

FISH OPERATIONS PLAN IMPLEMENTATION REPORT

May 2026

**U.S. Army Corps of Engineers
Northwestern Division
Portland, OR**

Introduction

The 2026 Fish Operations Plan (2026 FOP) describes the U.S. Army Corps of Engineers' (Corps) planned operations for fish¹ passage at its four lower Snake River and four lower Columbia River dams during the 2026 surface spill operations in March through early April, spring and summer fish migration seasons, generally April 3 through August 31, and surface spill operations September through mid-November. The 2026 FOP is responsive to the U.S. District Court for the District of Oregon's (District Court) Preliminary Injunction Order issued February 25, 2026 and amended on March 2, 2026. The Corps will implement the 2026 FOP consistent with that order. The 2026 FOP is also consistent with spill operations for fish passage and the regional forum process for adaptive management and in-season management² provisions outlined in the Record of Decision for the Columbia River System Operations Environmental Impact Statement (CRSO EIS ROD) dated September 28, 2020, CRSO Final EIS, 2020 National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) Columbia River System (CRS) Biological Opinions (2020 CRS BiOps)³, the Corps' requirements under the Endangered Species Act (ESA), and the ongoing consultation and communications with the relevant wildlife agencies to ensure consistency with the ESA. Other project operations and water management actions not specifically addressed in this document will be consistent with other guiding operative documents, including the 2026 Water Management Plan (WMP), seasonal WMP updates, and the 2026 Fish Passage Plan (FPP).

The FOP Implementation Reports are produced to reflect implementation of the 2026 FOP for fish passage spill. This report describes the Corps' implementation of the 2026 FOP during the month of May. Information in this report includes the following:

- total flow: the total hourly river flow rate;
- generation flow: the hourly flow through the powerhouse units;
- target spill: the spill target for that hour (Table 1);
- adjusted spill: the hourly spill level that can be achieved considering that spill may vary as a function of total river flow, forebay elevation and generator capacity, and is subject to routine

¹ ESA-listed salmon and steelhead.

² Adaptive management and in-season management will be utilized for those operations not included in the Court's Preliminary Injunction Order, or as specifically ordered by the Court.

³ The Corps, in coordination with the other Action Agencies, and NMFS, employs the Regional Implementation Oversight Group (RIOG) and technical teams including the Technical Management Team (TMT) and Fish Passage Operations & Maintenance (FPOM) coordination group, to coordinate with state, tribal and other federal experts for recommendations for implementing operations consistent with the 2020 BiOps.

operational adjustments that limit the ability to spill to the target spill (see 2026 FOP, Section 4.1);

- actual spill: the hourly flow over the spillway;
- actual reservoir elevation: the hourly reservoir forebay elevation;
- upstream project tailwater elevation: the hourly reservoir elevation of the next upstream project.
- MOP (Minimum Operating Pool): the target forebay elevation range (Table 2); and,
- adjusted MOP: the adjusted MOP elevation range necessary to maintain project criteria. Adjusted can mean “raised” or “expanded” as specified in the 2026 FOP; and,
- resultant 12-hour average TDG for the tailwater at each project.

This report also provides information on issues and unanticipated or emergency situations that arose during implementation of the FOP in May 2026.

Data Reporting

I. For each project providing fish passage spill operations, this report contains a graph displaying the performance of the spring fish passage spill program for the month of May, with hourly spill, target spill, adjusted spill, generation, and total flows. The monthly spill graphs (Figure 1 through Figure 8) begin on May 1 and end on May 31 and reflect the following operations for the lower Snake River and the lower Columbia River projects:

- The black line represents the average hourly total river flow through the project in thousand cubic feet per second (kcfs).
- The orange line represents the average hourly generation flow through the powerhouse each hour in kcfs.
- The thin solid blue line represents the actual average hourly spill level through the spillway in kcfs.
- The dashed blue line represents the spill cap portion of the target spill estimated to reach the gas cap or target TDG.
- The thick light blue line represents the performance standard spill level portion of the target spill, where applicable.
- The thick dark blue line represents the adjusted spill cap spill: the hourly spill cap level that can be achieved taking into consideration that spill may vary as a function of total river flow, forebay elevation, and generator capacity, and is subject to routine operational adjustments that limit the ability to spill to the target spill (2026 FOP section 4.1).

II. For each project providing MOP operations, this report contains a graph displaying the performance of the MOP program for the month of May, with hourly reservoir forebay elevation, target reservoir forebay range, adjusted reservoir forebay range, and upstream project tailwater elevation. The monthly elevation graphs (Figure 9 through Figure 12) begin on May 1 and end on May 31 and reflect the following operations for the lower Snake River projects:

- The black line represents the hour ending reservoir elevation in feet.
- The thin solid blue line represents the upstream project tailwater elevation in feet.

- The dashed blue line represents the target MOP range.
- The thick light blue line represents the adjusted MOP range.

III. The average daily %TDG for the 12 highest hourly TDG measurements in a calendar day for all projects is shown in the May 2026 Average Percent TDG Values Table (Table 4). Red numbers indicate that the project exceeded the %TDG cap - i.e. 125% (tailwater) on that day.

General Implementation Remarks

For all projects that spill for fish passage, or are operated for MOP, the actual spill or reservoir levels may vary from the adjusted levels due to various conditions as described below. When actual spill or reservoir elevations varied from adjusted spill or MOP levels during fish passage season, the change in spill or reservoir elevation is described below in the May 2026 Spill Variance (Table 3).⁴ The Variance Table includes average hourly spill data; but when spill varies from adjusted spill for a portion of an hour, it is characterized as a variance for a full hour. Similarly, reservoir elevation levels are reported hourly as an instantaneous value, so an hourly variance from adjusted MOP may not have persisted throughout the hour. There are instances when the hourly adjusted spill levels are not achievable due to mechanical limitations in setting spill gates to implement the regionally coordinated spill pattern. The project operator sets the spill gate stops to closely approximate the adjusted spill to the extent practicable. Other routine activities that changed spill or MOP levels, which were coordinated with regional partners, are identified in the monthly Pre-Coordinated Operations Table (Table 4).

"Low flow" operations at the lower Columbia and lower Snake projects are triggered when inflow is insufficient to provide both minimum generation and the target spill levels. For this report, the decrease in target spill is represented as adjusted spill. In these situations, the projects operate at minimum generation and pass the remainder of project inflow as spill and through other routes, such as fish ladders, sluiceways, and navigation locks. As flows transition from higher flows to low flows, there may be situations when flows recede at a higher rate than forecasted. In addition, inflows provided by nonfederal projects upstream are variable and uncertain.

Actual spill levels at Corps projects may vary up to ± 2 kcfs within the hour as compared to the target spill rate, except as otherwise noted in the 2026 FOP. A number of factors influence actual spill, including hydraulic efficiency, exact spillway gate opening calibration, spillway gate hoist cable stretch due to temperature changes, and forebay elevation (e.g., a higher forebay results in a greater level of spill since more water can pass under the spill gate or over the surface spillway weir). Transition periods between gas cap spill and performance standard spill hours may result in actual hourly spill levels that are slightly higher or lower than target spill levels. Occurrences requiring an adjustment in spill operations and/or regional coordination are described in greater detail in the "Operational Adjustments" section below.

⁴ Forced spill conditions shown in the graphs are not considered variances and are not reported in the Spill Variance Table. Forced spill conditions may result from lack of load, high river inflows that exceed available powerhouse capacity, scheduled or unscheduled turbine unit outages or transmission outages of various durations, passing debris, etc.

In-season adjustments to MOP (expanded or raised) to maintain safe navigation or minimum upstream tailwater requirements will be described below as “Operational Adjustments.”

May Operations

The May observed precipitation was below normal with 37% of average precipitation observed at the Snake River above Ice Harbor and 67% of average precipitation observed at the Columbia River above The Dalles.⁵ The NOAA Northwest River Forecast Center runoff summary for May indicated that the adjusted runoff for the Snake River at Lower Granite was 71% of the 30-year average (1991-2020) with a volume of 5.2 MAF (Million acre-feet). The May adjusted runoff for the Columbia River at The Dalles was 87% of the 30-year average (1991-2020) with a volume of 23.8 MAF.⁶

Spring spill operations occur April 3–June 20 at the four lower Snake River projects, and April 10–June 15 at the four lower Columbia River projects. The Corps initiates spill at 0001 hours, or shortly after midnight, at each of the projects on the start date. Target spill levels for spring 2026 at each project are defined in Table 1 (Table 4 in the 2026 FOP). Spill may be temporarily reduced at any project to ensure navigation safety or transmission reliability, or in the event of adult salmonid migration delay (see 2026 FOP section 7.1). In order to operate consistently with state water quality standards, spill may also be reduced if observed gas bubble trauma (GBT) levels exceed those identified in state water quality standards (See [WASH. ADMIN. CODE § 173-201A-200\(l\)\(f\)\(ii\)\(B\)\(III\)](#) and *Order Approving a Modification to the Oregon’s Water Quality Standard for Total Dissolved Gas in the Columbia River Mainstem*, page 5).

