



REGIONAL  
DISTRICT  
OF NANAIMO

UPDATE  
PRESENTATIONS

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# Drinking Water & Watershed Protection Technical Advisory Committee Meeting

February 25th, 2021

AGENDA

REPORTS

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via Zoom

- **Adoption of minutes (Nov. 12th, 2020)**

- **Roundtable updates**

- **Reports x4**

**- 5 min break -**

- **Project updates**

# TODAY'S AGENDA

# DWWP REPORTS

Documents in  
agenda package &  
cloud folder link

Snowpack  
Modelling  
2020 Progress  
Report

Wetland  
Mapping 5-year  
Summary  
Report

DWWP  
Case Study  
Profile

Millstone  
River  
Ecological  
Accounting

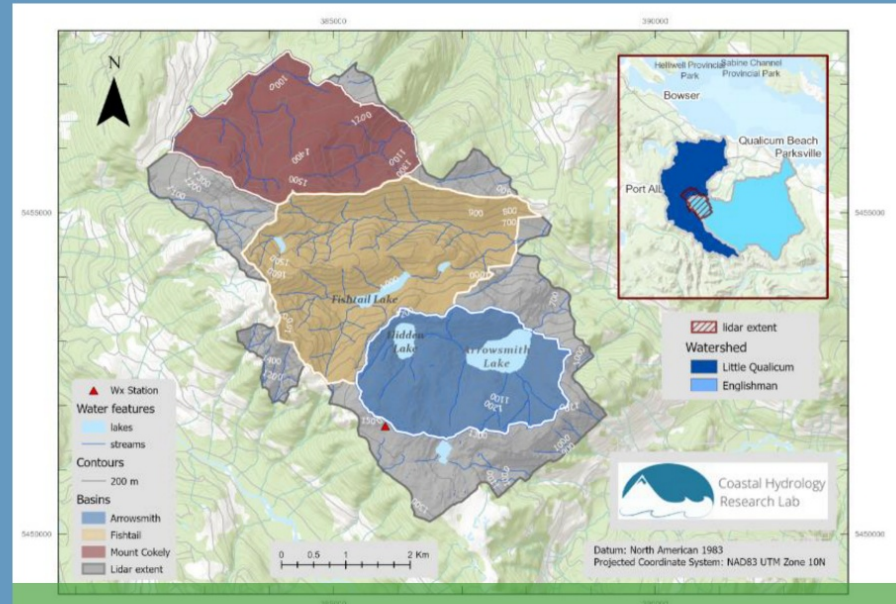


# SNOWPACK MODELLING IN UPPER ENGLISHMAN & LITTLE QUALICUM RIVER WATERSHEDS

**Mt Arrowsmith:** Bulk of snow water is stored below 1400m across the surveyed area, even though the mountains elevation is over 1800m. Problematic from a climate change perspective as these elevations will be subject to more warming, yet positive is that much of the snow is stored on North and East aspects which have less solar radiation effect to drive melt.

**Fishtail:** Greater storage per unit area compared to Arrowsmith... more snow at higher elevation up to (1600m). Provides a downstream source of water to the Englishman which likely delays the date of release from Arrowsmith Lake.

**Cokely:** Water volumes were generally higher than Arrowsmith. which corresponds to slightly larger contributing area and higher elevation. Most water stored below 1500m.



**LiDAR surveys, modelling and mapping will continue in 2021, likely through 2024.**



# WETLAND MAPPING & MONITORING

## 5-Year Summary Report

### Fast Facts

Project initiated in 2016  
5-year partnership with VTU and RDN  
DWWP

Aggregate mapping and remote  
sensing analysis completed to identify  
locations of wetlands and predicted  
classifications

Groundtruthed and field mapped 42  
wetlands in 7 water regions

Reports were written on all 7 of the  
water regions

6 sites were chosen as priority and re-  
visited seasonally

3 sites were chosen to install  
instrumentation

Literature review was produced  
outlining wetland policy and best  
practices, from which  
recommendations were developed

Future recommendations for  
continued monitoring: 1) MABRRI  
continues monitoring; 2) citizen science  
network established; and 3) monitoring  
through VTU

