

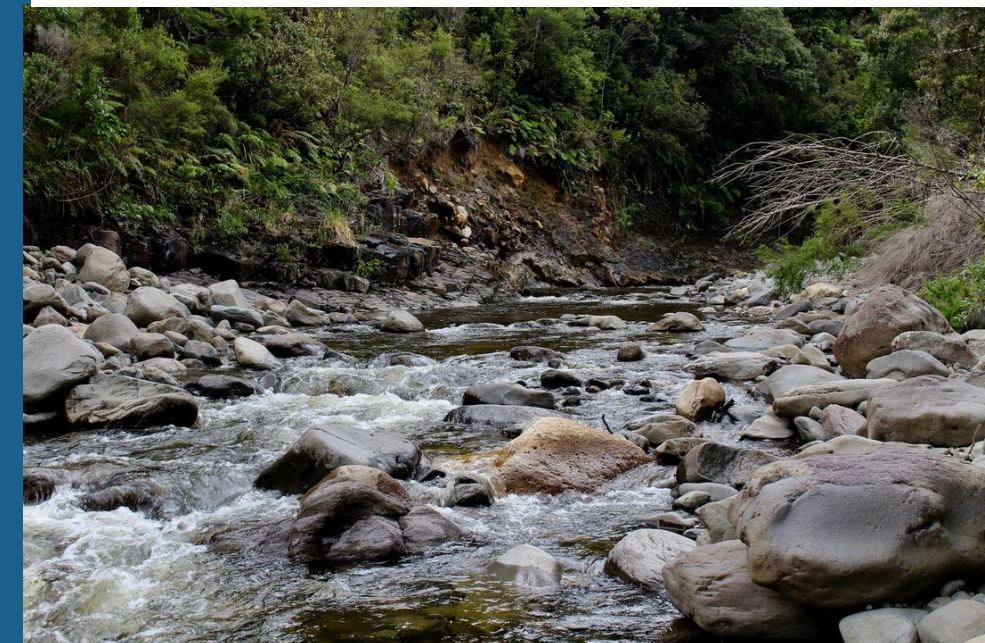
Welcome to...

# Drinking Water & Watershed Protection Technical Advisory Committee Meeting November 12, 2020



REGIONAL  
DISTRICT  
OF NANAIMO

Presented via Zoom





# AGENDA

**ROUNDTABLE UPDATES** - All committee members

**PROJECT UPDATES** - Verbal presentations from partners & staff, with committee discussion

**LOOKING AHEAD** - Verbal presentation from staff, with committee discussion

**NEW BUSINESS**

**CLOSING**





October 27, 2020

### RDN Drinking Water and Watershed Protection Program Wins Innovation Award

The Regional District of Nanaimo's Drinking Water and Watershed Protection Program has been presented with the Environmental Operators Certification Program (EOCP)'s Innovation Award for 2020. The award recognizes individuals or organizations that have applied new ways of thinking that positively transform the water industry. The award was accepted virtually at the annual EOC conference on September 16, 2020.

For over a decade the RDN's Drinking Water and Watershed Protection (DWWP) program has enabled and facilitated high levels of collaboration across the water operators and purveyors in the region, as well as within the community and with senior government. Program initiatives include providing public outreach, educational resources and rebates in support of water conservation; offering professional development and networking sessions for small water system operators; and collecting monitoring data and supporting regional studies to better understand the watersheds and aquifers that provide the source waters for community drinking water.



The key innovation has been streamlining communications across agencies and using watershed boundaries as a lens to implement and enable sustainable and collaborative water management in our region. "We are honoured that the EOC committee was unanimous in its decision to present the Innovation Award to the RDN. The DWWP Program has excelled at coordinating efforts between the many water providers in the region, united by the common goal of water sustainability," said RDN Chair Ian Thorpe.

This recognition is timely, as the RDN Board recently, in February 2020, adopted an updated 10-Year Action Plan for the Drinking Water and Watershed Protection service. Region-wide initiatives in water awareness and stewardship; water information and science; and water-centric planning and policy support will continue to be delivered in support of healthy, safe and resilient water resources in the region. For more information on the EOC Awards, visit [eocp.ca/about-us/operator-awards/](http://eocp.ca/about-us/operator-awards/) and to learn more about the RDN's Drinking Water and Watershed Protection Action Plan, visit [rdn.bc.ca/dwwp-action-plan](http://rdn.bc.ca/dwwp-action-plan).

-30-

**For media inquiries, please contact:**

Rebecca Taylor  
Communications Coordinator  
Regional District of Nanaimo

 250-390-6502  
 [rtaylor@rdn.bc.ca](mailto:rtaylor@rdn.bc.ca)

Get Involved RDN!

# FALL 2020

## PROJECT UPDATES

2020 took some unexpected turns, but we have managed to move ahead with and complete many of our key projects! We will present on the following:



**WETLAND MAPPING & MONITORING PROJECT - 5-Year Wrap Up**  
Haley Tomlin, Vancouver Island University



**SNOWPACK MODELLING DELIVERABLES - Year 1 Summary**  
Bill Floyd, Vancouver Island University



**REBATE PROGRAM TOTALS**  
Capri Brugge, DWWP



**VIRTUAL WATERSHED FIELD TRIP VIDEO & CLASSROOM MATERIALS**  
Capri Brugge, DWWP



**WELLSMART WORKSHOPS & GROUNDWATER SOCIAL MEDIA CAMPAIGN**  
Sarah Gourlay, DWWP



**STEWARDSHIP SEED FUNDED PROJECTS**  
Lauren Fegan, DWWP



**BENTHIC SAMPLING PARTNERSHIPS IN NANAIMO RIVER WATERSHED**  
Lauren Fegan, DWWP



**MILLSTONE RIVER ECOLOGICAL ACCOUNTING PROCESS - Update**  
Julie Pisani, DWWP



**BEHAVIOUR CHANGE REVIEW OF OUTREACH PROGRAMS**  
Julie Pisani, DWWP

# WETLAND MAPPING & MONITORING - 5 YEAR RESEARCH PROJECT with VIU / MABRRI



Haley Tomlin, B.Sc

Mount Arrowsmith Biosphere Region Research Institute (MABRRI)

