REGIONAL DISTRICT OF NANAIMO

DRINKING WATER & WATERSHED PROTECTION

September 11, 2024 | Technical Advisory Committee Meeting

photo credit: Deb Freeman, MVIHES Volunteer

REGIONAL DISTRICT OF NANAIMO

ROUNDTABLE UPDATES

ALL COMMITTEE MEMBERS

REGIONAL DISTRICT OF NANAIMO

INVITED PRESENTATION

FRESHWATER BALANCE METHODOLODY PROJECT WITH GABRIOLA ISLAND AS A CASE STUDY

William Schulba
Senior Freshwater Specialist
Licensed Science Officer
Islands Trust

REGIONAL DISTRICT OF NANAIMO

DWWP PROJECT UPDATES

SUMMER 2024 REGIONAL DROUGHT RESPONSE SUMMARY

COMMUNITY WATERSHED MONIOTRING NETWORK 2023 RESULTS & SUBWATERSHED TREND ANALYSIS

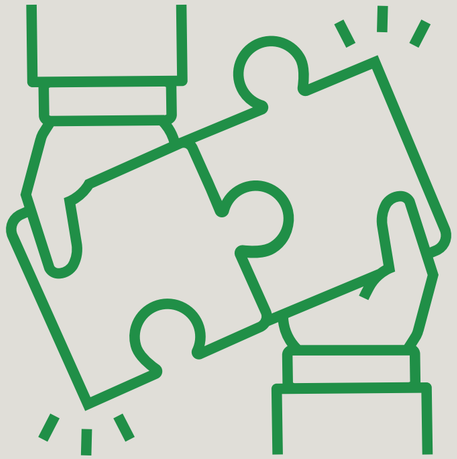
TEAM WATERSMEART – SUMMER REVIEW & UPCOMING OUTREACH

RESIDENTIAL IRRIGATION CHECK-UPS / IRRIGATION CALCULATOR

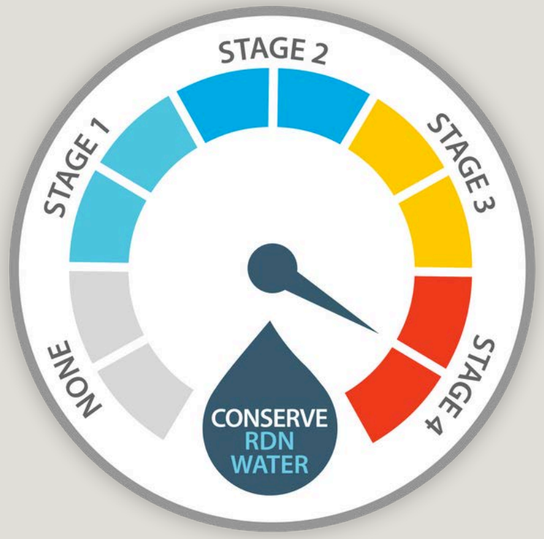
STEWARDSHIP SEED FUNDING 2024 PROJECTS

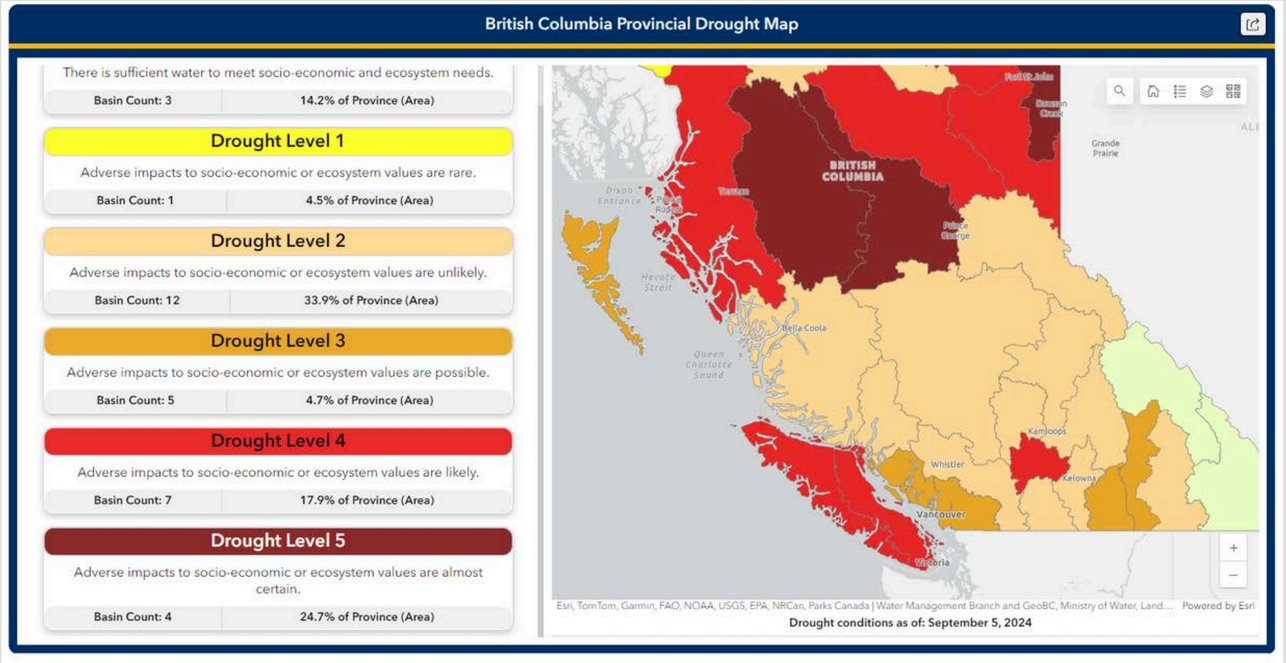
CEDAR-YELLOWPOINT WATER BUDGET SCOPING

SUMMER 2024 REGIONAL DROUGHT RESPONSE SUMMARY

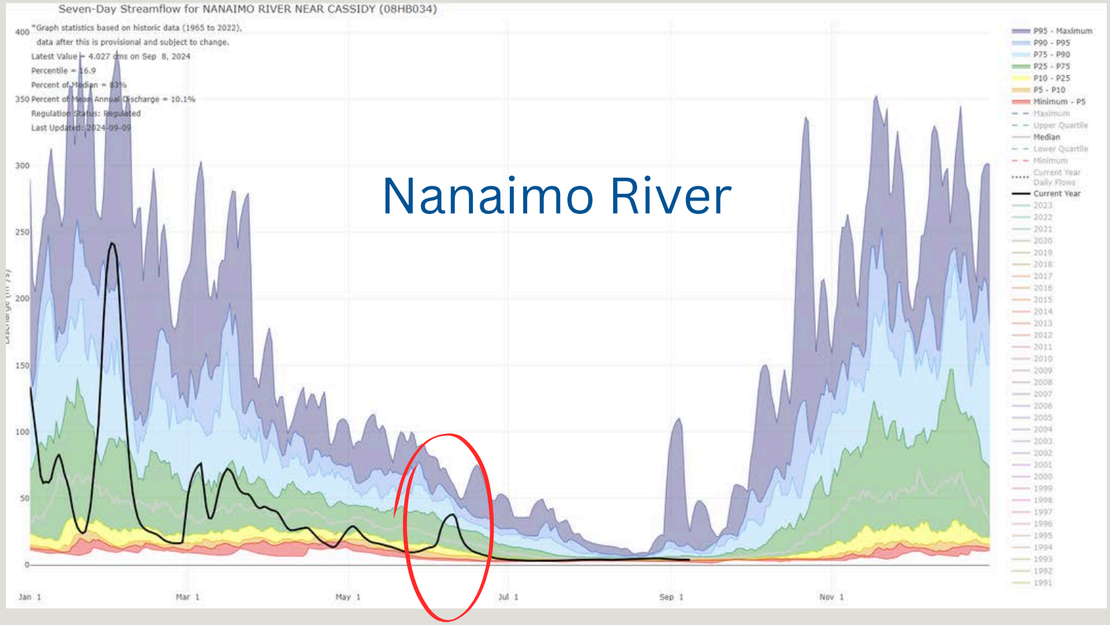


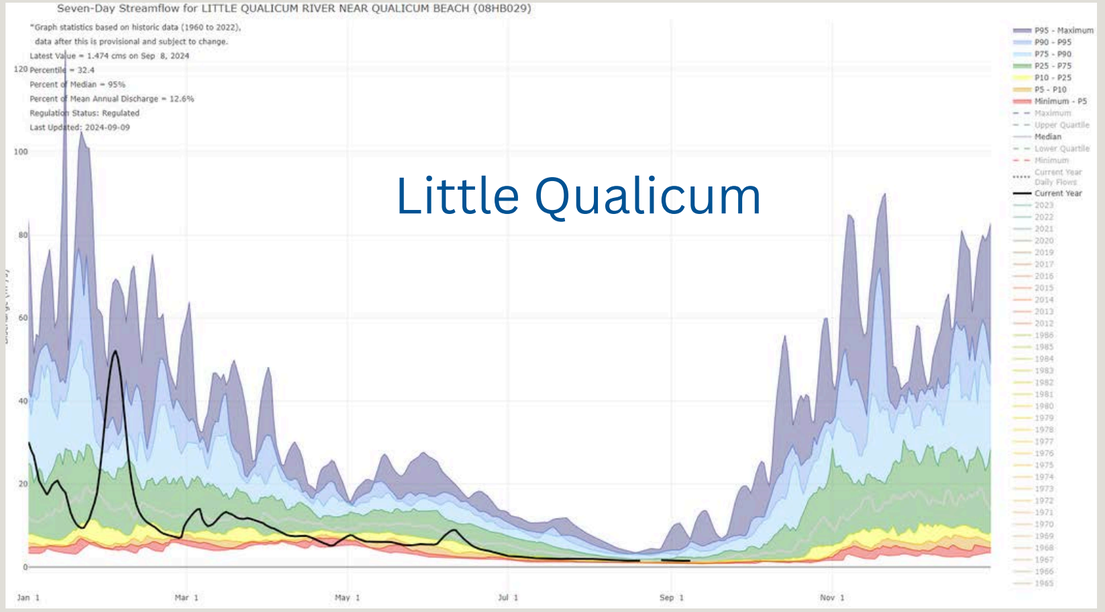
What was observed
How we responded
What we learned

