



Drinking Water & Watershed Protection

September 13, 2023 // Technical Advisory Committee Meeting

AGENDA

ROUNDTABLE

**PROJECT UPDATE
PRESENTATIONS**

**NEW
BUSINESS**

AGENDA

Approval of the agenda

Adoption of minutes

- Minutes from May 24, 2023

Roundtable Updates

Staff Presentations

New Business

Adjournment



Drinking Water & Watershed Protection

September 13, 2023 // Technical Advisory Committee Meeting

AGENDA

ROUNDTABLE

**PROJECT UPDATE
PRESENTATIONS**

**NEW
BUSINESS**



ROUNDTABLE UPDATES

All committee members



Drinking Water & Watershed Protection

September 13, 2023 // Technical Advisory Committee Meeting

AGENDA

ROUNDTABLE

**PROJECT UPDATE
PRESENTATIONS**

**NEW
BUSINESS**

**Policy &
Planning
Support**

**Information
& Science**

PROJECT UPDATES

STAFF PRESENTATIONS

**Awareness &
Stewardship**

**Upcoming
Events /
Projects**

**French Creek
Water Budget
Phase 3**

**Area F Official
Community Plan
Update**

**Regional Drought
Response Summary**



**Policy & Planning
Support**

French Creek Water Budget Phase 3

Updated Project Timeline

- **September 2022:** Draft results were presented to the DWWP TAC to share early project findings and get feedback from committee.
- **December 2022:** Received draft report, sent to select members of the DWWP TAC for detailed technical edits.
- ***Finalization was on hold, pending Provincial aquifer boundaries updates.***
- **June 2023:** Province published aquifer mapping updates.
- **June - September 2023:** consultants re-running model and revising report according to new mapping and DWWP TAC and staff comments.
- **Mid-September 2023:** Final report submitted to RDN, shared with TAC and project partners.
- **October 2023:** Final Report presented to RDN Board.
- **Ongoing:** Use findings to inform concurrent Planning initiatives, including Area F OCP Update.

French Creek Water Budget Phase 3

Updated Project Timeline

- **September 2022:** Draft results were presented to the DWWP TAC to share early project findings and get feedback from committee.
- **December 2022:** Received draft report, sent to select members of the DWWP TAC for detailed technical edits.
- ***Finalization was on hold, pending Provincial aquifer boundaries updates.***
- **June 2023:** Province published aquifer mapping updates.
- **June - September 2023:** consultants re-running model and revising report according to new mapping and DWWP TAC and staff comments.
- **Mid-September 2023:** Final report submitted to RDN, shared with TAC and project partners.
- **October 2023:** Final Report presented to RDN Board.
- **Ongoing:** Use findings to inform concurrent Planning initiatives, including Area F OCP Update.




French Creek Water Budget Phase 3

Updated Project Timeline

- **September 2022:** Draft results were presented to the DWWP TAC to share early project findings and get feedback from committee.
- **December 2022:** Received draft report, sent to select members of the DWWP TAC for detailed technical edits.
- ***Finalization was on hold, pending Provincial aquifer boundaries updates.***
- **June 2023:** Province published aquifer mapping updates.
- **June - September 2023:** consultants re-running model and revising report according to new mapping and DWWP TAC and staff comments.
- **Mid-September 2023:** Final report submitted to RDN, shared with TAC and project partners.
- **October 2023:** Final Report presented to RDN Board.
- **Ongoing:** Use findings to inform concurrent Planning initiatives, including Area F OCP Update.

