

# RECLAMATION

## *Managing Water in the West*

### **Flaming Gorge Operation Plan - May 2020 through April 2021**

#### **Concurrence by**

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## Purpose

Blue for changes that will happen

This Flaming Gorge Operation Plan (FG-Ops) fulfills the 2006 Flaming Gorge Record of Decision (ROD) requirement for May 2020 through April 2021. The FG-Ops also completes the 4-step process outlined in the Flaming Gorge Standard Operation Procedures. The Upper Colorado Basin Power Office (UCPO) operators will fulfil the operation plan and may alter from FG-Ops due to day to day conditions, although we will attempt to stay within the boundaries of the operations defined below. Listed below are proposed operation plans for 3 different scenarios: moderately dry, average (above / below median), and moderately wet. As of the publishing of this document, the most likely scenario is the average (below median), however actual operations will vary with hydrologic conditions. This operation plan covers Flaming Gorge operation from May 2020 through April 2021 per the Flaming Gorge Final Environmental Impact (EIS). Both the Upper Colorado River Endangered Fish Recovery Program (Recovery Program) and the Flaming Gorge Technical Working Group (FGTWG) along with input from the Flaming Gorge Working Group, United States Fish and Wildlife Service (FWS) and Western Area Power Administration (WAPA) provided input that is incorporated into the Final FG-Ops.

The 2005 Final EIS specifically addresses and outlines the content of the FGTWG proposal. This outline is used for the basis of the FG-Ops. The FG-Ops describes the current hydrologic classification of the Green River and Yampa River Basins, including the most probable runoff patterns for the two basins, Fontenelle and Flaming Gorge Dams. The FG-Ops identifies the most likely Reach 2 peak flow magnitude and duration that is to be targeted for the upcoming spring flows. Likely hydrologic conditions are also considered that contain a range of operating strategies that could be implemented under varying hydrologic conditions. Flow and duration targets for these scenarios are for a moderately dry, average (above / below median) and moderately dry to have to most likely scenarios.

## General Operation Criteria for May 2020 through April 2020

The expected hydrology condition is average (below median) and this scenario is presented below. Note that other scenarios moderately dry, average (above median) and moderately dry are presented later in this document. In general, the average (below median) 2012 Larval Trigger Study Plan (LTSP) experiment flow will be attempted for spring operation, pending the Yampa River contributing flows. For the summer base flow period, Colorado Pikeminnow flows (Bestgen and Hill 2016) will be targeted for in Reach 2. The flexibility in the 2000 Flow and Temperature will be used to achieve these targets. The Autumn base flows will be the lowest values to achieve the 2000 Flow and Temperature recommendations in Reach 2. The Winter +25% base flow will be used for this season, to the maximum extent possible.

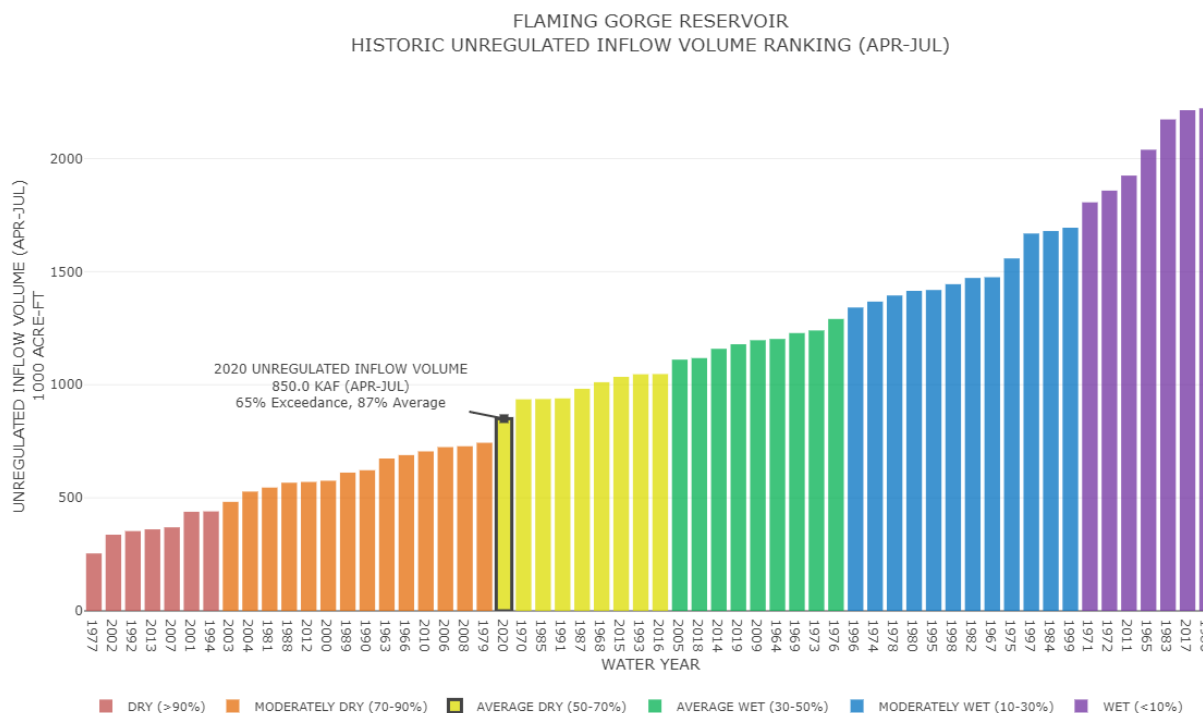
## Current Hydrologic Classification

To implement the 2006 Flaming Gorge ROD in 2020, an evaluation has been made of the current hydrologic conditions in the Upper Green River (*i.e.* above Flaming Gorge Dam). The evaluation is centered on the historical unregulated inflow statistics for Flaming Gorge Dam during the period from 1963 through 2019. Based on these statistics and the March 2020

unregulated inflow forecast of 850,000 acre-feet for Flaming Gorge, the spring 2020 hydrologic classification is average (below median) a 50% to 70% exceedance).