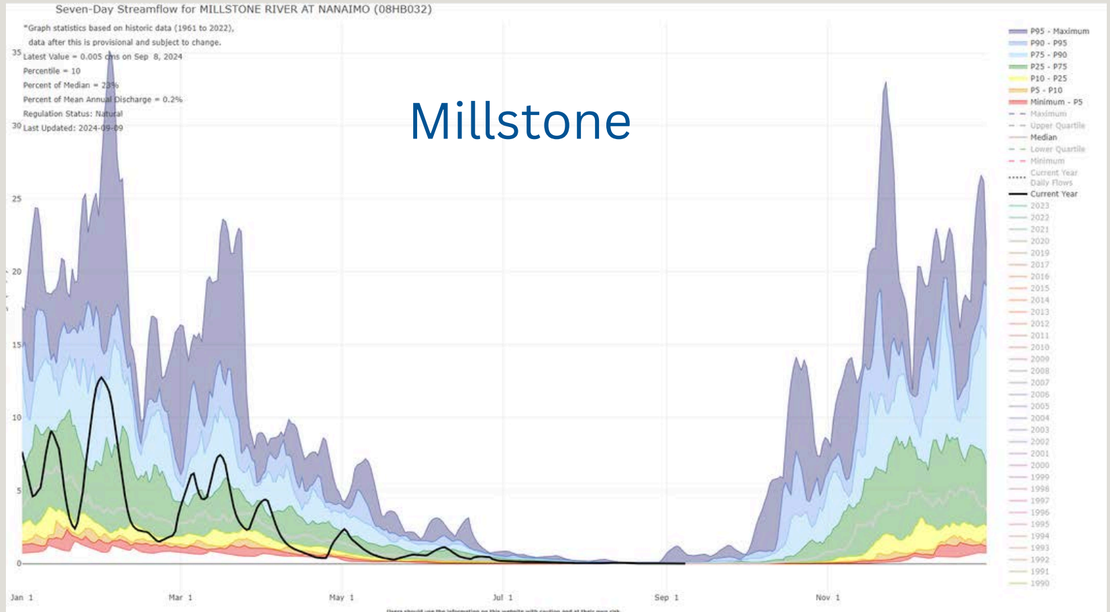


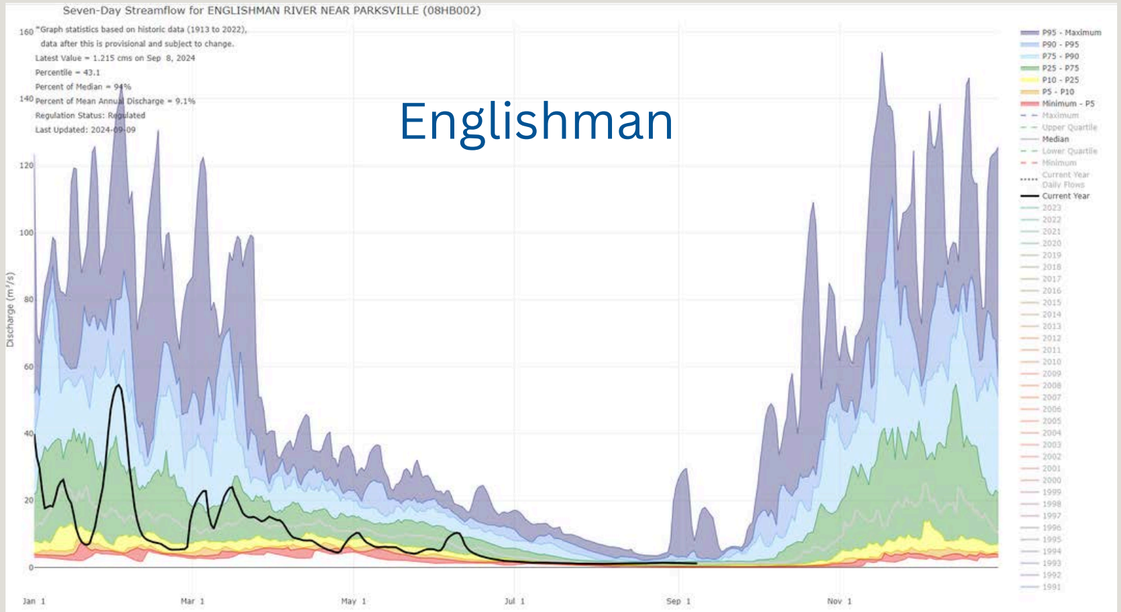


OBSERVED STREAMFLOWS

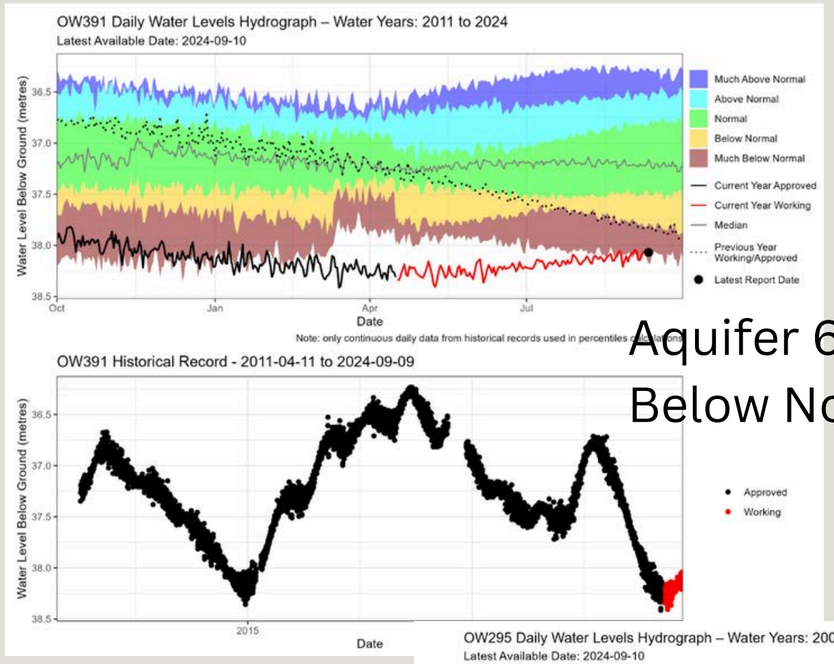




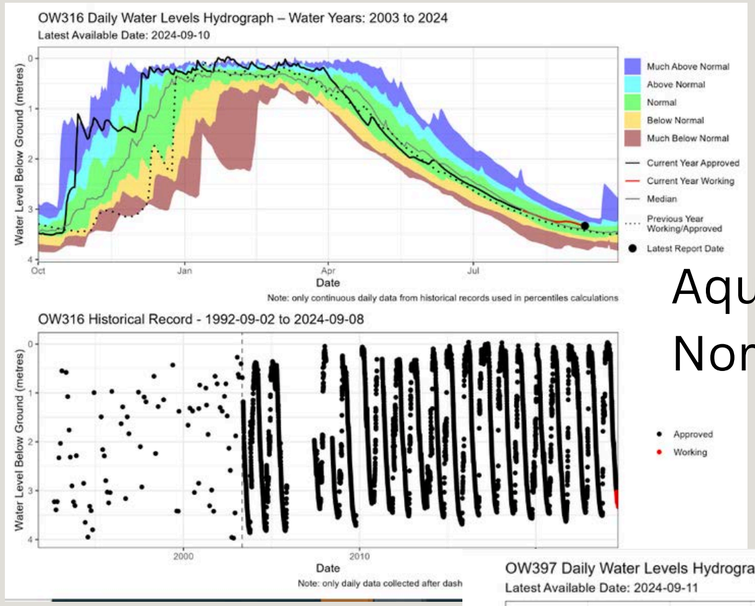




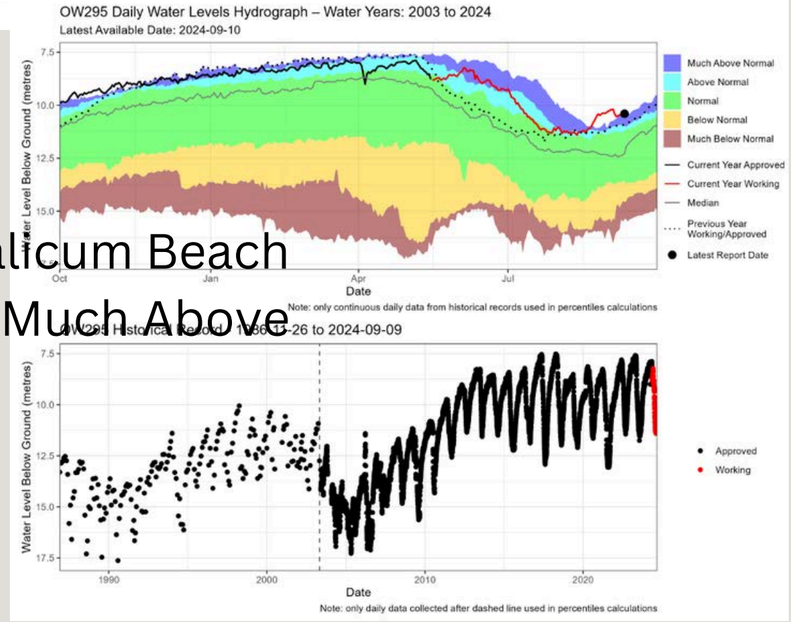
OBSERVATION WELLS IN REGIONAL AQUIFERS



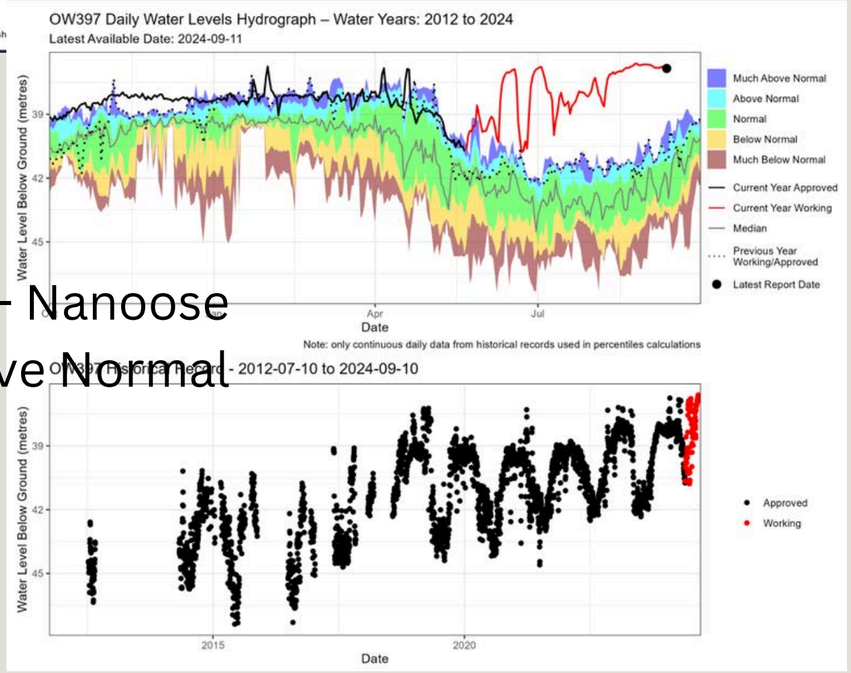
Aquifer 662 - Dashwood
Below Normal



Aquifer 709 - Gabriola
Normal



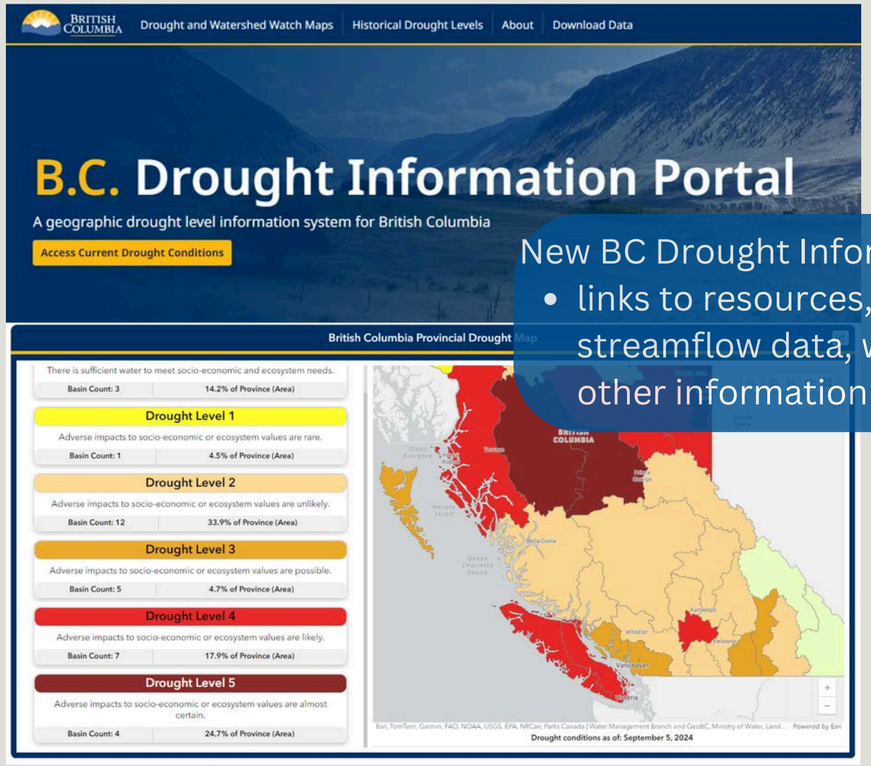
Aquifer 216 - Qualicum Beach
Above to Much Above



