

COMOX VALLEY WATER SYSTEM



Comox Valley Water Committee Orientation- December 4, 2018

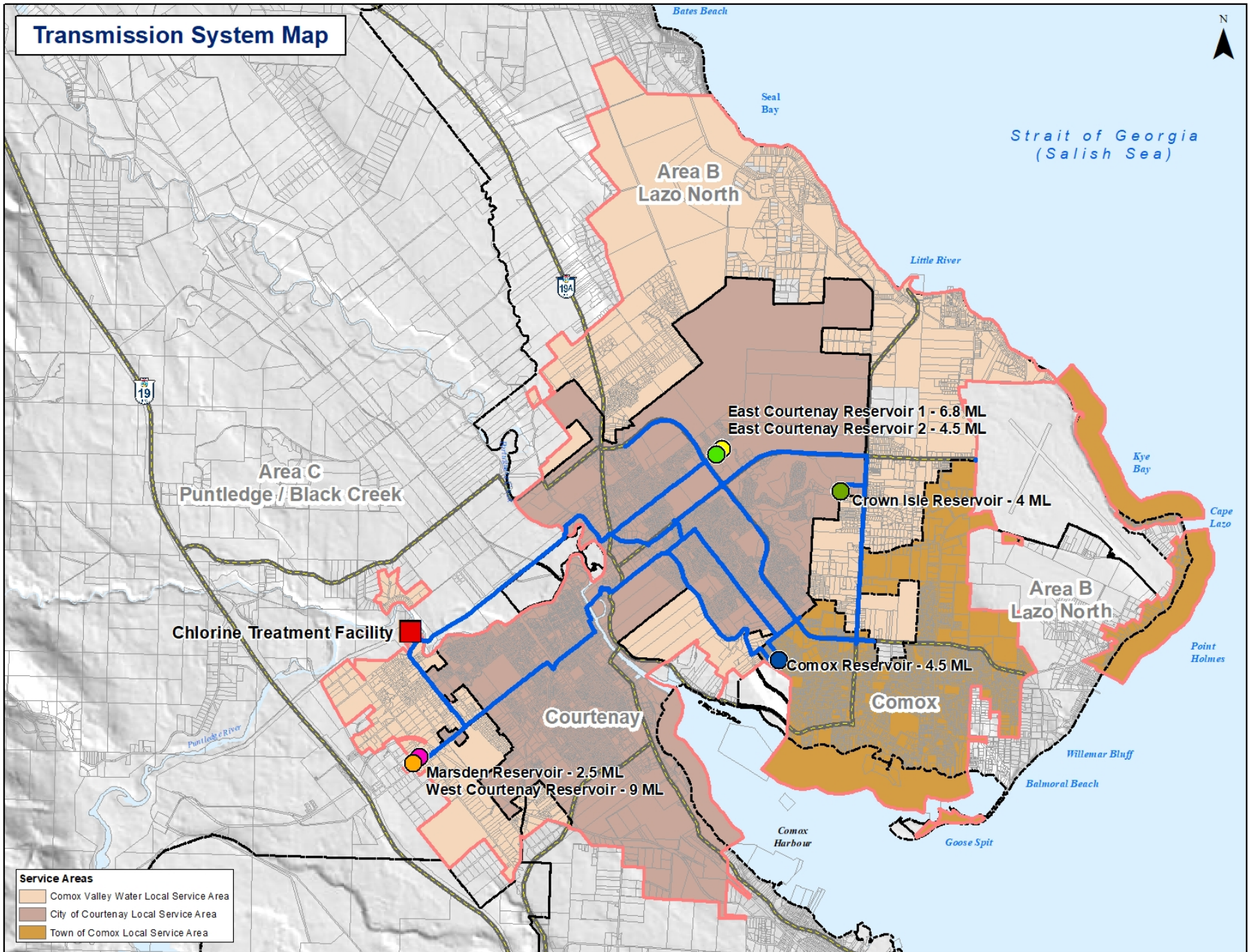
Comox Valley Water System

BC Hydro Penstock/Water Supply and Distribution

- Comox Lake source water
- Diversion dam diverts water into BC Hydro Penstock
- 10' diameter, above ground steel pipeline, approximately 5 km long
- Two CVRD tie-ins to penstock divert water to CVWS
- Flows by gravity into the CVRD CI building for disinfection



Transmission System Map



Service Areas	
	Comox Valley Water Local Service Area
	City of Courtenay Local Service Area
	Town of Comox Local Service Area

Some Challenges We Face



Your CVRD Water Service Team



Comox Valley Water System

QUESTIONS?

Comox Valley Water Treatment Project



An exciting month...

