

Site C Clean Energy Project

Permanent Upstream Fish Passage Facility Operations Report

Reporting Period: July 1 to 31, 2025

Prepared by BC Hydro

August 26, 2025

Introduction

BC Hydro filled the Site C Reservoir and started to operate the generating station in the fall of 2024. As such, the permanent upstream fish passage facility (hereafter permanent facility) was operated at the outlet of the generating station to provide for fish passage during the operations phase of the Project.

Structure of the report

This report summarizes the data and information presented in weekly reports prepared by the facility operator, as described in the Manual of Operational Parameters and Procedures (OPP), and covers the full extent of operations in July 2025.

This report has the following sections:

- Biological operation;
- Environmental conditions;
- Mechanical operation; and
- Adjustments.

Biological operation is defined as the sorting, sampling, tagging, transport and release of fish. Mechanical operation is defined as the operation of the pumps, gates, crowder, lock, sensors, loggers, and other mechanical equipment to ensure the permanent facility achieves the biological objectives described in Section 4.1 of the Fish Passage Management Plan¹.

Summary

Five hundred and forty nine fish – 278 Mountain Whitefish, 108 Bull Trout, 79 Longnose Sucker, 29 Largescale Sucker, 20 Northern Pikeminnow, 18 Rainbow Trout, 8 Arctic Grayling, 4 Kokanee, 4 White Sucker, and 1 Redside Shiner – were sorted and sampled at the permanent facility, and transported and released into the Site C Reservoir (Table 1).

Significant numbers of mature adult Bull Trout (fork length range 409 to 885 mm) passed the permanent facility in July (Photo 1). Twenty nine of these fish were tagged with acoustic and radio transmitters to track their movements in the reservoir and tributaries flowing into the reservoir (e.g., Halfway River) (Photo 2).

¹ Available at: <http://sitecproject.com/sites/default/files/Fish%20Passage%20Management%20Plan.pdf>

Biological operation

In total, 549 fish were sorted in the permanent facility during the reporting period (Table 1; Figure 1). Five mortalities were observed during the reporting period (0.3% of all fish sorted in 2025), which is in-line with the anticipated levels of mortality during operations².

Table 1. Total number of fish sorted, sampled, transported and released during the reporting period.

