BC Hydro
Power smart

Site C Clean Energy Project

Permanent Upstream Fish Passage Facility Operations Report

Reporting Period: August 1 to 31, 2025

Prepared by BC Hydro

September 4, 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 August 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 Plan[1].

Summary

One thousand three hundred and twenty seven – 718 Mountain Whitefish, 197 Largescale Sucker, 143 Longnose Sucker, 133 Kokanee, 54 Bull Trout, 39 Rainbow Trout, 26 Redside Shiner, 8 White Sucker, 7 Northern Pikeminnow, and 2 Arctic Grayling – were sorted and sampled at the permanent facility, and transported and released into the Site C Reservoir (Table 1, Photos 1 to 3).

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

Biological operation

In total, 1328 fish were sorted in the permanent facility during the reporting period (Table 1; Figure 1). Seventeen mortalities were observed during the reporting period (0.6% of all fish sorted in 2025), which is in-line with the anticipated levels of mortality during operations[2].

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

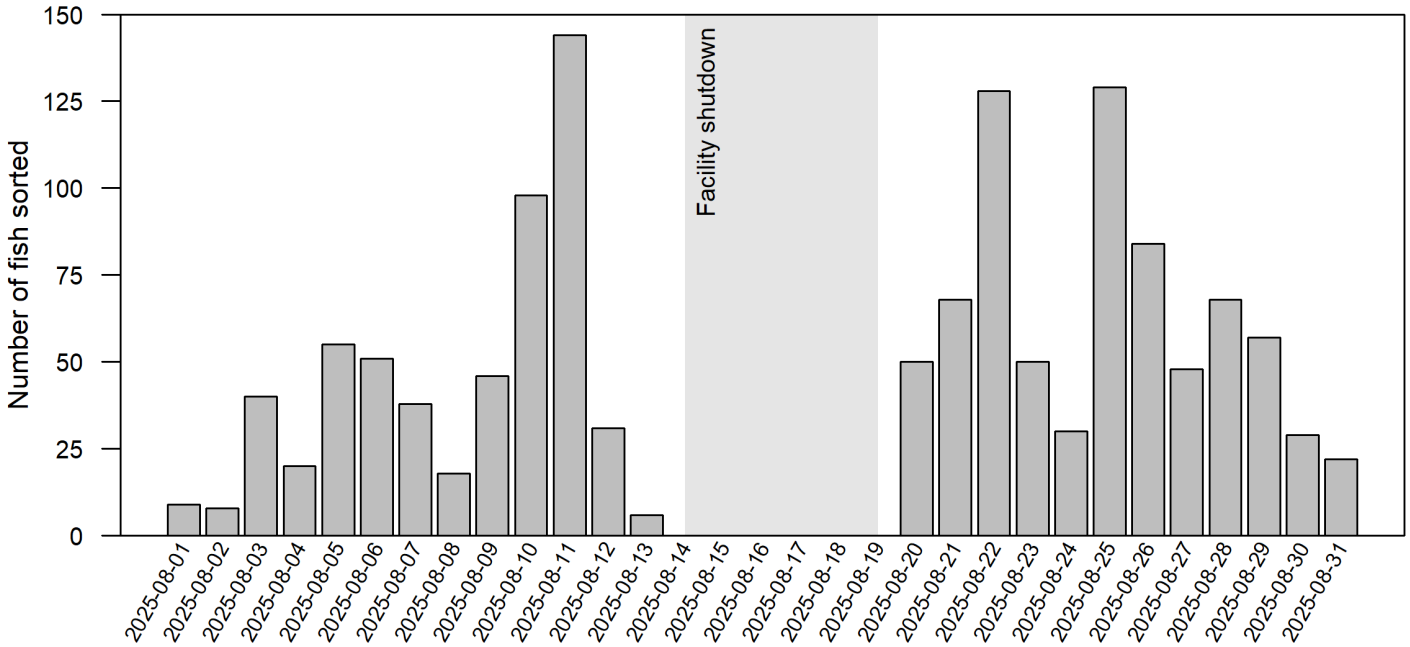
Species	Sorted	Transported and released	PIT tagged	Mortalities	Genetics	Microchemistry or ageing
Arctic Grayling	2	2	1		1	1
Brook Stickleback						
Brook Trout						
Bull Trout	54	54	39		36	36
Burbot						
Finescale Dace						
Flathead Chub						
Goldeye						
Kokanee	133	133	67	2		
Lake Chub						
Lake Trout						
Lake Whitefish						
Largescale Sucker	197	197	140			
Longnose Dace						
Longnose Sucker	143	143	121			
Mountain Whitefish	718	718	653	13		13
Northern Pike						
Northern Pikeminnow	7	7				
Northern Redbelly Dace						
Peamouth						
Pearl Dace						
Prickly Sculpin						
Pygmy Whitefish						
Rainbow Trout	39	39	37		36	36
Redside Shiner	26	26		1		
Slimy Sculpin						
Spoonhead Sculpin						
Spottail Shiner						
Trout-perch						
Unknown Species				1		
Walleye	1	0	1			
White Sucker	8	8	7			
Yellow Perch						
Grand total	1328	1327	1066	17	73	86