## Green River Basin Hydrology

The March 2020 forecast of the April through July unregulated inflow (current forecast) for Flaming Gorge Reservoir is 850,000 acre-feet (87% of 30-year average). This forecast falls at 65% exceedance based on the historic unregulated inflow record (1963-2019). Figure 1 shows the current forecast in relation to the historic unregulated inflow volumes.

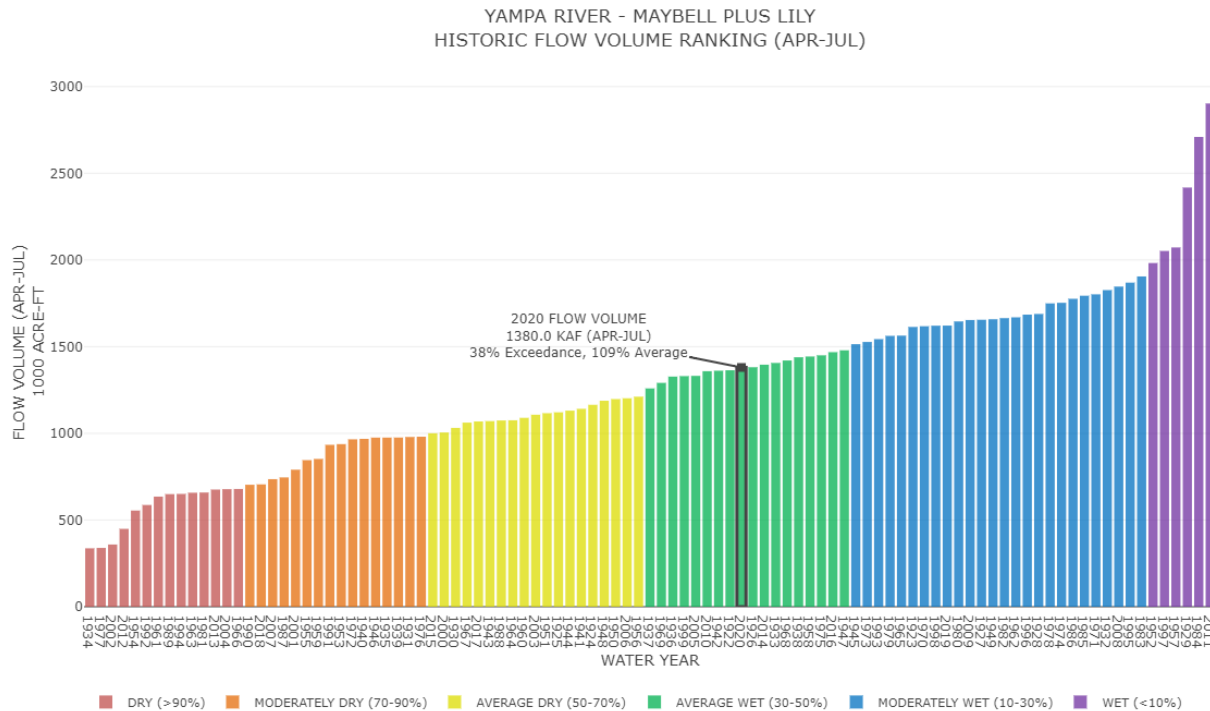


**FIGURE 1** - Flaming Gorge Reservoir March 2020 forecast and ranked historic unregulated April through July inflow volume for years 1963-2019.

As of March 12, 2020, Flaming Gorge Reservoir currently has a water surface elevation of approximately 6026.63 feet above sea level. There is approximately 3,220,848 acre-feet of live storage (86% storage capacity) in Flaming Gorge and approximately 528,152 acre-feet of space.

## Yampa River Basin Hydrology

The current March forecast for the Little Snake River and Yampa River combined (Little Snake at Lily plus Yampa at Maybell) is 1,380,000 acre-feet (109% of 30-year average). This forecast falls above ~38% exceedance based on a ranking of the historic record (1922-2019). Figure 2 below shows the current forecast in relation to historic flow volumes.



**FIGURE 2** - Yampa River Basin (Maybell plus Lily) **March** 2020 forecast and ranked historic unregulated April through July inflow volume for years 1922-2019.

### Probabilities of Flow Events for Spring 2019

According to the hydrologic classifications defined in the 2012 Larval Trigger Study Plan (LTSP), Flaming Gorge Reservoir is in the **moderately dry** hydrologic classification and the Yampa River Basin is in the **average** hydrologic classification. An analysis was completed on **March 04, 2020** to assist in the determination of appropriate flow objectives for spring and summer 2020. The table below presents the Colorado Basin River Forecast Center (CBRFC) current predictions based on the **March** forecast as to the number of days the Yampa River at Deerlodge Park USGS Gage will exceed various mean daily flow thresholds.

Table 1. The number of days the Yampa River will exceed various mean daily flow thresholds.

Daily Mean Peak	90% Exceedance Probability	75% Exceedance Probability	50% Exceedance Probability	25% Exceedance Probability	10% Exceedance Probability
10,000	1 days	8 days	20 days	31 days	39 days
12,000	0 days	1 days	8 days	16 days	33 days
14,000	0 days	0 days	0 days	9 days	23 days
16,000	0 days	0 days	0 days	1 days	13 days

# **Biological Trigger Procedures**

## **Razorback Sucker Trigger – Spring Peak Flow Period**

### **Range of Past Spring Peak Triggers**

The mean calendar date of the first capture of razorback sucker larvae (i.e., the "larval trigger") is May 28 (median May 27) and ranges from May 7 to June 24. Historically, 50% of first captures occurred between May 21 and June 2; 75% occurred between May 16 and June 4. In general, first capture of larvae is earliest in years characterized by low flows and/or warmer conditions, and latest in years characterized by high flows and/or cooler conditions.