- Nov 14th – Proponent shortlist confirmed
 1. Acciona Agua, Bird Construction, Michels Canada
 2. Aecon, Stantec
 3. Graham, Jacobs (CH2M)
- Nov 28th – \$62.9M funding announced
 - Comox Valley Water Treatment Project: \$55.5M
 - Water Service (South) Extension Project: \$7.4M
- Nov 29th – RFP released
- Dec 6th – Design-Build site visit

Project Video

https://www.youtube.com/watch?v=zTxi6_6Uzm0

2008 - 2015

- 2008
VIHA rolled out objectives for surface water
- 2011 - 2013
Deep water testing and planning for filtration deferral
- 2014 - 2015
Big storms, turbidity issues, BWNs
CVRD lose filtration deferral



Turbidity



Virus



E.Coli



Cryptosporidium



Giardia

2016 - 2017

2016: Project Definition Study, public engagement

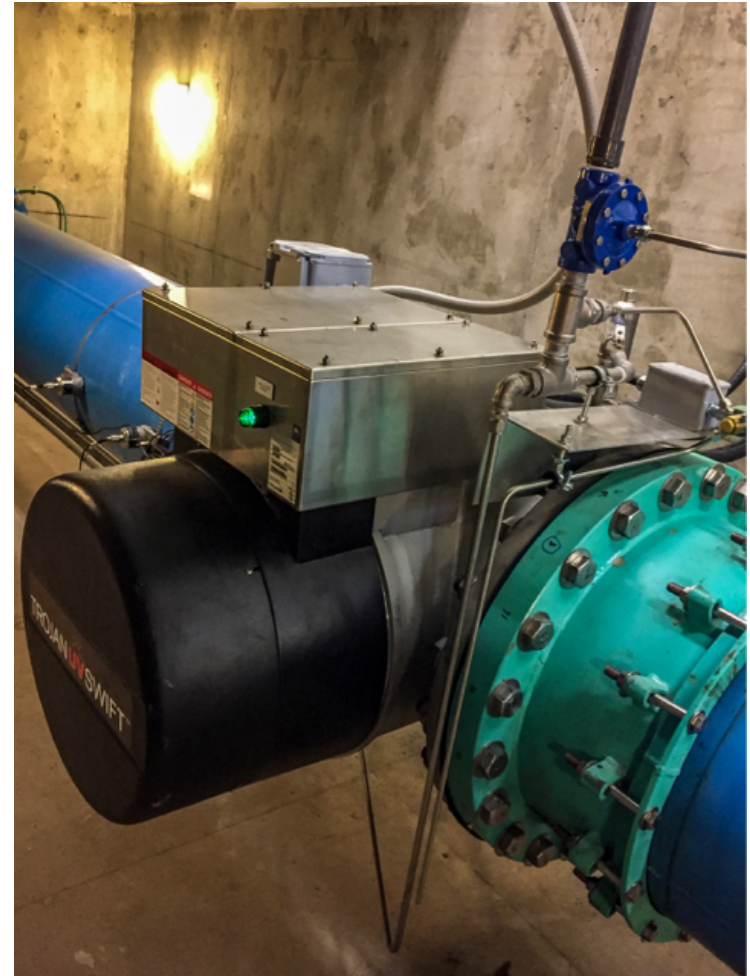
2017

- Indicative Design complete
- Oct 17th WC approval
- Island Health agreement
- WTP land purchase



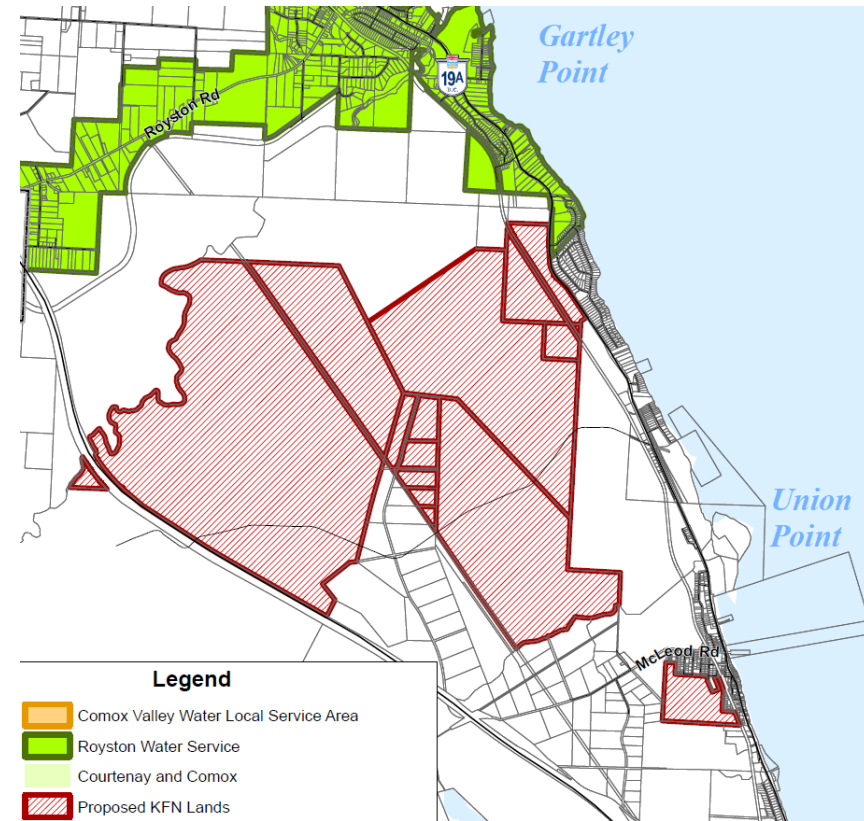
2018

- UV Project
- Value Planning Process
- Public approval to borrow funds (AAP)
- Initiate procurement process
- Sign agreement with Fish & Game for Pump Station property