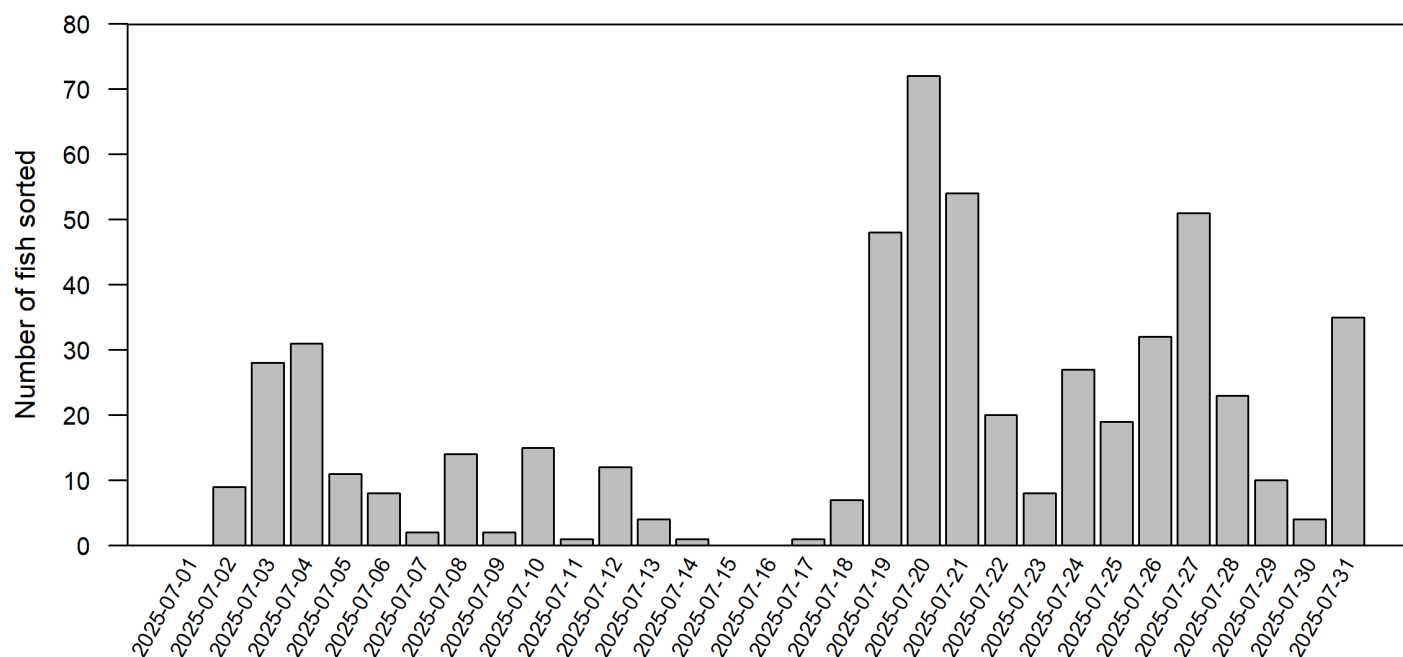
Species	Sorted	Transported and released	PIT tagged	Mortalities	Genetics	Microchemistry or ageing
Arctic Grayling	8	8	6		5	6
Brook Stickleback						
Brook Trout						
Bull Trout	108	108	78	1	77	77
Burbot						
Finescale Dace						
Flathead Chub						
Goldeye						
Kokanee	4	4				
Lake Chub						
Lake Trout						
Lake Whitefish						
Largescale Sucker	29	29	24	1		
Longnose Dace						
Longnose Sucker	79	79	61			
Mountain Whitefish	278	278	251	2		2
Northern Pike						
Northern Pikeminnow	20	20				
Northern Redbelly Dace						
Peamouth						
Pearl Dace						
Prickly Sculpin						
Pygmy Whitefish						
Rainbow Trout	18	18	14		16	16
Redside Shiner	1	1				
Slimy Sculpin						
Spoonhead Sculpin						
Spottail Shiner						
Trout-perch						
Unknown Species				1		
Walleye						
White Sucker	4	4	4			
Yellow Perch						
Grand total	549	549	438	5	98	101

Not all fish species were PIT tagged or sampled for genetics, microchemistry, or ageing, as described in the OPP.

² The FAA for Main Civil Works and Facility Operations ([15-HPAC-01160](#)) describes an acceptable level of incidental mortality to be no more than 5% of the total number of fish sorted in the temporary facility on an annual basis.

Between zero and 72 fish were sorted daily during the reporting period (Figure 1).