Aquifer 1098- Nanoose
Above Normal

SUMMER 2024 REGIONAL DROUGHT RESPONSE SUMMARY

PROVINCIAL COMMUNICATIONS



New BC Drought Information Portal

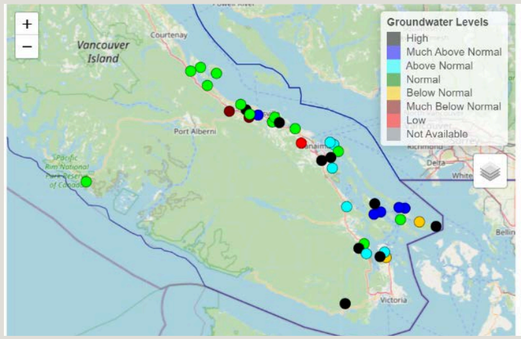
- links to resources, current and historical GW and streamflow data, watershed conditions, and other information related to drought monitoring

2024 DROUGHT LEVELS AT A GLANCE

Drought Levels:	0		1		2		3		4		5									
BASINS	02-May	09-May	16-May	23-May	30-May	06-Jun	13-Jun	20-Jun	27-Jun	04-Jul	11-Jul	18-Jul	25-Jul	01-Aug	08-Aug	15-Aug	22-Aug	29-Aug	05-Sep	12-Sep
Fort Nelson	3	3	4	4	4	4	4	4	3	3	3	4	4	4	4	4	4	5	5	
East Peace	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	5	
North Peace	4	4	4	4	4	4	4	4	3	3	3	3	3	2	2	3	3	3	4	
South Peace	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	
Northwest	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stikine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	1	
[illegible]	1	1	2	2	2	2	2	2	2	2	2	2	2	3	3	4	4	4	4	
[illegible]	3	3	3	3	3	3	3	3	3	3	3	3	4	4	5	5	5	5		
Finlay	2	2	2	2	1	1	1	1	1	1	1	1	1	0	1	1	2	2	2	
Upper Fraser West	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	3	3	4	
Upper Fraser East	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5	5	5	
Upper Columbia	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	3	3	3	2	
Lower Columbia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	0	0	
[illegible]	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	4	3	3	3	
[illegible]	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	3	2	
East Kootenay	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	
Kettle	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	3	3	3	3	
Middle Fraser	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	3	3	3	3	
Lower Thompson	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	
North Thompson	2	2	2	2	1	1	1	1	1	1	1	1	2	3	3	3	3	3	2	
South Thompson	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	
Nicola	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	
Okanagan	2	2	2	2	1	1	1	1	1	1	1	2	2	2	2	3	3	3	2	
Similkameen	2	2	2	2	2	2	2	2	2	2	2	3	3	4	4	4	3	2	2	
Central Pacific Range	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	
Eastern Pacific Range	2	2	2	2	2	2	1	1	1	1	1	1	1	2	2	3	3	3	2	
Sunshine Coast	1	1	1	1	1	1	1	1	1	1	2	3	3	3	3	3	3	3	3	
Lower Mainland	2	2	2	2	1	1	1	1	1	1	1	2	3	3	3	3	3	3	3	
Central Coast	2	2	2	2	2	2	1	1	1	1	2	3	3	3	3	3	3	3	2	
West Vancouver Island	1	1	2	2	1	1	0	0	1	1	2	3	4	4	4	5	5	4	4	
East Vancouver Island	1	1	2	2	2	2	1	1	2	2	3	4	4	4	4	5	5	4	4	
Haida Gwaii	2	2	2	2	2	2	0	0	0	0	1	1	2	2	2	3	4	4	3	

Prepared By: Water Management Branch - Ministry of Water, Land and Resource Stewardship

Drought Levels determined by the Province based on hydrological drought conditions mostly quantified by streamflows



Wells Percentile by Class

	Current Year 2024-09-10	Last Year 2023-09-10	Current Year 2024-09-10	Last Year 2023-09-10
High (100% - 100%)	9	3	23%	4%
Much Above Normal (90% - 100%)	6	3	15%	4%
Above Normal (75% - 90%)	6	9	15%	13%
Normal (25% - 75%)	13	28	33%	41%
Below Normal (10% - 25%)	3	6	8%	9%
Much Below Normal (0% - 10%)	2	10	5%	14%
Low (0% - 0%)	1	10	3%	14%
Across all classes	40	69	100%	100%

Weekly updates from WLRS:

- West Coast Region Low Streamflow Report
- West Coast Region Low Groundwater Update

SUMMER 2024 REGIONAL DROUGHT RESPONSE SUMMARY

UPDATING THE WATER CONSERVATION FRAMEWORK:

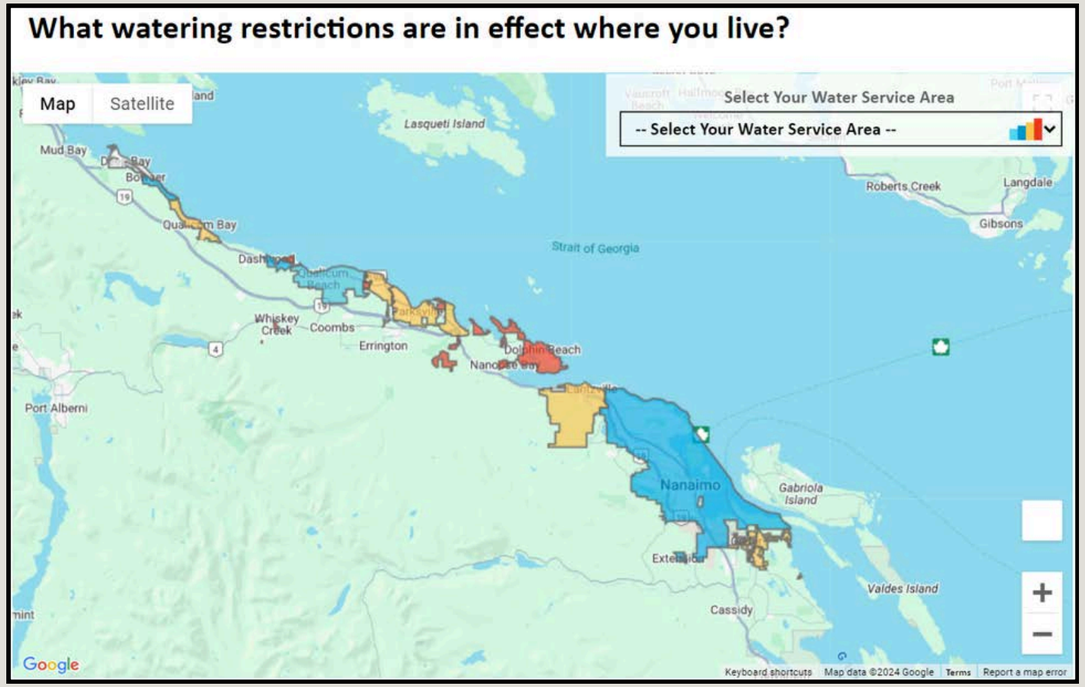
- The review and proposed updates to the framework responded to acknowledgement of recent record-breaking summer droughts and the adaptive management approach required to respond to the impacts of those seasonal conditions.
- Acknowledgement of operational differences between the water systems across the RDN
- RDN Bylaw updated in June, did not see other water purveyors unanimously align bylaws / policies
- Updates to communications material. Responded to calls / emails from residents to answer questions on new updates
- Systems that updated Level 3 to one day per week watering did observe a drop in water use

WATER CONSERVATION LEVEL	1	2	3	4
EFFECTIVE DATES	Begins April 1	May 1–October 31	As required	
Frequency	ANY DAY	Every other day: Even # houses = Even # days Odd # houses = Odd # days	One day per week: Even # houses = Thursdays Odd # houses = Mondays	SPRINKLING BAN: LAWN WATERING NOT PERMITTED
Watering times	Between 7 pm - 7 am	Between 7–10 am OR 7–10 pm for 2 hrs MAX	Between 7–10 am OR 7–10 pm for 2 hrs MAX	
Washing vehicles, boats, houses (siding)	ANYTIME	ANYTIME (on your watering day)	Between 7–10 am OR 7–10 pm on your watering day	Between 7–10 am OR 7–10 pm once per week on your Level 3 watering day
Hand-watering, drip irrigation	ANYTIME	ANYTIME	VOLUNTARY RESTRICTIONS encouraging residents to reduce water use where they are able to	Between 7–10 am OR 7–10 pm
Filling fountains, pools, hot tubs	ANYTIME	ANYTIME (on your watering day)		NOT PERMITTED
Pressure washing walkways, driveways, siding	ANYTIME	ANYTIME (on your watering day)		ONLY prior to application of paint, preservative, stucco, or sealant
New lawn permits	Can apply for a permit	Can apply for a permit		NO PERMITS ISSUED
Vegetable gardens and fruit trees are exempt from all watering restrictions, even in Level 4.				

SUMMER 2024 REGIONAL DROUGHT RESPONSE SUMMARY

RDN WATER SERVICE AREA RESPONSES

Year	Stage 1	Stage 2	Stage 3	Stage 4	downgraded	lifted
2016	April 1	May 1	N/A	N/A	Oct 1 - Stage 1	Nov 1
2017	April 1	May 1	July 1	N/A	Sept 14 - Stage 2	Nov 1
2018	April 1	May 1	Aug 10	N/A	Sept 12 -Stage 2 Oct 1 - Stage 1	Nov 1
2019	April 1	May 1	June 14	N/A	Sept 13 - Stage 2 Oct 1 - Stage 1	Nov 1
2020	April 1	May 1	N/A	N/A	Oct 1 - Stage 1	Nov 1
2021	April 1	May 1	June 29	Aug 20	Sept 23 - Stage 2 Oct 1 - Stage 1	Nov 1
2022	April 1	May 1	N/A	Oct 4	N/A	Nov 1
2023	April 1	May 1	June 15	July 5	Oct 5 - Stage 3 Oct 19 - Stage 1	Nov 1
2024	April 1	May 1	July 16	July 22	** waiting for Prov to downgrade to Level 3	



Provincial Drought Rating Timeline (E.Van Island)

- July 11 - Level 3 Drought - Adverse Impacts Possible
- July 18 - Level 4 Drought - Adverse Impacts Likely
- August 15 - Level 5 Drought - Adverse Impacts Almost Certain
- August 29 - downgraded to Level 4

BASINS	02-May	09-May	16-May	23-May	30-May	06-Jun	13-Jun	20-Jun	27-Jun	04-Jul	11-Jul	18-Jul	25-Jul	01-Aug	08-Aug	15-Aug	22-Aug	29-Aug	05-Sep	12-Sep
East Vancouver Island	1	1	2	2	2	2	1	1	2	2	3	4	4	4	4	5	5	4	4	

SUMMER 2024 REGIONAL DROUGHT RESPONSE SUMMARY

COMMUNICATION & OUTREACH

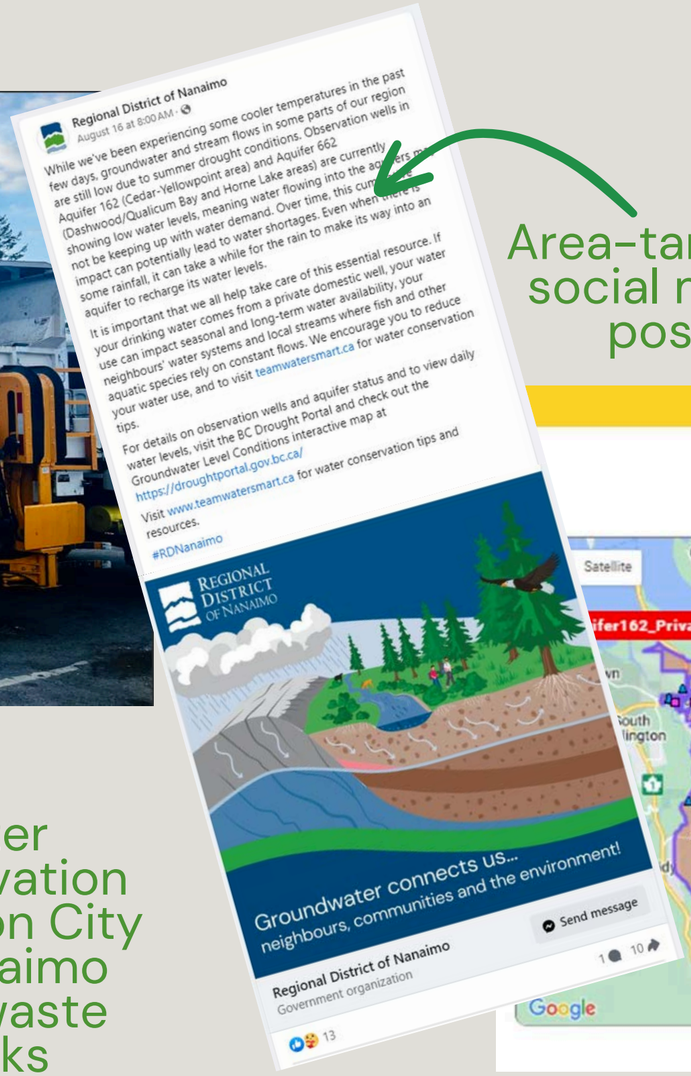
- Annual WaterSaver Contest
  - close to 200 entries this year on social media, in person, and on the Get Involved page
  - Participants share how they are saving water during the summer for an opportunity to win a rain barrel and a native plan prize package
  - Contest closes on September 25
- Print material
  - monthly ads included in the Nanaimo News Bulletin and PQB News
- Regular social media updates and education materials shared at events through the Team WaterSmart booth