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 six and 144 fish were sorted daily during the reporting period (Figure 1).

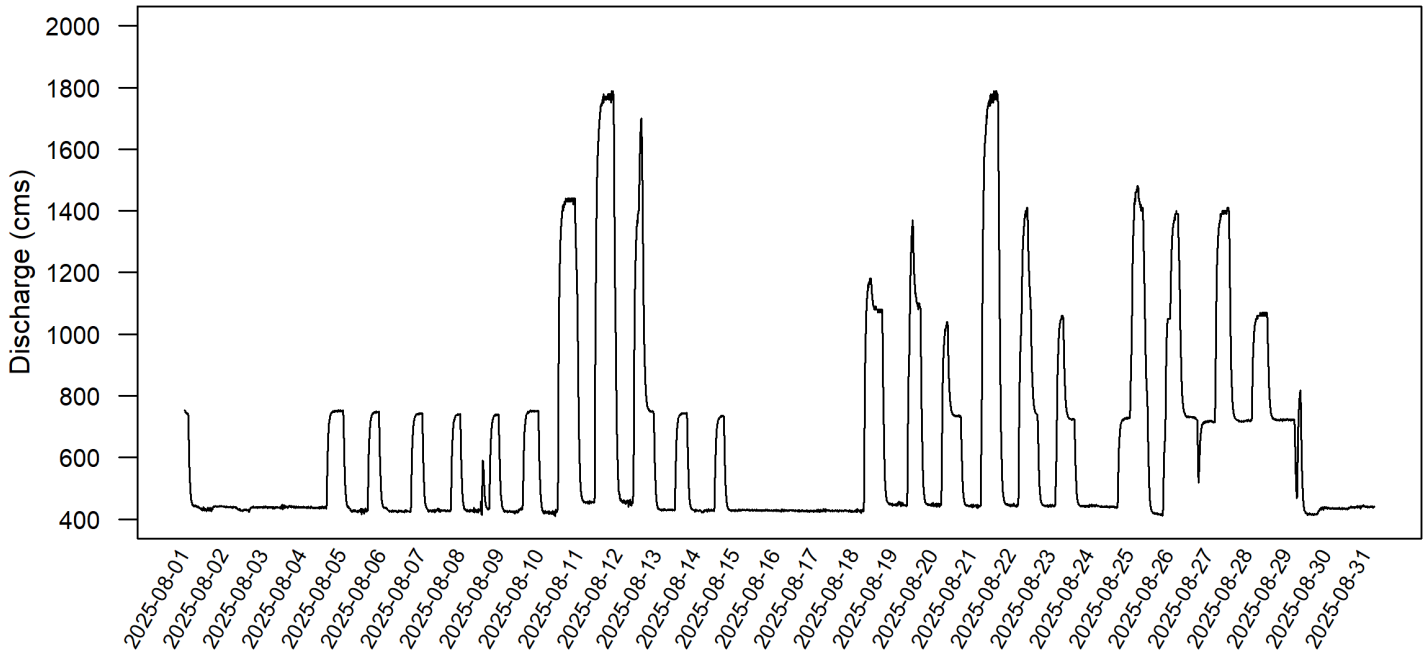
Figure 1. Daily number of fish sorted in the permanent facility during the reporting period.



