BUREAU OF RECLAMATION

Flaming Gorge Operation Plan - May 2021 through April 2022

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Purpose

The development of the Flaming Gorge Operation Plan (FG-Ops) completes the 2006 Flaming Gorge Record of Decision (ROD) process for May 2021 through April 2022. 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. Reclamation reserves the right to adjust this plan and implementation of study flows based on hydrology and other resource considerations. As of the publishing of this document, the most likely scenario is the dry, however actual operations will vary with hydrologic conditions. The Upper Colorado River Endangered Fish Recovery Program (Recovery Program), the Flaming Gorge Technical Working Group (FGTWG), Flaming Gorge Working Group (FG WG), United States Fish and Wildlife Service (FWS) and Western Area Power Administration (WAPA) provided input that was considered in the development of this report.

The FG-Ops describes the current hydrologic classification of the Green River Basin and the hydrologic conditions in the Yampa River Basin. 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 strategies consider dry, moderately dry, average (above / below median), and moderately wet scenarios as the most likely classifications to occur this year.

General Operation Criteria for May 2021 through April 2022

The expected hydrology condition is dry and this scenario is presented below. Note that other scenarios (moderately dry, average [below/above median] and moderately wet) are presented later in this document. Per the FGTWG Proposal, the dry flow per 2000 Flow and Temperature Recommendation will be attempted for spring operation and timed with the Yampa River peak flows. A smallmouth bass spike release (a one day ramp up to full power plant capacity (4,600 cfs), three consecutive days at power plant capacity, and a ramp down at the rate of 2,000 cfs/day) will occur in mid-June to early July. Timed with the full power plant capacity release, selective withdrawal structures (SWS) unit 2 and unit 3 will be lowered from 40 feet to 50 feet from the reservoir pool water surface. The SWS unit 2 and unit 3 will be raised back to 40 feet once full power plant capacity releases are lowered. Furthermore, the SWS unit 1, will be the last unit to be online to achieve full power plant capacity and will be the first unit offline when down ramping occurs. For the summer base flow period, Colorado pikeminnow flows (Bestgen and Hill 2016) will be targeted in Reach 2. Flexibility in the 2000 Flow and Temperature Recommendations will be used to achieve these targets, if possible. However, based on the current forecast, the Colorado pikeminnow revised flows are not likely to be achieved. No flexibility will be used during the autumn base flow period and Reclamation will use the lower flow values that are within the range of the 2000 Flow and Temperature recommendations to achieve Reach 2 flows. The winter +25% base flow adjustment will be used for this season to the

maximum extent possible.

Current Hydrologic Classification

To implement the 2006 Flaming Gorge ROD in 2021, 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 2020. Based on these statistics and the 2021 mid-April unregulated spring inflow forecast of 470,000 acre-feet for Flaming Gorge, the spring 2021 hydrologic classification is a moderately dry with an 89% exceedance.

Green River Basin Hydrology

The 2021 mid-April unregulated spring inflow forecast (current forecast) for Flaming Gorge Reservoir is 470,000 acre-feet (48% of 30-year average$_{1981\text{-}2010}$). This forecast falls at 89% exceedance based on the historic unregulated inflow record (1963-2020). Figure 1 shows the current forecast in relation to the historic unregulated inflow volumes.

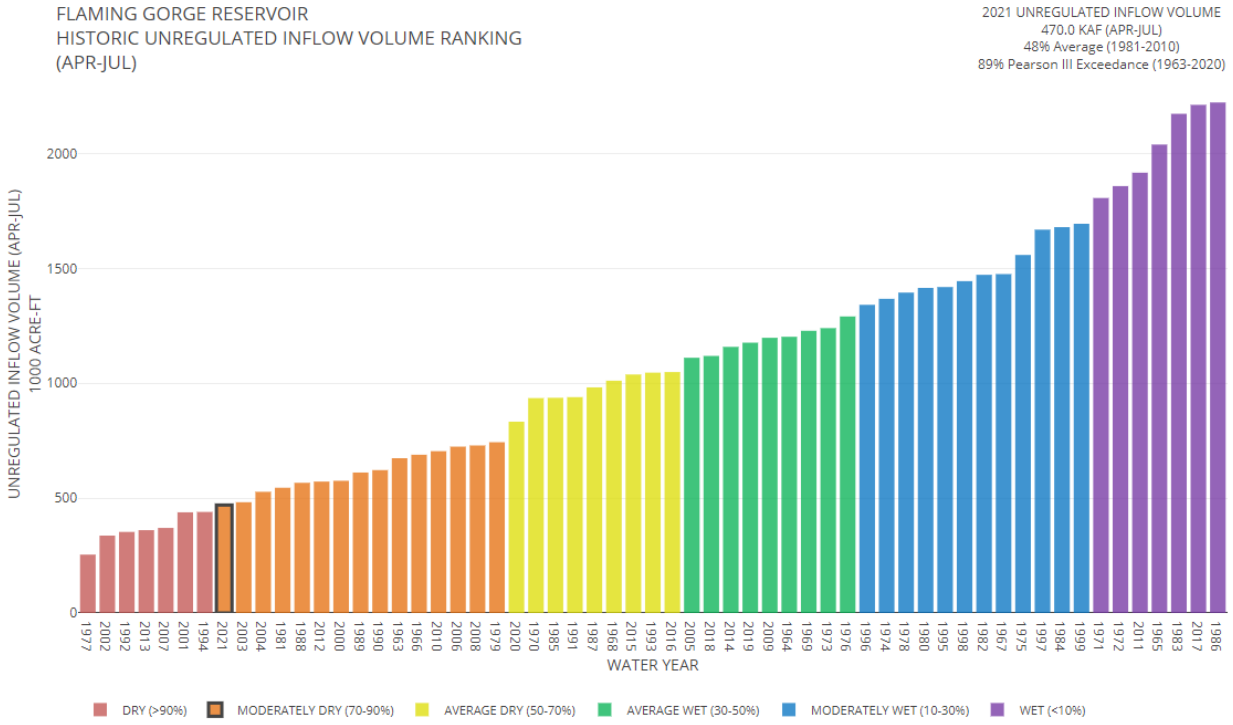

FIGURE 1 - Flaming Gorge Reservoir 2021 mid-April spring forecast and ranked historic unregulated April through July inflow volume for years 1963-2020.