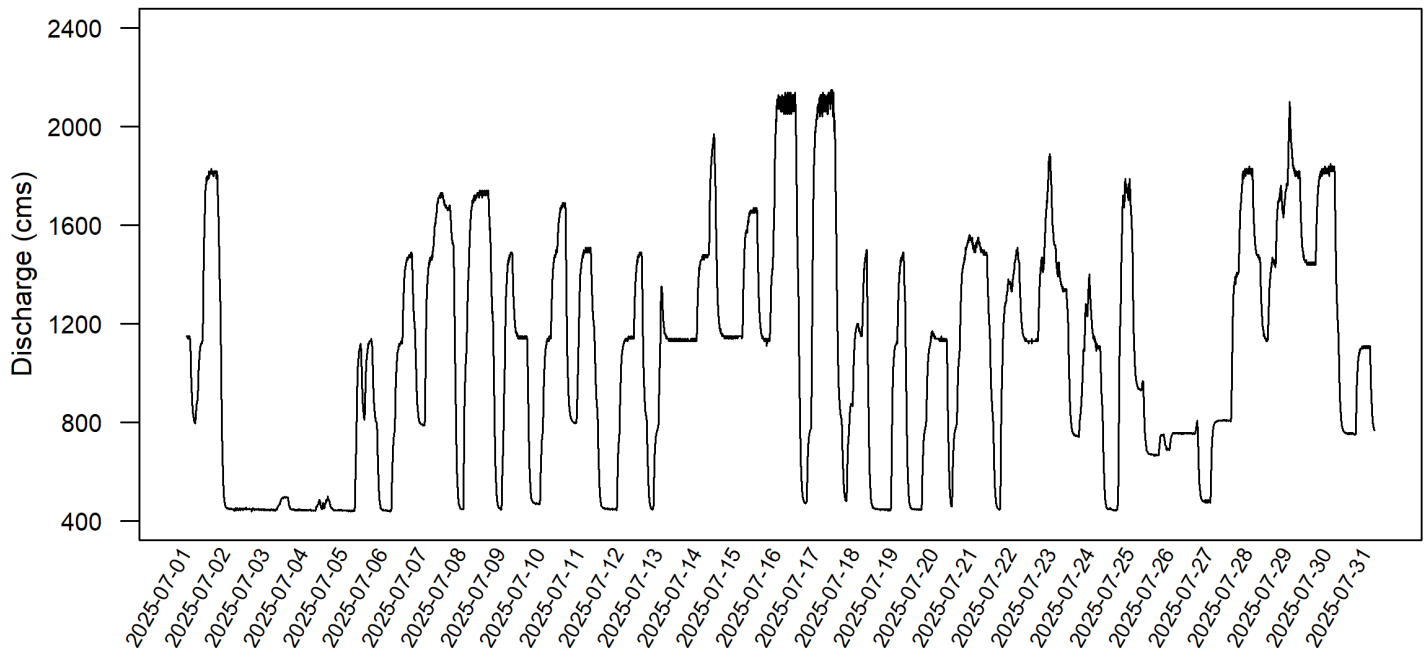
Figure 1. Daily number of fish sorted in the permanent facility during the reporting period.



Environmental conditions