French Creek Water Budget Phase 3

Updated Project Timeline

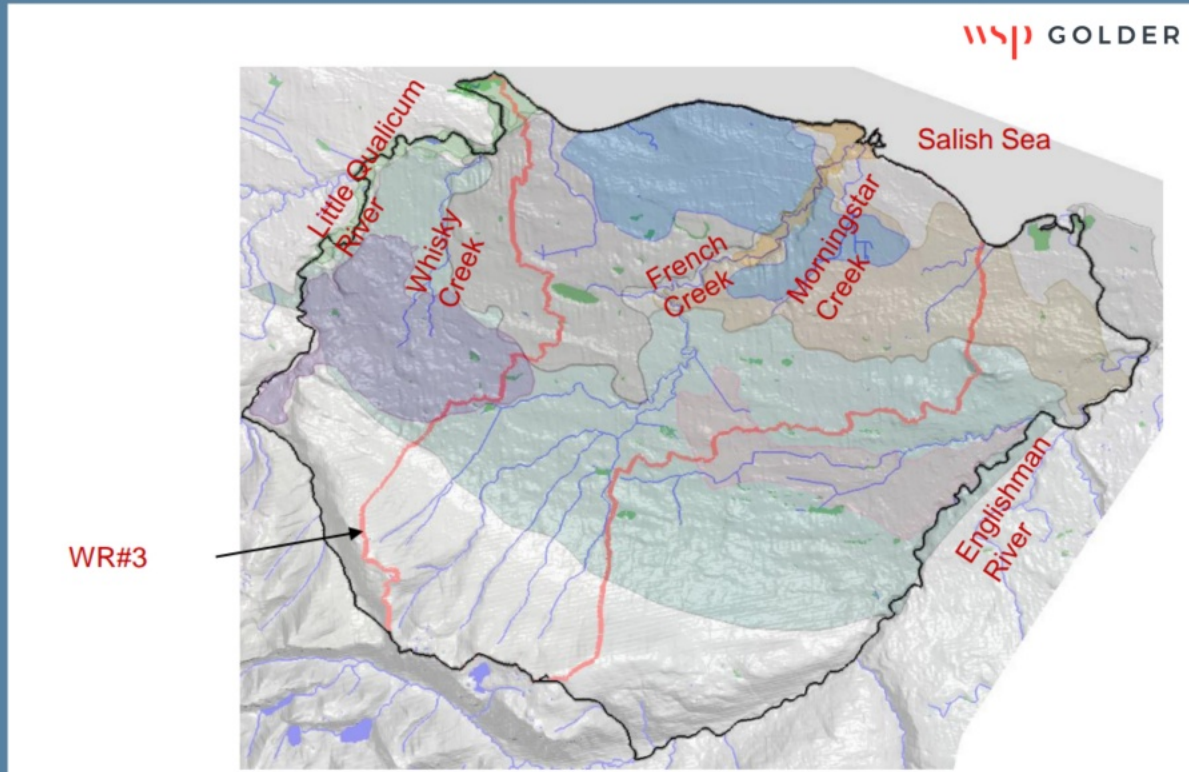
- **September 2022:** Draft results were presented to the DWWP TAC to share early project findings and get feedback from committee.
- **December 2022:** Received draft report, sent to select members of the DWWP TAC for detailed technical edits.
- ***Finalization was on hold, pending Provincial aquifer boundaries updates.***
- **June 2023:** Province published aquifer mapping updates.
- **June - September 2023:** consultants re-running model and revising report according to new mapping and DWWP TAC and staff comments.
-  **Mid-September 2023:** Final report submitted to RDN, shared with TAC and project partners.
- **October 2023:** Final Report presented to RDN Board.
- **Ongoing:** Use findings to inform concurrent Planning initiatives, including Area F OCP Update.

French Creek Water Budget Phase 3

Updated Project Timeline

- **September 2022:** Draft results were presented to the DWWP TAC to share early project findings and get feedback from committee.
- **December 2022:** Received draft report, sent to select members of the DWWP TAC for detailed technical edits.
- ***Finalization was on hold, pending Provincial aquifer boundaries updates.***
- **June 2023:** Province published aquifer mapping updates.
- **June - September 2023:** consultants re-running model and revising report according to new mapping and DWWP TAC and staff comments.
- **Mid-September 2023:** Final report submitted to RDN, shared with TAC and project partners.
- **October 2023:** Final Report presented to RDN Board.
- **Ongoing:** Use findings to inform concurrent Planning initiatives, including Area F OCP Update.

