



Overview Tab

Water Region 1

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Water Region 5a

Water Region 5b

Water Region 6

Water Region 7

Water Regions Overview Map

WELCOME TO OUR WATERSHEDS!

The RDN is home to more than 140,000 people. The four member municipalities within the region include: City of Nanaimo, District of Lantzville, City of Parksville and Town of Qualicum Beach.

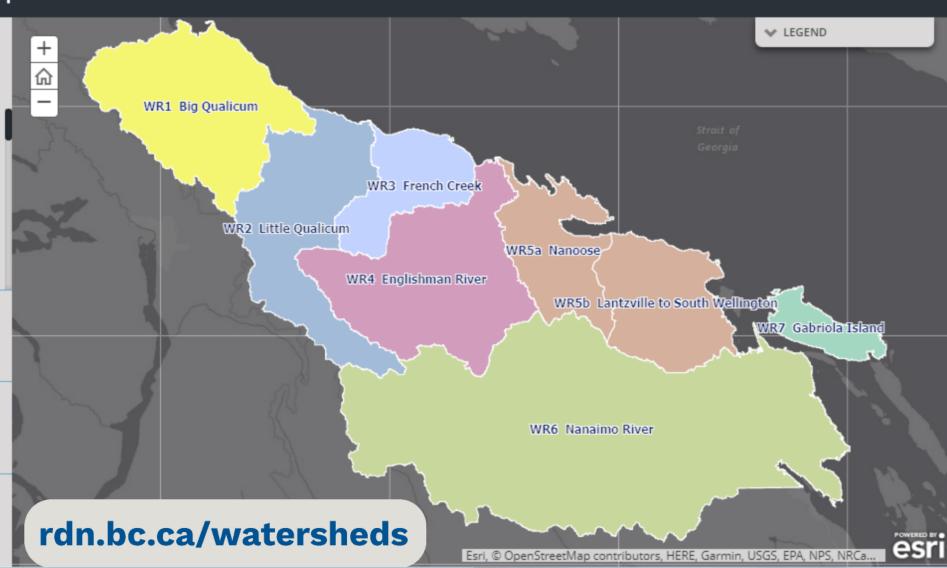
There are 7 major basins in the region, which are comprised of several watersheds and subwatersheds. These 7 areas are referred to as Water Regions for planning purposes.

This region depends on both groundwater and surface water for community water needs and for

FIRST NATIONS SIGNIFICANCE

COMMUNITY PROGRAMS

STEWARDSHIP



Program goals are to facilitate and/or support regional initiatives that:

- Protect, manage and restore ecosystems and overall heath and functioning of our watersheds and aquifers.
- Safeguard and manage source waters to secure sustainable drinking water supply
- Increase water-use efficiency and optimize infrastructure investments for water and wastewater systems.
- Foster the enjoyment and protection of social, cultural, and recreational values in our watersheds to maintain well-being and quality of life.
- Mitigate and better prepare for climate change impacts on the region's water resources

Our vision is for healthy, safe and resilient water resources in the region, enabled through strong partnerships.

Our mission is to provide regional leadership at the watershed scale to support water management, land-use planning, and community outreach and advance drinking water sustainability, climate adaptation, and healthy ecosystems.



Program Origins

Parcel tax funded regional program established in 2008 by referendum, implemented in 2009

Intent was to address the need for better water information to inform local decisions and the need to coordinate across jurisdictions

Established by **RDN bylaw 1556** which includes directives around participation of the member municipalities and parcel tax requisition

First of its kind in BC; just completed 13 years of implementation

Our vision is for healthy, safe and resilient water resources in the region, enabled through strong partnerships.

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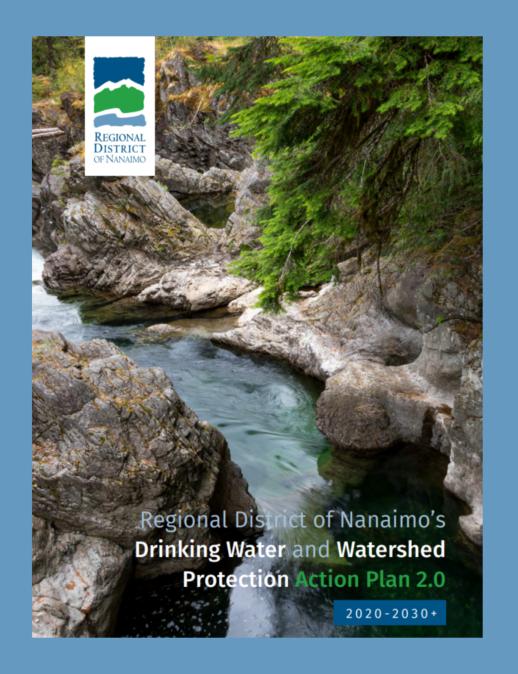


Action Plan 2.0

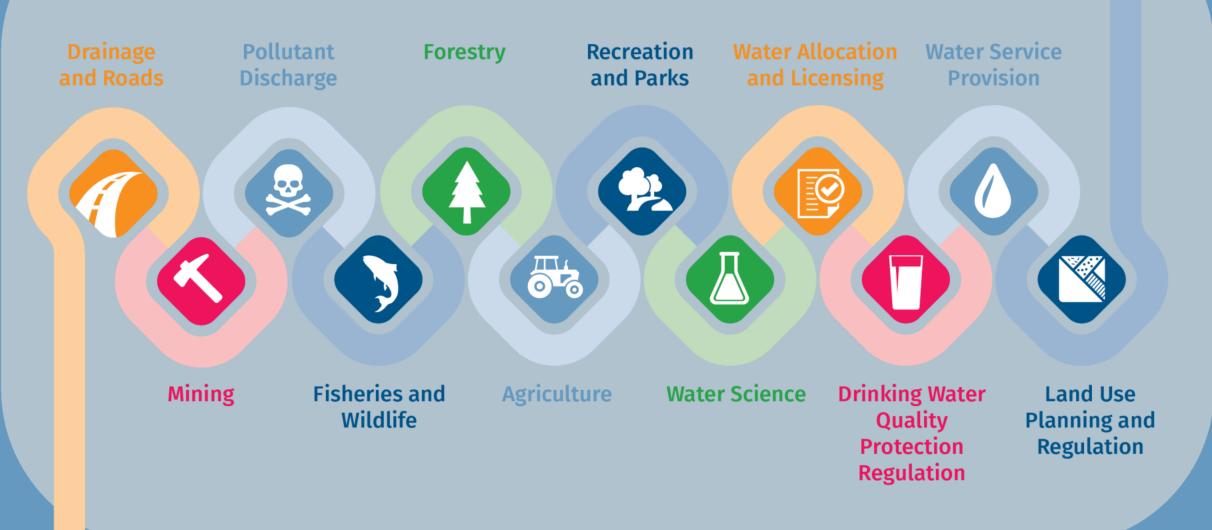
Action Plan 2.0 approved in 2020, sees the program through to 2030 and beyond

