



Drinking Water & Watershed Protection

February 13, 2023 // Technical Advisory Committee Meeting

AGENDA

ROUNDTABLE

**INVITED
PRESENTATIONS**

**PROJECT UPDATE
PRESENTATIONS**

AGENDA

Approval of the agenda

Adoption of minutes

- Minutes from December 8, 2022

Roundtable Updates

Invited Presentations

Project Updates

New Business

Adjournment

ROUNDTABLE UPDATES

All committee members

Welcome to new committee member:
Sabine Blackburn, Public Representative (South)

Invited Presentations

- **Stewarding Agricultural Resources (SAW) Project**
Andrea Shaw, Agroecologist, Ministry of Agriculture & Food
- **VIU Wetland Monitoring 2022**
Jacob Frankel, Mount Arrowsmith Biosphere Region Research Institute
- **Snowpack Monitoring Update**
Bill Floyd, Research Hydrologist and Adjunct Professor Geography, Vancouver Island University

PROJECT UPDATES

STAFF PRESENTATIONS

Awareness & Stewardship

- Water Purveyor Working Group Workshop Recap
- Water to Earth Month Planning
- Demo Sites & Interpretive Signage Program
- Water Stewards Ambassador Pilot

Information & Monitoring

- CWMN Precipitation Data Updates
- CWMN 2023 Planning
- French Creek Water Budget

Policy & Planning

- Rainwater Items
 - Regional Climate Change Assessment
 - French Creek Watershed Performance Targets
- Ecological Accounting Process Partnership - Q1 update

Water Purveyor Working Group

- The WPWG is an opportunity for small water system operators to get together for education and networking opportunities
- This year an in-person session was held on January 27th in Parksville
- 12 small water system operators and 8 agency representatives attended
- The presentations included
 - **Drought and Climate Change**- Nicole Fulcher, Groundwater Protection Officer, Ministry of Forests
 - **Groundwater Licensing and Registration**- Nicole Fulcher
 - **Emergency Response and Contingency Planning**- Stacey Sowa, Drinking Water Coordinator, Island Health and Deb Churko, Engineering Technologist, RDN
 - **BC Water and Waste Association's Community Network**- Claire Ross, BCWWA

Water to Earth Month Planning

- W2E kicks off on World Water Day on March 22 and ends on Earth Day on April 22.
- The event is focused around this year's themes of 'Accelerating Change' with a focus on partnerships and cooperation and 'Invest in our Planet'.
- This year, over 16 events are planned between the RDN and our partners; City of Nanaimo, NALT, Vancouver Island University, Mount Arrowsmith Biosphere Region Institute (MABBRI) and Mosaic Forest Management, Brant Festival.
- Events also include RDN Parks, Nanaimo Science, Nile Creek Hatchery, Beban Learning Gardens, Arrowsmith Naturals, Nature Trust of BC, local experts and more.



Water to Earth Month Planning

Date	Event	Location	Host
March 24th	Streamwalk and Hatchey Tour	Nile Creek	RDN, Dave Clough and Nile Creek Hatchery
April 1-2	Streamkeeper Course	Cat Stream	NALT
April 3rd	Rainwater Harvesting Walk/ Tour	Qualicum Beach Library	Brant Festival, VIRL, RDN
April 5th	Brant Childrens Festival	Arrowview Elementary	Brant Festival
April 5 & April 8	Englishman River Estuary Tour	Englishman River	Nature Trust of BC, Arrowsmith Naturals, Brant Festival
April 11th	WellSmart Workshop	Cedar Community Hall	RDN, Ministry of Forests and Island Health
April 14-16th	MABR Bio Blitz	iNaturalist APP	MABBRI
April 15th	WaterSmart Gardening Workshop and Tour	Beban Park	RDN, Beban Learning Gardens, Connie Kuramoto
April 15th	Garry Oak Restoration Tour	VIU	VIU
April 15th	Bottle Drive	NALT	NALT
April 15th	Hamilton Marsh Tour	Hamilton Marsh	Brant Festival, MABBRI
April 21st	Nanaimo River Watershed and Treatment Plant Tour	Nanaimo River	City of Nanaimo, Mosaic, RDN
April 22nd	Natural Landscapes and Climate Change Workshop	Fern and Feather	City of Nanaimo
April 22nd	Science in the Park	Moorecroft Park	RDN, Nanaimo Science
April 29th	Stewards in the Spotlight' event plus Departure Creek Walk	Departure Bay/ Kin Hut	RDN, City of Nanaimo, Streamkeepers



A full list of events and registration links can be found on the Team WaterSmart Get Involved page

www.getinvolved.rdn.ca/team-watersmart

Demo Sites & Interpretive Signage Program

Now open for 2023 and beyond - Funding support program for demo sites and interpretive signage!

Demonstration sites and interpretive signs are effective tools in bringing awareness to watershed features, watershed restoration and stewardship, and nature-based urban infrastructure that restore or protect watershed function.

The **Demonstration Site & Interpretive Signage** funding program supports the efforts of community organizations, stewardship groups, local government, and First Nations by offering funding of up to **\$5000** for the installation or enhancement of demonstration sites and/or interpretive signage.

- **Project Eligibility** – requirements to ensure installations are successful and beneficial to communities and environment.
- **Project Prioritization** – set of criteria by which to evaluate proposals to achieve equitable distribution and diversity of project support.

DWWP team will be available to support with coordinating project partners, assisting with project planning, and helping to draft sign content, key messaging, and graphics.