French Creek Water Budget Phase 3

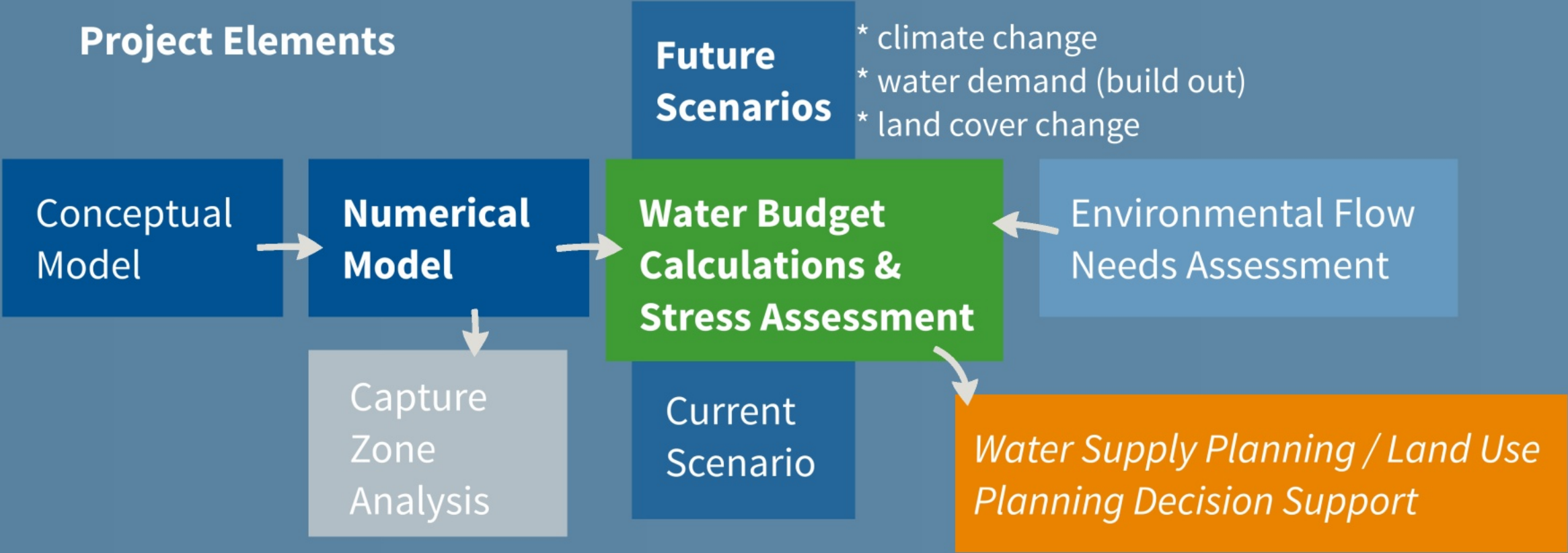


Objective:

To develop a refined numerical water budget model for the French Creek Water Region (WR3) to understand current and future water availability & constraints.

Phase 3 builds upon the Phase 1 conceptual model and preliminary water budgets, and the Phase 2 expanded data collection and monitoring