Spill up to the 125% Gas Cap is spill to the maximum level that meets, but does not exceed, the TDG criteria allowed under state laws. This includes a criterion for not exceeding 126% TDG for the average of the two greatest hourly values within a day.

⁵ Retrieved June 11, 2026: https://www.nwrfc.noaa.gov/water_supply/wy_summary/wy_summary.php?tab=5

⁶ Retrieved June 11, 2026: https://www.nwrfc.noaa.gov/runoff/runoff_summary.php

Table 1: Summary of 2026 spring target spill levels at lower Snake River (April 3 – June 20) and lower Columbia River (April 10 – June 15) projects (Table 4 in the 2026 FOP).

PROJECT	SPRING SPILL DATES	SPRING SPILL OPERATION
Lower Granite	April 3 – June 20	24 hours/day: 125% Gas Cap
Little Goose ^{A, B, C}	April 3 – June 20	125% Gas Cap 24 hours/day (until adult criteria met) <i>then</i> 16 hours/day: 125% Gas Cap; 8 hours/day: 30% of outflow (Performance Standard)
Lower Monumental ^D	April 3 – June 20	24 hours/day: 125% Gas Cap
Ice Harbor	April 3 – June 20	24 hours/day: 125% Gas Cap
McNary	April 10 – June 15	24 hours/day: 125% Gas Cap
John Day	April 10 – June 15	24 hours/day: 125% Gas Cap
The Dalles ^{C, E}	April 10 – June 15	24 hours/day: 40% of outflow (Performance Standard)
Bonneville ^F	April 10 – June 15	24 hours/day: 125% Gas Cap

A. Little Goose Adult Criteria –Within 1 business day of when the earliest of the following conditions occurs: (1) a cumulative total of 25 adult spring Chinook salmon (not including jacks) pass Lower Monumental Dam; or (2) a cumulative total of 50 adult spring Chinook salmon (not including jacks) pass Ice Harbor Dam; or (3) April 24, 2026, the Corps will implement performance standard spill at Little Goose Dam for 8 consecutive AM hours (April 3–15 starting at 0500 hours; April 16–June 20 starting at 0400 hours) to target hours of peak adult passage. If lack of load conditions preclude the implementation of performance standard spill during the targeted periods, performance standard spill will begin as soon as practicable during AM hours and continue for up to 8 consecutive hours. If a second block is needed, it will start as soon as load conditions allow, continue for at least two consecutive hours, and conclude no later than 2000.

B. During periods of high river flow that exceeds powerhouse hydraulic capacity, implementing 8 consecutive hours of spill as described in Footnote A may result in storing additional inflow in the forebay above MOP. If it is necessary to pond water to achieve the 8-hour block of spill during high inflow, water stored above MOP should be drafted out over the remaining hours by increasing spill to pass inflow from 1200-1600 hours, then increasing spill as necessary from 1600–0400 to draft the pool back to MOP. If it is forecasted that the drafting spill will result in exceeding 130% TDG in the tailrace, all 16 hours will be used to return the pool to MOP.

C. All projects denoted by this footnote will adjust spill once a day to the indicated percentage level of the previous day's average project outflow. The intent is to reduce the frequency of spillgate changes.

D. Lower Monumental Adult Delay – See Section 7.1.

E. TDG in The Dalles tailrace may fluctuate up to 125% prior to reducing spill at upstream projects or reducing spill at The Dalles below 40%. Maintain 40% spill for 24 hours at The Dalles and reduce John Day spill below the 125% TDG spill cap as needed for TDG management. Spill above 40%, up to 125% TDG, may occur for TDG management or for carrying reserves.

F. Bonneville Dam – Spill for fish passage should not exceed 150 kcfs due to erosion concerns.

In its implementation of the 2026 FOP in May, the Corps evaluated conditions every day to establish spill caps at a level that was estimated to meet, but not exceed, the gas cap or target TDG in the tailrace (see Table 4).⁷ This evaluation considered environmental conditions (e.g., river flow, wind, water temperature, barometric pressure, incoming TDG from upstream, and water travel time) and project operations (e.g., spill level, spill pattern, tailwater elevation, proportion of flow through the turbines, and project configuration).

Minimum operating pool (MOP) operations occur beginning April 3 at 0001 hours at the four lower Snake River projects. MOP ranges for 2026 are specified in Table 2. Adjustments to MOP may be required to address navigation concerns or to meet minimum tailwater elevations. Current spill operations for fish passage result in complex downstream hydraulics that cause large fluctuations in tailwater elevations.

In its implementation of the 2026 FOP in May, the Corps evaluated reservoir conditions daily to ensure that minimum tailwater constraints, as well as navigation criteria, were met.

Table 2: Normal and minimum operating pool (MOP) elevation ranges and minimum tailwater elevations for lower Snake River projects.^A

Project	Normal Operating Elevation Range (ft) ^B		MOP Elevation Range (ft) ^C		Project Tailwater (ft)
	Minimum	Maximum	Minimum	Maximum	Minimum
Lower Granite	733.0	738.0	733.0	734.5	633.0
Little Goose	633.0	638.0	633.0	634.5	537.0
Lower Monumental	537.0	540.0	537.0	538.5	437.0
Ice Harbor	437.0	440.0	437.0	438.5	337.0

A. Elevations provided in feet above mean sea level (NGVD29).

B. August 15 – April 2, except at Lower Granite (September 1 – April 2).

C. April 3 – August 14, except at Lower Granite (April 3 – August 31). Projects will be operated within a 1.5-foot range.

Operational Adjustments

1. Lower Granite

Due to sediment deposition in the confluence area of the lower Snake and Clearwater rivers near Lewiston, Idaho, the Corps will adjust MOP ranges at Lower Granite Dam as necessary to provide the required federal navigation channel depth of 14 feet. This operation will continue during the 2026 fish passage season (and/or until maintenance dredging occurs) with a 1.5-foot range above the minimum forebay elevation based on inflow to Lower Granite. At high flows (≥ 120 kcfs), the required navigation channel depth can be maintained with Lower Granite

⁷ See 2026 FOP, Section 2.2

operating in the MOP range of 733.0-734.5 feet. However, at flows below 120 kcfs, the Lower Granite forebay must be operated progressively higher to maintain the navigation channel depth, as follows:

- Inflow 80-119 kcfs = Lower Granite forebay operating range 734.0-735.5 feet (1-foot raised MOP).
- Inflow 50-79 kcfs = Lower Granite forebay operating range 734.5-736.0 feet (1.5-foot raised MOP).
- Inflow below 50 kcfs = Lower Granite forebay operating range 735.0-736.5 feet (2-foot raised MOP).

Changes to the MOP at Lower Granite are governed by the short-term forecast (generally either from the River Forecast Center or Bonneville Power Administration). Adjustments between MOP ranges will generally not occur for short duration rises or decreases in flow. Because of forecast uncertainty, there may be a delay in changing between MOP ranges. Adjustments to MOP based on this operation can be seen in Figure 9.

2. Little Goose

After observing Lower Granite tailwater elevation at the minimum required tailwater elevation on May 1 in conjunction with the Little Goose Dam forebay elevation over 0.3 ft above the MOP lower limit, a 0.3 ft raised MOP was implemented at Little Goose. The Little Goose MOP was further raised to 0.5 ft on May 3. The minimum tailwater at Lower Granite is required to maintain safe navigation. After observing convergence between Little Goose forebay elevation and Lower Granite tailwater elevation in response to increasing flows, the Little Goose MOP range was returned to normal (633.0-634.5 ft) on May 9. Following receding flows, the MOP at Little Goose was again raised 0.5 ft on May 21. This operation is illustrated in Figure 10.

3. Lower Monumental

3a. After observing Little Goose Dam tailwater elevation below the minimum required level on April 6 in conjunction with the Lower Monumental forebay elevation over 0.5 ft above the MOP lower limit, a 0.5 ft raised MOP was implemented at Lower Monumental. The minimum tailwater at Little Goose is required to maintain safe navigation. The 0.5 ft raised MOP remained in place through the remainder of April and all of May. This operation is illustrated in Figure 11.

3b. On May 19, the adult delay criteria previously defined in the 2025 FOP were met at Lower Monumental Dam. Per the 2026 FOP and Preliminary Injunction Order, TMT was convened on May 21 to monitor and manage adult conversion rates at Lower Monumental Dam. The TMT recommended continuing to monitor. On May 25, a “*Stipulation Amending the Court’s Preliminary Injunction Order In Regard To Adult Fish Delay*”⁸ was filed with the Court. In accordance with this Stipulation, the Corps reduced Lower Monumental spill to 40% of the previous day’s average outflow for 8 hours per day in the morning to target hours of peak adult

⁸ https://public.crohms.org/tmt/0527_2688_Stip_re_Adult_Delays.pdf

fish passage for three consecutive days, May 26-May 28. On May 29, the 24/7 125% Gas Cap operation resumed. This operation was coordinated during the May 26 and May 27 TMT meetings.

