elevation (feet)  
 QD Daily Mean Total Discharge (cfs)  
 IN Daily Mean Computed Inflow (cfs)

2015 2016  
 2015  
 2015

# 2016 Boysen Reservoir Reservoir Operations

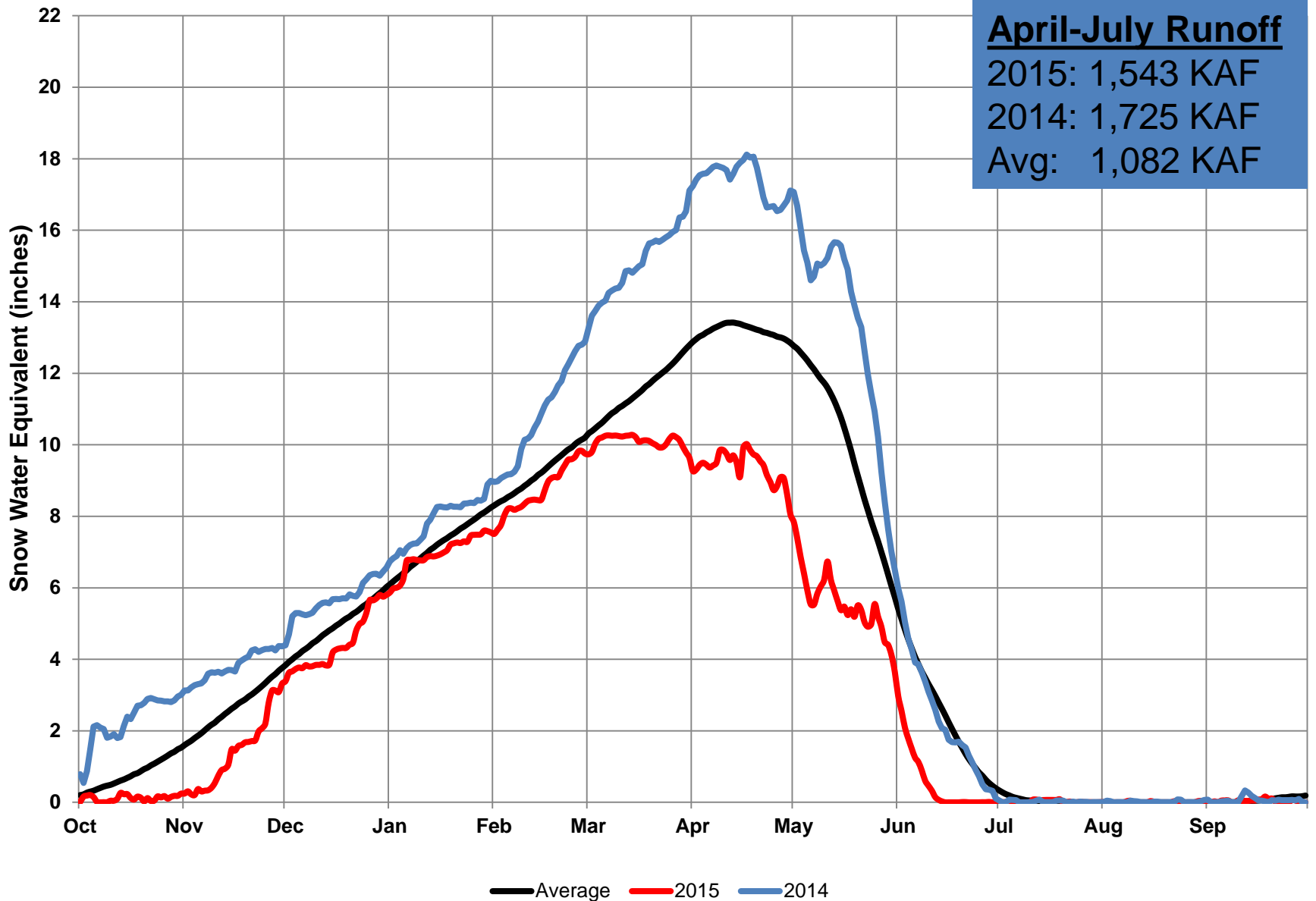
## BOYSEN RESERVOIR OPERATIONS Water Year 2016 Projection



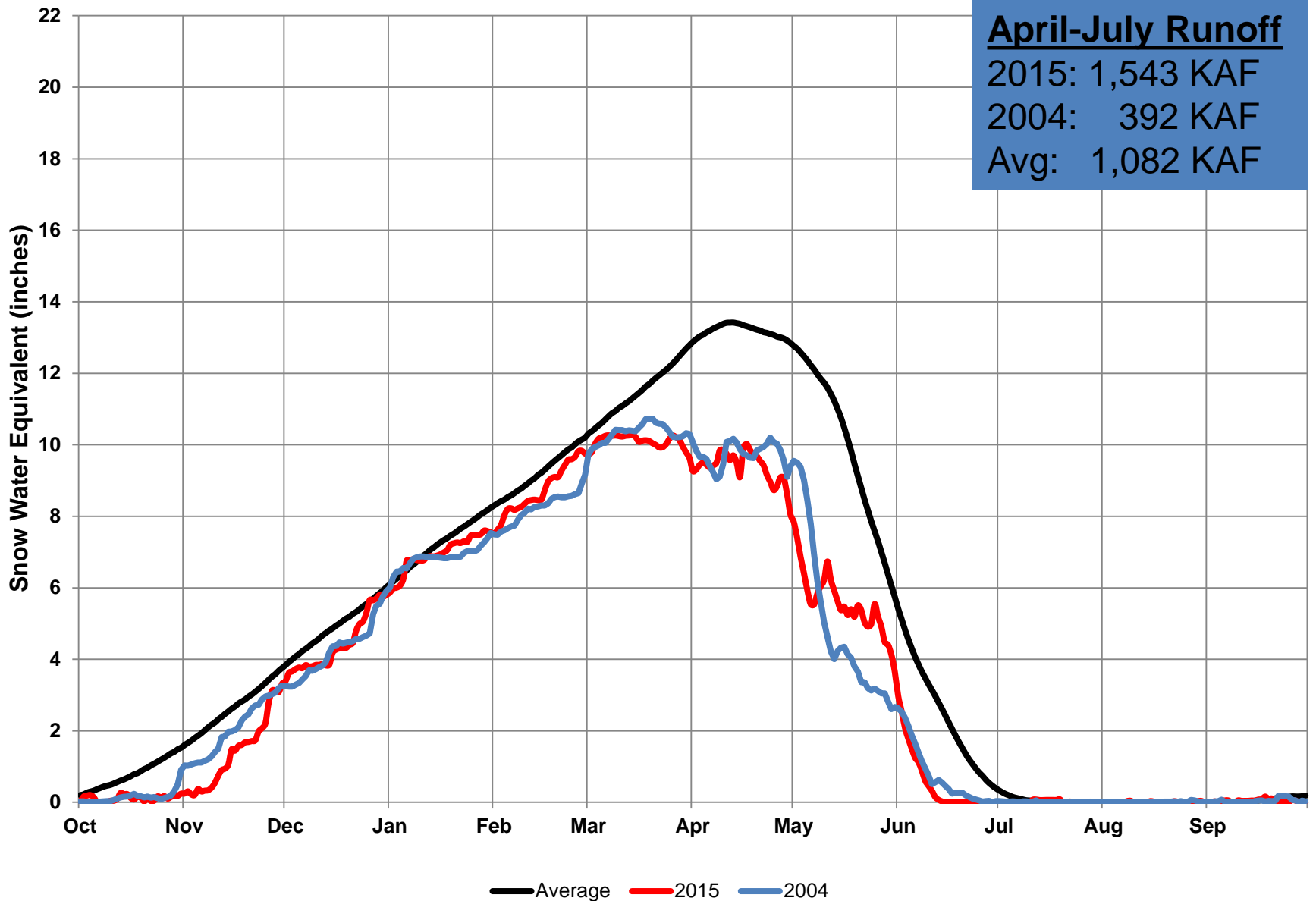
**Water Year 2015 Review  
for  
Yellowtail Dam/Bighorn  
Lake**