### **Spring Peak Pre-trigger Coordination**

The UCPO operator will call in as a participant to any coordination, update, and scheduling activities on the pre-trigger LTSP. During mid-May, a coordination meeting with the Recovery Program, Reclamation, Colorado State University (CSU; Dr. Kevin Bestgen), FWS, National Park Service, WAPA, CBRFC, Utah Division of Wildlife Resources (UDWR) (AKA LTSP group) among others will convene to coordinate activities such as monitoring, modeling, and forecasting of Yampa hydrology/temperature.

### **Spring Peak Trigger**

Timing of LTSP flows is based on the date of first capture and/or significant emergence of the razorback sucker larvae through light trap sampling in the middle Green River which begins in early May of each year. Typically, larval sampling is conducted every morning and evaluation of each morning's sample is completed by mid-morning. As soon as the razorback sucker larvae are positively identified in samples and the LTSP group agrees, an FWS representative will notify the Resource Management Division (RMD) Manager. The RMD Manager will then send notification via email to the Provo Area Office Manager and UCPO Manager to concur on the initiation of the LTSP. The UCPO will determine the exact timing, magnitude, and duration of the releases. The UCPO operator will also issue a directive to meet those targets. If the timing of release is coincident to high recreation pressures, such as Memorial Day weekend, UCPO retains the discretion to delay releases until risk to the public has diminished.

### **Spring Peak Release Period**

Once the spring peak flows enter Reach 2 and have begun inundating floodplain wetlands, the UCPO will be contacted by floodplain wetland biologists/operators to get updates on dam operations and changing Yampa River flows. During this time period, UCPO operators will stay abreast with larvae entrainment efforts. After larvae are verified to be present and dates for initiation of LTSP flows are determined, biologists with the UDWR and FWS will prepare for operations at priority floodplain wetland sites (Stewart Lake [UDWR], Johnson Bottom, Old Charley Wash, Sheppard Bottom [FWS], and others as determined necessary and feasible). Biologists will operate inflow gates at their respective wetlands to maximize entrainment during the LTSP peak flow period. Strategies for maximizing entrainment will vary with hydrology, with a series of carefully managed "pulses" of water and larvae allowed into the wetlands during average and wetter years and more singular, shorter-duration attempts to fill wetlands

during drier years when peak flows are more likely to recede quickly. Wetland gates will be shut once biologists have determined that flows are unlikely to increase and/or flows begin to leave the wetland for the receding river; however, gates may be re-opened to entrain more larvae if the river exceeds or will exceed wetland water elevations.

### End of Spring Peak Releases

During the high releases UCPO will monitor the Yampa River's flows in conjunction with the Green River flows at Jensen. In the event that the Average (above medians) scenario is targeted, the following scenario is used as an example. For moderately dry, average (below/above median), and moderately wet scenarios see table 5 through 8. When it is determined contributions from Flaming Gorge releases when combined with the Yampa cannot achieve 18,600 cfs or above, or if desired flows have been achieved for 14 days cumulatively, the releases from Flaming Gorge will be reduced. To assure limited temperature variations in Reach 2 the ramp down will follow a schedule which reduces flows by 1000 cfs per day until full power generation flows and then continue at a rate of 500 cfs per day until base flows are achieved. The dam will be operated to attain Reach 2 peak flow magnitudes and durations which will vary depending on hydrologic conditions (see Table 2 below, and hydrographs in Figures 3 and 4). Regardless of hydrologic classification, peak flows are expected to last for at least 7 days with the potential to extend that period to at least 14 days if contributing flows from the Yampa are sufficient. This will likely require the use of one or more of the bypass tube valves to supplement flows above maximum power plant releases. Importantly, however, use of the bypass tube valves will be minimized to meet Reach 2 goals.

Table 2. LTSP design matrix

Peak Flow (x) as Measured at Jensen, Utah	Proposed Study Wetlands (a, b)	Number of Days (x) Flow to Be Exceeded and Corresponding Hydrologic Conditions (c)		
		$1 \leq x < 7$	$7 \leq x < 14$	$x \geq 14$
$8,300 \leq x < 14,000$ cfs	Stewart Lake (f), Above Brennan (f), Old Charley Wash (s) <sup>(d)</sup>	Dry	Moderately dry	Moderately dry and average (below median)
$14,000 \leq x < 18,600$ cfs	Same as previous plus Escalante Ranch (f), Bonanza Bridge (f), Johnson Bottom <sup>e</sup> (s), Stirrup (s), Leota 7 (s)	Average (below median)	Average (below median)	Average (below median)
$18,600 \leq x < 20,300$ cfs	Same as previous	Average (above median)	Average (above median)	Average (above median)
$20,300 \leq x < 26,400$ cfs	Same as previous plus Baeser Bend (s), Wyasket (s), additional Leota units (7a and 4), Sheppard Bottom (s)	Moderately wet	Moderately wet	Moderately wet
$x \geq 26,400$ cfs	Same as previous	Wet	Wet	Wet

Pending the hydrologic condition of the Upper Green River and Yampa River, per the EIS either one or two classifications higher (wetter) or one classification lower (drier) than the actual classification established for the Green River is recommended to be used. A matrix is provided below with these conditions including the established hydrologic condition of the Upper Green River. The scenarios Blue and Red are possible scenarios and are the more likely scenario for changing hydrologic conditions.

Table 3. A matrix of variable hydrologic condition on the Upper Green River and Yampa River

