

FISH OPERATIONS PLAN IMPLEMENTATION REPORT

June 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 June. 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 June 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 June, with hourly spill, target spill, adjusted spill, generation, and total flows. The monthly spill graphs (Figure 1 through Figure 8) begin on June 1 and end on June 30 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 June, 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 June 1 and end on June 30 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 June 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 June 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.”

June Operations

The June observed precipitation was below normal with 87% of average precipitation observed at the Snake River above Ice Harbor and 83% of average precipitation observed at the Columbia River above The Dalles.⁵ The NOAA Northwest River Forecast Center runoff summary for June indicated that the adjusted runoff for the Snake River at Lower Granite was 45% of the 30-year average (1991-2020) with a volume of 2.6 MAF (Million acre-feet). The June adjusted runoff for the Columbia River at The Dalles was 69% of the 30-year average (1991-2020) with a volume of 17.9 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. Summer spill operations occur June 16 – August 31 at the lower Columbia projects and June 21 – August 31 at the lower Snake 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) and summer 2026 spill levels are in Table 2 (Table 5 in the 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\(I\)\(f\)\(ii\)\(B\)\(III\)](#) 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 July 06, 2026: https://www.nwrfc.noaa.gov/water_supply/wy_summary/wy_summary.php?tab=5

⁶ Retrieved July 06, 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.

Table 2: Summary of 2026 summer target spill levels at lower Snake River and lower Columbia River projects (Table 5 in the 2026 FOP).

PROJECT	SUMMER SPILL^A (June 21/16 – August 31) (24 hrs/day)
Lower Granite	18 kcfs
Little Goose ^B	30%
Lower Monumental	17 kcfs
Ice Harbor ^B	30%
McNary ^B	57%
John Day ^B	35%
The Dalles ^B	40%
Bonneville	95 kcfs

A. Spill may be temporarily reduced below the FOP target summer spill level at any project if necessary to ensure navigation safety or transmission reliability, or to avoid exceeding State TDG standards.

B. From June 16 – August 31, 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.

In its implementation of the 2026 FOP in June, 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).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 3. 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 June, the Corps evaluated reservoir conditions daily to ensure that minimum tailwater constraints, as well as navigation criteria, were met.

⁷ See 2026 FOP, Section 2.2

Table 3: 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 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

Following receding inflows, MOP at Little Goose was raised 0.5 ft on May 21 and remained at a 0.5 ft raised MOP until June 17, when MOP at the project was further raised an additional 0.5 ft (1.0 ft raised MOP) in response to Lower Granite tailwater reaching the minimum tailwater required to maintain safe navigation. The 1.0 ft raised MOP remained in place through the remainder of June. This operation is illustrated in Figure 10.

3. Lower Monumental

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 June 22, at which point convergence between Lower Monumental forebay elevation and Little Goose tailwater was observed in response to the summer spill operation. The Lower Monumental MOP range was returned to normal (537.0–538.5 ft) on June 23. This operation is illustrated in Figure 11.

4. John Day

On June 01 and 02, 2026, NMFS communicated to TMT that adult delay was observed at John Day Dam and there was discussion about the evidence for delay, causes and potential actions.⁸ In accordance with the May 25, 2026 Stipulation⁹ filed with the Court, the Corps reduced John Day spill to 40% of the previous day's average outflow for 8 hours per day in the morning to target hours of peak adult fish passage for three consecutive days, June 03 to June 05. The operation from June 03 to June 05 resulted in increased adult fish passage. The 24/7 Gas Cap spill operation resumed on June 06. Concurrent with part of this operation, a 29-hour spill reduction occurred for navigation safety (see Table 4).

5. McNary

Beginning June 23 at 1700 hours, an alternate spill pattern (developed in-season) was applied to spill at McNary Dam in place of the spill pattern in Table MCN-11 of the 2026 FPP. This action was in response to TDG exceeding state standards in the McNary tailrace (see Table 6) resulting from summer spill operations. Regional salmon managers were made aware of this operational adjustment via Memorandum for the Record 26 MCN 06 "Modified Spill Pattern for Summer Gas Abatement" emailed to FPOM on June 23.

⁸ See June 01, 2026 TMT meeting minutes at https://public.crohms.org/tmt/agendas/2026/0601_Minutes.pdf and June 02, 2026 TMT meeting minutes at https://public.crohms.org/tmt/agendas/2026/0602_Minutes.pdf

⁹ https://public.crohms.org/tmt/0527_2688_Stip_re_Adult_Delays.pdf

Table 4: Variances – June 2026

Project	Parameter	Date	Time ^[1]	# of Hours	Type	Reason
John Day	Reduced Spill	06/04 06/05	0300-2400 0000-0700	22 7	Navigation Safety	Hourly spill decreased to between 50–70 kcfs (less than adjusted spill of between 72–93 ± 2 kcfs) due to an emergency recovery of commercial barge from the spillway.

Table 5: Pre-Coordinated Operations – June 2026

Project	Parameter	Date	Time ^[1]	# of Hours	Type	Reason
Ice Harbor	Reduced Spill	06/16	1600	1	Maintenance	Hourly spill was reduced to 22 kcfs (less than adjusted spill target of 25 ± 2 kcfs) due to an increase in generation outside of the minimum generation range for Unit 3 (8.6–10.3 kcfs ¹⁰) during STS screen inspection of Unit 2. Regionally coordinated via the FPP section 2.3.2.2.
McNary	Additional Spill	06/23	1700	1	Adaptive Management	Hourly spill was increased to 84 kcfs (more than adjusted spill target of 81 ± 2 kcfs). Regionally coordinated at the 06/11/26 FPOM meeting. See the Operational Adjustments section for more details.

^[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.

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¹⁰Range does not include $\pm 2\%$ due to generating unit governor “dead band.” When 2% is applied to the minimum generation flow ranges for Ice Harbor turbine Unit 3, the range is 8.4–10.5 kcfs. See 2026 FOP section 4.3.1.