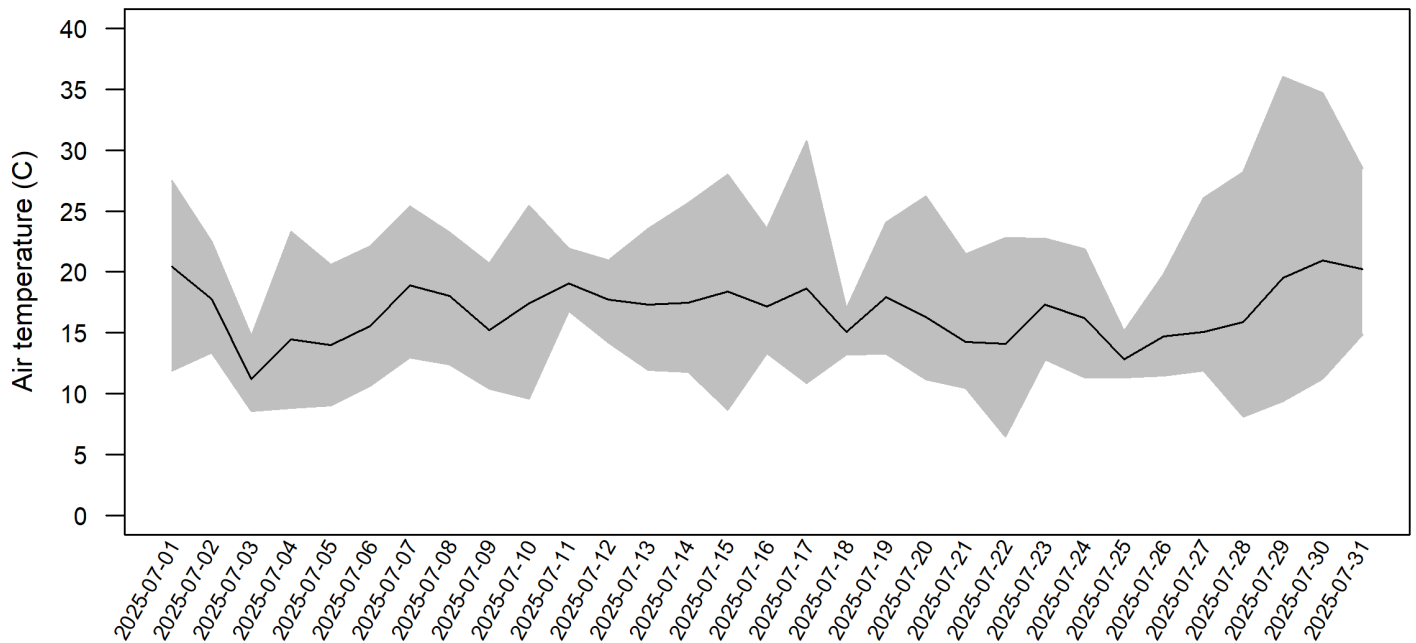
Discharge in the Peace River fluctuated during the reporting period from a low of 436 cms on July 2 to a high of 2150 cms on July 17 (Figure 2).