As of April 19, 2021, Flaming Gorge Reservoir's current water surface elevation is 6025.41 feet above sea level. There is 3,175,373 acre-feet of live storage (85% storage capacity) in Flaming Gorge with 573,627 acre-feet of space.

Yampa River Basin Hydrology

The current mid-April forecast for the Little Snake River and Yampa River combined (Little Snake at Lily plus Yampa at Maybell) is 625,000 acre-feet (49% of 30-year average$_{1981\text{-}2010}$). This spring forecast falls above 92% exceedance based on a ranking of the historic record (1922-2020). Figure 2 below shows the current spring forecast in relation to historic flow volumes.

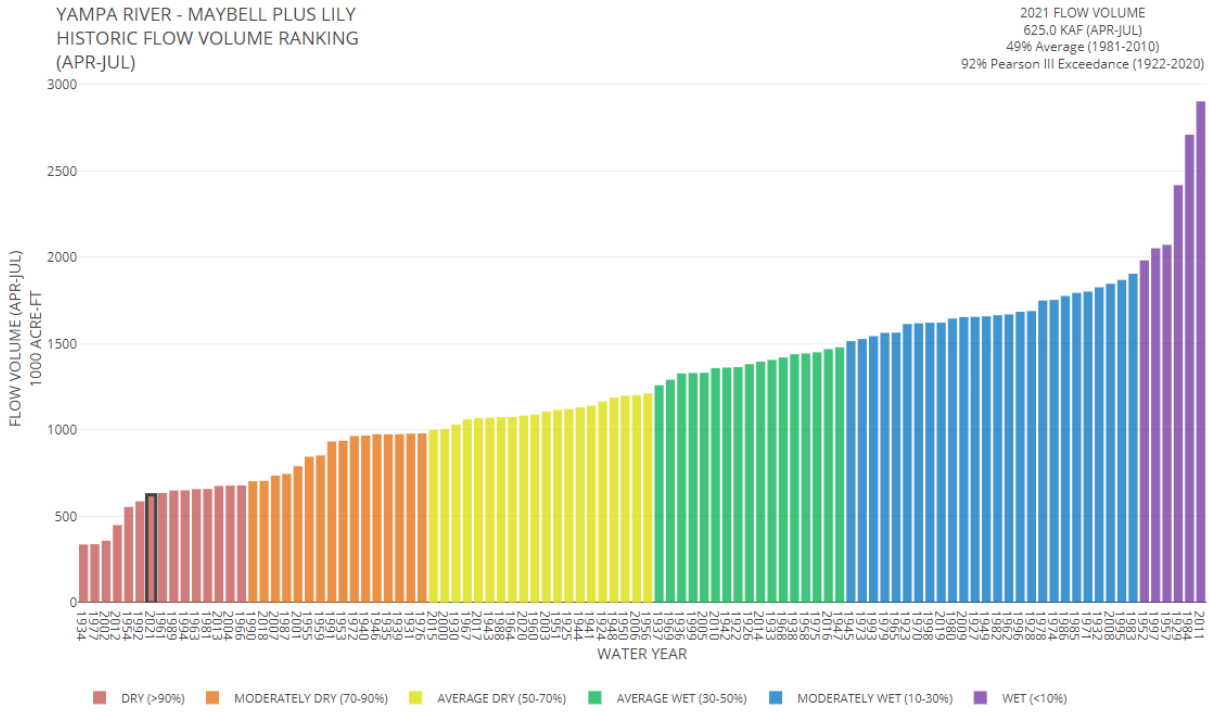

FIGURE 2 - Yampa River Basin (Maybell plus Lily) 2021 mid-April spring forecast and ranked historic unregulated April through July inflow volume for years 1922-2020.

Probabilities of Flow Events for Spring 2021

According to the hydrologic classifications defined in the Flaming Gorge Final Environmental Impact Statement, Flaming Gorge Reservoir is currently in the moderately dry hydrologic classification and the Yampa River Basin is in the dry hydrologic condition. An analysis was completed on April 16, 2021 to determine appropriate flow objectives for spring and summer 2021. The table below presents the Colorado Basin River Forecast Center (CBRFC) current predictions based on the mid-April spring 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
6,000	0 days	0 days	4 days	14 days	26 days
8,000	0 days	0 days	0 days	4 days	12 days
10,000	0 days	0 days	0 days	0 days	4 days

2000 Flow and Temperature Spring Releases

April – July Forecast May 1st forecast Exceedance Value Greater than 70% (Dry and Moderately dry Hydrologic conditions)

For both dry and moderately dry hydrologic classification the 2000 Flow and Temperature Recommendations spring peak flow will be attempted. Peak releases will be timed to coincide with peak and immediate post-peak spring flows in the Yampa River. For both dry and moderately dry the ramp down rate of 350 cfs/day will be targeted. For dry and moderately dry scenarios refer to tables 4 and 5 and figures 3 and 4. For moderately dry hydrologic classification, to achieve a flow equal or greater than 8,300 cfs in Reach 2 for 7 or more days, at least one day release of 4,600 cfs power plant capacity will be made. This will be dependent on Yampa River flows and other factors. For a dry hydrologic classification to achieve a flow greater than 8,300 cfs in Reach 2 for 2 days or more, except in extremely dry years (actual duration dependent on Yampa River flows and other factors), at least one day release of 4,600 cfs power plant capacity will be made. In a dry hydrologic classification, where unregulated inflow exceedance value is equal or greater than 98%, no full power plant releases will be made.

Spring Peak trigger

No pre-spring peak meeting is scheduled. The UCPO will continue to monitor the CBRFC forecast to determine full power plant releases to be timed to coincide with Yampa peak and immediate post-peak spring flows.

Razorback Sucker Trigger – Spring Peak Flow Period

April – July Forecast May 1st forecast Exceedance Value Equal or Less than 70% (Average, below/above median, and Moderately Wet Hydrologic condition)

For Larval Trigger Study Plan (LTSP) hydrologic conditions average (below/above median) and moderately wet, LTSP target flows per Table 2 LSTP matrix will be used.