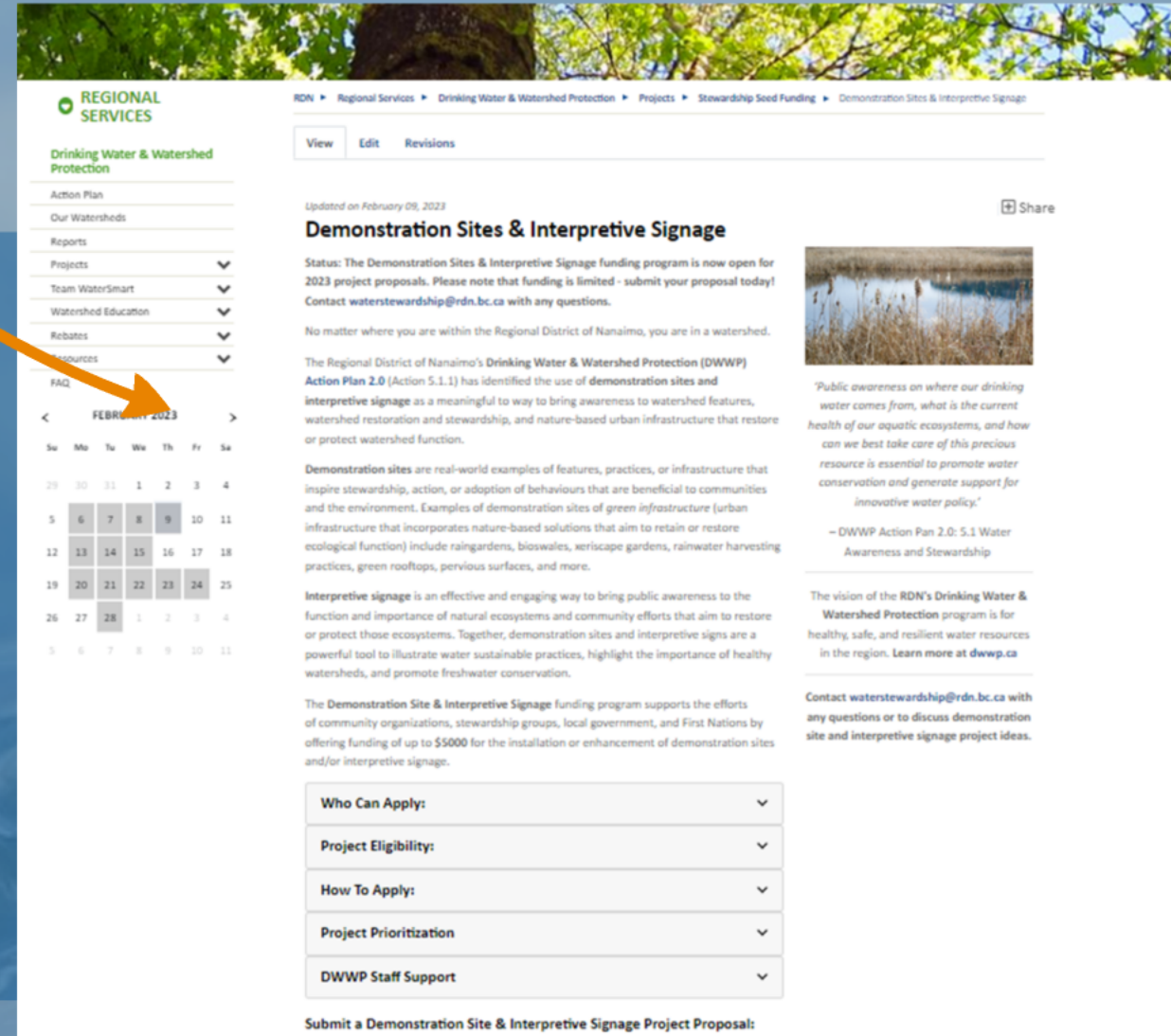
Demo Sites & Interpretive Signage Program

New webpage set to go live this week!

www.rdn.bc.ca/demonstration-sites-interpretive-signage

Some next steps:

- Promote program broadly – *feel free to pass along through your networks!*
- Development of resources and tool kits
- Local examples of demo sites & signs across region – *including the **RDN Rain Garden***



REGIONAL SERVICES

Drinking Water & Watershed Protection

Action Plan

Our Watersheds

Reports

Projects

Team WaterSmart

Watershed Education

Rebates

Resources

FAQ

FEBRUARY 2023

29 30 31 1 2 3 4

5 6 7 8 9 10 11

12 13 14 15 16 17 18

19 20 21 22 23 24 25

26 27 28 1 2 3 4

5 6 7 8 9 10 11

View Edit Revisions

Updated on February 09, 2023

Demonstration Sites & Interpretive Signage

Status: The Demonstration Sites & Interpretive Signage funding program is now open for 2023 project proposals. Please note that funding is limited - submit your proposal today! Contact waterstewardship@rdn.bc.ca with any questions.

No matter where you are within the Regional District of Nanaimo, you are in a watershed.

The Regional District of Nanaimo's Drinking Water & Watershed Protection (DWWP) Action Plan 2.0 (Action 5.1.1) has identified the use of demonstration sites and interpretive signage as a meaningful way to bring awareness to watershed features, watershed restoration and stewardship, and nature-based urban infrastructure that restore or protect watershed function.

Demonstration sites are real-world examples of features, practices, or infrastructure that inspire stewardship, action, or adoption of behaviours that are beneficial to communities and the environment. Examples of demonstration sites of green infrastructure (urban infrastructure that incorporates nature-based solutions that aim to retain or restore ecological function) include raingardens, bioswales, xeriscape gardens, rainwater harvesting practices, green rooftops, pervious surfaces, and more.

Interpretive signage is an effective and engaging way to bring public awareness to the function and importance of natural ecosystems and community efforts that aim to restore or protect those ecosystems. Together, demonstration sites and interpretive signs are a powerful tool to illustrate water sustainable practices, highlight the importance of healthy watersheds, and promote freshwater conservation.

The Demonstration Site & Interpretive Signage funding program supports the efforts of community organizations, stewardship groups, local government, and First Nations by offering funding of up to \$5000 for the installation or enhancement of demonstration sites and/or interpretive signage.

Who Can Apply:

Project Eligibility:

How To Apply:

Project Prioritization

DWWP Staff Support

Submit a Demonstration Site & Interpretive Signage Project Proposal:

Share

'Public awareness on where our drinking water comes from, what is the current health of our aquatic ecosystems, and how can we best take care of this precious resource is essential to promote water conservation and generate support for innovative water policy.'

