



Peace River Water Use Plan

Peace River Baseline TDGP/Temperature

GMSWORKS-2

Year 13 Monitoring Program - Annual Report

January 2022 to December 2022

**Diversified Environmental Services
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April 2023

PEACE RIVER WATER USE PLAN
IMPLEMENTATION PROGRAM

PEACE RIVER BASELINE TDGP/TEMPERATURE
GMSWORKS-2
YEAR 14 MONITORING PROGRAM - ANNUAL REPORT
January 2022 to December 2022

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EXECUTIVE SUMMARY

Long-term monitoring of baseline water temperature and total dissolved gas pressure (TDGP) in the vicinity of the WAC Bennett and Peace Canyon dams is an essential component of the Peace Spill Protocol and the Peace River Flood Pulse Plan as set out by the Peace Water Use Plan Committee and the Peace Water Use Plan (WUP; BC Hydro 2010).

An objective of this program (GMSWORKS-2) was to collect data on spatial and temporal variations in water temperature between the WAC Bennett Dam forebay (Williston Reservoir) and a point 6.5 km downstream of the Pine River confluence for up to 10 years. Beginning in September 2008, 21 Tidbit v2 Model #UTBI-001 temperature sensor/logger units (Onset Corp., Bourne, MA) were maintained at 18 locations.

During Year 8 (2016), six temperature loggers were added at 3 additional locations of specific interest to BC Hydro's Site C project, extending the project area downstream to the mouth of the Pouce Coupe River in Alberta. The additional sites were maintained by the GMSWORKS-2 program through a co-funding arrangement with the Site C project.

In 2020 (Year 12), responsibility for all monitoring sites within and downstream of the proposed Site C inundation area reverted from the Peace WUP to the Site C project. These included the additional Site C stations plus all original stations located downstream of the Peace Canyon Dam tailrace. The GMSWORK-2 program retained responsibility for monitoring stations in the WAC Bennett and Peace Canyon dam forebays and tailraces only.

This annual summary report describes data collection activities and results for the 6 temperature stations associated with the WAC Bennett and Peace Canyon dams and operated by the GMSWORKS-2 program during Year 14 (Jan-Dec 2022). These included 2 stations in the Bennett Dam forebay (gmsUP1 – 1 m depth and gmsUP2 – 10 m depth), 2 stations in the Bennett Dam tailrace (gmsDN1 – south bank and gmsDN2 – north bank), one station in the Peace Canyon Dam forebay (pcnUP1), and one station in the Peace Canyon Dam tailrace (pcnDN2).

Continuous hourly temperature data for Year 14 were recovered from all loggers including redundant back-up loggers at 3 stations. Subsequent to the April 2022 download, the cable stop holding the gmsUP1 logger at 1-metre depth failed and allowed the unit to slip to the 10-metre depth, resulting in redundant 10 m data and the loss of 1-metre depth data between June 06 and August 08.

In situ reference temperatures were recorded at the time of each field download event using a YSI® multi-parameter meter, for comparison to the corresponding hourly logger readings. Mean calibration errors for all temperature loggers were $\leq 0.3^{\circ}\text{C}$.

In addition to the collection of baseline water temperature data, the GMSWORK-2 program includes the maintenance of Total Dissolved Gas Pressure (TDGP) meters in a field-ready state for immediate deployment in the event of a spill at either the WAC Bennett or Peace Canyon dams. In April 2021, BC Hydro purchased five new HydroLab Model MS5 TGP meters to be dedicated to Peace Basin spill monitoring. No spill events were monitored in 2022.

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1.0 INTRODUCTION

Long-term monitoring of baseline water temperature and total dissolved gas pressure (TDGP) in the vicinity of the WAC Bennett and Peace Canyon dams was identified as an essential component of the Peace Spill Protocol (PSP) and the Peace River Flood Pulse Plan as set out by the Peace Water Use Plan Committee and the Peace Water Use Plan (WUP; BC Hydro 2010). Data collected through the monitoring of these parameters are used to help assess and quantify the environmental effects of spills, as well as to provide information on the temperature regime of the Peace River under normal operating conditions and the influence of reservoir operations on downstream temperature. Long-term baseline temperature data are also available for use by other projects and monitoring programs within and outside the Peace WUP.

An objective of this program (GMSWORKS-2) was to collect data on spatial and temporal variations in water temperature between the WAC Bennett Dam forebay (Williston Reservoir) and a point 6.5 km downstream of the Pine River confluence for up to 10 years. Beginning in September 2008, 21 Tidbit v2 Model #UTBI-001 temperature sensor/logger units (Onset Corp., Bourne, MA) were maintained at 18 locations.

During Year 8 (2016), six temperature loggers were added at 3 additional locations of specific interest to BC Hydro's Site C project, extending the project area downstream to the mouth of the Pouce Coupe River in Alberta. The additional sites were maintained by the GMSWORKS-2 program through a co-funding arrangement with the Site C project.

In 2020 (Year 12), responsibility for all monitoring sites within and downstream of the proposed Site C inundation area reverted from the Peace WUP to the Site C project. These included the additional Site C stations plus all original stations located downstream of the Peace Canyon Dam tailrace. The GMSWORK-2 program retained responsibility for monitoring stations in the WAC Bennett and Peace Canyon dam forebays and tailraces only (Fig. 1).

This annual summary report describes data collection activities and results for the 6 temperature stations associated with the WAC Bennett and Peace Canyon dams and operated by the GMSWORKS-2 program during Year 14 (Jan-Dec 2022). These included 2 stations in the Bennett Dam forebay (gmsUP1 – 1 m depth and gmsUP2 – 10 m depth), 2 stations in the Bennett Dam tailrace (gmsDN1 – south bank and gmsDN2 – north bank), one station in the Peace Canyon Dam forebay (pcnUP1), and one station in the Peace Canyon Dam tailrace (pcnDN2).

2.0 METHODS

Temperature data presented in this summary report were recorded between January 01, 2022 and December 31, 2022.

2.1 Temperature Monitoring

Upon commencement of the Peace River baseline temperature monitoring program in September 2008 (Year 1), 20 Tidbit v2 Model #UTBI-001 temperature sensor/logger units (0.2°C accuracy over 0°C to 50°C; 0.02°C resolution @ 25°C; Onset Corp., Bourne, MA) were deployed at 18 locations between the WAC Bennett Dam forebay and a site approximately 6.5 km downstream of the confluence of the Pine and Peace rivers.

During 2020, responsibility for temperature monitoring sites within and downstream of the proposed Site C inundation area reverted from the Peace WUP program to the Site C project and the GMSWORK-2 program retained responsibility for the 6 stations in the GMS and PCN forebays and tailraces only. As a result, data for stations downstream of the Peace Canyon Dam tailrace do not appear in this summary report. A summary of temperature monitoring station location information as of the end of Year 14 appears in Appendix I.

Temperature loggers were programmed to record water temperature (°C) at 1 hour intervals throughout Year 14 (2022). Loggers continued to be housed in 38 mm x 100 mm steel nipples with threaded steel end caps, weighted with 5 kg steel anchors, and tethered to large bedrock fragments or log booms using 3.18 mm stainless steel cable.

Temperature data recorded and stored on each logger during 2022 were downloaded at approximately 3 month intervals by field transfer to a Model U-DTW-1 Hobo® waterproof shuttle (Onset Corp., Bourne, MA). Data from the shuttle were then downloaded to a desktop computer after each field session. The monitoring station in the WAC Bennett Dam forebay is located at one of the spillway log boom anchor buoys and must be accessed by boat during the ice-free season. All other monitoring stations can be access by vehicle from BC Hydro restricted-access areas in the WAC Bennett tailrace and the Peace Canyon Dam forebay and tailrace.

