

Flaming Gorge Working Group Price, UT

August 15, 2019

The purpose of the working group meetings is to inform the public and other interested parties of Reclamation's current and future operational plans and to gather information from the public regarding specific resources associated with Flaming Gorge Reservoir and the river corridor below it. In addition, the meetings are used to coordinate activities and exchange information among agencies, water users, and other interested parties concerning the Green River.

Agenda:

- Introductions
- Hydrology – Green and Yampa River (Ashley Nielson, Colorado Basin River Forecast Center (CBRFC) from National Weather Service (NWS)) – 15 min
- Recovery Program – Green River Research and Endangered Fish (Tildon Jones, United State Fish and Wildlife Service (USFWS) – 10-15 min
- Flaming Gorge operations (Nathaniel Todea, United States Bureau of Reclamation (USBR) Upper Colorado Power Office (UCPO) – 15 min
- Update on discussion with Green River Stakeholder group (Dale Hamilton, USBR) – 30 min
- Dam Safety Program and Flaming Gorge Spillway Operations (Dale Hamilton, USBR) – 30 min
- General discussion, comments/Q&A – Update of modeling efforts – Beau Uriona USBR UCPO

Minutes:

Introduction

Dale opened the meeting and provided a brief introduction into Flaming Gorge (FG) operations.

Attendees introduced themselves and their interest in FG Operations.

Hydrology, 2019 Spring Forecast and Runoff - Ashley Nielson

2019 Runoff Recap

- Upper Green started the season dry. Wet conditions elevated forecasts in April, May, and June. Upper Green followed average runoff trend.
- Yampa June forecasts (225%). Delayed and extended runoff. Higher flows have continued through summer. Peak was 15,800 cfs on 6/23 (latest peak on record).
- Overall, a highly variable year due to temperatures and precipitation / snow.

2019 Fall Forecast

ENSO neutral condition expected fall / winter. Northern jet stream seems strong / active for this time of year.

Brenda Alcorn will be taking over forecasts for Yampa and Green beginning Sept 1, 2019. Contact Ashley if you need to be put in contact with Brenda.

Recovery Program Experiments and Flow Management – Tildon Jones

Floodplain wetlands are better habitat for razorback sucker larvae than the main channel.

In the future, would like to conduct flow spike experiments to disadvantage smallmouth bass reproduction.

Flow requests to disadvantage smallmouth bass will likely increase to full powerplant for 1-3 days from FG (4,600 cfs) for reach 1. This did not occur this year, but could happen in the future.

Question from Trina (DWR): What are the necessary flows (including duration and intensity) to disadvantage smallmouth bass? Response from Tildon (FWS): Those target flows are based on research conducted this year from Kevin Bestgen but data is still being collected. The data is based on flows at known smallmouth bass spawning / nesting habitats on the Green River.

Razorback sucker larvae show up 80% of time between May 15 – June 5.

2019 LTSP/ROD Release

- 2019 larvae were first captured the week leading up to Memorial Day. June 3 is when Larval Trigger Study Plan (LTSP) flow releases began. Flows decreased on June 17.
- Larvae were captured in 5 of the managed Green River Floodplains.
- Razorback sucker from 2016 release returned to Stewart Lake outlet this year.

Base Flows for Colorado Pikeminnow (CPM)

- UCPO Operators will work to provide a flow target for Reach 2.
- CPM larvae detected on July 12 and still being detected.
- Base flows from FG began just before mid August.

Hydrology and Forecasted Operations of FG – Nathaniel Todea

Inflows to Flaming Gorge were in the average wet year classification.

Yampa was in the moderately wet classification.

2019-2020 Operation Plan

- 2019 LTSP flows and CPM base flows were achieved.
- LTSP was 9 days above 18,600 cfs in Reach 2 but may get credit for an additional 2 days based on provisional data at the time and could change.
- CPM biological trigger was initiated in early-mid July by the Recovery Program. Base flow did not start until early-mid August. Yampa was providing over 3330 in mid-July and was not below 1000 cfs until August 2, 2019. The CPM average hydrologic condition ranges (2000 - 2600 cfs) were observed at the Jensen Gage on August 3, 2019. The CPM target flow will continue until the end of Sept.

Question from Clayton Palmer (WAPA): Wanted to know if the release request this year was due to larval presence or Yampa peaks? Tildon (FWS) response: Tried to time flows based on the bulk of larval transport and not just the initial presence. Rule is to not match the Yampa, even though it was timed well this year just due to luck.