Environmental conditions

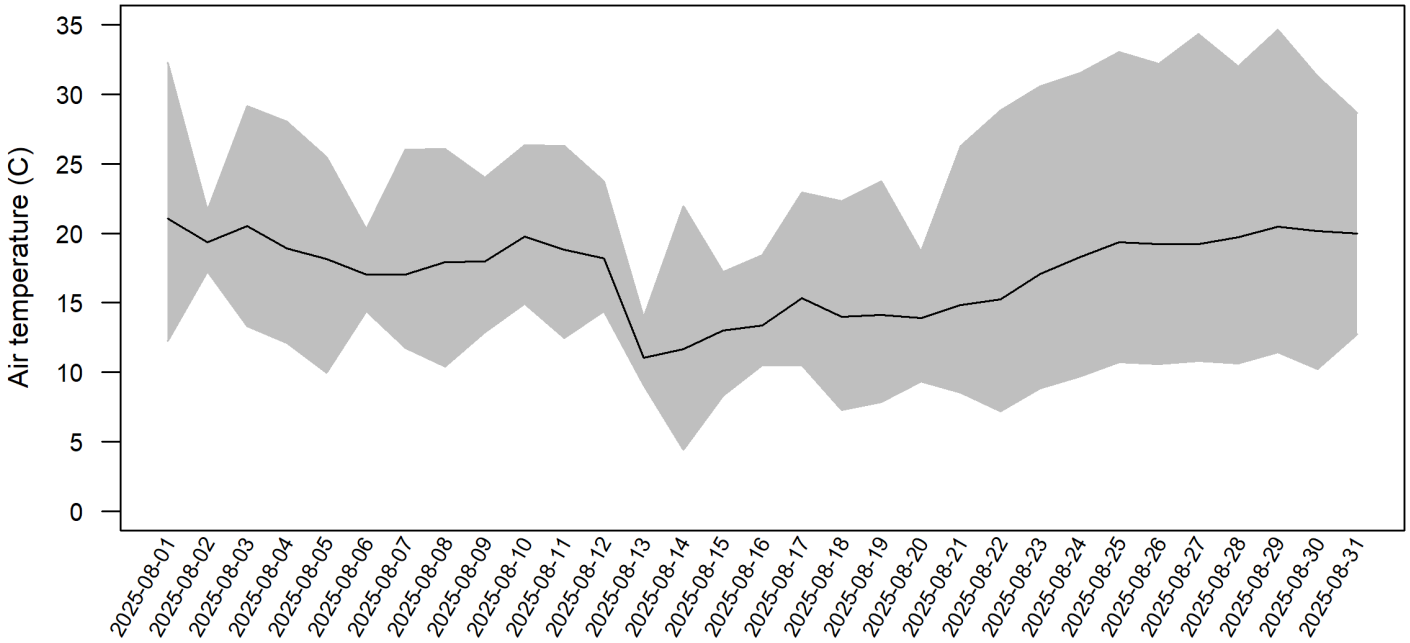
Discharge in the Peace River fluctuated during the reporting period from a low of 410 cms on August 10 to a high of 1790 cms on August 22 (Figure 2).

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 September 2; the downloaded data were provided at 5-minute intervals and were listed as provisional by the WSC.