Vancouver Island University

November 12, 2020

VANCOUVER ISLAND  
UNIVERSITY  
**MA****RRI**

# SNOWPACK MODELLING - ENGLISHMAN R WATERSHED

## The Cryosphere Node: Preliminary Results from Upper Englishman River Snow Surveys 2020

**Bill Floyd, RPF, PhD**

Research Hydrologist, FLNR

Adjunct Professor, Vancouver Island University

**Brian Menounos, PhD**

Canada Research Chair in Glacial Change, UNBC

**Derek Heathfield, MSc**

Geospatial Team Lead, Hakai Institute

**Steven Beffort**

ACO Acquisition Lead, Hakai Institute

**Santiago Gonzalez Arriola**

Geospatial Analyst, Hakai Institute

**Alison Bishop**

Geospatial Analyst, Vancouver Island University



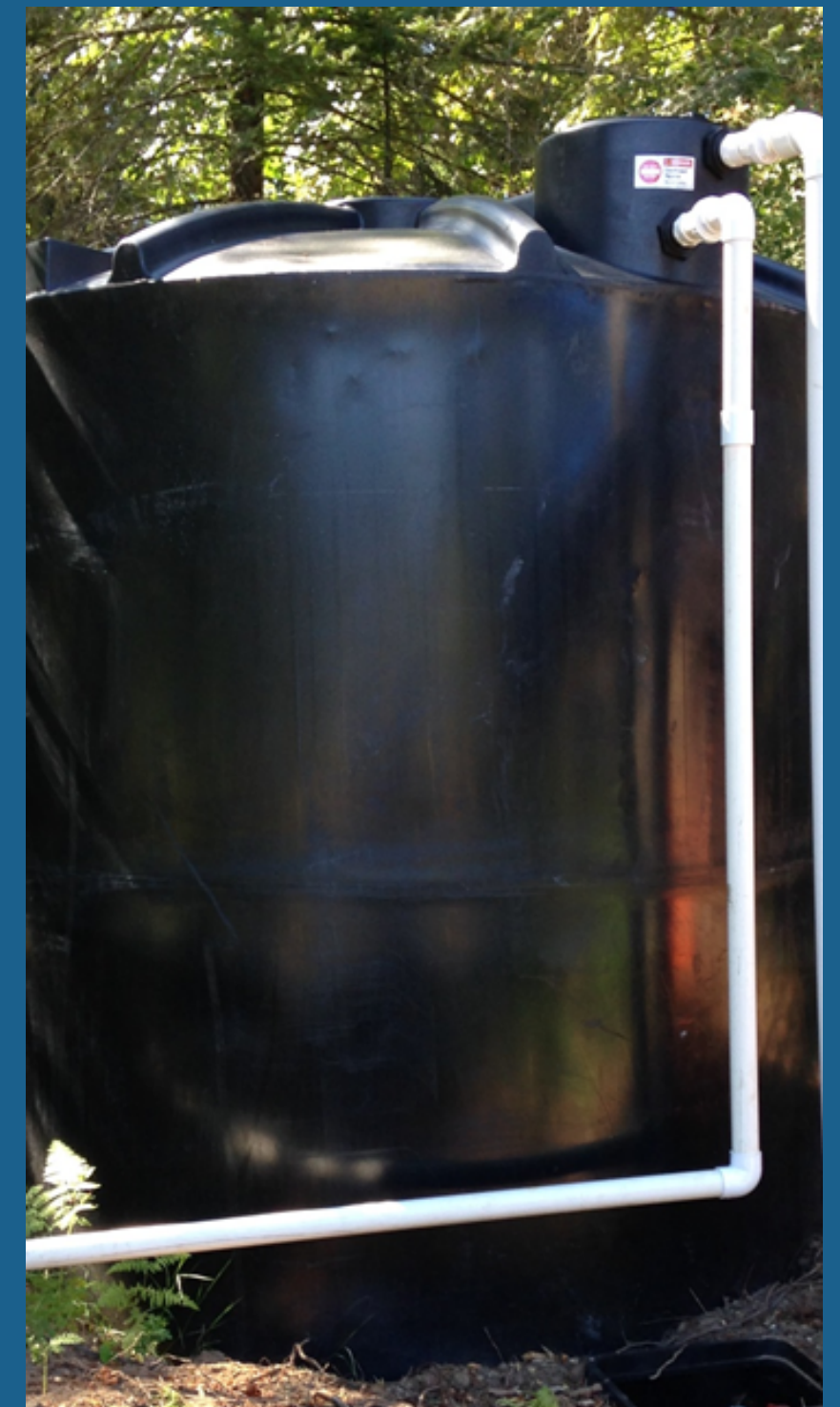
# REBATE PROGRAM TOTALS 2020

## RAINWATER HARVESTING

- Rebate of up to \$750 for a minimum of 1000 imperial gallon cistern and other eligible costs
- Rebate is now closed for Area B, still open for all other Areas/Muni's
- Claim submission deadline by December 15th 2020

Total Allocated	Total Issued	# Applications	# Issued
\$16,500	\$10,819	22	15

Area A	Area B	Area C	Area E	Area F	Area G	Area H	Nan	Lantz	Parks	QB
2	10	2	2	3	2	1	0	0	0	0



# REBATE PROGRAM TOTALS 2020

## IRRIGATION UPGRADES & SOIL IMPROVEMENTS

- Rebate of up to \$675 for irrigation upgrades and/or the addition of compost, topsoil, or mulch
- Rebate is now CLOSED for 2020.
- Claim submission deadline of December 15th 2020

Total Allocated	Total Issued	# Applications	# Issued
\$3,525	\$2,815	17	14

Area A	Area B	Area C	Area E	Area F	Area G	Area H	Nan	Lantz	Parks	QB
0	3	0	0	0	2	0	4	1	5	2





# REBATE PROGRAM TOTALS 2020

## WELLHEAD UPGRADES

- Rebate of up to \$650 for secure well cap, well casing stick-up and surface seal upgrades. \$500 for well closure.
- Open and accepting applications from all Area's/Muni's
- Claim submission deadline is December 15th, 2020

Total Allocated	Total Issued	# Applications	# Issued
\$4,500	\$2,116	11	6

Area A	Area B	Area C	Area E	Area F	Area G	Area H	Nan	Lantz	Parks	QB
3	5	1	1	1	0	0	0	0	0	0