SUMMER 2024 REGIONAL DROUGHT RESPONSE SUMMARY

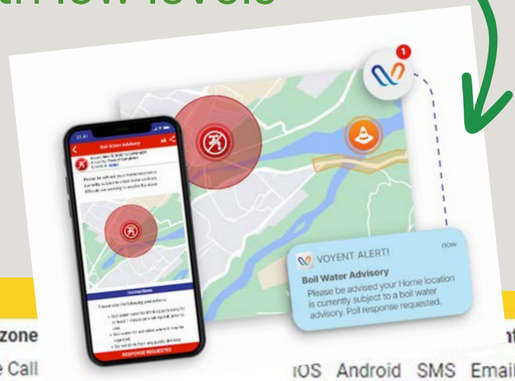
COMMUNICATION & OUTREACH – NEW IN 2024

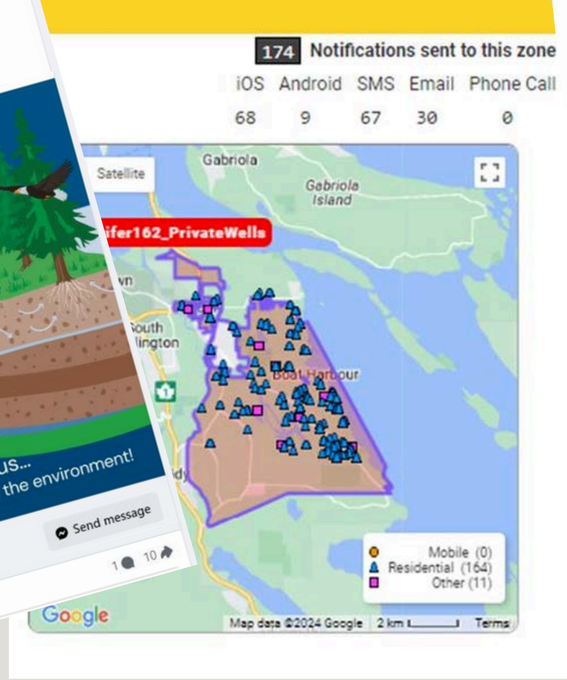
Water conservation decals on City of Nanaimo fleet/waste trucks

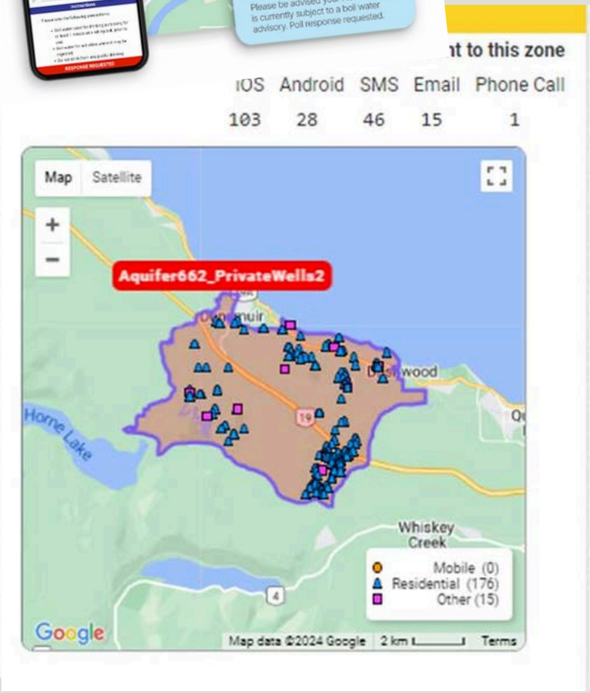
Area-targeted social media posts



Voyent Alert notifications to well water users in aquifers with low levels







SUMMER 2024 REGIONAL DROUGHT RESPONSE SUMMARY

KEY TAKEAWAYS / LEARNING FOR NEXT SEASON

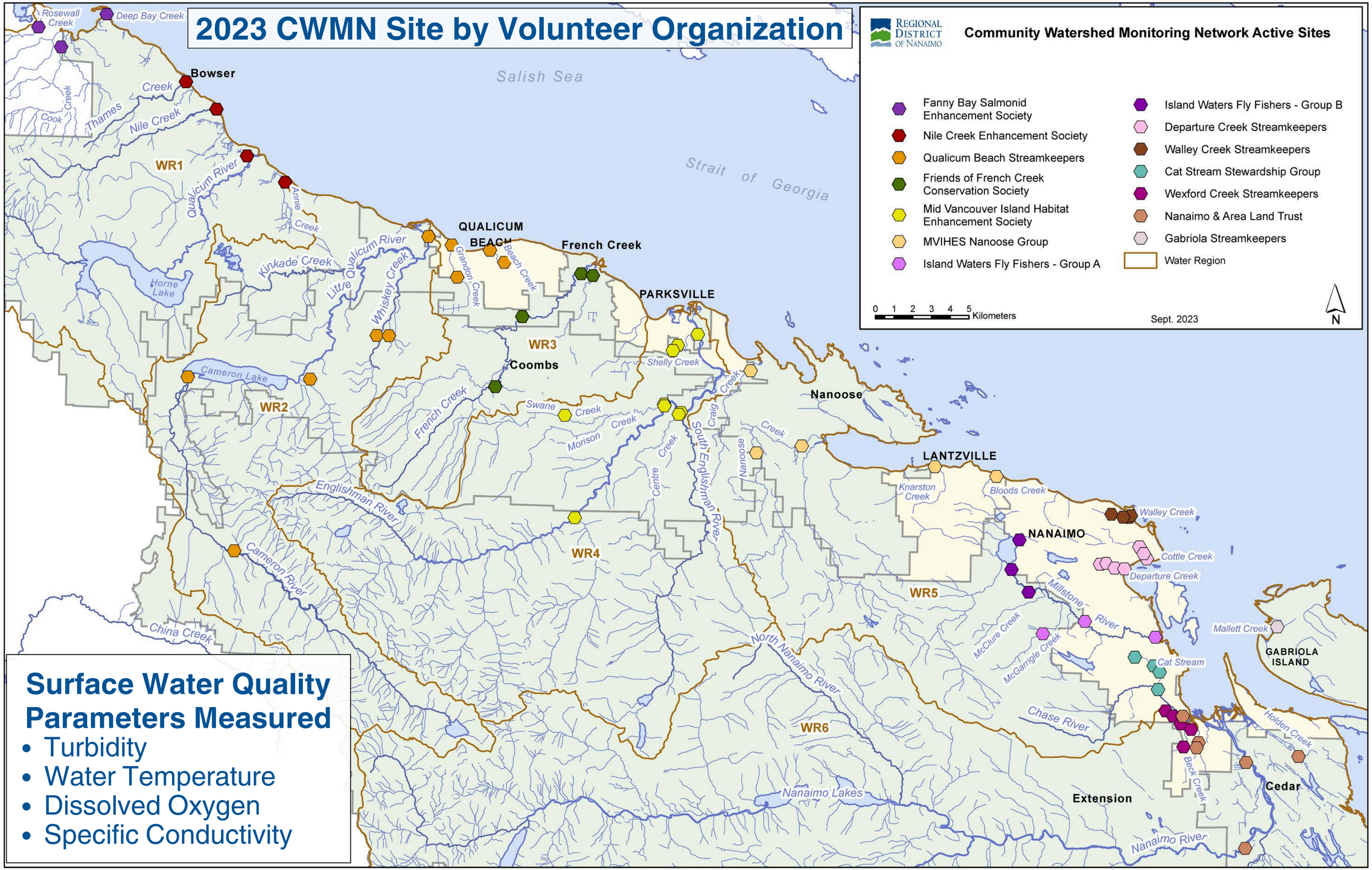
- Inter-regional support and coordination is key
- Diversity in water systems / local aquifer productivity across the region is an opportunity for education on water sources and specificity
- Approach with conservation education and communication first; tools for enforcement are secondary
- Essential to highlight that reducing consumption supports ecological health
- Climate change means we need to normalize a reduction in water use every summer

CWMN - 2023 RESULTS

2023 DATA COLLECTION

- Eight July training sessions
- Two 5-in-30 sample periods that provide data of most stressed times
  - Aug. 8 to Sept. 5 (summer low flow)
  - Oct. 3 to Oct. 31 (fall flush)
- 66 sites, 40 streams, and 26 watersheds were monitored
- 2 community events (July Results Session and end of season thank you event) - share information and provides a platform for connection and collaborations
- Provincial methodology used supports comparison to Ambiant Water Quality Objectives/Guidelines
- Data publicly available on the Environmental Monitoring System (EMS) database