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# Mountain Snowpack

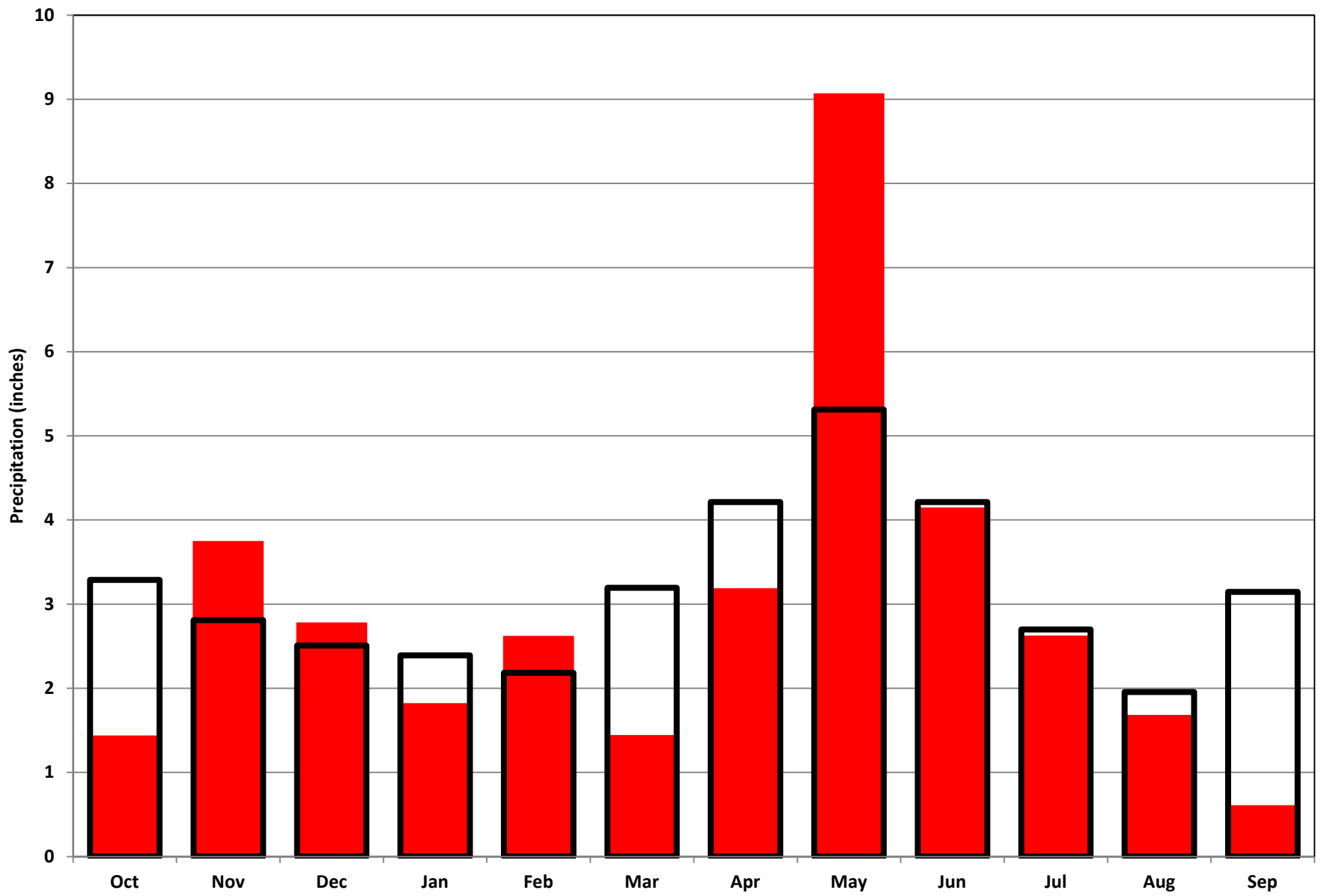


# Mountain Snowpack

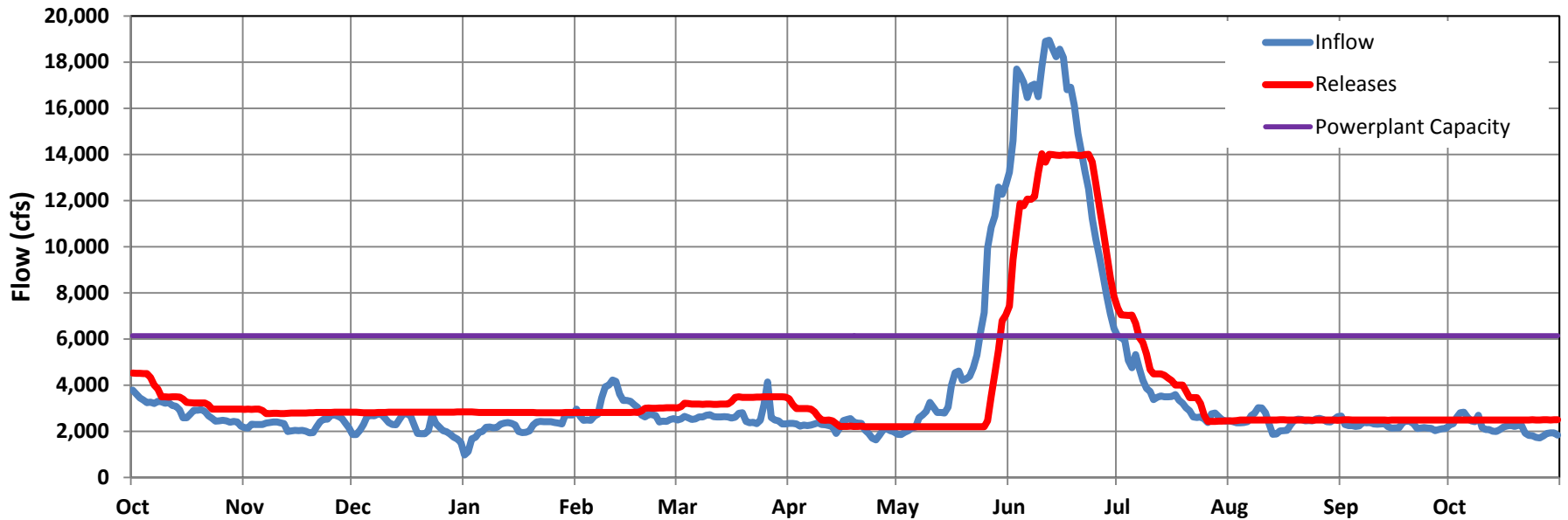