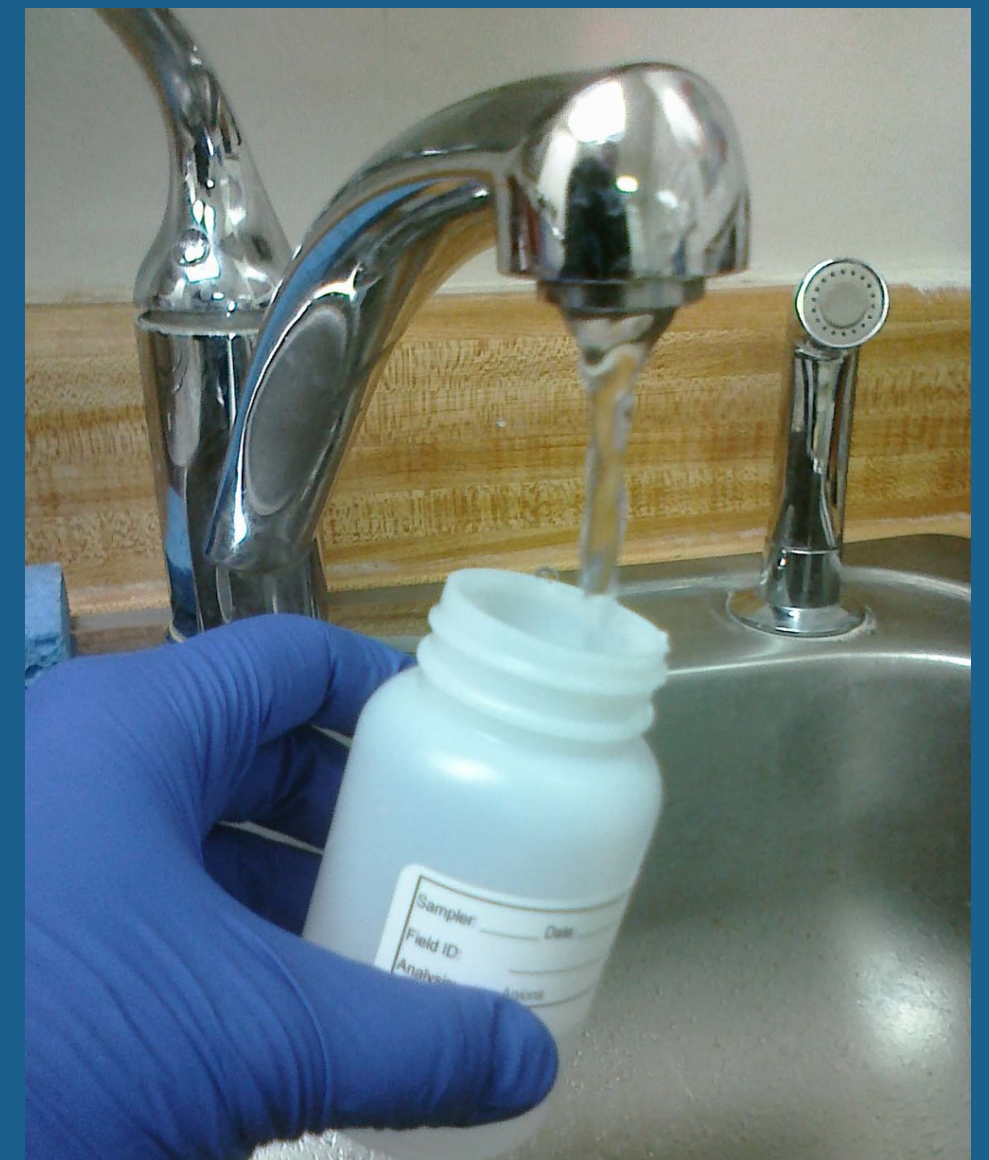
# REBATE PROGRAM TOTALS 2020

## WELL WATER TESTING

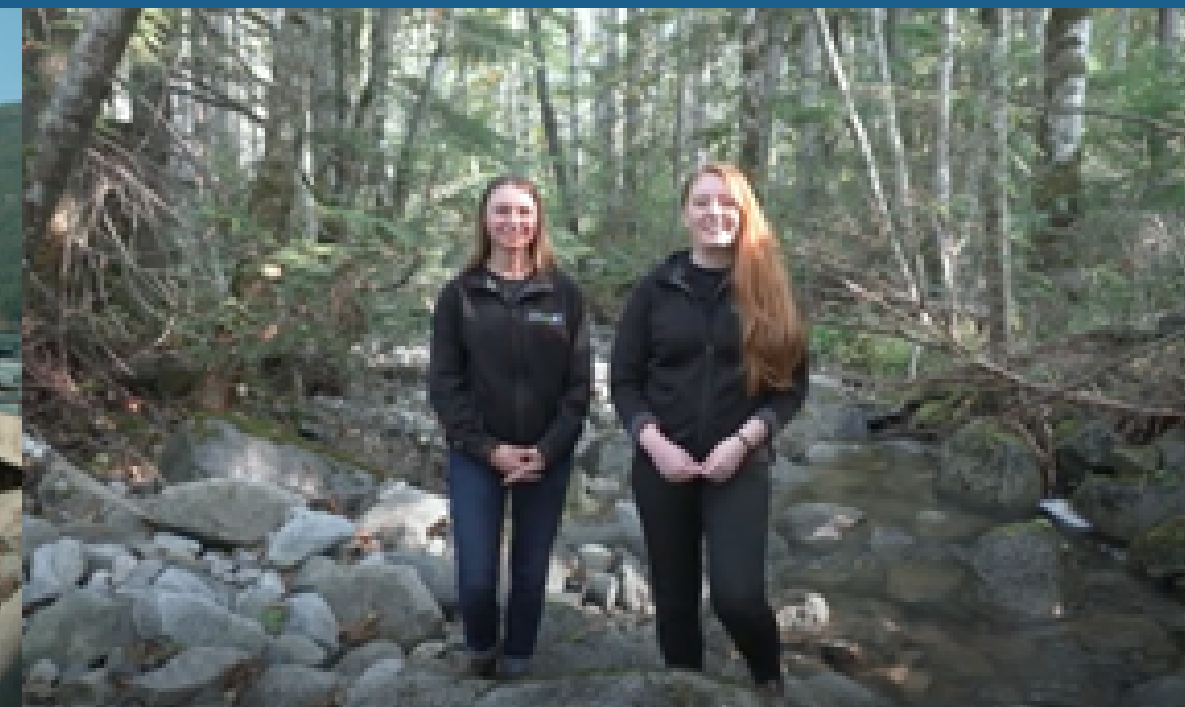
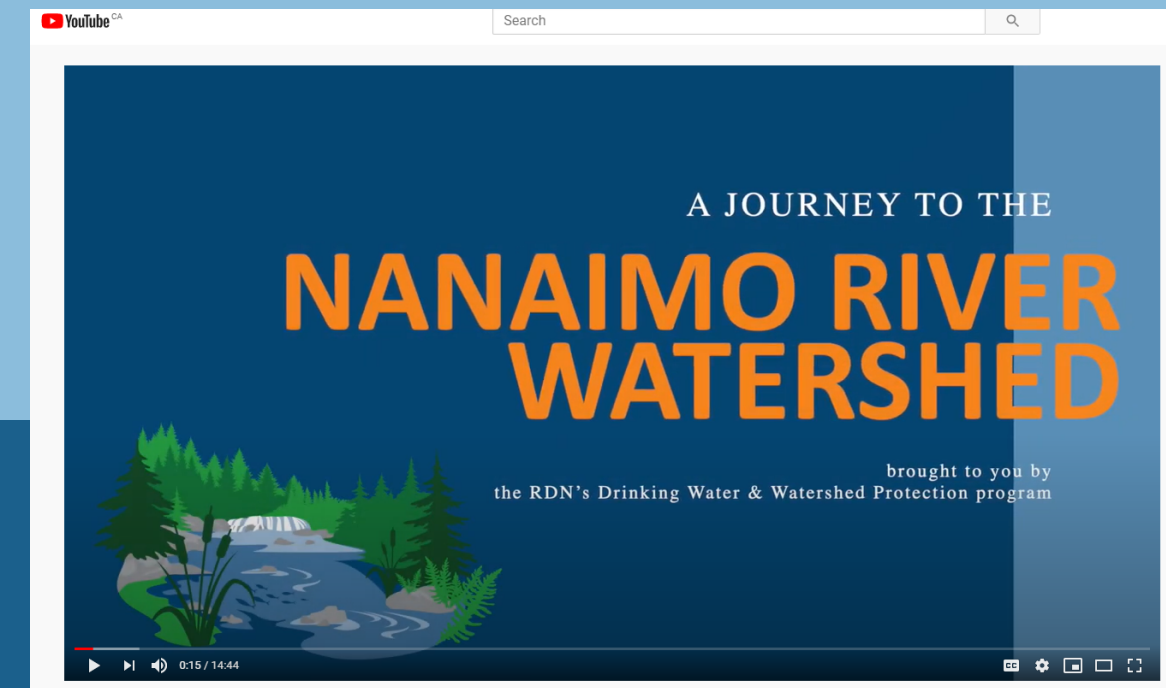
- Voucher for 50% off of a full spectrum analysis from an accredited lab
- Rebate still open and accepting applications
- NEW! – Pre-approval Application process

