

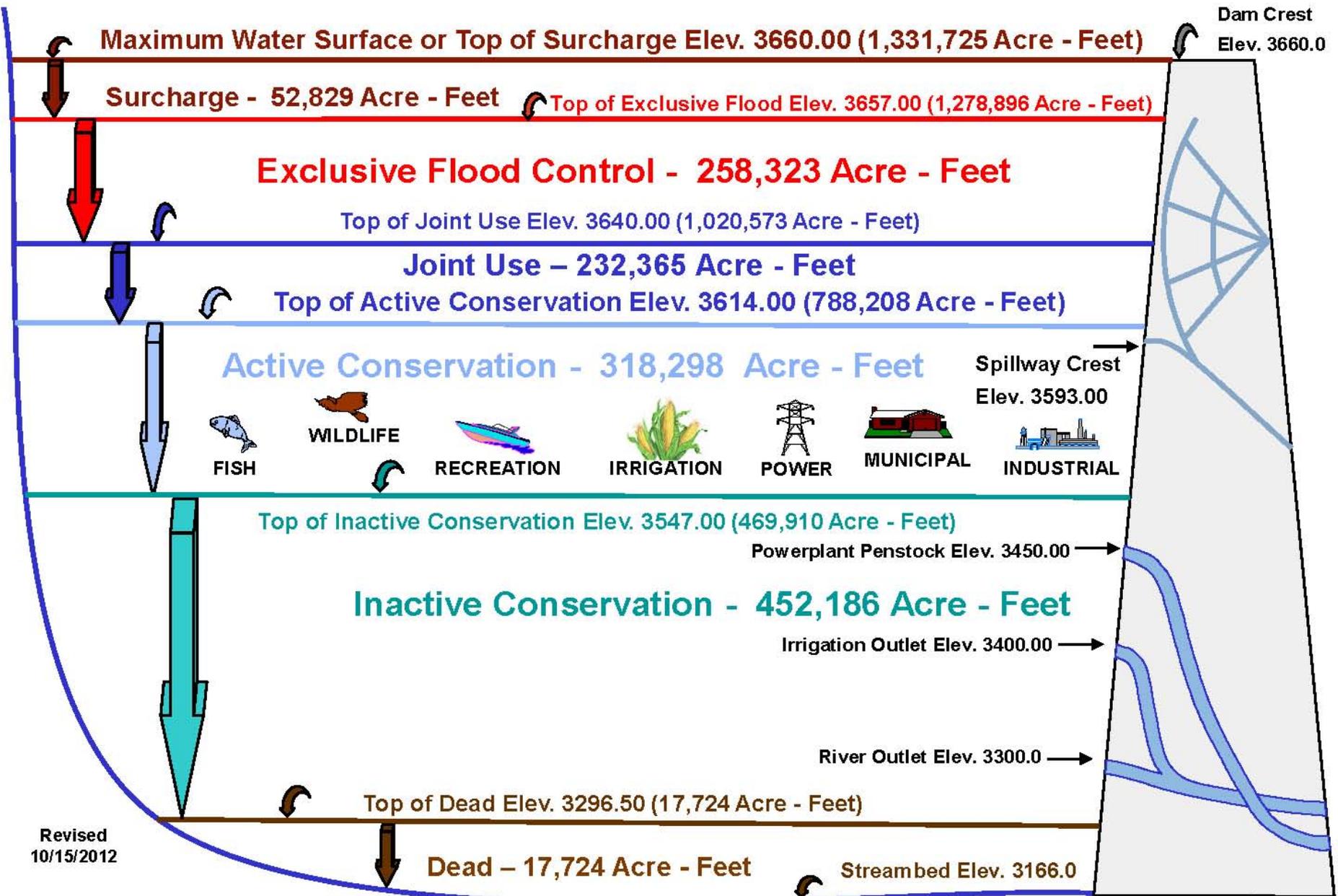
RECLAMATION

Managing Water in the West

Yellowtail Dam & Bighorn Lake Operating Criteria Review

Billings, MT
November 12, 2014

BIGHORN LAKE (YELLOWTAIL DAM) ALLOCATIONS



Revised
10/15/2012

Reservoir Level Targets

Date	Target
March 31	3615-3619
April-July Rule Curve Low Point	3592-3617
July 31	3640
October 31	3635-3640

Desired River Release Targets*

	Target
Preferred Flow Range	2,500 to 8,000
Optimum Fishery Flow	2,500
Standard Fishery Flow	2,000
Minimum Fishery Flow	1,500
Minimum DPR Flow	1,000

* As identified in 1986 letter from MTFWP and listed in the Steamflow and Lake Level Management Plan

November-March Operations

- **Water Balance Equation Used to Calculate Nov-Mar Release Rate Based On:**
 - **Nov-Mar Release from Buffalo Bill and Boysen Reservoirs**
 - **Forecasted Nov-Mar River Gains based on Apr-Oct gains**
 - **Draft Reservoir to Elevation 3615-3619 by March 31**
 - **Preference to River Flow before setting releases below 2,000 cfs**
 - **Preference to Lake Level before setting releases above 2,500 cfs**

End of March Reservoir Target

<u>River Release</u>	<u>March 31 Target</u>
Greater than 2,500 cfs	3619
2000-2500 cfs	3617
Less than 2,000 cfs	3615

In drought years when it becomes necessary to set release to a minimum of 1,500 cfs the reservoir will draft below these targets

February-March

- **Spring runoff forecasts are based primarily on mountain snowpack.**
- **Adjustments to the river release may be made if unusually high or low mountain snowpack conditions warrant and the reservoir elevation indicate a change is needed.**
- **Adjustments must also take into account downstream river ice conditions**

April-July Rule Curves

- **April-July is the snowmelt runoff season and normally the wettest period of the year.**
- **Starting April 1 Rule Curves are established based on forecasted runoff. Forecasts and rule curve can be adjusted on the first and middle of each month.**
- **Operations are adjusted as needed to generally follow Rule Curve. Some deviation from rule curve is allowed to prevent frequent changes in release rate.**

August-October

- In good runoff years a release of 2,500 cfs or more is set during this period if this can be done while attempting to meet the desired end of October target elevation of 3635 or higher.
- In years with lower runoff when the above goals cannot be met the river release is set to provide a stable flow through the end of March using the desired end of March target of near 3617.

Looking Beyond Each Period

- Operating plans address most, maximum and minimum expected runoff conditions for the next 12 months.
- Important to always look out beyond each specific period to assess how current operations will effect overall operating plan
- Operating plans are developed based on the operating criteria.

Questions or Comments

RECLAMATION