Guides program direction organized in themes of:

- Water Awareness & Stewardship
- Water Information & Science
- Water-centric Planning & Policy Support
- Water Collaboration



Overlapping Water-Related Jurisdictions in the Region



Technical Advisory Committee

DWWP Technical Advisory Committee advises the Board and staff on the implementation of the Drinking Water and Watershed Protection Service

The actions of the Committee members include:

- provide recommendations to the Board regarding activities relating to the DWWP program
- participate on smaller ad-hoc committees dealing with specific issues or tasks
- provide input and feedback on technical reports, discussion papers, and other documents prepared for the committee's information



Technical Advisory Committee

The committee consists of 23 members representing a broad range of interests and geographic locations in the RDN including:



Municipalities Island Health Professional Hydrogeologist Ministry of Environment Ministry of FLNRO Fisheries and Oceans Canada First Nations Ministry of Transportation & Infrastructure Vancouver Island University Islands Trust **Environment Community** Forestry General Public Representatives + more







Water Awareness & Stewardship

Objective: To increase awareness and stewardship of watersheds and drinking water resources across the region

- **Enhance** water awareness through community-based outreach
- Incentivize sustainable practices (rebates)
- Create campaigns to target strategic sectors
- Provide support for stewardship and restoration activities
- Coordinate with water service providers
- Participate in advisory committees to enhance regional capacity



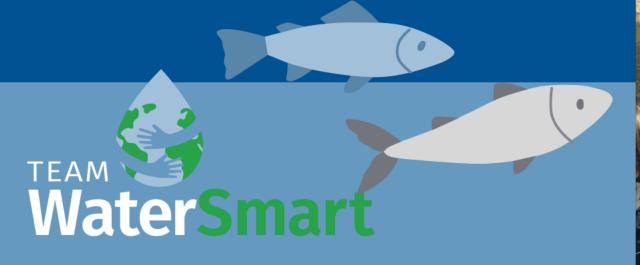
Projects & Initiatives

- Team WaterSmart
- Curriculum-connected school programs
 - Classroom programs
 - Watershed field trips
- Water Stewardship Rebates
- Small grant programs
 - Stewardship Seed Funding
 - Demonstration Sites & Interpretive Signage
- Stewardship Networking & Support
- Water Purveyors Working group
- Regional Watering Restrictions Framework
- Water Stewards Ambassador Program (new in 2023!)



Team WaterSmart

- Interactive booth at community events
- Workshops including:
 - WellSmart
 - WaterSmart
 - Rain Water Harvesting
- · Stream walks and outdoor education





Team WaterSmart

Water to Earth Month March 22 - April 22

- Nile Creek Streamwalk and Hatchery Tour
- WaterSmart Gardening and WellSmart workshops
- RainGarden Walk and Talk
- Wetlands Science and BioBlitz
- Stewards in the Spotlight event
- VIU Garry Oak Restoration Tour
- Online photo contest





Team WaterSmart

- Water Purveyor Working Group
- Irrigation Check up service for high water users
- Online contests and promotions
- Watersaver contest and Yardsign campaign







Curriculum-Connected School Programs

- In-class visits on watershed protection and conservation
- Click-and-go digital toolkit for Grades K-7
- Watershed Field Trips to the Nanaimo and Englishman Rivers
- Educational materials lending library
- NALT School Stewards Program







Water Stewardship Rebates

Rainwater Harvesting - Rebate of up to **\$750** for the installation of 1000 imperial gallons or more of rainwater storage

Irrigation Upgrade & Soil Improvements - Rebate of up to **\$675** to help offset the cost of landscape upgrades to improve water efficiency

Wellhead Upgrades - Rebates of up to \$650 for secure well-cap, well casing stick-up extension, and surface seal upgrades OR up to \$500 for the closure of unused wells

Well Water Testing - Rebate of 50% off (up to \$250) for a full spectrum, chemical and bacteriological, analysis completed by a provincially approved lab

Incentive programs to promote water sustainable practices within RDN Electoral Areas and member municipalities!



Rebate info and application forms available at **RDNrebates.ca**

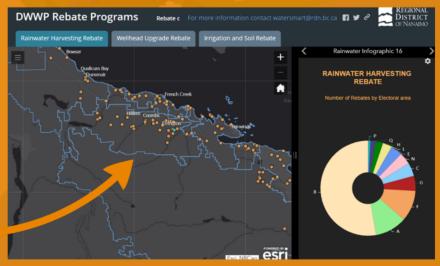
Water Stewardship Rebates

Rebate Highlights

- Over 965,000 imperial gallons of rainwater storage has been installed with support of the RWH rebate
- 62 irrigation systems have been retrofitted and over 130 residential properties have amended soil water-holding capacity with support of the I&S rebate
- 90 wellheads have been upgraded with support of the WU rebate
- Over 1000 well water quality tests have been supported through the WWT rebate

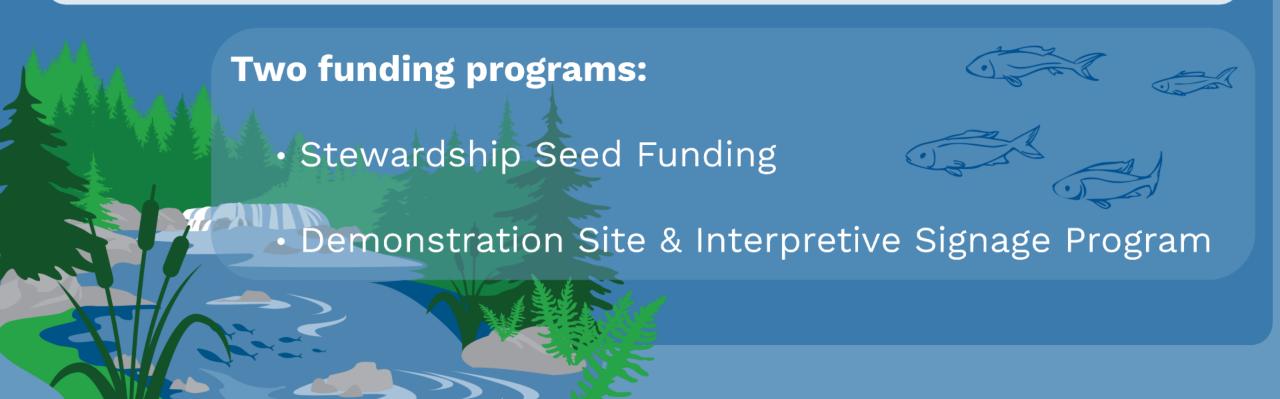
Rebate webmap tracks uptake from across the region – available at **RDNrebates.ca**