4. Lower Columbia and Lower Snake River Projects Contingency Reserves Deployment

On May 5, at approximately 17:42, Grand Coulee powerhouse had a large sudden loss of generation due to an unexpected outage. Because this occurred during peak system loads the generation loss necessitated maximum deployment of BPA's contingency reserves for 65 minutes. The reserves were deployed from all upper Columbia, lower Columbia and lower Snake River dam and reservoir projects. This deployment resulted in reportable events for Lower Granite, Little Goose, and Lower Monumental dams (Table 4). Additional capacity was accessed at John Day Dam by fully using the 80 kcfs powerhouse generation allowance (see FOP Section 4.3.1 and provided in the Preliminary Injunction Order Table 1 footnote 5) until the system stabilized just after 23:00, and John Day returned to minimum generation. John Day powerhouse flows varied between 76.6-82.1 kcfs over the course of the recovery.

Table 3: Variances – May 2026

Project	Parameter	Date	Time ^[1]	# of Hours	Type	Reason
Ice Harbor	Reduced Spill	05/19	1100	1	Maintenance	Hourly spill was 56 kcfs (less than adjusted spill target of 61 ± 2 kcfs) when generation was increased for Unit 3 testing.
Ice Harbor	Reduced Spill	05/20	1500-1600	2	Maintenance	Hourly spill was 40 kcfs (less than adjusted spill target of 43 and 50 ± 2 kcfs) when generation was increased for Unit 3 testing.
Ice Harbor	Reduced Spill	05/21	1100-1500	5	Maintenance	Hourly spill was 48 kcfs (less than adjusted spill target of 51 ± 2 kcfs) when generation was increased for Unit 3 testing.

^[1] Note: Data collected for reporting spill variances is reported using hourly-averaged data. Therefore, while spill may be increased or decreased for only a portion of an hour, it is represented in the Pre-Coordinated Operations Table as an hour.

Ice Harbor	Reduced Spill	05/27-05/28	2300-0500	7	Maintenance	Hourly spill was 47-56 kcfs (less than adjusted spill target of 49-58 $\pm$ 2 kcfs) when generation was increased for Unit 3 testing.
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Table 4: Pre-Coordinated Operations – May 2026

Project	Parameter	Date	Time ^[1]	# of Hours	Type	Reason
Lower Granite	Reduced Spill	05/05	1900	1	Transmission Reliability	Hourly spill was 62 kcfs (less than adjusted spill target of 65 $\pm$ 2 kcfs) when generation was increased due to reserves being deployed to support an unscheduled outage at Grand Coulee Dam.
Little Goose	Reduced Spill	05/05	1900	1	Transmission Reliability	Hourly spill was 62 kcfs (less than adjusted spill target of 67 $\pm$ 2 kcfs) when generation was increased due to reserves being deployed to support an unscheduled outage at Grand Coulee Dam.
Lower Monumental	Reduced Spill	05/05	1900	1	Transmission Reliability	Hourly spill was 61 kcfs (less than adjusted spill target of 65 $\pm$ 2 kcfs) when generation was due to reserves being deployed to support an unscheduled outage at Grand Coulee.

^[1] Note: Data collected for reporting spill variances is reported using hourly-averaged data. Therefore, while spill may be increased or decreased for only a portion of an hour, it is represented in the Pre-Coordinated Operations Table as an hour.

Table 4: May 2026 Average Percent TDG Values

Station:	LWG	LGNW	LGSA	LGSW	LMNA	LMNW	IHRA	IDSW	MCNA	MCPW	JDY	JHAW	TDA	TDDO	BON	CCIW
Gas Cap %:		125		125		125		125		125		125		125		125
1-May	104	120	121	120	122	117	120	116	113	123	117	121	124	124	121	122
2-May	105	120	122	120	123	118	120	117	114	123	118	120	122	124	120	121
3-May	105	120	122	121	122	117	120	116	115	123	120	120	122	123	122	122
4-May	105	120	123	120	122	118	120	117	115	123	123	120	123	123	121	121
5-May	105	121	122	122	122	118	119	117	116	124	122	121	120	121	116	121
6-May	104	122	121	122	122	119	119	117	114	123	121	119	119	122	113	120
7-May	103	123	118	122	121	119	119	117	113	123	119	119	115	119	113	120
8-May	103	124	117	124	121	121	119	117	112	123	116	119	117	119	113	120
9-May	103	123	116	124	120	122	118	118	111	122	115	120	119	121	116	121
10-May	104	123	118	124	124	121	121	116	111	124	114	121	122	122	118	121
11-May	104	123	119	124	123	121	121	117	112	123	114	121	122	123	117	121
12-May	105	124	121	125	125	121	122	117	114	123	115	120	124	124	119	121
13-May	105	124	120	125	123	122	122	117	114	123	115	120	121	122	119	121
14-May	104	125	115	125	118	122	115	121	108	123	114	121	118	120	113	121
15-May	102	124	113	125	119	122	116	120	106	123	113	122	119	121	114	121
16-May	103	123	114	124	122	122	118	117	107	123	110	120	119	121	114	121
17-May	103	122	114	123	120	120	117	117	107	122	106	120	116	119	114	121
18-May	103	122	116	122	121	118	118	116	109	123	107	119	118	121	114	121
19-May	103	120	117	120	122	117	119	117	112	122	108	119	119	121	114	120
20-May	104	119	119	119	122	116	119	116	113	121	109	119	118	121	115	120
21-May	104	118	119	118	120	116	119	116	113	121	113	119	120	122	117	121
22-May	105	117	120	118	121	115	118	115	113	120	119	119	121	122	121	121
23-May	105	117	120	118	120	116	118	114	113	120	120	117	120	122	119	121
24-May	105	117	120	118	120	116	118	114	113	119	119	117	115	118	114	120
25-May	105	118	121	119	120	116	118	115	114	121	119	117	117	119	115	121
26-May	104	119	120	121	118	118	117	116	111	120	117	118	115	118	112	120
27-May	103	119	119	121	118	118	116	116	111	121	116	119	119	120	113	121
28-May	102	121	120	122	120	118	118	117	111	122	116	120	120	122	115	121
29-May	101	122	119	122	121	118	119	116	112	121	113	119	116	● ⁹	113	121
30-May	101	122	116	121	118	118	115	116	108	121	110	119	111	●	109	120
31-May	101	121	115	120	117	117	115	116	106	121	109	119	118	●	111	120
Exceedances:		0		0		0		0		0		0		0		0

⁹ Missing data at TDDO due to failed sensor.

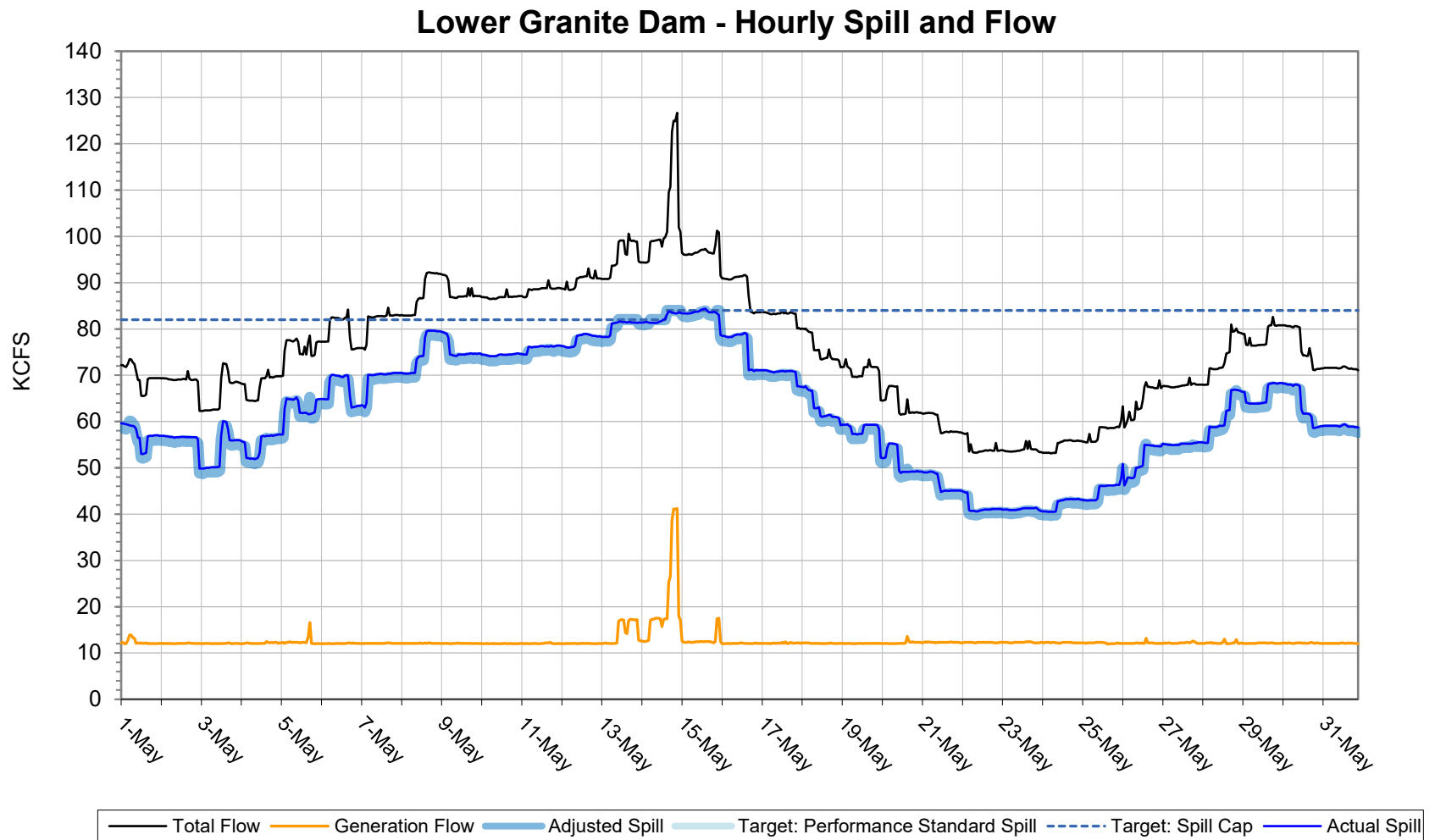


Figure 1: Hourly Spill and Flow at Lower Granite Dam. The adjusted spill line is a simplified representation due to limitations of representing a range of minimum generation values. See Table 3 and Table 4 for spill variances and pre-coordinated operations.

