

# RECLAMATION

*Managing Water in the West*

## **Hungry Horse Dam**

### **Change in Flood Stage at Flathead River at Columbia Falls**

**TMT Year End Review 2014**



U.S. Department of the Interior  
Bureau of Reclamation

- **South Fork of the Flathead River which is where Hungry Horse Dam is located control only one-third of the total flow on the mainstem Flathead River at Columbia Falls.**
- **The North and Middle Forks of the Flathead River have natural flow.**



**RECLAMATION**

# Background of Flood Stage for the Flathead River at Columbia Falls

- The National Weather Service (NWS) sets flood stage levels for all rivers in the U.S. Flood stage is when flood damage begins to occur and is the level when flood warnings are issued.
- In 1972 the NWS lowered the flood stage at Columbia Falls from 15 to 13 feet. No documentation on why.
- In December, 1997 the flood stage was raised from 13 to 14 feet because no damages were reported below 14 feet in May.

# Flathead Flood of 2012

- Roads closed and agricultural losses when Flathead River was at 14 feet.
- In May of 2013, the NWS changed the flood stage from 14 to 13 feet because of damages observed below 14 feet.



# Flathead Flood of May, 2013

- **NWS survey showed minimal impact of flooding between 13 and 14.4 feet along Flathead River.**
- **Flathead Lake was 4 feet below full elevation during the high stages on the Flathead River.**

# Current Flood Stage Criteria

In 2014 the NWS adjusted the flood stage at the Flathead River at Columbia Falls

- 13 feet when Flathead Lake is in the top foot of elevation (2892 – 2893 feet),
- 14 feet when Flathead Lake is below the top foot of elevation (lower than 2892 feet).
- Hungry Horse discharges will also use this criteria.

# RECLAMATION

*Managing Water in the West*

## Drum Gate Maintenance Grand Coulee Dam

TMT Year End Review 2014



U.S. Department of the Interior  
Bureau of Reclamation

# Drum Gate Maintenance



RECLAMATION



RECLAMATION



RECLAMATION



RECLAMATION

# Maintenance Requirements

- Elevation of Lake Roosevelt must be below elevation 1255 feet for drum gate maintenance to occur.
- Regular maintenance requires 8 weeks, work must be done on hinge pins which requires the whole period.
- Maintenance is planned during the spring period when lake is drawn down for flood risk management.
- Ideally maintenance is done every year, however in a low water year the maintenance may be deferred.

# Maintenance Requirements (cont.)

- Maintenance can not be deferred beyond the minimum requirements - 1 time in 3 years, 2 times in 5 years or 3 times in 7 years.
- Based on this schedule, Lake Roosevelt may have to be forced down to 1255 feet and below for 8 weeks to meet minimum requirements even if the flood risk management requirements do not require a drawdown.
- Since maintenance was deferred in 2013 and 2014, Lake Roosevelt will be forced down in March through May of 2015 even if it is a low water year.

# RECLAMATION

*Managing Water in the West*

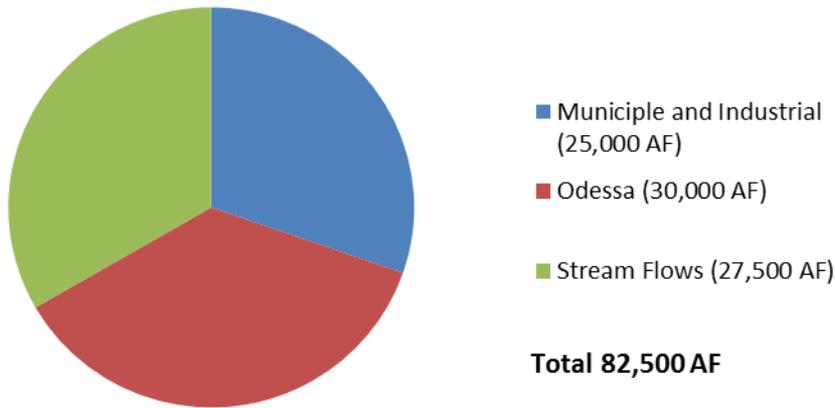
## Lake Roosevelt Incremental Storage Releases Program

TMT Year End Review 2014



U.S. Department of the Interior  
Bureau of Reclamation

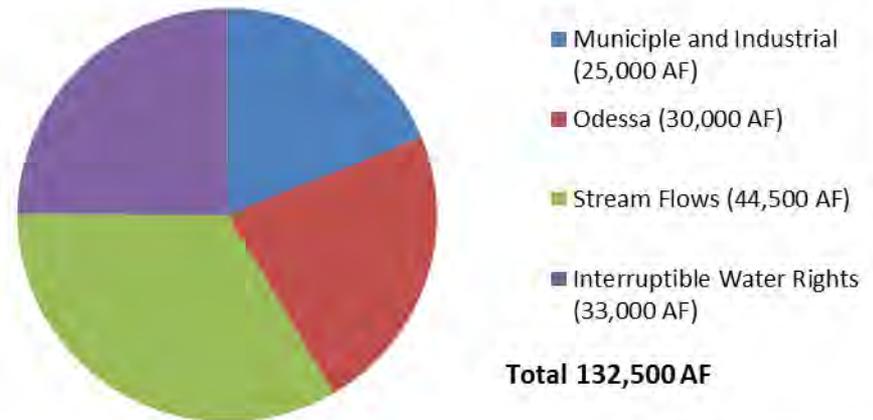
## Lake Roosevelt Incremental Storage Releases (Normal Years)



The total 83,500 AF corresponds to 1.1 feet of draft from Lake Roosevelt.

The total 132,500 AF corresponds to 1.8 feet from Lake Roosevelt.

## Lake Roosevelt Incremental Storage Releases Driest 20% of Years



# RECLAMATION

# Lake Roosevelt Incremental Storage Releases Program 2014

<b>“Bucket”</b>	<b>2014 Releases (acre-feet)</b>	<b>Total Lake Roosevelt Incremental Storage Releases Program (acre-feet)</b>
Odessa	0	30,000
M&I	17,000	25,000
Instream Flow	8,500	27,500
<b>Total</b>	<b>25,500</b>	<b>82,500</b>

In 2014 the release corresponded to 0.3 feet from Lake Roosevelt.

# Lake Roosevelt Incremental Storage Releases Program

- Release amount and timing is determined each spring by an advisory panel of fisheries and water managers.
- In 2014 13,260 AF was released in April, May and June, 12,240 AF was released in July and August.