– DWWP Action Plan 2.0: 5.1 Water Awareness and Stewardship

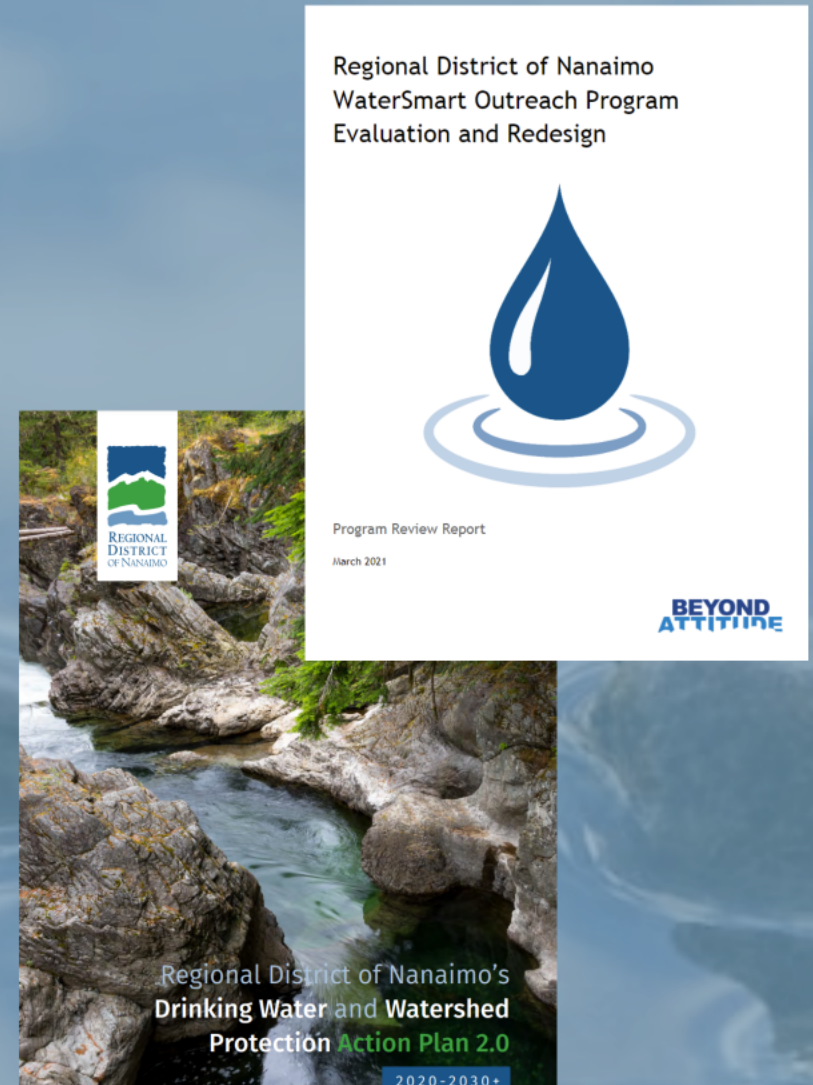
The vision of the RDN's Drinking Water & Watershed Protection program is for healthy, safe, and resilient water resources in the region. [Learn more at **dwwp.ca**](#)

Contact waterstewardship@rdn.bc.ca with any questions or to discuss demonstration site and interpretive signage project ideas.

Water Stewards Ambassador Pilot

- Initiating new program in 2023 that sees Team Watersmart expanding reach to more audiences
- Recommendations for this expansion are found within the DWWP Action Plan 2.0:
 - "More focus on supporting youth water leadership projects, dialogue, and engagement"*
- In addition, supported through recommendations within the 2021 RDN WaterSmart Outreach Program and Redesign review:

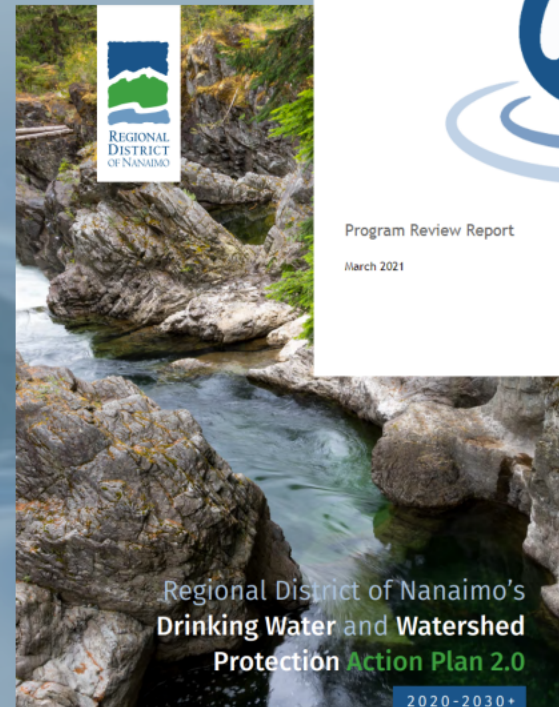
Piloting community champion programs... leveraging the enthusiasm and community clout of residents interested in water stewardship through highlighting their activities and furthering commitments.



Water Stewards Ambassador Pilot

The ambassador program will roll out in two streams:

1. Water Stewardship in the Spotlight
2. Team WaterSmart Youth Squad



Regional District of Nanaimo
WaterSmart Outreach Program
Evaluation and Redesign



Program Review Report

March 2021

**BEYOND
ATTITUDE**

Water Stewards Ambassador Pilot

1. Water Stewards in the Spotlight

Amplifying and celebrating local water ambassadors

Blog/Website/Social Media campaign

Individuals to be nominated by the community

Content will include introductions and interviews with local water ambassadors highlighting their contributions to community watershed health

WALLEY CREEK STREAMKEEPERS



STEWARDS IN THE SPOTLIGHT

FRIENDS OF FRENCH CREEK CONSERVATION SOCIETY



STEWARDS IN THE SPOTLIGHT

VANCOUVER ISLAND UNIVERSITY

MOUNT ARROWSMITH BIOSPHERE REGION RESEARCH INSTITUTE • THE COASTAL HYDROLOGY & CLIMATE CHANGE LAB



STEWARDS IN THE SPOTLIGHT

Water Steward Ambassadors

- Stewardship groups and individuals
- Program partners (MABRRI, NALT etc.)
- CWMN participants
- Youth & students
- Water Rebate applicants
- Citizen Scientists
- Volunteer Observation Well landowners
- Agricultural producers
- Raingarden designers
- DWWP TAC members
- First Nations community members
- Elected Officials
- ... and many more!