KFN MBA

- Grant applications
- Water Service (South) Extension Project
- Bulk water supply to KFN lands
- Water licenses
- Governance
- Business opportunities
- Support letters



Funding

CWWF Grant

max. \$4.3 M

ICIP Grant

max. \$55.5 M

(of \$62.9 M)

Total

max. \$59.8 M

Construction 2019-2021

\$55.3 M

Grants (50%)

+

\$29 M

Borrowing (26.2%)

+

\$26.3 M

Reserves (23.8%)

=

**Revised Total Estimated Cost:
\$110.6 M***

* Revised Capital Cost Estimate is far more detailed than previous estimate: Class B estimate, with contingency of 20%

2019

- Finalize permits: EAO, MFLNRO
- Finalize land and water use agreements
- Select Design-Builder, sign contract
- Start detail design / construction



Looking Forward

2020

- Construction
- Stage 3 restrictions
- Hire lead WTP operator

2021

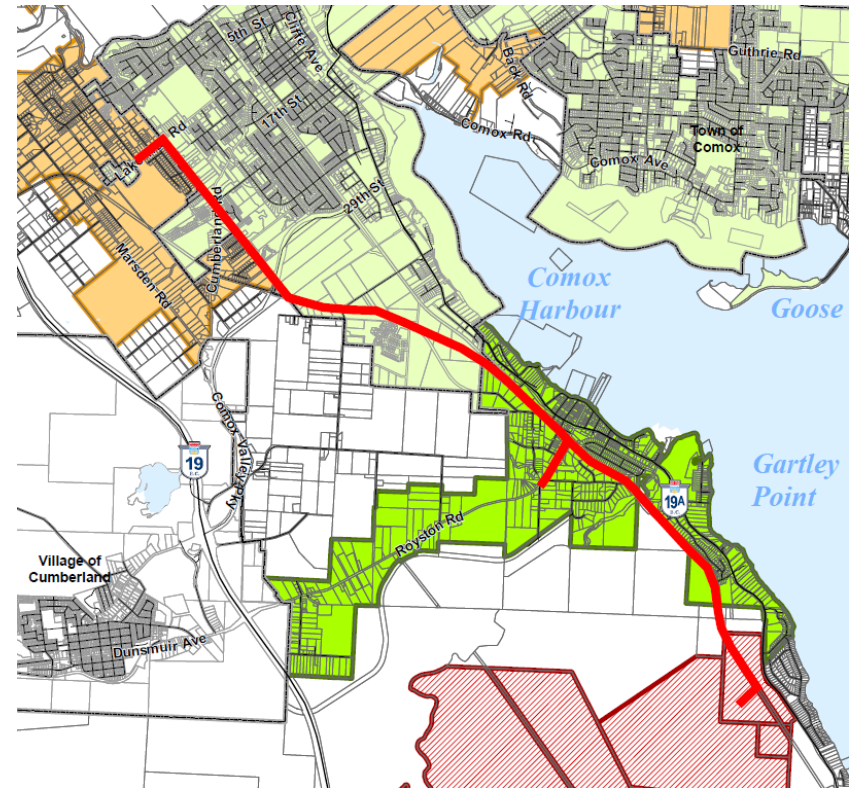
- Finish construction
- Commissioning
- Project completion (May 2021)
- Hire WTP operators
- BCH penstock recoating



Water Service (South) Extension

- Preliminary cost estimate = \$14.8 million
- Grant received = 50%, \$7.4 million
- Remainder to be paid exclusively by users

2019	PRELIM. DESIGN
2019/20	CONFIRM FUNDING
2020	DETAIL DESIGN
2021	CONSTRUCTION



Comox Valley Water System – Capital Projects

QUESTIONS?



Comox Valley Water Treatment Project

PUBLIC ENGAGEMENT OVERVIEW

Engagement Goals

Increasing level of public involvement in decision-making 

INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
Educate about the need for a new system	Input on design preferences			

EVERYONE DESERVES HIGH QUALITY DRINKING WATER.



Taking the right steps for water treatment in our region.

The Comox Valley Water System provides drinking water to 45,000 residents and does not comply with provincial guidelines introduced in 2008. The Comox Valley Regional District (CVRD) is moving forward with a new water treatment system that will meet current standards and effectively protect against parasites, bacteria and viruses.