Small Grant Programs

The DWWP program supports efforts of community groups taking community-level action to monitor, restore and enhance local watersheds



Stewardship Seed Funding

Seed funding of up to **\$5,000** for up to 3 consecutive years for projects within the RDN that:

- Are led by a non-profit organization
- Involve volunteers
- Are jointly funded by other partners, donors, and/ or in-kind contributions
- Acquire all necessary permissions/permits
- Actively enhance stream, river, lake, estuary, wetland health, hydrology, or function

Priority given to stewardship groups involved in the Community Watershed Monitoring Network

For program details, visit www.rdn.bc.ca/stewardship-seed-funding

Stewardship Seed Funding (SSF) Program Summary (2016 – 2022)

Year	Group	Project
2016	Departure Creek Streamkeepers	Departure Creek Habitat Assessment
2016	MVIHES	Shelley Creek Water Balance Model
2016	Walley Creek Streamkeepers	Walley Creek Riparian Planting Phase 1
2017	Departure Creek Streamkeepers	Departure Creek Bank Stabilization
2017	Walley Creek Streamkeepers	Walley Creek Riparian Planting Phase 2
2017	Island Waters Fly Fishers	Millstone River Vegetation Fencing & Tools
2017	NALT	Plum Creek Wetland Restoration
2018	MVIHES	Shelley Creek Signage Support
2018	NALT	Chase River Slope Restoration
2018	NALT	Knarston Creek Riparian Restoration
2019	NALT	Holden Creek Riparian Restoration
2019	MVIHES	Englishman River Estuary Water Quality Monitoring
2019	NALT	Chase River Wetland Restoration
2019	Island Waters Fly Fishers	Millstone River Bioengineered Bank Stabilization
2019	NALT	Lower Knarston Creek Riparian Restoration Project
2020	NALT	Lower Knarston Creek Riparian Restoration Project
2020	Qualicum Beach Streamkeepers	Beach Creek Flow Monitoring Station
2020	NALT	Chase River Wetland Riparian Restoration
2020	Qualicum Beach Streamkeepers	Little Qualicum River Estuary Restoration
2021	Save Estuary Land Society	French Creek Estuary Water Quality Monitoring
2021	Departure Creek Streamkeepers	Departure Creek Off-channel Restoration
2021	BC Conservation Foundation	UV-filter sampling in RDN swim lakes & rivers
2021	NALT	Cat Stream Riparian Restoration
2022	Guardians of Mid Island Estuaries	Little Qualicum River Estuary Restoration – Year 1
2022	Fanny Bay Salmonid Enhancement	Deep Bay Creek Habitat Mapping
2022	BC Conservation Foundation	Tire Wear Toxicant Sampling across RDN – Year 1

Since 2016, DWWP has supported 26 habitat assessment, monitoring, riparian and wetland restoration projects!

Demonstration Sites & Interpretive Signage

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

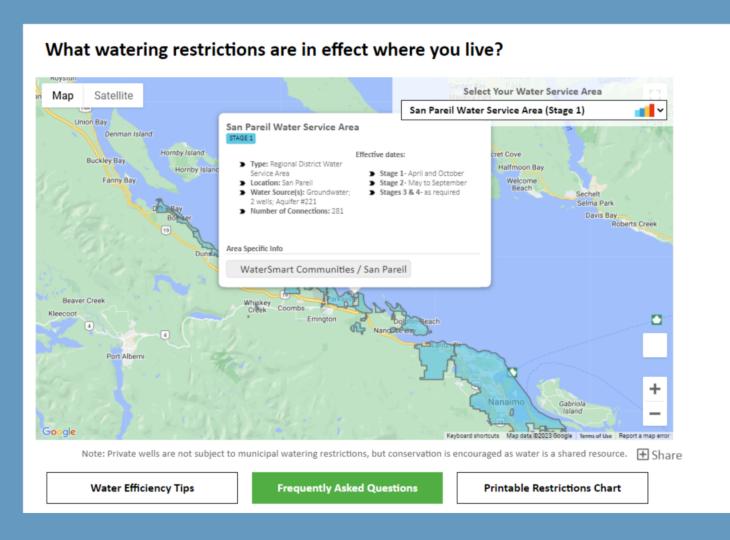
Demonstration sites and interpretive signs are effective tools in bringing awareness to watershed features, watershed restoration and stewardship, and nature-based urban infrastructure that restore or protect watershed function

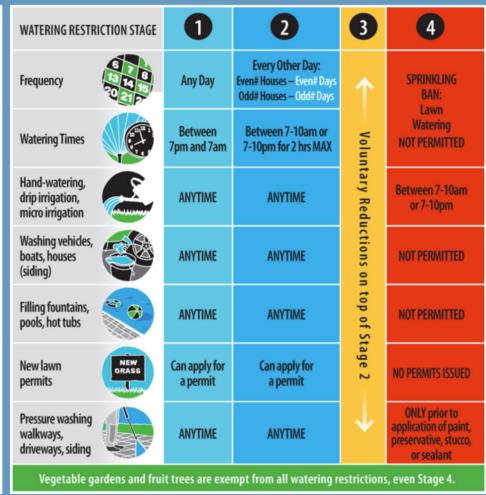
The **Demonstration Site & Interpretive Signage** funding program supports the efforts of community organizations, stewardship groups, local government, and First Nations by offering funding of up to **\$5000** for the installation or enhancement of demonstration sites and/or interpretive signage



Program details and info on how to apply available at rdn.bc.ca/demonstration-sites-interpretive-signage

Regional Watering Restrictions Framework









Water Information & Science

Objective: To support high quality and reliable long-term data collection, analysis, and science that generates information required to understand the region's water resources

Projects & Initiatives

- Maintain robust regional water monitoring networks
- Analyze and interpret of data to generate richer understanding of region's water
- Communicate water information to decision makers and the public
- Develop targets to maintain watershed function