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) 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 a Recovery Program representative will notify the Resources Management Division (RMD) Manager with a courtesy copy to the Provo Area Office Manager and UCPO Manager. The UCPO will determine the exact timing, magnitude, and duration of the releases. If the timing of release coincides with high recreation use, such as Memorial Day weekend, UCPO may delay releases to minimize risk to the public. For higher releases on Memorial Day weekend, notification received before Memorial Day weekend on Tuesday or early Wednesday will provide sufficient time to initiate LTSP releases to achieve Reach 2 goals. The goal is to have releases sustained over the weekend for safety purposes.

Spring Peak Release Period

Once river flows in Reach 2 begin to peak, the UCPO operators and the wetland biologists in the field will be in close contact to share information about forecasted flows, floodplain inundation and larvae entrainment efforts.

End of Spring Peak Releases

During high releases, the UCPO operator will monitor Yampa River flows in conjunction with Green River flows measured at Jensen. In the event that the average (above median) scenario is targeted, the following scenario provides an example. For average (below/above median) and moderately wet scenarios refer to tables 5, 6, and 7. When it is determined that contributions from Flaming Gorge releases, combined with the Yampa, cannot achieve 18,600 cubic feet per second (cfs) or above, or if desired flows have been achieved for 14 days cumulatively, the releases from Flaming Gorge will be reduced. To limit temperature variations in Reach 2, the release ramp down rate will follow a schedule which reduces flows by 1,000 cfs per day until full power generation flows are reached, and then continue to reduce flows 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 planned optional Tables 6, 7, and 8 and hydrographs in Figures 5, 6, and 7).

Table 2. LTSP design matrix, modified table reproduction.

Peak Flow (x) as Measured at Jensen, Utah	Proposed Study Wetlands (a, b)	No. of Day(s) $1 \leq x < 7$	No. of Days $7 \leq x < 14$	No. of Days $x \geq 14$
$8{,}300 \leq x < 14{,}000$ cfs	Stewart Lake (f), Above Brennan (f), Old Charley Wash (s)[(d)]	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[e] (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

The LTSP flow targets in Reach 2 will likely require the use bypass to supplement flows above maximum power plant releases. The use of bypass will be minimized to meet Reach 2 goals.

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 could be recommended for operations.

The duration of spring sustained flows will depend on the type of hydrologic classification and whether hydrology is wetter or drier within that classification range. Pending the Yampa being in a dryer/wetter condition, durations could be extended or reduced regardless of Green River hydrologic classification.

Smallmouth Bass Spike

April – July Forecast May 1st forecast Exceedance Value greater than 70% (Dry and Moderately Dry Hydrologic Classification

A smallmouth bass spike release will consist of a one-day ramp up to full power plant capacity (4,600 cfs), three consecutive days (72 hours) at power plant capacity, and a ramp down at the rate of 2,000 cfs/day). This will occur in mid-June to early-July.

In 2021 the selective withdrawal structure (SWS) unit 2 and unit 3 on Flaming Gorge Dam will be operated as it has previously (raise gates to 60’ below the surface by April 15, raise to 50’ by May 15, and finally raise to 40’ by June 15). However, during the flow spike experiment the SWS gate elevations on units 2 and 3 will be adjusted to 50’ below the reservoir surface after full powerplant releases are attained. The SWS unit 2 and unit 3 gates will be returned to 40’ below the surface when full powerplant releases

conclude. Unit 1 (inoperable SWS) will be the last unit to be online and the first to be offline before and after full powerplant releases. After first hatching date (predicted) and an estimated 10-14 days later, the experimental spike may commence. A Recovery Program representative will provide the RMD Manager, the Provo Area Office Manager and UCPO Manager a notice to precede as well as the dates and duration of the experiment.

Colorado Pikeminnow Trigger

Concerning the summer (Colorado pikeminnow) base flow experiment (Bestgen and Hill 2016), target Reach 2 flows will be attempted several days prior to predicted first presence of Colorado pikeminnow and maintained at that level throughout the summer base flow period, if possible. This operation will be attempted within the confines of the 2000 Flow and Temperature Recommendation (+/-40% base flow). Achieving this targeted base flow depends on the Yampa River flows in Reach 2, which may be in spring runoff prior to the detection of Colorado pikeminnow spawn. Given the current forecast, the Colorado pikeminnow revised flows most likely cannot be achieved. When Colorado pikeminnow spawning is confirmed (or expected to occur in the very near future) in the Yampa River, a Recovery Program representative will notify the RMD Manager, the Provo Area Office Manager and UCPO Manager with a notification to proceed with the experiment. Past investigations indicate the average date of first presence is July 4 (range June 20 to July 24), and is earlier in warmer and lower flow conditions, and later in cooler and higher flow conditions.

Objectives considered during all base flow periods, the 3% change (~50 cfs) between consecutive mean daily flows and 0.1-m stage change at Jensen within a day, will be observed.

Table 3. reproduction of Table 10 from Bestgen Hill 2016a, illustrating Reach 2 flows

Hydrologic classification	2000 (Muth et al.) (cfs)	Proposed (cfs)
Dry (10% of years, 0 to 10% exceedance)	900 – 1,100	1,700 – 1,800
Moderately dry (20% of years)	1,100 – 1,500	1,800 – 2,000
Average (40% of years)	1,500 – 2,400	2,000 – 2,600
Moderately Wet (20% of years)	2,400 – 2,800	2,200 – 2,800
Wet (10% of years, 90 to 100% exceedance)	2,800 -3,000	2,400 – 3,000

Summer, Autumn and Winter Base Flow Period

Objectives considered during all base flow periods are the 3% change (~50 cfs) between consecutive mean daily flows and 0.1-m stage change at Jensen within a day as recommended in the 2000 Flow and Temperatures Recommendation.

The summer base flow period will be determined through a combination of hydrologic conditions on the Yampa River and Upper Green River and ends on September 30th. The base flow experiment (Bestgen and Hill, 2016) will be attempted within the confines of the base flow range for the hydrologic classification described in the 2000 Flow and Temperature Recommendations (+/- 40%).