Water Stewards Ambassador Pilot




2. Team WaterSmart Youth Squad

Youth-focused engagement connecting students to volunteer and education opportunities

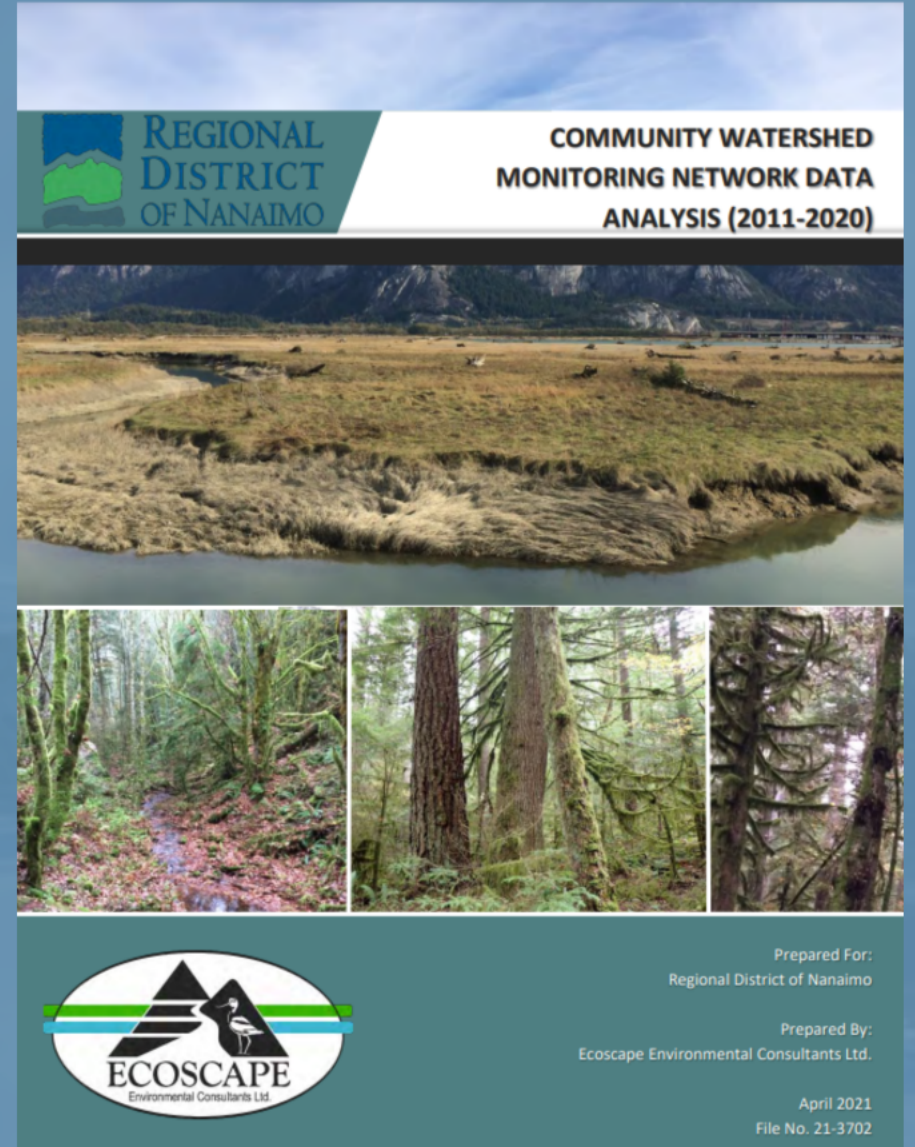
Objective: Provide opportunities, resources, and incentives for youth to participate in community stewardship events and enhance peer-to-peer engagement around water stewardship

Approach:

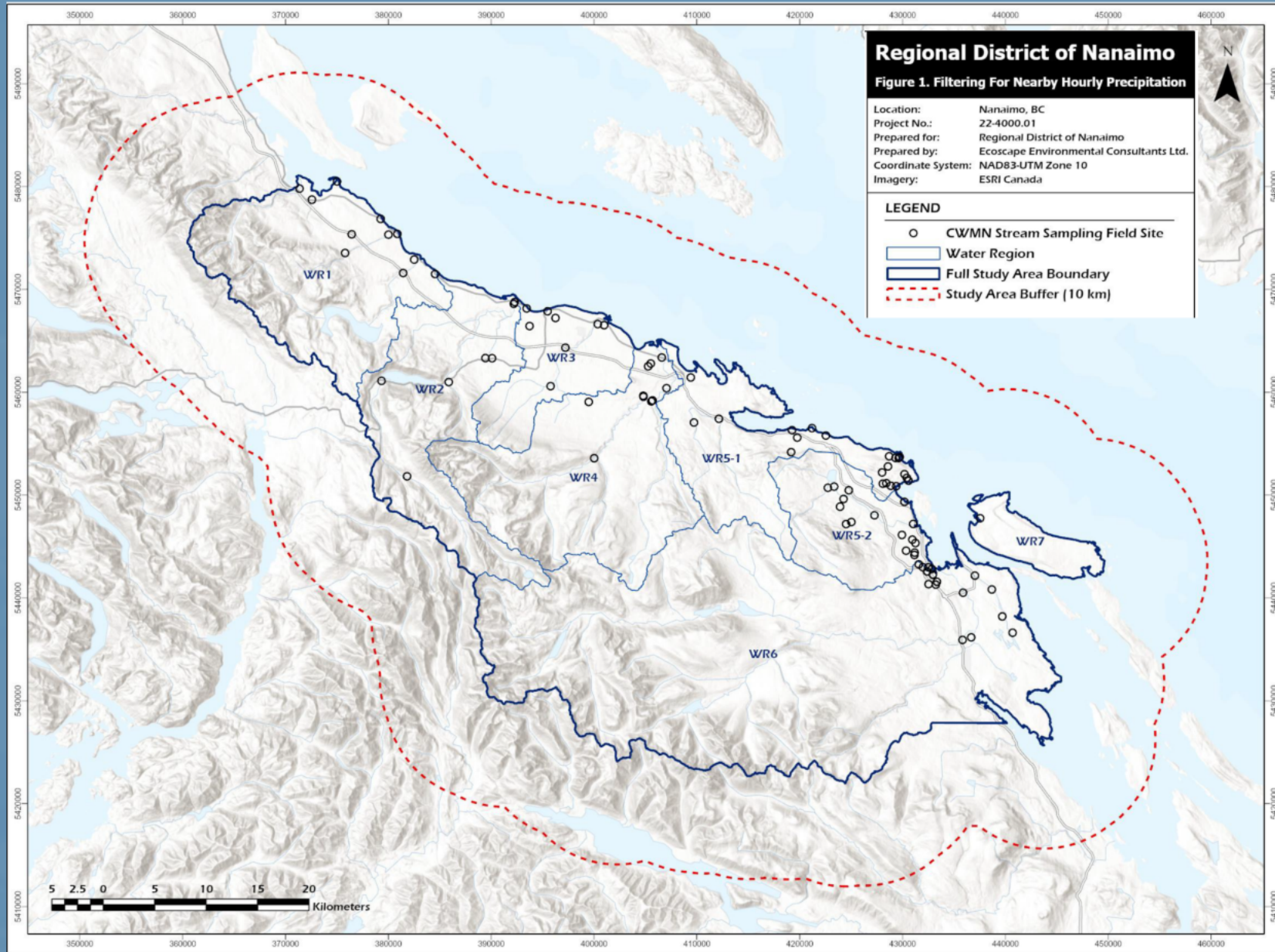
- Offer resources through mentorship opportunities, workshops, volunteer connections, and learning packages
 - Partner with school districts, Ecoclubs, Junior streamkeepers, and other community organizations
 - Investigate potential of school credit for participation/volunteerism (there is a precedent for this set within other school districts such as at Richmond) within the curriculum for:
 - Grade 11 & 12 Career-Life Education
 - Grade 11 & 12 Biology, Environmental Science
 - Accept applications for rotating DWWP TAC youth representatives
- 

CWMN Hourly Precipitation Analysis

- Relationship between precipitation and turbidity historically completed using total daily rainfall at two representative climate stations
 - Qualicum Airport
 - Nanaimo Airport
- 2021 trend report recommended exploring sources for hourly data to allow evaluation of relationship at a more granular level
- Ecoscape engaged Nov. 2022 to complete evaluation of potential for hourly stations

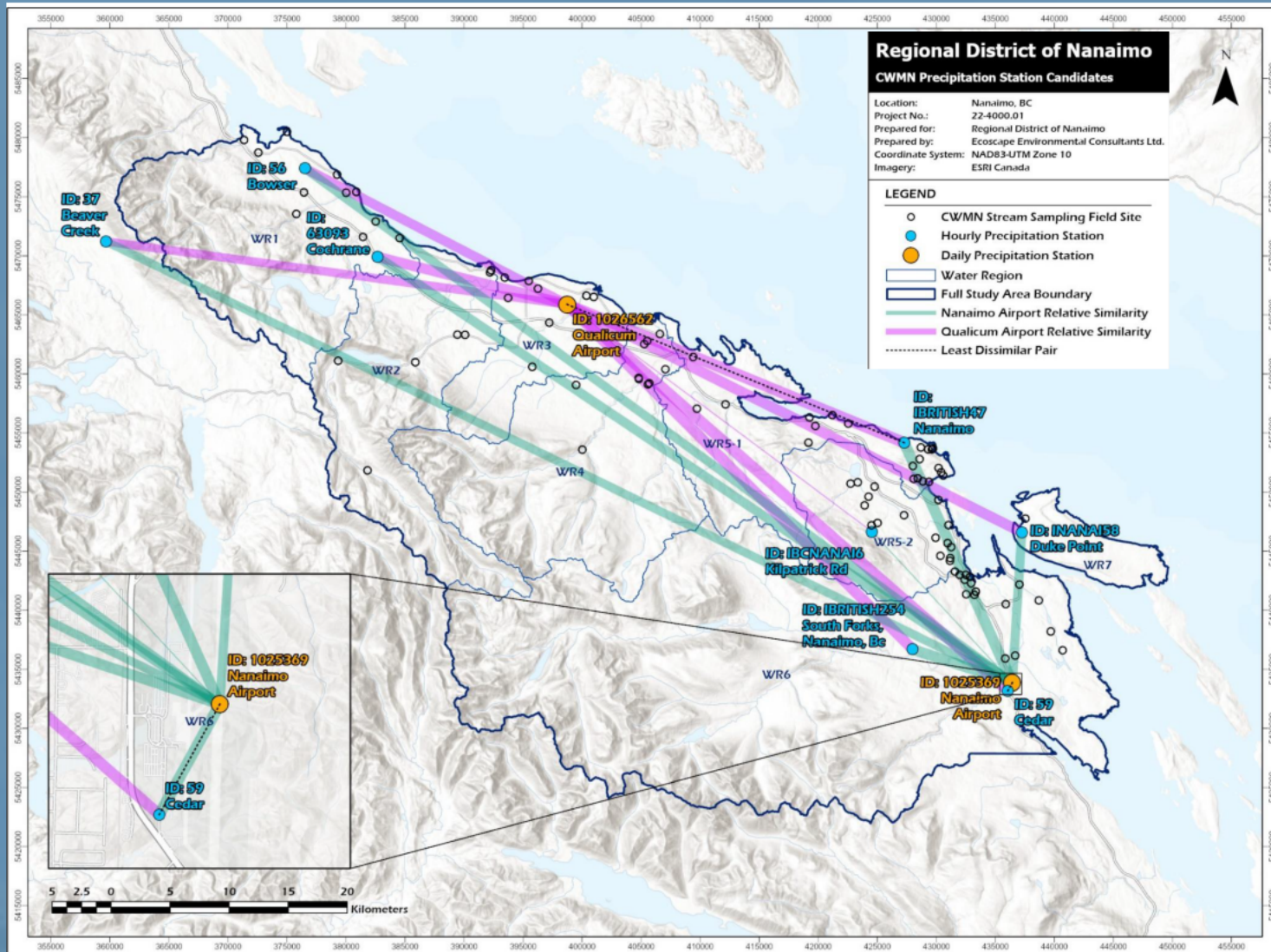


Precipitation Analysis Study Area



Precipitation Analysis

Public and private weather networks and stations assessed for accessibility and reliability