Total Issued	# Issued
\$8,815	84

Area A	Area B	Area C	Area E	Area F	Area G	Area H	Nan	Lantz	Parks	QB
12	18	8	8	11	10	2	1	12	1	1



# VIRTUAL WATERSHED FIELD TRIP



- Team WaterSmart has offered watershed field trips since 2014, in partnership with Mosaic.
- This year, we adapted our watershed education into a short video to be shared with local educators and students!

*“Imagine with us that you are a water droplet too, making the incredible journey to the source of our drinking water”*

# WELLSMART WORKSHOPS

- This year: webinars hosted over Zoom
- 2 times & 2 dates: November 19th and December 10th
- Presented by representatives from RDN, Ministry of FLNRORD & Island Health
- Live Q&A hosted by presenters and industry representatives from Bureau Veritas Labs & Drillwell
- Promotions done through: RDN Website & Get Involved Page; Social Media; RDN Newspaper Ad; Email via program partners.



with live Q&A session!

**Free wellSMART Webinars**

Learn all about...

- Drought Management
- Water Testing & Treatment
- Maintenance & Operation
- Rebates

Webinars are **FREE** and hosted on **ZOOM**....

**Thursday, November 19th @ 5-7pm**

**Thursday, December 10th @ 1-3pm**

 **REGIONAL DISTRICT OF NANAIMO** Register today!  
[rdn.bc.ca/wellsmart](http://rdn.bc.ca/wellsmart)

# GROUNDWATER STEWARDSHIP SOCIAL MEDIA CAMPAIGN

- 6-week series of posts on groundwater leading up to WellSmart Webinars
- Topics included well registration, well users in the RDN, well decommissioning, groundwater recharge and contamination.
- Posted to Facebook and Twitter
- Series reach: 750 – 1100 per post

**WELL, WATER YOU KNOW!**

IT'S IMPORTANT TO PROPERLY DECOMMISSION ABANDONED WELLS AS THEY CREATE A DIRECT PATHWAY FOR POSSIBLE CONTAMINATION FROM THE LAND SURFACE TO ENTER THE AQUIFER

[www.rdn.bc.ca/wellsmart](http://www.rdn.bc.ca/wellsmart)

**WELL, WATER YOU KNOW!**

ROUGHLY 64,000 RESIDENTS IN OUR REGION RELY ON GROUNDWATER FOR THEIR WATER SUPPLY, INCLUDING THE RESIDENTS OF ALL ELECTORAL AREAS AND MUNICIPALITIES, EXCEPT FOR THE CITY OF NANAIMO.

[www.rdn.bc.ca/wellsmart](http://www.rdn.bc.ca/wellsmart)

**WELL, WATER YOU KNOW!**

GROUNDWATER CONTRIBUTES TO STREAM FLOW DURING THE DRY SUMMER MONTHS


[www.rdn.bc.ca/wellsmart](http://www.rdn.bc.ca/wellsmart)

**WELL, WATER YOU KNOW!**

TOXIC MATERIALS SUCH AS PESTICIDES, FROM THE LAND'S SURFACE CAN MOVE THROUGH THE SOIL AND END UP IN THE GROUNDWATER.

[www.rdn.bc.ca/wellsmart](http://www.rdn.bc.ca/wellsmart)

# CONTINUED SOCIAL MEDIA PRESENCE

 **Regional District of Nanaimo** is 🌍 celebrating a healthy future on Earth at Regional District of Nanaimo. ...  
Written by Sarah Gourlay [?] · September 27, 2020 at 8:30 AM · Nanaimo, BC · 🌐


Celebrate World Rivers Day this year by initiating a restoration project in your local creekshed – RDN's Stewardship Seed Funding Program can help! 💧

Non-profit organizations can apply for 🤝 up to \$5000 towards watershed restoration, enhancement and research.

For more information and to see some past projects that have benefited from Seed Funds, visit 👉 [bit.ly/363WSwl](https://bit.ly/363WSwl)

That's not all! Additional funds are available from the Pacific Salmon Foundation's Community Salmon Program - Deadline is October 15th 🐟 [www.psf.smapply.ca](http://www.psf.smapply.ca)



 **Regional District of Nanaimo** is 😊 feeling thankful at Regional District of Nanaimo. ...  
Written by Sarah Gourlay [?] · October 10, 2020 at 8:00 AM · Nanaimo · 🌐

Celebrate Thanksgiving the WaterSMART way this weekend with these simple tips!

- 🍗 Defrost Diligently - Plan ahead and defrost your turkey or other frozen foods in the fridge rather than running the tap over them.
- 🍏 Rinse Right - Rinse your fruits and vegetables in a bowl filled with water rather than under the tap.
- 💧 Wash Wisely - If washing dishes by hand, fill one sink with wash water and the other with rinse water. If using a dishwasher, limit the pre-rinsing and make sure it's a full load.
- ♻️ Compost Correctly - Use your green food waste bin instead of filling up your garbage or using the garburator.

Every drop of water counts and so do the little things we do each day to reduce our consumption and waste.

For more waterSMART tips, visit [www.watersmart.ca](http://www.watersmart.ca)



# STEWARDSHIP SEEDFUNDING

Supports non-profit groups deliver community-level projects to monitor, safeguard, and enhance our local watersheds.



Photo credit: Qualicum Beach Streamkeeper Society & David Cotton (Little Qualicum River Estuary 2020)

# STEWARDSHIP SEEDFUNDING

## Lower Knarston Creek (Lantzville) Streambank Stabilization & Riparian Restoration



1. Before any work was complete.
2. After excavation work.
3. During native plant installation.

Photo credits: ALDER Environmental and Nanaimo & Area Land Trust (2019 & 2020).