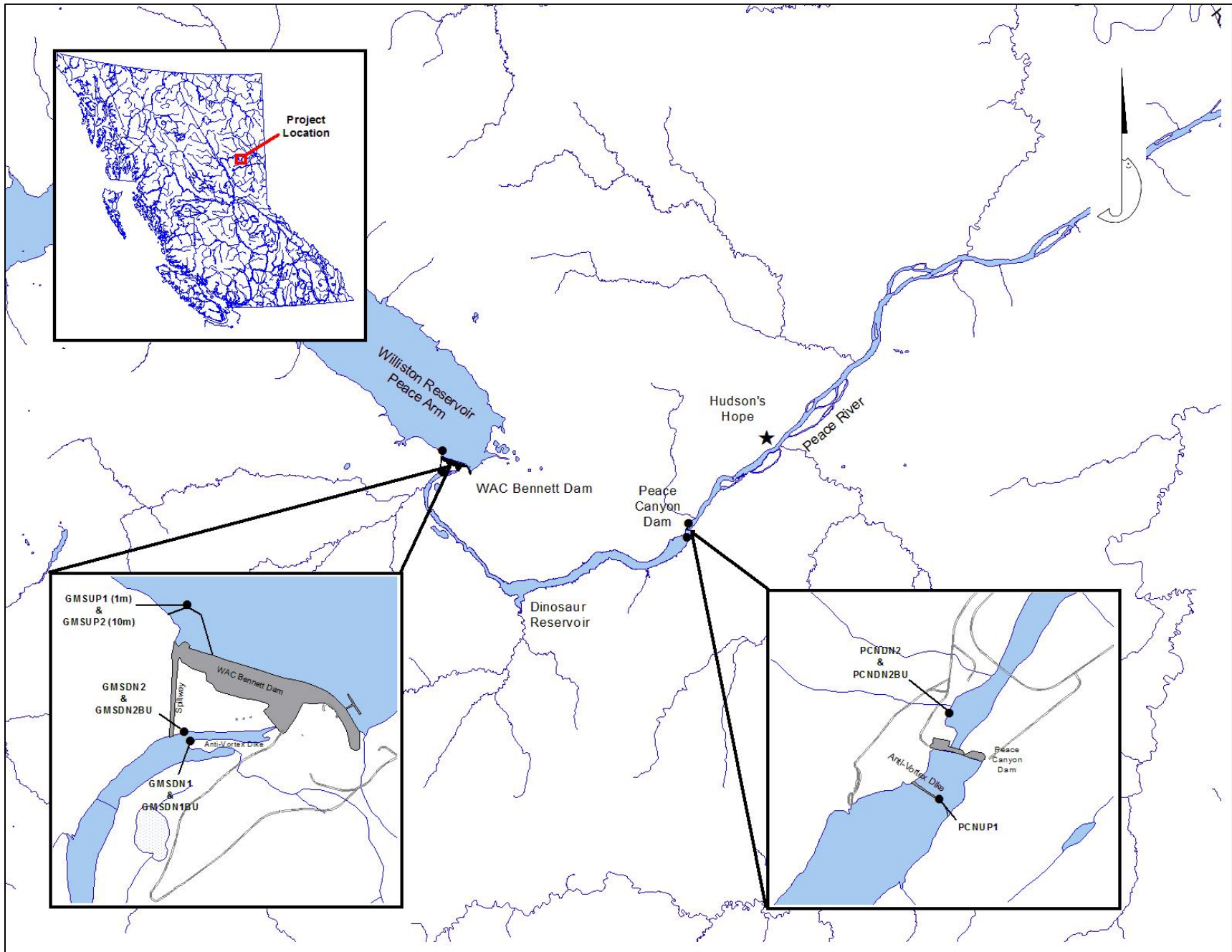


Figure 1. Location of temperature loggers deployed at WAC Bennett Dam and Peace Canyon Dam forebays and tailraces.

Conditions and observations at the time of each download event were documented in the field on hardcopy Download Information Forms and subsequently entered into digital format. *In situ* reference temperatures were recorded at the time of each field download event using a YSI® Professional Plus handheld multi-parameter instrument (Model No. E-528-ProPlus) for comparison to the corresponding hourly logger readings (within 30 minutes of reference temperature).

Data files were exported as .csv files using Onset® Hoboware Pro software (Ver. 3.7.16), amalgamated into single Excel worksheets for each monitoring station, and plotted relative to time.

2.1.1 Year 14 Site Logistics

No major logistical problems were encountered during Year 14.

2.2 Total Dissolved Gas Pressure (TDGP)

In April 2021, BC Hydro purchased five new HydroLab Model MS5 TGP meters to be dedicated to Peace Basin spill monitoring. These meters replaced much older Common Sensing Model DL6 and Point Four Model PT4 meters, which had proven relatively unreliable during previous spills due to their obsolescence. The 5 new HydroLab Model MS5 TGP meters were stored at the office of Diversified Environmental Services (DES) in a field-ready state during Year 14.

3.0 RESULTS AND DISCUSSION

3.1 Temperature Monitoring

Reference temperatures recorded during download events are presented in Appendix II along with corresponding logger temperatures (recorded within 30 minutes) and indicated error values. None of the loggers in use in 2022 exhibited a correctable zero error greater than 0.3°C (mean error 0.09°C; Appendix II).

Two loggers were replaced in Year 14, as they were approaching the end of their predicted lifespan of six years or were recording low voltage readings. Logger serial numbers listed in Appendix I correspond to the units in use at the time of the last quarterly download of 2022 data, completed in January 2023.

A summary of temperature data collection results and related conditions and limitations are discussed in the following sections. Download Information Forms completed during each download are provided in Appendix III.

3.1.1 WAC Bennett Dam Forebay and Tailrace

The WAC Bennett Dam forebay temperature monitoring station is located at the GMS spillway log boom and consists of a vertical cable suspended from the northernmost log boom steel buoy. Temperature is recorded with 2 loggers, the first located at 1 m depth (gmsUP1) and the second at a depth of 10 m (gmsUP2). During the August 08, 2022 download it was discovered that the cable stop holding the gmsUP1 logger at 1-metre depth had corroded and allowed the unit to slip to the 10-metre depth. Both loggers recorded continuous water temperature at 10 m depth between –May 06 and August 08, resulting in the absence of surface temperature data during that period (Fig. 2). Unfortunately the gmsUP1 data loss coincided with the period of spring and summer surface warming, when the 1m and 10 m temperatures normally diverge. Typical data from previous years indicate maximum temperature differentials occur between late June and mid-July.

Although seasonal thermal stratification of Williston Reservoir is evident, the relatively small temperature differential between the 2 station depths suggests the primary thermocline lies deeper than 10 m. Temperature profiles recorded further up the Peace Reach during unrelated work in 2017 and 2018 found the primary seasonal thermocline to be deeper than 20 m (B. Culling, pers. obs.).

The GMS tailrace monitoring sites are located on opposite banks, approximately 700 m downstream of the turbine outflow manifolds. Logger gmsDN1 records the temperature of water flowing from the south tailrace manifold, which originates from the shallowest penstock depths. Logger gmsDN2 samples water from the north tailrace manifold, which originates from a deeper average withdrawal point. The tethered steel capsule at both stations contains a back-up logger in addition to the primary unit (gmsDN1BU and gmsDN2BU). Continuous data was recovered for both gmsDN1, gmsDN2, and their respective backup loggers.

As in previous years, water temperatures at gmsDN2 showed the lowest annual variation and are consistently cooler in the summer and warmer in the winter than gmsDN1 flow (Fig. 3), which originates closer to the surface of Williston Reservoir.

3.1.2 Peace Canyon Dam Forebay and Tailrace

The data logger recording temperature at the Peace Canyon Dam forebay (pcnUP1) is attached to the anti-vortex dam log boom, located approximately 450 m upstream of the dam face and records water temperature at 1 m depth. This station recorded seamless data throughout Year 14.

The Peace Canyon Dam tailrace loggers (pcnDN2 and pcnDN2BU) are located on the left downstream bank of the Peace River approximately 200 m downstream of the turbine outflow manifold. The primary and back-up loggers are installed in separate steel capsules on separate tethers anchored to the same bedrock slab. The primary pcnDN2 logger recorded continuous water temperature throughout Year 14. The corresponding back-up logger (pcnDn2BU) recorded continuous data with the exception of brief periods of stranding on October 30 and 31, 2022, when water levels apparently fell to extreme lows.

A comparison of PCN tailrace temperature (pcnDN2) and GMS tailrace temperature (mean of gmsDN1 and gmsDN2) indicates a relatively small temperature change through Dinosaur Reservoir during all seasons (Fig. 4), with an annual mean differential in hourly readings of 0.5°C. Differential is lowest in fall through winter when turbine discharge, and thus, reservoir exchange rate, are typically highest. Conversely, temperature differentials across Dinosaur Reservoir were wider in summer particularly when periods of hot weather coincide with decreased discharge and exchange rate. Mean differential during the fall, winter, and spring of Year 14 (Jan1-May31 and Sep 1-Dec 31) was 0.3°C, increasing to 1.0°C during the summer (Jun 1-Aug 31).

Temperature data from the PCN forebay surface (pcnUP1), also presented in Figure 4, indicate significant surface warming and thermal stratification of the Peace Canyon forebay during June and July of Year 14. Thermal stratification of Dinosaur Reservoir to this degree has not been observed during previous years of monitoring and was assumed to be related to lower than normal reservoir exchange rate during this period

Figures 5 compares daily mean temperature of water entering Dinosaur Reservoir (Bennett Dam tailrace gmsDN2) during 2022 with the average of daily mean water temperature for the previous 13 years (2009-2021). Water temperatures recorded in the WAC Bennett Dam tailrace in 2022 show some deviations from the 13-year average. Temperatures appeared slightly warmer than average from February through April and significantly warmer than average during September and October. Variability in tailrace temperature can be affected by operational factors at the GMS generating

station, including variations in reservoir elevation and changes in volume contribution from penstock intake depth intervals as well as short and long term climatic variability in the Williston watershed.