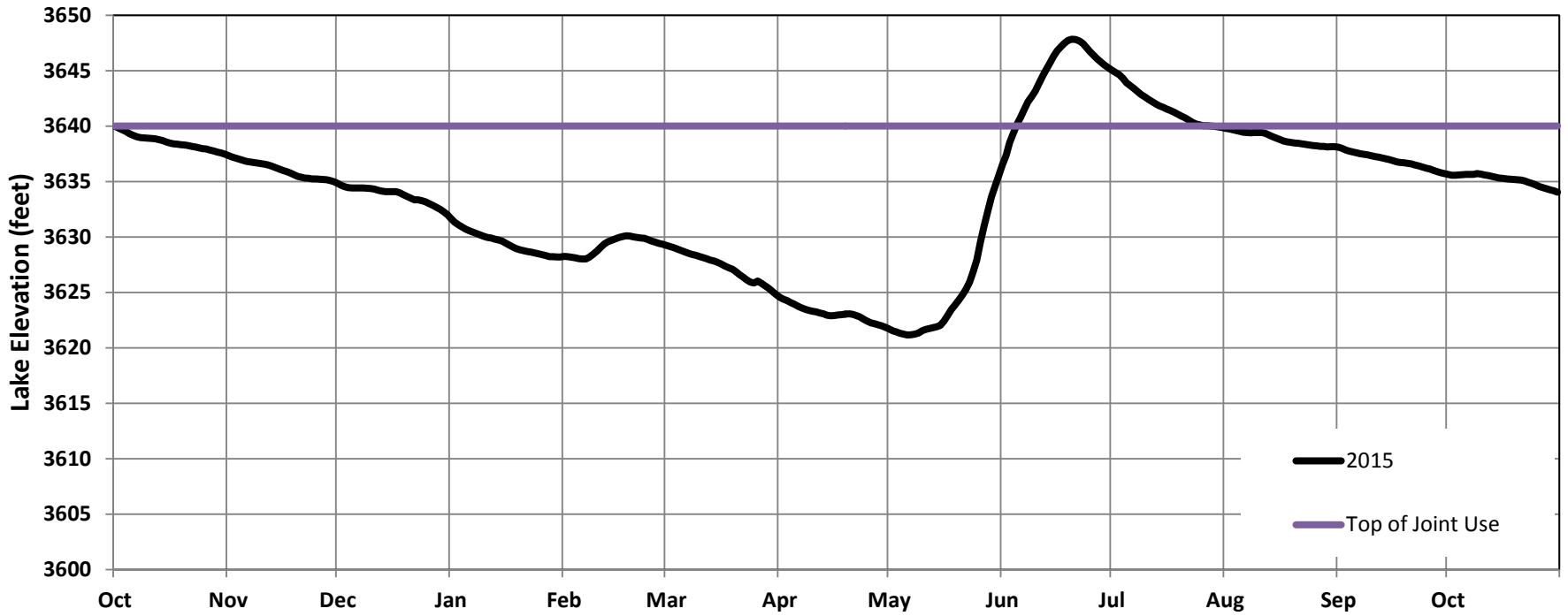




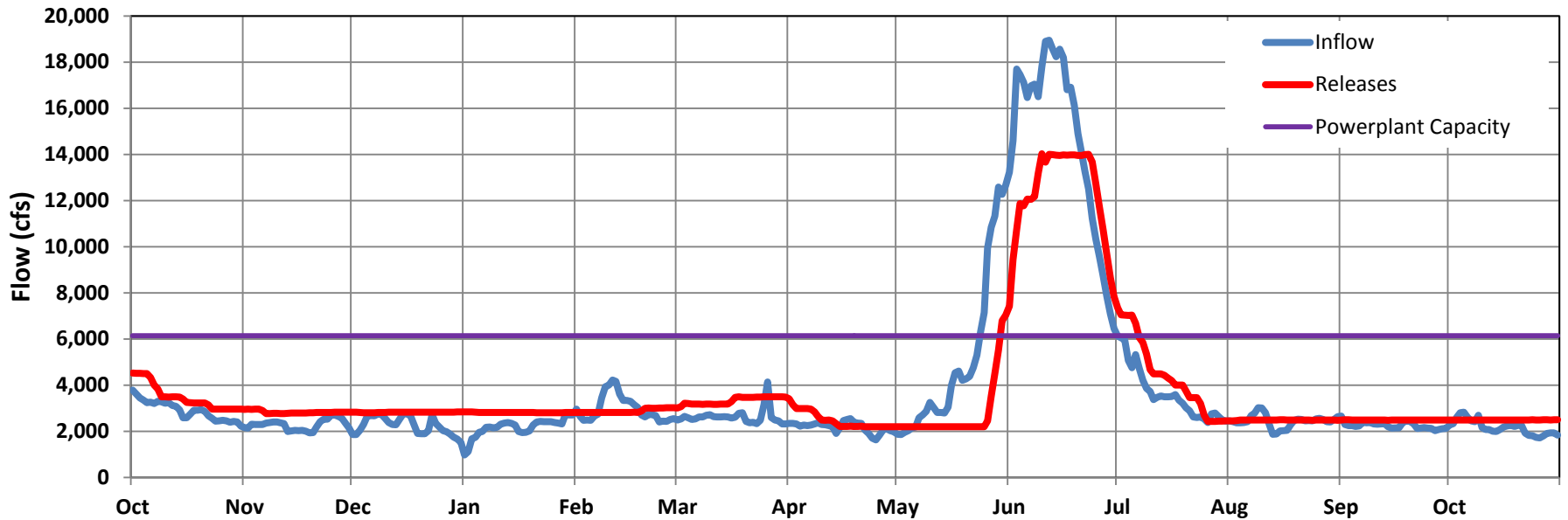
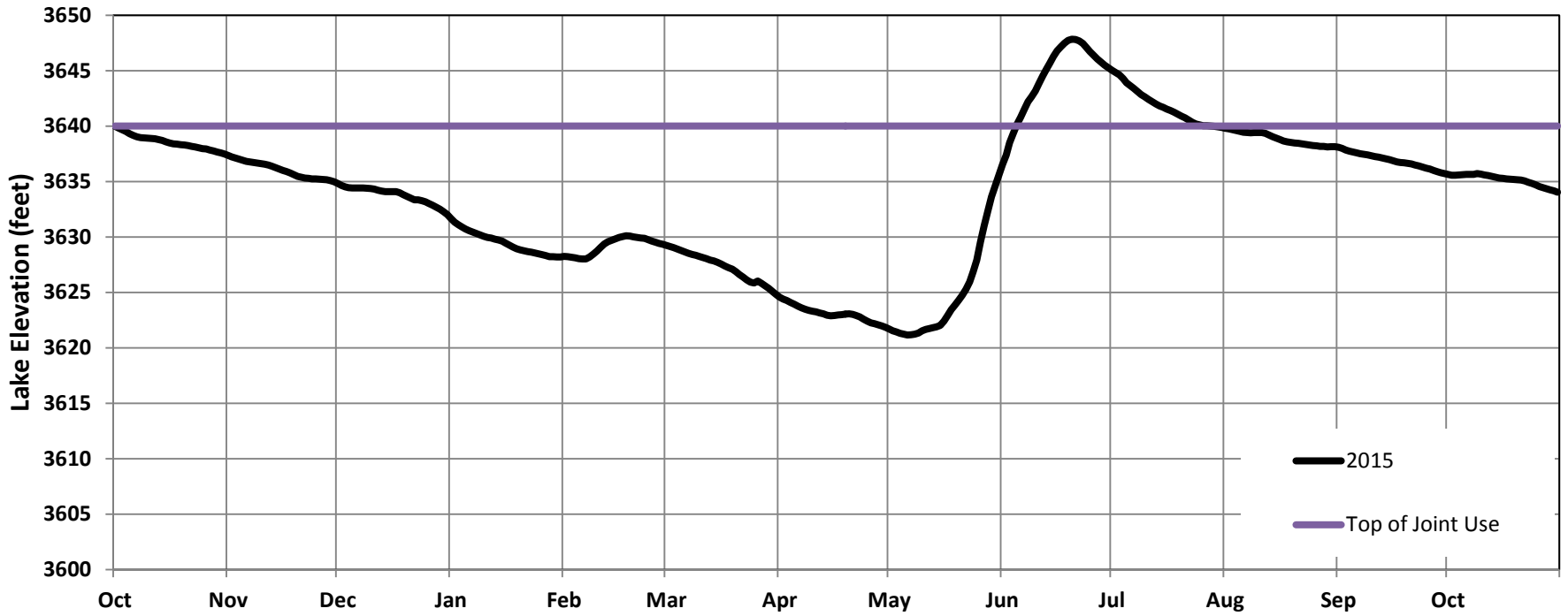
# Bighorn River Basin Precipitation