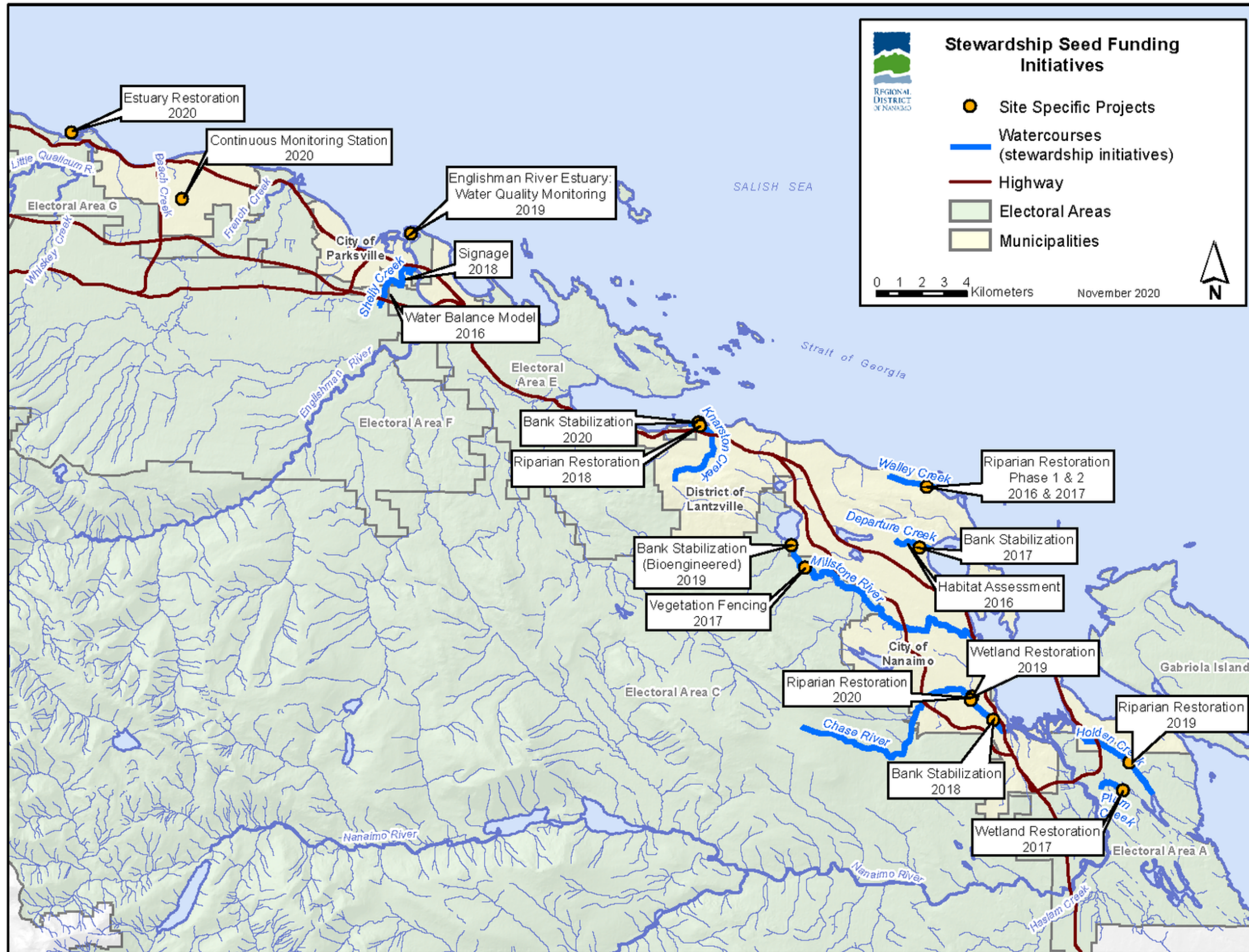


# STEWARDSHIP SEEDFUNDING

## Summary 2016-2020

2016 & 2017: up to \$2000/group  
 2018 & 2019: up to \$3000/project  
 2020: up to \$5000/project

Year	Group	Project	SSF
2016	Departure Creek	Habitat Assessment	\$ 1000
2016	MVIHES	Shelley Creek Water Balance Model	\$ 2000
2016	Walley Creek	Riparian Planting Phase 1	\$ 1000
2017	Departure Creek	Bank Stabilization	\$ 1000
2017	Walley Creek	Riparian Planting Phase 2	\$ 1000
2017	Fly Fishers	Millstone River Vegetation Fencing & Tool Library	\$ 475
2017	NALT	Plum Creek Wetland Restoration	\$ 1340
2018	MVIHES	Shelley Creek Signage Support	\$ 560
2018	NALT	Chase River Slope Restoration	\$ 2100
2018	NALT	Knarston Creek Riparian Restoration	\$ 2350
2019	NALT	Holden Creek Riparian Restoration Reach 2	\$ 2100
2019	MVIHES	Englishman River Estuary Water Quality Monitoring	\$ 2033
2019	NALT	Chase River Wetland Restoration & TWS Workshop	\$ 826
2019	Fly Fishers	Millstone River Bioengineered Bank Stabilization	\$ 1179
2019	NALT	Lower Knarston Creek Provincial Permit	\$ 250
2020	NALT	Lower Knarston Creek Riparian Restoration	\$ 3000
2020	Qualicum Beach	Beach Creek Flow Monitoring Station	\$ 2000
2020	NALT	Chase River Wetland Riparian Restoration	\$ 3068
2020	Qualicum Beach	Little Qualicum River Estuary Restoration	\$ 1200
<b>Program Total</b>			<b>\$ 28,481</b>



# STEWARDSHIP SEEDFUNDING... 2021



- Funding amount same as 2020: up to \$5000/project, preliminary 2021 budget increases over all funding to support more projects.
- Promotion primarily with Community Watershed Monitoring Network participants and partner streamkeeper organizations.
- Focus on supporting physical stream assessments & restoration projects.
- *Application forms at [rdn.bc.ca/stewardship-seed-funding](http://rdn.bc.ca/stewardship-seed-funding)*

# NANAIMO RIVER INTERAGENCY PARTNERSHIP

Intergovernmental partnership to collaborate on monitoring and restoration initiatives in support of a DFO led effort to develop a watershed-based recovery plan for Chinook in the Nanaimo River Watershed.



# BENTHIC INVERTEBRATE SAMPLING - NANAIMO RIVER

## INTERAGENCY PARTNERSHIP



**Who:** Department of Fisheries & Oceans, Snuneymuxw First Nation, Ministry of Environment and Climate Change Strategy, City of Nanaimo, Mosaic Forestry Management, and Regional District of Nanaimo.