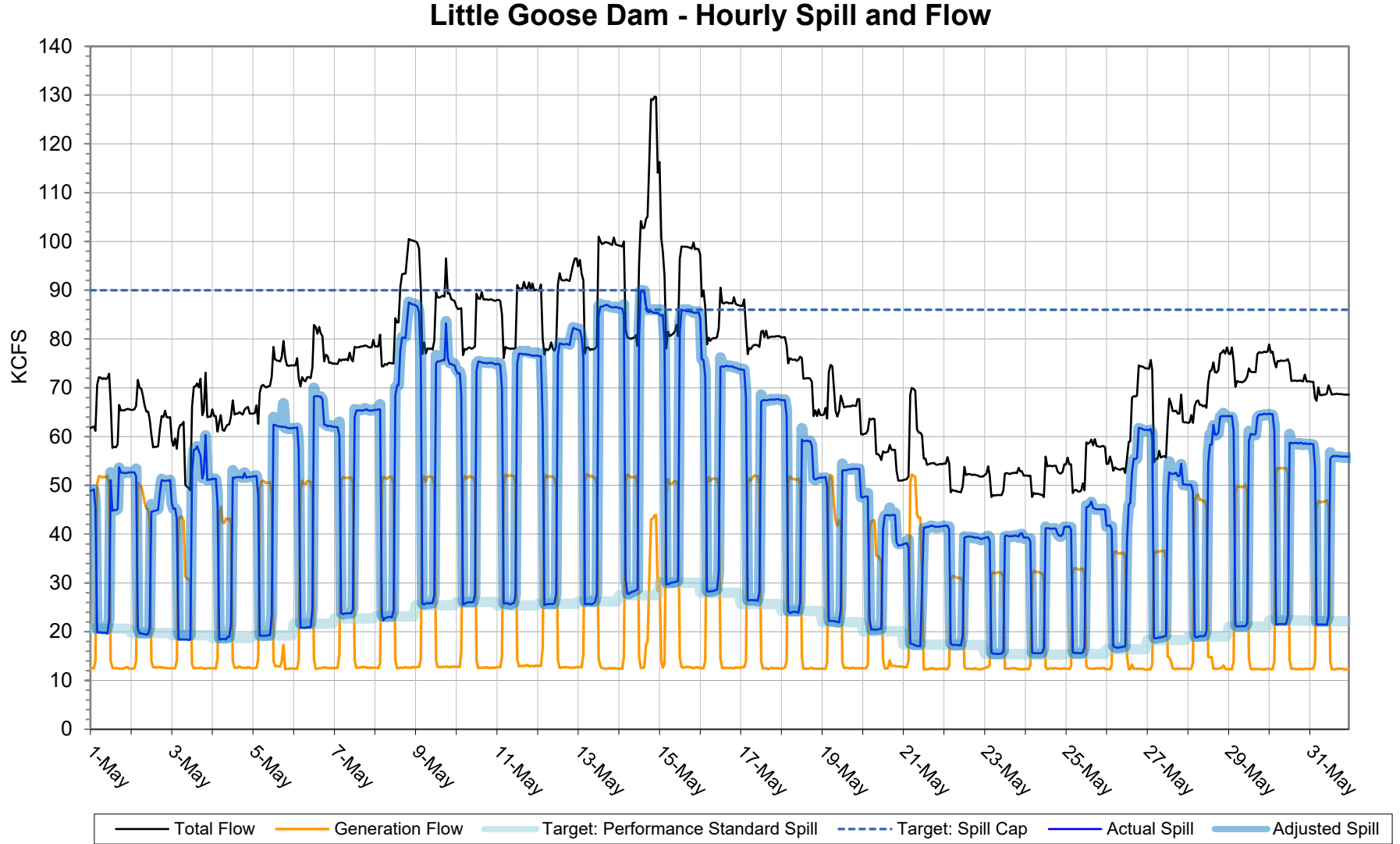


Figure 2: Hourly Spill and Flow at Little Goose Dam. The adjusted spill line is a simplified representation due to limitations of representing a range of minimum generation values. See Table 3 and Table 4 for spill variances and pre-coordinated operations.

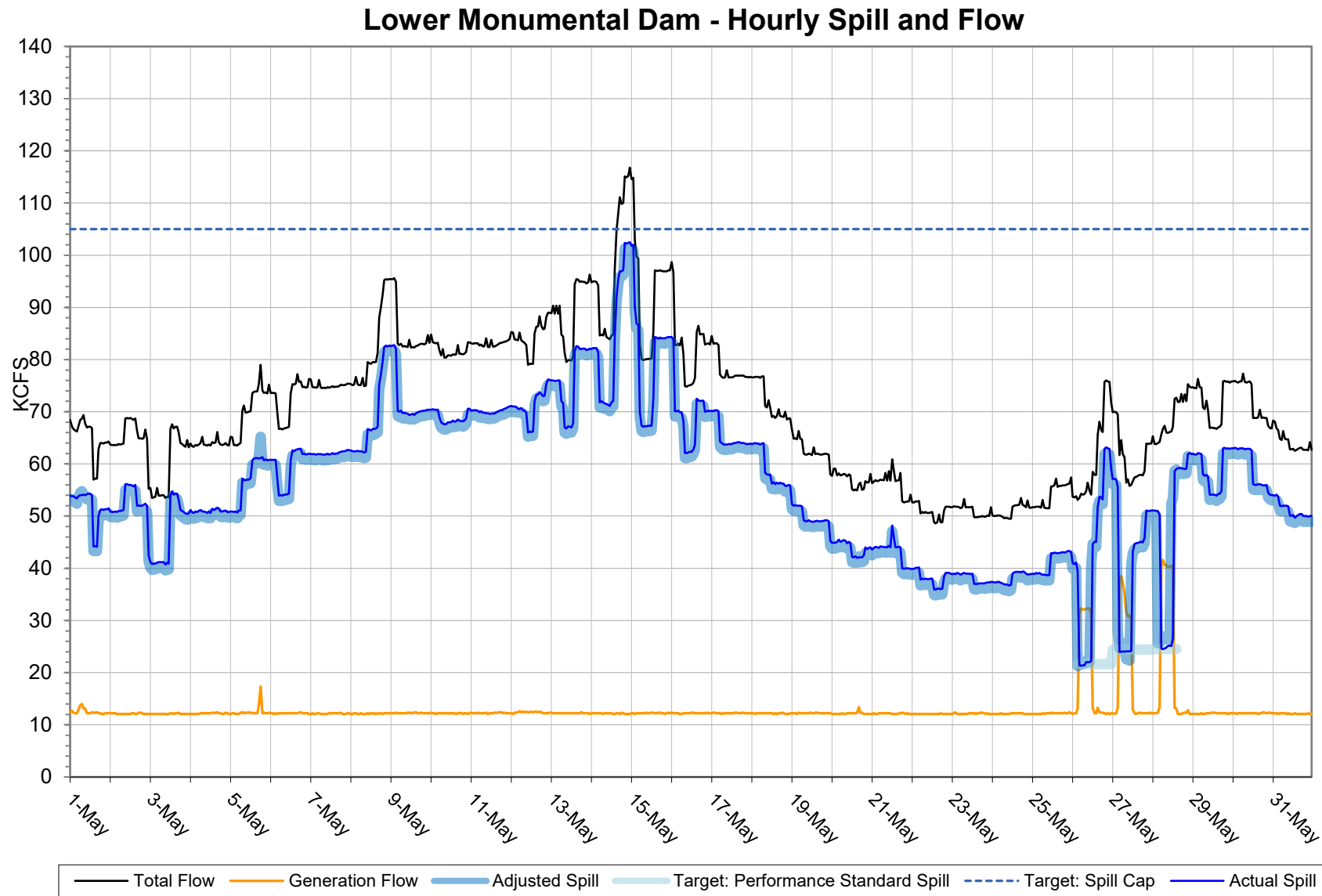


Figure 3: Hourly Spill and Flow at Lower Monumental Dam. The adjusted spill line is a simplified representation due to limitations of representing a range of minimum generation values. See Table 3 and Table 4 for spill variances and pre-coordinated operations.