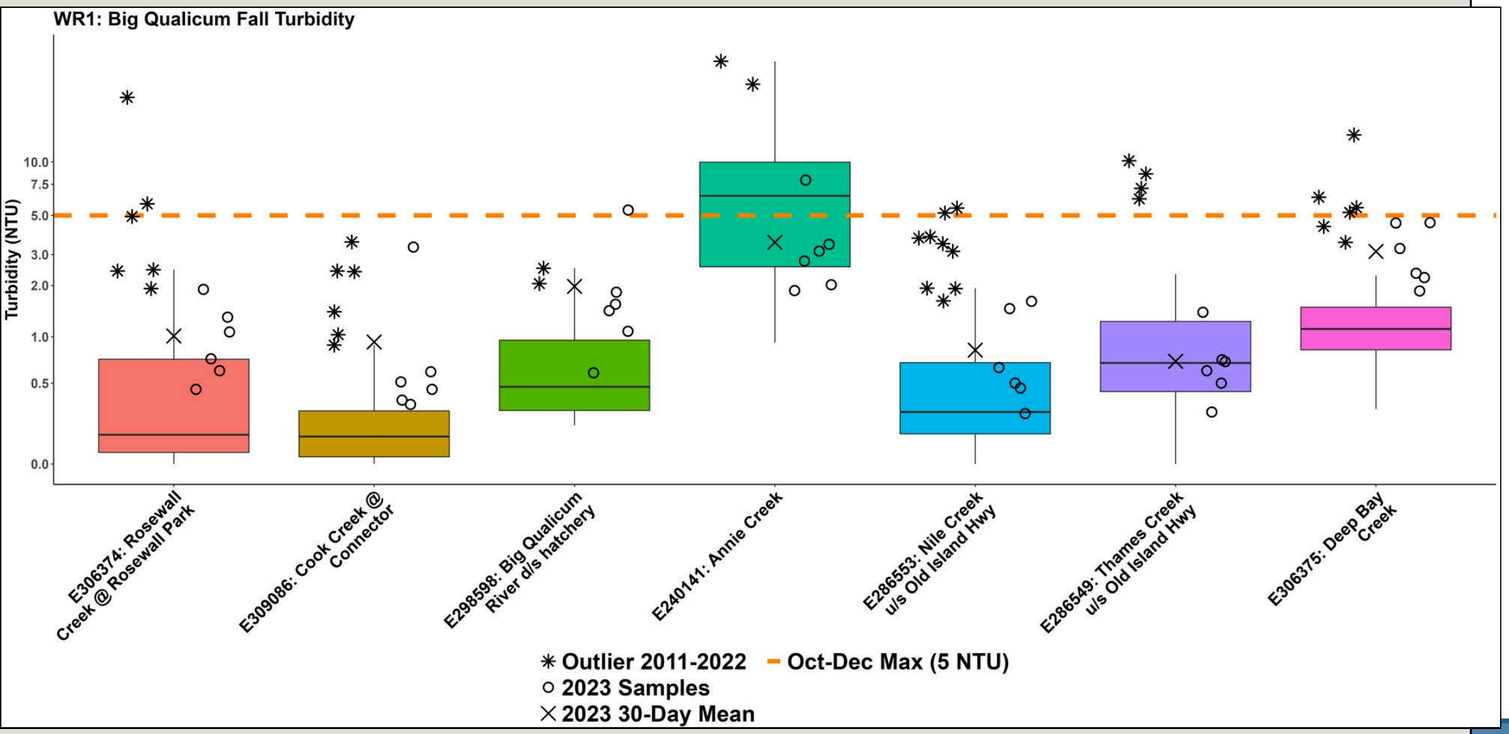
Annie Creek water quality sampling


2023 CWMN Site by Volunteer Organization
Regional District of Nanaimo
Community Watershed Monitoring Network Active Sites
Fanny Bay Salmonid Enhancement Society
Nile Creek Enhancement Society
Qualicum Beach Streamkeepers
Friends of French Creek Conservation Society
Mid Vancouver Island Habitat Enhancement Society
MVIHES Nanoose Group
Island Waters Fly Fishers - Group A
Island Waters Fly Fishers - Group B
Departure Creek Streamkeepers
Walley Creek Streamkeepers
Cat Stream Stewardship Group
Wexford Creek Streamkeepers
Nanaimo & Area Land Trust
Gabriola Streamkeepers
Water Region
0 1 2 3 4 5 Kilometers
Sept. 2023
N
Salish Sea
Strait of Georgia
Rosewall Creek
Deep Bay Creek
Bowser
Cook Creek
Thames Creek
Nile Creek
WR1
Qualicum River
Annie Creek
Horne Lake
Kinkade Creek
Little Qualicum River
Whiskey Creek
QUALICUM BEACH
Grandon Creek
Beach Creek
French Creek
PARKSVILLE
WR3
Coombs
Shelly Creek
Craig Creek
Cameron Lake
WR2
French Creek
Swane Creek
Morison Creek
Centre Creek
South Englishman River
Nanoose
Nanoose Creek
Englishman River
WR4
Cameron River
China Creek
LANTZVILLE
Knarston Creek
Bloods Creek
Walley Creek
NANAIMO
Cottle Creek
Departure Creek
WR5
Millstone River
McClure Creek
McGarrigle Creek
Mallett Creek
GABRIOLA ISLAND
Cat Stream
North Nanaimo River
Chase River
Holden Creek
WR6
Beck Creek
Cedar
Extension
Nanaimo Lakes
Nanaimo River
Surface Water Quality Parameters Measured
Turbidity
Water Temperature
Dissolved Oxygen
Specific Conductivity

CWMN - 2023 RESULTS

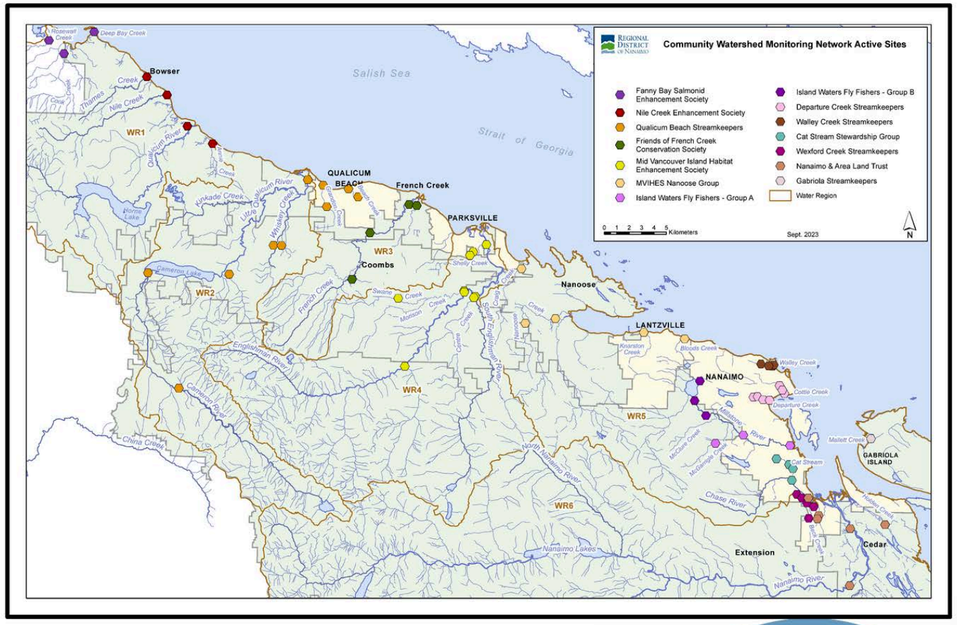
2023 ANALYSIS

Annual statistical analysis of CWMN data 2011 to 2023 displayed as box plots and packaged as Water Region handouts (www.rdn.bc.ca/cwmn)



2023 box plot created by Ecoscape Environmental Consulting

Community Watershed Monitoring Network 2023 Results by Water Region



Included in Water Region (WR) 1 package:

1. CWMN WR1 sample sites
2. How to interpret a box plot
3. Box Plot Comparison – 2023 data to previous years: *displayed by parameter (Turbidity, Dissolved Oxygen, Temperature, Conductivity) & sample period (summer, fall)*
4. FBSES CWMN map of sample sites
5. NCES CWMN map of sample sites

Water Region 1 sampled by:

Fanny Bay Salmonid Enhancement Society (FBSES) & Nile Creek Enhancement Society (NCES)

COMMUNITY WATERSHED MONITORING NETWORK

2023 TEMPERATURE ANALYSIS

A total of 113 incidences of summer water temperatures exceeding the 17°C threshold for Coho rearing

As with previous years, the highest weekly average air temperature correlated with the greatest number of values over 17°C

- 43% of the incidences of >17°C occurred on the date with the highest air temperature - August 15
    - 26.4°C Qualicum Airport Climate Station
    - 29.8°C Nanaimo Airport Climate Station
- Readings >17°C occurred at two-thirds of the sites

Millstone River

COMMUNITY WATERSHED MONITORING NETWORK

2023 DISSOLVED OXYGEN ANALYSIS

A total of 79 incidences of DO levels being below one or both of the guidelines

Instantaneous minimum 5 mg/L Guideline

- 36 instances occurred during the summer sample period at 26 sites
- 5 instances occurred during the fall sample period at 3 sites

30-day average Guideline of 8 mg/L

- 38 occurrences at 32 sites as 6 sites had values below this guideline in both summer and fall

Swayne Creek

COMMUNITY WATERSHED MONITORING NETWORK

2023 TURBIDITY ANALYSIS

Total of 151 exceedances over 10 sample dates for both turbidity Guidelines

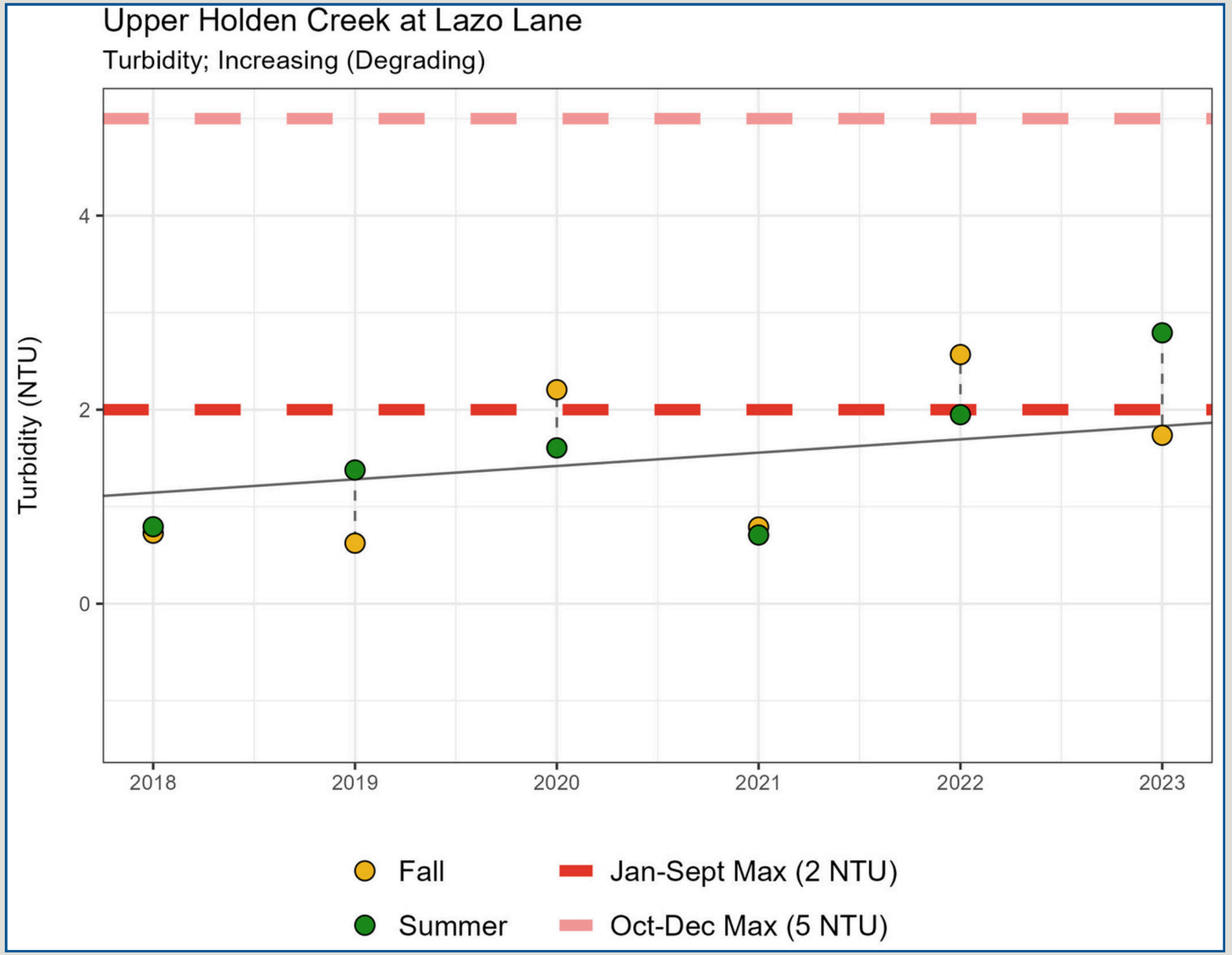
- **Summer period** 2 NTU maximum
  - 110 exceedances at 36 sites
    - 53 of these exceedances occurred on Aug. 8 and Aug. 29
    - precipitation within 24 hours of these sample dates
- **Fall period** 5 NTU maximum
  - 38 exceedances at 20 sites
    - exceedances evenly distributed across dates as precipitation occurred before or on 4 out of 5 samples

French Creek

COMMUNITY WATERSHED MONITORING NETWORK

2023 TREND ANALYSIS

- In 2023, three additional sites met the six years of data threshold and underwent additional trend analysis
  - Bloods Creek upstream Dickinson Rd
  - Knarston Creek upstream Lantzville Rd
  - Holden Creek at Lazo Ln
- All three sites showed increasing turbidity over time, but only one site had a statistically significant trend