What's happening now?

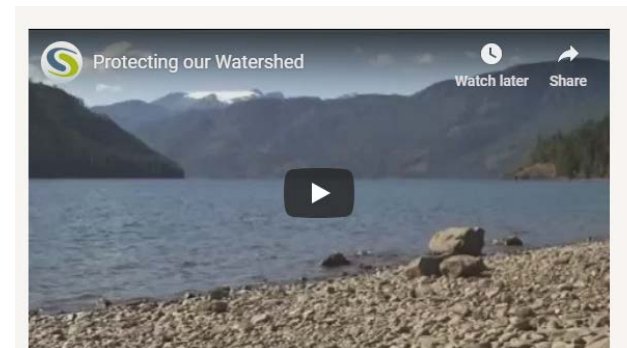
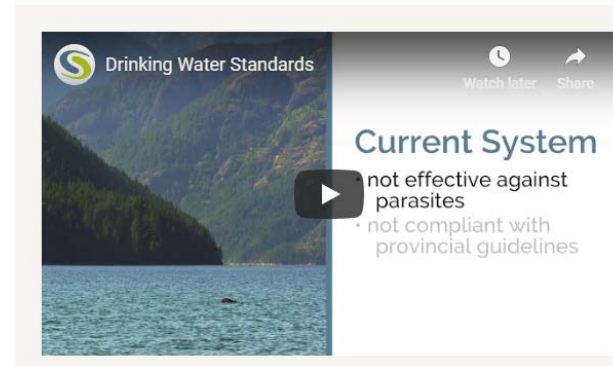
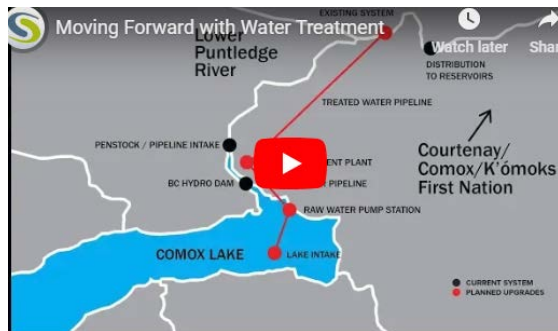
Temporary ultraviolet (UV) treatment will be in place in February 2018. This added treatment will reduce turbidity-related boil water notices by approximately 80%.

What's next?

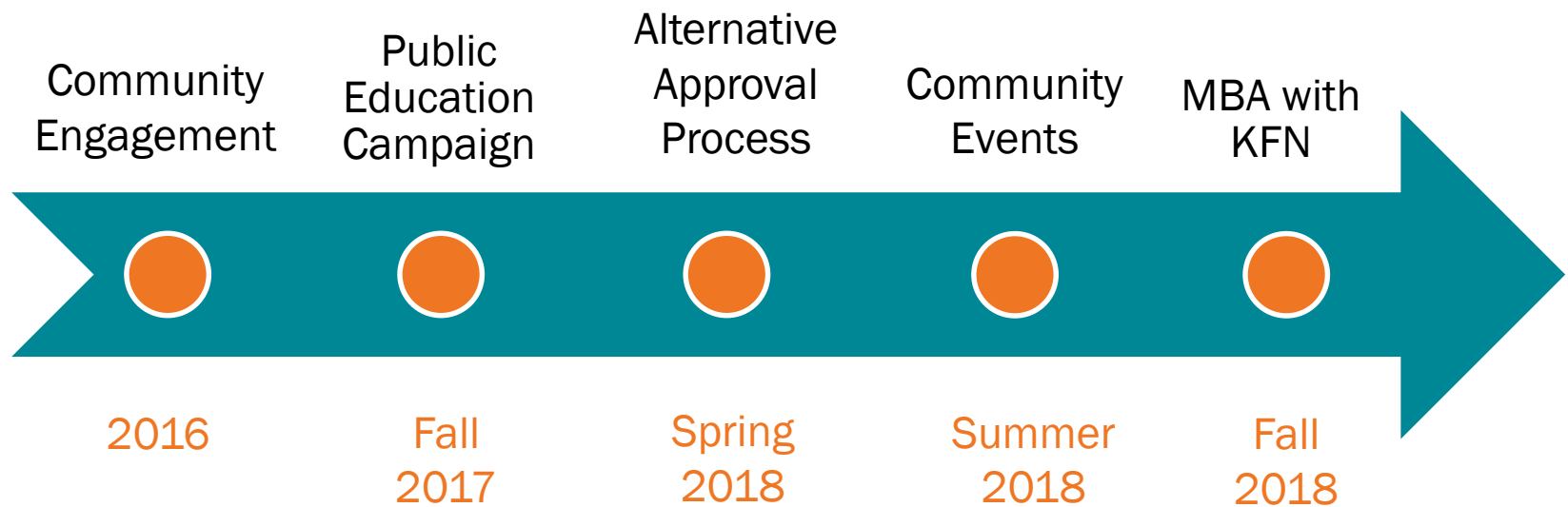
Construction of the new system is scheduled to begin in 2019 and is estimated to cost \$110 million. In March 2018 the CVRD will seek the consent of Comox Valley residents to borrow up to \$29 million using an Alternative Approval Process. Only those connected to the Comox Valley Water System will be responsible for paying for the new system, at an estimated cost of \$86 per household/year.