French Creek Water Budget Phase 3



French Creek Water Budget Phase 3

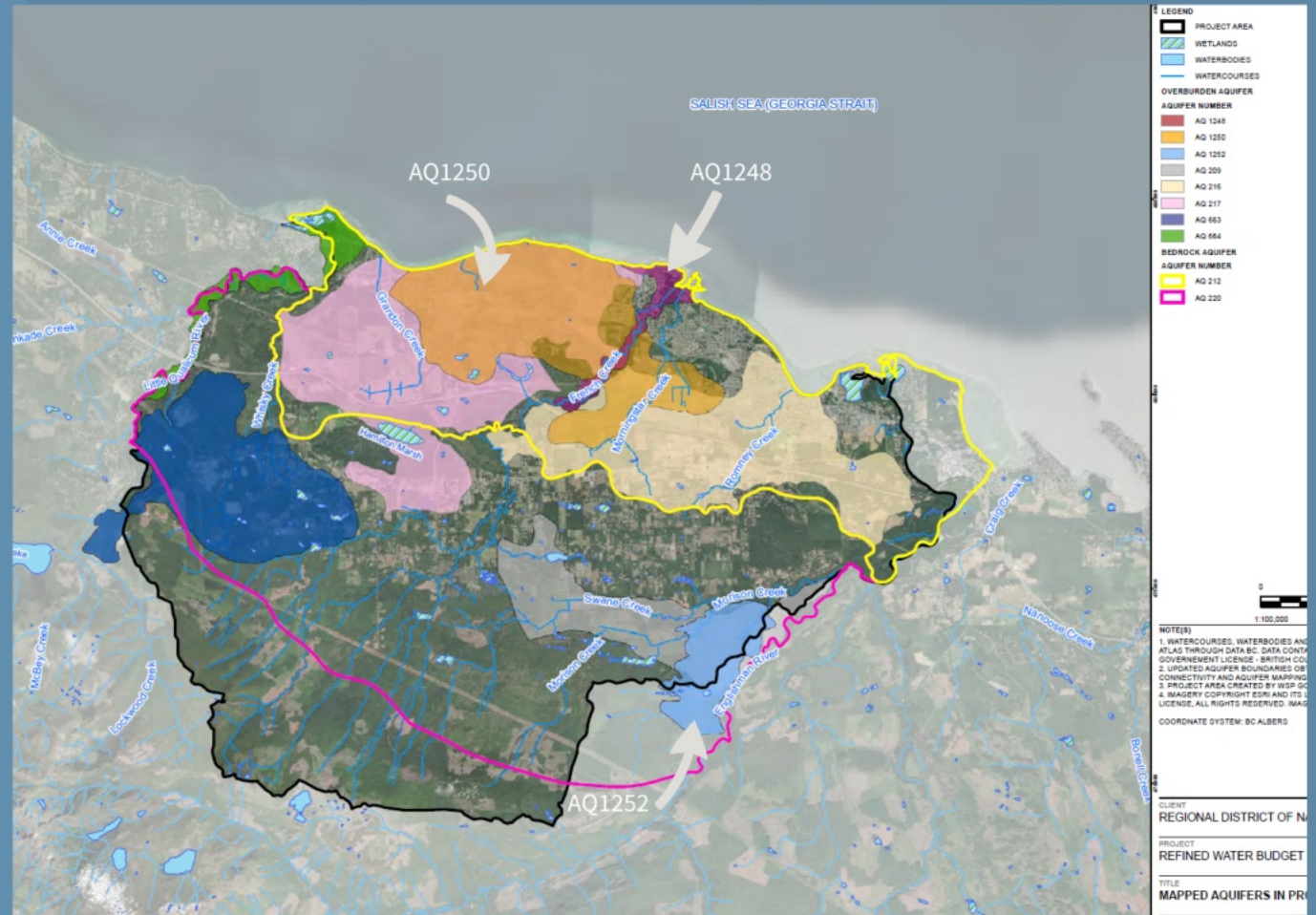
Aquifer Mapping Updates

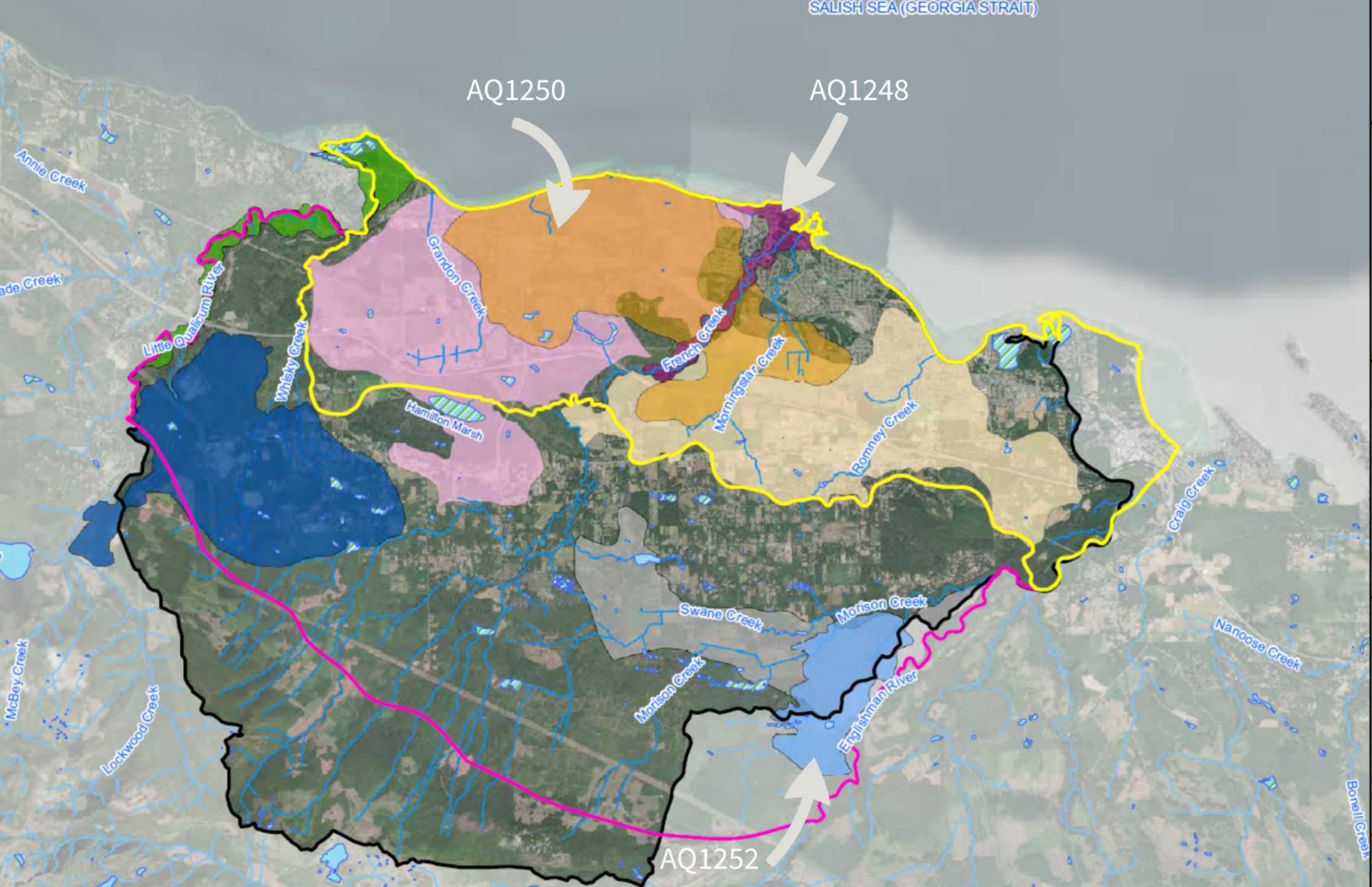
All existing aquifer boundaries were updated and there are three newly delineated aquifers in the study area:

1250 - below aquifers 217 and 216; between Morningstar Creek and Grandon Creek

1248 - French Creek valley and delta

1252 - near Morison Creek; above aquifer 209



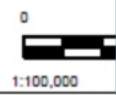


AQUIFER NUMBER

[Red]	AQ 1248
[Orange]	AQ 1250
[Light Blue]	AQ 1252
[Grey]	AQ 209
[Yellow]	AQ 216
[Pink]	AQ 217
[Dark Blue]	AQ 663
[Green]	AQ 664

BEDROCK AQUIFER AQUIFER NUMBER

[Yellow Outline]	AQ 212
[Pink Outline]	AQ 220



NOTE(S)

1. WATERCOURSES, WATERBODIES AND ATLAS THROUGH DATA BC. DATA CONTAINS A GOVERNMENT LICENSE - BRITISH COLUMBIA
2. UPDATED AQUIFER BOUNDARIES OBTAINED FROM DATA BC THROUGH CONNECTIVITY AND AQUIFER MAPPING
3. PROJECT AREA CREATED BY WSP GROUP INC.
4. IMAGERY COPYRIGHT ESRI AND ITS LICENSE, ALL RIGHTS RESERVED. IMAGERY BY AIRPHOTOGRAPHY

COORDINATE SYSTEM: BC ALBERS

French Creek Water Budget Phase 3

Water Supply Systems in Project Area by Aquifer

- RDN French Creek → Aquifer 1250 (now connected to TQB)
- RDN Surfside → Aquifer 664
- Town of Qualicum Riverside → Aquifer 664
- Town of Qualicum Berwick → Aquifer 217 + 1250
- City of Parksville Springwood → Aquifer 216
- City of Parksville Railway → Aquifer 216
- EPCOR French Creek North → Aquifer 1250
- EPCOR French Creek South → Aquifer 216

French Creek Water Budget Phase 3

Groundwater - Surface Water Interaction

Likely connections, high confidence:

- Little Qualicum River & Aquifer 664
- French Creek & Aquifers 220, 216, 1248, 1250
- Whiskey Creek & Aquifer 663
- Englishman River & Aquifers 220 and 212

Potentially connected

- Beach Creek & Aquifer 217
- Confluence of Little Q and Whiskey Creek & Aquifer 217

Likely not connected to groundwater, high confidence

- Grandon Creek
- Carey Creek



French Creek Water Budget Phase 3

Aquifer Stress - Water Budget Calculations

Groundwater extraction (*private and municipal groundwater use*)
and discharge (*baseflow or gw contribution to streamflow*)

-- divided by --

the total inputs to the aquifer (*precipitation, vertical or lateral leakage from adjacent aquifers*)

= relative Aquifer Stress (%)

Table 24: Phase 3 French Creek Water Budget Aquifer Stress Classification

Stress%	Stress Classification
0 – 10	Low
10 – 20	Moderate
20 – 30	High
> 30	Very High

