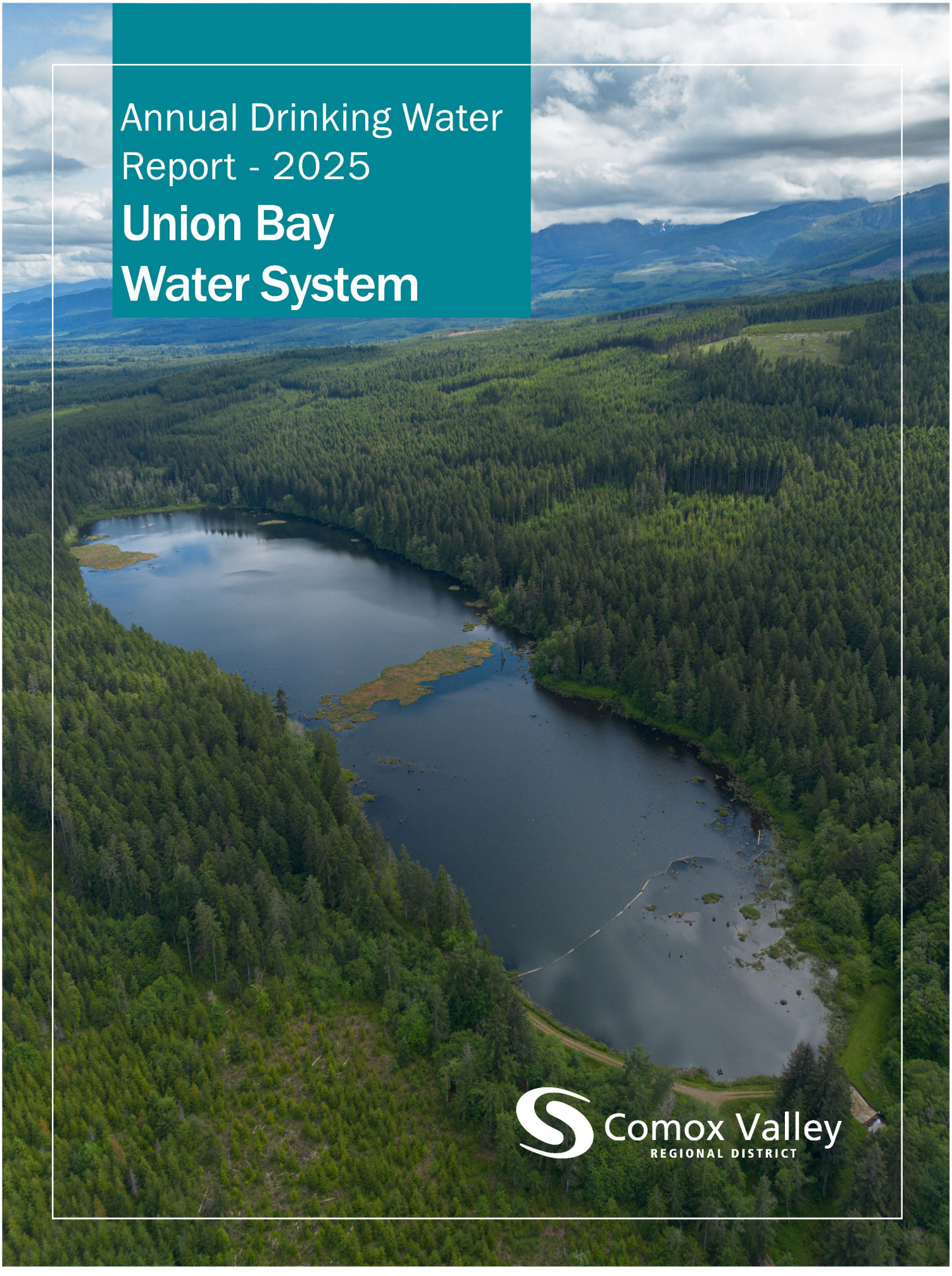

Annual Drinking Water Report - 2025

Union Bay Water System

Comox Valley
REGIONAL DISTRICT

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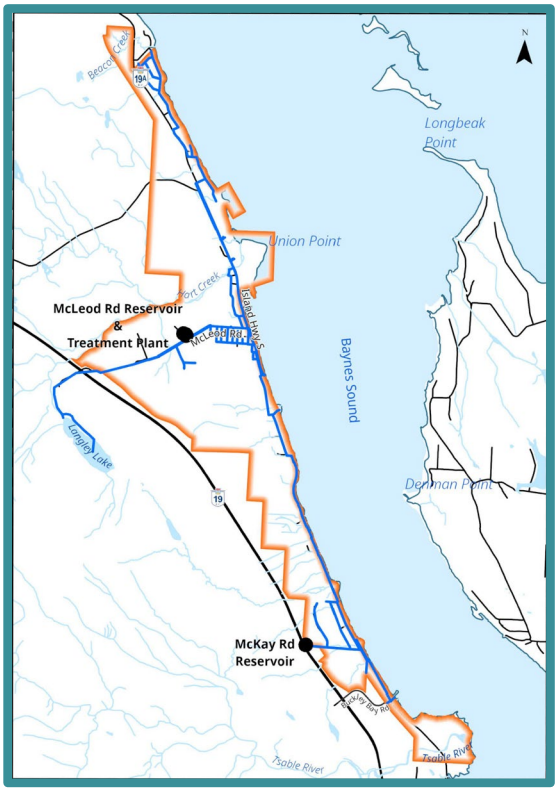
The Comox Valley Regional District respectfully acknowledges that the land on which it operates is the unceded territory of the K'ómoks First Nation, the traditional keepers of this land.

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 Union Bay Water System. This report includes information on water quality, consumption, maintenance, and capital projects.

The CVRD provides water to roughly 1800 residents in the Union Bay Service Area.



Source Water

Water for the Union Bay Service Area is sourced from Langley Lake, a spring and creek fed lake with several small tributaries.

The lake watershed is 369 hectares of drainage basin and is much of it is privately owned and managed for timber supply.

Langley Lake watershed.

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.

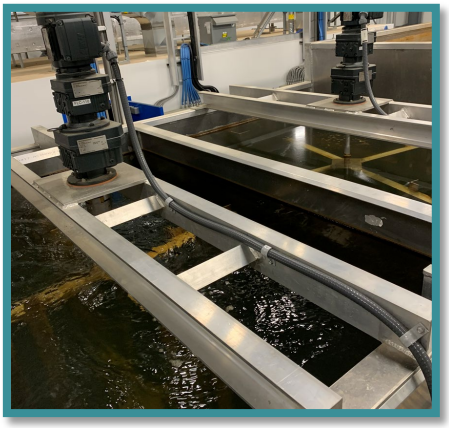
Union Bay Water Treatment Plant

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

The journey from source to tap begins at the intake suspended above the bed of Langley Lake. Water enters the intake and flows along the dam on the NE side of the lake before travelling 3.8km to the water treatment plant.

When it arrives, it begins treatment by passing through a dissolved air flotation process that introduces a cloud of very small bubbles that carry particles to the surface where they are skimmed off.



Flocculation tank mixers.

After this process, the water passes through a rapid gravity filtration media consisting of anthracite and sand to filter out any remaining particulate.