Table 6: June 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-Jun	101	120	114	120	118	117	117	116	110	121	111	120	121	• ¹¹	116	121
2-Jun	101	119	116	117	119	116	118	115	112	122	111	120	123	•	120	121
3-Jun	103	117	118	117	121	115	118	114	112	122	111	121	123	•	121	121
4-Jun	103	117	117	117	119	115	117	114	112	122	113	119	116	•	116	121
5-Jun	104	117	117	116	118	114	116	114	111	123	115	122	112	•	114	121
6-Jun	104	117	115	116	116	113	113	113	110	122	114	119	118	121	114	121
7-Jun	103	117	112	117	114	116	112	114	108	122	111	119	116	120	113	120
8-Jun	103	117	112	118	113	115	112	114	109	122	111	121	121	122	117	121
9-Jun	102	117	111	117	113	114	111	113	110	121	109	118	120	122	114	120
10-Jun	101	116	108	117	112	115	109	114	107	121	107	117	114	119	111	121
11-Jun	101	117	110	117	112	115	110	114	106	121	108	117	117	119	114	121
12-Jun	101	116	110	116	112	113	110	114	109	120	109	118	117	120	115	121
13-Jun	101	115	111	115	113	118	112	115	111	120	111	117	117	121	116	121
14-Jun	102	115	112	115	115	118	114	114	111	120	111	117	118	121	118	121
15-Jun	104	115	114	115	116	117	115	113	111	121	113	118	118	120	120	121
16-Jun	105	115	115	115	116	119	114	114	112	118 ¹²	115	114	119	121	118	118
17-Jun	104	115	115	115	115	118	115	114	111	118	115	117	111	116	112	118
18-Jun	104	115	114	115	114	118	115	114	111	118	115	116	114	118	112	118
19-Jun	104	115	115	115	114	117	116	112	111	117	116	116	116	120	114	118
20-Jun	104	114	114	114	113	117	115	114	111	116	114	116	113	117	112	117
21-Jun	102	114	113	114	113	117	114	113	110	118	111	117	109	115	109	117
22-Jun	101	113	113	114	113	117	113	112	109	121	112	116	113	118	111	118
23-Jun	102	• ¹³	112	113	113	117	113	108	109	122	112	117	114	118	112	118
24-Jun	102	•	112	114	113	117	112	108	111	116	112	116	113	117	115	118
25-Jun	101	114	112	113	113	115	113	108	111	116	111	116	111	117	113	118
26-Jun	100	113	111	113	113	113	113	109	110	116	110	115	111	116	110	118
27-Jun	101	113	110	112	111	114	112	109	108	115	109	115	109	114	108	118
28-Jun	100	113	108	112	109	113	109	107	105	115	107	114	106	113	106	116
29-Jun	100	113	106	111	107	115	108	108	104	115	105	114	105	112	104	117
30-Jun	100	112	105	110	106	116	105	110	103	116	104	114	104	110	103	117
Exceedances:	0	0	0	0	0	0	0	0	0	2	1	0	2	1	1	0

¹¹ Missing data at TDDO from 06/01 – 06/05 due to partially ruptured membrane on the sonde.

¹² Blue shading indicates the summer water quality standard.

¹³ Missing data at LGNW from 06/23 – 06/24 due to failed sensor.

Lower Granite Dam - Hourly Spill and Flow

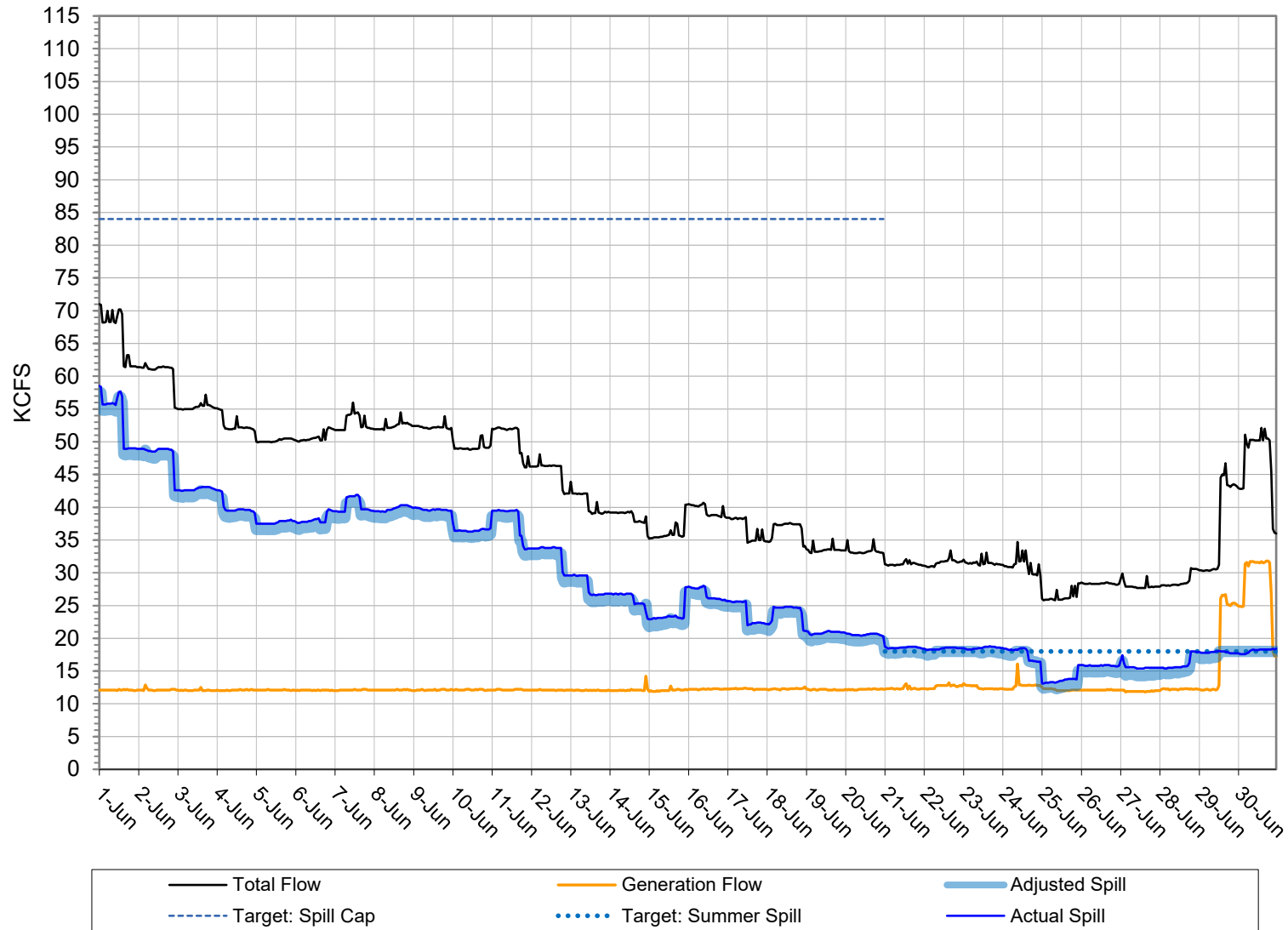


Figure 1: Hourly Spill and Flow at Lower Granite Dam. The adjusted spill line is a simplified representation due to limitations of representing a range of minimum generation values. See Table 4 and Table 5 for spill variances and pre-coordinated operations.