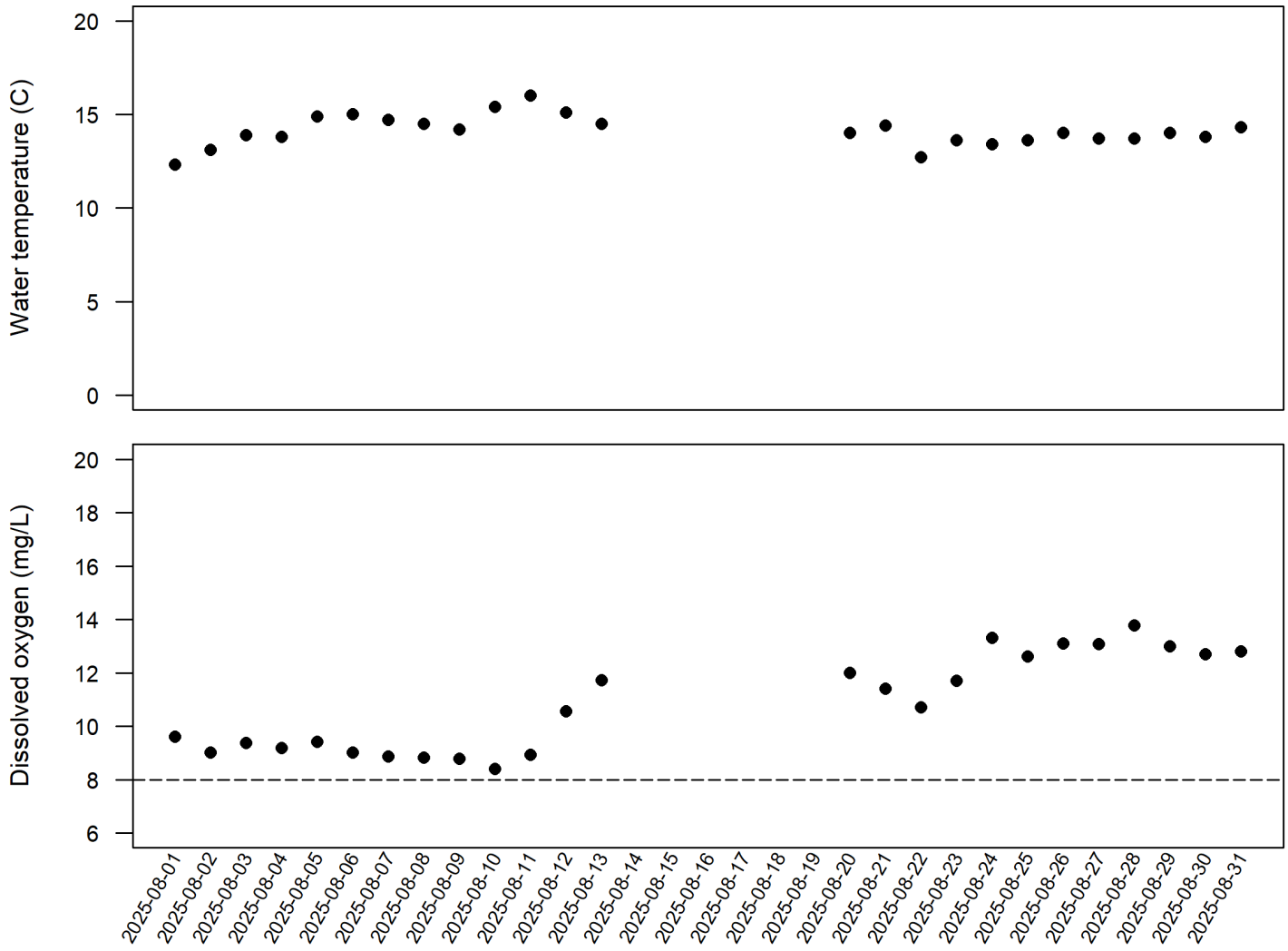
Air temperature fluctuated during the reporting period from a low of 4.4°C on August 14 to a high of 34.6°C on August 29 (Figure 3).

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.