<b>Green River Condition</b>	<b>Yampa Condition</b>	<b>Scenario Blue</b>	<b>Scenario Red</b>
Moderately Dry	Average Below Median	Moderately Dry Peak > 14k cfs with sustain flows of > 8.3k cfs for less than 14 days. Attempt to limit to Power Plant Capacity (PPC) with no more than 7 days at full bypass.	Average Below Median Peak 18.6k cfs sustained 14k cfs < 7 days. Attempt to limit to PPC with no more than 7 days at full bypass.
Moderately Dry	Average Above Median	Average Below Median Peak 18.6k cfs sustained 14k cfs < 7 days. Attempt to limit to PPC with no more than 7 days at full bypass.	Average Above Median Peak > 18.6k cfs sustained 18.6k cfs < 7 days. Attempt to limit to PPC with no more than 7 days at full bypass.
Moderately Dry	Moderately Wet	Average Below Median Peak 18.6k cfs sustained 14k cfs < 7 days. Attempt to limit to PPC with no more than 7 days at full bypass.	Average Above Median Peak > 18.6k cfs sustained 18.6k cfs > 7 days. Attempt to limit to PPC with no more than 7 days at full bypass.
Average Below Median	Average Below Median	Average Below Median Peak 18.6k cfs sustained 14k cfs < 7 days. Bypass limited to < 7 days	
Average Below Median	Average Above Median	Average Below Median Peak > 18.6k cfs sustained 14k cfs < 7 days. Bypass limited to < 7 days	Average Above Median Peak > 18.6k cfs sustained 18.6k cfs > 7 days. Bypass limited to < 7 days
Average Below Median	Moderately Wet	Average Below Median Peak 18.6k cfs sustained 14k cfs < 7 days. Bypass limited to < 7 days	Average Above Median Peak > 18.6k cfs sustained 18.6k cfs > 7 days. Bypass limited to < 7 days
Average Above Median	Average Above Median	Average Above Median Peak > 18.6k cfs sustained 18.6k cfs > 7 days. Bypass limited to < 14 days	
Average Above Median	Moderately Wet	Average Above Median Peak > 18.6k cfs sustained 18.6k cfs > 7 days. Bypass limited to < 7 days	
Moderately Wet	Average Below Median	Moderately Wet Peak > 20.3k cfs sustained flows >20.3k cfs >14 days. Bypass could be used for 1-7 weeks.	
Moderately Wet	Average Above Median	Moderately Wet Peak > 20.3k cfs sustained flows >20.3k cfs >14 days. Bypass could be used for 1-7 weeks.	
Moderately Wet	Moderately Wet	Moderately Wet Peak > 20.3k cfs sustained flows >20.3k cfs >14 days.	

## Pikeminnow Trigger – Base flow Period

Concerning summer (Colorado pikeminnow-CPM) base flows (Bestgen and Hill 2016) experiment within the confines of the 2000 Flow and Temperature Recommendation (+/- 40%), target Reach 2 flows will be attempted several days prior to predicted first presence of Colorado pikeminnow and maintaining that level through the summer base flow period. Achieving this targeted base flow will depend on the Yampa River in Reach 2, which may be in spring runoff prior to the presence of CPM. When Colorado pikeminnow spawning is imminently expected or confirmed in the Yampa River, a U.S. Fish and Wildlife Service representative will contact the RMD manager to implement base flow targets as identified in Bestgen and Hill (2016). Past investigations indicate average date of first presence is 4 July (range 20 June to 24 July), and is earlier in warmer, lower flow conditions and later in cooler

and higher flow conditions.

Table 4. reproduction of Table 10 from Bestgen Hill 2016a

Hydrologic classification	Reach 2, Middle Green River Flows		Reach 3, Lower Green River Flows	
	2000 (Muth et al.) (cfs)	Proposed (cfs)	2000 (Muth et al.) (cfs)	Proposed (cfs)
Dry (10% of years, 0 to 10% exceedance)	900 – 1,100	1,700 – 1,800	1,300 – 2,600	1,700 – 2,000
Moderately Dry (20% of years)	1,100 – 1,500	1,800 – 2,000	1,500 – 3,400	2,000 – 2,300
Average (40% of years)	1,500 – 2,400	2,000 – 2,600	1,800 – 4,200	2,300 – 2,800
Moderately Wet (20% of years)	2,400 – 2,800	2,200 – 2,800	2,700 – 4,700	2,600 – 3,200
Wet (10% of years, 90 to 100% exceedance)	2,800 – 3,000	2,400 – 3,000	3,200 – 4,700	2,800 – 3,800

## Base Flow Period

The summer base flow period will be determined through a combination of hydrologic conditions on the Yampa River and Upper Green River and will end on September 30<sup>th</sup>. The start of the summer base flow will be determined using unregulated inflow and average monthly inflows on the Yampa and Green River. The 3% changes in flow between consecutive mean daily flows due to reservoir releases and 0.1-m stage change at Jensen within a day as recommended in the 2000 Flow and Temperatures Recommendation will start as part of the summer base flow. (Colorado pikeminnow-CPM) base flows (Bestgen and Hill 2016) experiment within the confines of the 2000 Flow and Temperature Recommendation (+/- 40%) will be attempted.

The Autumn base flows will be the lowest values to achieve the 2000 Flow and Temperature recommendations in Reach 2. This period is between October 1<sup>st</sup> through November 30<sup>th</sup>.

The Winter +25% base flow will be used for this season, to the maximum extent possible.

## Utah Division of Wildlife Resources Monitoring Program

UDWR has a long-term fishery monitoring program immediately downstream of Flaming Gorge Dam. Each April and September, the agency submits a flow request for two nights of 1,600 cfs, allowing them to electrofish the river at two 1-mile-long study sites, Spillway (Tailrace) and Little Hole. The goal of the request is to ensure the river is navigable by jet boat and to maintain a consistent flow across sampling events. These requests will be considered and if conditions are such to accommodate these requests, Reclamation will approve the requests.

## Maintenance

Regularly scheduled and/or emergency maintenance activities may reduce power plant capacity, though this will likely not interrupt flow objectives, releases may need to be reduced to accommodate such events. Such interruptions will be remedied, as determined by Reclamation, and operations returned to target flow rates upon work completion.