Autumn base flows period will use the lower flow values that are within the range the 2000 Flow and Temperature recommendations to achieve Reach 2 flows. This period is from October 1st through November 30th.

The winter +25% base flow will be used for this season to the maximum extent possible. This period is from December 1st through February 28th.

Utah Division of Wildlife Resources Monitoring Program

UDWR has a long-term fish 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 this request is to ensure that the river is navigable by jet boat and to maintain a consistent flow across sampling events. This request will be considered and approved if conditions are warranted. The UCPO operator will coordinate with WAPA to implement dam releases that meet the flow request.

Other Considerations

Regularly scheduled and/or emergency maintenance activities as well as other activities (i.e. search and rescue, drought operations, power system emergency (reserves) etc.) may affect reservoir operations. Releases may need to be reduced or increased to accommodate such events. Such interruptions will be remedied, as determined by Reclamation, and operations returned to target flow rates upon work completion.

Table 4. Operation Matrix for Dry Hydrologic Conditions

Period Name / End of Objective	Date and Description
Pre-spring peak / ends at the start of spring peak releases	May 1 to spring peak release, ~850 cfs.
Spring peak / ends when < 8,300 cfs is predicted or observed at Jensen Gage.	Peak releases will be timed to coincide with peak and immediate post-peak spring flows in the Yampa River. Achieve a flow equal or greater than 8,300 cfs in Reach 2 for 2 or more days, at least one day release of 4,600 cfs power plant capacity. Except if unregulated inflow exceedance value is equal or greater than 98%, no full power plant releases will be used. Bypass will not be used.
End of spring peak. Ends when summer base flow begins.	Ramp down, end of spring peak period – estimated early June. ~350 cfs/day ramp down, to ~850 cfs average daily release.
Smallmouth bass spike flow / mid June to early July	One-day ramp up to full power plant capacity (4,600 cfs) for three consecutive days (72 hours) with a ramp down rate of 2,000 cfs/day. SWS units 2 and 3 will be adjusted to 50' below the reservoir surface after full powerplant releases are attained. The SWS units 2 and 3 will be returned to 40' below the surface when full powerplant releases conclude. SWS unit 1 will be the last unit to be online and the first to be offline before and after full powerplant releases.
Summer base flows / Ends on September 30	Average daily releases are estimated to be 850 cfs (+/- 40% period). The Colorado pikeminnow base flow (1,700-1,800 cfs – Reach 2) will be targeted, within 2000 Flow and Temperature Recommendations, but are not likely to be achieved.
Autumn base flows Oct 1 to -Nov 30 / ends on November 30	Base flow target in Reach 2 is 900-1,100 cfs. Ramp down at 50 cfs/day to approximately ~850 cfs. Early October decreases @ 50 cfs/day to achieve 900 cfs in Reach 2. Late November increase at 50 cfs/day to achieve +25% base flow by December 1. (+/- 40% period).
Winter Base Flow Dec 1 to Feb 28 / Ends on February 28	Base flows increased to +25% to not exceed 1,375 cfs in Reach 2 (+/- 25% period). Average daily releases at ~850 cfs pending the Yampa.
End of FG Operation Plan and Transition Period / April 30	Average daily releases are increased or decreased to achieve Upper Limit Drawdown (EIS Table 2-3).

Table 5. Operation Matrix for Moderately Dry Hydrologic Conditions

Period Name / End of Objective	Date and Description
Pre-spring peak / ends at the start of spring peak releases	May 1 to spring peak release, ~850 cfs
Spring peak / ends when < 8,300 cfs is predicted or observed at Jensen Gage.	Peak releases will be timed to coincide with peak and immediate post-peak spring flows in the Yampa River. Achieve a flow equal or greater than 8,300 cfs in Reach 2 for 2 or more days, at least one day release of 4,600 cfs power plant capacity. Bypass will not be used.
End of spring peak / ends when summer base flow begins.	Ramp down, end of spring peak period – estimated early June. ~350 cfs/day ramp down, to ~850 cfs average daily release.
Smallmouth bass spike flow / mid-June to early-July	One -day ramp up to full power plant capacity (4,600 cfs) for three consecutive days (72 hours) with a ramp down rate of 2,000 cfs/day). SWS units 2 and 3 will be adjusted to 50' below the reservoir surface after full powerplant releases are attained. The SWS units 2 and 3 will be returned to 40' below the surface when full powerplant releases conclude. SWS unit 1 will be the last unit to be online and the first to be offline before and after full powerplant releases.
Summer base flows / ends on September 30	Average daily releases are estimated to be 1,050 cfs (+/- 40% period). The Colorado pikeminnow base flow (1,800-2000 cfs – Reach 2) will be targeted, within 2000 Flow and Temperature Recommendations, but are not likely to be achieved.
Autumn base flows Oct 1 to -Nov 30 / ends on November 30	Base flow target in Reach 2 is 1,100-1,500 cfs. Ramp down at 50 cfs/day to approximately ~850 cfs, to reach the lower range target. Early October decreases @ 50 cfs/day to achieve 1,100 cfs in Reach 2. Late November increase at 50 cfs/day to achieve +25% base flow by December 1.
Winter Base Flow Dec 1 to Feb 28 / Ends on February 28	Base flows will be increased to +25% to not exceed 1,875 cfs in Reach 2 (+/- 25% period). Average daily releases at ~850 cfs pending the Yampa.
End of FG Operation Plan and Transition Period / End of April 30	Average daily releases are increased or decreased to achieve Upper Limit Drawdown (EIS Table 2-3).