Projects & Initiatives

- Surface Water Quality Monitoring
- Groundwater Monitoring
- Riparian Spatial Analysis
- Water Budget
- Hydrometric Monitoring (lake levels & stream flow)
- Wetland Monitoring (in partnership with VIU)
- Snowpack monitoring and modelling (in partnership with Ministry of Forests & VIU)



Surface Water Quality Monitoring Community Watershed Monitoring Network

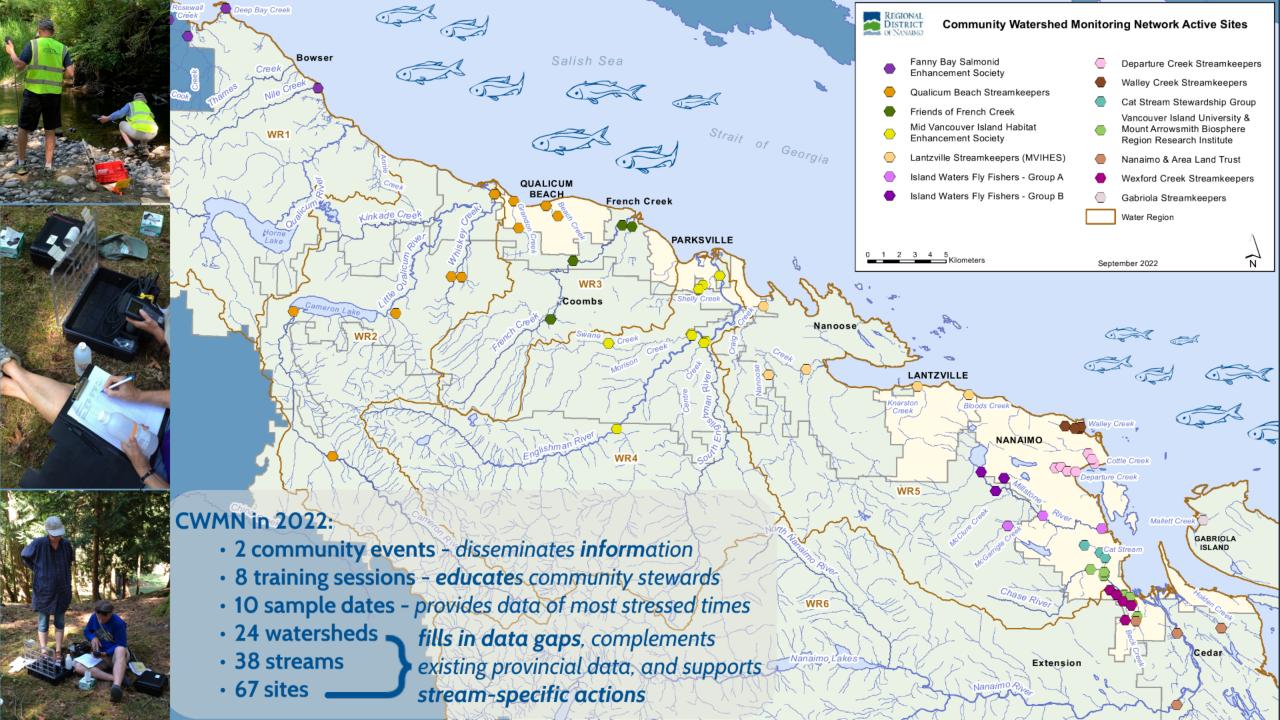
- Collaborative program
- With provincial methodologies that
- Maintains transparency and supports
- Needed actions and stewardship









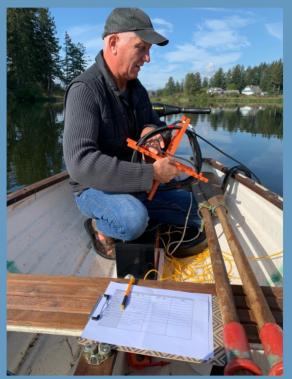


CWMN Results

Results feed into the four **DWWP Action Plan** water information and science **recommendations** of **maintenance**, **analysis**, **communication**, and **development**







1. Maintain regional water monitoring networks

- CWMN since 2011
- Biological monitoring via **CABIN with ENV** since 2019
- Provincial stewardship tools resource - launched 2022





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Government Digital Experience

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Govt, Victoria, BC V8W 9V1



Home > Environmental protection and sustainability > Air, Land & Water > Water > Water Quality > Water Quality Monitoring >

Surface water quality stewardship

Water quality stewardship protects our shared resources through partnerships and responsible monitoring.

Stewardship programs are a vital part of this partnership:

- A water quality steward takes responsibility to collect and share surface water quality information from local
- Local stewardship builds community engagement to improve watershed health

Start a surface water quality stewardship program

To learn more about water stewardship in streams and rivers, review the available resources in the surface water

For more information on lake monitoring, visit the B.C. Lake Stewardship and Monitoring Program page.

- Management documents for stewardship
- Guidance to help ensure quality and accuracy of data
- Information to demonstrate how data affects and impacts decision-making







Set up for success before you gather surface water samples.

Analyze and share your results. Data must be in electronic format.

Learn how to improve and expand your stewardship practices.

Water monitoring groups

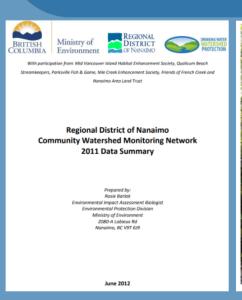
The Provincial Monitoring, Assessment and Stewardship team works with many water quality stewards, including:

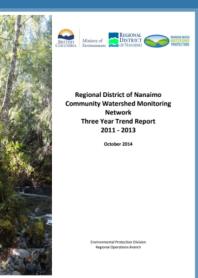
- Community groups
- Indigenous communities
- Industry groups
- Local authorities
- Watershed organizations

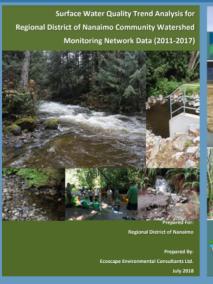
www.gov.bc.ca/surfacewaterstewardship

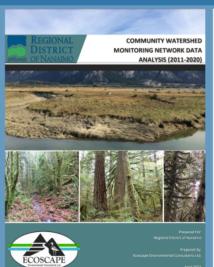
2. Analyze and interpret data to generate richer understanding of region's water

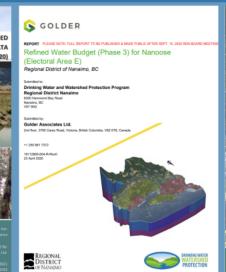
- Data collected is analyzed and reported out on annually
- In-depth trend analysis completed periodically
- Results inform other DWWP reports and regional strategies