2019 Working Group Considerations – Dale Hamilton

Dale reviewed activities intended to increase stakeholder inclusion in the Flaming Gorge planning process and to alleviate impacts of high flows. What we were able to accomplish in 2019 based on input from the Working Group:

- 2017 – Reduced Flaming Gorge bypasses during the Green River peak to help reduce flows in Green River Utah. We did not operate for fish in 2017 and did not meet our targets.
- 2019 – Increased coordination with WAPA.
- 2019 – Coordination with GROGA to time daily release schedule and also avoided ramping up flows during the weekend. Reclamation coordinated with GROGA on at least 7 separate times during 2019: April 19, May 26, May 30, June 18, June 24, July 5, and August 13.
- Decreased bypass on June 6, 2019 during LTSP to reduce risk of flooding in Jensen, resulting in a lost day above 18,600 cfs (target flow). Flows never reached flood stage of 24,000 cfs during LTSP.
- 2019 – Down ramping release schedule was also adjusted based on input from GROGA.

Dale also pointed out that changes in operations at the dam take about 3-4 days to reach the town of Green River, UT so response to flow conditions in that area are frequently delayed, especially during high flow periods.

In 2019 flows topped out at about 26,000 cfs, below the bankfull threshold of 32kcfs for that reach of river and well below the flood stage of 36,000 cfs. Changes we can make at FG have lesser impacts at higher gauge heights and flows. FG flows were being reduced when the river was peaking in late June. Contributing flows from other tributaries were large influence.

Dale received reports of high water above the Tusher Diversion on June 20, 2019 from Roger Barton and showed a photo of a pump adjacent to the Green River and the river was nearly up to the pump. Dale mentioned that he didn't know the exact cause of the high water, though there have been some people postulating reasons for the high water above the Tusher Diversion including and that it could actually be a combination of these or other reasons:

- The Tusher Diversion was possibly re-built higher than the original diversion
- There was a possible survey bust when the Tusher Diversion was re-built,
- There is a possibility the diversion had been deteriorated over time leading to a lower stage and people moved their farms closer to the river.

Dale ran through a series of aerial images from 1937 to present of the area in question. Agriculture activity in the floodplain increased substantially and replaced 3 secondary channels and island complexes while the river constricted. Another item to note was that there were no high water issues reported downstream from the Tusher Diversion in Green River Utah or at the Ruby River Ranch.

Question from Rob Billerbeck (NPS): Has Reclamation looked into the changes of the river through time and has Reclamation considered peak flows to restore riverine habitat? Dale said we are looking at restoring some of those flows and habitats but not throughout the river and the 18,600 cfs at Jensen is based on channel maintenance. So we are already trying to address the constriction and vegetation encroachment issues.

FG Spillway – Dale Hamilton

Dale presented an analysis of key Flaming Gorge reservoir elevations in relation to its role in water management under CRSPA and spillway elevations. He also outlined recent studies and issues with regards to the spillway. The primary issue with the FG Spillway is cavitation and Reclamation has addressed those issues with an air slot installed to reduce cavitation. The “small quantities of air have been shown to significantly reduce the potential for cavitation damage.” The FG Spillway is safe to use but the cavitation risk remains. Based on maximum spillway discharge scenarios, the spillway is not necessary to accommodate all but the most extreme years of inflow (1 in 1 million and 1 and 10 million year flows). However, for the flood ranges of 1,000 – 100,000-year floods, there would likely be enough uncertainty with forecasting flood flows that use of the spillway would be needed to maintain the lowest possible reservoir to provide space for flood routing. Reclamation manages FG Reservoir at an elevation of 6025 to alleviate concerns with spillway usage in extreme events. Reclamation Technical Service Center analyses indicated in most years, the reservoir is at 6025’ and it is the 529KAF difference between that elevation and the “normal” full pool elevation of 6040’ that allows management of flows in any given year. This flow management strategy plays an important role in the delivery of compact apportionments to the lower basin and avoiding compact calls which are not a good thing for any stakeholder in the Upper Colorado River basin. Additionally, the Recovery Program and its partners play a significant role in protecting flows for use by Green River stakeholders, and he re-emphasized the need to balance river flows among a wide range of user groups. Reclamation manages the FG Dam conservatively based on safety concerns and minimizing downstream risks. Reclamation limits usage of the spillway to between 5,000 – 20,000 cfs and only when needed to bypass flood flows.

