

**Aspinall Unit Operations Meeting  
August 13, 2015 – 1:00 PM**

**Background:** The purpose of operation meetings-- usually held in January, April, and August-- is to gather input for determining upcoming operations for Blue Mesa, Morrow Point, and Crystal Reservoirs. This input is used in Reclamation’s development of specific operations for the Aspinall Unit and for the overall 24-month study for operation of Reclamation projects in the Upper Colorado River Basin, which include plans for Glen Canyon, Flaming Gorge, and Navajo Units, as well as the Aspinall Unit. Operation of the Aspinall Unit considers projected inflows to its reservoirs, hydropower and flood control needs, existing water rights, minimum instream flows, target elevations for reservoirs, flow needs for endangered fish and other resources, recreation, and other factors. In addition, the meetings are used to coordinate activities and exchange information among agencies, water users, and other interested parties concerning the Gunnison River.

Handouts provided included data on 2015 operations; a summary of forecasted and actual runoff; and projections for operations for the remainder of the year.

A Record of Decision for the Aspinall Unit Operations Environmental Impact Statement was signed on May 3, 2012. The EIS modifies the operations of the Aspinall Unit to provide sufficient releases of water at times, quantities, and durations necessary to avoid jeopardy to endangered fish species and adverse modification of their designated critical habitat while maintaining and continuing to meet authorized purposes of the Aspinall Unit. In addition, the water right for the Black Canyon of the Gunnison National Park has been quantified and adjudicated. These operation meetings are used to discuss proposals for long-term operation plans to address these and related resource management issues.

**Weather Outlook – Aldis Strautins (NWS)**

The weather this year has been quite the anomaly. From October 2014 – March 2015, there was a general arching trend which pushed precipitation north, of Colorado. However, from April 2015 – July 2015, a trough came through, creating wet conditions in Colorado. Despite an early runoff, snowpack actually increased in some areas during this time. Four tropical storms influenced this sudden change in weather. May was 200-300% of normal for precipitation across Colorado. As a result of this moisture, Colorado is now almost totally drought free. The El Nino Southern Oscillation (ENSO) shows El Nino conditions, and there is a strong indication we will be in El Nino conditions this winter as well.

<b>Forecasts</b>		
<b>Time Period</b>	<b>Temperature</b>	<b>Precipitation</b>
6-10 Day	↑ probability of ↑ temperature	↑ probability of ↓ precipitation
8-14 Day	↓ temperature	↓ precipitation
August	↑ probability of ↓ temperature	↑ probability of ↑ precipitation
August/September/October	↑ probability of ↓ temperature	↑ probability of ↑ precipitation
September/October/November	↑ probability of ↓ temperature	↑ probability of ↑ precipitation

## **Runoff Forecast Discussion – Ashley Nielson (CBRFC)**

Colorado experienced a warm winter in many areas, and below average precipitation from January 2015 – April 2015 provided for a meager snowpack; however, soil moisture conditions in the upper Gunnison were favorable entering winter. May and June 2015 brought frequent moist storm systems and below average temperatures. The Gunnison Basin ranged from 150 to 300% of average for precipitation in May, with 2-8 inches of observed precipitation. In June, the Gunnison Basin ranged from 150 to 250% of average for precipitation, with 0.5-3 inches of observed precipitation. During this period of moisture, high elevation snow melt slowed and in some areas snowpack increased during the period where melt is typically occurring. High elevation snow as represented in the hydrologic model went from about 80% of average on April 20<sup>th</sup> to about 120% of average by June 4<sup>th</sup>.

When the model forecasts inflow to Blue Mesa Reservoir, it looks at 30 different scenarios. When these forecasts are reported, three numbers are reported: a 10% chance of exceedance, a 50% chance of exceedance, and a 90% chance of exceedance. Numbers above 10% chance of exceedance and below the 90% chance of exceedance are generally not reported, as the likelihood of that scenario occurring is minimal. For 2015, the highest forecast trace on May 1 was 741,000 acre-feet, which had a 3% exceedance probability, and the second highest forecast trace on May 1 was 604,000 acre-feet which had a 7% exceedance probability. The April-July observed inflow into Blue Mesa Reservoir was 708,000 acre-feet which fit between the 3% and 7% exceedance probability.

The model performed as expected. The 50% exceedance forecast anticipates near average conditions in the future. We received precipitation in the 3-6% historical exceedance range. The forecast scenario associated with that extreme event was close to what was actually observed. Early season forecasts (50% exceedance) are expected to miss the mark if future conditions end up extremely wet or dry. While it's important to look at the forecast range as well as the 50% forecast, years with extreme weather early season forecasts are likely to fall outside the 10/90 range. The ability to catch such future weather extremes in water supply forecasts is very limited. By selecting a large enough period of calibration with a variety of weather events, the forecast distribution should catch most possibilities.