Table 6. 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. ~1,000 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.	Estimated middle-late May to early June, pending Yampa Flows and LTSP trigger date. Increase from full power plant capacity in one day and increase 4,000 cfs / day during bypass to meet Reach 2 peak Target (near 18,600 cfs). Pending Yampa flows, the target is to have ≥14,000 cfs in Reach 2 for greater 7 days. To meet the ROD for an average condition if 18,600 cfs is obtainable (pending Yampa) for > than 14 days this will be targeted
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 ~1100 cfs range.
Summer base flows / ends on September 30	Sustaining Pikeminnow base flow (2,000-2,600 cfs) within 2000 Flow and Temperature Recommendations, ~2000 cfs in Reach 2 until September 30. Average daily releases will be ~1,600 cfs.
Autumn base flows Oct 1 to -Nov 30 / ends on November 30	Autumn base flow target in Reach 2 is 1,500-2,400 cfs. Average daily base flows ~1,500 cfs (+/- 40% period) in Reach 2. Average daily releases will be ~1,200 cfs, pending the Yampa River. Early October decreases @ 50 cfs/day to achieve 1,500 cfs in Reach 2. Late November increase @ 50 cfs/day to achieve +25% base flow by December 1.
Winter Base Flow Dec 1 to Feb 28 / Ends on February 28	The+25% base flow period, not to exceed ~3,000 cfs in Reach 2. Average daily releases will be ~2,100 cfs pending the Yampa River.
End of FG Operation Plan and Transition Period / End April 30	Average daily releases are increased or decreased to achieve Upper Limit Drawdown (EIS Table 2-3)

Table 7. Operation Matrix for Average, above 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. ~1,100 cfs to Full Power Generation (pending operation)
Spring peak (average-above median) / ends when < 18,600 cfs is predicted or observed at Jensen Gage.	Estimated middle-late May to early June, pending Yampa Flows and LTSP trigger dates. Increase from full power plant capacity in one day and increase 4,000 cfs / day during bypass to meet Reach 2 Target (<20,300 cfs). Pending wetter or dryer hydrologic classification at least 1 days to > 14 days at ≥ 18,600 cfs, pending Yampa flows.
End of spring peak / ends when ramp down begins.	Ramp down, end of spring peak period – estimated middle to late June. ~1,000 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 ~1,100 cfs range.
Summer base flows / ends on September 30	Sustaining Pikeminnow base flow (2,000-2,600 cfs) within 2000 Flow and Temperature Recommendations, ~2,000 cfs in Reach 2 until September 30. Average daily releases will be ~1,600 cfs, pending the Yampa River.
Autumn base flows Oct 1 to -Nov 30 / ends on November 30	Autumn base flow target in Reach 2 is 1,500-2,400 cfs. Average daily base flows ~1,700 cfs (+/- 40% period) in Reach 2. Average daily releases will be ~1200 cfs, pending the Yampa River. Early October decreases @ 50 cfs/day to achieve 1,500 cfs in Reach 2. Late November increase @ 50 cfs/day to achieve +25% base flow by December 1.
Winter Base Flow Dec 1 to Feb 28 / Ends on February 28	Base flows increased to +25% to not exceed ~3,000 cfs in Reach 2 (+/- 25% period). Average daily releases at ~2,400 cfs pending the Yampa River.
End of FG Operation Plan and Transition Period / End April 30	Average daily releases are increased or decreased to achieve Upper Limit Drawdown (EIS Table 2-3)

Table 8. Operation Matrix for Moderately Wet 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. Close to Full Power Generation (4,600 cfs) (pending operation)
Spring peak ends when < 20,300 cfs is predicted or observed at Jensen Gage	Estimated late May to early/late June, pending Yampa River flows and LTSP trigger dates. Increase from full power plant capacity in one day and increase 4,000 cfs / day during bypass to meet Reach 2 Target (>20,300 cfs). 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. Reach 2 flows will be attempted to be below flood stage of 24,100 cfs.
End of spring peak / ends when ramp down begins.	Ramp down, end of spring peak period – estimated middle to late June or later. ~1,000 cfs/day ramp down from bypass and power plant releases, there after until summer base flows begin; releases in the ~1,600 cfs range.
Summer base flows / ends on September 30	Sustaining Pikeminnow base flow (2,200-2,800 cfs) within 2000 Flow and Temperature Recommendations, ~2,200 cfs in Reach 2 until September 30th. Releases will be in 1,700 cfs range, pending the Yampa River.
Autumn base flows Oct 1 to -Nov 30 / ends on November 30	Autumn base flow target in Reach 2 is 2,400-2,800 cfs. Average daily base flows ~2,400 cfs (+/- 40% period) in Reach 2. Average daily releases will be ~2,000 cfs, pending the Yampa River. Early October decreases @ 50 cfs/day to achieve 1,500 cfs in Reach 2. Late November increase @ 50 cfs/day to achieve +25% base flow by December 1.
Winter Base Flow Dec 1 to Feb 28 / Ends on February 28	Base flows increased to +25% to not exceed ~3,500 cfs in Reach 2 (+/- 25% period). Average daily releases at approximately ~2,900 cfs pending the Yampa River.
End of FG Operation Plan and Transition Period / End April 30	Average daily releases are increased or decreased to achieve Upper Limit Drawdown (EIS Table 2-3)