4.0 RECOMMENDATIONS

The battery life of the Tidbit v2 Model #UTBI-001 temperature sensors is estimated at approximately 5-6 years. Scheduled replacement of units should continue in 2023 (Appendix IV).

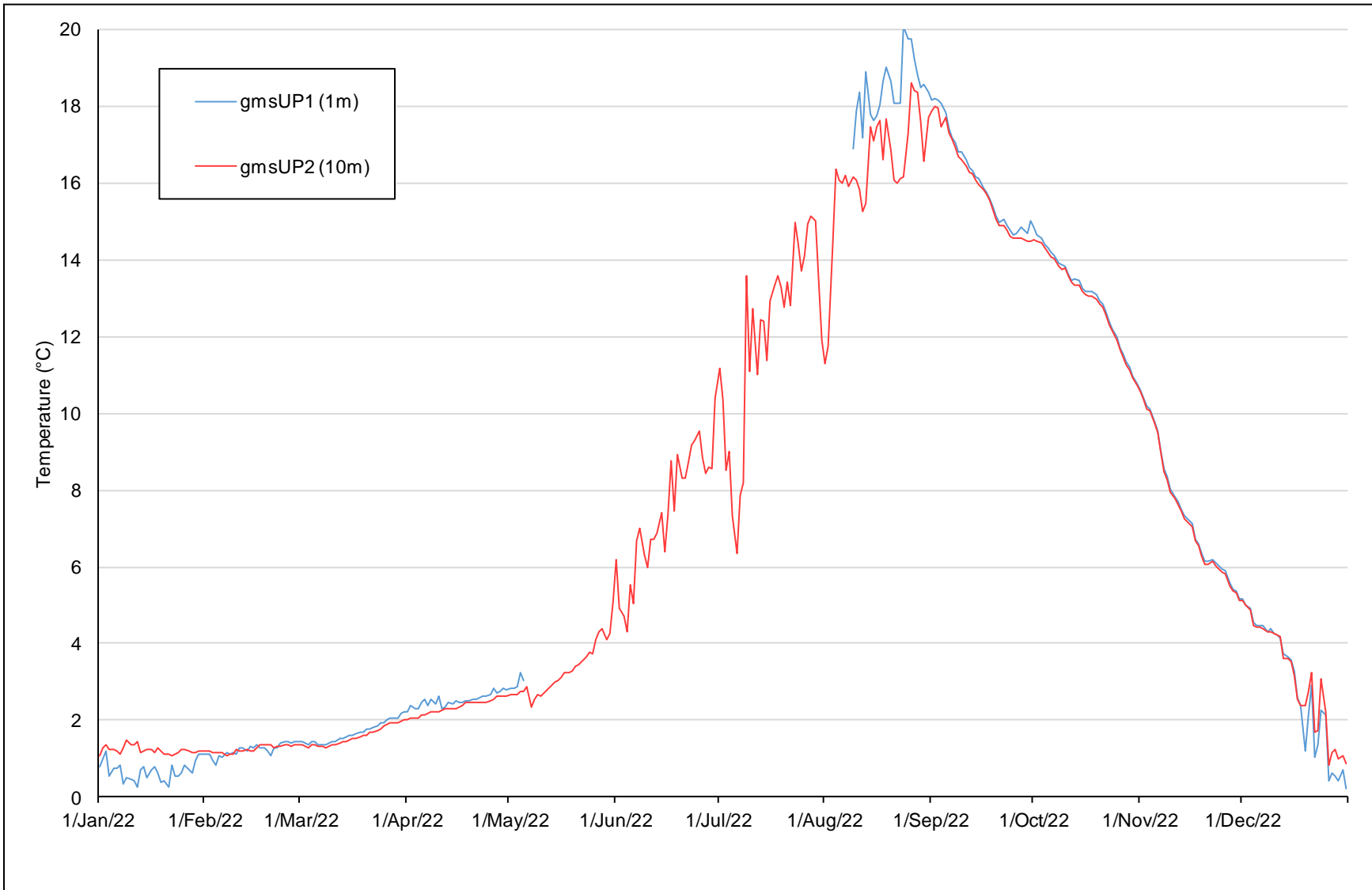


Figure 2. Comparison of daily mean water temperature at WAC Bennett Dam forebay station from 1 m depth (gmsUP1) and 10 m depth (gmsUP2) during Year 14, January 01, 2022 – December 31, 2022 (Note gmsUP1 data loss June 06-Aug 08).

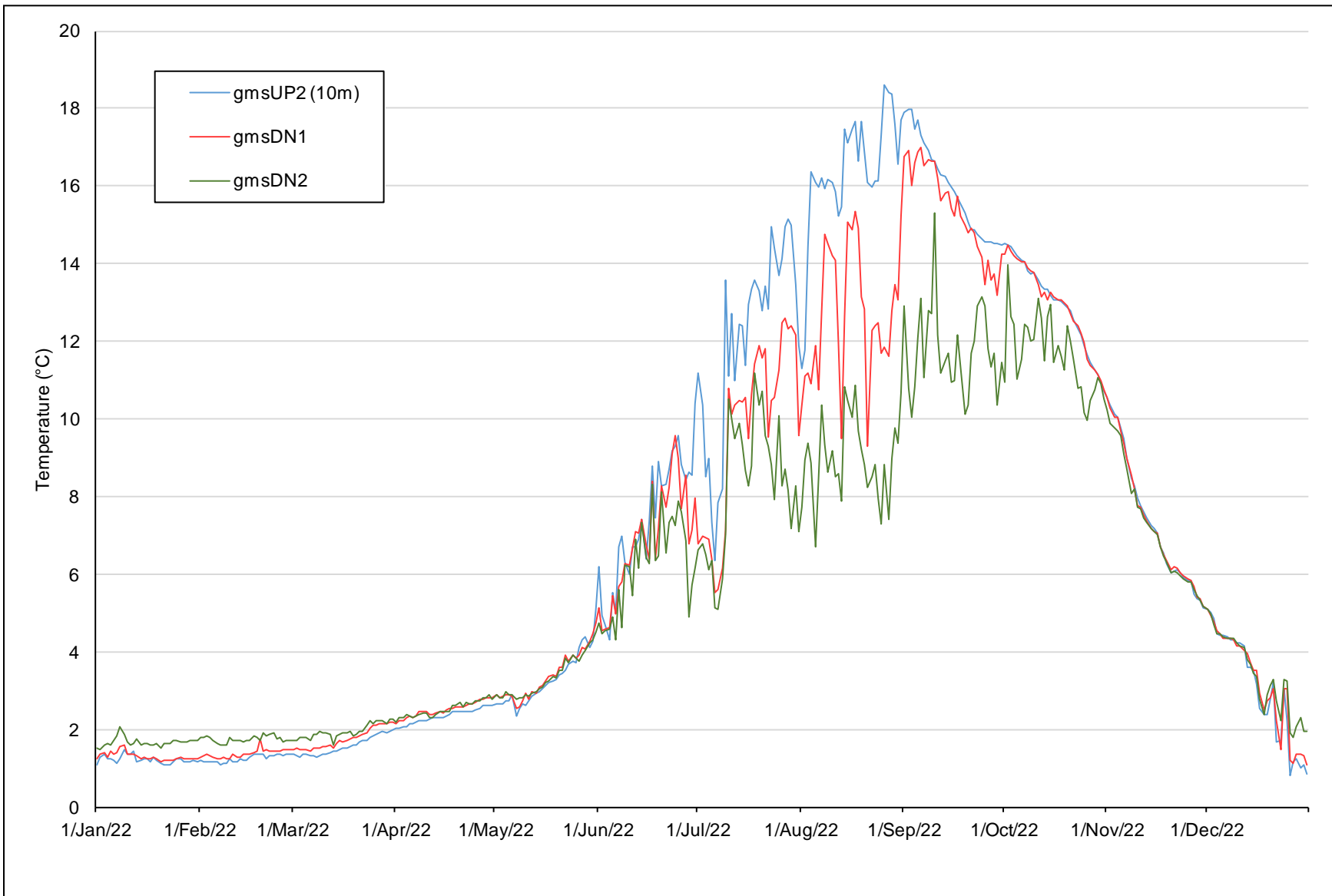


Figure 3. Comparison of daily mean water temperature at WAC Bennett Dam forebay (gmsUP2-10m depth), and WAC Bennett Dam tailrace (gmsDN1 and gmsDN2) during Year 14, January 01, 2022 – December 31, 2022.