3. Communicate water information to the public and decision makers

- DWWP staff present on results and recommendations
- Communicated data informs and supports other projects
 - Stewardship Seed Funding
 - RDN GIS Water Map
 - Outreach and education initiatives



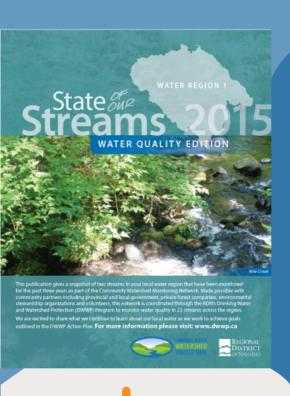






www.rdn.bc.ca/cwmn

4. Develop targets to maintain watershed function

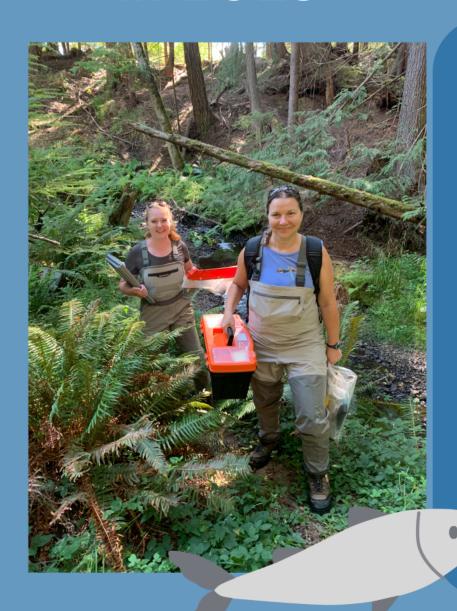


 Background data collected by CWMN, desktop studies, and related projects inform the state of watershed health

 Watersheds have overlapping jurisdiction, collaborations and partnerships are required for the development of watershed targets



In 2023



- Monitoring networks and related projects have increased our understanding of watershed health
- Continue to implement recommendations from technical experts
- Expand our ability to support citizen science in our region through the Nodes of Watershed Monitoring and Stewardship

Nodes of Watershed Monitoring and Stewardship

- Recommendations based on data collected to date
- Expanded monitoring dependent on partner priorities and capacity
- Agency, industry, and community steward collaborations are key
- Creation of an ubiquitous framework to support universal application

Reporting

- Trend analysis and professional recommendations based on collected data to inform future activities, policy advocacy, and additional stewardship activities (nodes)

Water Bodies

- Monitoring level and / or quality of lakes, wetlands, estuaries continuos and discrete sampling
- Mapping water bodies and drainages

Water Chemistry

- Community Watershed Monitoring Network
- Targeted monitoring programs, i.e., agriculture land use, road run-off, tire toxin monitoring

Stewardship

- Restoration activities, i.e., riparian, stream structure, green infrastructure
- Best management practices
 - Targeted outreach and education capaigns
- Stormwater management
 - Grants and funding
- Tool Lending Libraries

Biological

- Benthic invertebrate sampling, i.e., CABIN, Streamkeepers method
- Smolt traps / counts
- Species surveys, e.g., BioBlitz

Physical

- Surveys / assessments
- Riparian Spatial Analysis Mapping Tool
- Photo imagry / desktop analysis
 - Map recharge areas
 - Geomorphology studies

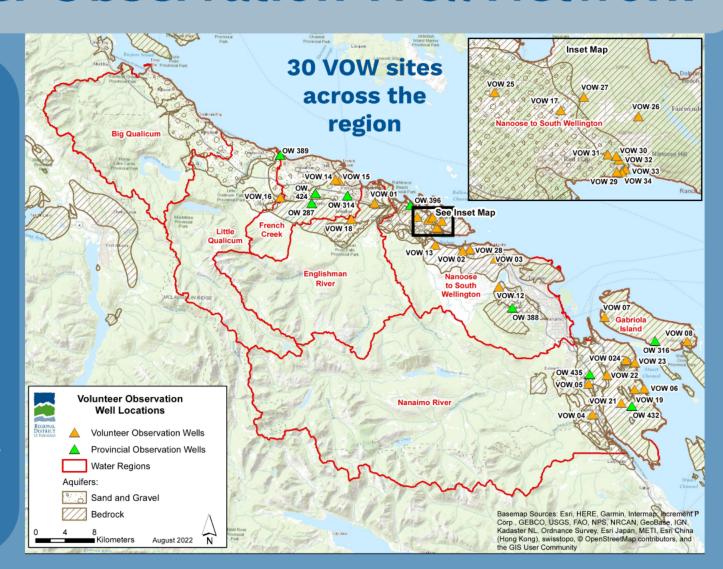
Hydrometric

- Staff / level gauges
- Rain gauges / stations
- Manual discharge measurements
- Continuous flow stations

Groundwater Monitoring

Volunteer Observation Well Network

- **Est. in 2013** to fill data gaps in provincial Groundwater Observation Well network
- Volunteer Observation Well network (VOW) data collected using provincial methodologies
- Measures groundwater level and temperature; as well as conductivity in coastal sites