Little Goose Dam - Hourly Spill and Flow

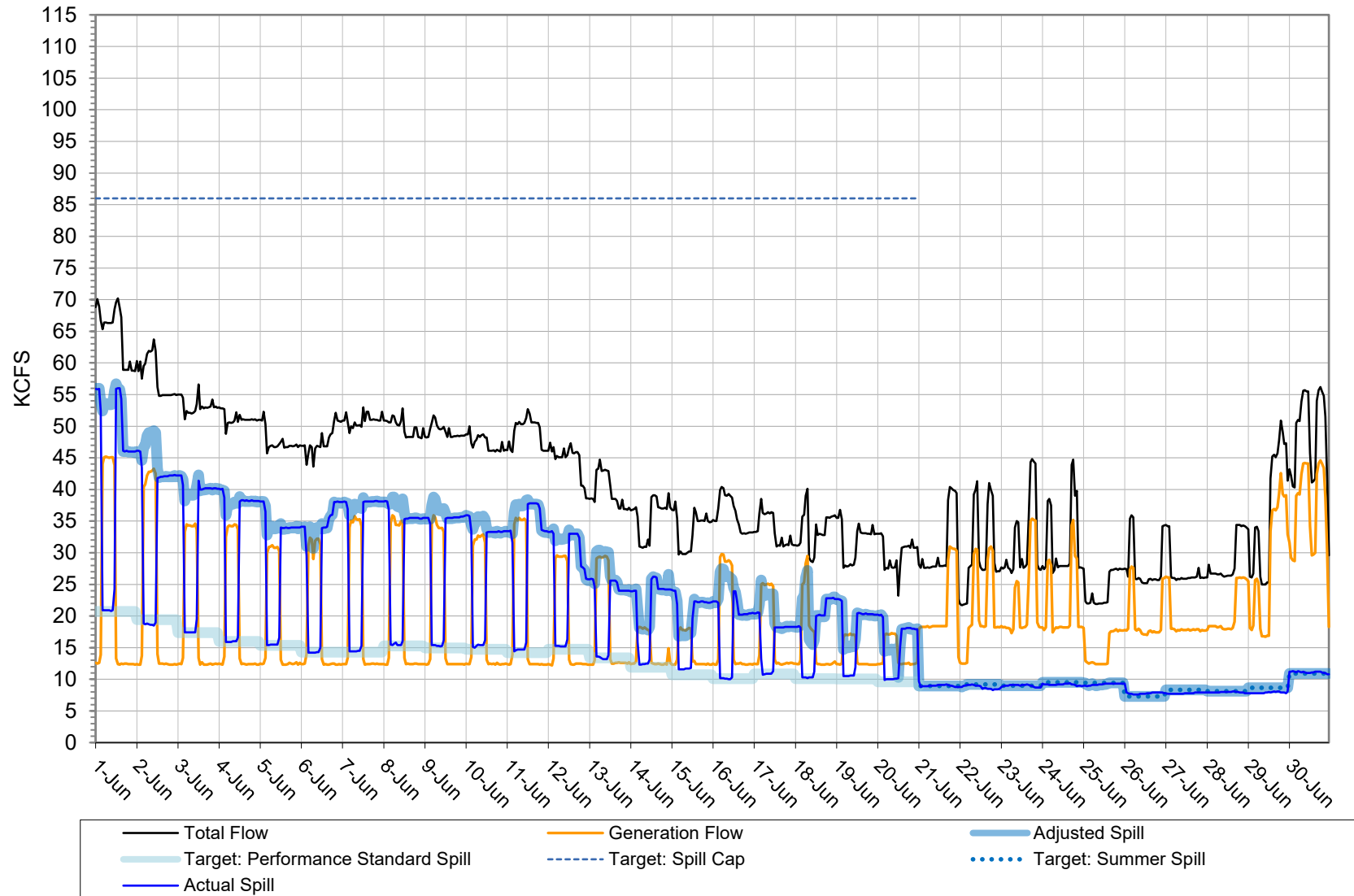


Figure 2: Hourly Spill and Flow at Little Goose Dam. The adjusted spill line is a simplified representation due to limitations of representing a range of minimum generation values. See Table 4 and Table 5 for spill variances and pre-coordinated operations.

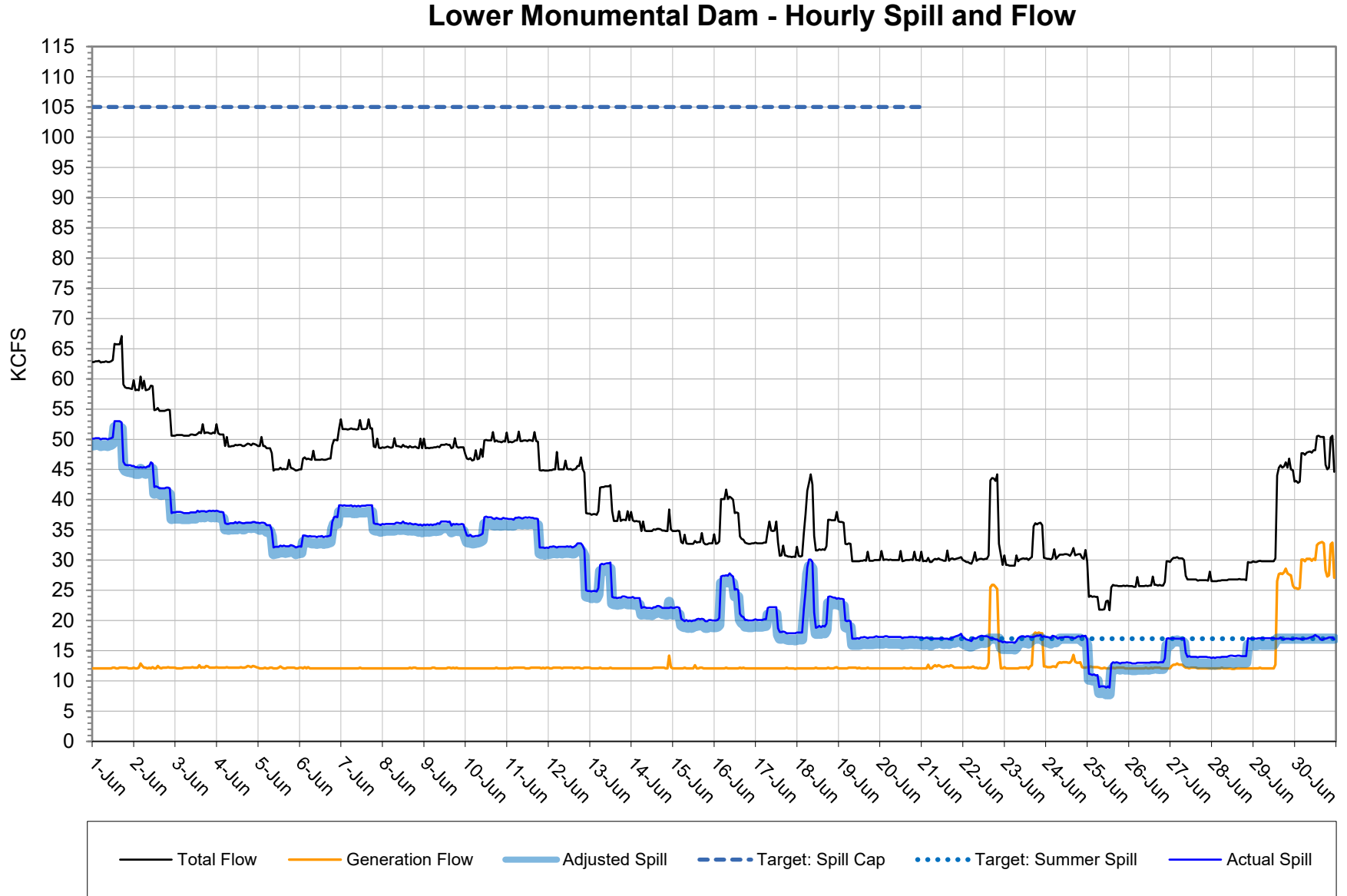


Figure 3: Hourly Spill and Flow at Lower Monumental Dam. The adjusted spill line is a simplified representation due to limitations of representing a range of minimum generation values. See Table 4 and Table 5 for spill variances and pre-coordinated operations.