- ease of access and download
- frequency of updates and omitted measurements
- range of historic record
- similarity between hourly and daily measurements
- proximity of hourly stations to daily stations and CWMN sites

Analysis Recommendations

- Eight stations had potential for use in future analysis of CWMN data
- **Five** stations recommended for future analysis
 - IBRITISH254 - South Forks
 - IBRITISH47 - nanaimo
 - 56 - Bowser
 - 59 - Cedar
 - 63093 - Cochrane

Table 5. Stations available for comparison across daily, hourly, and higher-frequency measurement intervals.

Station ID	Source	Original Measurement Frequency
Nanaimo Airport	Public	Daily
Qualicum Beach Airport	Public	Daily
IBCNANA16 - Kilpatrick Rd	Wunderground	~5-Minute Intervals
→ IBRITISH254 - South Forks, Nanaimo, BC	Wunderground	~5-Minute Intervals
→ IBRITISH47 - nanaimo	Wunderground	~5-Minute Intervals
INANA158 - Duke Point	Wunderground	~5-Minute Intervals
37 - Beaver Creek	Public	Hourly
→ 56 - Bowser	Public	Hourly
→ 59 - Cedar	Public	Hourly
→ 63093 - Cochrane	Public	Hourly

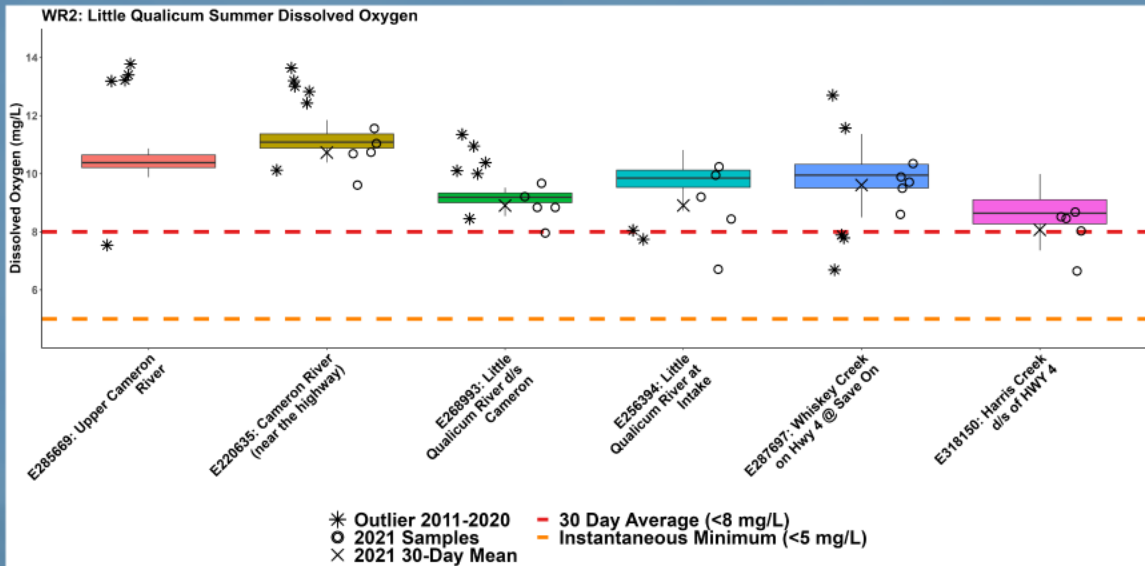
Next steps

- 2023 comparison using existing stations - hourly vs. daily station data for all sites
- If the 2023 comparison does not support the use of existing stations, partnerships for installation of up to five weather stations will be explored

Community Watershed Monitoring Network 2023 & beyond



- Continued collaboration with Ministry of ENV
- New stewardship events
- New equipment - Hach meter roll out
- Last data entry into provincial Environmental Monitoring System database
- Expanded analysis of CWMN data
- Introduction of nodes for watershed monitoring and stewardship



Watershed monitoring and stewardship nodes

- Recommendations based on existing CWMN data presented to stewards
- Expanded monitoring dependent on Streamkeeper priorities and capacity
- Collaborations with agency, industry, and NGO's are key
- Ubiquitous framework to allow application outside the CWMN



