

Annual Drinking Water  
Report - 2023

**Black Creek/  
Oyster Bay  
Water System**

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The CVRD respectfully acknowledges the Black Creek-Oyster Bay Water System operates on the unceded traditional territory of the K'ómoks First Nation and the Ligwítłaxw Peoples.

## Introduction

The Comox Valley Regional District strives to provide high-quality drinking water through responsible operation and management of the water system. The CVRD is regulated by Island Health for its activities as a potable water supplier and is required under the *Drinking Water Protection Act* to report annually on the Black Creek/Oyster Bay Water System. This report includes information on water quality, consumption, maintenance, and capital projects.

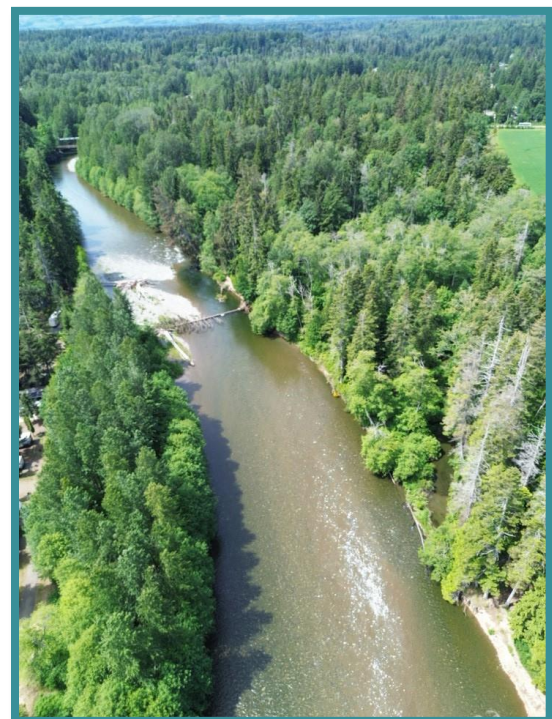
The CVRD provides water to roughly 2200 residents and 30 local businesses in the Black Creek/Oyster Bay Water System.



## Source Water

Water for the Black Creek/Oyster Bay Service Area is sourced from five wells and an infiltration gallery in the Oyster River Nature Park adjacent to the Oyster River.

The Oyster River watershed is 376km<sup>2</sup> and originates in the mountains of Forbidden Plateau before travelling northeast to the Strait of Georgia. Its main tributaries are Little Oyster River, Woodhus Creek, Piggott Creek, and Adrian Creek.



*The Oyster River near the infiltration gallery.*

## Water Treatment

All water supply systems using surface water are governed by Island Health and are required to adhere to provincial “4-3-2-1-0” treatment objectives to ensure effective elimination of disease-causing viruses, bacteria, and parasites.

The “4-3-2-1-0” objectives are as follows:

- 4-log (99.99 per cent) removal/inactivation of viruses
- 3-log (99.9 per cent) removal/inactivation of Giardia and Cryptosporidium
- 2 types of treatment processes
- 1 maximum Nephelometric Turbidity Units in treated water
- 0 detectable E. Coli, fecal coliforms and total coliforms in treated water



*Black Creek/Oyster Bay Water Treatment Plant.*

The journey from source to tap begins at one of the wells 20’ below the Oyster River Nature Park, or in the infiltration gallery near the river.

Water is pumped to the treatment facility on Regent Road where it passes through UV reactors before being injected with sodium hypochlorite and caustic soda. Water sourced from underground wells is typically very clear, has no microbiological growth, but has a low pH and is corrosive. If left unadjusted - in addition to impacting treatment processes - this can cause leaching of metal ions from fittings in the distribution system. Caustic soda is added to address this issue and raise the pH to 7-8.



*Ultraviolet reactors.*

The water then enters a large contact main which provides contact time for the sodium hypochlorite to disinfect any remaining bacteria.

## Water Distribution

After these processes, the water travels to either Macaulay Reservoir, or is pumped through the Black Creek Booster Station towards Kelland Reservoir.

Water flows in and out of these reservoirs to provide water to residents from the Oyster Bay Shoreline Park in the north, to Kelland Road in the south.