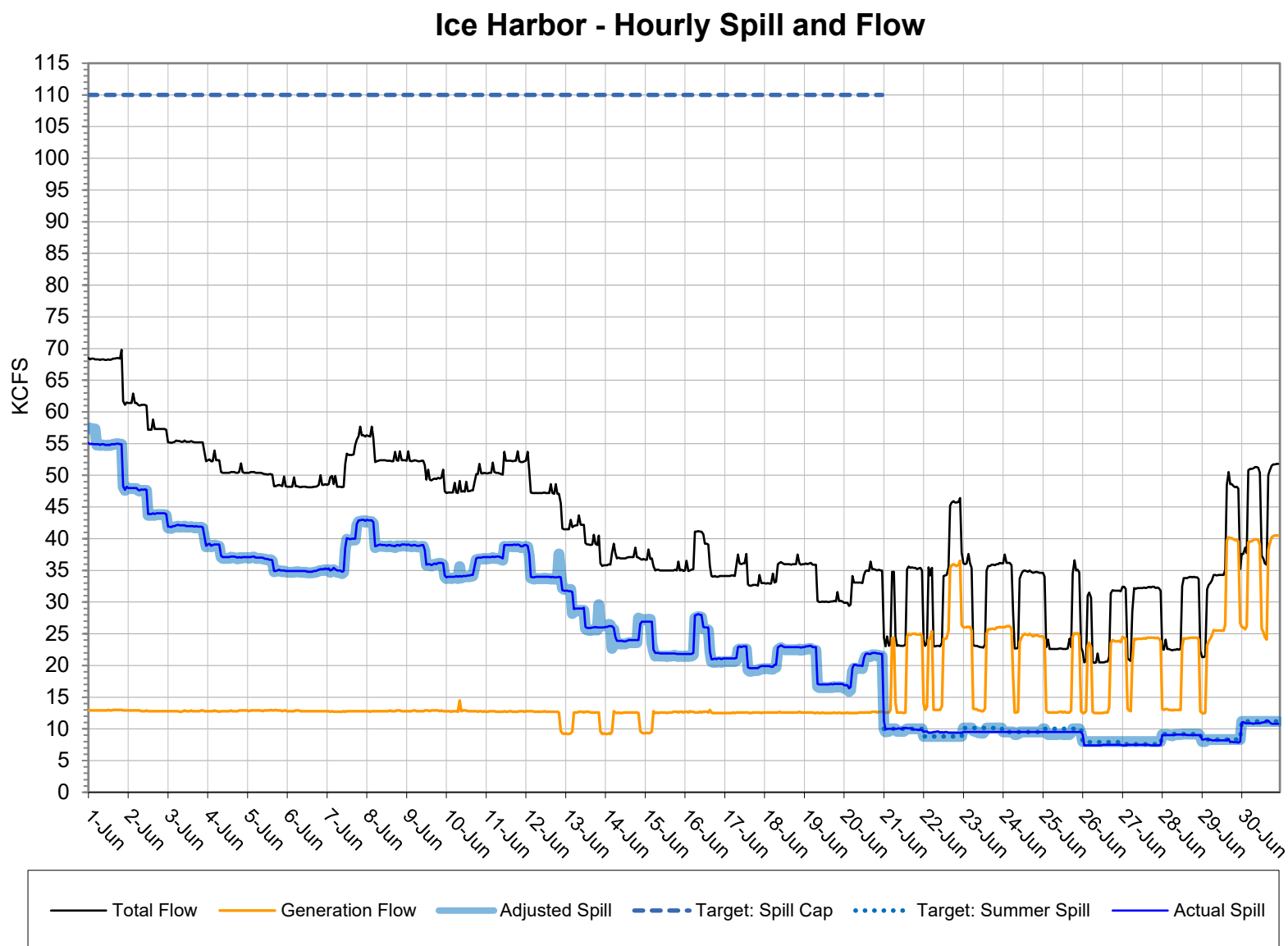


Figure 4: Hourly spill and flow at Ice Harbor Dam. The adjusted spill line is a simplified representation due to limitations of representing a range of minimum generation values. See Table 4 and Table 5 for spill variances and pre-coordinated operations.

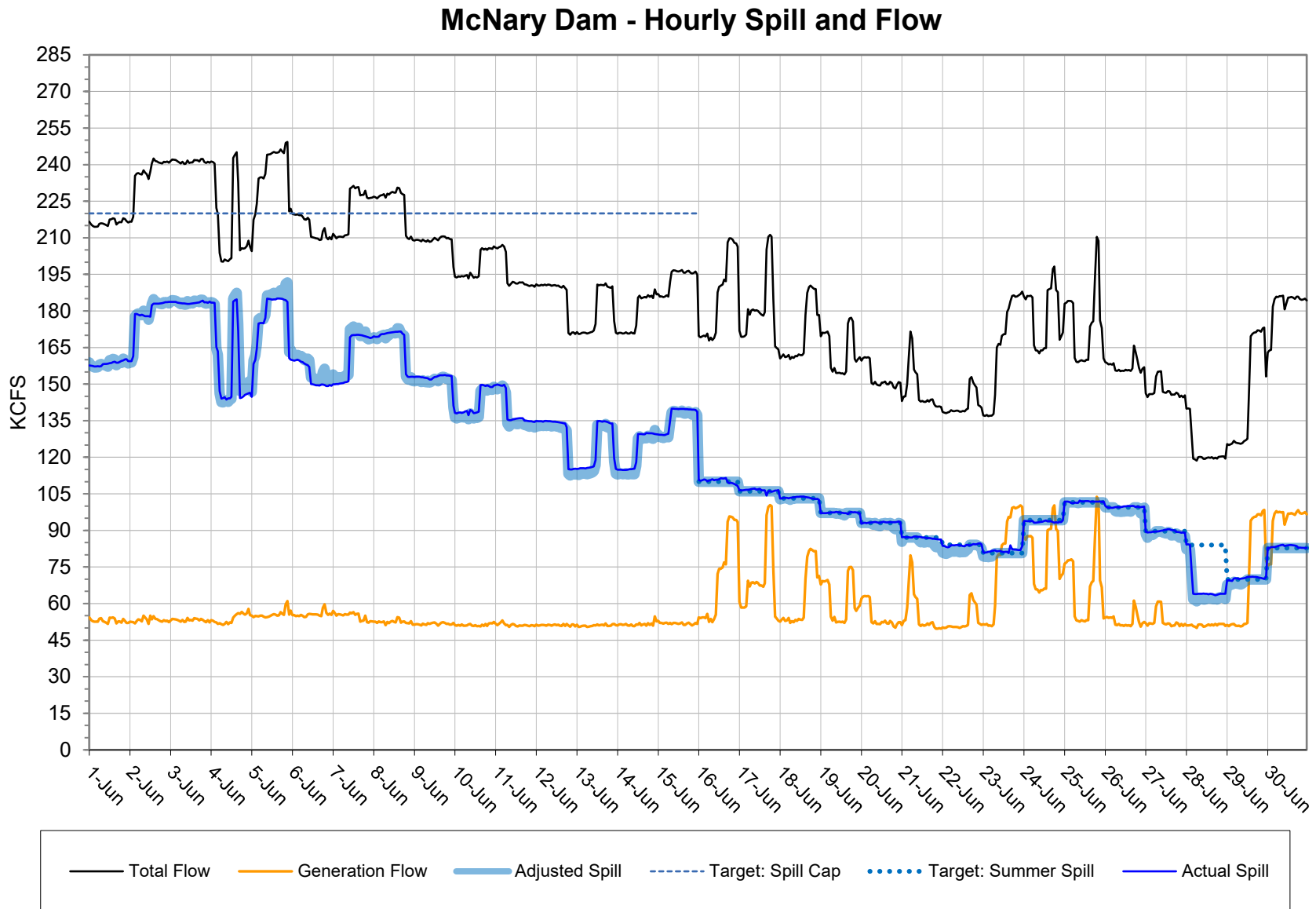


Figure 5: Hourly spill and flow at McNary Dam. The adjusted spill line is a simplified representation due to limitations of representing a range of minimum generation values. See Table 4 and Table 5 for spill variances and pre-coordinated operations.