The spillway was used in 1983 and 1999 and inspected afterwards. The deterioration was minimal and no fixes were recommended by dam safety engineers and inspectors.

Flaming Gorge Reservoir functions to provide ESA compliance for over 2,000 projects which provide irrigation, municipal, and industrial water to millions of people. The Central Utah Project, a participating project in CRSP, diverts water from Colorado River tributaries in the Uintah Mountains and transports the water to the Wasatch Front supplying water to roughly 2 million people.

Green River Stakeholders Group – Dale Hamilton

Dale reviewed results from the 2018 stakeholder meeting and response to inquiries from the Green River Stakeholder Group. The Green River Stakeholder group provided four items or proposals for consideration which Reclamation and its partners were able to respond to, including:

- 1) Schedule the spring release during a specific time of year for every year
- 2) Look into possibility of using, or reducing storage (above 6035 and below 6025) to provide additional flood control space (Action Item 1)
- 3) Look into the possibility of using Capital Projects funding through Recovery Program legislation to reduce bank erosion of private property (Action Item 2)
- 4) Look into the possibility of using private lands and canals for use in recovery of native species (Action Item 3)

Proposal no. 1

Regarding the first item (provide a specific time frame for spring peaks) Dale stated that we currently cannot be more specific about the timing of peak flows beyond predictions for razorback sucker larval

emergence dates, but which we will continue to refine and make available each year. Beyond that, we cannot provide more specificity. Implementing this proposal would reduce Recovery Program's ability to recover endangered fish and fulfill EIS and ROD Reach 2 objectives. Reclamation cannot accommodate this proposal.

Proposal no. 2, Action Item 1 – Lower reservoir elevation proposal to reduce bypass days in high water years

To discuss the idea of reducing reservoir volume to accommodate inflow and avoid large spring peak releases which utilize bypass flows, Dale invited Beau Uriona (Power Office) to speak on hydrologic modelling attempts to explore feasibility. Beau remarked that he hadn't performed the model runs because on its surface the proposal for a lower reservoir target elevation appeared unlikely to work as intended. Bypass would still have to occur at some point during the year to maintain a lower reservoir elevation, and the risks of reducing the reservoir's storage capabilities would increase, creating challenges for making compact deliveries in some years. Other factors, especially forecast uncertainty, also combine to make the prospect of changing from the current approach risky and perhaps detrimental to the ability to store water.

A landowner expressed frustration with the decision to not complete the model and why we can't just draw the reservoir down and try to keep it there. Dale explained that the decision to not model was not made casually or flippantly. Reclamation does complete and maintains complex models of the Colorado River and reservoirs including Flaming Gorge. These models consist of at least a current year, 2-year, and 5-year models and are updated on a regular basis. What was missing in the previous discussion with the Stakeholder group was the perspective of the modeler, Beau Uriona, who understands the system in great detail. Also, the lower Colorado River basin depends on water from the Upper Basin and Flaming Gorge plays a huge role in providing that water and heading off compact calls, disputes, and drought contingency planning.

A State of Utah Water Resources representative offered praise to Reclamation for managing the reservoir as they currently do as Utah does not want to get into a compact call scenario or other emergencies due to tampering with the current regime.

Additionally, there are many years where FG bypass releases would have to begin earlier in the season to reduce the elevation to a lower may 1 target in order to capture additional flows. Additional bypass would likely be required and thus the opposite of the objective for this request.

Another challenge is that Reclamation cannot manage the reservoir based on January predictions. This year, those early predictions contained a lot of uncertainty and were ultimately very far off. The actual inflow was half of what was forecasted in January. (In response to a rancher's comment that Reclamation should be able to predict the weather several months in advance and gradually lower the reservoir).

This action item sets an artificial ceiling / dam crest and actually increases the potential for bypass because that elevation is the new management target. Reclamation did not model this scenario but looked at historic data indicating that bypass flow days would increase to meet new lower elevation target.

Dale reiterated that we've tried to do what we can so far to control inflow and reduce the need for bypass, such as the early releases in 2017 for example. Given the factors discussed previously though—CRSPA and compact commitments, forecast uncertainty, ESA and hydropower commitments—managing the reservoir and river is always a balancing act. We already have the best models available but changing some of the assumptions won't help much in the fact of forecast uncertainty, especially from year to year. Perhaps more snow gauges would help.