French Creek Water Budget Phase 3

Aquifer Stress - Current Conditions

Stress Classification

Very High



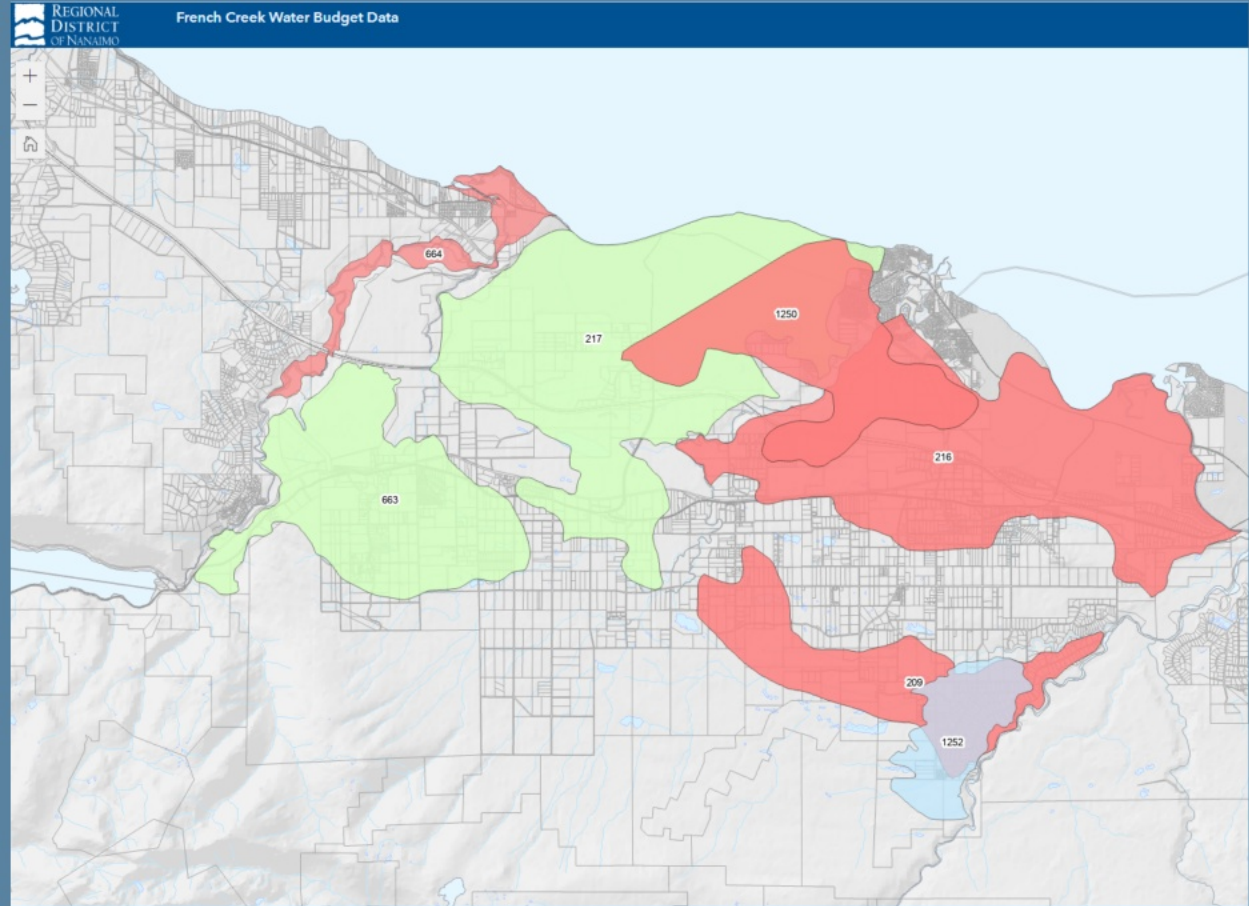
High



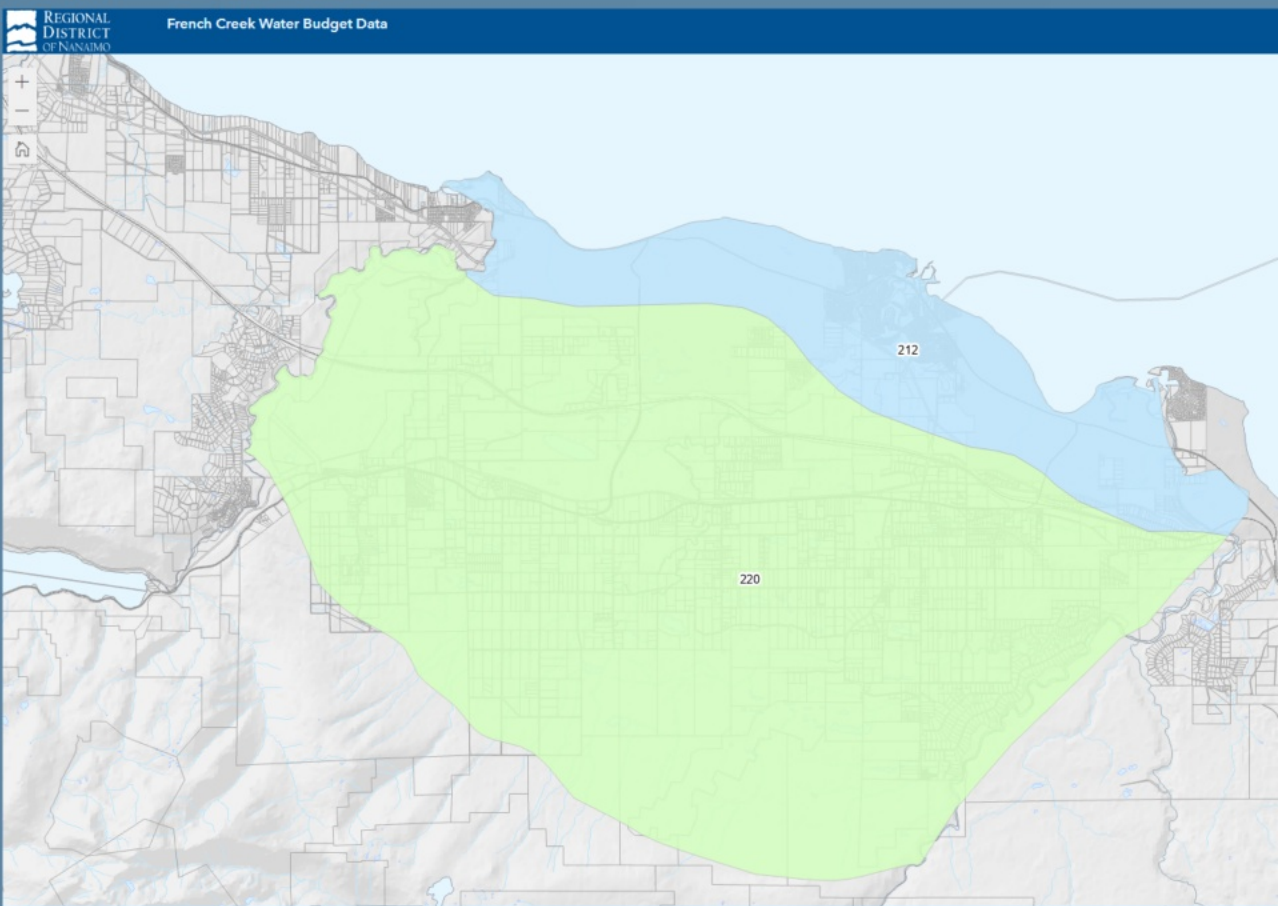
Moderate



Low



Unconsolidated (Sand and Gravel)



Bedrock

French Creek Water Budget Phase 3

Scenario 1: Climate Change

The % of annual rain will increase and the % of snowfall will decrease.

Dry season gw recharge rates decreased, length of dry season increased to 6 months, increased water demand for agriculture.

Additional precipitation from storm events linked to greater overland flow and surface water discharge to ocean, rather than gw recharge.

Table 26: Summary of Projected Climate Change for Nanaimo Region (PCIC, 2022)

Climate Variable	Season	Median	Range (10th to 90th percentile)
Projected changes to the 2050s (2040-2069)			
Temperature (°C)	Annual	+2.7°C	+1.9°C to +3.9°C
Precipitation (%)	Annual	1.70%	-1.5% to +5.4%
	Summer	-13%	-41% to +3.0%
	Winter	3.40%	-0.22% to +9.3%
Precipitation as Snow* (%)	Annual	-82%	-91% to -75%
	Winter	-85%	-91% to -78%
	Spring	-80%	-93% to -56%
Projected changes to the 2080s (2070-2099)			
Temperature (°C)	Annual	+4.3°C	+3.2°C to +6.0°C
Precipitation (%)	Annual	7.60%	-0.52% to +13%
	Summer	-24%	-56% to -5.3%
	Winter	13%	+0.50% to +19%
Precipitation as Snow* (%)	Annual	-92%	-97% to -84%
	Winter	-94%	-98% to -86%
	Spring	-91%	-100% to -71%

Notes

- Climate variables marked with * are derived from temperature and/or precipitation values, and are not direct outputs of the climate models.
- CAUTION:** Percent changes from a low baseline value can result in deceptively large percent change values. A small baseline can occur when the season and/or region together naturally make for zero or near-zero values. For example, snowfall in summer in low-lying southern areas.

French Creek Water Budget Phase 3

Scenario 2: Build-Out Water Demand

Applied 567 L/day/lot for residential water demand, accounting for the total lots given full build out based on zoning.