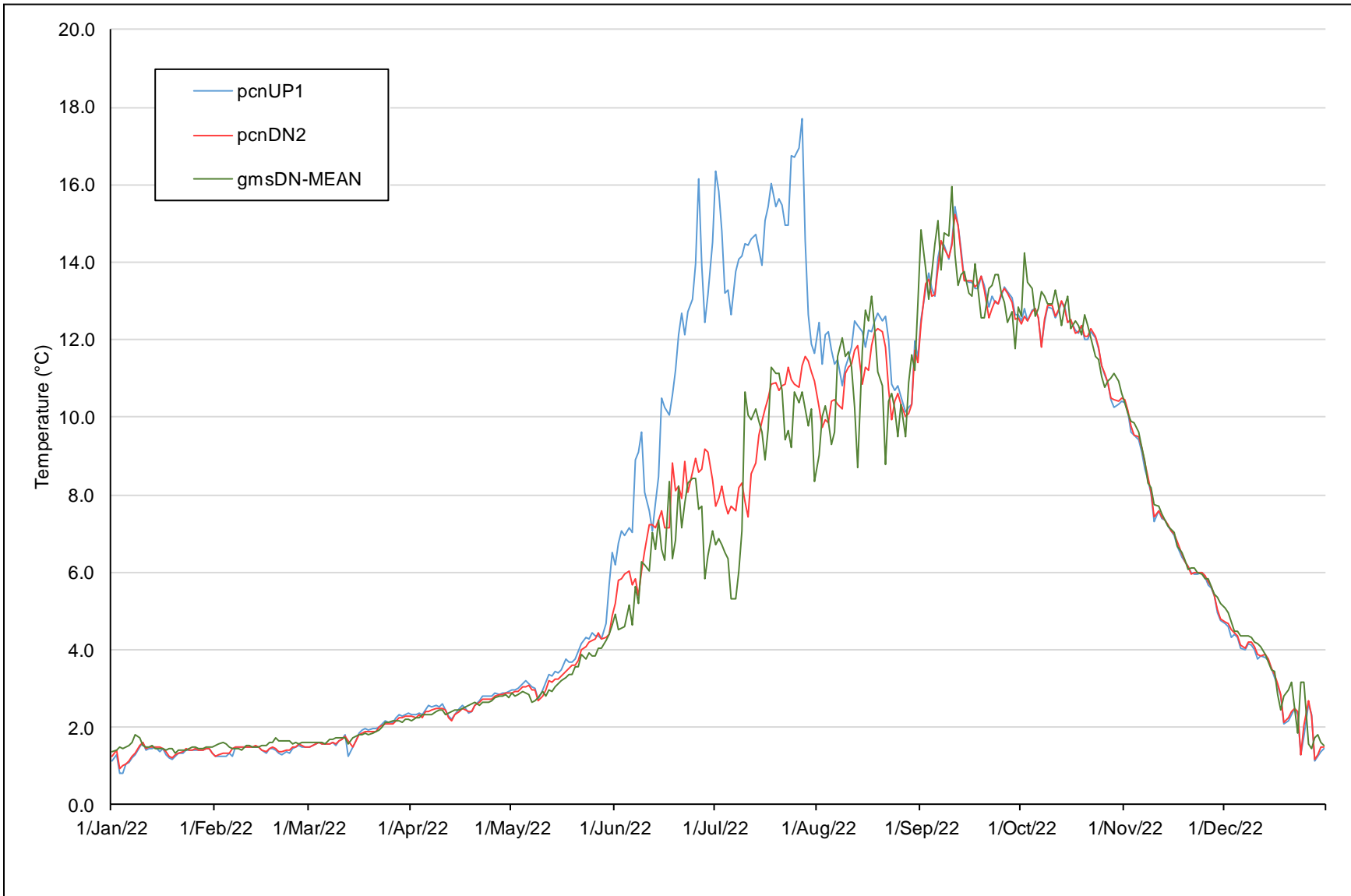


Figure 4. Comparison of daily mean water temperature at Peace Canyon forebay surface (pcnUP1), Peace Canyon tailrace (pcnDN2), and WAC Bennett Dam tailrace (gmsDN-MEAN) during Year 14, January 01, 2022 – December 31, 2022.

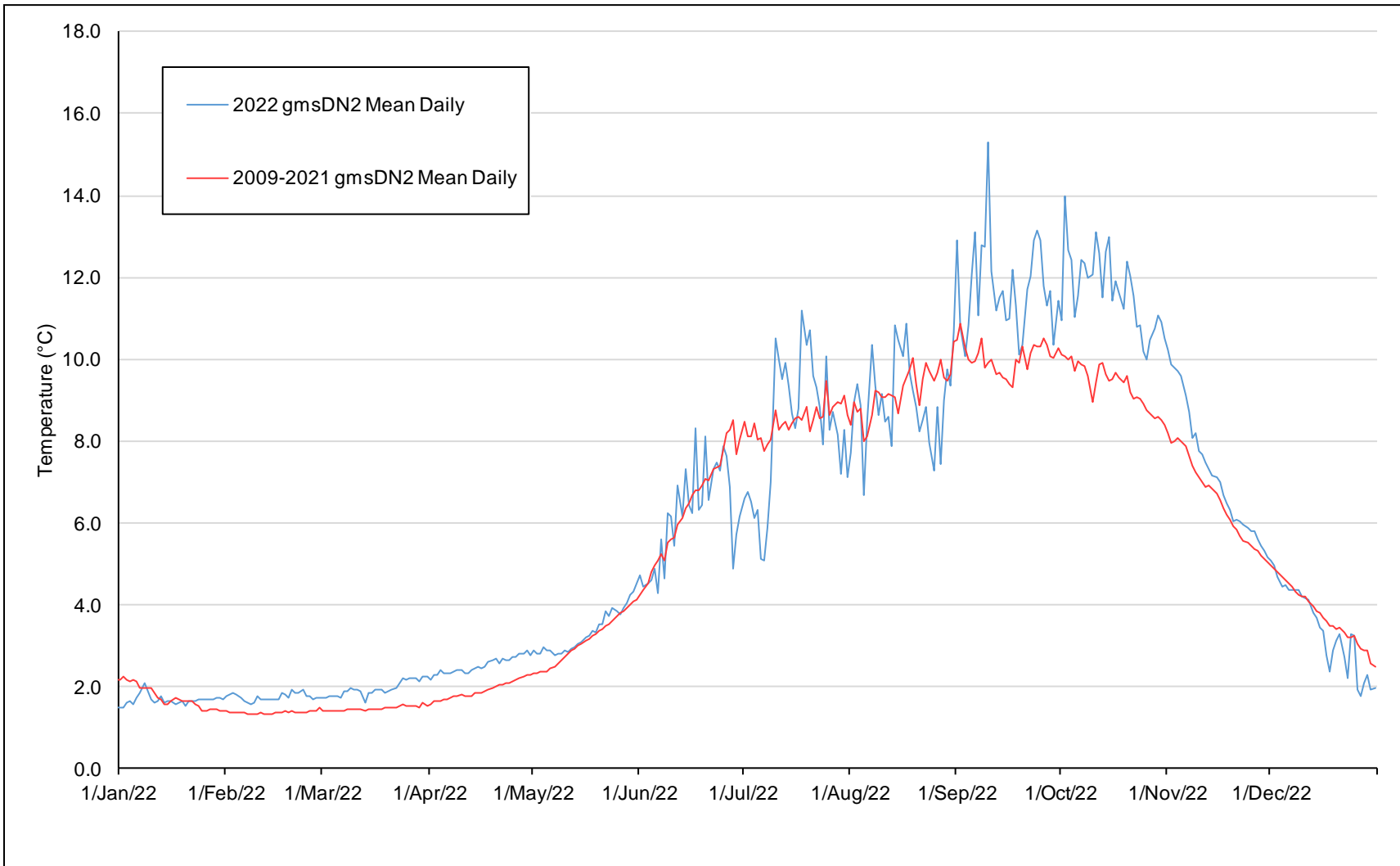


Figure 5. Comparison of Year 14 (2022) daily mean water temperature at WAC Bennett Dam tailrace north manifold (gmsDN2) with 2009 to 2021 daily mean water temperature (gmsDN2).

REFERENCES

BC Hydro. 2010. Peace River Water Use Plan; monitoring program terms of reference – Peace River Baseline TGP/Temp. BC Hydro, Vancouver, BC. 7pp.

Appendix I. Temperature monitoring station location information for Year 14, January 01, 2022 to December 31, 2022
(updated as of Jan 2023).