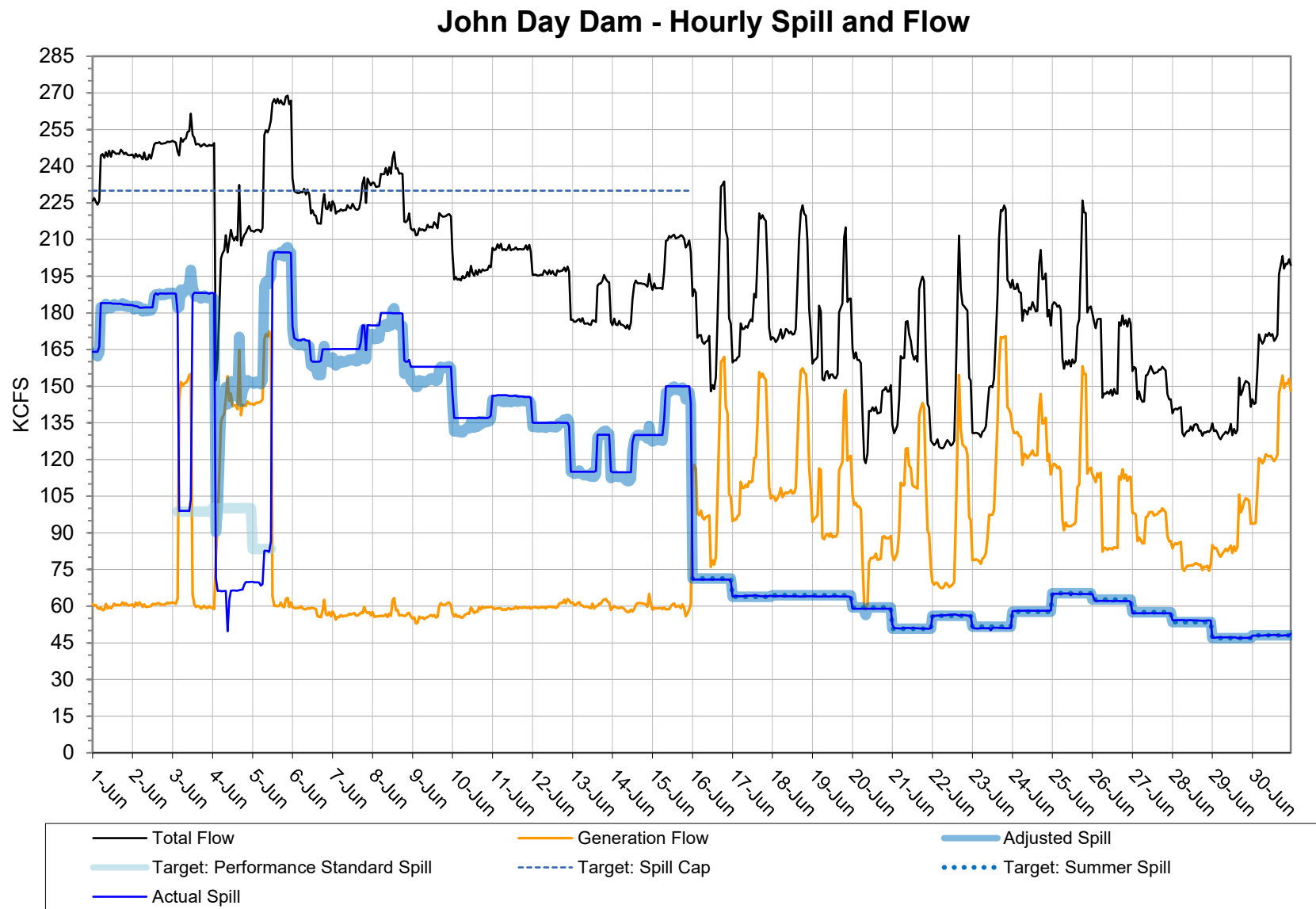


Figure 6: Hourly spill and flow at John Day Dam. The adjusted spill line is a simplified representation due to limitations of representing a range of minimum generation values. See Table 4 and Table 5 for spill variances and pre-coordinated operations.