**What:** Collaboration and cooperation to better understand shared resources and natural assets.

**Why:** To increase understanding of watershed health for all stakeholders.

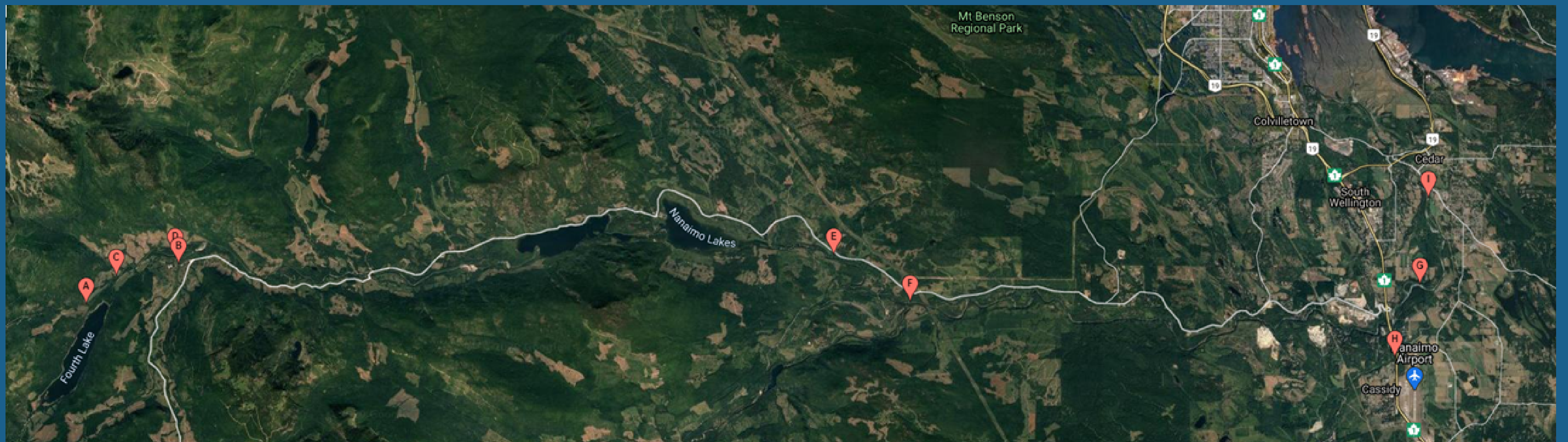
**How:** Using Canadian Benthic Invertebrate Network (CABIN) methodology.

**When:** August 31 & September 1, 2020.

**Where:** Site selection considered interests of all partners – sampling took place in upper, mid and lower watershed.

# BENTHIC INVERTEBRATE SAMPLING - NANAIMO RIVER

## INTERAGENCY PARTNERSHIP



In 2020 nine sites were sampled for benthics by two teams over two days.

ENV / DFO completing report on 2020 data; potential to expand in 2021.

2020 findings will influence actions taken in 2021

Image above: A = Nanaimo River 1km upstream fourth lake confluence; B = Green Creek 600m upstream Nanaimo River confluence; C = Nanaimo River 200m downstream fourth lake outlet; D = Nanaimo River 2km downstream fourth lake outlet; E = Nanaimo River 50m upstream Wolf Creek confluence; F = Nanaimo River 150m downstream South fork confluence; G = Nanaimo River at lower RDN park; H = Haslam Creek at highway; I = Nanaimo River at end of HemerRoad.

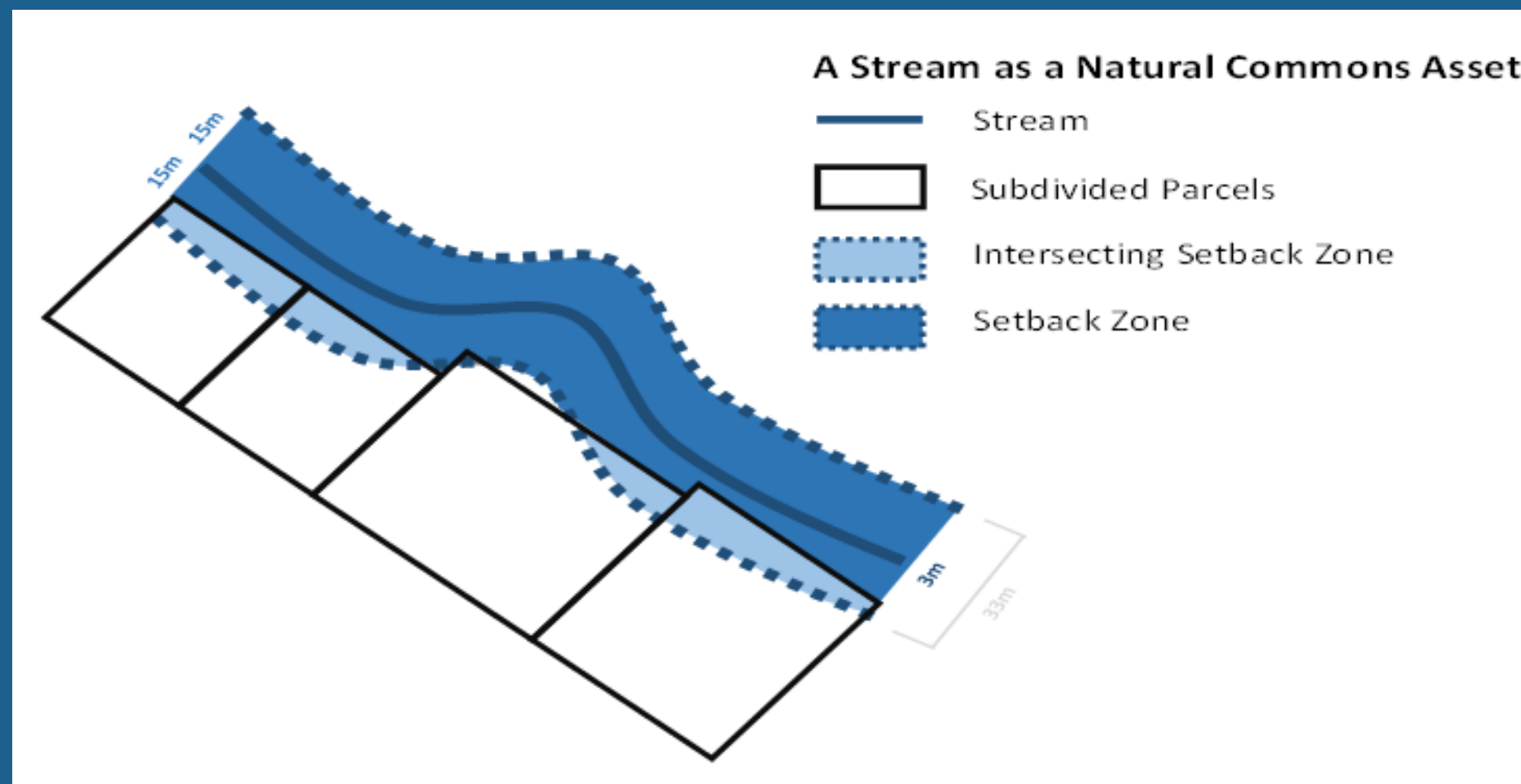
# MILLSTONE RIVER ECOLOGICAL ACCOUNTING PROCESS - PROJECT UPDATE



the partnership  
for water sustainability in bc

## THE EAP CONCEPT:

Calculate and describe the social, ecological and financial value of a natural asset, in this case the Millstone River.