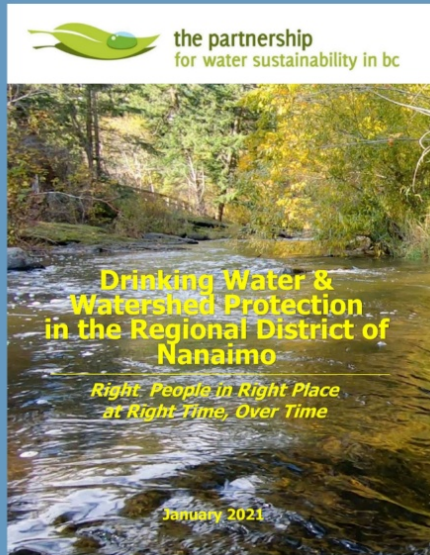


Report shared with  
RDN Parks and  
Planning  
departments.

Will go to RDN  
Board for  
information in April.

Currently planning  
for continuation of  
seasonal  
monitoring of 6  
priority wetland  
sites with MABRRI-  
led citizen science  
network.

# PARTNERSHIP FOR WATER SUSTAINABILITY BC: Case Study of RDN's DWWP Program



Shares the origin story of the RDN's Drinking Water and Watershed Protection Program & key learnings of interest to other regions.

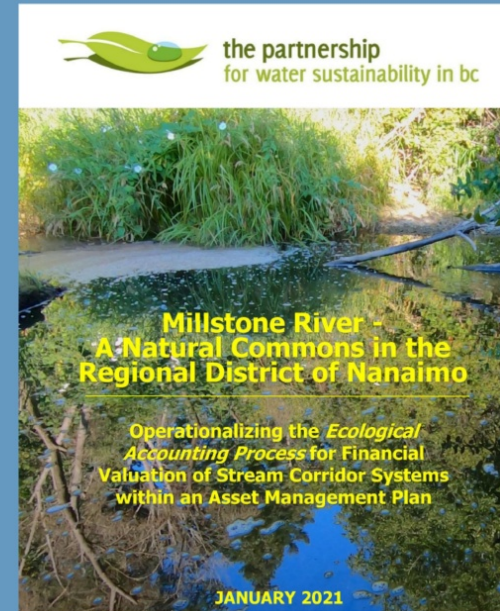
Includes insights from interviews with past and current staff, as well as Board members.

Will be shared with the public via WaterBucket website and e-blast.

# Millstone River Ecological Accounting Process Report

**To be introduced and summarized by Tim Pringle,  
Partnership for Water Sustainability BC.**

**Report to go to RDN Board for information in April.**



# Project Update Presentations





# Team WaterSmart Outreach Review & Redesign

Community-Based Social Marketing project with Beyond Attitude Consulting

The logo for Beyond Attitude Consulting, featuring the words "BEYOND" and "ATTITUDE" in a bold, blue, sans-serif font, stacked vertically within a white rectangular box with a thin black border.

**BEYOND  
ATTITUDE**

Completed so far:

- ✔ Project kick-off
- ✔ Document Review
- ✔ Capacity-building training
- ✔ Program review

Next steps:

- Final report with program recommendations and implementation schedule
- Survey question recommendations

# Water to Earth Month 2021 - Event Series

"Valuing Water" & "Restoring our Earth"

- Partners including City of Nanaimo, Nanaimo & Area Land Trust, VIU, and MABRRI
- Virtual Passport, activities including:
  - Online games and activities: scavenger hunts, puzzles, movie marathons, trivia
  - WaterSmart Workshops: Rainwater Harvesting, Efficient Irrigation, WaterSmart Gardening, Wetlands
  - New! RDN Parks Interpretive Walks
  - MABRRI Biosphere Blitz
  - Social media engagement: How do you value water?
- Prizes: Rain barrels, native plants & seeds, zero waste products, water saver signs
- *GetInvolved* Team WaterSmart web platform
- Promotions: in-print, online, social media



# DWWP Educational Video Series

*Video production team:* ZINC Communications Strategies Inc. + Fox & Bee Studios



*Project:* Production of 6 educational videos and 8 social media video clips

- Videos – 2-3 minutes in length, include:
  - Up to 12 interviews
  - Scenic filming at up to 12 locations
- Up to two hours of aerial drone filming
  - Specialty filming – underwater
  - Event filming at up to 4 events
    - Motion graphics
  - Music and voice-over narration
- Up to 8 thirty second social media clips