The Dalles Dam - Hourly Spill and Flow

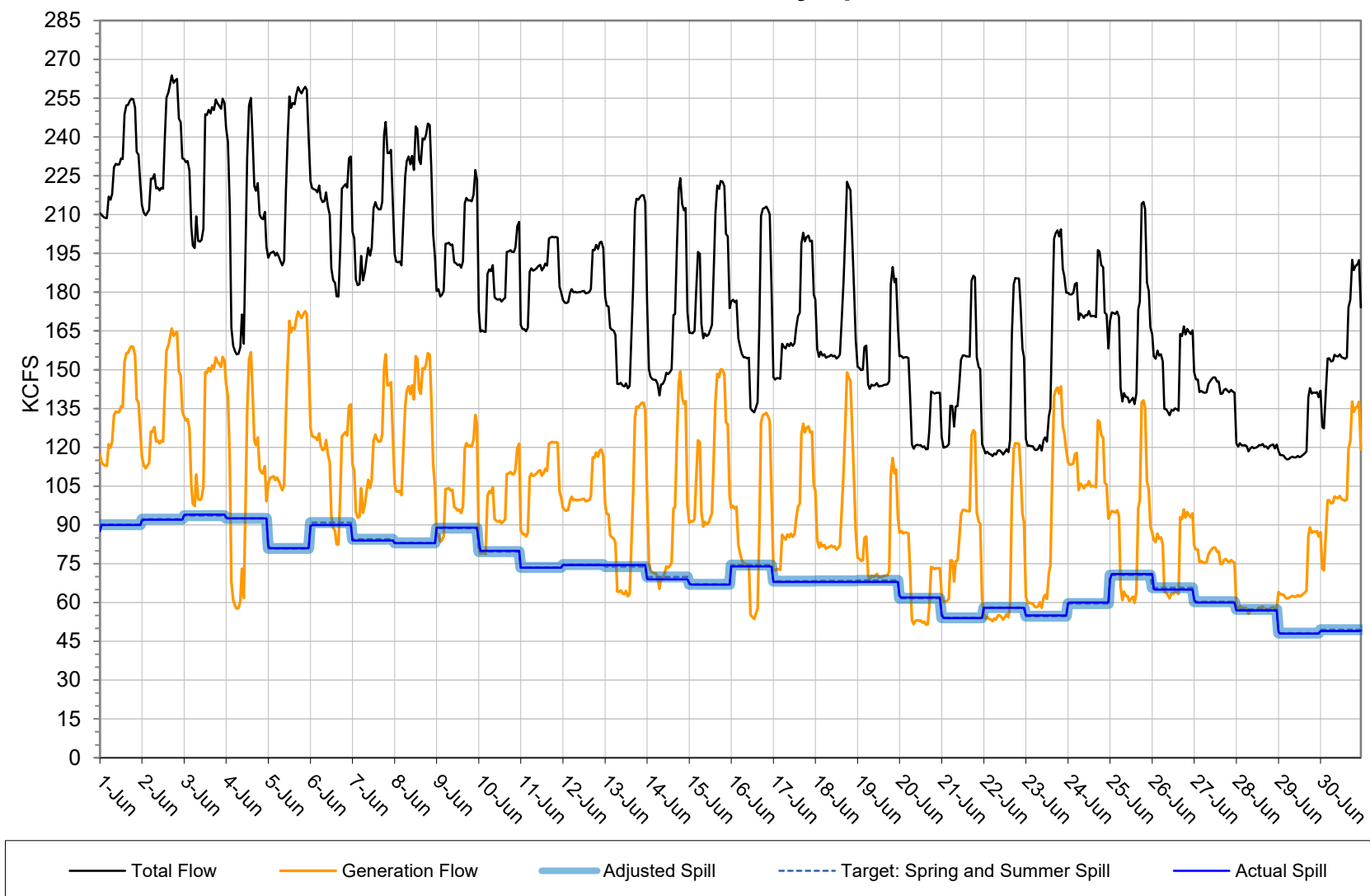


Figure 7: Hourly spill and flow at The Dalles Dam. The adjusted spill line is a simplified representation due to limitations of representing a range of minimum generation values. See Table 4 and Table 5 for spill variances and pre-coordinated operations.

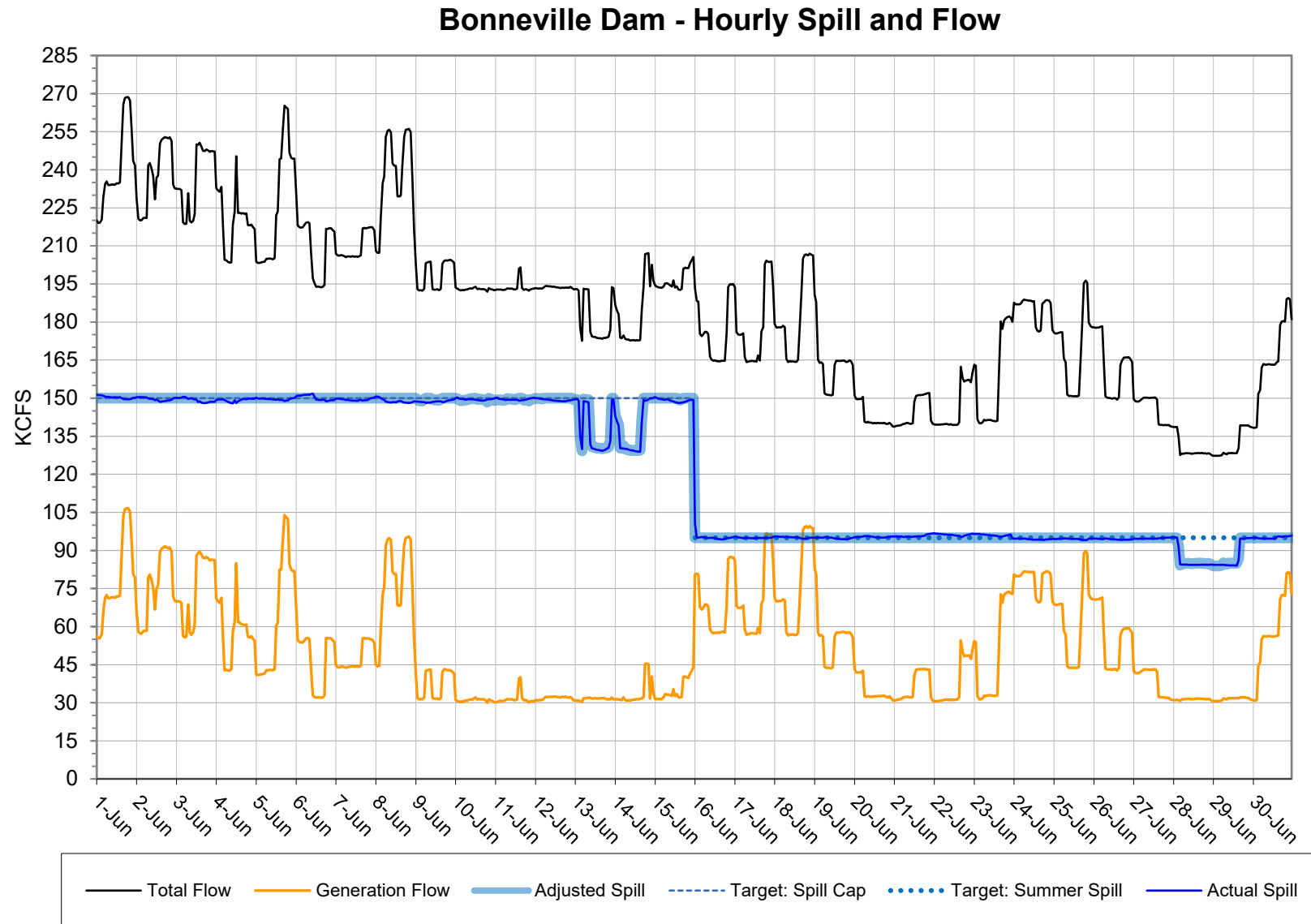


Figure 8: Hourly spill and flow at Bonneville Dam. The adjusted spill line is a simplified representation due to limitations of representing a range of minimum generation values. See Table 4 and Table 5 for spill variances and pre-coordinated operations.