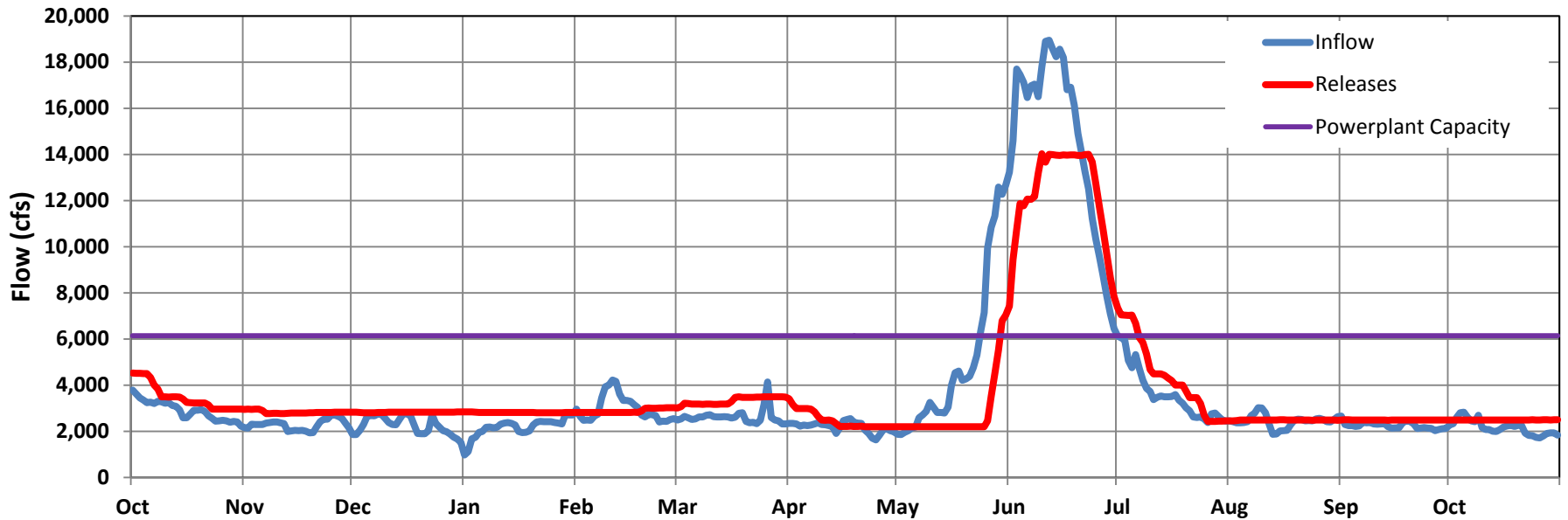
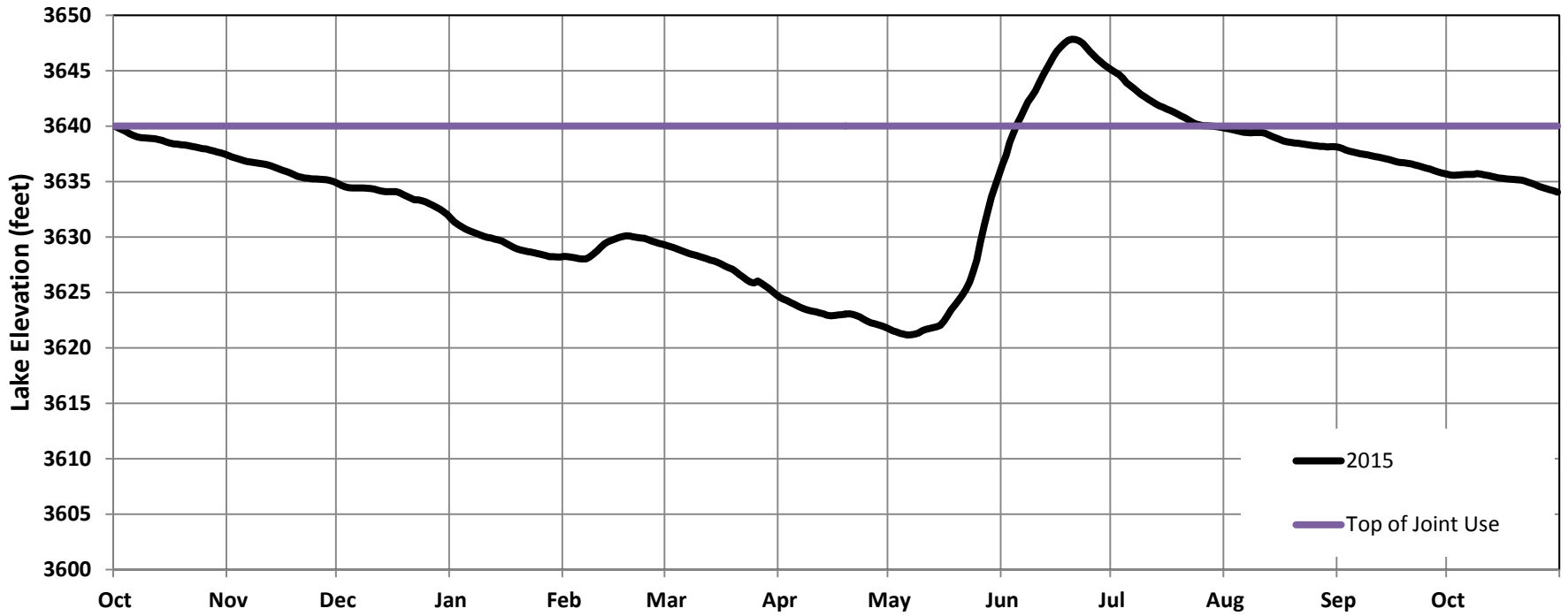
# Bighorn Lake Operations 2015