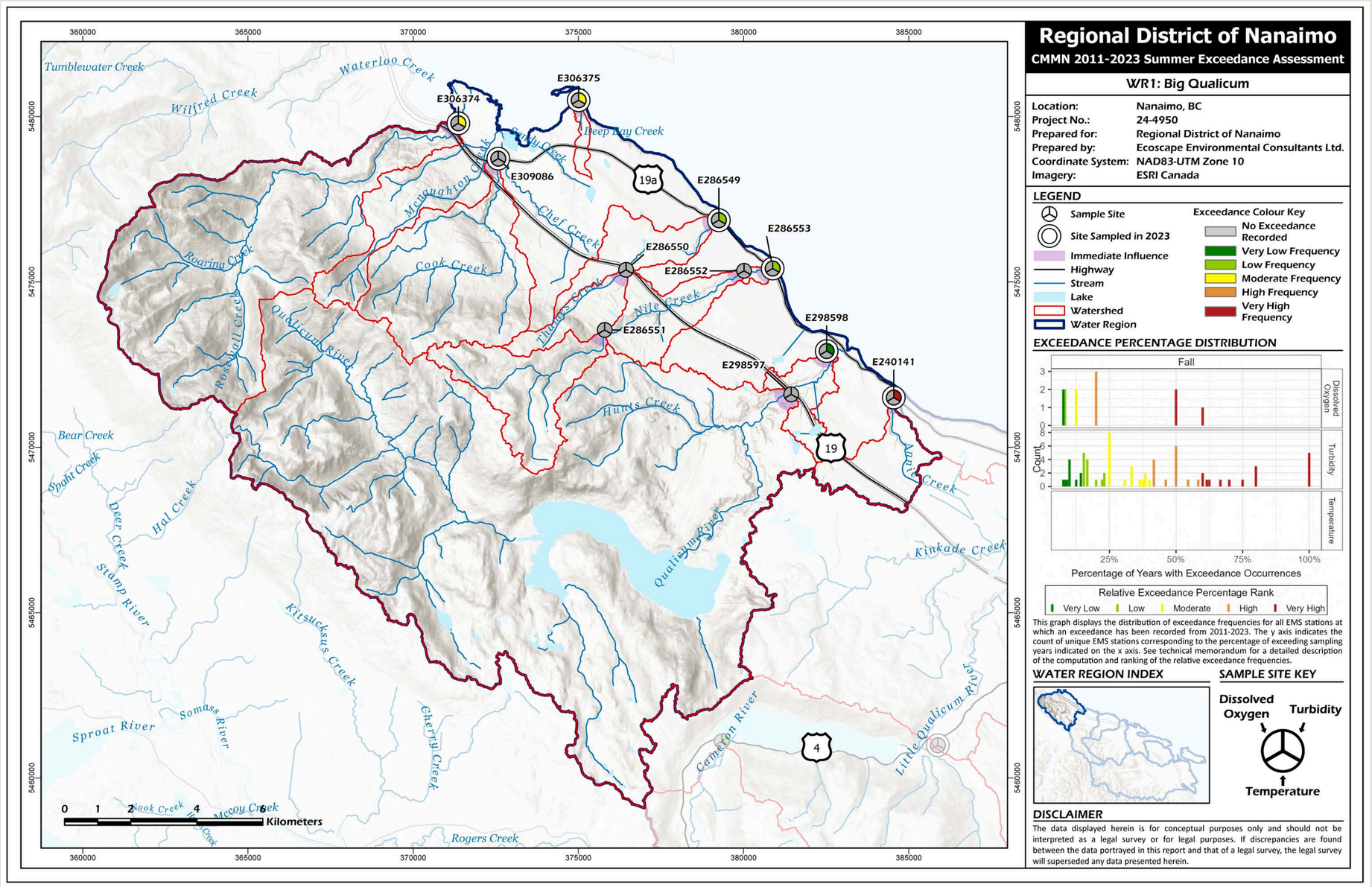


CWMN - 2023 RESULTS

2023 ANALYSIS

Spatial analysis

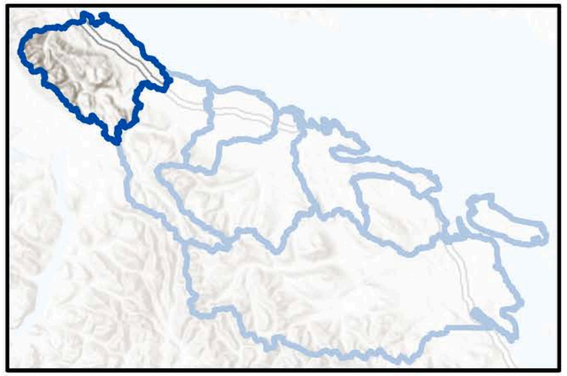
- CWMN data collected from 2011 to 2023 displayed in maps with each site showing the frequency of exceedances for each parameter, season, and water region
- Spatial files with drainage areas delineated for each site, including a 500m area of immediate influence



2023 exceedance map created by Ecoscape Environmental Consulting

CWMN - 2023 RESULTS

WATER REGION INDEX



SAMPLE SITE KEY

Dissolved Oxygen

Turbidity

Temperature

LEGEND

- Sample Site
- Site Sampled in 2023
- Immediate Influence
- Highway
- Stream
- Lake
- Watershed
- Water Region

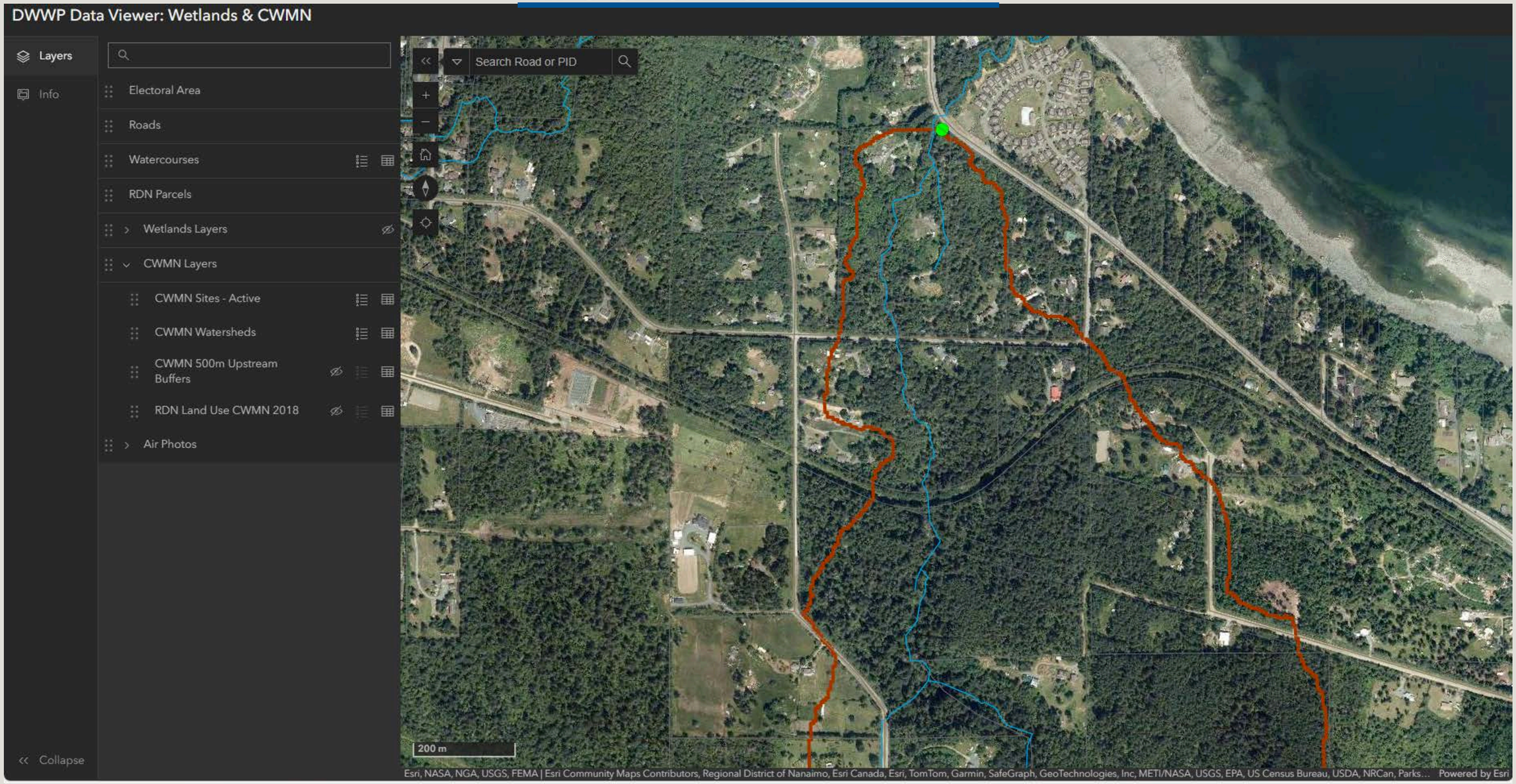
Exceedance Colour Key

- No Exceedance Recorded
- Very Low Frequency
- Low Frequency
- Moderate Frequency
- High Frequency
- Very High Frequency

2023 exceedance map created by Ecoscape Environmental Consulting

CWMN - SUBWATERSHED TREND ANALYSIS

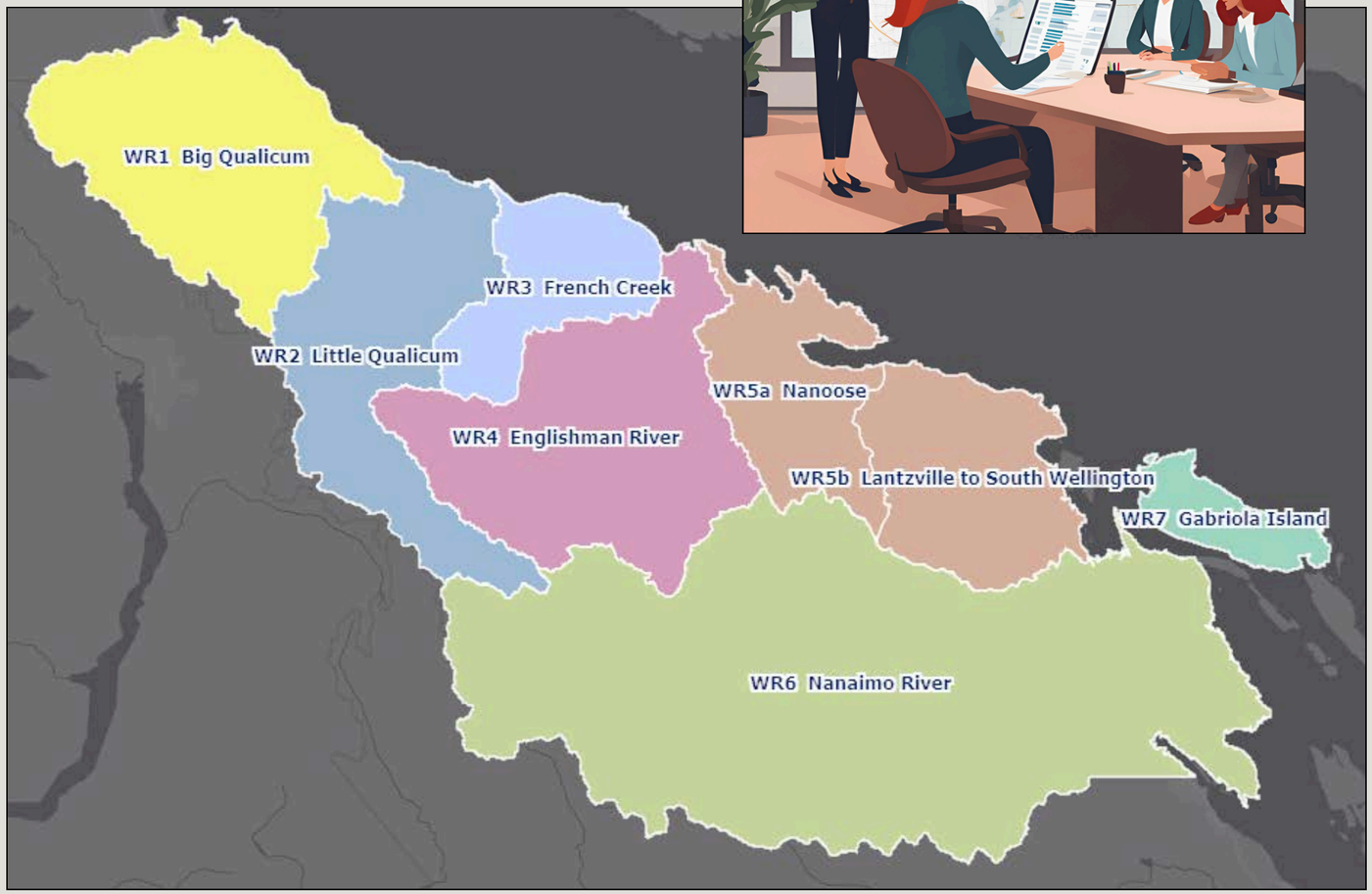
ArcGIS Data Viewer



CWMN STRATEGIC PLANNING

Next year we will be undergoing an internal review of the CWMN data collected from 2011 to 2024