Site ID	Serial #	Location	UTM (Zone 10)		Comment
			East	North	
gmsUP1	20823636	WAC Bennett Forebay	548841	6209022	steel buoy; 1 m depth
gmsUP2	20823637	WAC Bennett Forebay	548841	6209022	steel buoy; 10 m depth
gmsDN1	20655136	GMS Tailrace	548881	6207761	southbank; deflection wier riprap
gmsDN1BU	10676155	GMS Tailrace	548881	6207761	southbank; deflection wier riprap
gmsDN2	21199346	GMS Tailrace	548828	6207836	north bank; riprap below Tunnel portal #3
gmsDN2BU	20332121	GMS Tailrace	548828	6207836	north bank; riprap below Tunnel portal #3
pcnUP1	20823638	Peace Canyon Forebay	562710	6204068	anti-vortex log boom; 1 m depth
pcnDN2	20332187	Peace Canyon Tailrace	562803	6204854	north bank; rock slab
pcnDN2BU	21199347	Peace Canyon Tailrace	562803	6204854	north bank; rock slab

Appendix II. Reference temperature values and corresponding logger fix values recorded during download events in Year 14, January 01, 2022 to December 31, 2022.

Logger ID	Date	Fix Temp	Ref Temp	Error
gmsUP1	20-Jan-22	0.4	0.6	-0.2
	12-Apr-22	2.3	2.1	0.2
	8-Aug-22	15.9	15.6	0.3
	17-Nov-22	-	-	-
	19-Jan-23	0.3	0.2	0.1
gmsUP2	20-Jan-22	1.1	1.1	0.0
	12-Apr-22	2.3	2.2	0.1
	8-Aug-22	15.9	15.9	0.0
	17-Nov-22	-	-	-
	19-Jan-23	1.0	1.0	0.0
gmsDN1	20-Jan-22	1.2	1.2	0.0
	12-Apr-22	2.4	2.3	0.1
	8-Aug-22	14.1	14.1	0.0
	17-Nov-22	6.7	6.7	0.0
	19-Jan-23	1.0	1.0	0.0
gmsDN1_BU	20-Jan-22	1.2	1.2	0.0
	12-Apr-22	2.4	2.3	0.1
	8-Aug-22	14.1	14.1	0.0
	17-Nov-22	6.7	6.7	0.0
	19-Jan-23	1.0	1.0	0.0
gmsDN2	20-Jan-22	1.5	1.6	-0.1
	12-Apr-22	2.3	2.3	0.0
	8-Aug-22	8.6	8.4	0.2
	17-Nov-22	6.7	6.8	-0.1
	19-Jan-23	1.4	1.4	0.0
gmsDN2_BU	20-Jan-22	1.6	1.6	0.0
	12-Apr-22	2.3	2.3	0.0
	8-Aug-22	8.6	8.4	0.2
	17-Nov-22	6.7	6.8	-0.1
	19-Jan-23	1.4	1.4	0.0
pcnUP1	20-Jan-22	1.3	1.2	0.1
	12-Apr-22	2.2	1.9	0.3
	8-Aug-22	10.5	10.4	0.1
	17-Nov-22	6.6	6.5	0.1
	19-Jan-23	0.5	0.8	-0.3
pcnDN2	20-Jan-22	1.3	1.3	0.0
	12-Apr-22	2.3	2.2	0.1
	8-Aug-22	10.1	9.9	0.2
	17-Nov-22	6.8	6.8	0.0
	19-Jan-23	1.0	1.2	-0.2
pcnDN2_BU	20-Jan-22	1.3	1.3	0.0
	12-Apr-22	2.3	2.2	0.1
	8-Aug-22	10.2	9.9	0.3
	17-Nov-22	6.8	6.8	0.0
	19-Jan-23	1.1	1.2	-0.1

Appendix III. Year 14 download information forms, January 01, 2022 to December 31, 2022.

BC HYDRO PEACE RIVER TEMPERATURE MONITORING - DOWNLOAD INFORMATION FORM											
SITE ID	gmsUP1		LOCATION	GMS Forebay			BANK				
LOGGER TYPE	Tidbit		LOGGER SERIAL #	20823636			UTM	548841	6209022		
DOWNLOAD DATE	20	Jan	2022	DOWNLOAD TIME	12:03			CREW	BC TE		
TEST RECORDER TYPE	YSI		WATER TEMP	0.6	AIR TEMP	6.0	ICE CONDITIONS	none			
LOGGER CONDITIONS											
WATER DEPTH	100	cm	DISLODGED	no	REASON						
BURIED	no		FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER		cm	TETHER TYPE	steel buoy		
COMMENTS											
Download OK											
Stainless steel cable OK											
Replac#51											
SITE ID	gmsUP2		LOCATION	GMS Forebay			BANK				
LOGGER TYPE	Tidbit		LOGGER SERIAL #	20823637			UTM	548841	6209022		
DOWNLOAD DATE	20	Jan	2022	DOWNLOAD TIME	12:03			CREW	BC TE		
TEST RECORDER TYPE	YSI		WATER TEMP	1.1	AIR TEMP	6.0	ICE CONDITIONS	none			
LOGGER CONDITIONS											
WATER DEPTH	10	m	DISLODGED	no	REASON						
BURIED	no		FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER		cm	TETHER TYPE	steel buoy		
COMMENTS											
Download OK											
Stainless steel cable OK											
Replac#52											
SITE ID	gmsDN2		LOCATION	GMS Tailrace RDB			BANK			north	
LOGGER TYPE	Tidbit		LOGGER SERIAL #	10669739			UTM	548828	6207836		
DOWNLOAD DATE	20	Jan	2022	DOWNLOAD TIME	13:05			CREW	BC TE		
TEST RECORDER TYPE	YSI		WATER TEMP	1.6	AIR TEMP	6.0	ICE CONDITIONS	none			
LOGGER CONDITIONS											
WATER DEPTH	150	cm	DISLODGED	no	REASON						
BURIED	no		FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER		cm	TETHER TYPE	rock		
COMMENTS											
Primary Logger 10669739 (Replac#11) replaced with 21199346 (Replc#54)											
Back-up logger gmsDN2BU in same capsule; Replac#37, SN 20332121 downloaded @ 13:04											
Both downloads OK											
Replaced corroded capsule											
cable OK (stainless steel cable section attached to galvanized cable around rock)											
SITE ID	gmsDN1		LOCATION	GMS Tailrace LDB			BANK	south			
LOGGER TYPE	Tidbit		LOGGER SERIAL #	20655136			UTM	548881	6207761		
DOWNLOAD DATE	20	Jan	2022	DOWNLOAD TIME	13:35			CREW	BC TE		
TEST RECORDER TYPE	YSI		WATER TEMP	1.2	AIR TEMP	6.0	ICE CONDITIONS	none			
LOGGER CONDITIONS											
WATER DEPTH	150	cm	DISLODGED	no	REASON						
BURIED	no		FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER		cm	TETHER TYPE	rock		
COMMENTS											
Primary logger - Replac#47 (SN 20655136)											
Back-up logger gmsDN1BU in same capsule; Replac#19, SN 10676155 downloaded @ 13:35											
Both downloads OK											
cable OK											

BC HYDRO PEACE RIVER TEMPERATURE MONITORING - DOWNLOAD INFORMATION FORM

SITE ID	pcnUP1	LOCATION	PCN Forebay			BANK	north	
LOGGER TYPE	Tidbit	LOGGER SERIAL #	20823638			UTM	562684	6204075
DOWNLOAD DATE	20	Jan	2022	DOWNLOAD TIME	14:36	CREW	BC TE	
TEST RECORDER TYPE	YSI	WATER TEMP	1.2	AIR TEMP	6.0	ICE CONDITIONS	none	

LOGGER CONDITIONS

WATER DEPTH	100	cm	DISLODGED	no	REASON			
BURIED	no	FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER		cm	TETHER TYPE	log boom

COMMENTS

Download OK
 Replc#53
 stainless steel cable OK
 Change steel capsule next download

SITE ID	pcnDN2	LOCATION	PCN Tailrace			BANK	north	
LOGGER TYPE	Tidbit	LOGGER SERIAL #	20332187			UTM	562803	6204854
DOWNLOAD DATE	20	Jan	2022	DOWNLOAD TIME	14:55	CREW	BC TE	
TEST RECORDER TYPE	YSI	WATER TEMP	1.3	AIR TEMP	6.0	ICE CONDITIONS	none	

LOGGER CONDITIONS

WATER DEPTH	100	cm	DISLODGED	no	REASON			
BURIED	no	FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER		cm	TETHER TYPE	rock