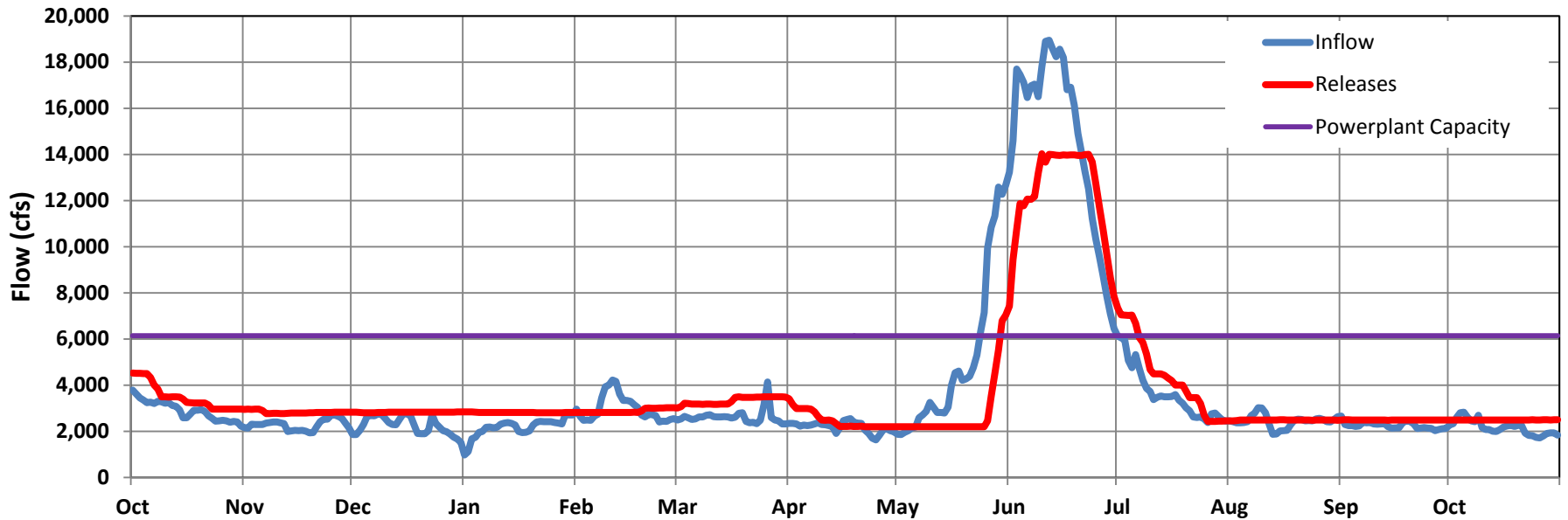
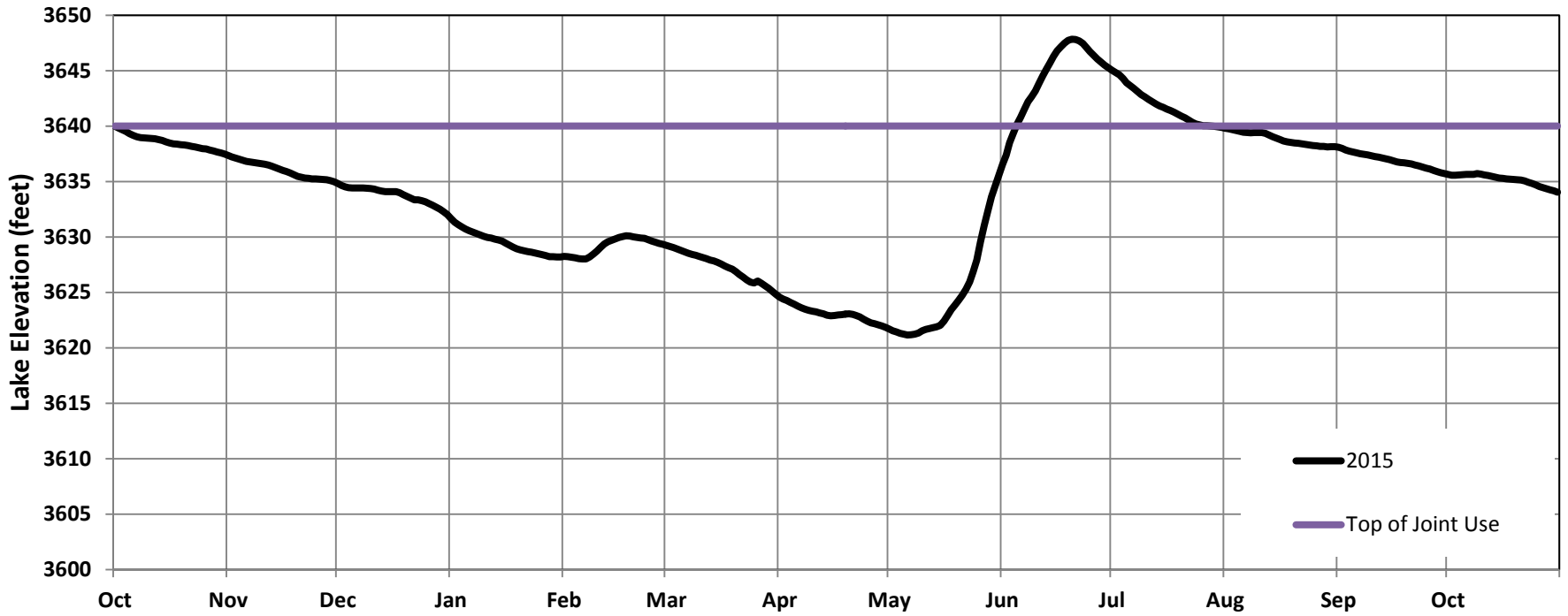
# Bighorn Lake Operations 2015