Next Steps

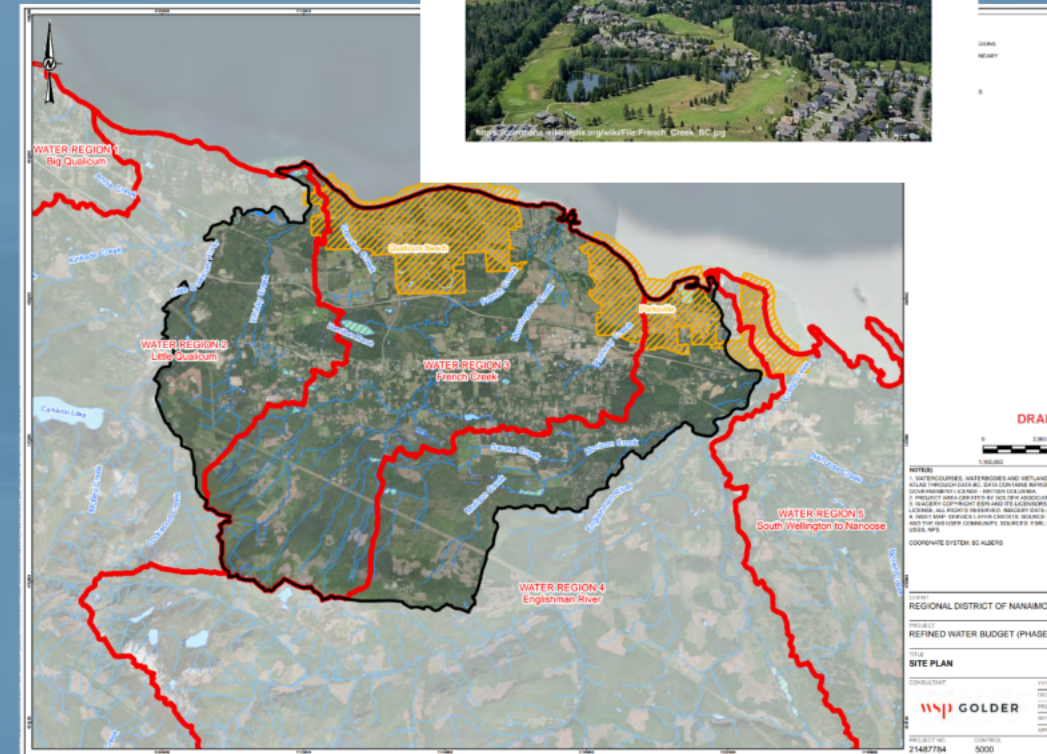
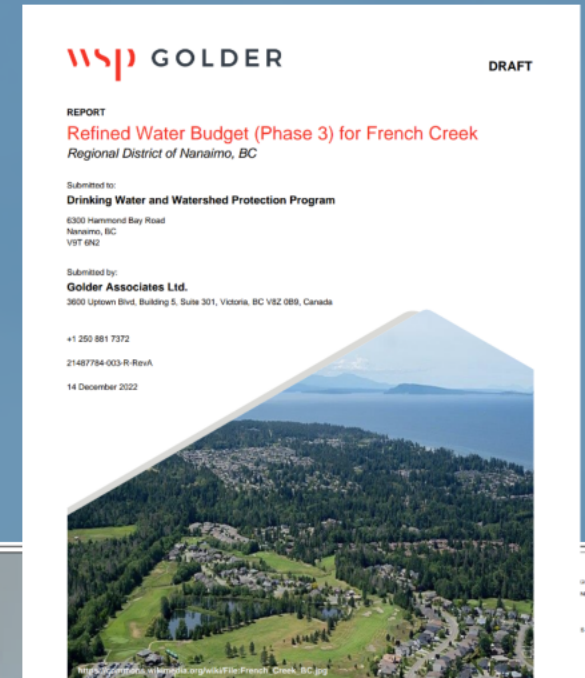


- Nodes and recommendations based on site and stream data presented to groups
- Foresee roll-out similar to start of CWMN in 2011
 - RDN support and coordinate groups
 - technical experts lead training in provincial protocols and best practices
- Connect with technical experts to solidify roles and responsibilities

French Creek Water Budget

Project Updates

- Draft results were presented to the DWWP TAC in September to share project findings and get feedback from committee
- Received draft report and went to select members of the Technical Advisory Committee for edits
- Reference report that redefines some aquifer boundaries and connectivity is under its last round of review from the Province. To avoid inconsistencies, holding off on finalizing this report until the Province has finalized review
- Final project deliverable will include:
 - Technical Report supported by figures that illustrate the key model components and results of the analysis
 - Electronic copies of the numerical model, output files, GIS files
 - Visualization dashboard of project results



Rainwater Management Projects

1. Regional Climate Change Assessment

2. French Creek Watershed Performance Targets

RSRM Key Recommendations

Foundation Setting Studies & Assessments

Watershed studies, monitoring, regional climate change assessment, funding options assessment

Development of Performance Targets

Release rate, retention volume, recharge volume, water quality

Implementation tools

Design standards and specifications, guidance documents / manuals, policies, bylaws, DPAs, strategic planning tools.



Rainwater Management Projects

Regional Climate Change Assessment

- The Regional District of Nanaimo is starting work on downscaled climate projections for the Regional District area. This is a collaborative effort between the Energy and Sustainability Group and the Drinking Water and Watershed Protection Program.
- Projects outcomes will be downscaled projections of selected indicators (for example daytime and/or night time temperatures, seasonal rainfall, growing degree days etc.) at a more granular scale (sub 1km² grid) than what is available through existing sources (~10km² grid), at multiple future time points.
- This will provide a common data set that users can reference, allowing consistency of assumptions across projects and disciplines and improving user understanding of more localized climate risks anticipated for our area.
- This data may be used in applications like future facility design, climate risk assessments for facilities, neighbourhoods and vulnerable populations, development of water budgets or flood risk profiles as well as for building general public awareness.

Rainwater Management Projects

Regional Climate Change Assessment

	February	March	April	May	June	July	August	Sept	Oct	Nov
Vendor Acquisition	■	■								
Kick off and project scoping		■	■							
Refine with working group			■	■						
Analysis				■	■	■	■	■		
Stakeholder workshops							■	■	■	
Final written report									■	
Final Presentation										■

**timing of project work will depend on Pacific Climate Impacts Consortium (PCIC) availability. Project is currently scoping potential timing with them.

At this early stage we are interested in feedback on how you as a stakeholder might use this data, and gauge level of interest in participating on a working group or advisory panel should we take that approach. **The project is intended to be collaborative and to deliver a product that is relevant for diverse users.**

Rainwater Management Projects

Watershed Performance Targets for Rainwater Management French Creek Water region

Purpose: Mitigate the effects of development by mimicking the natural water balance of a watershed, ensuring no increase in the magnitude of flood events while also maintaining the groundwater component of the water balance

- Two-phase project started in 2021
- Pilot study using French Creek Water Region
- Phase 1 - Hydrologic modeling and development of performance targets (completed 2021)
- Phase 2 - Implementation, Monitoring and Adaptive Management
- Presented draft report to Rainwater Working Group and DWWP TAC in late 2022
- Finalization of report, present to RDN board with recommendations for first steps of implementation

Rainwater Management Projects

Watershed Performance Targets for Rainwater Management French Creek Water region

Reviewing Development Applications

Elements to check for in review:

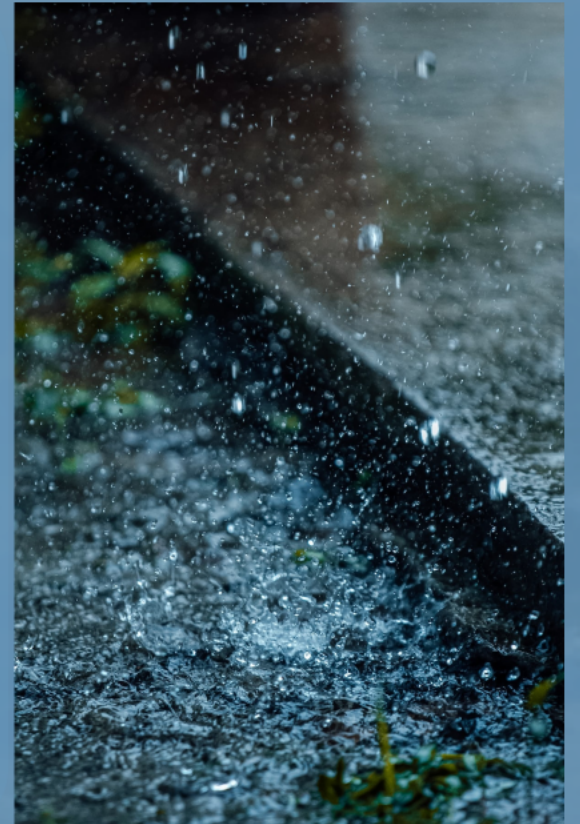
- Summary of site conditions, land covers, impervious area coverage
- Acknowledgment of performance target values from this study
- Overview of rainwater features proposed and **how they meet performance targets**
- Presence of retention and detention facilities meeting volume requirements
- Presence of an outlet structure to meet baseflow release rates
- Inclusion of features that encourage filtration
- Justification of why recommended performance targets cannot be met, and what values of baseflow release, retention volume, infiltration area, and detention volume are achieved.

Rainwater Management Projects

Watershed Performance Targets for Rainwater Management French Creek Water region

Monitoring

- Hydrometric and Water Quality, and Biotic (CABIN) Monitoring
 - Integration within existing Community Watershed Monitoring Network
 - opportunities for new community partnerships for hydrometric monitoring
- Other items to track & monitor
 - Number of development applications received implementing / not implementing rainwater management
 - Feedback from land owners, developers, private industry
 - Site-level monitoring of rainwater management features
 - Tracking of watershed restoration initiatives



Ecological Accounting Process Partnership Q1 update

The Ecological Accounting Process (EAP) is a methodology and set of metrics that can help local governments operationalize **maintenance** and **management** of natural assets such as streams

Stream systems are considered a **natural commons** asset, providing a range of uses or ecological services to the community

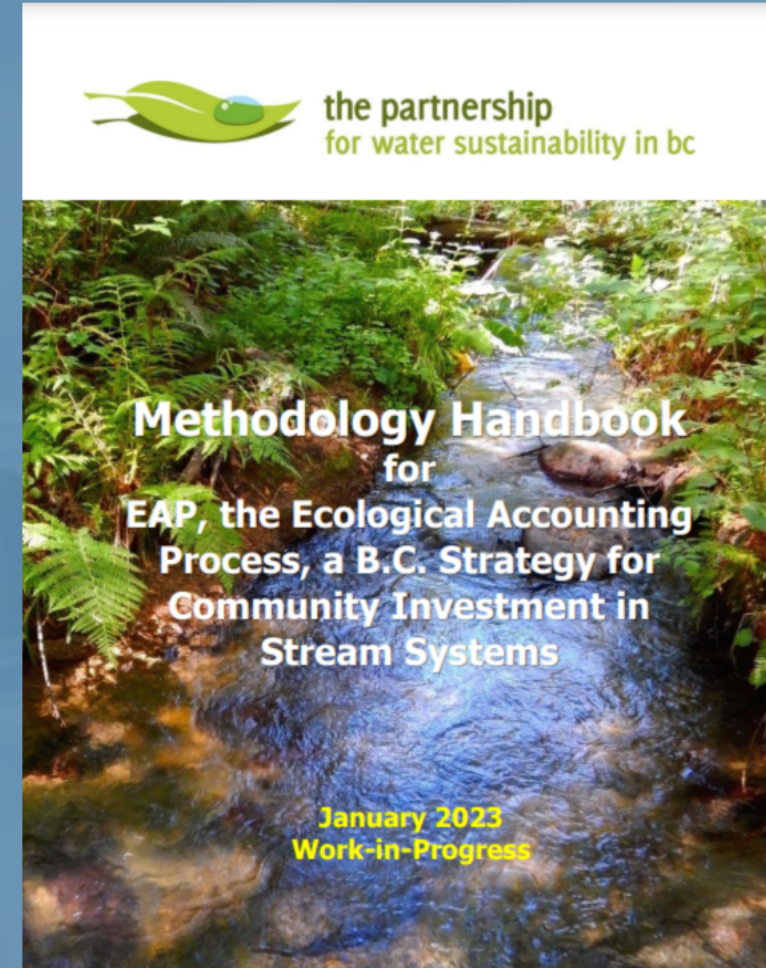
The EAP informs communities about the condition of their natural commons, the investment that has been made, and the value of the land underlying these spaces.

The EAP Partnership is working to embed the process within MABRRI at VIU to train student land planners, GIS analysts, and natural science students in the process through the application of EAPs supported through RDN, CoN and MNC.



Ecological Accounting Process Partnership Q1 update

- Selecting streams for project focus
 - considering pre-existing work and studies
 - providing information on existing maintenance and management of stream corridor
 - providing current land parcel value information
 - planning for 3-years/3 streams
- EAP Partnership is developing a Methodology Handbook which outlines the steps of EAP development "menu of options" for further research questions





REGIONAL
DISTRICT
OF NANAIMO

Drinking Water & Watershed Protection

February 13, 2023 // Technical Advisory Committee Meeting

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PROJECT UPDATE
PRESENTATIONS

Thank you!

See you at our next meeting:
May 24, 2023