- Process will include
  - Creation of an evolving framework and working projected timeline
  - Internal desk top studies and site by site review of all data to direct next steps (exceedances, trends, land uses)
  - Invites to Streamkeepers and knowledge keepers to share what they know and participate in plan creation and recommendations
  - Field visits and engagement sessions
  - Potential to form a TAC subcommittee to support the process



CWMN STRATEGIC PLANNING

At the July results session that presented data collected in 2023, attendees were engaged for preliminary feedback

- What we proposed
    - Monitoring in 2025 would be paused and Streamkeepers, partners, and knowledge keepers would be engaged to collaborate in a planning process that would be stream-specific, to come up with recommendations for future monitoring, restoration, and efforts
    - Questions to gain insight and help direct how strategic planning is rolled out
    - Questions focused on five areas:
        - Monitoring priorities
        - Key goals for the plan
        - Resource allocations and partnerships
        - Co-creating a plan
        - Making room for the planning process

CWMN STRATEGIC PLANNING

Some highlights of what we heard...

- **Monitoring priorities**
  - Additional monitoring for flow, precipitation, culvert health, sediment, agricultural run-off
  - Partnerships that promote community education and stewardship and influence decision makers
- **Key goals for the Plan**
  - a defined linkage to action, particularly to stormwater management, Official Community Plans, and development
  - updated stream layers that include all tributaries, ditches, and wetlands
- **Resource allocations and partnerships**
  - facilitate groups interaction with each other, within and across Streamkeepers and decision makers
  - Need youth and students to get involved, aging demographic
- **Co-creating a Plan**
  - Have options for participation - site visits, online, in-person, mail
- **Making room for the planning process**
  - Mixed feelings - understand limitations, still many would like to continue with monitoring

TEAM WATERSMART EVENTS- SUMMER RECAP

- Since Water to Earth month concluded, Team WaterSmart has attended 7 events in Nanaimo, Lantzville, Qualicum and Fanny Bay.
- Each year, the team aims to attend at least one event in each municipality/area.
- The team has also visited RDN summer camps in July and August and had some classroom visits in May and June

May 22	Nanaimo Public Works Day
July 20	PCCS 75th Event
July 21	QB Beach Day
August 17	Lantzville Minetown Day
August 22	QB Night market with MABR
Sept 7	Emergency Preparedness EXPO

TEAM WATERSMART – UPCOMING EVENTS

- September and October will be busy month for Team WaterSmart with outreach events, River's Day, Field Trips, Youth Ambassador outings and WellSmart

Sept 22	River's Day walk at Nanaimo River
Sept 22	River's Day Celebration at Bowen park
Sept 23	River's Day walk at Englishman River
Oct 6	Cedar Farmer's Market
Oct 27	Fall into Gardening
Nov 4&5	WellSmart Workshops

TEAM WATERSMART – RIVER'S DAY 2024

- **River's Day 2024- Sunday Sept 22**
- **September 22**- Nanaimo River's Day walk in partnership with the City of Nanaimo, RDN Parks and the Nanaimo River Watershed Roundtable
- **September 22**- River's Day Celebration at Bowen Park- hosted by the City of Nanaimo
- **September 23**- Englishman River's Day Walk in partnership with RDN Parks and the Englishman River hatchery volunteers

TEAM WATERSMART – WATERSHED FIELD TRIPS

- Watershed field trips in partnership with City of Nanaimo, City of Parksville, Mosaic Forest management, and Englishman River hatchery volunteers
- 6 trips planned for Sept/Oct this year (3 Englishman and 3 Nanaimo River)

TEAM WATERSMART – WELLSMART WORKSHOPS

- Two WellSmart workshops planned for this fall in partnership with Island Health and the Ministry of Water, Land and Resource Stewardship
  - **Monday November 4- 6-8pm at the Meadowood Community Hall**
  - **Tuesday November 5 6-8pm at the Coombs Fairgrounds**
- Topics include well maintenance and operation, protecting your water source, water testing and treatment, water treatment options and drought management
- These workshops are FREE but registration is required either online or by phone through RDN recreation

TEAM WATERSMART - YOUTH AMBASSADOR PROGRAM

- Last school year was a ‘pilot program’ for the youth ambassador program in partnership with RDN Parks and Sustainability departments
- 2023-2024 we hosted two evening education events on water/salmon and climate change, we supported a couple of youth-lead projects, and held a youth streamkeeper course at NDSS
- Following the ‘teacher champion’ model this year for our first two events
  - **Cedar Secondary outdoor classroom and invasive removal at the RDN Arboretum**
  - **Qwalikum Secondary outdoor classroom and tree planting at Dunsmuir Park**

Youth AMBASSADORS

TEAM WATERSMART EVENTS

RESIDENTIAL IRRIGATION CHECKS

- Since 2010, hundreds of residential irrigation check-ups have been performed by Team WaterSmart staff. The program has effectively caught leaks, lowered excessive watering times and advised on water-saving techniques.

This Summer

- 18 total checkups; most in Nanaimo and Nanoose Bay

- Found leaks and minor or significant damages on almost all properties visited.

Past Checkups

- 2022 Checkups: 4/5 participants in RDN purveyed areas saw reduction in water use in 2023 vs 2021 (~3 m^3 per day)

Planting: Turfgrass

Standard turfgrass

Density: High **Water use:** High

Exposure: Part sun **Area:** 124.62 m^2

Soil: Clay

Suggested soil depth: > 150 mm

Irrigation: Spray **Water use:** 39.2 m^3/year

Planting: Shrubs

Fernbush

Not recommended for Shade

Exposure: Full sun **Area:** 101.31 m^2

Soil: Clay

Suggested soil depth: > 375 mm

Irrigation: Microspray **Water use:** 2.7 m^3/year

Planting: Shrubs

Fernbush

Not recommended for Shade

Exposure: Part sun **Area:** 78.13 m^2

Soil: Clay

Suggested soil depth: > 375 mm

Irrigation: Microspray **Water use:** 2.1 m^3/year

TEAM WaterSmart

Summary

	Irrigated area	Annual water use
Profile		
Standard turfgrass	156.36 m^2	59 m^3
Big sagebrush	133.43 m^2	3.6 m^3
Standard turfgrass	124.62 m^2	39.2 m^3
Fernbush	101.31 m^2	2.7 m^3
Fernbush	78.13 m^2	2.1 m^3
Total	594 m^2	**106 m^3**

Save Report (PDF)

Planting: Turfgrass

Standard turfgrass

Density: High **Water use:** High

Exposure: Part sun **Area:** 124.62 m^2

Soil: Organic

Suggested soil depth: > 150 mm

Irrigation: Rotor **Water use:** 31.6 m^3/year

Planting: Native shrubs

Mock orange

Photo

Not recommended for Shade

Exposure: Full sun **Area:** 101.31 m^2

Soil: Organic

Suggested soil depth: > 375 mm

Irrigation: Drip **Water use:** 2.1 m^3/year

Planting: Native shrubs

Salal

Photo

Not recommended for Full sun

Exposure: Part sun **Area:** 78.13 m^2

Soil: Organic

Suggested soil depth: > 375 mm

Irrigation: Drip **Water use:** 0.812 m^3/year

TEAM WaterSmart

Summary

	Irrigated area	Annual water use
Profile		
Standard turfgrass	156.36 m^2	47.6 m^3
Ocean spray	133.43 m^2	2.8 m^3
Standard turfgrass	124.62 m^2	31.6 m^3
Mock orange	101.31 m^2	2.1 m^3
Salal	78.13 m^2	0.812 m^3
Total	594 m^2	**85 m^3**

Save Report (PDF)

THE FUTURE OF IRRIGATION CHECKUPS:
BC LANDSCAPE WATER CALCULATOR

TEAM WaterSmart

- Calculator open to the public; benefits far beyond the irrigation checkup program

- Our partnership with The Partnership for Water Sustainability in BC allows us to customize the tool. Members of the public will receive an automatically generated report from the calculator with information on:

    - How to lower the water use of the calculated system
    - RDN Water Conservation Rebates
    - Link to watering restrictions information and map
    - Link to WaterSmart get involved page
    - More useful water saving information and links

CEDAR-YELLOWPOINT WATER BUDGET SCOPING

The Water Budget project aims to assist land and water managers in balancing competing water needs and land practices with finite water supplies, *both surface water and groundwater*.

This phase of the project aims to develop a refined numerical water budget model that can predict and simulate scenarios of increased water demand, climate change and land cover change and will assist with managing this essential resource in a complex environment.

photo credit: Holden Lake by Steve Hay

CEDAR-YELLOWPOINT WATER BUDGET SCOPING

- **Phase 1** – broad regional overview that identified areas for further study
  - Conceptual model
  - showed that Cedar Yellowpoint area is experiencing variability in water supply, climate change impacts, potential agricultural use pressures, and saline intrusion

- **Phase 2**: Data collection and monitoring
  - 2016 Piteau report: recommended expanded monitoring for priority areas
  - Volunteer Observation Well establishment (partnership with private domestic well owners)
    - *7 VOW in study area plus 5 Prov. OW*
  - Lake Level Monitoring (on Quennell & Holden Lakes)
  - Flow monitoring on Haslam Creek (Provincially managed)