#### *Timeline:*

- o **March – April:** Draft scripts revised and edited
- o **May:** Scripts finalized and filming schedule developed
- o **June – August:** Filming, video production and sample video, video clips and social media plan
- o **September:** Video review and final editing, delivery for River's Day 2021

# DWWP Educational Video Series



## ***Proposed Video Topics:***

- o Watershed Wonders – what is a watershed?*
- o The Incredible Journey – where does your drinking water come from?*
- o Water connects us*
- o Water Challenges – climate change and human impacts*
- o Water science and stewardship*
- o The Water Sustainable Future*

**What would you like to see included?!**

**Places, people, key messages and activities**



# Water Stewardship Rebate Program Update

**In 2021, RDN DWWP continues to offer rebates to promote water stewardship through alternative water sources, water smart gardening, and groundwater protection**

**3 step process: Pre-approval Application  
> Work Completed > Claim**



REGIONAL DISTRICT OF NANAIMO DRINKING WATER & WATERSHED PROTECTION

**2021 WATER STEWARDSHIP REBATES**

Apply today to start saving water and money!

Rainwater Harvesting up to <b>\$750</b>	Irrigation & Soil Upgrades up to <b>\$675</b>
Wellhead Upgrades up to <b>\$650</b>	Well Water Testing 50% off up to <b>\$175</b>

Learn more at:  
[RDNrebates.ca](http://RDNrebates.ca)  
[watersmart@rdn.bc.ca](mailto:watersmart@rdn.bc.ca)  
250-390-6560

The poster features a colorful header with a rainbow gradient. Below the header, the text '2021 WATER STEWARDSHIP REBATES' is prominently displayed. Four circular callouts, each with a white background and a blue border, list the rebate categories and their maximum values. The background of the poster is a blue gradient with a stylized illustration of a river and green foliage at the bottom.

## Water Stewardship Rebate Program Update: Rainwater Harvesting - 2021 so far



### Distribution:

**Area A: 1**

**Area B: 12 (max. allocation)**

**Area C: 0**

**Area E: 1**

**Nanaimo: 2**

**Area F: 2**

**Lantzville: 1**

**Area G: 1**

**Parksville: 0**

**Area H: 1**

**Town of QB: 1**

**Total Allocated to Date**

**\$15,750**

**Total Issued to Date**

**\$750**

**# Appl'ns Received to Date**

**22**

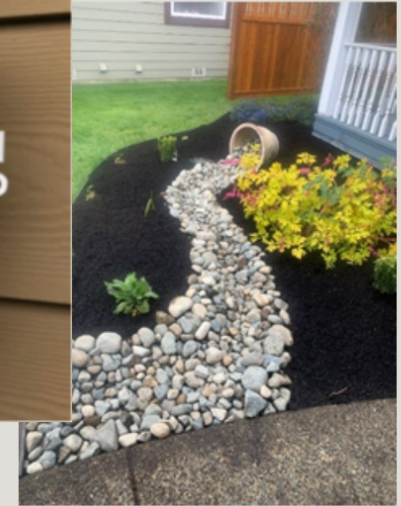
**# Claims Issued**

**1**

# Water Stewardship Rebate Program Update: Irrigation & Soil Improvements - 2021 so far

## Distribution:

- Area A: 0
- Area B: 0
- Area C: 0
- Area E: 0     Nanaimo: 2
- Area F: 0     Lantzville: 0
- Area G: 0     Parksville: 1
- Area H: 0     Town of QB: 0



Total Allocated to Date	Total Issued to Date	# Appl'ns Received to Date	# Claims Issued
\$1050	\$0	3	0

