March 16, 2017 Flaming Gorge Working Group Meeting Notes:

Dale Hamilton

* Introduction

Ashley Nielson

* CBRFC – Description of what it is
* Weather Review
	+ Currently wet in the upper Green River Basin
	+ January was a game changer – entire basin in purple 200-250% of normal precipitation.
	+ February 200-250% in upper Green, Yampa Basin ~95% of normal precipitation.
	+ Caused by atmospheric river events
	+ December – February: many snotel sites reached historical maximums
	+ Currently 150-200% snowpack in upper Green River Basin
	+ Yampa currently near average
* Dry soil moisture entering the winter in the Yampa basin
* Wet soil moisture in the upper Green
* March 1st water supply – flaming gorge 231% - could be a record inflow
* Yampa 120% of average
* Model making assumptions about future weather
	+ They forecast a wet, average weather, and a dry scenario
	+ It’s possible that any of the scenarios can happen
	+ For Flaming Gorge, even with the dry scenario, it’s still a significantly high runoff forecast
* March 15 water supply forecast, it has been dry for the 1st 15 days in March. Upper green still had precipitation in the very upper end
	+ The Flaming Gorge forecast came down 8% from March 1st
	+ Yampa down 21%
* There are uncertainties in the forecast, they do the best they can with the tools they have
	+ What is going to happen?
	+ Is the snow model correct?
	+ Observed streamflow
	+ Diversions and Demands
* Still a large range of possibilities
* March April, May weather still a large contributor, critical
* Supposed to stay dry through mid next week, then transitioning to cooler and wetter

Malcom Wilson/Heather Patno

* Appreciate your comments and opportunity to show what we are seeing
* Oversee Colorado River Storage Project Reservoirs
* Background
	+ 1956 Act – allowing Upper Basin states (Colorado, Utah, Wyoming, New Mexico) to utilize their 1922 Colorado River Compact apportionments, benefits include:
		- Regulate flows
		- Flood control
		- Irrigate lands
		- Hydroelectric power generation
			* Pays for the operation of the reservoir, O&M for smaller projects, provide revenues to salinity control, recovery program,
		- Regulating control
	+ Flaming Gorge is largest reservoir in the Upper Basin after Lake Powell
	+ Base Operations
		- Store high in the system for use
		- Make scheduled release
		- Evaluate forecasts monthly
	+ Remember when it comes to the forecast, things could turn around quickly like in the Yampa, this leads to a fair amount of uncertainty
	+ What we are doing this year is in response to the high snowpack, we’ve started high releases earlier than normal
	+ Our response this year is primarily due to hydrology
	+ 3 reaches: 1 – Gorge to Yampa, 1 – Yampa to White, 3 – White to confluence of Colorado
	+ The interaction of the Yampa and the White have a large impact to flows downstream of their confluences with the Green River
* 2017 Forecasted Operations
	+ 2016 was fairly average, some of the unknowns can impact the actual runoffs considerably
	+ Yampa near normal
	+ Flaming Gorge historic volume – both the mid and max forecast are above the 1986 actual runoff
	+ Yampa most probable near average – has decreased since the start of March
	+ We still have the rest of March, April, and May
	+ 2011 was much larger on the Yampa
* Historic Operations
	+ 1986 – Maximum year. Actual observed vs without Flaming Gorge is drastically different – 8600 cfs vs 27000 cfs – 80 days at full bypass
	+ Yampa River Flows in 1986 – produces more than the Upper Green. When added to Upper Green, could have been up to 40,000 cfs. When added with the Gorge, max of 22,000. Observed near Green River 35,000 cfs – includes all of the other tributaries, Jensen would have been much higher without the dam
	+ 2011 – Observed volume – 1.9 maf. Flaming Gorge decreased when Yampa peaked (2.9 maf) balanced safety of the dam and the safety of the residents downstream
		- It was a lot wetter in the spring than 1986
	+ Larval Trigger Study Plan – based on a biological trigger rather than hydrologic
* 2016 operations
	+ Heavily impacted from spring precipitation/rain events. These were unknown to us in the forecast. It could have gone dry, it could have gone and did go wet
	+ We didn’t use the spillway in 2016 and don’t anticipate using the spillway this year
	+ We will open bypass in April and reduce level of reservoir
	+ There may be an active wet pattern come in the end of March
	+ Larvae in 2016 showed up on Memorial Day weekend and we waited until the Tuesday after to ramp up flows – 1 bypass tube open at 6600 total to reduce total flow downstream, then to full bypass to assist the larvae to reach the flood plains
* Ongoing updates
	+ BOR webpage
		- Flaming Gorge operation status update and weekly hydrology update
		- Snowpack, precipitation
* Planned operations – see website
	+ 4600 currently, April going to one bypass through May, based on observed weather this projection may increase or decrease
		- Comment – it would be bad to go up and down from 4600 cfs to 8600 cfs and back to 4600 cfs
		- Going to full bypass is likely 30 days or more would be based on either hydrological or trigger for study plan, we will have a better idea as we move through spring

Comments:

* Comment to release water earlier in the year when high snowpack is seen
	+ We are trying to respond to this and release ahead of time. There will likely be a shift in the Yampa and a lower amount coming down. We started in mid-February and bumped it up again at the beginning of March. Historic release is on May 27th.
	+ ROD allowed for research and studies
	+ How were the durations accounted for in the ROD and the EIS?
* Green River area (see handout)
	+ Asked legislatures to have an emergency meeting –
	+ Handouts – impacts to green river – conservation district – Curtis Rozman asked for this meeting
	+ Had a large meeting in Green River where people brought statements and concerns.
	+ Flaming Gorge is the only structure that can help control flooding and it is part of the criteria for operations
	+ ROD said the Flaming Gorge model – reach 3 is ok if flow and temp are made in 1 and 2
	+ Look at flow gage at Green river – if reaching 30,000, hold off a bit
	+ EIS – shows negative effects are minimal and insignificant
	+ Losses are great financially
	+ Recommend 30,000 cfs as a maximum at Green River – bankfull is 33,000 cfs
* Curtis Rozman – Ruby Ranch where the San Rafael enters the Green
	+ Landowners asked him to represent them in this meeting
	+ Costs in 2011 – $113,000
	+ One of the primary mandates of the dam is flood control
	+ Why so important? –
		- Local economy is not booming
		- His farm spends over $500k in the local economy per year
		- If take into account all farmers along the river, talking a lot of $ in the economy
		- State of Utah has spent millions to put the water to beneficial use, why? Water. Who is the largest uses and bankers of the water? Farmers
		- If farmers are gone, it’s going to impact the state
		- These things don’t surprise us, if we wait, it’s too late
		- When the dam closed in 1962, generating in 1963, how long did it take to fill? 12 years. The dam is able to fill over 20 feet year to year.
		- The water shed is more than sufficient to allow for a little bit of flux
		- How much was released or dropped in 2011? 1 foot
		- The fish can wait a year when businesses, people, property is at risk
		- There’s not one year that flooding could not have been prevented