CEDAR-YELLOWPOINT WATER BUDGET SCOPING

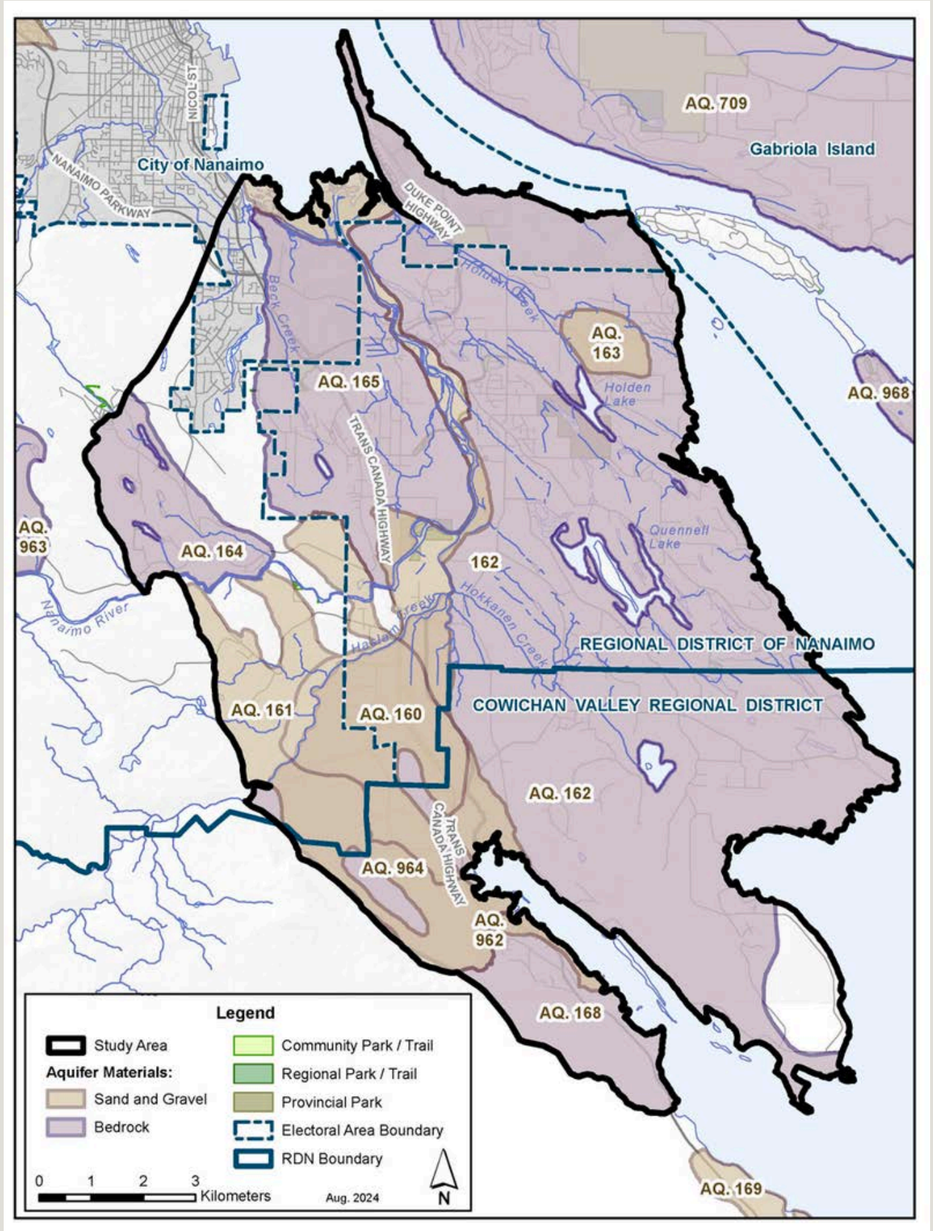
- **Phase 3** - Develop a refined numerical water budget model that can predict and simulate scenarios of increased water demand, climate change, and land cover change
  - Nanoose ✓
  - French Creek ✓
  - Cedar-Yellowpoint ←

CEDAR-YELLOWPOINT WATER BUDGET SCOPING

PROPOSED SPATIAL SCOPE

- 8 mapped aquifers (3 sand&gravel; 5 bedrock)
- Surface watercourses and bodies include Holden lake, Quenell Lake, Haslam Creek, lower Nanaimo River, Holden Creek, Hokkanen Creek, and others
- Local government jurisdictions:
  - RDN Electoral Areas A and C,
  - City of Nanaimo,
  - Cowichan Valley Regional District Area H.
- Includes reserve land and traditional territory of both the Snuneymuxw and Stz'uminus First Nations.
- Water users:
  - RDN DeCourcey Water Service Area
  - North Cedar Improvement District
  - Harmac Pacific
  - several other smaller privately operated water systems
  - wide didomestic groundwater well users

The study area is meant to be defined by hydrology / hydrogeology, not jurisdiction.



CEDAR-YELLOWPOINT WATER BUDGET SCOPING

OBJECTIVES

- **Focus on water quantity**
  - Develop a numerical model that represents the integrated hydrologic system in Cedar-Yellowpoint Region and
  - Characterize groundwater and surface water dynamics at the aquifer, watershed, and site scale in terms of baseflow and recharge; outputs and inputs, and likelihood of hydraulic connection between groundwater to surface water.
- **Understand boundary and availability conditions**
  - Run scenarios, including climate change, pumping (water use), land cover change to better quantify and define sustainable groundwater extraction levels and yields.
  - Quantify how much water is available for community needs without causing harm to in-stream flow needs while protecting existing water users and recognizing Indigenous water rights
- **Support decisions**

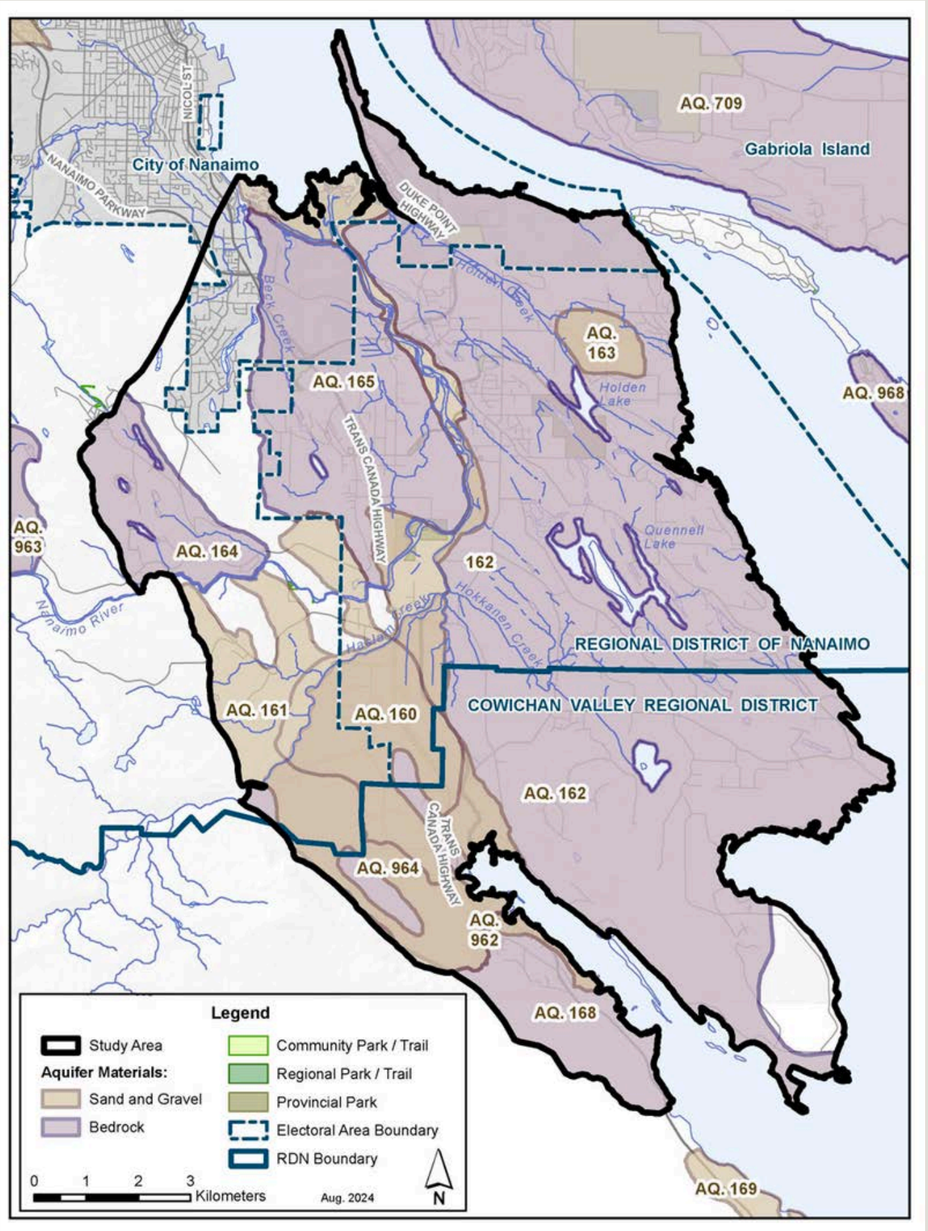
Analyze data using water budgets as a tool to:

  - Guide adaptive regional water supply management and water system operation;
  - Identify areas with groundwater recharge potential for heightened protections;
  - Inform water allocation targets;
  - Provide the technical foundation for strategic decisions on regional water supply / water servicing.

CEDAR-YELLOWPOINT WATER BUDGET SCOPING

PROPOSED PROJECT TIMELINE

- Integrate recommendations on scope from technical advisors - current
- Identification of and engagement with project partners - to form a project working group
- Develop RFP from scope to be posted Fall 2024
- Aim for project completion by end of 2025

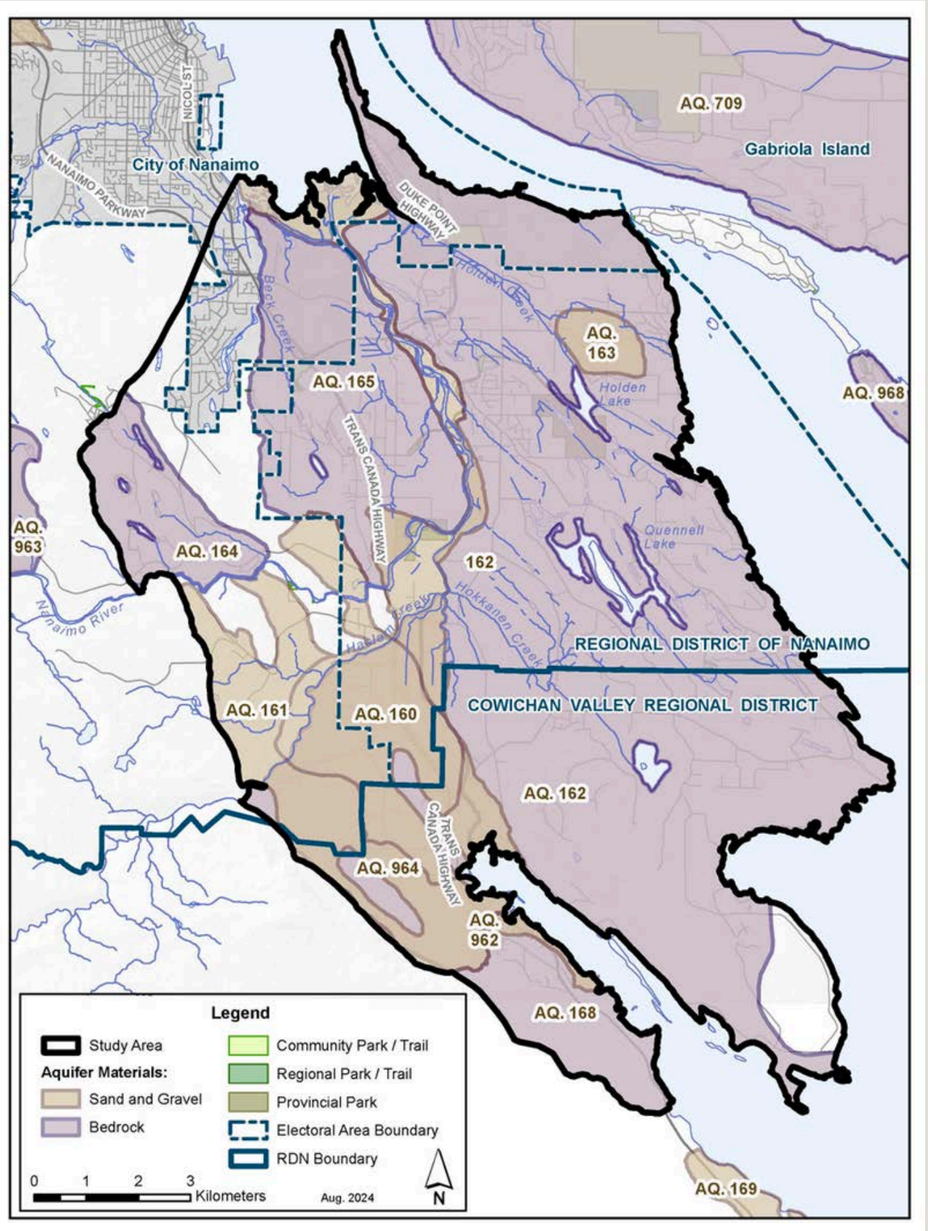


CEDAR-YELLOWPOINT WATER BUDGET SCOPING

PROJECT BUDGET

- Approx. $100k included in Operational Budget for DWWP programming for this year and rolling into 2025

- Will be exploring grants and partnership funding options



CEDAR-YELLOWPOINT WATER BUDGET SCOPING

Seeking feedback on:

- Spatial Scope
- Proposed Objectives
- Timing
- Potential partnerships
- Other?

photo credit: Holden Lake by Steve Hay

THANK YOU!

Next Meeting:
November 20, 2024