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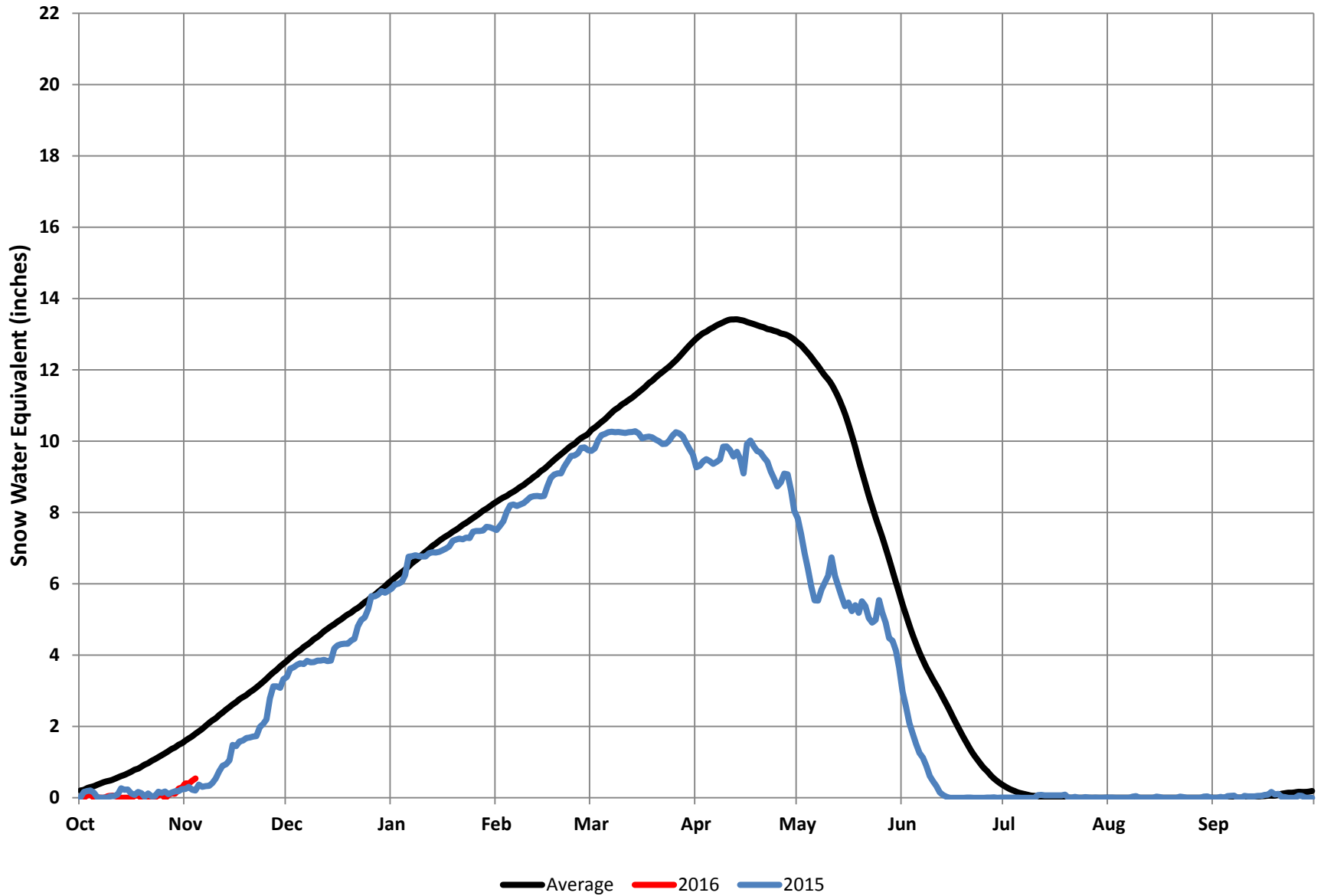
# **Water Year 2016 Fall and Winter Outlook**

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# Mountain Snowpack



# Conditions on November 1, 2015

Elevation	3634.0 - 6.0 feet below full pool 3.5 feet lower than last year
Storage	951,353 acre-feet: 107% of average 93% full
Inflows	1,840 cfs
Outflow	2,500 cfs

# November through March Gains and Release

April-October Gain = 239,300 acre-feet

Calculated November-March Gain = 258,200 acre-feet

Upstream Reservoir Fall & Winter Releases =

Boysen = 850 cfs

Buffalo Bill = 205 cfs

End-of-October Storage = 952,900 acre-feet

Projected End-of-March Target Elevation = 3617 (807,900  
acre-feet)

Calculated Fall & Winter Release for Yellowtail:

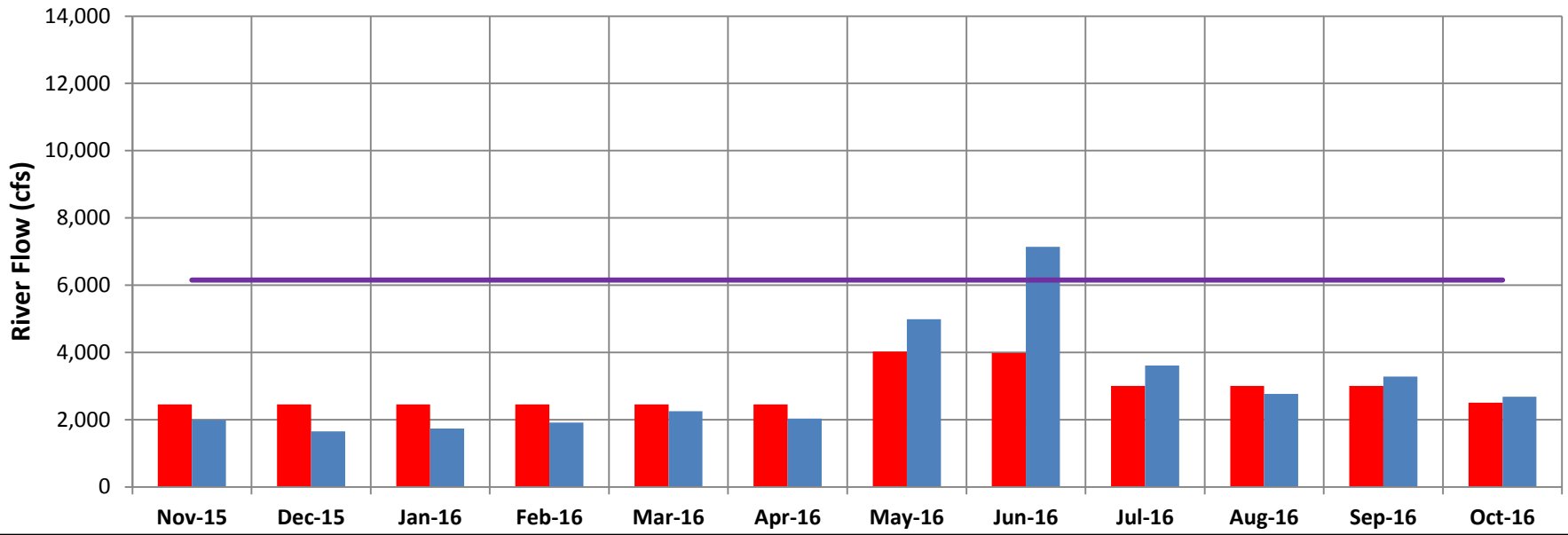
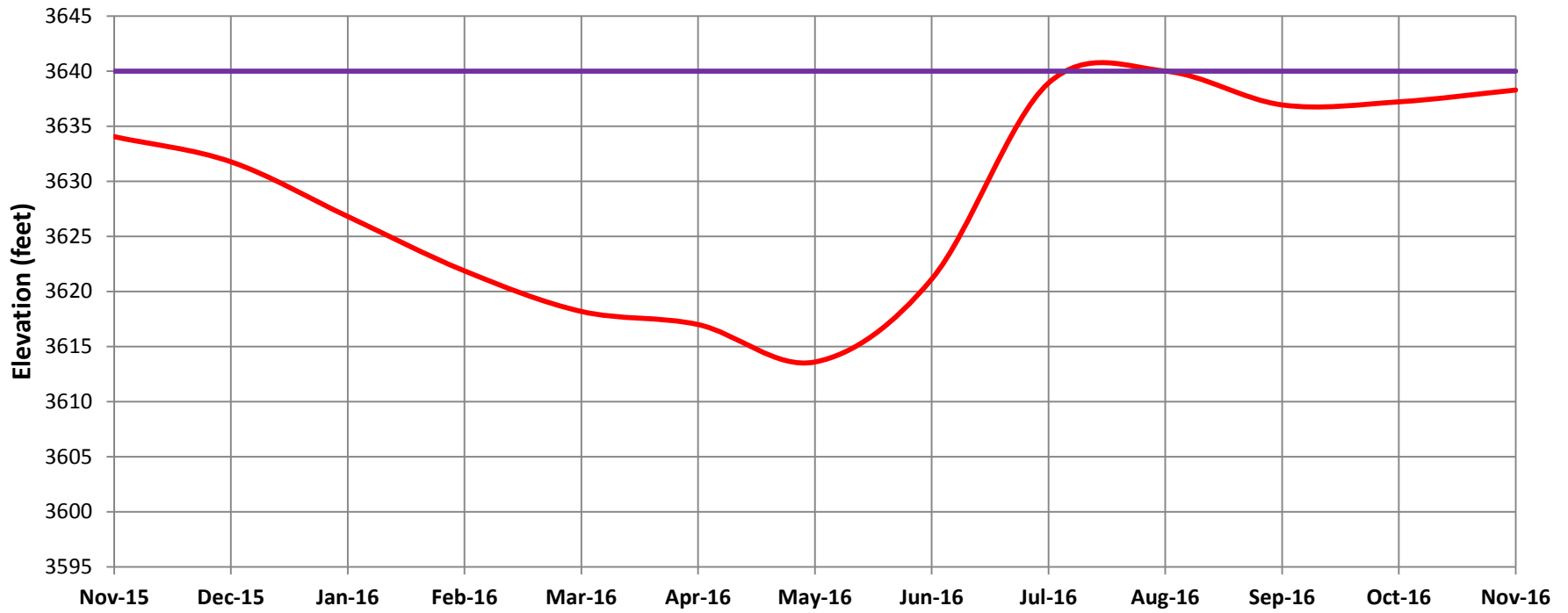
River = 2,450 cfs