Lower Granite Dam - Hourly Reservoir Elevation

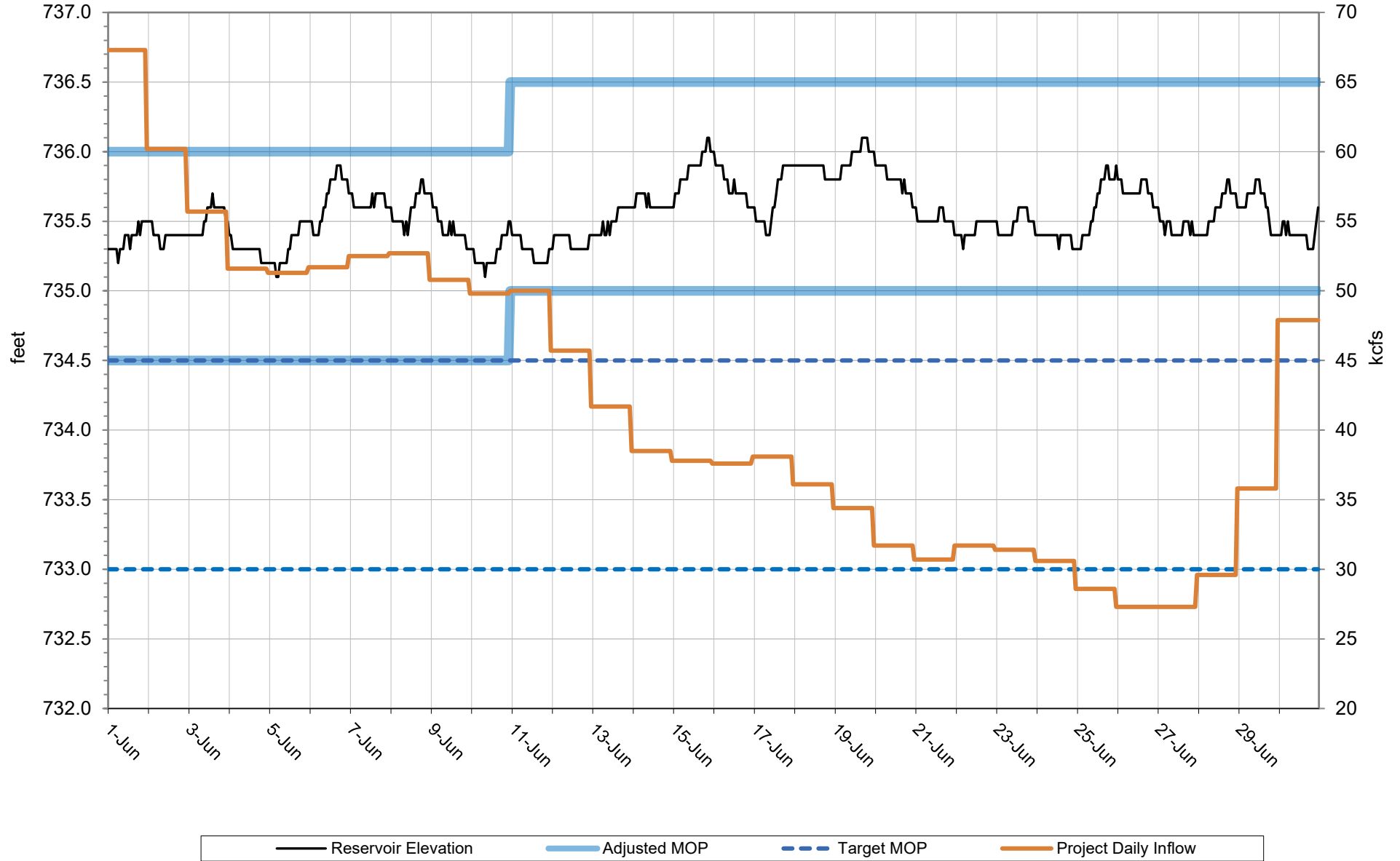


Figure 9: Hourly elevations at Lower Granite Dam.

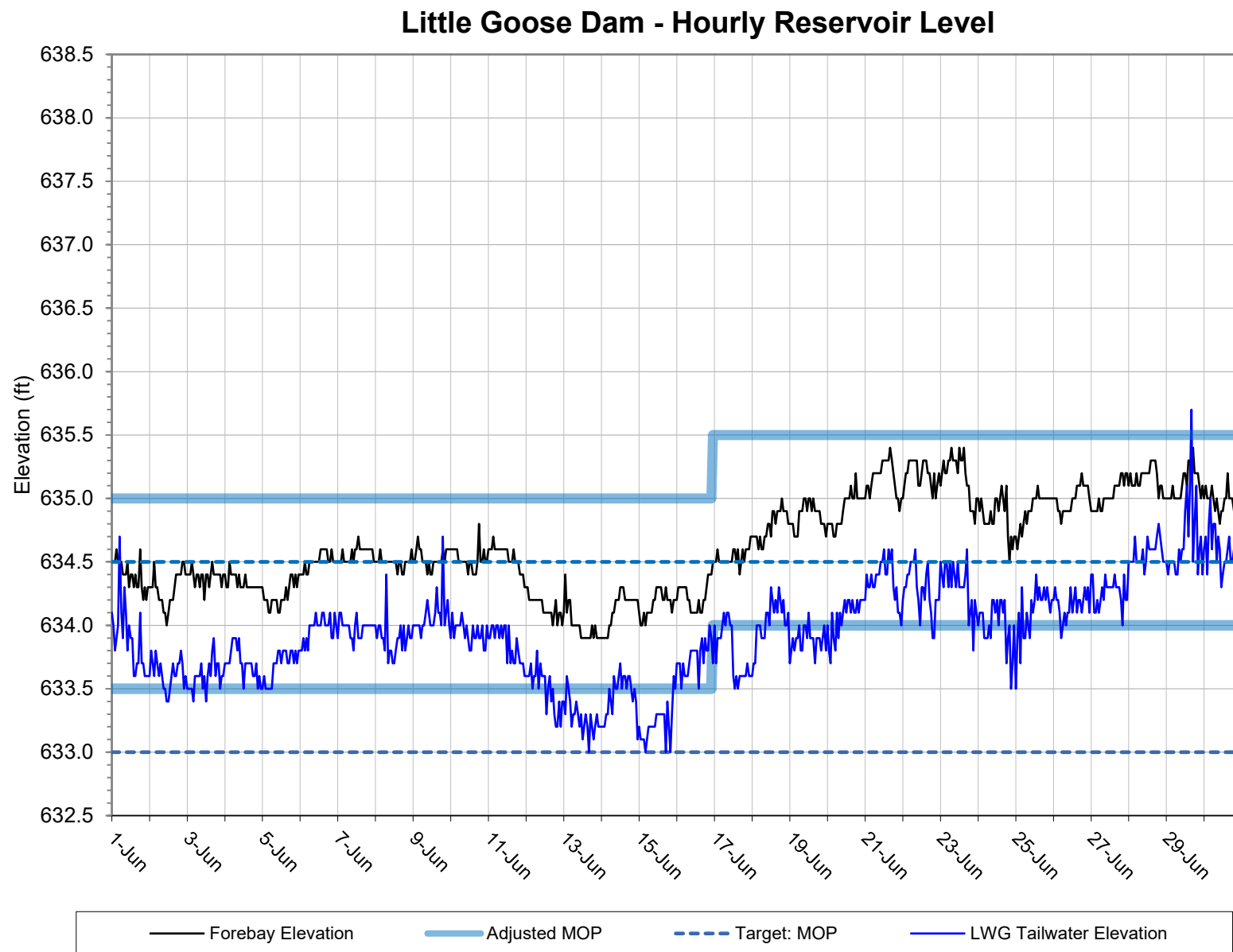


Figure 9: Hourly elevations at Little Goose Dam.