Learn more about this important project at comoxvalleyrd.ca/watertreatment

Myth Busting



Engagement Timeline



What's Next?



Comox Valley Water System – Public Engagement

QUESTIONS?



Comox Lake Watershed Protection Plan

Background for CVRD Water Committee

CVRD's Responsibility...

... provide a safe, reliable drinking water supply for ~45,000 people in the Comox Valley



CVRD's Responsibility...

Implementing a watershed protection plan is a condition of CVRD's water system operating permit from Island Health



Outline

1. Comox Lake Watershed Advisory Group
2. Comox Lake Watershed Protection Plan
3. Water quality monitoring
4. Climate change/water availability
5. Other WPP implementation highlights

1. Comox Lake Watershed Advisory Group

- Aqua-Tex recommended formation of a WAG to help develop WPP
- June 2014 – CVRD board approved formation of WAG; appointed chair & vice chair of water committee to WAG.
- Membership – Agencies, businesses, groups, individuals with responsibilities/jurisdiction in watershed

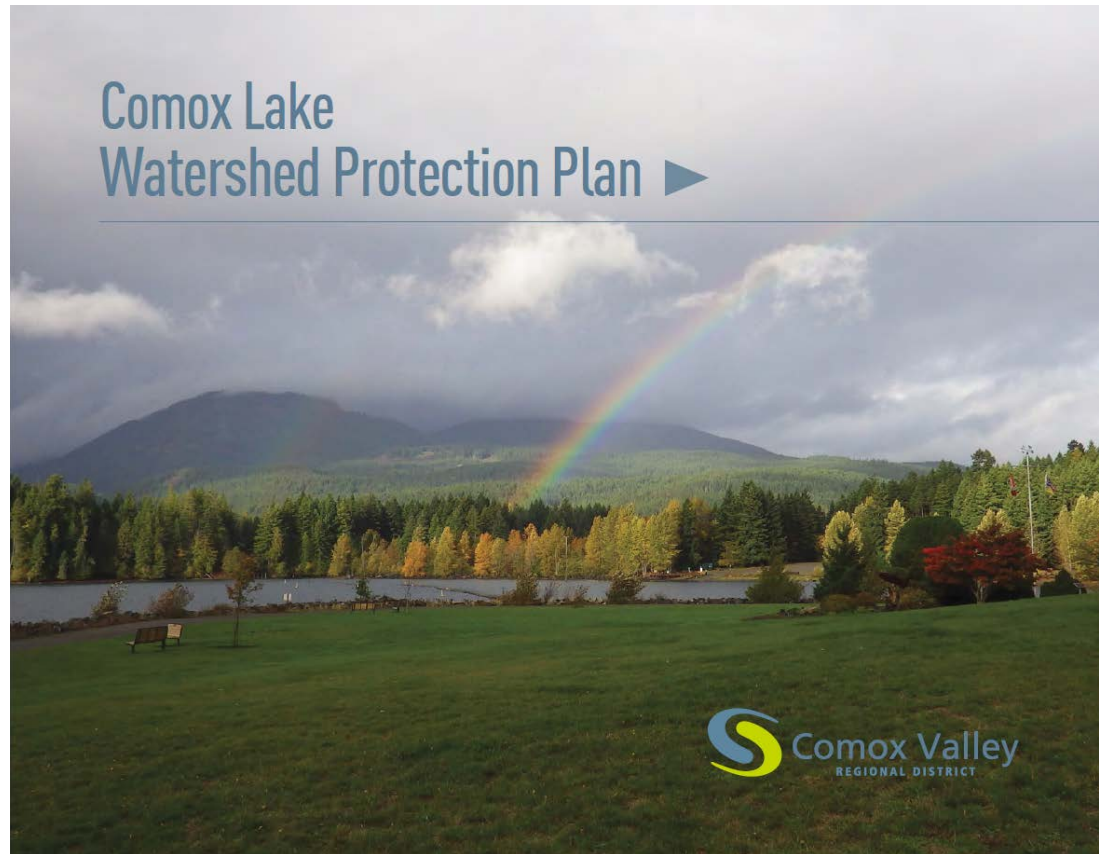
- BC Hydro
- BC Parks
- City of Courtenay
- C.V. Conservation Strategy
- CV Land Trust
- Courtenay & District Fish & Game Protective Ass'n
- Cumberland Lake Park Campground
- CVRD Engineering
- CVRD Parks
- CVRD Planning
- CV Water Committee
- DFO
- Department of National Defence
- Hancock Timber
- Island Health
- Island Timberlands
- K'omoks First Nation
- MOE
- MoFLNRO
- Comox Lake Land Corp
- Timberwest
- Town of Comox
- Village of Cumberland/UROC

Comox Lake Watershed Advisory Group

- Provide on-going advice and support for implementation of the WPP, in particular, to the Water Committee.