## Water Stewardship Rebate Program Update: Well Upgrades- 2021 so far

### Distribution:

Area A: 1

Area B: 1

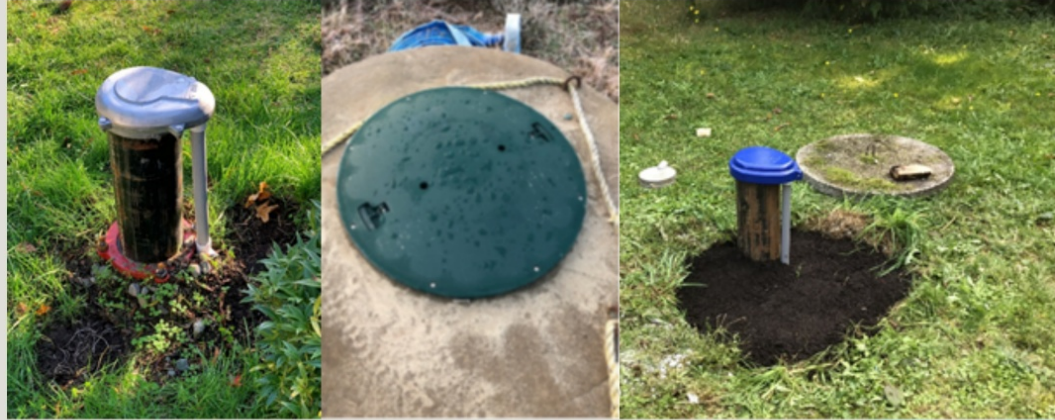
Area C: 1

Area E: 0 Nanaimo: 0

Area F: 1 Lantzville: 0

Area G: Parksville: 0

Area H: Town of QB: 0



Total Allocated to Date

\$1800

Total Issued to Date

\$700

# Appl'ns Received to Date

4

# Claims Issued

2



## Water Stewardship Rebate Program Update: Well Water Testing - 2021 so far

### Distribution:

**Area A:** 3

**Area B:** 18

**Area C:** 3

**Area E:** 1

**Area F:** 4

**Area G:** 1

**Area H:** 0

**Nanaimo:** 0

**Lantzville:** 1

**Parksville:** 0

**Town of QB:** 0

\* NEW Pre-approval application process

\* Once approved, issued a 50% off voucher for full spectrum analysis from accredited lab



Total Allocated to Date

\$5425

Total Issued to Date

\$1750

# Appl'ns Received to Date

31

# Claims Issued

10

# School Freshwater Stewardship - Curriculum Module Development

## Objectives:

- to enhance the resources available to students and teachers related to the watercourses in the RDN.
- to foster a place-based connection to water in the region, both drinking water and aquatic ecosystems, in the spirit of freshwater stewardship.

Recently engaged experienced BC Curriculum experts / school program developers, SKYE Consulting from Vancouver, to assist with this project.

We have also connected with school district Indigenous learning coordinators to advise and collaborate on the project.

**Blend of on-line,  
in-class & on-  
stream format**

**Combination of  
delivery of materials  
and activities by  
teachers, RDN staff or  
NALT staff**

## Timeline:

**Develop March - May,  
Pilot May - June,  
Revise July - Aug,  
Roll-out Sept - Dec**

# Public Benchmark Survey

## Objective:

- to gauge public awareness of RDN DWWP programs and initiatives
- to gauge community priorities, behaviours and awareness related to freshwater in the region
- to benchmark progress and performance of RDN DWWP at intervals through out next 10 years

It is intended to be statistically significant and delivered by a qualified and experienced firm. Procurement process to take place starting in March/April, followed by survey delivery and reporting by September.

Reporting will summarize results based on municipality / EA / Water Region.

Both water supply as well as ecosystem health are of interest.



**What questions / data are you interested in?**

**>> Jamboard! Click link in the chat...**

# Community Watershed Monitoring Network - recap

## Surface Water Quality Monitoring

- Started in 2011
- Samples Temp, Turb, SpC, DO
- 5 summer low flow & 5 fall flush

## 2020 Data

- 15 groups from 14 organizations
- 67 surface water quality sites
- 41 streams sampled in 26 watersheds
- 4 new sites added in WR's 5 & 6
- QA/QC lab analysis not completed due to COVID-19 precautions

## Additional 2020 Initiatives

- Stewardship Seed Funding
  - To support community-led monitoring, restoration & enhancement
  - Supported 4 projects
- Biomonitoring - CABIN
  - In partnership with ENV, DFO, CoN, MFM
  - Completed at 9 sites in Nanaimo River watershed

*Photo credit: Qualicum Beach Streamkeeper Society,  
Oct. 13, 2020 CWMN sampling Little Qualicum River.*