Finally, sodium hypochlorite is added for two purposes: to provide a final form of treatment, and to establish a residual disinfectant that persists in small amounts throughout the distribution network.

After disinfection, the water enters McLeod Reservoir which provides contact time for the sodium hypochlorite to disinfect any remaining bacteria.

Water Distribution

Nelson pressure reducing valve.

Water leaves the reservoir at the treatment plant and some water is pumped to pressurize the upper zone of Green Avenue and Musgrave Road, and some water and flows downhill, passing through two pressure reducing valves as it makes its way into the community.

The system extends along the coast to Kilmarnock Drive in the north, and to Buckley Bay Road in the south. Some water travels to McKay Reservoir which provides fire protection and storage capacity to the southern extremities of Union Bay. There are 80 fire hydrants and 736 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 from Langley Lake, at the treatment facility, McLeod and McKay Reservoirs, as well as from various other strategic points within the network to ensure that water meets 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.

Water Quality Summary

Source Water	2024	2025	
Turbidity (Average, NTU)	1.15	1.31	
pH (Average)	6.8	6.4	
Distribution Water	**2024**	**2025**	**Target**
Turbidity (Average, NTU)	0.25	0.41	<1
Temperature (Average, ℃)	12.7	12.7	<15
pH (Average)	9.4	8.3	7-10.5
Chlorine Residual (Average, mg/L)	0.61	0.72	0.4≥≤2.0
Total Coliforms (Positive Samples)	0	1	0
E. Coli (Positive Samples)	0	0	0
Trihalomethanes* (Average, mg/L)	0.03	0.03	<0.1