2. Comox Lake Watershed Protection Plan



Accepted by the Comox Valley water committee
April 12, 2016

Comox Lake Watershed Protection Plan

- Funded by drinking water service
- Developed by Aqua-Tex under extensive consultation with the WAG over 2 yrs
- Living document
- Identification and assessment of 29 source water risks
- 54 recommendations for risk mitigation
- Plan for Implementation
- Where possible, restore/protect proper natural functioning of ecosystems to:
 - build resilience to climate change
 - help to minimize WTP operational costs



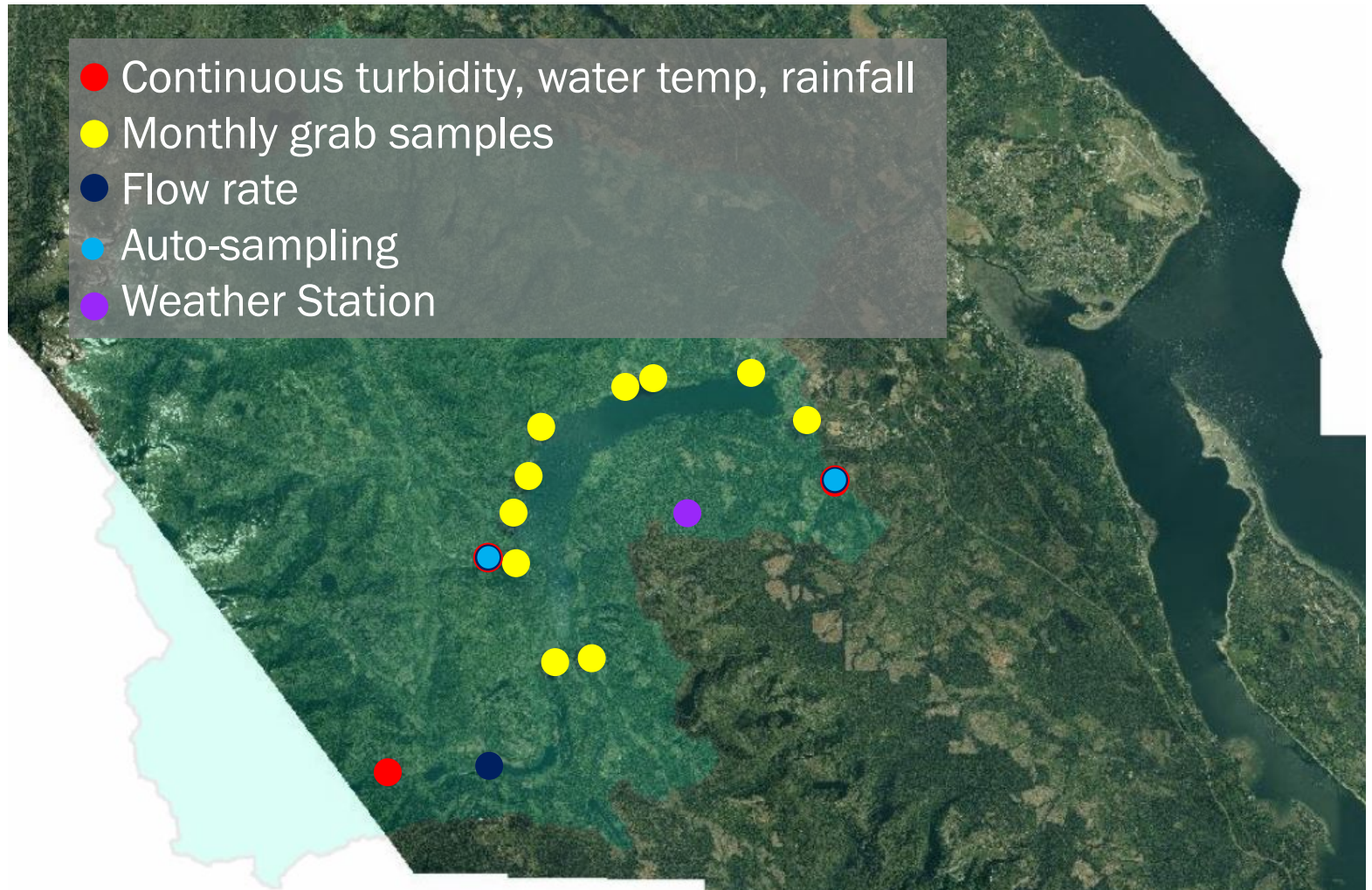
3. Water Quality Monitoring:

- Aqua-Tex was hired to develop source water quality monitoring program
 - Initial focus on major tributaries
-
- First water quality monitoring report complete
 - Recommendations made for additions and modifications to existing program



Comox Lake

Source Water Sampling Locations



Water Quality Monitoring:



Continuous Turbidity Data

Search Groups/Stations

Station Groups

Monitoring Stations

Ungrouped Stations

Upper Puntledge

All Stations > Monitoring Stations > Upper Puntledge

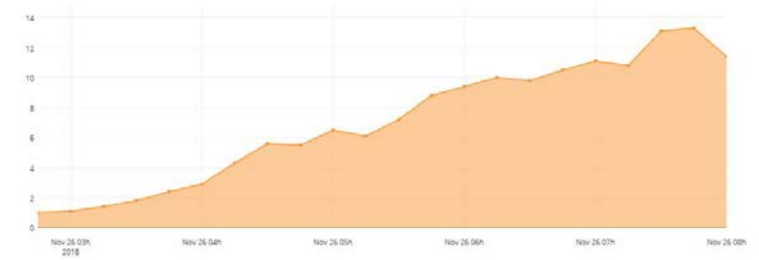
Edit Station

Station is Active

Graph Table Map

Latest Update: Nov 26, 2018 8:00:00 AM

Data Point: Turbidity Units: NTU From Date: Nov 26 2018 02:43 -0800 To Date: Nov 26 2018 08:43 -0800



Search Groups/Stations

Station Groups

Monitoring Stations

Ungrouped Stations

Perseverance Creek

All Stations > Monitoring Stations > Perseverance Creek

Edit Station

Station is Active

Graph Table Map

Latest Update: Nov 26, 2018 8:00:00 AM

Data Point: Turbidity Units: NTU From Date: Nov 26 2018 02:39 -0800 To Date: Nov 26 2018 08:39 -0800



Data Points: Configure Display

Point Name	Latest	Unit	Last Updated
Turbidity	251.90	NTU	Nov 26, 2018 8:00:00 AM
Water Temperature	6.2	C	Nov 26, 2018 8:00:00 AM
Voltage during transmission	10.9	V	Nov 26, 2018 8:00:00 AM

+ Add GDS Station

Cruikshank River

All Stations > Monitoring Stations > Cruikshank River

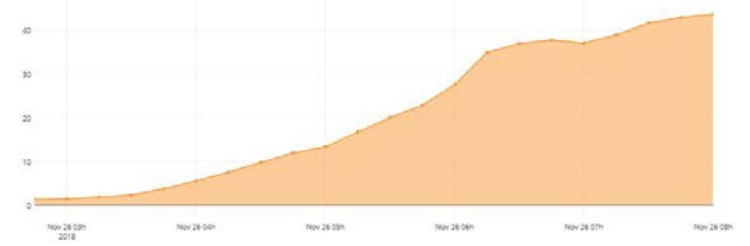
Edit Station

Station is Active

Graph Table Map

Latest Update: Nov 26, 2018 8:00:00 AM

Data Point: Turbidity Units: NTU From Date: Nov 26 2018 02:42 -0800 To Date: Nov 26 2018 08:42 -0800



Data Points: Configure Display

Point Name	Latest	Unit	Last Updated
LSU	100.00		Nov 26, 2018 8:00:00 AM
Turbidity	43.6	NTU	Nov 26, 2018 8:00:00 AM
Water Temperature	5.4	C	Nov 26, 2018 8:00:00 AM

4. Climate Change/water availability



Pacific Climate Impacts Consortium

Climate change impacts on hydrology for Comox Lake watershed

How will climate change affect seasonal high and low flows?



Partnership with VIU, UNBC & Hakai Institute – Cryosphere Project

Understand the role of glaciers and
seasonal snowpack on watershed
hydrology

- Fish habitat, drinking water, power
generation, nutrient transport...