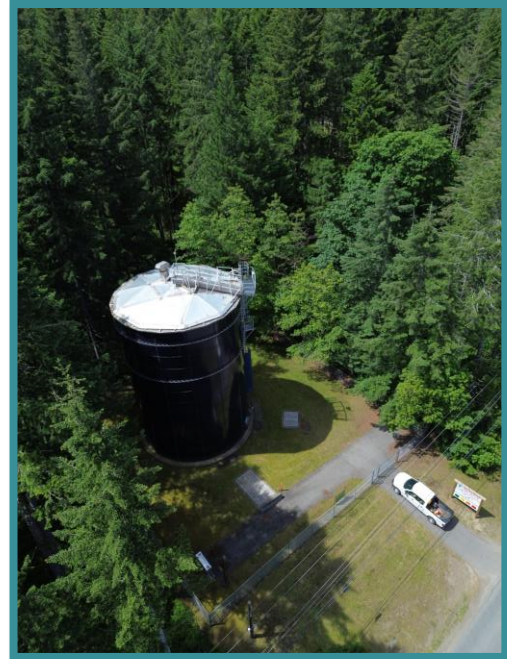
There are 129 fire hydrants and 1002 service connections in the distribution system.

## Water Quality

The Ministry of Health, through its regional body Island Health, regulates municipal drinking water quality through the *Drinking Water Protection Act* and the *Drinking Water Protection Regulation*. Both documents set out certain requirements for drinking water purveyors to ensure the provision of safe drinking water to their customers.

The *Guidelines for Canadian Drinking Water Quality* are developed by the Federal-Provincial-Territorial Committee on Drinking Water, and they provide a limit on microbial, chemical, physical, radiological substances called a “maximum acceptable concentration”. The guidelines also assign aesthetic objectives to substances that do not cause risk to human health, but influence consumer acceptance of the water based on factors such as taste, odour and colour.

The CVRD collects and analyzes weekly water quality samples at the water treatment facility, source water, Macaulay, and Kelland Reservoirs, and from various other strategic points within the distribution system to ensure that water is meeting regulatory objectives. Additionally, beyond the scope of this document, water from select locations is tested periodically throughout the year for over 200 different analytes to confirm the effectiveness of treatment processes, the quality of our source water, and the integrity of the distribution system.



*Macaulay Reservoir.*

## Water Quality Summary

Source Water	2022	2023	
<b>Turbidity</b> (Average, NTU)	0.02	0.03	
<b>Temperature</b> (Average, °C)	10.9	11.5	
<b>pH</b> (Average)	5.2	5.3	
Distribution Water	2022	2023	Target
<b>Turbidity</b> (Average, NTU)	0.26	0.18	<1
<b>Temperature</b> (Average, °C)	11.7	13.5	<15
<b>pH</b> (Average)	7.4	7.0	7-10.5
<b>Chlorine Residual</b> (Average, mg/L)	0.91	0.88	0.4 $\geq$ ≤2.0
<b>Total Coliforms</b> (Positive Samples)	0	0	0
<b>E. Coli</b> (Positive Samples)	0	0	0
<b>Trihalomethanes</b> (Average, mg/L)	0.007	0.001*	<0.1

\*No trihalomethanes sample result was higher than 0.0079.

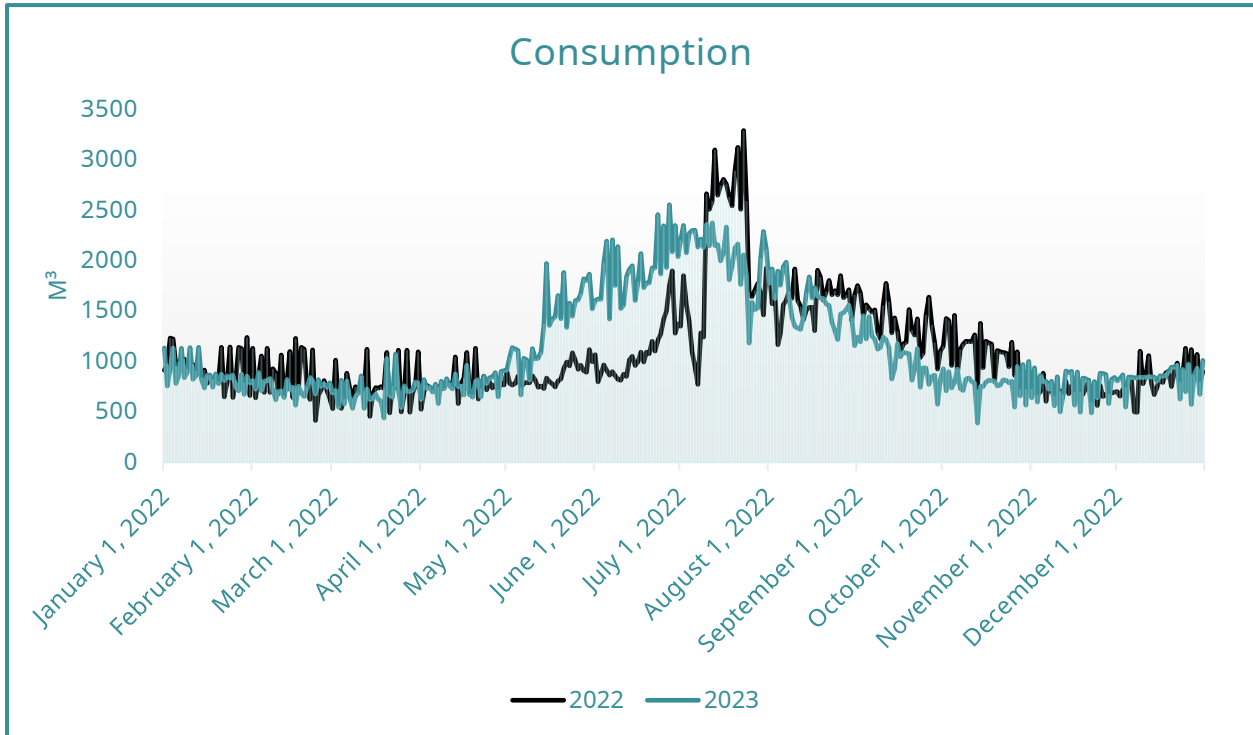
### Distribution Water – Data by Sample Site