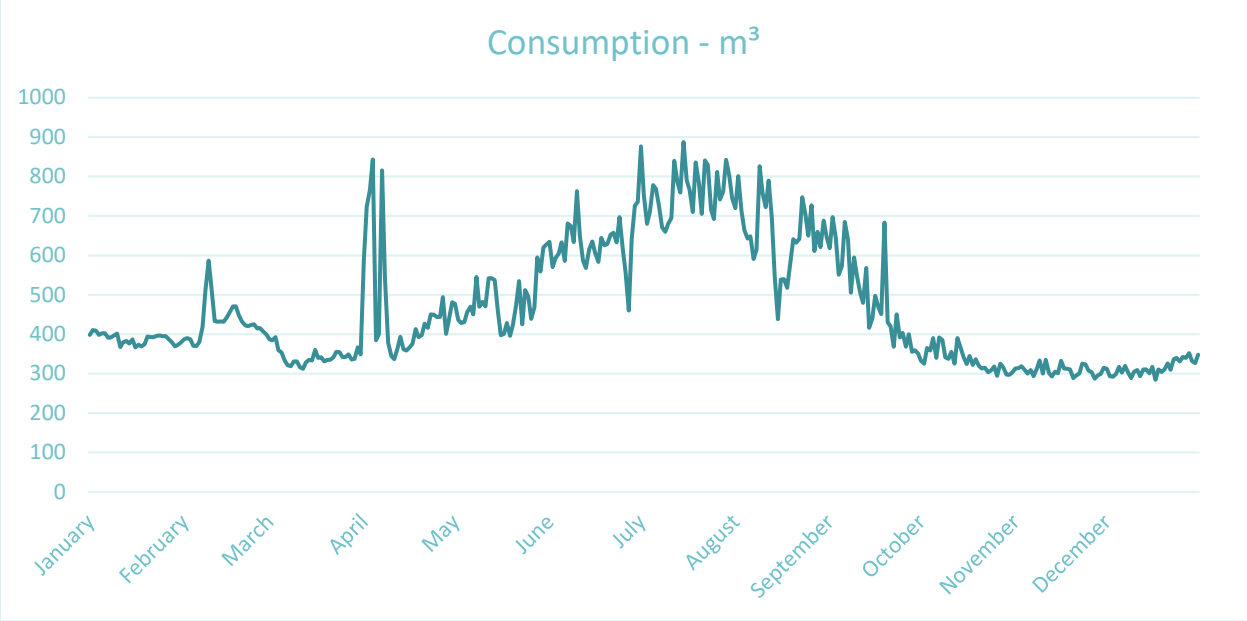
Distribution Water – Other Analytes

Parameter	Units	DL	Q1	Q2	Q3	Q4
Total Dissolved Solids	mg/L	N/A	36	40	48	64
Nitrite (N)	mg/L	N/A	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate (N)	mg/L	N/A	0.038	<0.020	<0.020	0.079
Conductivity	uS/cm	N/A	74	77	88	79
pH	pH		7.07	7.07	7.54	6.63
Alkalinity (PP as CaCO3)	mg/L		<1.0	<1.0	<1.0	<1.0
Alkalinity (Total as CaCO3)	mg/L	10	18	20	24	21
Bicarbonate (HCO3)	mg/L	0.005	22	25	30	25
Carbonate (CO3)	mg/L	0.02	<1.0	<1.0	<1.0	<1.0
Hydroxide (OH)	mg/L	2	<1.0	<1.0	<1.0	<1.0
Chloride (Cl)	mg/L	N/A	7.9	7.8	8.2	8.3
Sulphate (SO4)	mg/L	1	3.4	3.1	3.1	3.1
True Colour	Col. Unit	1	<2.0	<2.0	<2.0	<2.0
Orthophosphate (P)	mg/L	1	0.0054	0.0043	0.0034	0.0038
Nitrate plus Nitrite (N)	mg/L	1	0.038	<0.020	<0.020	0.079
Dissolved Fluoride (F)	mg/L	1	<0.050	<0.050	<0.050	<0.050
Turbidity	NTU	1	0.21	0.5	0.11	0.13
Total Coliforms	CFU/100mL	1	0	0	0	0
E. coli	CFU/100mL	2	0	0	0	0
Bromide (Br)	mg/L	0.003	0.025	0.231	0.035	0.044
Total Hardness (CaCO3)	mg/L	0.02	13.1	13.1	15.2	12.6
Total Aluminum (Al)	ug/L	0.05	32.4	44.2	67.3	40.3
Total Antimony (Sb)	ug/L	0.1	<0.50	<0.50	<0.50	<0.50
Total Arsenic (As)	ug/L	N/A	<0.10	<0.10	<0.10	0.11
Total Barium (Ba)	ug/L	N/A	2.2	2.5	2.4	2.1
Total Beryllium (Be)	ug/L	0.01	<0.10	<0.10	<0.10	<0.10
Total Bismuth (Bi)	ug/L	0.5	<1.0	<1.0	<1.0	<1.0
Total Boron (B)	ug/L	3	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.5	<0.010	<0.010	<0.010	<0.010
Total Chromium (Cr)	ug/L	0.1	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L	1	<0.20	<0.20	<0.20	<0.20
Total Copper (Cu)	ug/L	0.1	0.31	0.55	0.37	0.28
Total Iron (Fe)	ug/L	1	25.3	30.8	**20**	14.2
Total Lead (Pb)	ug/L	50	<0.20	<0.20	<0.20	<0.20
Total Manganese (Mn)	ug/L	0.01	<1.0	1.8	<1.0	<1.0
Total Molybdenum (Mo)	ug/L	1	<1.0	<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	0.2	<1.0	<1.0	<1.0	<1.0
Total Selenium (Se)	ug/L	0.2	<0.10	<0.10	<0.10	<0.10
Total Silicon (Si)	ug/L	5	2450	2370	2130	2060
Total Silver (Ag)	ug/L	0.2	<0.020	<0.020	<0.020	<0.020