**Table 5. Proposed Operation Matrix for Moderately Dry Hydrologic Conditions**

Period Name / End of Objective	Date and Description
Pre-Spring Peak / Ends at the Start of LTSP - Biological Trigger	May 1 to LTSP Trigger. ~850 cfs to Full Power Generation (pending operation)
Spring Peak Ends when < 8,300 cfs is predicted or observed at Jensen Gage. For variable hydrologic conditions on the Upper Green River and Yampa River see Table 3	Estimated middle-May, pending Yampa Flows. Increase from full power plant capacity and limit the use of bypass to the extent possible to meet Reach 2 Target, sustained flow >8,300 cfs for less than 14 days with a one peak greater than 14,000 cfs.
End of Spring Peak. Ends when summer base flow begins.	Ramp down, end of Spring Peak period – estimated early June. ~1000 cfs/day ramp down from bypass releases to ~350 cfs/day below power plant releases. Releases in the 850 cfs range.
Summer Base Flows / Ends on September 30 <sup>th</sup>	Sustaining Pikeminnow base flow within 2000 Flow and Temperature Recommendations ~1800-2000 cfs in Reach 2 until September 30 <sup>th</sup> . Releases will be no more than ~1800 cfs (+/- 40% period).
Autumn Base Flows / Ends on November 30 <sup>st</sup>	Base flow target in Reach 2 is 1,100-1,500 cfs. Ramp down at 50 cfs/day to approximately ~850 cfs. Late November increase at 50 cfs/day to achieve +25% base flow by December 1 <sup>st</sup> .
Winter Base Flow / Ends on February 28 <sup>th</sup>	Base flows increased to +25% to not exceed 1,875 cfs in Reach 2 from December to the end of February (+/- 25% period). Releases at approximately ~1,500 cfs pending the Yampa.
End of FG Operation Plan and Transition Period / End of May 2019 to April 2020 Flaming Gorge Operation Plan	Flows are reduced to achieve Upper Limit Drawdown (EIS Table 2-3)

**Table 6. Proposed Operation Matrix for Average (below median) Hydrologic Conditions**

Period Name / End of Objective	Date and Description
Pre-Spring Peak / Ends at the Start of LTSP - Biological Trigger	May 1 to LTSP Trigger. ~850 cfs to Full Power Generation (pending operation)
Spring Peak (Average-below median) Ends when < 14,000 cfs is predicted at the Jensen Gage else ends 8,300 – 14,000 cfs is no longer attainable for greater than 14 days. For variable hydrologic conditions on the Upper Green River and Yampa River see Table 3	Estimated middle-late May to early June, pending Yampa Flows. Increase from full power plant capacity in one day and increase 4000 cfs / day during bypass to meet Reach 2 peak Target (>18,600 cfs). Pending Yampa flows, the target is to have >14,000 cfs in Reach 2 for greater 7 days and less than 14 days
End of Spring Peak. Ends when ramp down begins.	Ramp down, end of Spring Peak period – estimated middle to late June. ~1000 cfs/day ramp down from bypass releases to ~500 cfs/day below power plant releases, there after until summer base flow period begins; releases in the 1000 cfs range.
Summer Base Flows / Ends on September 30 <sup>th</sup>	Sustaining Pikeminnow base flow within 2000 Flow and Temperature Recommendations ~2000-2600 cfs in Reach 2 until September 30 <sup>th</sup> . Releases will be approximately 1600 cfs release.
Autumn Base Flows / Ends on November 30 <sup>st</sup>	Base flows for October 1 <sup>st</sup> to November 30 <sup>th</sup> ~1100 cfs (+/- 40% period). Base flow target in Reach 2 is 1,500-2000 cfs. Late November increase @ 50 cfs/day to achieve +25% base flow by December 1 <sup>st</sup> .
Winter Base Flow / Ends on February 28 <sup>th</sup>	Base flows increased to +25% to not exceed ~3,000 cfs in Reach 2 from December 1 <sup>st</sup> to February 28 <sup>th</sup> (+/- 25% period). Releases at approximately ~1,850 cfs.
End of FG Operation Plan and Transition Period / End of May 2019 to April 2020 Flaming Gorge Operation Plan	Flows are reduced to achieve Upper Limit Drawdown (EIS Table 2-3)

**Table 7. Proposed Operation Matrix for Average (above median) Hydrologic Conditions**

<b>Period Name / End of Objective</b>	<b>Date and Description</b>
Pre-Spring Peak / Ends at the Start of LTSP - Biological Trigger	May 1 to LTSP Trigger. ~850 cfs to Full Power Generation (pending operation)
Spring Peak (Average-above median) Ends when < 18,600 cfs is predicted or observed at Jensen Gage. . For variable hydrologic conditions on the Upper Green River and Yampa River see Table 3	Estimated middle-late May to early June, pending Yampa Flows. Increase from full power plant capacity in one day and increase 4000 cfs / day during bypass to meet Reach 2 Target (>18,600 cfs). At least 14 days is targeted pending Yampa flows else at least 7 days pending Yampa flows
End of Spring Peak. Ends when ramp down begins.	Ramp down, end of Spring Peak period – estimated middle to late June. ~1000 cfs/day ramp down from bypass releases to ~500 cfs/day below power plant releases, there after until summer base flows begin; releases in the 1200 cfs range.
Summer Base Flows / Ends on September 30 <sup>th</sup>	Sustaining Pikeminnow base flow within 2000 Flow and Temperature Recommendations ~2000-2600 cfs in Reach 2 until September 30 <sup>th</sup> . Releases will be approximately 1700 cfs release.
Autumn Base Flows / Ends on November 30 <sup>st</sup>	Base flows for October 1 <sup>st</sup> to November 30 <sup>th</sup> ~1400 cfs (+/- 40% period). Base flow target in Reach 2 is 1,500-2000 cfs. Late November increase @ 50 cfs/day to achieve +25% base flow by December 1 <sup>st</sup> .
Winter Base Flow / Ends on February 28 <sup>th</sup>	Base flows increased to +25% to not exceed ~3,000 cfs in Reach 2 from December 1 <sup>st</sup> to the end of February 28 <sup>th</sup> (+/- 25% period). Releases at approximately ~2,400 cfs.
End of FG Operation Plan and Transition Period / End of May 2019 to April 2020 Flaming Gorge Operation Plan	Flows are reduced to achieve Upper Limit Drawdown (EIS Table 2-3)