Date	2220 Salmon Point Road		1536 Seaview Road		8527 Island Highway		2315 King Road		Kelland Reservoir		Macaulay Reservoir	
	Cl <sup>2</sup>	NTU	Cl <sup>2</sup>	NTU	Cl <sup>2</sup>	NTU	Cl <sup>2</sup>	NTU	Cl <sup>2</sup>	NTU	Cl <sup>2</sup>	NTU
03-Jan	0.93	0.07	0.84	0.21								
09-Jan							0.82	0.28				
16-Jan	0.90	0.05	0.89	0.10								
23-Jan					0.84	0.15	0.99	0.11				
30-Jan					0.87	0.21	0.92	0.18				
06-Feb	0.9	0.06	0.89	0.25								
13-Feb					0.79	0.14	0.88	0.12				
21-Feb	0.85	0.24	0.82	0.21								
27-Feb					0.73	0.09	0.64	0.15				
06-Mar	0.89	0.11	0.76	0.12								
08-Mar											0.9	0.09
13-Mar					0.84	0.24	0.93	0.2			0.79	0.3
20-Mar	0.57	0.16	0.86	0.11								
27-Mar					0.78	0.1	0.86	0.14				
03-Apr	0.74	0.09	0.7	0.1								
11-Apr					0.7	0.77	0.82	0.13				
17-Apr	0.64	0.22	0.76	0.19								
24-Apr					0.81	0.15	0.92	0.111				
01-May	0.85	0.04	0.77	0.06								
08-May					0.58	0.18	0.7	0.18				
15-May	0.85	0.24							0.89	0.21		
23-May	0.85	0.07							0.67	0.11		
06-Jun	0.9	0.11	0.86	0.21							0.83	0.19
12-Jun					0.85	0.19	0.8	0.14				
19-Jun	0.88	0.14							0.71	0.19		
26-Jun					0.65	0.4	0.78	0.12				
10-Jul					0.69	0.27	0.89	0.17				
17-Jul	0.81	0.08	0.73	0.09					0.46	0.14		
	<b>2220 Salmon Point Road</b>	<b>1536 Seaview Road</b>	<b>8527 Island Highway</b>	<b>2315 King Road</b>	<b>Kelland Reservoir</b>	<b>Macaulay Reservoir</b>						

Date	Cl <sup>2</sup>	NTU	Cl <sup>2</sup>	NTU	Cl <sup>2</sup>	NTU	Cl <sup>2</sup>	NTU	Cl <sup>2</sup>	NTU	Cl <sup>2</sup>	NTU
24-Jul					0.62	0.24	0.84	0.08				
08-Aug	0.82	0.13	0.71	0.13								
14-Aug					0.67	0.2	0.87	0.14				
21-Aug	0.84	0.15	0.65	0.28					0.59	0.18		
28-Aug					0.67	0.29	0.97	0.11				
05-Sep	0.92	0.09	0.79	0.1								
11-Sep					0.79	0.16	0.92	0.09				
18-Sep	0.89	0.11	0.89	0.12					0.48	0.17		
25-Sep					0.68	0.21	0.91	0.2				
03-Oct	1.06	0.14	0.89	0.08								
16-Oct	1.16	0.32	0.97	0.49					0.66	0.19		
23-Oct					0.99	0.1	1.05	0.08				
06-Nov	1.01	0.16	0.93	0.17								
14-Nov					1	0.31	1	0.23				
20-Nov	0.86	0.14	0.86	0.14					0.9	0.12		
27-Nov					0.85	0.13	0.97	0.14				
04-Dec	1.03	0.11	0.82	0.07								
11-Dec					0.85	0.09	0.91	0.08				
13-Dec											1.06	0.08
18-Dec	1.1	0.33	1	0.09					0.84	0.11		
27-Dec					0.8	0.12	0.95	0.08				

## Consumption Metrics and Water Rates

The average daily water production in 2023 was 1120m<sup>3</sup> per day. Demand is highest during the summer months - approximately twice as much as during the winter. In 2023, system demand reached its highest point on June 27<sup>th</sup> with 2555m<sup>3</sup> of water being produced.