T. Wright Dickinson said he was deeply disappointed in the idea that we are putting the low elevation issue to rest and not pursuing more modelling but understood Reclamation's claims and would like to see a write up on why we stopped short of more rigorous modelling. Dale indicated Reclamation could put something together to share with him.

Proposal no. 3, Action Item 2 – USFWS to consult with Solicitors Office to look at the possibility to use Capital Projects funding through Recovery Program Legislation to improve stream bank protection on private land.

Dale described input from Department of the Interior Solicitors office on this proposal. According to our Solicitors, PL 106-392 does not provide authorization for stream bank protection projects as Capital Projects on private ground and does not provide funding for this type of activity. If stakeholders would like, they can provide a statutory path to reach their desired destination, and the Solicitor's office will then evaluate whether such a path is appropriate.

Proposal no. 4, Action Item 3 – Recovery Program to reach out to willing landowners in Reach 2 and 3 to see if available lands are viable for managed off-channel wetlands

Dale described a site visit that occurred on August 9th with Joe Mazer (sp?), T Wright Dickinsen, Jack Lytle, Preston Feltrop, Tildon Jones, Zach Gambel, and others. The purpose for the meeting was to look at the possibilities for local land owners to participate in the Recovery Program through offering private land as potential sites for managed off-channel wetlands. Dale mentioned this was a very exciting development for the Recovery Program that will likely come with its own challenges. Some things the private landowners will likely want to consider are:

- Authorization from Congress to contract with and pay local landowners for participation in the Recovery Program
- Funding from Congress
- What mechanism will be used to accomplish this, a contract, agreement, procurement open for competition or sole source, etc.?
- Who would fill wetland management roles
- Fish habitat, ecology, biology, health, permitting, water rights/use, oversight (state or fed?)
- Cost increase potential and justification (return on investment)

The subject of whether any of the Federal partners to the Recovery Program were authorized to conduct such activities on private lands remains an unknown at this time, however. T. Wright said that he understands the issues but still believes there is a path forward on this proposal.

Reclamation will continue to look for additional solutions to stakeholder issues that fit within law and policy.

Next Meeting times and locations:

March 19 is the tentative date for the meeting in Vernal, UT.

April 16 is the tentative date for the meeting in Price, UT.

Stakeholder Requests:

- 1) T. Wright requested a justification for the results of Action Item 1 provided in writing

Attendees:

Scott Elliott	USBR
Preston Feltrop	USBR
Paul Thompson	Utah Department of Natural Resources
Tom Chart	USFWS
Tildon Jones	USFWS
Beau Uriona	USBR
Darrel Mecham	Grand County Sheriff's Office
Kent Kofford	USBR
Paul Davidson	USBR
Janalee Luke	Emery County Sheriff's Office
Cindy Scott	Farmer
Talmadge Oxford	USBR
Terry Fisk	National Park Service (NPS)
Erik Millis	Utah Department of Water Resources (UDWR)
Chris Curtis	USBR
Matt Cazier	Uintah County
Ross Watkins	Uintah County
Darrell Gillman	Utah Department of Agriculture and Food
Nathaniel Todea	USBR
Jaydon Mead	Bureau of Land Management
Andrew Dutson	Utah Water Rights
Namratha Nallappan	Utah Water Rights
Ashley Nielson	CBRFC/NWS/National Oceanic and Atmospheric Administration
Rob Billerbek	NPS
William Scott	Farmer
John Morton	USBR
Rick Baxter	USBR
Angelia Crowther	Utah Department of Emergency Management
Jordan Nielson	Trout Unlimited
Trina Hendrick	UDWR
Clayton Palmer	Western Area Power Administration
George Weekley	USFWS
Woody Bair	Flaming Gorge Resort
Terry Coppin	Green River Conservation District
Dale Hamilton	USBR

On the phone – Iphone speaker so may have missed someone

T. Wright Dickinson – Vermillion Ranch / Green River Stakeholders
Kevin Bestgen – Colorado State University
Don - Rocky Mountain Power
Phyllis - NPS
Colorado Conservation Board
Chrystal Dean – WAPA

Acronyms:

USBR – US Bureau of Reclamation
WAPA – Western Area Power Authority
NPS – National Parks Service
UDWR – Utah Division of Water Rights
UDEM – Utah Division of Emergency Management
CBRFC – Colorado River Basin Forecast Center
NOAA – National Oceanic and Atmospheric Administration
BLM – Bureau of Land Management
UDAF – Utah Division of Agriculture and Food
UDNR – Utah Division of Natural Resources