**Table 8. Proposed Operation Matrix for Moderately Wet Hydrologic Conditions**

<b>Period Name / End of Objective</b>	<b>Date and Description</b>
Pre-Spring Peak / Ends at the Start of LTSP - Biological Trigger	May 1 to LTSP Trigger. ~850 cfs to Full Power Generation (pending operation)
Spring Peak Ends when < 20,300 cfs is predicted or observed at Jensen Gage	Estimated late May to early June, pending Yampa River Flows. Increase from full power plant capacity in one day and increase 4000 cfs / day during bypass to meet Reach 2 Target (>20,300 cfs). ~300k acre feet, 33 days at 4600 cfs or 17 days at 8600 cfs to be evacuated. Bypass could be used for 1-7 weeks. Per Muth et al. > 2 weeks @ 18,600 cfs at Reach 2 will be attempted and this may include the LTSP target of > 20,300 cfs for 1 to ~2 weeks.
End of Spring Peak. Ends when ramp down begins.	Ramp down, end of Spring Peak period – estimated middle to late June. ~1000 cfs/day ramp down from bypass and power plant releases, there after until summer base flows begin; releases in the 1700 cfs range.
Summer Base Flows / Ends on September 30 <sup>th</sup>	Sustaining Pikeminnow base flow within 2000 Flow and Temperature Recommendations ~2400-2800 cfs in Reach 2 until September 30 <sup>th</sup> . Releases will be in 1500 cfs range.
Autumn Base Flows / Ends on November 30 <sup>st</sup>	Base flows for October 1 <sup>st</sup> to November 1 <sup>st</sup> ~2400 cfs (+/- 40% period). Transition from Summer Base Flow to Autumn Base flow will @ 50 cfs/day. Base flow target in Reach 2 is 2,400-2,800 cfs. Late November increase @ 50 cfs/day to achieve +25% base flow by December 1 <sup>st</sup> .
Winter Base Flow / Ends on February 28 <sup>th</sup>	Base flows increased to +25% to not exceed ~3,000 cfs in Reach 2 from December 1 <sup>st</sup> to February 28 <sup>th</sup> (+/- 25% period). Releases at approximately ~2,900 cfs.
End of FG Operation Plan and Transition Period / End of May 2019 to April 2020 Flaming Gorge Operation Plan	Flows are reduced to achieve Upper Limit Drawdown (EIS Table 2-3)

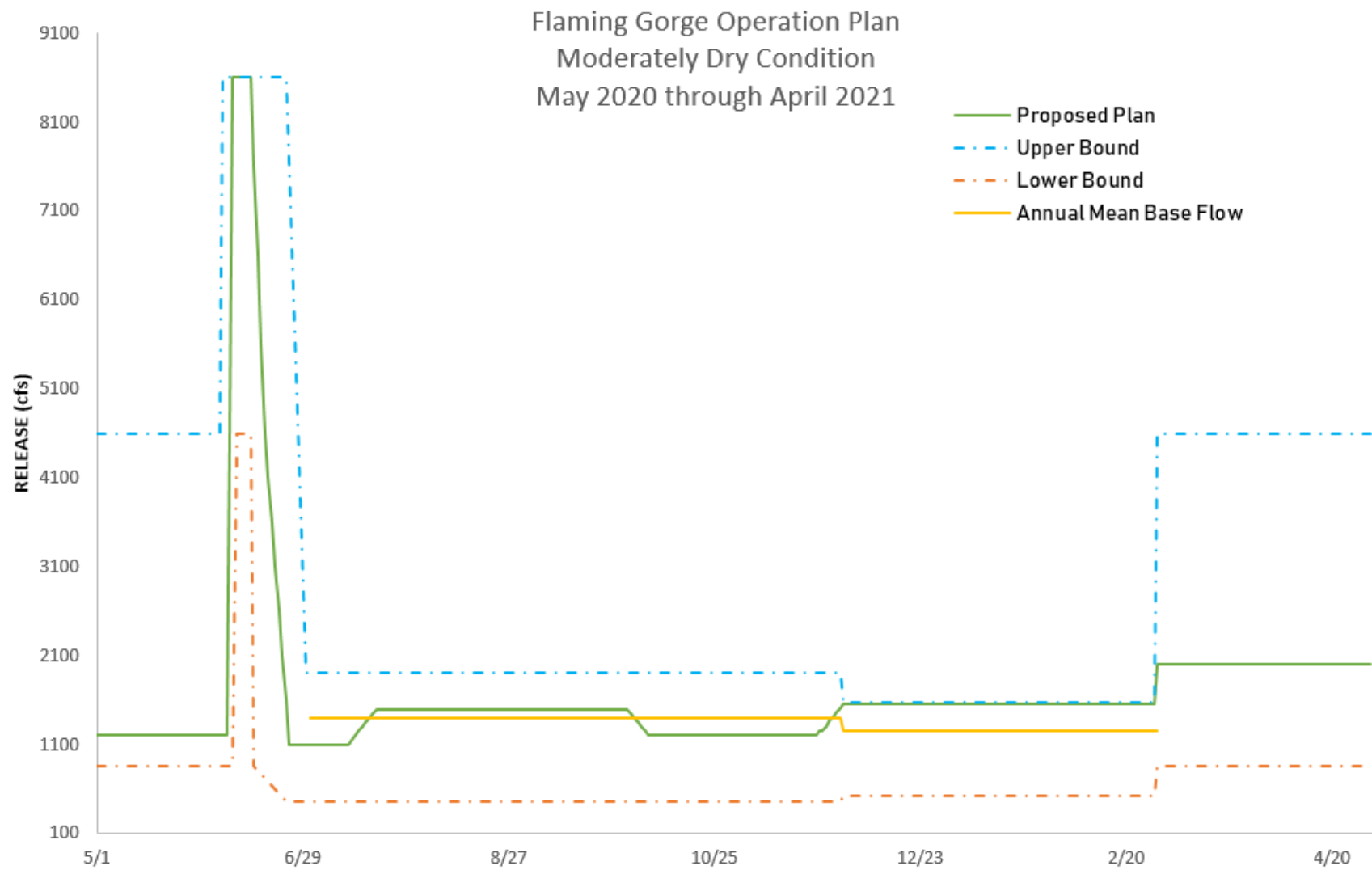


FIGURE 3 – Proposed flow regime for Moderately Dry (below median) Hydrology.