COMMENTS

Download OK
 Replc#43
 Change steel capsule next download

SITE ID	pcnDN2_BU	LOCATION	PCN Tailrace			BANK	north	
LOGGER TYPE	Tidbit	LOGGER SERIAL #	10635061			UTM	562803	6204854
DOWNLOAD DATE	20	Jan	2022	DOWNLOAD TIME	15:00	CREW	BC TE	
TEST RECORDER TYPE	YSI	WATER TEMP	1.3	AIR TEMP	6.0	ICE CONDITIONS	none	

LOGGER CONDITIONS

WATER DEPTH	100	cm	DISLODGED	no	REASON			
BURIED	no	FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER		cm	TETHER TYPE	rock

COMMENTS

Download OK
 Logger 10635061 (RPL#9) replaced with 21199347 (Replc#55).
 Anchored to same rock as pcnDN2
 Change steel capsule next download

SITE ID		LOCATION				BANK		
LOGGER TYPE		LOGGER SERIAL #				UTM		
DOWNLOAD DATE				DOWNLOAD TIME		CREW		
TEST RECORDER TYPE		WATER TEMP		AIR TEMP		ICE CONDITIONS		

LOGGER CONDITIONS

WATER DEPTH		cm	DISLODGED		REASON			
BURIED		FUNCTIONAL		IF DRY, HEIGHT ABOVE WATER		cm	TETHER TYPE	

COMMENTS

BC HYDRO PEACE RIVER TEMPERATURE MONITORING - DOWNLOAD INFORMATION FORM												
SITE ID	gmsUP1		LOCATION			GMS Forebay			BANK			
LOGGER TYPE	Tidbit		LOGGER SERIAL #			20823636			UTM		548841 6209022	
DOWNLOAD DATE	12	Apr	2022	DOWNLOAD TIME			12:34			CREW		BC TE
TEST RECORDER TYPE	YSI		WATER TEMP		2.1	AIR TEMP		-10		ICE CONDITIONS		none
LOGGER CONDITIONS												
WATER DEPTH	100	cm	DISLODGED		no	REASON						
BURIED	no	FUNCTIONAL		w et	IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE		steel buoy	
COMMENTS												
Dow nload OK												
Stainless steel cable OK												
Replac#51												
SITE ID	gmsUP2		LOCATION			GMS Forebay			BANK			
LOGGER TYPE	Tidbit		LOGGER SERIAL #			20823637			UTM		548841 6209022	
DOWNLOAD DATE	12	Apr	2022	DOWNLOAD TIME			12:36			CREW		BC TE
TEST RECORDER TYPE	YSI		WATER TEMP		2.2	AIR TEMP		-10		ICE CONDITIONS		none
LOGGER CONDITIONS												
WATER DEPTH	10	m	DISLODGED		no	REASON						
BURIED	no	FUNCTIONAL		w et	IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE		steel buoy	
COMMENTS												
Dow nload OK												
Stainless steel cable OK												
Replac#52												
SITE ID	gmsDN2		LOCATION			GMS Tailrace RDB			BANK			north
LOGGER TYPE	Tidbit		LOGGER SERIAL #			21199346			UTM		548828 6207836	
DOWNLOAD DATE	12	Apr	2022	DOWNLOAD TIME			11:47			CREW		BC TE
TEST RECORDER TYPE	YSI		WATER TEMP		2.3	AIR TEMP		-10		ICE CONDITIONS		none
LOGGER CONDITIONS												
WATER DEPTH	150	cm	DISLODGED		no	REASON						
BURIED	no	FUNCTIONAL		w et	IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE		rock	
COMMENTS												
Primary Logger - Replac#54, SN 21199346												
Back-up logger gmsDN2BU in same capsule; Replac#37, SN 20332121 dow nloaded @ 11:45												
Both dow nloads OK												
cable OK (stainless steel cable section attached to galvanized cable around rock)												
SITE ID	gmsDN1		LOCATION			GMS Tailrace LDB			BANK			south
LOGGER TYPE	Tidbit		LOGGER SERIAL #			20655136			UTM		548881 6207761	
DOWNLOAD DATE	12	Apr	2022	DOWNLOAD TIME			12:02			CREW		BC TE
TEST RECORDER TYPE	YSI		WATER TEMP		2.3	AIR TEMP		-10		ICE CONDITIONS		none
LOGGER CONDITIONS												
WATER DEPTH	150	cm	DISLODGED		no	REASON						
BURIED	no	FUNCTIONAL		w et	IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE		rock	
COMMENTS												
Primary logger - Replac#47 (SN 20655136) - Dow nload OK												
Back-up logger gmsDN1BU in same capsule; Replac#19, SN 10676155; Dow nloaded OK @ 12:02												

BC HYDRO PEACE RIVER TEMPERATURE MONITORING - DOWNLOAD INFORMATION FORM											
SITE ID	pcnUP1		LOCATION			PCN Forebay			BANK	north	
LOGGER TYPE	Tidbit		LOGGER SERIAL #			20823638			UTM	562684	6204075
DOWNLOAD DATE	12	Apr	2022	DOWNLOAD TIME			10:18			CREW	BC TE
TEST RECORDER TYPE	YSI		WATER TEMP		1.9	AIR TEMP		-10.0		ICE CONDITIONS	none
LOGGER CONDITIONS											
WATER DEPTH	100	cm	DISLODGED	no		REASON					
BURIED	no		FUNCTIONAL	wet		IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	log boom
COMMENTS											
download OK replace corroded steel capsule next trip stainless steel cable OK Replac#53											
SITE ID	pcnDN2		LOCATION			PCN Tailrace			BANK	north	
LOGGER TYPE	Tidbit		LOGGER SERIAL #			20332187			UTM	562803	6204854
DOWNLOAD DATE	12	Apr	2022	DOWNLOAD TIME			10:38			CREW	BC TE
TEST RECORDER TYPE	YSI		WATER TEMP		2.2	AIR TEMP		-10.0		ICE CONDITIONS	none
LOGGER CONDITIONS											
WATER DEPTH	100	cm	DISLODGED	no		REASON					
BURIED	no		FUNCTIONAL	wet		IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	rock
COMMENTS											
Dow nload OK Replac#43 stainless steel cable OK corroded steel capsule replaced											
SITE ID	pcnDN2_BU		LOCATION			PCN Tailrace			BANK	north	
LOGGER TYPE	Tidbit		LOGGER SERIAL #			21199347			UTM	562803	6204854
DOWNLOAD DATE	12	Apr	2022	DOWNLOAD TIME			10:39			CREW	BC TE
TEST RECORDER TYPE	YSI		WATER TEMP		2.2	AIR TEMP		-10.0		ICE CONDITIONS	none
LOGGER CONDITIONS											
WATER DEPTH	100	cm	DISLODGED	no		REASON					
BURIED	no		FUNCTIONAL	wet		IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	rock
COMMENTS											
Dow nload OK stainless steel cable OK corroded steel capsule replaced Anchored to same rock as pcnDN2 Replac#55											
SITE ID			LOCATION						BANK		
LOGGER TYPE			LOGGER SERIAL #						UTM		
DOWNLOAD DATE			DOWNLOAD TIME						CREW		
TEST RECORDER TYPE			WATER TEMP			AIR TEMP				ICE CONDITIONS	
LOGGER CONDITIONS											
WATER DEPTH		cm	DISLODGED			REASON					
BURIED			FUNCTIONAL			IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	
COMMENTS											