Total Strontium (Sr)	ug/L	1	19.3	20.4	22.7	19
Total Thallium (Tl)	ug/L	1	<0.010	<0.010	<0.010	<0.010
Total Tin (Sn)	ug/L	1	<5.0	<5.0	<5.0	<5.0
Total Titanium (Ti)	ug/L	0.1	<5.0	<5.0	<5.0	<5.0
Total Uranium (U)	ug/L	100	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L	0.02	<5.0	<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	1	<5.0	<5.0	<5.0	<5.0
Total Zirconium (Zr)	ug/L	0.01	<0.10	<0.10	<0.10	<0.10
Total Calcium (Ca)	mg/L	5	5	5.03	5.94	4.8
Total Magnesium (Mg)	mg/L	5	0.157	0.125	0.087	0.16
Total Potassium (K)	mg/L	0.1	0.222	0.258	0.267	0.203
Total Sodium (Na)	mg/L	5	9.44	9.29	10.5	9.44
Total Sulphur (S)	mg/L	5	<3.0	<3.0	<3.0	<3.0
Total Mercury (Hg)	ug/L	0.1	<0.0019	<0.0019	<0.0019	<0.0019
Total Trihalomethanes	ug/L	0.05	32	29	41	34
Bromodichloromethane	ug/L	0.05	3.3	3.1	3.1	3.1
Bromoform	ug/L	0.05	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	ug/L	0.05	<1.0	<1.0	<1.0	<1.0
Chloroform	ug/L	3	29	26	38	31

Consumption Metrics and Water Rates

The average daily water production in 2025 was 468m³ per day. Demand is highest during the summer months - approximately twice as much as during the winter. System demand reached its highest point on July 16th with 887m³ of water being produced.



		2025	2026
Residential	Minimum charge up to 10m³	$68.41	$69.44
	10m³ to 25m³	$1.77/m³	$1.80/m³
	25m³ to 37.5m³	$2.41/m³	$2.48/m³
	37.5³ to 50m³	$3.17/m³	$3.26/m³
	Over 50m³	$4.75/m³	$4.89/m³
Commercial	Minimum charge	$47.40	$49.56
	Cost per m³	$2.03/m³	$2.11/m³

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 1st until September 30th unless otherwise noted. Stage 2 is implemented when the water level in Langley Lake drops to elevation 151.53 m (0.64 m below the spillway crest). Stage 3 is implemented when the water level in Langley Lake drops to elevation 150.95 m (1.22 m below the spillway crest) and stage 4 is designed to accommodate emergency infrastructure repairs where the ability to deliver water is compromised and water use needs to be reduced to 'basic needs' only.

Union 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	Thurs	Fri	Sat	Sun
1	May 1st	5-8 am & 7-10 pm	No Watering	Even Address	Odd Address	Even Address	Odd Address	Even Address	Odd Address
2	July 1st	6-8 am & 8-10 pm	No Watering	Even Address	Odd Address	No Watering	No Watering	Even Address	Odd Address
3	When Notified	Any day or time	No lawn watering permitted. 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.

More information, call: **250-334-6000** or visit: **comoxvalleyrd.ca/restrictions**

Comox Valley REGIONAL DISTRICT

Operations

Water treatment facilities and distribution systems are operated by 15 qualified operators. In 2025, 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.