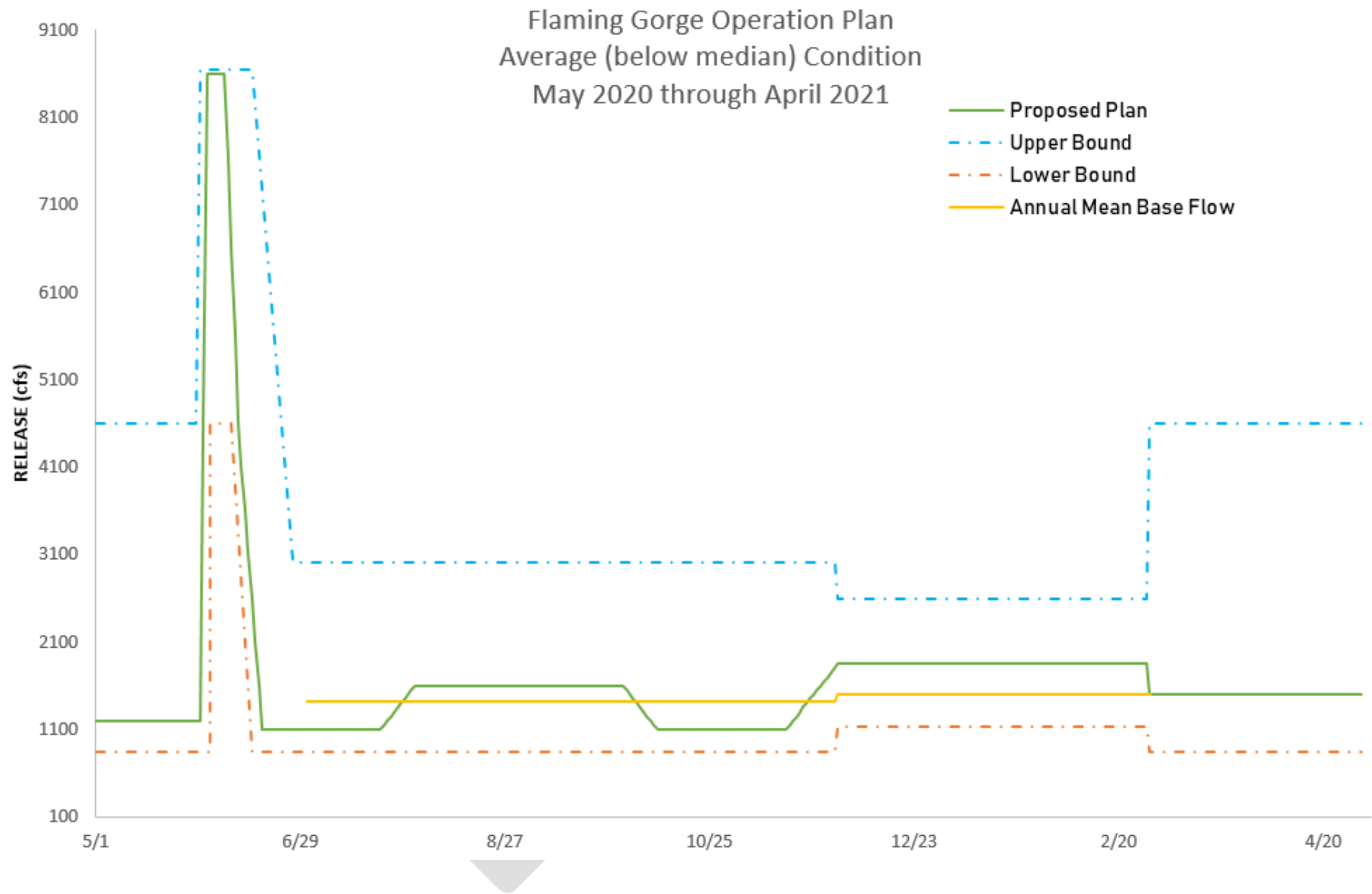


FIGURE 4 – Proposed flow regime for Average (below median) Hydrology.