3. Other WPP implementation highlights



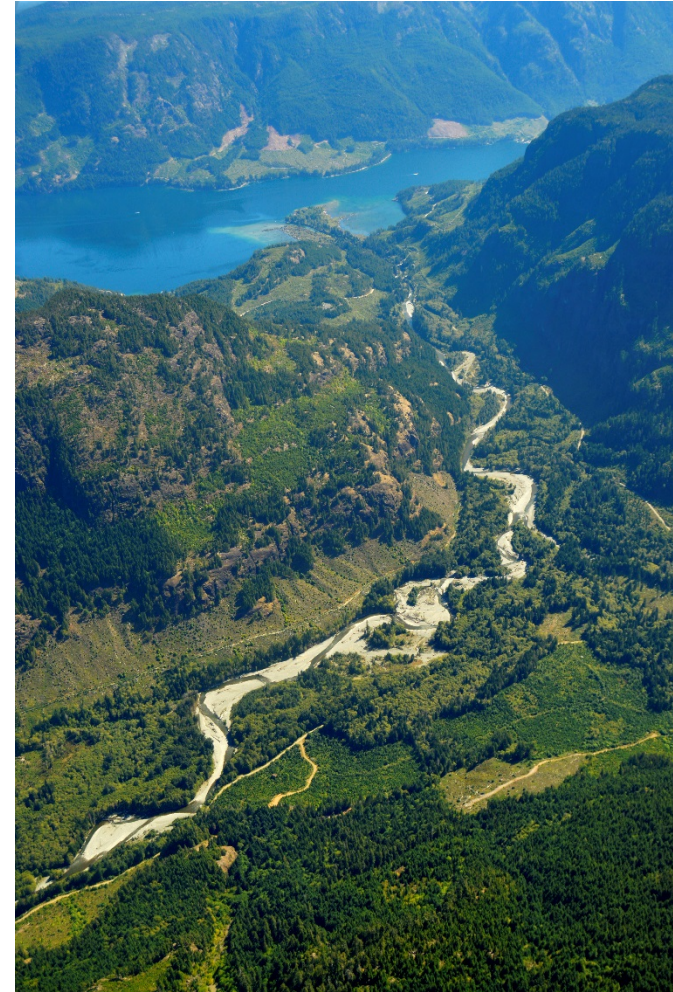
Recreation Management

- Land access agreement (Village of Cumberland, Hancock, TimberWest)
- Cabin lease renewal changes for 54 cabins – TimberWest
- UROC – trail manager
- Village – campground improvements
- Forbidden Plateau trail inventory/assessment



Forestry Management: TimberWest

- Report that they have been able to use WPP to support better forestry practices because it is seen as a consensus of local input & stakeholder agreement
- WQ monitoring
- Conducting workshops for contractors
- Provided unsupervised watershed access to CVRD



Land purchase East end of Comox Lake



CONNECTED BY WATER

How do we build capacity, connection
and community in support of
watershed protection and
water conservation in the Comox Valley?

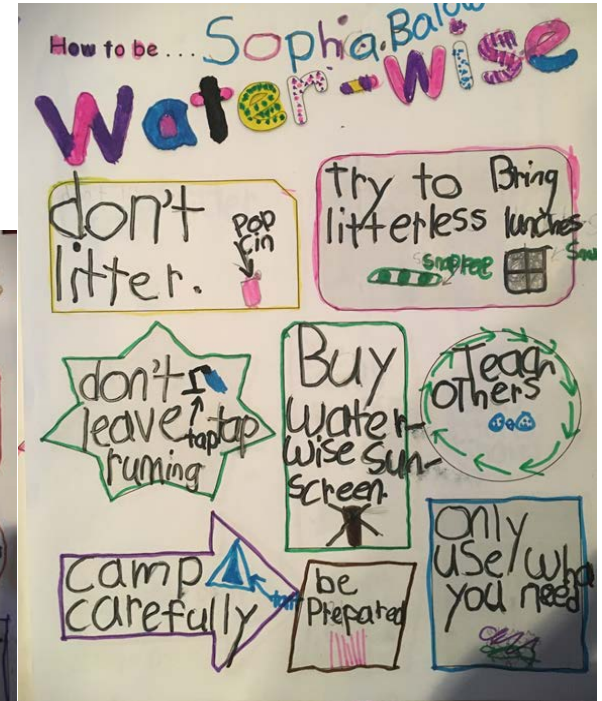
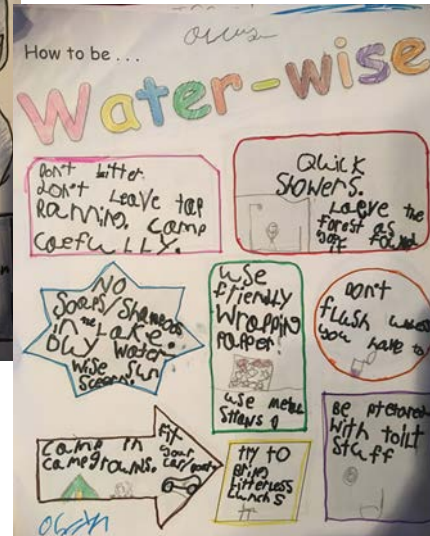
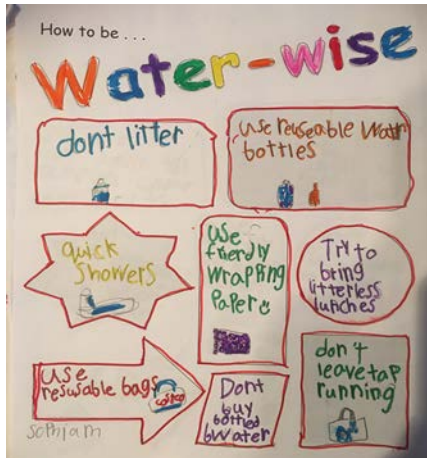




What Have We Learned?



What's Next?



Watershed Protection Planning

QUESTIONS?