BC HYDRO PEACE RIVER TEMPERATURE MONITORING - DOWNLOAD INFORMATION FORM										
SITE ID	gmsUP1		LOCATION	GMS Forebay			BANK			
LOGGER TYPE	Tidbit		LOGGER SERIAL #	20823636			UTM	548841	6209022	
DOWNLOAD DATE	8	Aug	2022	DOWNLOAD TIME	11:59			CREW	BC TE	
TEST RECORDER TYPE	YSI		WATER TEMP	15.6	AIR TEMP	18	ICE CONDITIONS	none		
LOGGER CONDITIONS										
WATER DEPTH	100	cm	DISLODGED	no	REASON					
BURIED	no		FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	steel buoy
COMMENTS										
Dow nload OK										
Stainless steel cable OK										
Cable stop corroded; 1 m logger slid to 10 m										
Replac#51										
SITE ID	gmsUP2		LOCATION	GMS Forebay			BANK			
LOGGER TYPE	Tidbit		LOGGER SERIAL #	20823637			UTM	548841	6209022	
DOWNLOAD DATE	8	Aug	2022	DOWNLOAD TIME	12:00			CREW	BC TE	
TEST RECORDER TYPE	YSI		WATER TEMP	15.9	AIR TEMP	18	ICE CONDITIONS	none		
LOGGER CONDITIONS										
WATER DEPTH	10	m	DISLODGED	no	REASON					
BURIED	no		FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	steel buoy
COMMENTS										
Dow nload OK										
Stainless steel cable OK										
Replac#52										
SITE ID	gmsDN2		LOCATION	GMS Tailrace RDB			BANK			north
LOGGER TYPE	Tidbit		LOGGER SERIAL #	21199346			UTM	548828	6207836	
DOWNLOAD DATE	8	Aug	2022	DOWNLOAD TIME	11:08			CREW	BC TE	
TEST RECORDER TYPE	YSI		WATER TEMP	8.4	AIR TEMP	18	ICE CONDITIONS	none		
LOGGER CONDITIONS										
WATER DEPTH	200	cm	DISLODGED	no	REASON					
BURIED	no		FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	rock
COMMENTS										
Primary Logger - Replac#54, SN 21199346										
Back-up logger gmsDN2BU in same capsule; Replac#37, SN 20332121 dow nloaded @ 11:08										
Both dow nloads OK										
cable OK (stainless steel cable section attached to galvanized cable around rock)										
SITE ID	gmsDN1		LOCATION	GMS Tailrace LDB			BANK			south
LOGGER TYPE	Tidbit		LOGGER SERIAL #	20655136			UTM	548881	6207761	
DOWNLOAD DATE	8	Aug	2022	DOWNLOAD TIME	11:22			CREW	BC TE	
TEST RECORDER TYPE	YSI		WATER TEMP	14.1	AIR TEMP	18	ICE CONDITIONS	none		
LOGGER CONDITIONS										
WATER DEPTH	80	cm	DISLODGED	no	REASON					
BURIED	no		FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	rock
COMMENTS										
Primary logger - Replac#47 (SN 20655136) - Dow nload OK										
Back-up logger gmsDN1BU in same capsule; Replac#19, SN 10676155; Dow nloaded OK @ 11:21										

BC HYDRO PEACE RIVER TEMPERATURE MONITORING - DOWNLOAD INFORMATION FORM

SITE ID	pcnUP1	LOCATION	PCN Forebay			BANK	north	
LOGGER TYPE	Tidbit	LOGGER SERIAL #	20823638			UTM	562684	6204075
DOWNLOAD DATE	8	Aug	2022	DOWNLOAD TIME	9:58	CREW	BC TE	
TEST RECORDER TYPE	YSI	WATER TEMP	10.4	AIR TEMP	18.0	ICE CONDITIONS	none	

LOGGER CONDITIONS

WATER DEPTH	100	cm	DISLODGED	no	REASON			
BURIED	no	FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER		cm	TETHER TYPE	log boom

COMMENTS

download OK
 corroded steel capsule replaced
 stainless steel cable OK
 Replac#53

SITE ID	pcnDN2	LOCATION	PCN Tailrace			BANK	north	
LOGGER TYPE	Tidbit	LOGGER SERIAL #	20332187			UTM	562803	6204854
DOWNLOAD DATE	8	Aug	2022	DOWNLOAD TIME	9:37	CREW	BC TE	
TEST RECORDER TYPE	YSI	WATER TEMP	9.7	AIR TEMP	18.0	ICE CONDITIONS	none	

LOGGER CONDITIONS

WATER DEPTH	100	cm	DISLODGED	no	REASON			
BURIED	no	FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER		cm	TETHER TYPE	rock

COMMENTS

Dow nload OK
 Replac#43
 stainless steel cable OK

SITE ID	pcnDN2_BU	LOCATION	PCN Tailrace			BANK	north	
LOGGER TYPE	Tidbit	LOGGER SERIAL #	21199347			UTM	562803	6204854
DOWNLOAD DATE	8	Aug	2022	DOWNLOAD TIME	9:40	CREW	BC TE	
TEST RECORDER TYPE	YSI	WATER TEMP	9.9	AIR TEMP	18.0	ICE CONDITIONS	none	

LOGGER CONDITIONS

WATER DEPTH	100	cm	DISLODGED	no	REASON			
BURIED	no	FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER		cm	TETHER TYPE	rock

COMMENTS

Dow nload OK
 stainless steel cable OK
 Anchored to same rock as pcnDN2
 Replac#55

SITE ID		LOCATION				BANK		
LOGGER TYPE		LOGGER SERIAL #				UTM		
DOWNLOAD DATE				DOWNLOAD TIME		CREW		
TEST RECORDER TYPE		WATER TEMP		AIR TEMP		ICE CONDITIONS		

LOGGER CONDITIONS

WATER DEPTH		cm	DISLODGED		REASON			
BURIED		FUNCTIONAL		IF DRY, HEIGHT ABOVE WATER		cm	TETHER TYPE	

COMMENTS

BC HYDRO PEACE RIVER TEMPERATURE MONITORING - DOWNLOAD INFORMATION FORM											
SITE ID	gmsUP1		LOCATION	GMS Forebay				BANK			
LOGGER TYPE	Tidbit		LOGGER SERIAL #					UTM	548841	6209022	
DOWNLOAD DATE	17	Nov	2022	DOWNLOAD TIME					CREW	BC TE	
TEST RECORDER TYPE	YSI		WATER TEMP			AIR TEMP			ICE CONDITIONS	none	
LOGGER CONDITIONS											
WATER DEPTH			cm	DISLODGED			REASON				
BURIED			FUNCTIONAL			IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	steel buoy
COMMENTS											
Loggers could not be accessed due to high winds and rough water											
SITE ID	gmsDN2		LOCATION	GMS Tailrace RDB				BANK			north
LOGGER TYPE	Tidbit		LOGGER SERIAL #	21199346				UTM	548828	6207836	
DOWNLOAD DATE	17	Nov	2022	DOWNLOAD TIME	12:17				CREW	BC TE	
TEST RECORDER TYPE	YSI		WATER TEMP	6.8	AIR TEMP	-11		ICE CONDITIONS	none		
LOGGER CONDITIONS											
WATER DEPTH	200	cm	DISLODGED	no		REASON					
BURIED	no		FUNCTIONAL	wet		IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	rock
COMMENTS											
Primary Logger - Replac#54, SN 21199346											
Back-up logger gmsDN2BU in same capsule; Replac#37, SN 20332121 downloaded @ 12:18											
Both downloads OK											
cable OK (stainless steel cable section attached to galvanized cable around rock)											
SITE ID	gmsDN1		LOCATION	GMS Tailrace LDB				BANK			south
LOGGER TYPE	Tidbit		LOGGER SERIAL #	20655136				UTM	548881	6207761	
DOWNLOAD DATE	17	Nov	2022	DOWNLOAD TIME	12:32				CREW	BC TE	
TEST RECORDER TYPE	YSI		WATER TEMP	6.7	AIR TEMP	-13		ICE CONDITIONS	none		
LOGGER CONDITIONS											
WATER DEPTH	200	cm	DISLODGED	no		REASON					
BURIED	no		FUNCTIONAL	wet		IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	rock
COMMENTS											
Primary logger - Replac#47 (SN 20655136) - Download OK											
Back-up logger gmsDN1BU in same capsule; Replac#19, SN 10676155; Download OK @ 12:33											
SITE ID			LOCATION					BANK			
LOGGER TYPE			LOGGER SERIAL #					UTM			
DOWNLOAD DATE			DOWNLOAD TIME					CREW			
TEST RECORDER TYPE			WATER TEMP			AIR TEMP			ICE CONDITIONS		
LOGGER CONDITIONS											
WATER DEPTH			cm	DISLODGED			REASON				
BURIED			FUNCTIONAL			IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	
COMMENTS											