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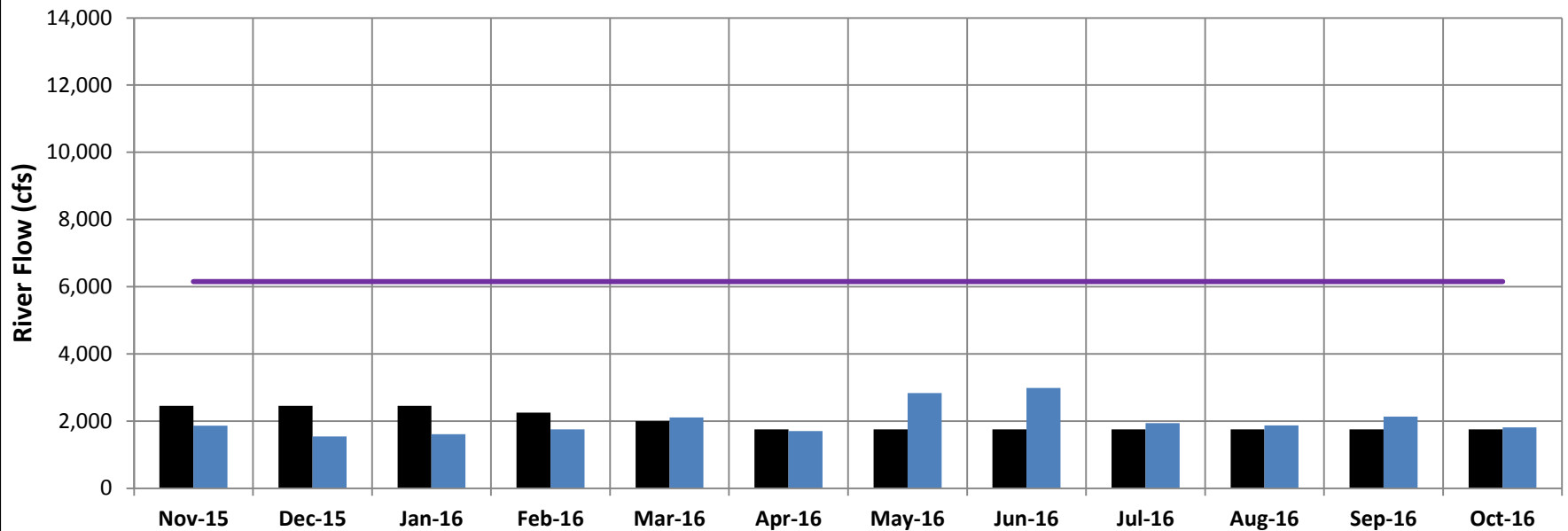
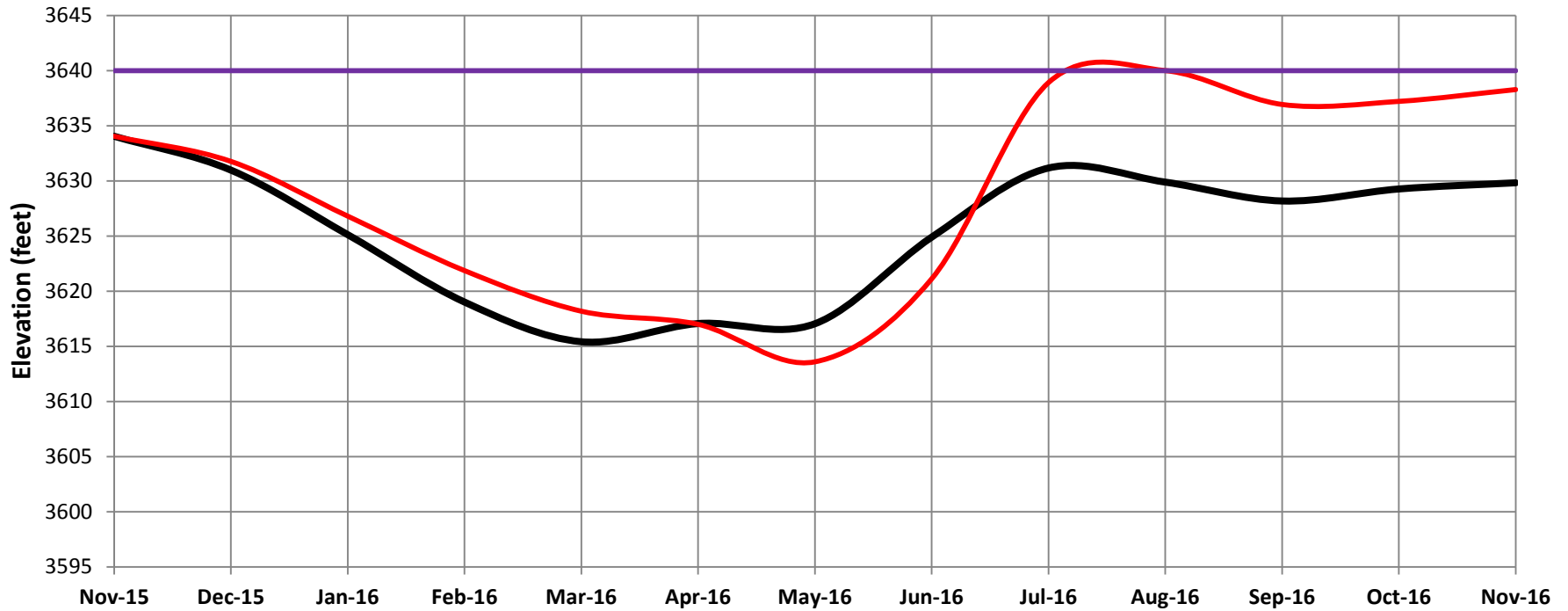
# November Monthly Operating Plans