Figure 2. Discharge in the Peace River during the reporting period as measured at the Peace River above Pine River (07FA004) Water Survey of Canada (WSC) hydrometric station. Data were downloaded from the WSC on August 1; the downloaded data were provided at 5-minute intervals and were listed as provisional by the WSC.



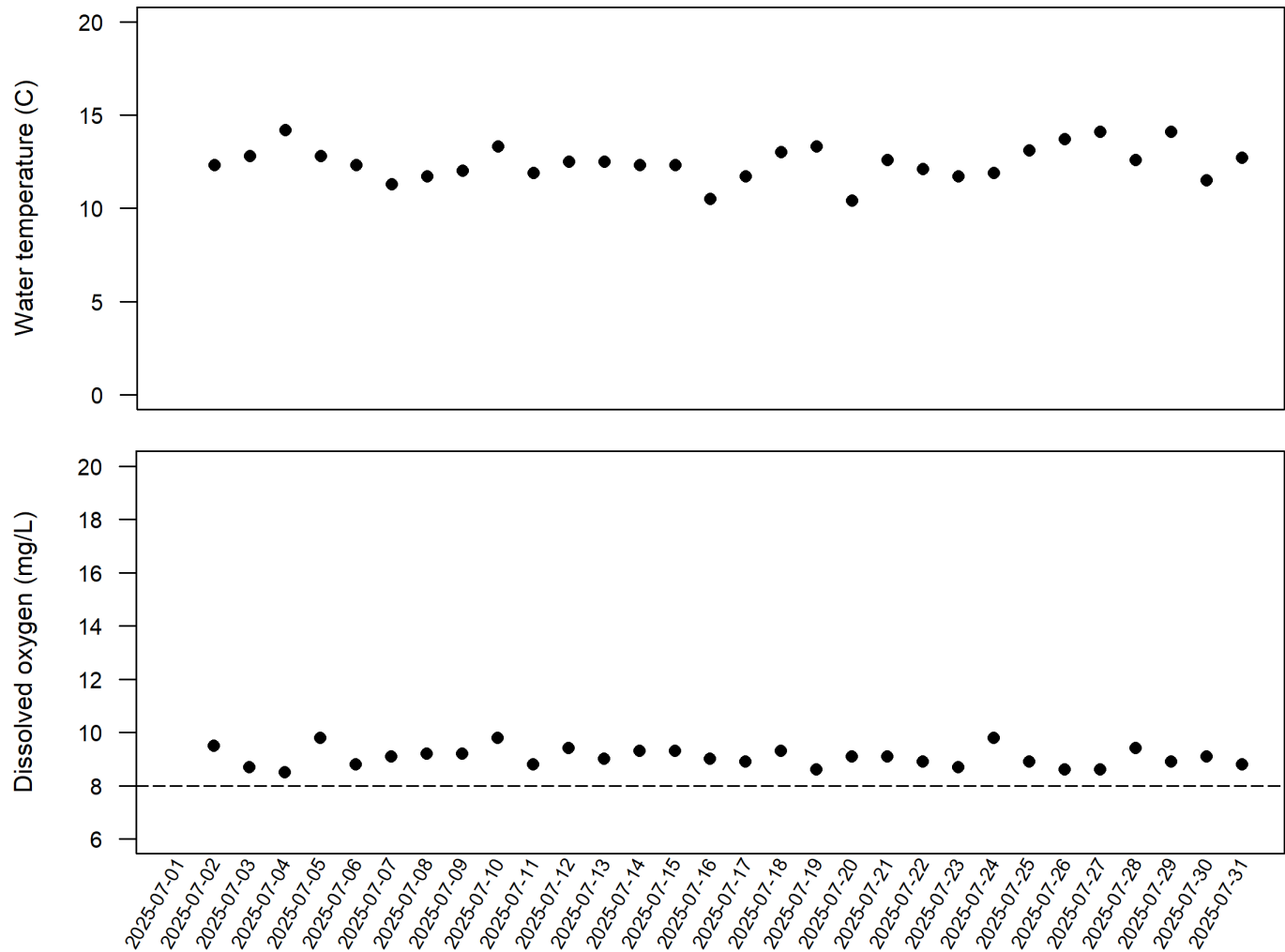
Air temperature fluctuated during the reporting period from a low of 6.5°C on July 22 to a high of 36.0°C on July 29 (Figure 3).