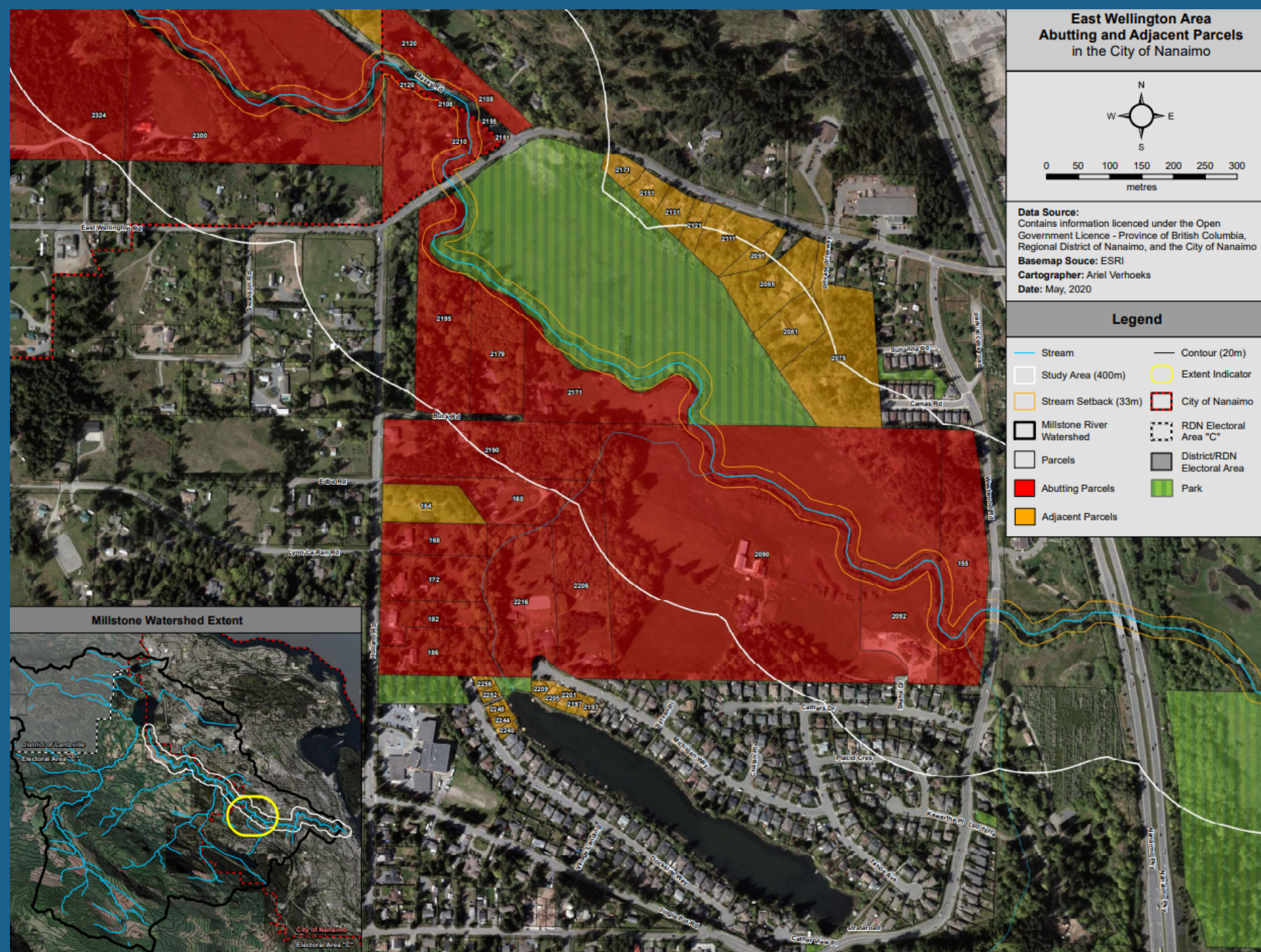


1 - Summarize the investment made by the community in the past decade or more to maintain (prevent degradation) and manage (enhance) the stream (as defined in the Riparian Areas Protection Regulation and local government bylaws).

2 - Use financial information derived from BC Assessment data for residential and agricultural parcels abutting the stream, to calculate a value of the Natural Commons Area (NCA), the regulatory setback area on each side of the stream and including the stream itself.

3 - Gauge the social value placed on the river through a qualitative survey administered to streamside landowners.

# MILLSTONE RIVER ECOLOGICAL ACCOUNTING PROCESS - PROJECT UPDATE



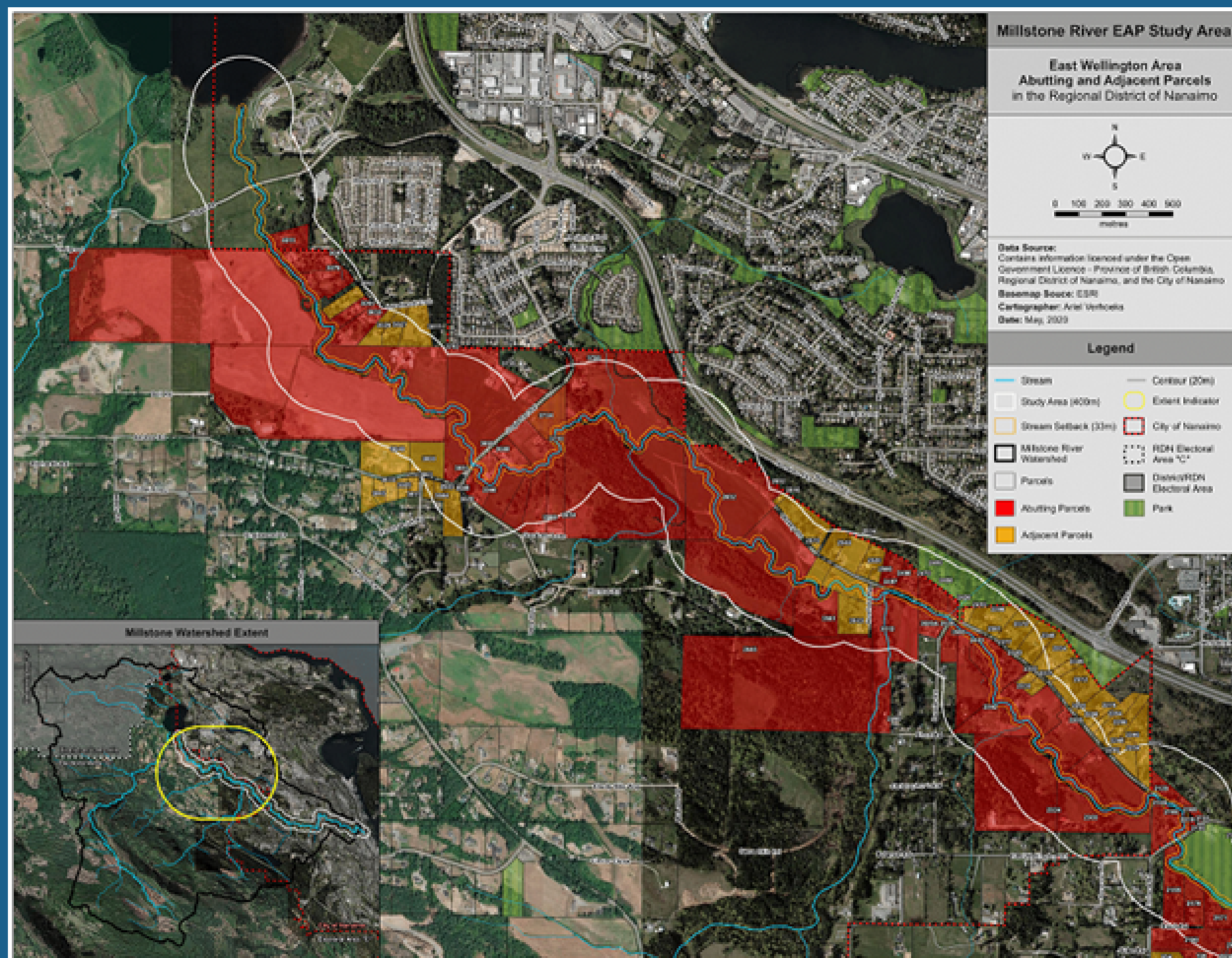
The Riparian regulation intends that the setback zone will be undisturbed by active land use. What owners give up (potential use), the community gains in the form of protection of the stream system and the ecological services it provides.