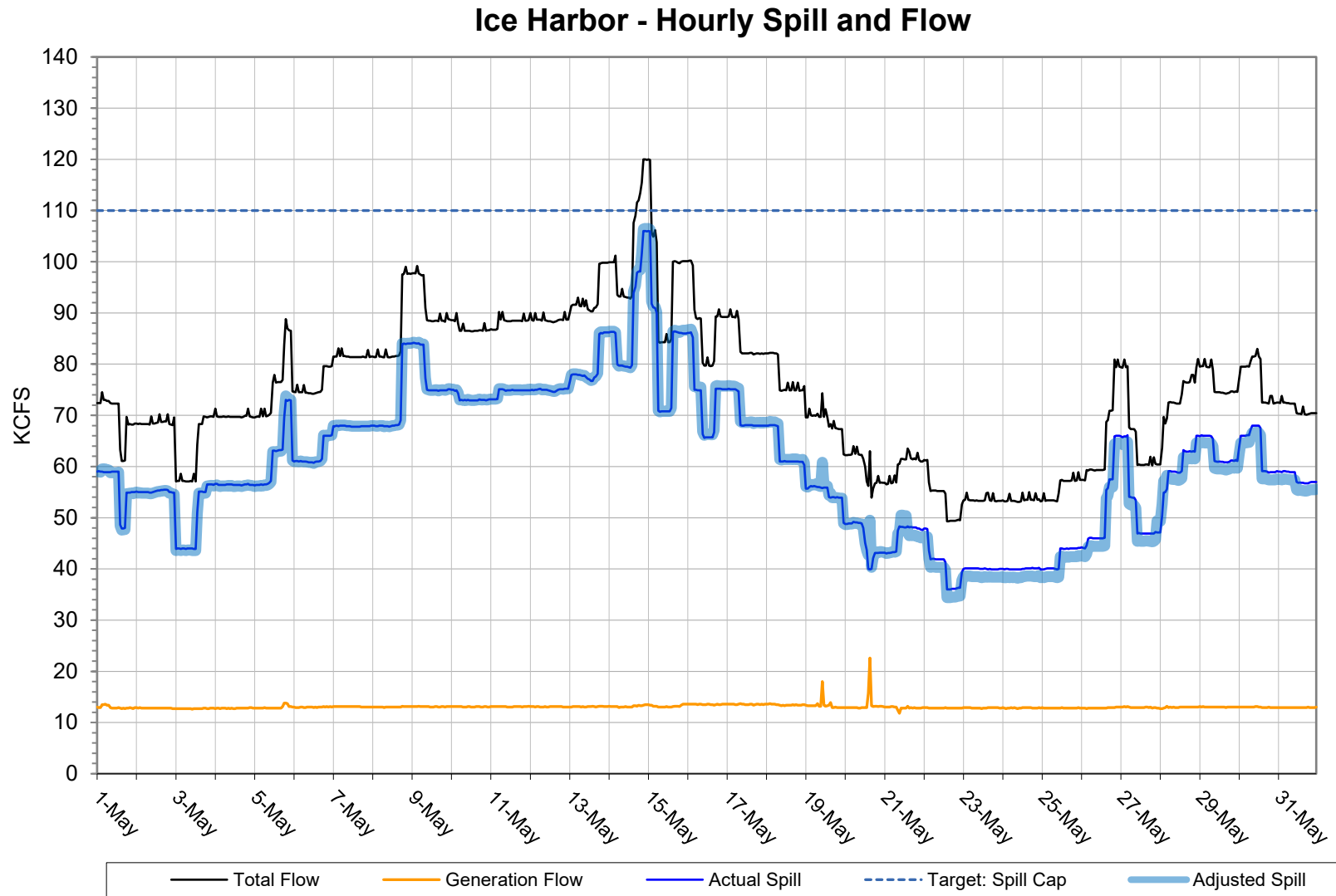


Figure 4: Hourly spill and flow at Ice Harbor Dam. The adjusted spill line is a simplified representation due to limitations of representing a range of minimum generation values. See Table 3 and Table 4 for spill variances and pre-coordinated operations.

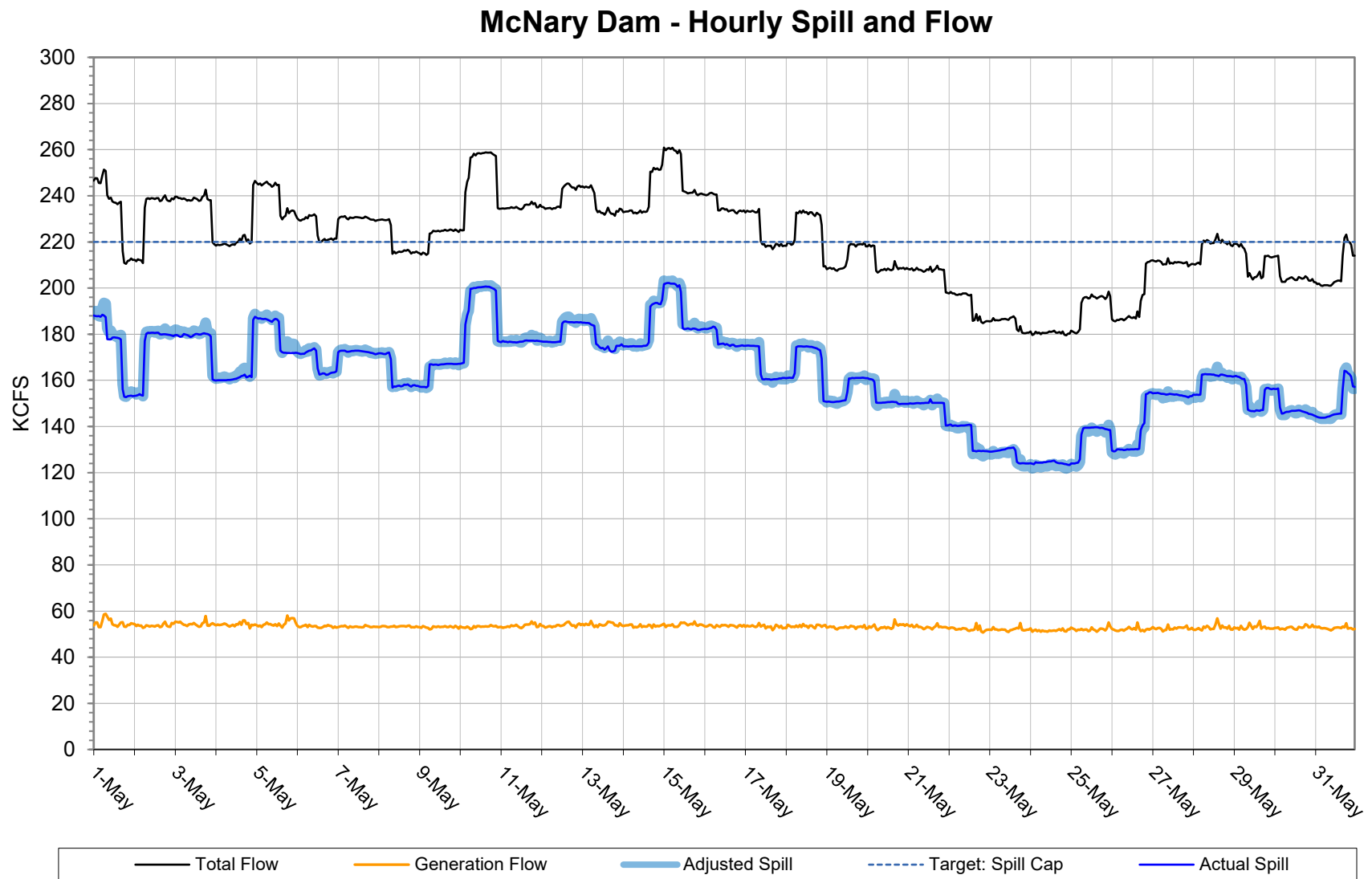


Figure 5: Hourly spill and flow at McNary Dam. The adjusted spill line is a simplified representation due to limitations of representing a range of minimum generation values. See Table 3 and Table 4 for spill variances and pre-coordinated operations.