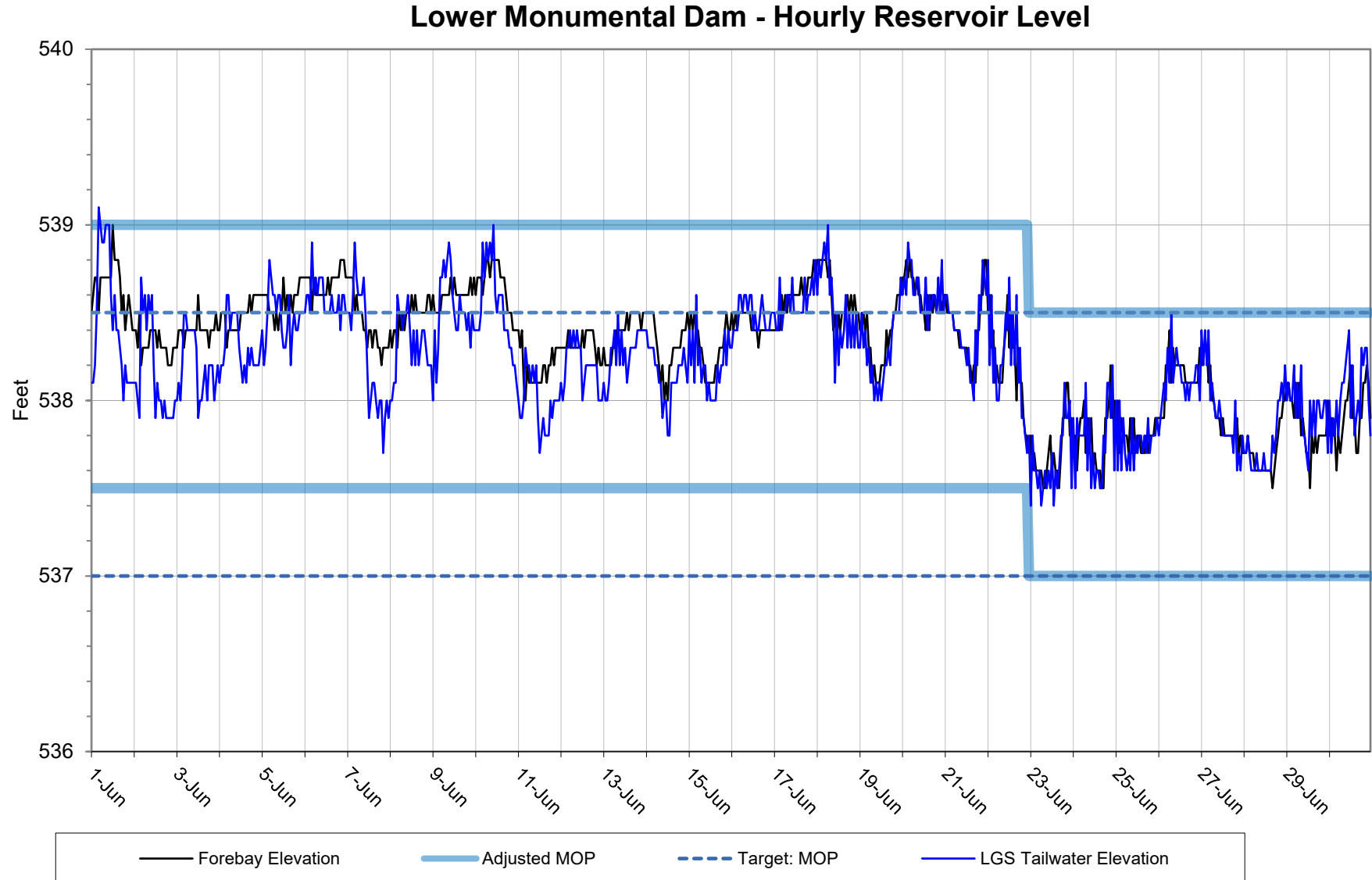


Figure 10: Hourly elevations at Lower Monumental Dam.

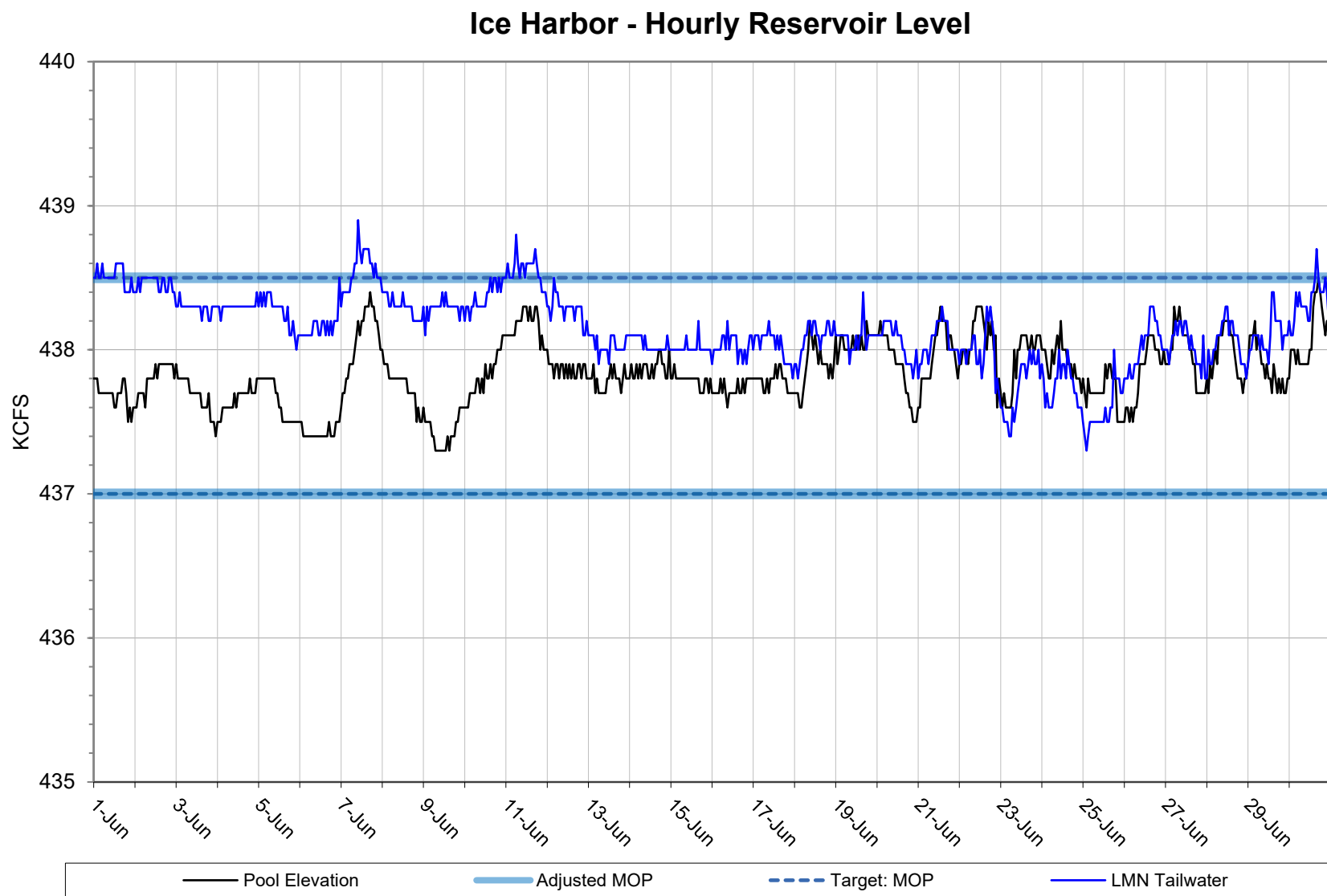


Figure 11: Hourly elevations at Ice Harbor Dam.