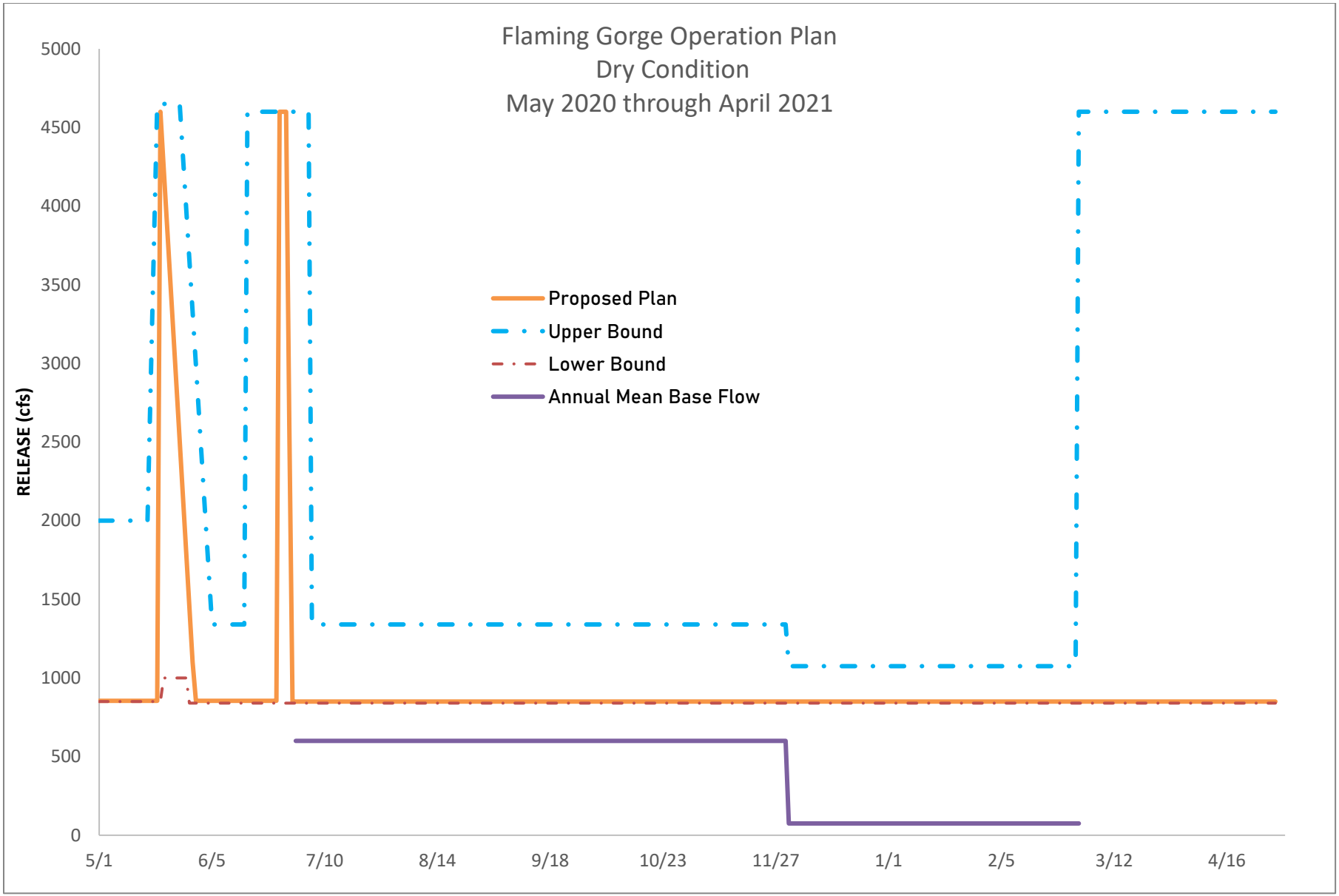

FIGURE 3 – Proposed flow regime for Dry Hydrology.

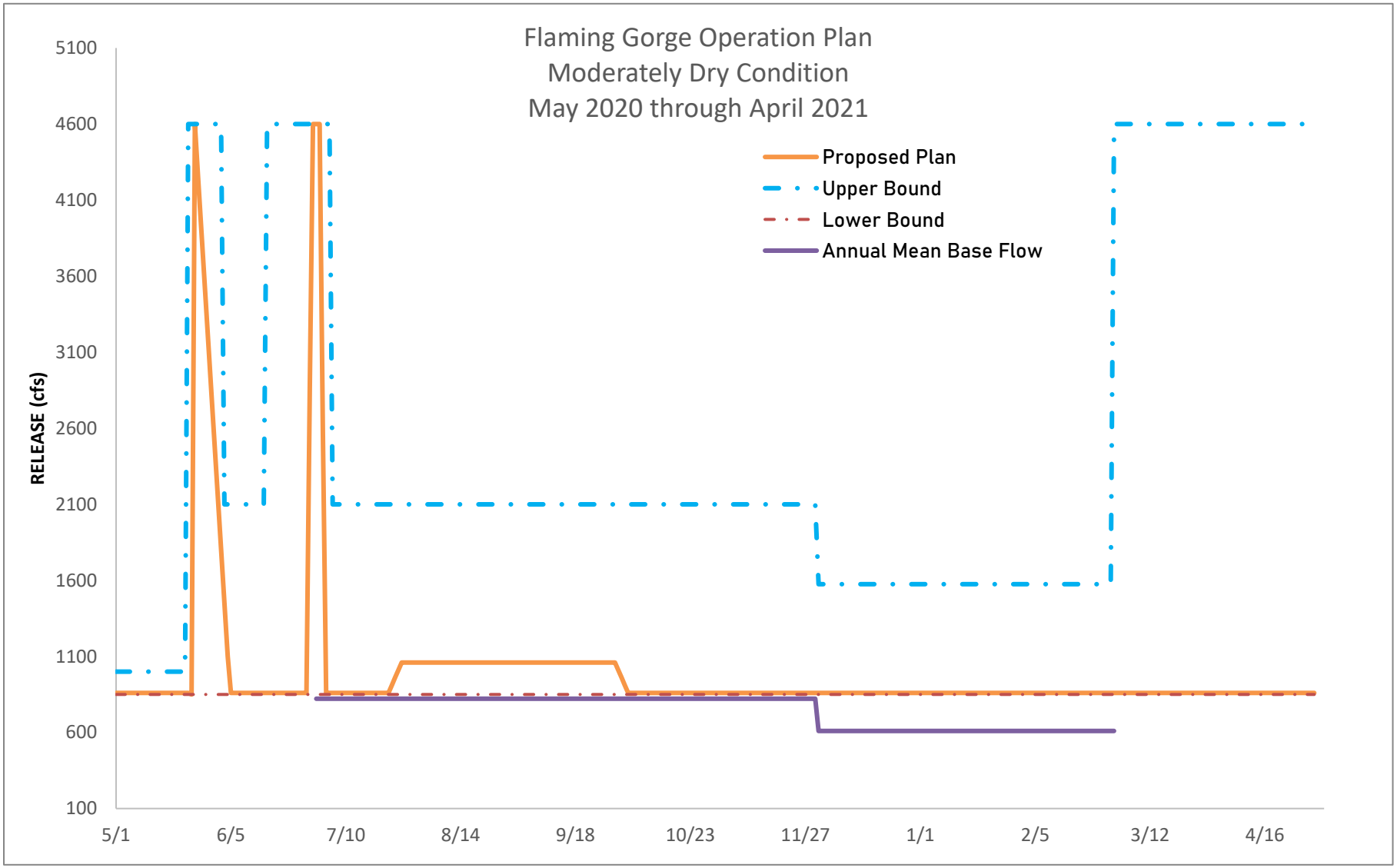

FIGURE 4 – Proposed flow regime for Moderately Dry Hydrology.