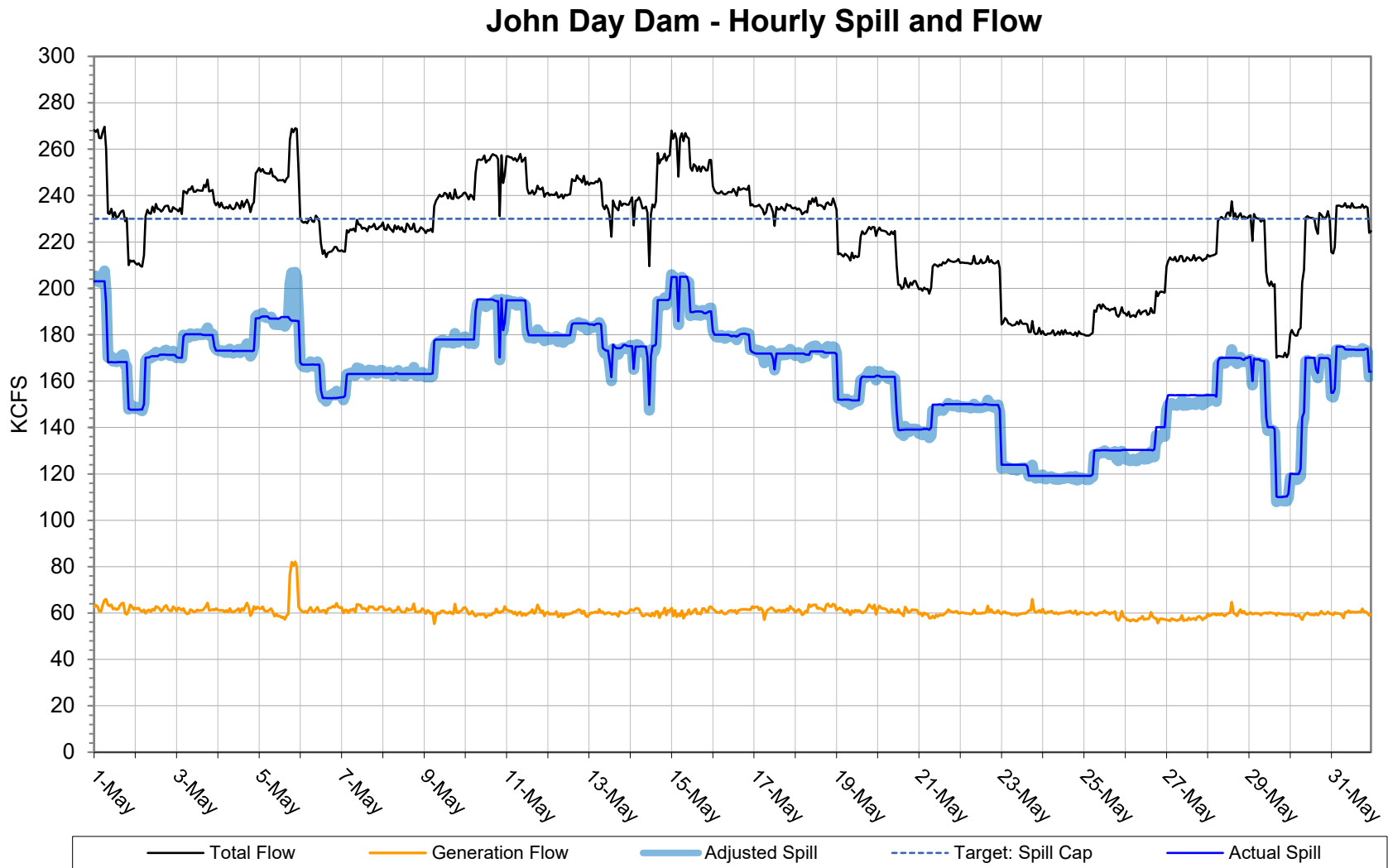


Figure 6: Hourly spill and flow at John Day Dam. The adjusted spill line is a simplified representation due to limitations of representing a range of minimum generation values. See Table 3 and Table 4 for spill variances and pre-coordinated operations.

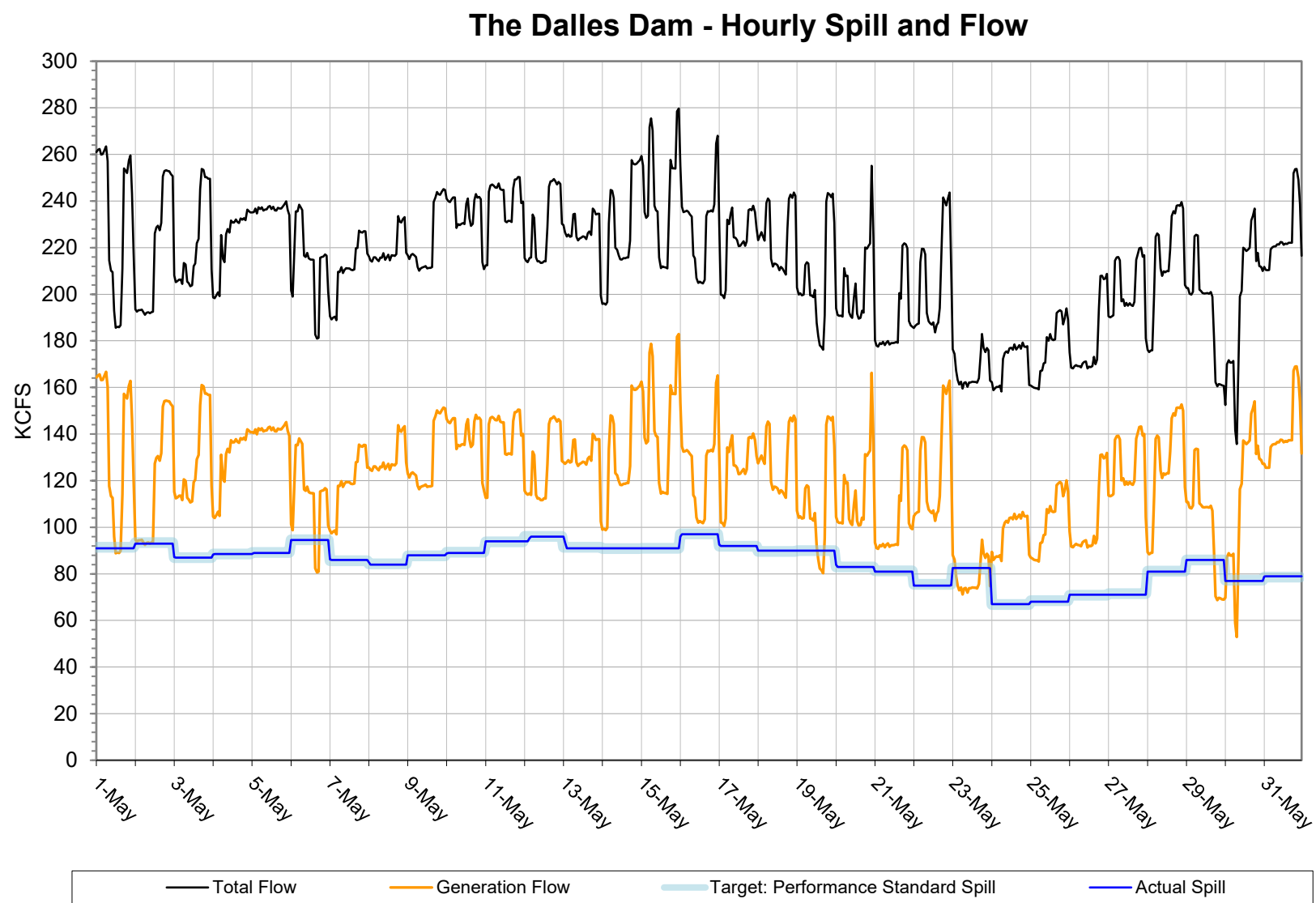


Figure 7: Hourly spill and flow at The Dalles Dam. The adjusted spill line is a simplified representation due to limitations of representing a range of minimum generation values. See Table 3 and Table 4 for spill variances and pre-coordinated operations.