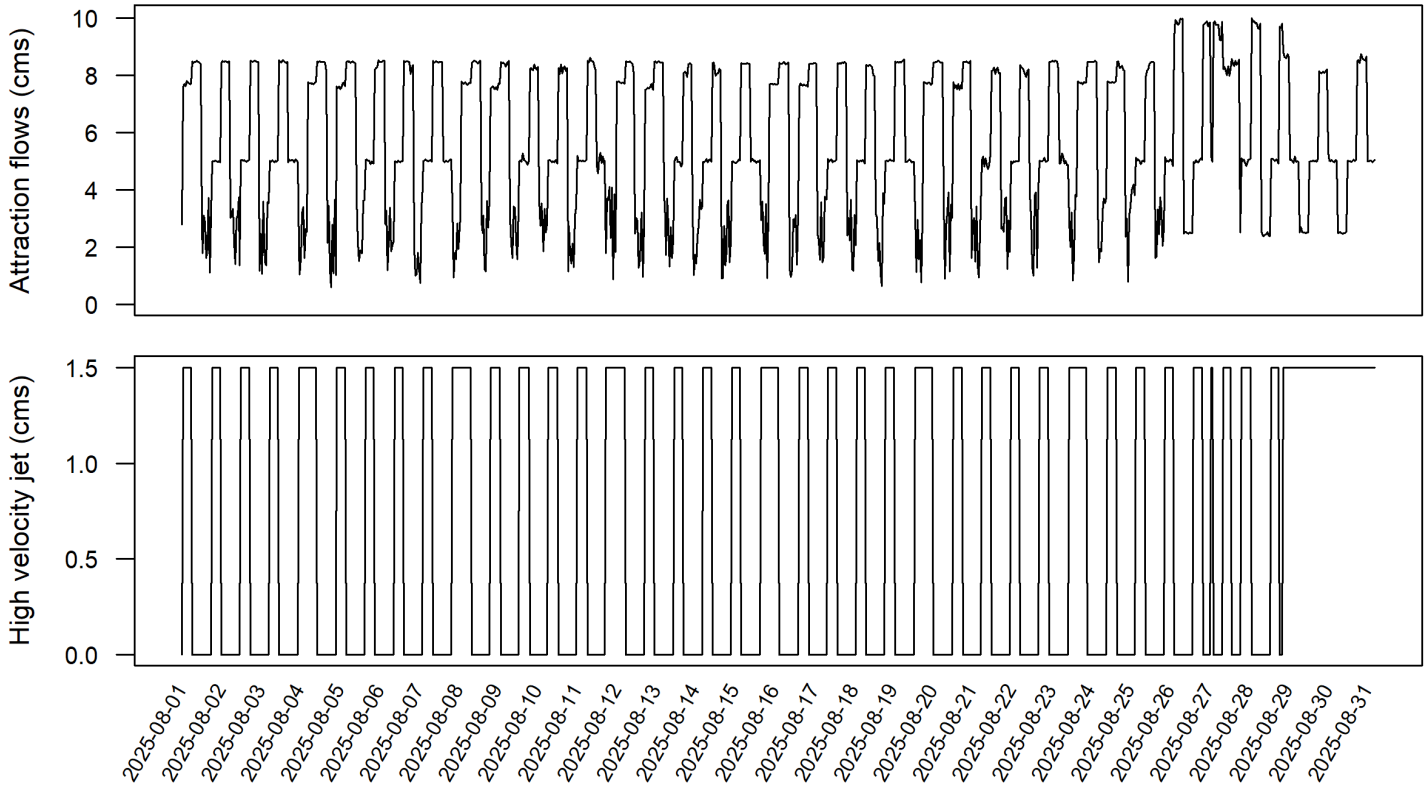
Figure 4. Daily water temperature (°C) and dissolved oxygen (mg/L) during the reporting period as measured in the pre-sort holding pool of the permanent facility.



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 August 14 to 19 when the facility was shutdown (Table 2).

Table 2. Daily total number of sorting cycles.