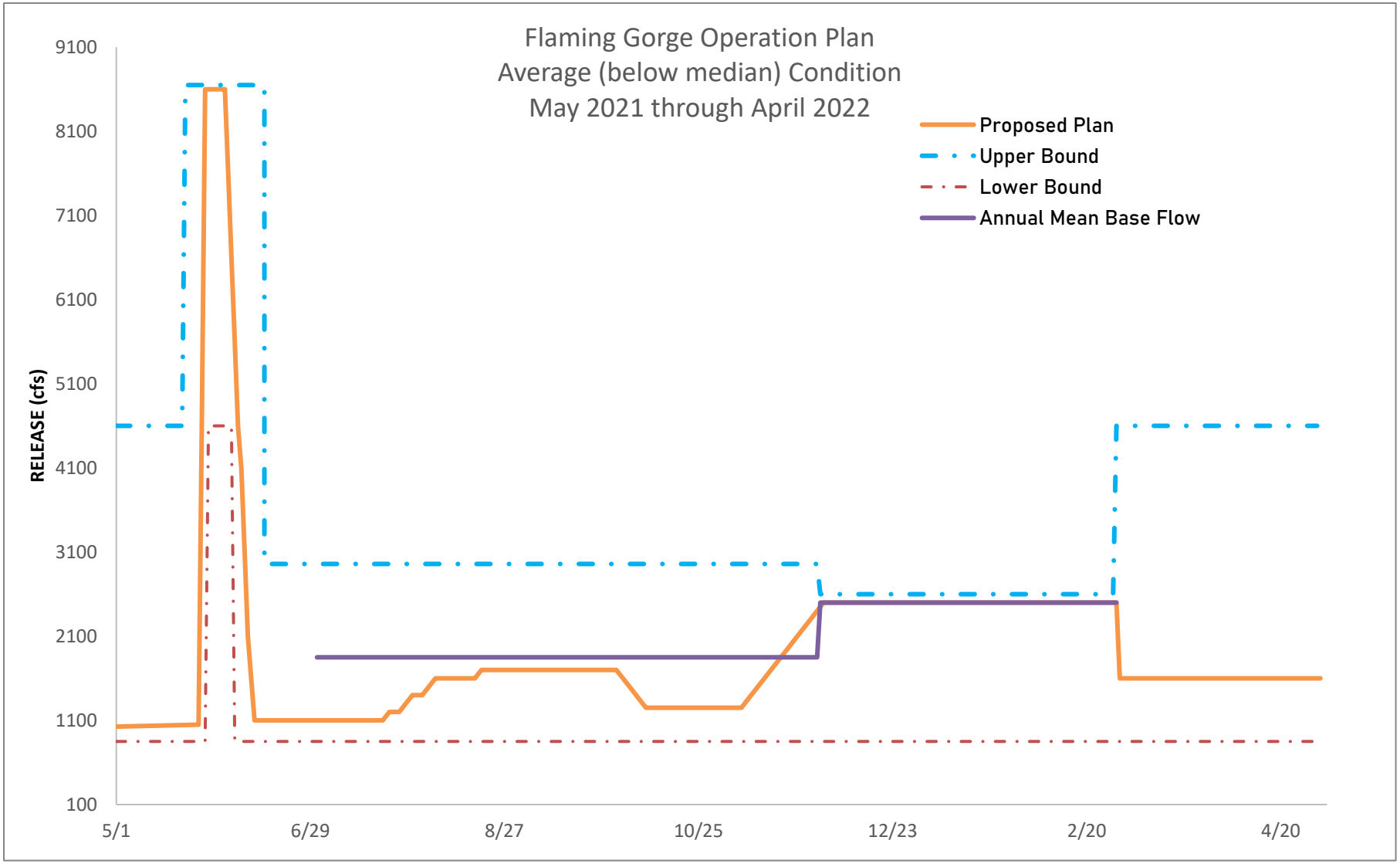

FIGURE 5 – Proposed flow regime for Average (below median) Hydrology.