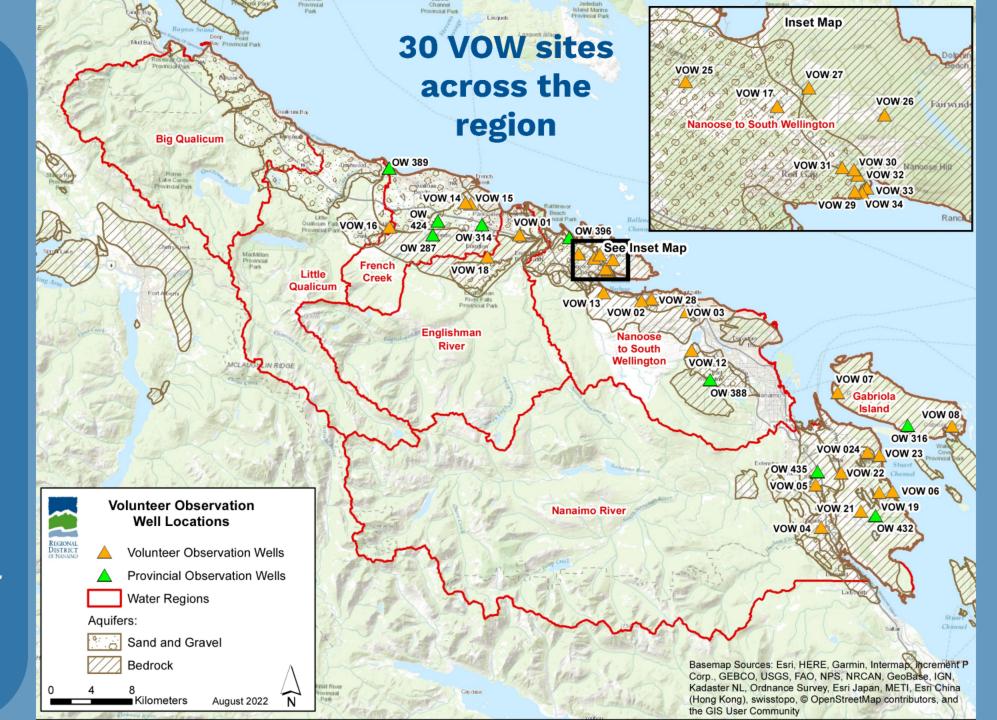


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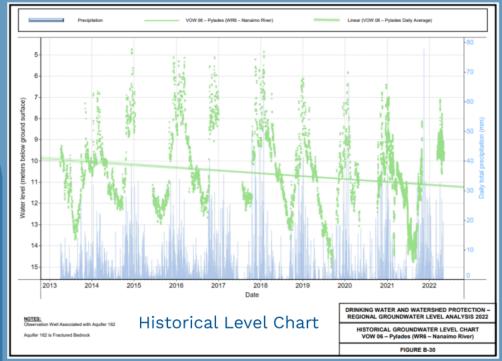
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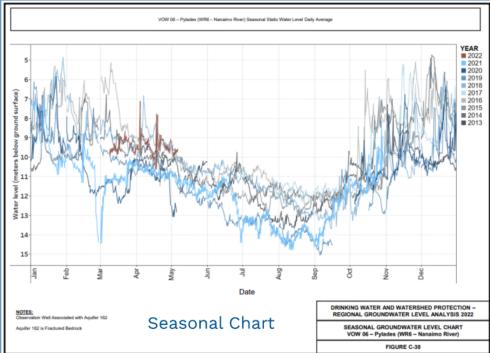
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VOW Reporting

- Since 2020, data has been reported out on annually via the Pre-summer Groundwater Level Analysis
- Analysis reports on both historical and seasonal averages
 - Historical levels to increase our understanding of aquifer trends over time
 - Seasonal groundwater analysis informs how current levels look in relation to previous years





VOW Results

Data collected as part of the VOW informs:

- Water Budget analysis and modelling
- Partners and decision makers
 - TAC, BC Ground Water Association, local and other organizations
- · Water management for dry period
 - supported by pre-summer groundwater level analysis results

2020, 2021, and 2022 reports are available at www.rdn.bc.ca/dwwp-reports



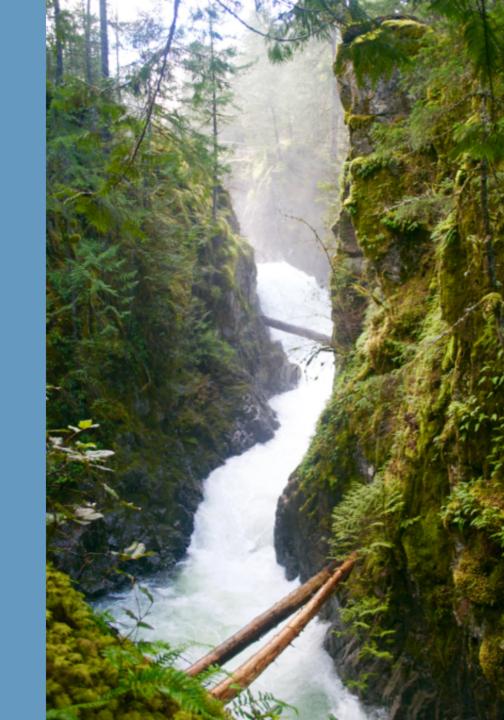




Riparian Analysis for Restoration Prioritization

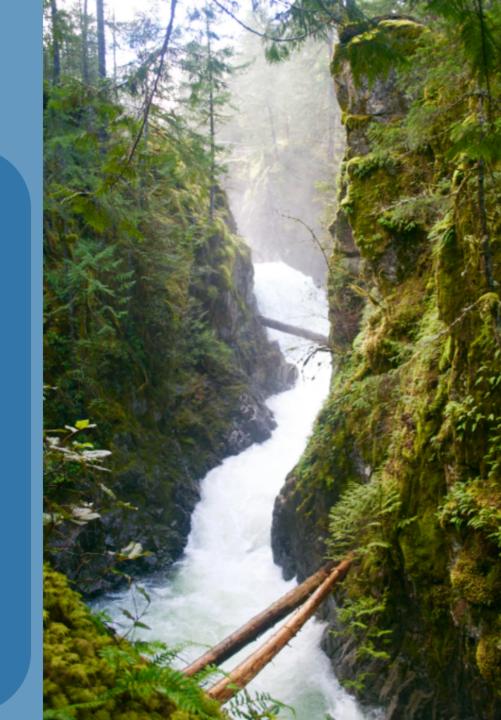
Project aims:

- Provide a regional-level status summary to guide field work
- Strategize and prioritize efforts for conservation, monitoring, and rehabilitation
- Highlight where to allocate funding for restoration and enhancement projects



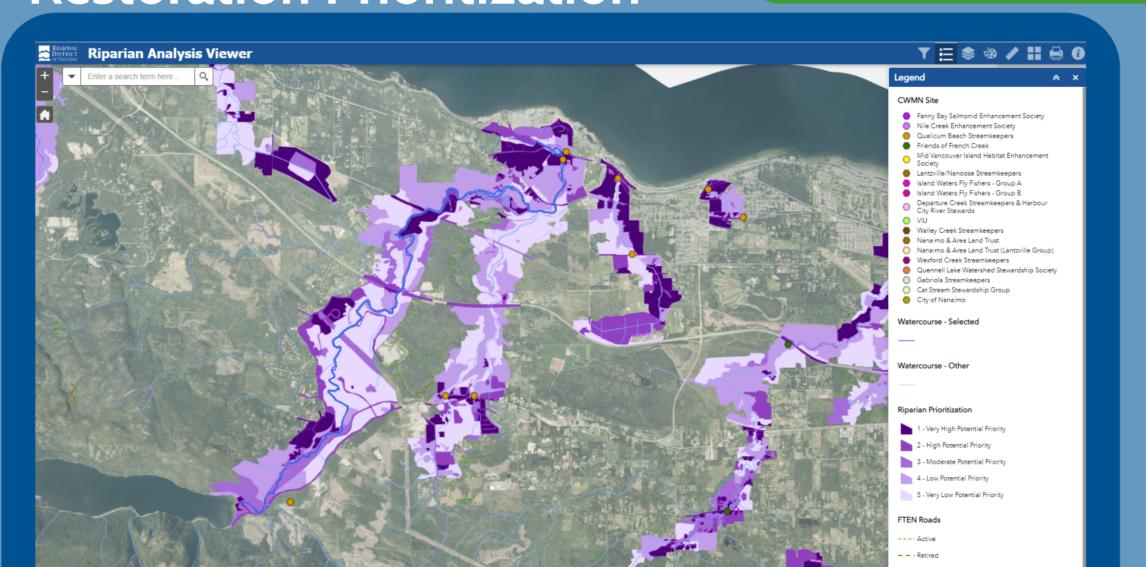
Riparian Analysis for Restoration Prioritization