*Aug. 31, 2020 CABIN monitoring, Nanaimo River.*





# Community Watershed Monitoring Network - update

## Analysis of 2020 CWMN Data

### Updating Box Plot Graphs

- Visual comparison of 2011 – 2020 data

### Trend Analysis

- Improving, stable, degrading water quality
- Exceedances of ENV guidelines / objectives
- Correlation between turbidity and rainfall

### Spatial Presentation of Analysis

- Maps generated from trends and exceedances
- Per Water Region, season, and parameter

### Discussion / Interpretation Focus

- 20 sites with 6 years of data
- 18 sites with 10 years of data
- Priority Water Regions: 3, 5-2, 6

### Recommendations

- Site-specific, watershed-specific, and Water Region-specific

### Final Deliverables in Report Format



# Community Watershed Monitoring Network - update

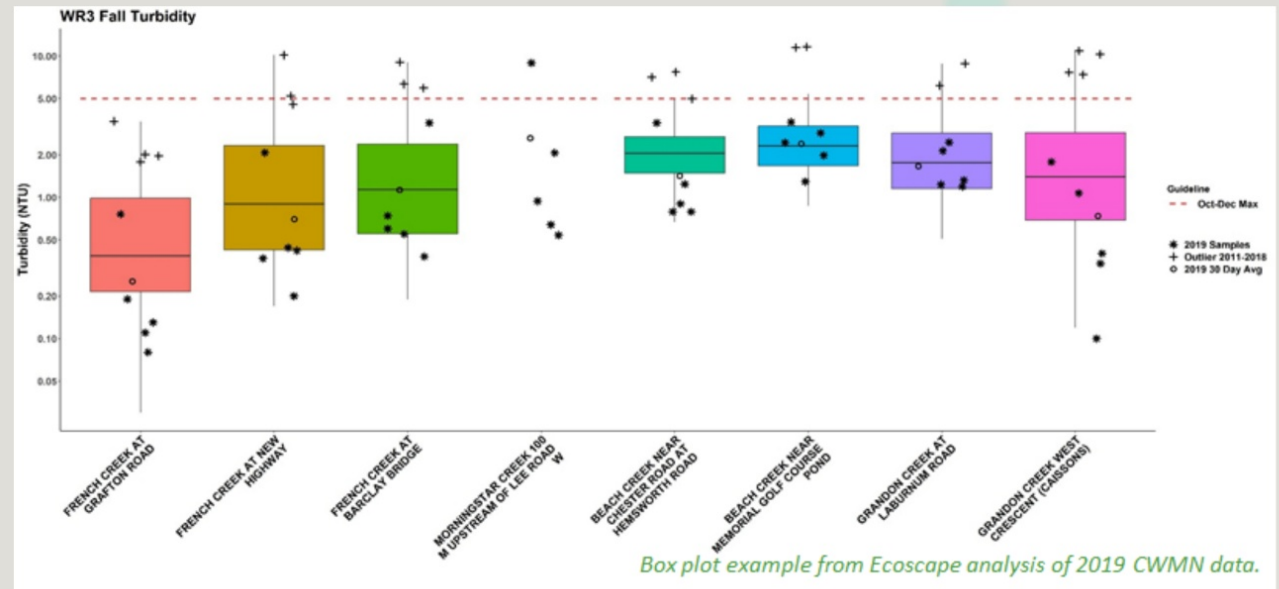
Annual Results Session - April 21st, 2021

Virtual presentation by RDN & ENV.

Invitation via direct email to CWMN volunteers & partners. Also promoted with W2E month & open to the public.

Platform to discuss and ask questions about 2020 monitoring, professional analysis findings, and recommendations from collected data.

Opportunity to learn about surface water monitoring and priorities of CWMN in 2021.



# Groundwater Data Management System - scoping

**Objective: to evolve from Excel Spreadsheet database to a platform that can more efficiently store, process, graph, and share data from our Volunteer Observation Well program.**

This effort is in line with the DWWP Data Management Plan recommendations (Golder, 2016).