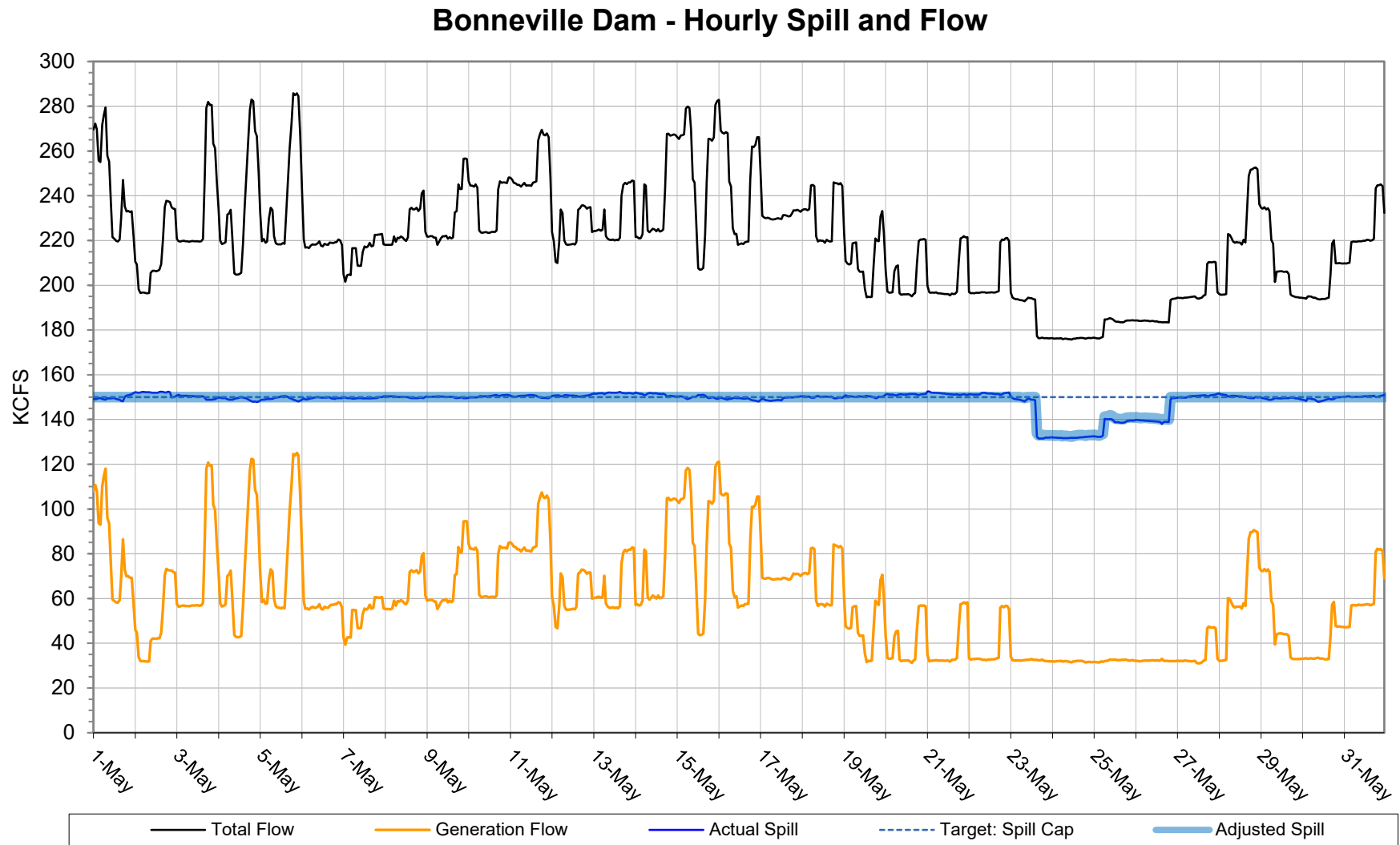


Figure 8: Hourly spill and flow at Bonneville Dam. The adjusted spill line is a simplified representation due to limitations of representing a range of minimum generation values. See Table 3 and Table 4 for spill variances and pre-coordinated operations.

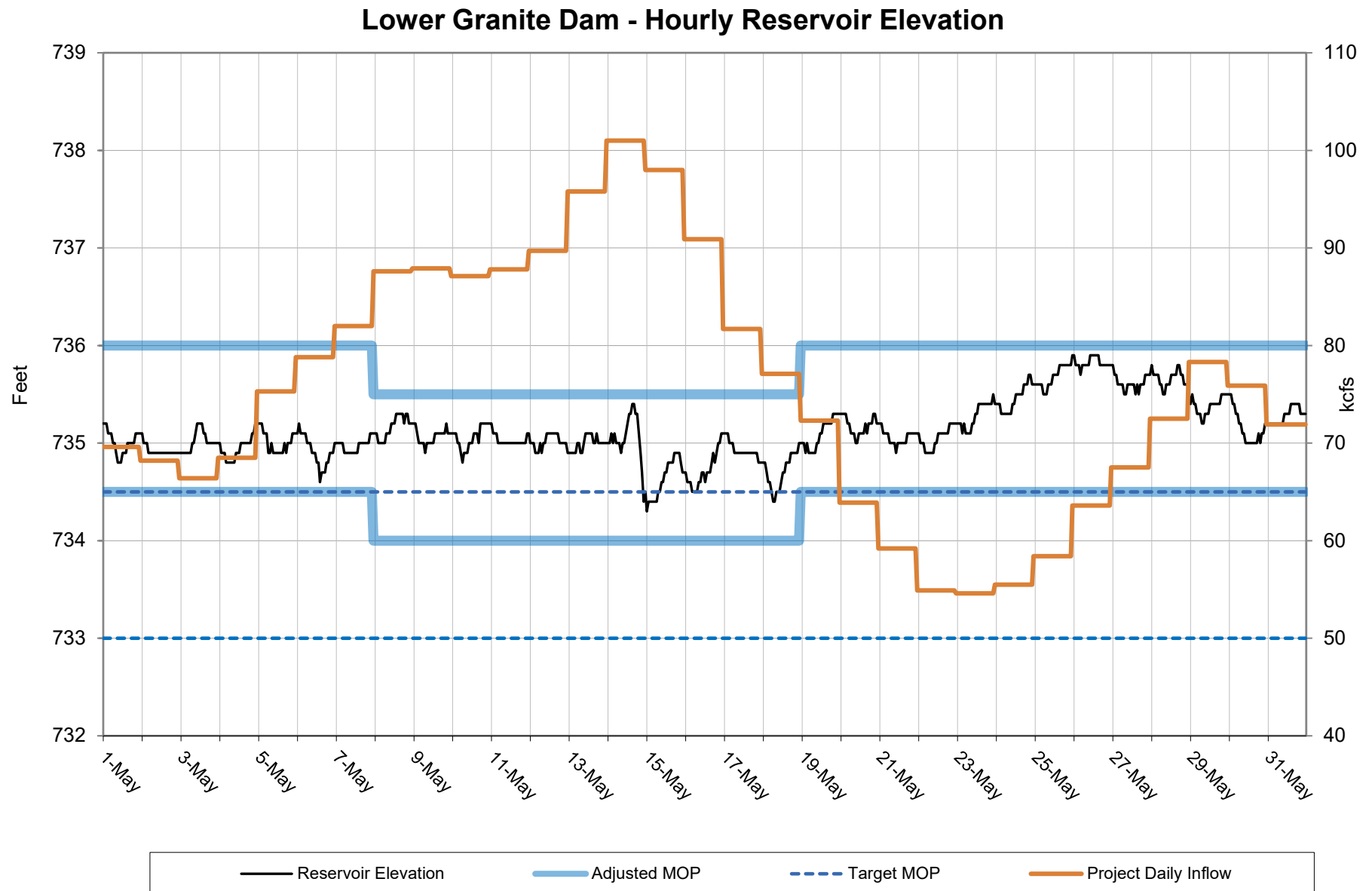


Figure 9: Hourly elevations at Lower Granite Dam.

Little Goose Dam - Hourly Reservoir Level

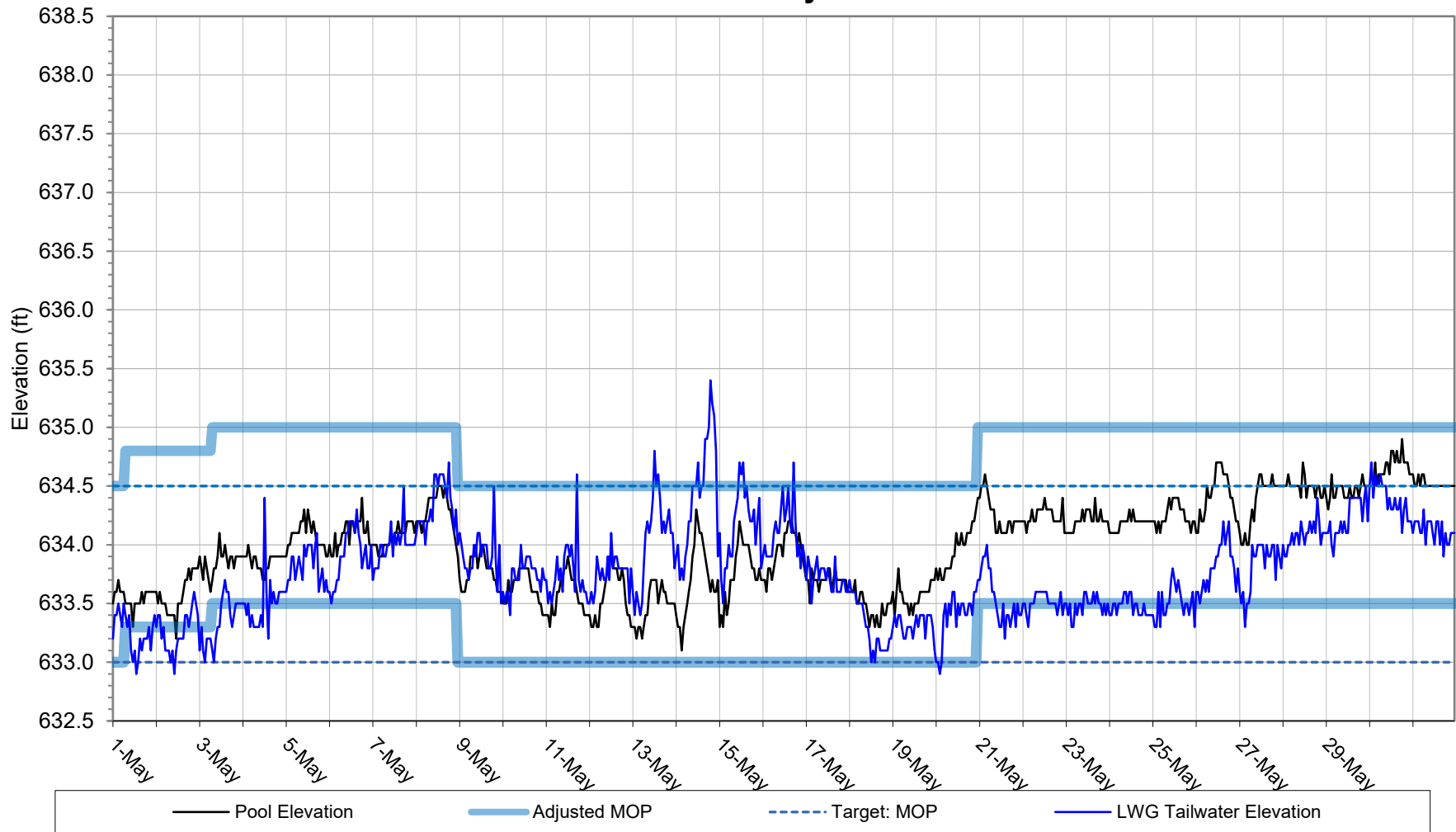


Figure 9: Hourly elevations at Little Goose Dam.