The benefits of an intact riparian setback are shared with the community including biodiversity, flood mitigation, water quality protection, habitat, carbon sequestration.

In essence there is joint responsibility for the condition of the setback area.



# MILLSTONE RIVER ECOLOGICAL ACCOUNTING PROCESS - PROJECT UPDATE



The EAP methodology finds the aggregate area of parcels within the setback zone / Natural Commons Area, and calculates the total financial value at 50% of the assessed value of abutting parcels based on the portion that lies within the setback area.

Preliminary calculations:

City of Nanaimo portion 6.28 Kms (6280 metres)

- Avg. NCA value per m<sup>2</sup> is \$140
- the total value of the Millstone NCA in the City of Nanaimo is \$60,137,280.

RDN portion of the study area is 8 kms (8000 metres)

- Avg. NCA value per m<sup>2</sup> is \$27.26 /m<sup>2</sup> for residential parcels (*much lower assessed values outside city limits, and even lower for agricultural land*).
- the total value of the Millstone NCA in the RDN (using \$27.26 /m<sup>2</sup>) is \$14,881,779.

# MILLSTONE RIVER ECOLOGICAL ACCOUNTING PROCESS - PROJECT UPDATE

## Next Steps

- Finish up calculation and interpretation.
- Incorporate qualitative survey results (mailed to streamside properties this week; closes Dec. 10th)
- Complete report with recommendations.
- City of Nanaimo and RDN will contemplate how to use the accounting results to inform budget and policy to promote maintenance and restoration of riparian areas on private & public property.



# BEHAVIOUR CHANGE / COMMUNITY BASED SOCIAL MARKETING: REVIEW & REDESIGN OF OUTREACH PROGRAMS



1. Document Review
2. Capacity-Building Training
3. Evaluation of Existing Outreach Programs and Materials Against CBSM / Behaviour Change Tools and Tactics
4. Recommendations on Adaptations to Strengthen Behaviour Change Outcomes
5. Implementation Schedule
6. Advice on Survey Questions for Forthcoming Public Benchmark Survey in 2021

Opportunities for feedback  
Link programs Fill gaps Nudges  
Target audiences Maximize impact  
**Leverage commitments** Social norms  
New delivery channels  
Performance Indicators **Test new approaches**  
Systemic change **Improve reach**  
Gateway behaviours

# PROGRESS INDICATORS



## Water Awareness and Stewardship

Theme	PI #1	2020 Comments	PI #2	2020 Comments	PI #3	2020 Comments	PI #4	2020 Comments
	Reduction of metered water use over time	Across 9 RDN WSAs, a 4.4% reduction of average water use and 5% decrease in summer way use per connection per day was observed between 2017-2019 (RDN Water Conservation Plan, 2020)	Number of Restoration projects completed	Three this year	Market research survey response indicating improved awareness	Deferred to 2021 due to COVID	Improving trends in groundwater level and surface water quality	GW Level: Regional analysis identified improving trends in 10 / 22 aquifers + 5 / 22 aquifers identified as stable. SW Quality: 2 sites improving turbidity trends; 3 sites improving Dissolved Oxygen Trend; 95% sites stable conductivity trend; 41% sites stable temperature trend



## Water Information and Science

	Number of sites with long-term (>3 years) datasets hosted on open Provincial platforms	Groundwater monitoring (VOW): 11 sites; Surface water quality (CWMN) 71 sites; Hydrometric stations: 3; Climate stations 2. TOTAL = 87 sites	Completion of numerical water budget models for priority watersheds and aquifers	Area E complete	Continued participation of community volunteers in citizen science efforts	CWMN - 1 new group, 13 continuing groups. 1 group stopped	Number of publications communicating water science	Groundwater factsheets in progress
--	--	--	--	-----------------	--	---	--	------------------------------------



## Water-centric Planning and Policy Support

	Number of planning documents and processes informed by DWWP actions / information	Area F OCP; 16 development referrals; 2 groundwater license referrals.	Number of watershed performance targets developed	Starting next year	Implementation of innovative rainwater management policies and practices	Re-established Rainwater Working Group	Successful advocacy with outside agencies	MoH completed Rainwater for Potable Use Guidelines as advocated by DWWP since 2017
--	---	--	---	--------------------	--	--	---	--

# LOOKING AHEAD TO 2021

Our preliminary budget has been prepared for Board for review.  
Final approval for 2021 budget will come at end of February.



## WATER AWARENESS & STEWARDSHIP

Freshwater Interpretive Programming in RDN Parks  
Demonstration Sites and Signage  
School Stream Stewardship & Curriculum Connections  
Youth Engagement Partnerships  
DWWP Video Series  
Increase in Rebate Funds & Stewardship Seedfunding



## WATER SCIENCE & INFORMATION

Public Perspectives Benchmark Survey  
Equipment Update for Monitoring Programs  
Data Management System for Groundwater Data



## WATER-CENTRIC PLANNING & POLICY SUPPORT

French Creek Water Budget Phase 3 / Regional Water Supply Feasibility Study for Oceanside Area  
Regional Rainwater Management Strategy Development



# THANK YOU!



WATER AWARENESS  
AND STEWARDSHIP



WATER INFORMATION  
AND SCIENCE



WATER-CENTRIC PLANNING  
AND POLICY SUPPORT



REGIONAL  
DISTRICT  
OF NANAIMO