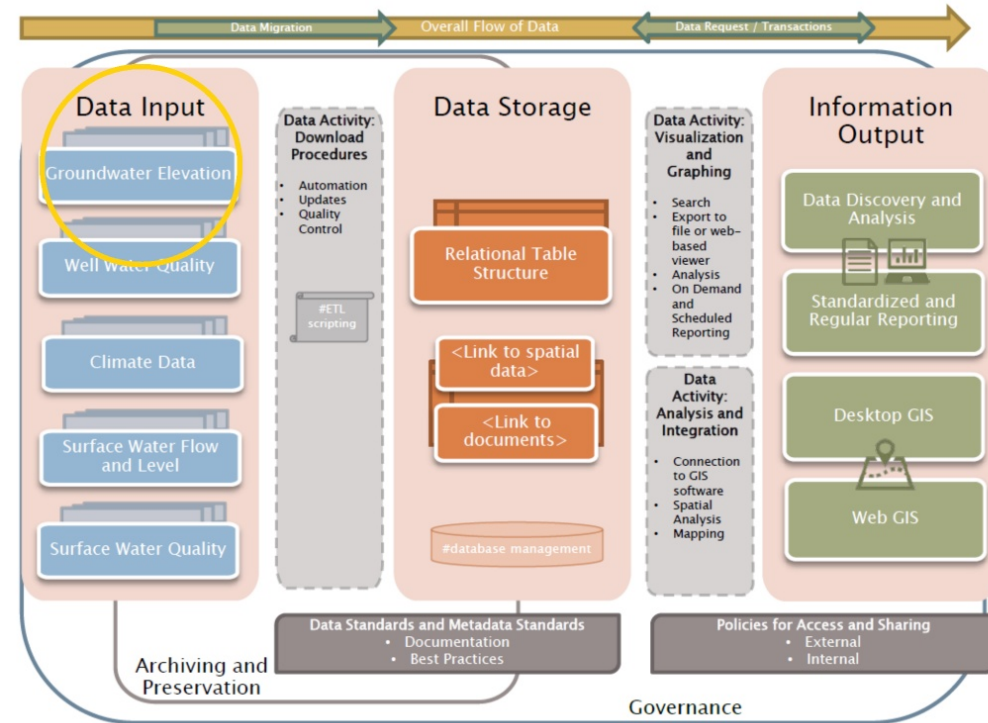


Figure 1: Conceptual Model of Data Management System for DWWP



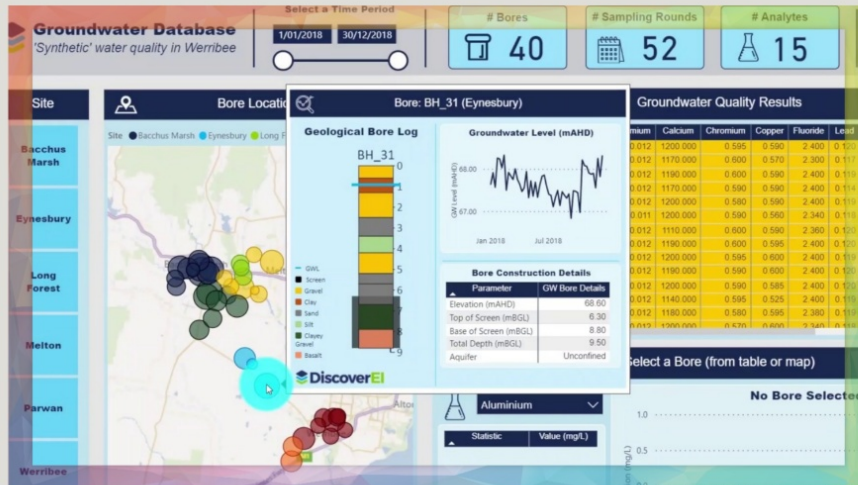
# Groundwater Data Management System - scoping

We now operate over 30 monitoring wells, some sites with data back to 2014. Currently this data is managed in Excel as .csv files.

Our aim is to have a more automated system to readily produce updated hydrographs and potentially link this to a web interface.



Ensure compatibility with Provincial database



Engage consultant March; complete by September



# French Creek Water Budget Phase 3 - scoping

Upcoming project to commence in 3rd quarter 2021...