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# Most Probable Inflow Operations

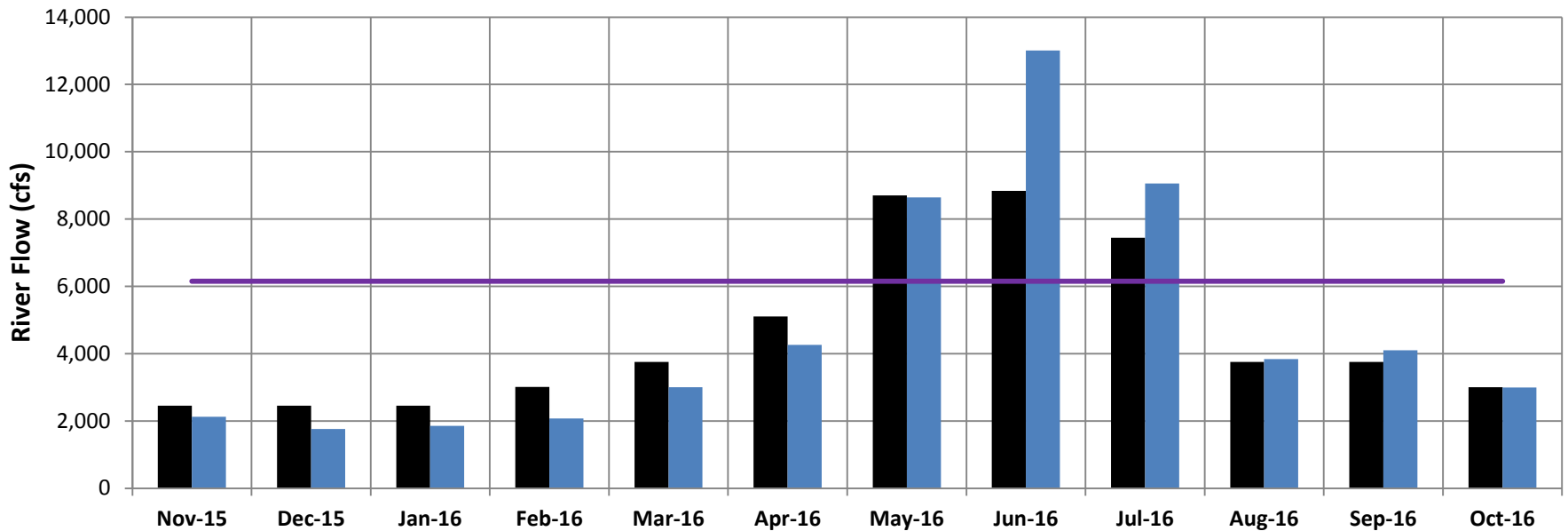
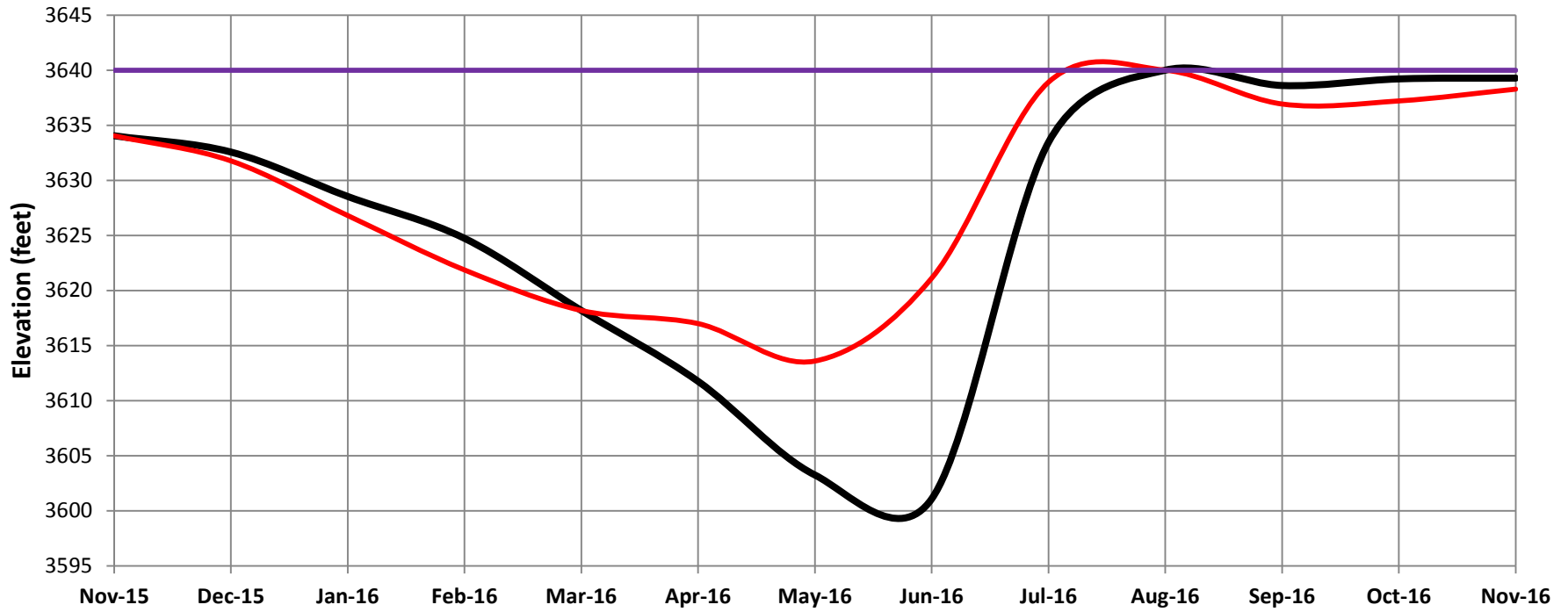


# Most and Minimum Probable Inflow Operations





# Most and Maximum Probable Inflow Operations



# Questions and Comments

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# Reclamation's Internet Website

[www.usbr.gov/gp/lakes\\_reservoirs/wareprts/main\\_menu.html](http://www.usbr.gov/gp/lakes_reservoirs/wareprts/main_menu.html)

- near real-time data available through the HYDROMET data system
- summaries and plots of historical data
- annual reservoir operating plan publication
- monthly water supply reports
- project data
- snow plots
- links to related internet sites

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