- 47 streams analyzed
- Compiles existing data from publicly-available sources
- Quantifies current vegetation extents & considers vegetation types and diversity, ages of stands, canopy closure, soil classes, and disturbance
- Presents a criteria for health, showing where there is potential deficit
- Identifies priority areas for restoration, enhancement, or monitoring
- Presented in both a report and as an interactive, publicly available map



Riparian Analysis for Restoration Prioritization

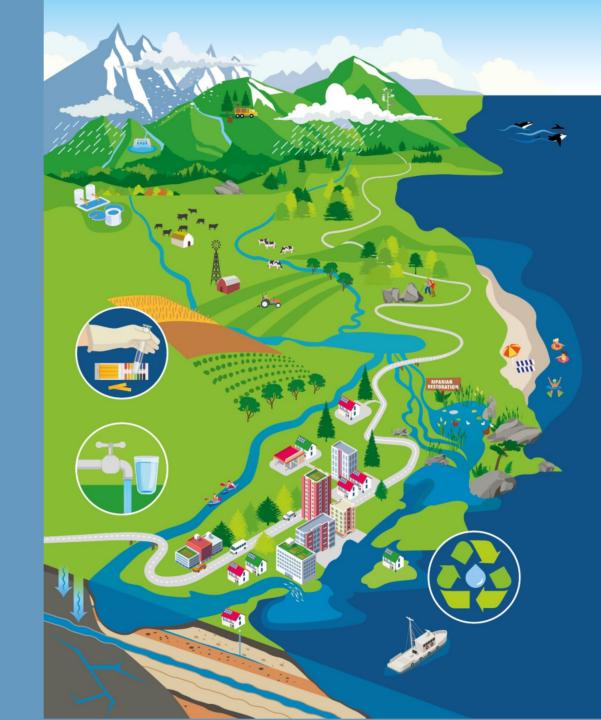
rdn.bc.ca/riparian-analysis-map



Water Budget Project

The Water Budget Project is a multiphased series of studies that work to examine:

- the relationship between surface and ground water
- current water demands
- future potential water demands
- the long-term impacts of climate change on water resources



Water Budget Project

Phase 1: All water regions in the RDN received a relative stress assessment

Phase 2: Gathered more data and identified gaps to prioritize regions needing more focus due to complex surface/groundwater relationships or relative aquifer stress

Phase 3: Building a 3D numerical groundwater flow model to assess stress on aquifers and watersheds by comparing water availability with water use and setting boundary conditions for sustainable water extraction in various scenarios. The findings of this technical analysis will guide recommendations for water supply planning and land use decisions.

Phase 3 Studies

Nanoose

Water Region 5A completed in 2020

French Creek

Water Region 3
draft report currently being reviewed by Provincial partners

Cedar-Yellowpoint

Water Region 6b to start this year





Water-Centric Planning & Policy Support

Objectives: To fully integrate water management and land-use planning through the adoption of policies, plans, and practices that recognize water-related constraints

To identify and advocate for external regulations and policies that will enable efficient water use, water quality protection and maintenance or restoration of watershed function

- Facilitate integration of water information to planning processes
- Advance innovative policies and practices to improve water sustainability

Projects & Initiatives

Projects & Initiatives

- Regional Strategy for Rainwater Management
 - Watershed Performance Targets
- Ecological Accounting Process
- Supporting Area F OCP Update (Water Quality
 - & Quantity Risk Assessment for Area F)
- Planning Referrals
 - Policy B1.21 Groundwater

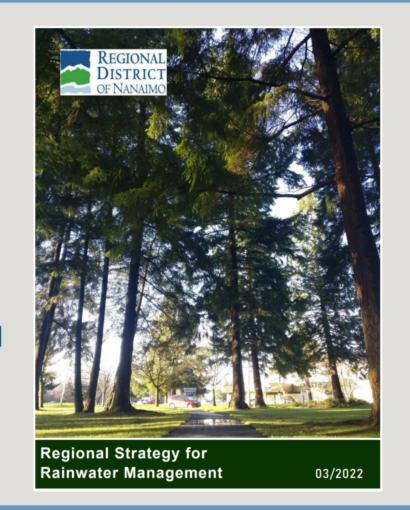
Regional Strategy for Rainwater Management

Rainwater Management is the approach used to control, treat, and convey precipitation within the landscape using both natural and built infrastructure.

Sustainable rainwater management considers the full hydrological cycle and changes in climate and manages for all rain events, not just storms.

Rainwater is considered a resource that can be used to solve problem, rather than a nuisance.

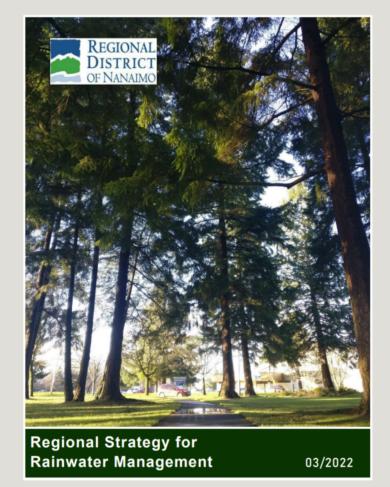
Management on a watershed scale, for cumulative effects.