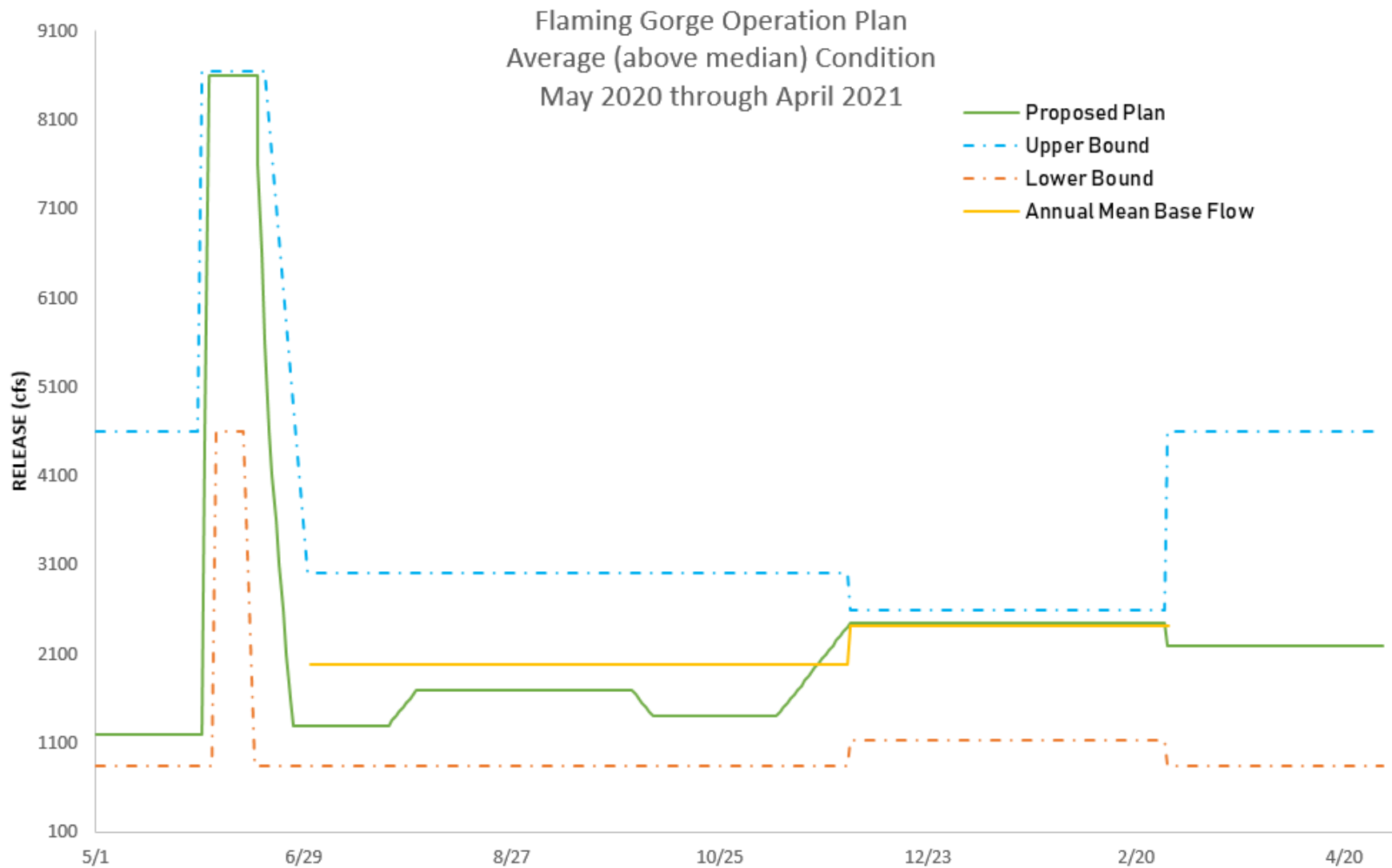


FIGURE 5 – Proposed flow regime for Average (above median) Hydrology.

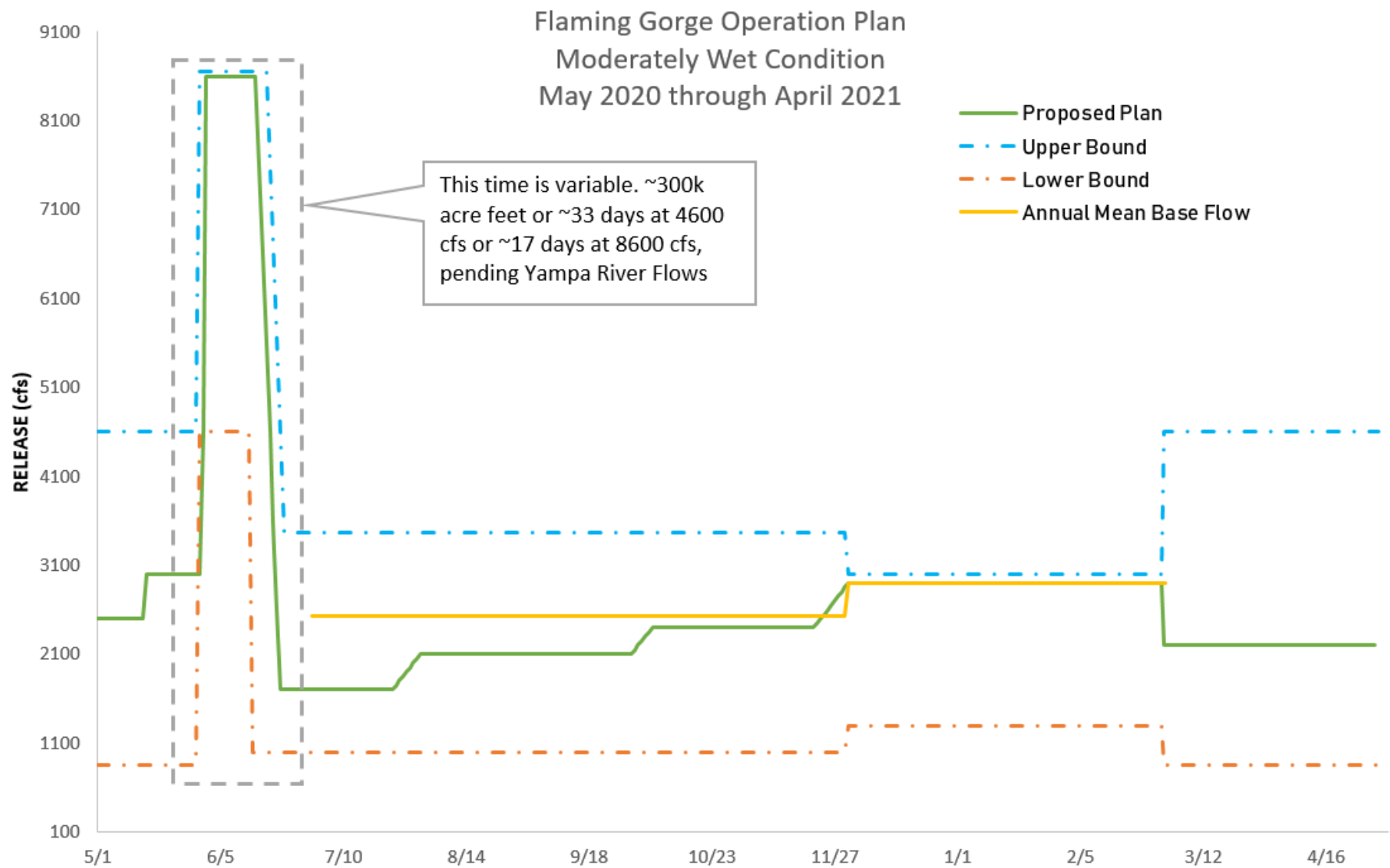


FIGURE 6 – Proposed flow regime for Moderately Wet Hydrology.