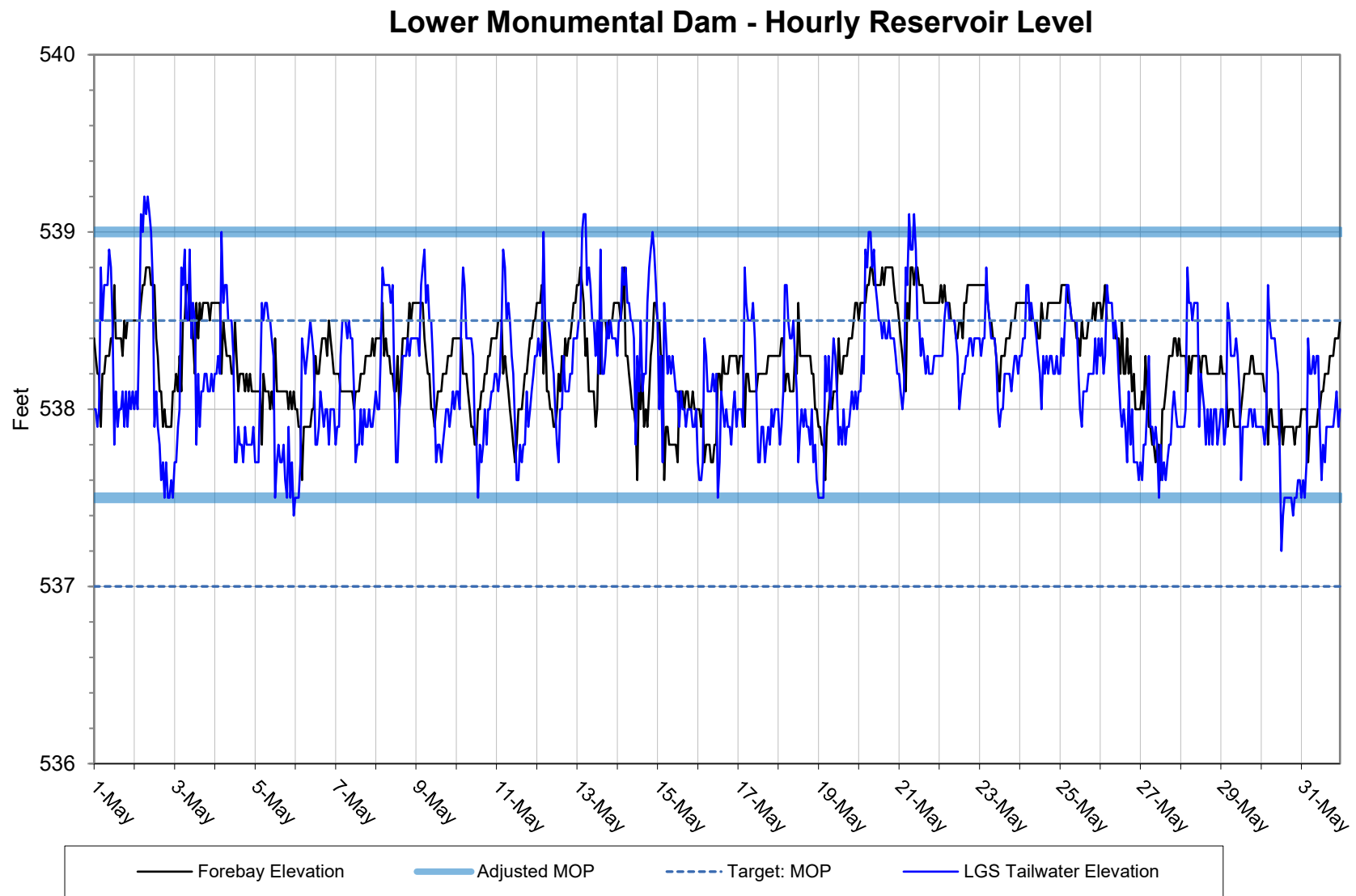


Figure 10: Hourly elevations at Lower Monumental Dam.

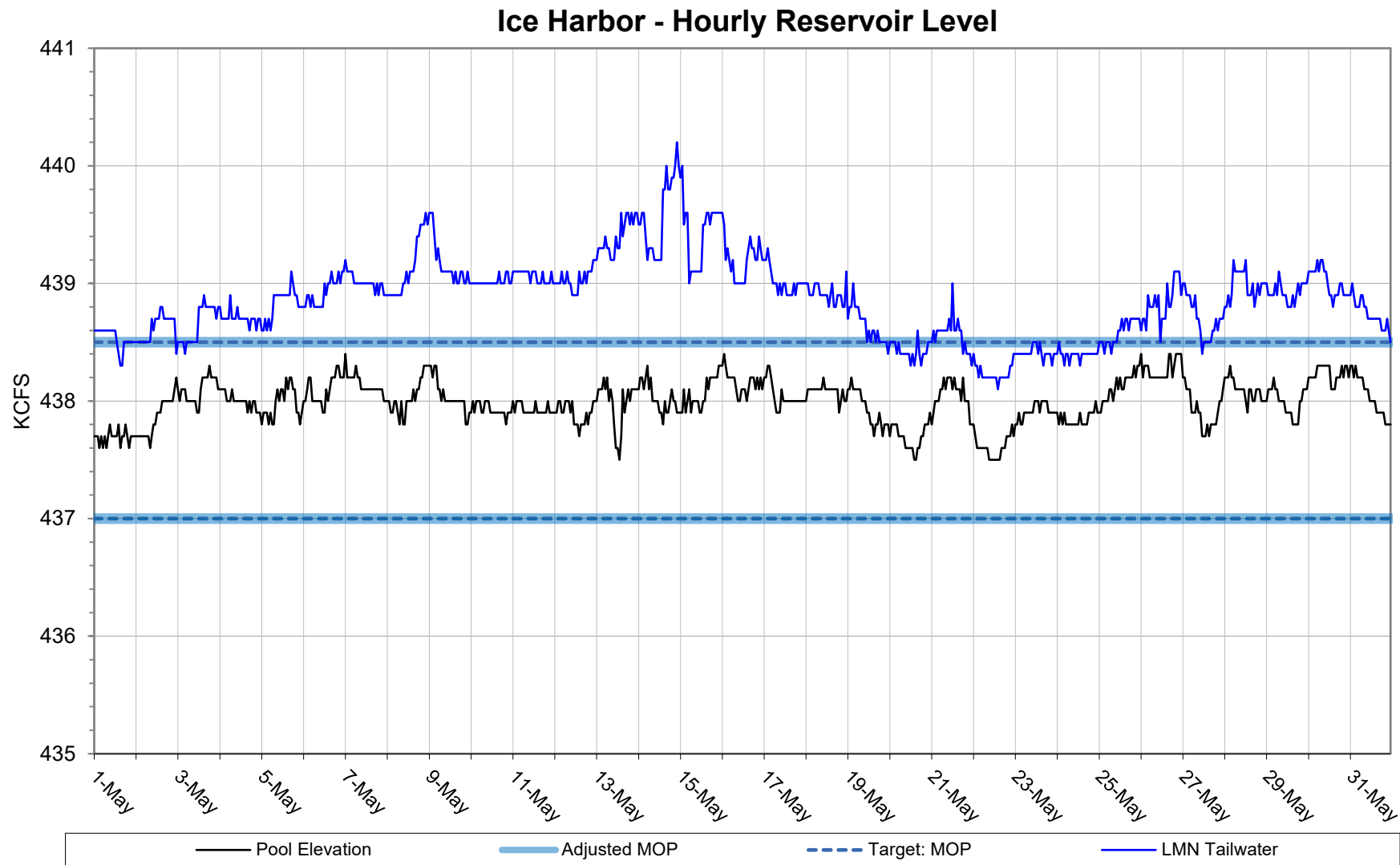


Figure 11: Hourly elevations at Ice Harbor Dam.