Regional Strategy for Rainwater Management

Strategy Objectives:

- 1. To outline a strategy for collaborative rainwater management in the region, at the watershed scale, for the protection of private property and the environment
- 2. To coordinate actions across jurisdictions to maintain healthy watersheds in the context of climate change, land use pressures and evolving best practices for rainwater management
- 3. To provide a basis to update policies, standards and bylaws, inform education and outreach, and support grant funding applications for infrastructure upgrades and natural asset protection



Regional Strategy for Rainwater Management

Key Recommendations

Foundation Setting Studies & Assessments

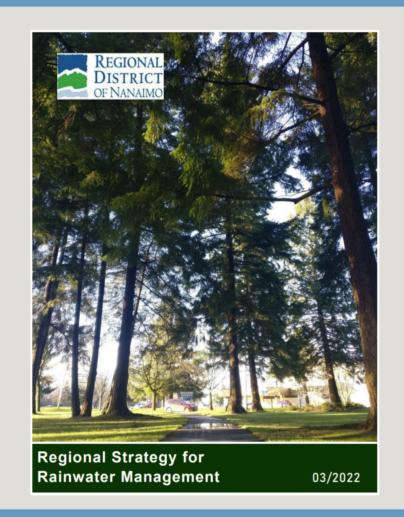
Watershed studies, monitoring, regional climate change assessment, funding options assessment

Development of Performance Targets

Release rate, retention volume, recharge volume, water quality

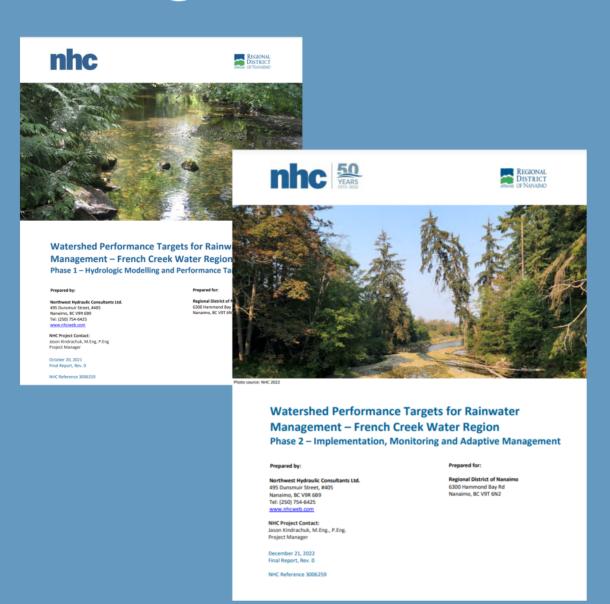
Implementation tools

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



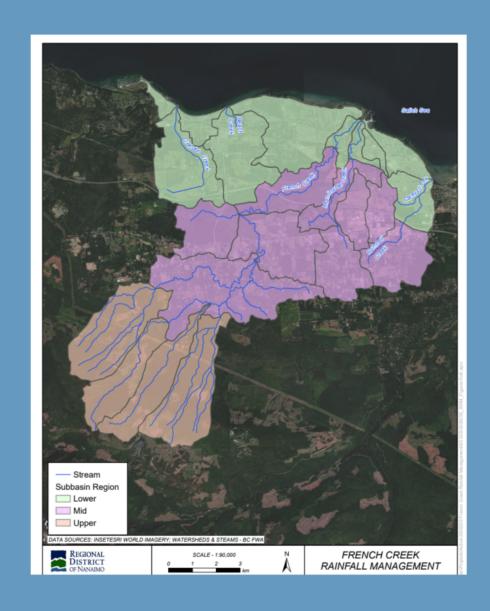
Watershed Performance Targets

- Purpose: Mitigate the effects of development by mimicking the natural water balance of a watershed
- Two-phase project started in 2021
- Pilot study using French Creek Water Region
- Phase 1 Hydrologic modelling and development of performance targets
- Phase 2 Implementation, Monitoring and Adaptive Management
- Linked to Foundation-setting actions in the Regional Strategy for Rainwater Management



Watershed Performance Targets

- Developed one set of performance targets for midregion & one set for lower-region
- Looks to understand the stress of land use development on its own and land use development coupled with climate change
- Targets are only applied to flow from impervious areas; assuming all existing development is eventually redeveloped or retrofitted instead of only mitigating impacts based on future impervious areas
- The overall performance target objective is to ensure no increase in the magnitude of flood events while also maintaining the ground water component of the water balance



Ecological Accounting Process

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 though the application of EAPs supported through RDN, CoN and MNC













Planning Referrals Policy B1.21 - Groundwater

Purpose:

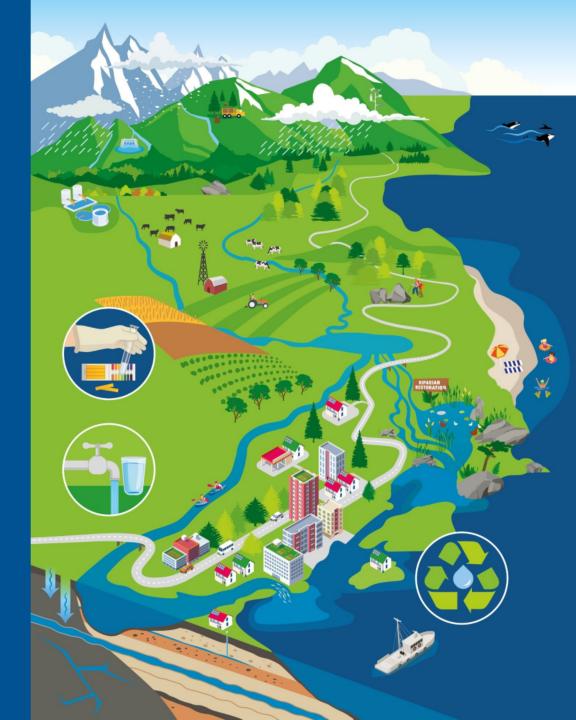
To identify and standardize the technical information required for rezoning applications to confirm potable water needs are met, assess potential impacts on groundwater resources, existing groundwater users, hydraulically connected streams, and sensitive ecosystems.





Resources

- RDN DWWP Website
- Team WaterSmart GetInvolved
- Interactive Maps
 - Our Watersheds
 - Riparian Spatial Analysis Map
 - Water Stewardship Rebate Map
 - Watering Restrictions map
- DWWP Action Plan 2.0
- Technical Advisory Committee
- Project Reports
- Educational Video Series
- DWWP staff team



Thank you!

Erica Forssman
Program Coordinator
eforssman@rdn.bc.ca

Lauren Fegan Monitoring Network Coordinator lfegan@rdn.bc.ca

Capri Brugge Stewardship Coordinator cbrugge@rdn.bc.ca

Melissa Tomlinson Outreach Coordinator mtomlinson@rdn.bc.ca