		2024	2025
<b>Residential</b>	Minimum charge up to 15m <sup>3</sup>	\$27.08	\$27.76
	15m <sup>3</sup> to 45m <sup>3</sup>	\$1.62/m <sup>3</sup>	\$1.66/m <sup>3</sup>
	25m <sup>3</sup> to 37.5m <sup>3</sup>	\$2.35/m <sup>3</sup>	\$2.41/m <sup>3</sup>
	Over 45m <sup>3</sup>	\$2.44/m <sup>3</sup>	\$2.50/m <sup>3</sup>
<b>Commercial</b>	Minimum charge up to 15m <sup>3</sup>	\$42.19	\$43.24
	Over 15m <sup>3</sup>	\$2.11/m <sup>3</sup>	\$2.16/m <sup>3</sup>



## Conservation

Water conservation is an increasingly important initiative and while it seems as if there is an abundance of water available, our supply is truly a limited resource, particularly during the summer months.

The CVRD has a four-stage system in place for managing water consumption. Stage one is the least restrictive and comes into effect annually on May 1<sup>st</sup> until September 30<sup>th</sup> unless otherwise noted. Stage two is implemented on July 1<sup>st</sup>. Stages three and four are the most restrictive and are typically reserved for emergencies.

### Black Creek-Oyster Bay Watering Schedule

Residential lawn and garden watering is permitted with a sprinkler during the specified days and hours as follows:

STAGE	STARTS	HOURS	Mon	Tues	Wed	Thu	Fri	Sat	Sun
1	Starting May 1	5-8 am & 7-10 pm	No Watering	Even Address	Odd Address	Even Address	Odd Address	Even Address	Odd Address
2	Starting July 1	6-8 am & 8-10 pm	No Watering	Even Address	Odd Address	No Watering	No Watering	Even Address	Odd Address
3	When Notified	6-8 am & 8-10 pm	HAND WATERING OR MICRO/DRIP IRRIGATION OF TREES, SHRUBS, FLOWERS AND VEGETABLES ONLY						
4	When Notified	N/A	NO WATERING						

Hand watering or micro/drip irrigation of trees, shrubs and vegetables is permitted anytime during Stage 1 and 2.

For more information visit:  
[comoxvalleyrd.ca/restrictions](http://comoxvalleyrd.ca/restrictions)  
 or call **250-334-6000**

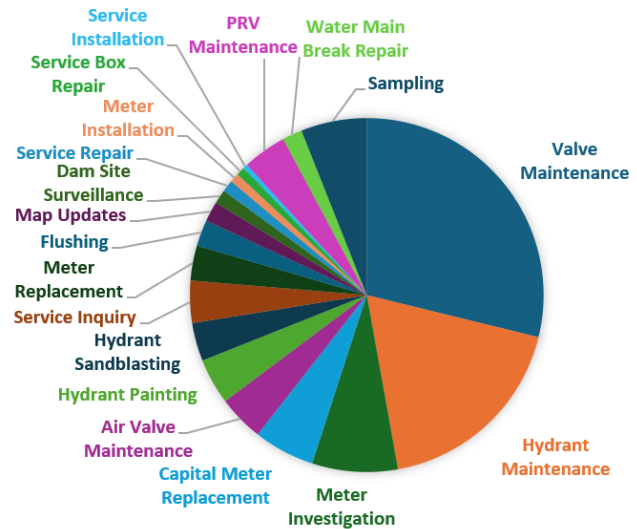


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## Operations

The water treatment facility and distribution system are operated by 15 qualified operators. In 2023, several ongoing and annual maintenance activities were carried out, as well as improvements to work order tracking, data collection, and map improvements.

Additionally, many non-annual projects were completed such as reservoir cleaning, and hydrant painting.



### 2023 Achievements

- Completed year 4 of 6 of the residential water meter replacement program
- Completed preventative programs for Fire Hydrants, Air Valves and line valve exercising.
- Completed the conversion project to replace chlorine gas with sodium hypochlorite
- Secured a right of way agreement and completed detailed design for the new production well #6

### 2024 Objectives

- Full replacement of Caustic system pumps and piping
- Year 5 of 6 of the residential water meter replacement program
- Construction and commissioning of new production well #6
- Replacement of the Raw water pH analyzer
- Installation of the new spill containment system
- Installation and programming of UV reactor #1 electric valve actuator