BC HYDRO PEACE RIVER TEMPERATURE MONITORING - DOWNLOAD INFORMATION FORM											
SITE ID	pcnUP1		LOCATION	PCN Forebay				BANK	north		
LOGGER TYPE	Tidbit		LOGGER SERIAL #	20823638				UTM	562684	6204075	
DOWNLOAD DATE	17	Nov	2022	DOWNLOAD TIME	11:05				CREW	BC TE	
TEST RECORDER TYPE	YSI		WATER TEMP	6.5	AIR TEMP	-12.0		ICE CONDITIONS	none		
LOGGER CONDITIONS											
WATER DEPTH	100	cm	DISLODGED	no	REASON						
BURIED	no		FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	log boom	
COMMENTS											
down load OK											
stainless steel cable OK											
Replac#53											
SITE ID	pcnDN2		LOCATION	PCN Tailrace				BANK	north		
LOGGER TYPE	Tidbit		LOGGER SERIAL #	20332187				UTM	562803	6204854	
DOWNLOAD DATE	17	Nov	2022	DOWNLOAD TIME	11:21				CREW	BC TE	
TEST RECORDER TYPE	YSI		WATER TEMP	6.8	AIR TEMP	-11.0		ICE CONDITIONS	none		
LOGGER CONDITIONS											
WATER DEPTH	200	cm	DISLODGED	no	REASON						
BURIED	no		FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	rock	
COMMENTS											
Dow nload OK											
Replac#43											
stainless steel cable OK											
SITE ID	pcnDN2_BU		LOCATION	PCN Tailrace				BANK	north		
LOGGER TYPE	Tidbit		LOGGER SERIAL #	21199347				UTM	562803	6204854	
DOWNLOAD DATE	17	Nov	2022	DOWNLOAD TIME	11:23				CREW	BC TE	
TEST RECORDER TYPE	YSI		WATER TEMP	6.8	AIR TEMP	-11.0		ICE CONDITIONS	none		
LOGGER CONDITIONS											
WATER DEPTH	200	cm	DISLODGED	no	REASON						
BURIED	no		FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	rock	
COMMENTS											
Dow nload OK											
stainless steel cable OK											
Anchored to same rock as pcnDN2											
Replac#55											
SITE ID			LOCATION					BANK			
LOGGER TYPE			LOGGER SERIAL #					UTM			
DOWNLOAD DATE				DOWNLOAD TIME					CREW		
TEST RECORDER TYPE			WATER TEMP		AIR TEMP			ICE CONDITIONS			
LOGGER CONDITIONS											
WATER DEPTH		cm	DISLODGED		REASON						
BURIED			FUNCTIONAL		IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE		
COMMENTS											

BC HYDRO PEACE RIVER TEMPERATURE MONITORING - DOWNLOAD INFORMATION FORM											
SITE ID	gmsUP1		LOCATION	GMS Forebay				BANK			
LOGGER TYPE	Tidbit		LOGGER SERIAL #	20823636				UTM	548841	6209022	
DOWNLOAD DATE	19	Jan	2023	DOWNLOAD TIME	12:51				CREW	BC TE	
TEST RECORDER TYPE	YSI		WATER TEMP	0.2	AIR TEMP	-2		ICE CONDITIONS	25cm		
LOGGER CONDITIONS											
WATER DEPTH	100	cm	DISLODGED	no		REASON					
BURIED	no		FUNCTIONAL	wet		IF DRY, HEIGHT ABOVE WATER	cm	TETHER TYPE	steel buoy		
COMMENTS											
Dow nload OK											
Stainless steel cable OK											
Replac#51											
SITE ID	gmsUP2		LOCATION	GMS Forebay				BANK			
LOGGER TYPE	Tidbit		LOGGER SERIAL #	20823637				UTM	548841	6209022	
DOWNLOAD DATE	19	Jan	2023	DOWNLOAD TIME	12:49				CREW	BC TE	
TEST RECORDER TYPE	YSI		WATER TEMP	1.0	AIR TEMP	-2		ICE CONDITIONS	25cm		
LOGGER CONDITIONS											
WATER DEPTH	10	m	DISLODGED	no		REASON					
BURIED	no		FUNCTIONAL	wet		IF DRY, HEIGHT ABOVE WATER	cm	TETHER TYPE	steel buoy		
COMMENTS											
Dow nload OK											
Stainless steel cable OK											
Replac#52											
SITE ID	gmsDN2		LOCATION	GMS Tailrace RDB				BANK			north
LOGGER TYPE	Tidbit		LOGGER SERIAL #	21199346				UTM	548828	6207836	
DOWNLOAD DATE	19	Jan	2023	DOWNLOAD TIME	12:01				CREW	BC TE	
TEST RECORDER TYPE	YSI		WATER TEMP	1.4	AIR TEMP	-2		ICE CONDITIONS	none		
LOGGER CONDITIONS											
WATER DEPTH	100	cm	DISLODGED	no		REASON					
BURIED	no		FUNCTIONAL	wet		IF DRY, HEIGHT ABOVE WATER	cm	TETHER TYPE	rock		
COMMENTS											
Primary Logger - Replac#54, SN 21199346											
Back-up logger gmsDN2BU in same capsule; Replac#37, SN 20332121 dow nloaded @ 11:59											
Both dow nloads OK											
cable OK (stainless steel cable section attached to galvanized cable around rock)											
SITE ID	gmsDN1		LOCATION	GMS Tailrace LDB				BANK			south
LOGGER TYPE	Tidbit		LOGGER SERIAL #	20655136				UTM	548881	6207761	
DOWNLOAD DATE	19	Jan	2023	DOWNLOAD TIME	12:16				CREW	BC TE	
TEST RECORDER TYPE	YSI		WATER TEMP	1.0	AIR TEMP	-2		ICE CONDITIONS	none		
LOGGER CONDITIONS											
WATER DEPTH	100	cm	DISLODGED	no		REASON					
BURIED	no		FUNCTIONAL	wet		IF DRY, HEIGHT ABOVE WATER	cm	TETHER TYPE	rock		
COMMENTS											
Primary logger - Replac#47 (SN 20655136) - Dow nload OK											
Back-up logger gmsDN1BU in same capsule; Replac#19, SN 10676155; Dow nloaded OK @ 12:17											

BC HYDRO PEACE RIVER TEMPERATURE MONITORING - DOWNLOAD INFORMATION FORM											
SITE ID	pcnUP1		LOCATION			PCN Forebay			BANK	north	
LOGGER TYPE	Tidbit		LOGGER SERIAL #			20823638			UTM	562684	6204075
DOWNLOAD DATE	19	Jan	2023	DOWNLOAD TIME			10:40			CREW	BC TE
TEST RECORDER TYPE	YSI		WATER TEMP	0.8	AIR TEMP	-6.0		ICE CONDITIONS	none		
LOGGER CONDITIONS											
WATER DEPTH	100	cm	DISLODGED	no	REASON						
BURIED	no		FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	log boom	
COMMENTS											
down load OK											
stainless steel cable OK											
Replac#53											
SITE ID	pcnDN2		LOCATION			PCN Tailrace			BANK	north	
LOGGER TYPE	Tidbit		LOGGER SERIAL #			20332187			UTM	562803	6204854
DOWNLOAD DATE	19	Jan	2023	DOWNLOAD TIME			11:02			CREW	BC TE
TEST RECORDER TYPE	YSI		WATER TEMP	1.2	AIR TEMP	-5.0		ICE CONDITIONS	none		
LOGGER CONDITIONS											
WATER DEPTH	80	cm	DISLODGED	no	REASON						
BURIED	no		FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	rock	
COMMENTS											
Dow nload OK											
Replac#43											
stainless steel cable OK											
SITE ID	pcnDN2_BU		LOCATION			PCN Tailrace			BANK	north	
LOGGER TYPE	Tidbit		LOGGER SERIAL #			21199347			UTM	562803	6204854
DOWNLOAD DATE	19	Jan	2023	DOWNLOAD TIME			10:59			CREW	BC TE
TEST RECORDER TYPE	YSI		WATER TEMP	1.2	AIR TEMP	-5.0		ICE CONDITIONS	none		
LOGGER CONDITIONS											
WATER DEPTH	80	cm	DISLODGED	no	REASON						
BURIED	no		FUNCTIONAL	wet	IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE	rock	
COMMENTS											
Dow nload OK											
stainless steel cable OK											
Anchored to same rock as pcnDN2											
Replac#55											
SITE ID			LOCATION						BANK		
LOGGER TYPE			LOGGER SERIAL #						UTM		
DOWNLOAD DATE			DOWNLOAD TIME						CREW		
TEST RECORDER TYPE			WATER TEMP		AIR TEMP			ICE CONDITIONS			
LOGGER CONDITIONS											
WATER DEPTH		cm	DISLODGED		REASON						
BURIED			FUNCTIONAL		IF DRY, HEIGHT ABOVE WATER			cm	TETHER TYPE		
COMMENTS											

Appendix IV. Summary of temperature logger deployment dates and anticipated replacement dates.

Site ID	Serial #	Location	Date Deployed	Replace Date
gmsUP1	20823636	WAC Bennett Forebay	Nov 2020	2026
gmsUP2	20823637	WAC Bennett Forebay	Nov 2020	2026
gmsDN1	20655136	GMS Tailrace	Feb 2020	2026
gmsDN1BU	10676155	GMS Tailrace	Feb 2017	2023
gmsDN2	21199346	GMS Tailrace	Jan 2022	2028
gmsDN2BU	20332121	GMS Tailrace	Jul 2018	2024
pcnUP1	20823638	Peace Canyon Forebay	Oct 2021	2027
pcnDN2	20332187	Peace Canyon Tailrace	Feb 2020	2026
pcnDN2BU	21199347	Peace Canyon Tailrace	Jan 2022	2028