Figure 3. Mean daily air temperature (black line; °C) during the reporting period as measured by a temperature sensor at the permanent facility (TIT-919002). Shaded area represents the minimum and maximum daily air temperatures.



Water temperature remained stable during the reporting period (Figure 4). Dissolved oxygen remained above the minimum dissolved oxygen level (8.0 mg/L) described in the design report of the permanent facility.

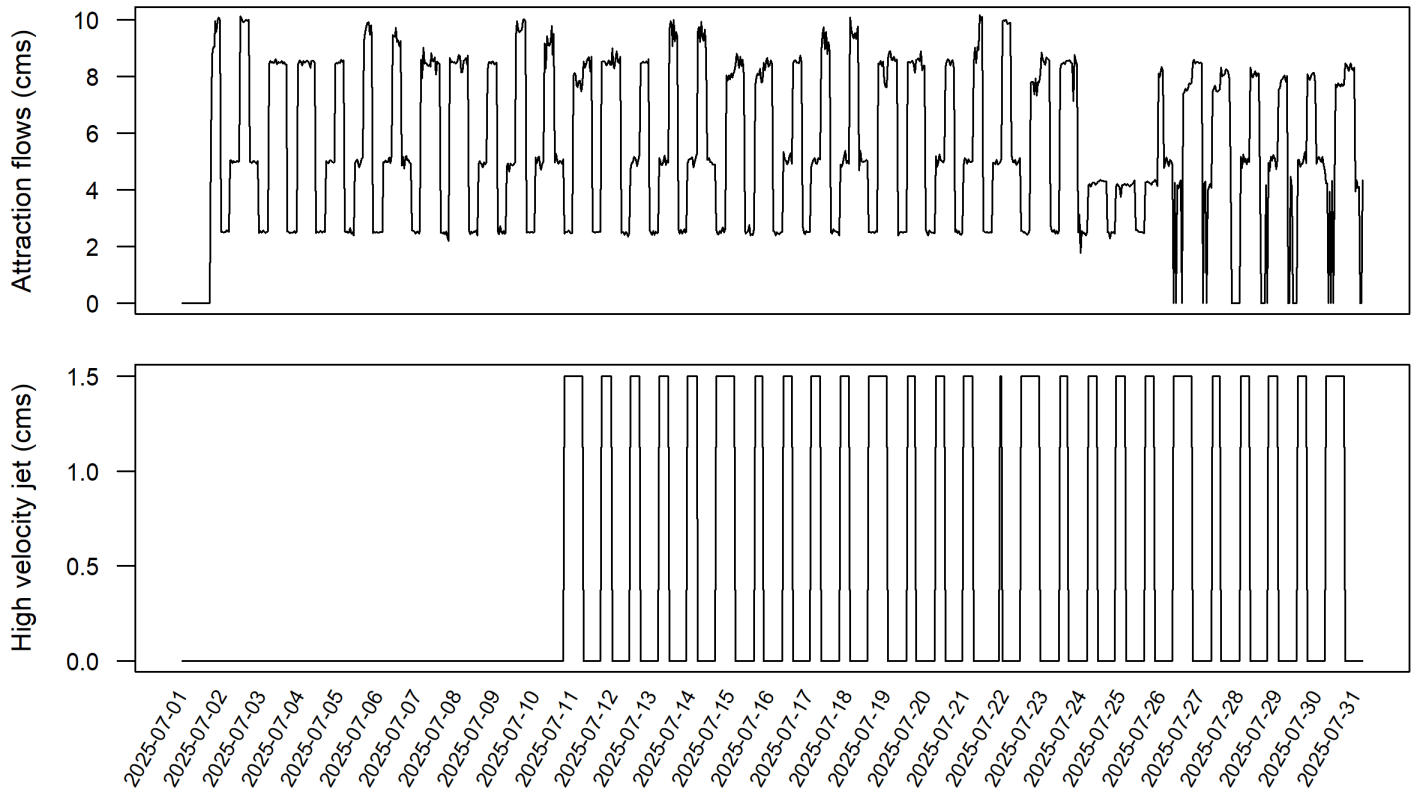
Figure 4. Daily water temperature (°C) and dissolved oxygen (mg/L) during the reporting period as measured in the pre-sort holding pool of the permanent facility.