Date	Number of sorting cycles	Start time
2025-08-01	7	09:18, 10:41, 11:44, 12:32, 13:10,13:48, 14:06
2025-08-02	8	08:58, 10:33, 10:41, 12:01, 12:39, 13:53, 13:55, 14:33
2025-08-03	5	09:19, 09:57, 11:53, 12:26, 14:03
2025-08-04	6	09:19, 10:30, 11:25, 12:40, 13:32, 14:06
2025-08-05	4	10:34, 11:36, 13:29, 14:03
2025-08-06	3	10:59, 11:41, 13:57
2025-08-07	6	09:59, 10:33, 11:28, 12:59, 13:41, 14:04
2025-08-08	7	09:31, 10:00, 11:00, 11:42, 13:11, 13:40, 14:08
2025-08-09	9	09:06, 09:35, 10:02, 10:33, 11:06, 12:37, 13:30, 13:58, 14:25
2025-08-10	6	09:09, 09:53, 10:31, 11:04, 13:02, 14:07
2025-08-11	4	09:09, 10:30, 12:56, 13:42
2025-08-12	7	09:19, 10:21, 11:13, 11:47, 13:23, 14:04, 14:32
2025-08-13	4	10:09, 10:12, 10:46, 11:24
2025-08-14	-	Facility shutdown
2025-08-15	-	Facility shutdown
2025-08-16	-	Facility shutdown
2025-08-17	-	Facility shutdown
2025-08-18	-	Facility shutdown
2025-08-19	-	Facility shutdown
2025-08-20	5	09:38, 10:46, 11:21, 13:16, 14:23
2025-08-21	3	09:18, 10:48, 13:21
2025-08-22	4	09:17,10:00, 10:40, 12:53
2025-08-23	7	09:20, 09:38, 10:26, 11:01, 12:46, 13:40, 14:27
2025-08-24	6	09:16, 09:56, 10:31, 11:20, 12:54, 13:35
2025-08-25	6	09:13, 09:59, 10:32, 11:34, 13:53, 14:39
2025-08-26	6	09:23, 11:02, 11:33, 12:52, 13:30, 14:28
2025-08-27	7	09:31, 10:28, 11:11, 11:50, 12:57, 13:36, 14:13
2025-08-28	7	09:20, 10:03, 10:57, 11:49, 12:55, 13:30, 14:19
2025-08-29	7	09:16, 10:00, 10:37, 10:58, 11:36, 13:04, 13:26
2025-08-30	8	09:31, 10:27, 10:28, 11:13, 11:51, 12:45, 13:25, 14:16
2025-08-31	9	09:05, 09:35, 10:22, 11:04, 11:30, 12:48, 13:34, 13:44, 14:28

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

Date	Standby or shutdown	Rationale
2025-08-13 12:00 to 2025-08-20 09:30	Shutdown	BC Hydro had to shutdown the permanent facility for 6 days to replace a failing stem nut in the electric actuator of the fish lock gate.

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
2025-08-02	Malfunction	Lower limit switch on the fish crowder is not regularly activated when triggered.	Problem seems to occur when raining, so may be related to moisture content and the weather rating of the switch.	BC Hydro is looking to replace the current limit switch with one that has a different weather rating.
2025-08-14	Damage	Stem nut in the electric actuator of the fish lock gate is failing.	Stem nut was likely incorrectly installed, as well as a lack of lubrication.	Repairs consisted of removing the bearing housing on the actuator, machining a new stem nut off site, and reassembling the actuator with the new stem nut.

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 Plan[2]. 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 thirty three mature adult Kokanee – some showing spawning colours – were processed during the reporting period (August 9, 2025).

Photo 2. An adult Walleye was captured by the operator and released into the tailrace downstream of the permanent facility, as per the OPP (August 9, 2025).

Photo 3. Operator uses the monorail crane hoist to lower a transport pod full of water and fish onto the back of the transport truck (August 5, 2025).

Prepared by

This report was prepared by the following individuals:

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