## **Phase 1** Conceptual Water Budget for the Region (2013)

- Relative stress assessment and prioritization

## **Phase 2** Expanded monitoring locations in French Creek (2016 & 2017)

- 4 additional volunteer monitoring wells in three aquifer
- 1 additional streamflow monitoring site on French Creek

## **Phase 3** Numerical Water Budget Model (2021)

- Modelling scenarios, provide a regional water management support tool

# French Creek Water Budget Phase 3 - scoping

## OBJECTIVES:

Develop a numerical model that represents the dynamics of the water cycle in French Creek Water Region.

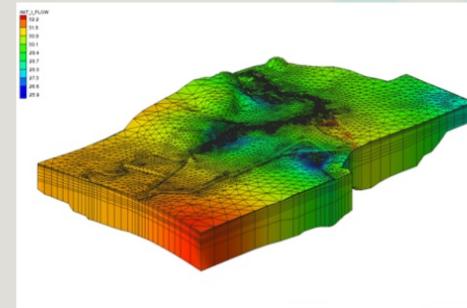
- Quantify and evaluate the integrated hydrologic system of groundwater and surface water at the watershed, aquifer and site scale terms of baseflow and recharge.

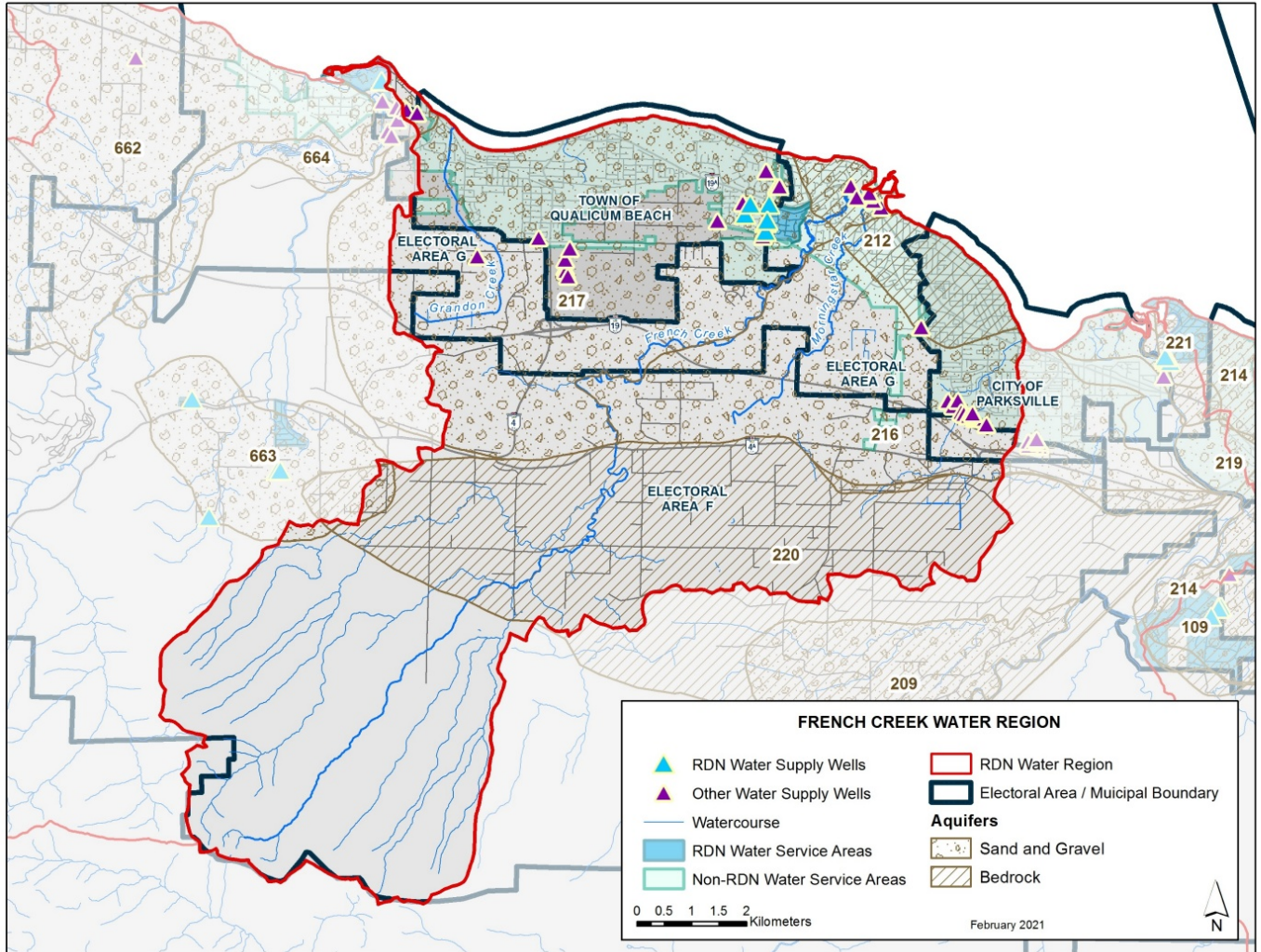
Understand how much water can be used for community needs (water system, domestic wells, agriculture, etc.) without causing harm to in-stream flow needs, and while protecting existing water users and aboriginal water rights.