Mechanical operation

Operation of the attraction flows and high velocity jet intends to attract fish towards the fishway entrance. Once fish have entered the permanent facility, flows within the fishway intend to provide a flow signal for fish to detect and swim up each pool to the sorting facility.

Figure 5. Operation of the attraction flows and high velocity jet during the reporting period.



Fish were crowded daily from the pre-sort holding pool into the fish lock. Operators then proceeded to raise crowded fish to the elevation of the sorting facility. Note that this process is referred to as a “sorting cycle”. Between one and nine sorting cycles were conducted each day during the reporting period, with the exception of July 1 when the facility was shutdown (Table 2).

Table 2. Daily total number of sorting cycles.

Date	Number of sorting cycles	Start time
2025-07-01	-	Facility shutdown
2025-07-02	7	09:23, 11:19, 11:42, 12:57, 13:24, 13:51, 14:32
2025-07-03	5	11:03, 12:28, 13:43, 14:23, 15:02
2025-07-04	5	09:16, 10:49, 10:53, 13:37, 14:32, 15:03
2025-07-05	7	08:58, 10:31, 11:26, 11:43, 12:44, 13:09, 13:45
2025-07-06	6	08:58, 10:00, 10:51, 13:05, 13:46, 14:24
2025-07-07	6	08:53, 09:39, 10:05, 11:02, 11:32, 12:27
2025-07-08	6	09:05, 09:58, 10:37, 11:03, 12:57, 13:28
2025-07-09	5	08:47, 09:36, 10:39, 11:39, 12:40
2025-07-10	6	09:00, 10:06, 10:49, 12:01, 13:17, 14:43
2025-07-11	6	09:04, 09:57, 10:57, 12:10, 13:05, 13:33
2025-07-12	5	09:13, 11:14, 12:00, 12:47, 13:49
2025-07-13	3	10:40, 13:52, 14:14
2025-07-14	5	09:06, 09:52, 10:52, 11:48, 13:01
2025-07-15	4	09:48, 10:17, 10:58, 11:53
2025-07-16	1	09:07
2025-07-17	6	09:06, 09:53, 10:54, 11:53, 12:55, 13:52
2025-07-18	5	09:06, 10:23, 11:24, 13:23, 14:03
2025-07-19	6	09:24, 10:21, 11:31, 13:05, 13:49, 14:25
2025-07-20	4	09:31, 11:38, 13:34, 13:53
2025-07-21	6	09:24, 10:22, 11:16, 12:49, 13:26, 14:13
2025-07-22	7	08:56, 09:49, 10:42, 11:01, 11:43, 13:09, 13:38
2025-07-23	7	09:20, 09:58, 10:33, 11:01, 11:46, 12:54, 13:20
2025-07-24	5	09:11, 09:43, 10:35, 10:52, 11:32
2025-07-25	8	09:03, 10:01, 11:01, 11:33, 12:05, 13:04, 13:42, 14:01
2025-07-26	8	09:04, 10:18, 10:51, 11:10, 12:42, 13:00, 13:57, 14:18
2025-07-27	9	08:54, 09:30, 10:06, 10:36, 11:57, 12:57, 13:29, 13:49, 14:21
2025-07-28	7	09:56, 10:59, 12:25, 13:07, 13:55, 14:33, 14:50
2025-07-29	3	09:46, 11:59, 13:25
2025-07-30	7	09:17, 10:30, 10:58, 11:58, 13:08, 13:37, 14:09
2025-07-31	6	09:27, 11:10, 12:54, 13:35, 14:05, 14:30

Table 3. Summary of standby or shutdown periods during the reporting period.

Date	Standby or shutdown	Rationale
2025-07-01 00:00 to 2025-07-01 23:59	Shutdown	BC Hydro wet tested the fish crowder on July 1 prior to putting the facility back into service on July 2.

Table 4. Root causes and corrective actions as a result of equipment malfunctions, breakdowns, or damage during the reporting period.

Date	Malfunction, breakdown or damage	Description	Root cause	Corrective action
2025-07-06	Malfunction	Fish crowder bristles got caught on the top of the fish lock entrance, causing the downstream end of the fish crowder to lift up a few millimeters off the rail.	Lower limit switch for the fish crowder was not engaging or functioning correctly.	Operator raised and lowered the fish crowder screen a few times until the lower limit switch engaged enough to lower the screen to fit into the lock opening.
2025-07-10	Malfunction	Auto return function on the fish lock did not complete its cycle. Fish lock did not fully drain, which prevented the operator from opening the fish lock gate.	Unknown.	Operator filled the fish lock again and pressed the auto return button a second time.
2025-07-16	Damage	Screen cleaner alarm was going off.	Part of the screen cleaner appears to be caught on a piece of metal sticking up near the fishway entrance. A chain that is supposed to hold the top of the brush tight against the hydraulic arm has snapped, and the brush has fallen against the protruding metal.	BC Hydro investigated this issue and fixed the screen cleaner on July 19.

Adjustments

Several adjustments were made during the reporting period to improve the biological and mechanical operation of the permanent facility (Table 5). BC Hydro described the potential for adjustments to the day-to-day biological and mechanical operation of the permanent facility in Section 7 of the Fish Passage Management Plan². In general the permanent facility was operated as planned and described in the OPP.

Table 5. Summary of adjustments made to the biological and mechanical operation of the permanent facility during the reporting period.

Component	Adjustment
Biological operation	A number of minor adjustments were made to improve the biological and mechanical operation of the permanent facility during the reporting period. None of the adjustments changed the operation in a material way.
Mechanical operation	

Photos

Photo 1. One hundred and eight mature adult Bull Trout passed the permanent facility during the reporting period (July 26, 2025).



Photo 2. Twenty nine Bull Trout were tagged with acoustic and radio transmitters to track their movements in the reservoir and tributaries flowing into the reservoir (e.g., Halfway River) (July 4, 2025).



Prepared by

This report was prepared by the following individuals:

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