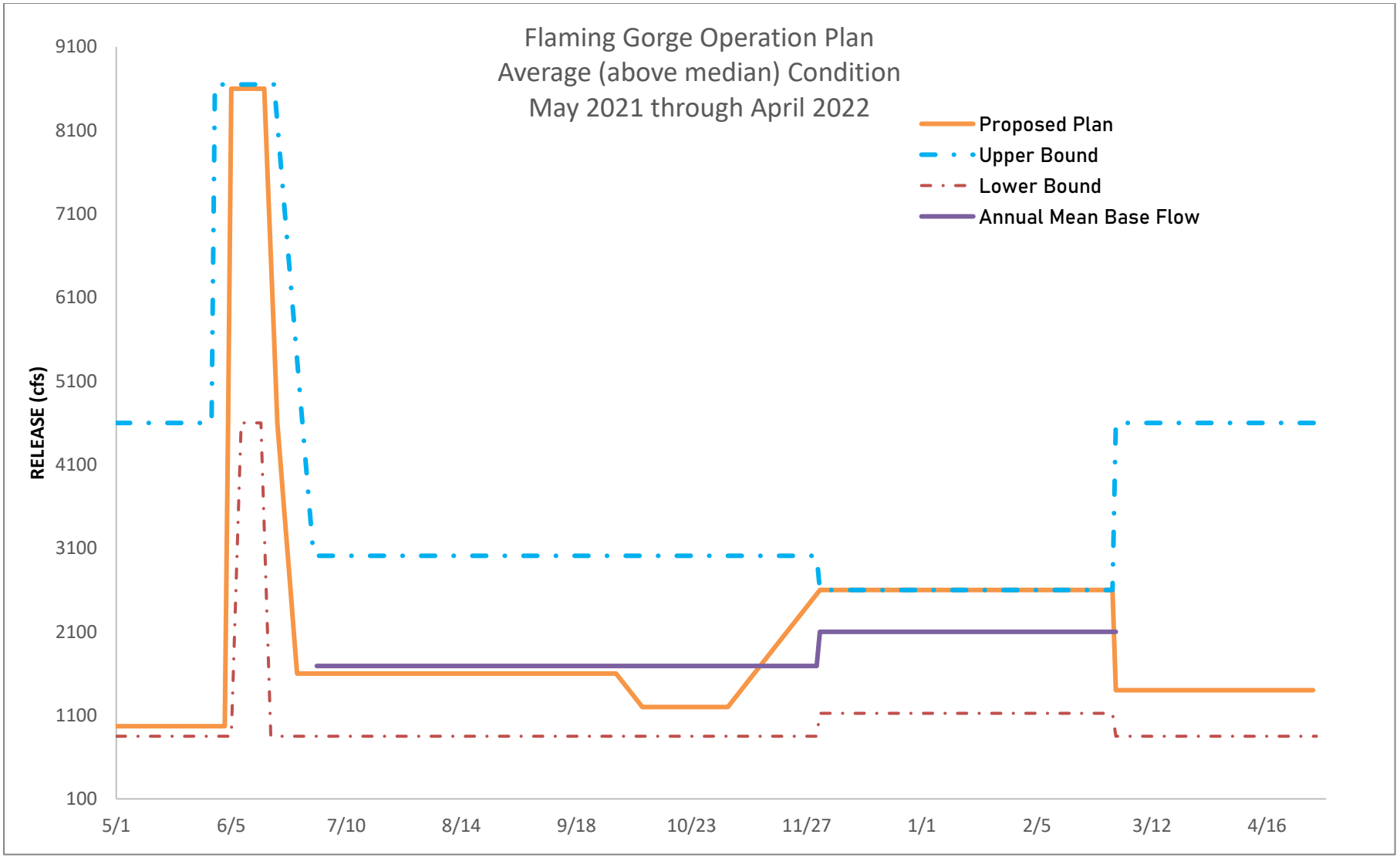

FIGURE 6 – Proposed flow regime for Average (above median) Hydrology.

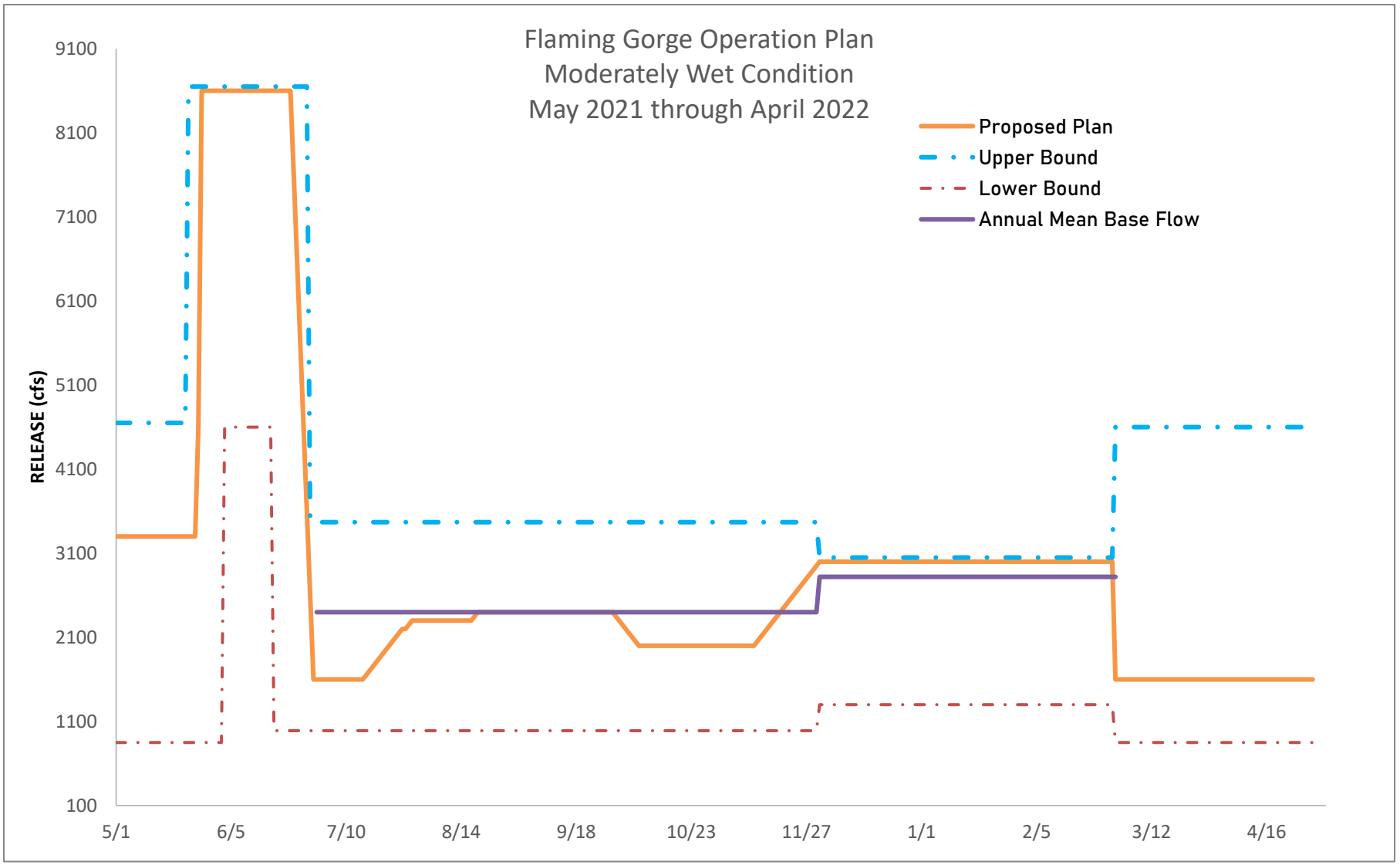

FIGURE 7 – Proposed flow regime for Moderately Wet Hydrology.