## **Aspinall Unit Operations – Erik Knight (USBR)**

Spring Runoff: During the spring, the Snotel sites above Blue Mesa Reservoir showed a snowpack of 73% of average, which is a pretty dry scenario. Snowpack lower than 70% is generally a record low for Colorado Snotel sites. With a seasonal peak snowpack of 73%, we would typically see an inflow in the 300,000 – 500,000 AF range. In 2015, our observed inflow was 708,000 AF. This level of inflow would be more typical of a snowpack that was near 100% of average. Similar snowpack years and associated inflows are outlined in the table below.

Year	Peak Snowpack	Runoff Volume
1988	77%	391 Kaf
1990	70%	382 Kaf
1992	76%	465 Kaf
2004	80%	421 Kaf
2012	65%	206 Kaf
2013	79%	346 Kaf
2015	73%	708 Kaf

The April 1<sup>st</sup> forecasted inflow to Blue Mesa Reservoir was 480,000 AF. The forecast lowered to 440,000 AF for the May 1<sup>st</sup> forecast, placing Spring 2015 Aspinall Operations in a Moderately Dry year category. Actual inflow into Blue Mesa was approximately 270,000 AF more than forecasted, at 708,000 AF. This amount of inflow would typically place operations in an Average Dry year category, however operations are set based on the May 1<sup>st</sup> forecasted inflow. A change from forecasted conditions has not happened this significantly since Blue Mesa was constructed.

Black Canyon Peak and Lower Gunnison River Targets: Based on a May 1<sup>st</sup> forecasted inflow of 440,000 AF, the Black Canyon peak flow requirement was 2,054 cfs. On May 9<sup>th</sup>, there was a 2,120 cfs 24-hour peak flow. Due to the unusually large amount of rain which fell on the area, a much larger 24-hour peak flow of 7,180 cfs occurred June 23<sup>rd</sup>.

Peak flow and duration days at Whitewater based on a May 1<sup>st</sup> forecasted inflow required a peak flow of 4,991 cfs with no additional duration days. Efforts to meet this peak flow were timed with a rain-driven peak on the North Fork of the Gunnison River. Six weeks later, due to the unusually large amount of rain which fell in the Gunnison Basin, the Whitewater gage experienced 10,600 cfs of flow, with 10 days of flow over 8,070 cfs. This means if target flows had been based on a 708,000 AF inflow, the targets would have been met just by managing the system/runoff. All three reservoirs had to spill just to manage the runoff.

Summer/Fall Operations: Other reservoirs in the Gunnison Basin continue to be fairly full, with the lowest reservoir level being Silver Jack at 81% capacity. Blue Mesa is currently down only 3 feet from its maximum spill point. The Average Dry year baseflow target for May 2015 is 1,050 cfs. There should be no issue maintaining flows throughout the year.

## **Special Flow Requests and Discussion**

There was a discussion as to whether or not we could increase releases ~100 cfs now to start working towards the icing elevation so there would not be such a large spike in flow later? As far as Brown Trout go, it was generally felt there may be some flexibility in flow due to the Brown Trout population being so robust.

Colorado Parks and Wildlife are sampling the Gunnison Gorge October 5-8<sup>th</sup>. They are expecting ~1,000 cfs.

## **Reports of Agencies/Organizations**

BLM: The unexpected increase in flows in June was during the important part of the fishing season. This stung the outfitters for the 2<sup>nd</sup> year in a row. Post-high flow, the fishing has been outstanding; however, the number of visitors has stayed low.

Western: Steve Johnson is the new manager in Montrose.

Department of Water Resources: Everybody had water this spring. There is a new temporary water commissioner, Thomas Rosmond. He is Richard Rosmond's son. Perry Anderson was hired as temporary deputy.

USGS: All the water allowed for multiple high flow measurements to get better definition of stage. They were able to get water quality samples from top to bottom of the water profile, too. They are still in the process of collecting data and getting results from the lab.

Tri-County Water District: Ridgway didn't spill. They are up to 1,000 cfs release, and are operating the 7.2 MW powerplant at 500 cfs and the small unit at 50 cfs at the same time. They are putting about 450 cfs through the bypass. Everything worked nicely this year.

CWCB: Their next board meeting is September 15-17. The Colorado Water Plan will be on the agenda. The agenda will be posted on their website about 30 days before the meeting, and the meeting will be held at the Montrose Holiday Inn. They are taking applications for the System Conservation in the Colorado River Pilot Program. There will be a press release out tomorrow. So far, ten projects have been chosen in Colorado and Wyoming.

UVWUA: Two hydropower facilities went online this summer. There is a good possibility they will be working on two more this winter.

CRWCD: Business as usual. Their annual seminar is September 10<sup>th</sup>, and it will feature Jennifer Gimble and the California Department of Water Resources Executive Director. They are working on getting a watershed plan so they can start using RCPP money.

CPW: They haven't found any invasive mussels at Blue Mesa. Its been a banner year.