- Run scenarios, including climate change, pumping, land cover change scenarios to better quantify and define sustainable groundwater extraction levels.

Analyze and operationalize data using water budgets as a tool for:

- Adaptive regional water supply management and water system operation;
- Targeting recharge rates to inform land use decisions;
- Informing water allocations and water objectives.







# French Creek Water Budget Phase 3 - scoping



## **Collaboration:**

- We are looking to partner with water suppliers in the French Creek Water Region, including EPCOR, Town of Qualicum and City of Parksville to scope the project in a way that would be mutually beneficial as the aquifers that supply drinking water in this region are shared across those service areas.
- We will be coordinating with the Province to ensure the latest aquifer mapping that was updated for this area, as well as information on hydraulic connectivity (sw-gw interaction) is included within the numerical model.
- This Water Budget Model will provide the technical basis to inform future discussions on long-term regional water supply planning for this part of our region.

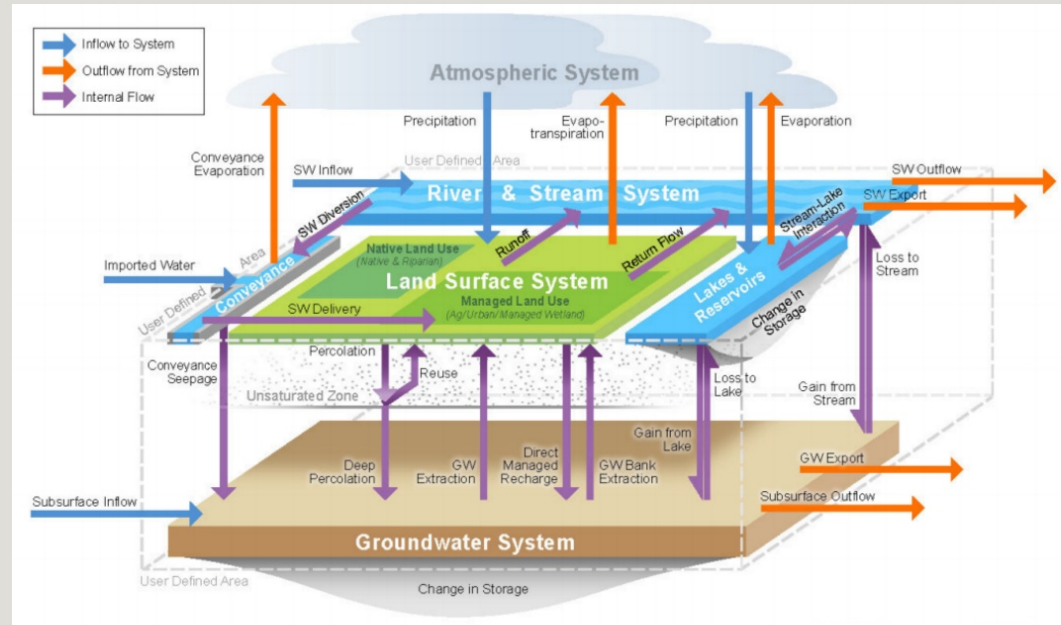


# French Creek Water Budget Phase 3 - scoping

## Proposed Timeline

- Project scoping March & April 2021
- Procurement May & June 2021
- Kick-off July 2021
- Completion by September 2022

**COMMENTS? QUESTIONS?**





Thank you for  
being here!

Our next meeting  
is scheduled for  
April 28th 2021