Some rural lots currently used for agriculture (outside of ALR) will be redeveloped as residential eventually based on zoning.

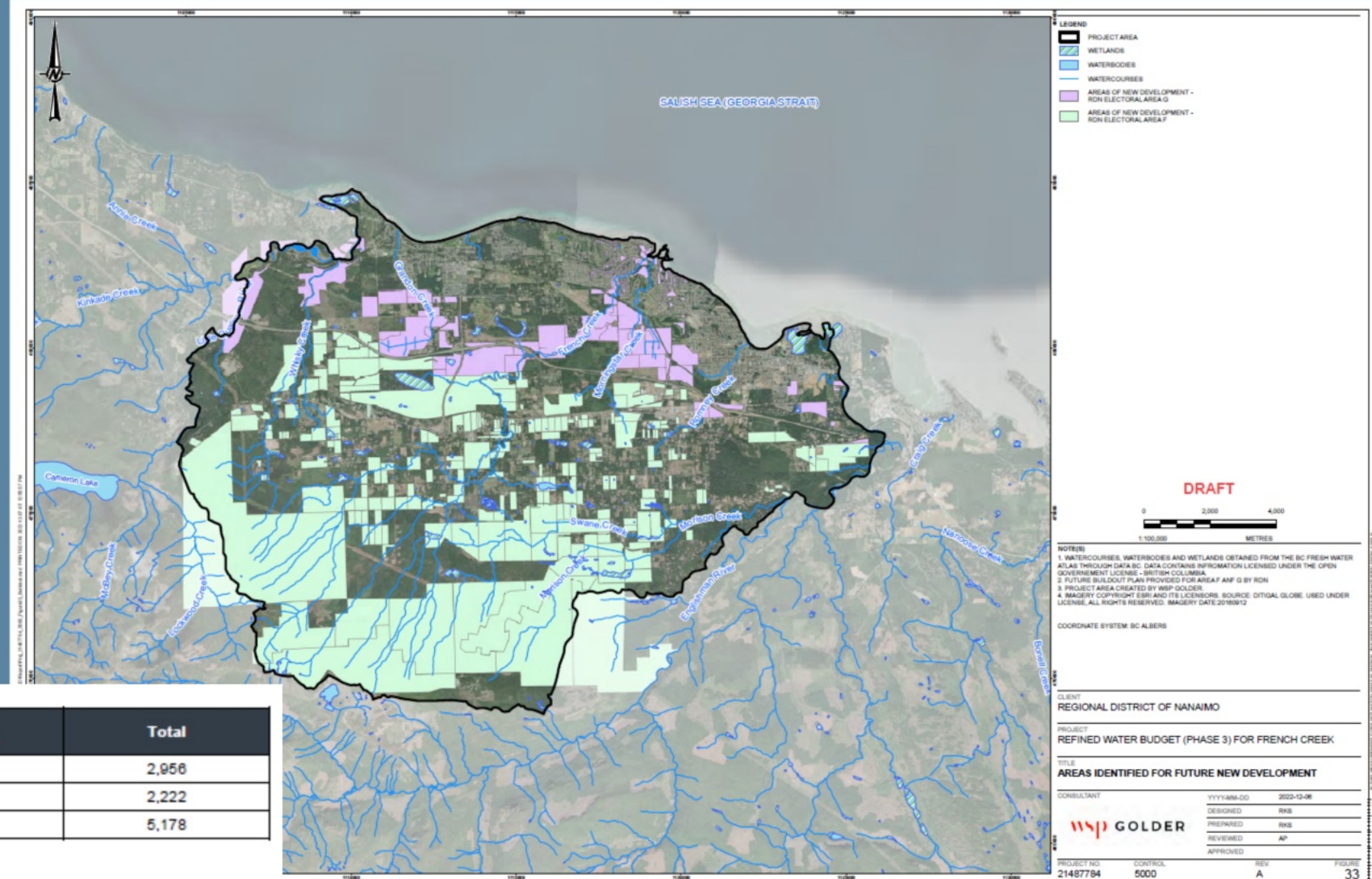


Table 27: Summary of Build-out Information in the Project Area^a

	Area F (in Project Area)	Area G (in Project Area)	Total
Current Lots	897	2,059	2,956
New Lots Future Build-out	854	1,368	2,222
Total Lots Future Build-out	1,751	3,427	5,178

Notes

a. Based Area F and G Build-out geodatabase provided by RDN September 2022

French Creek Water Budget Phase 3

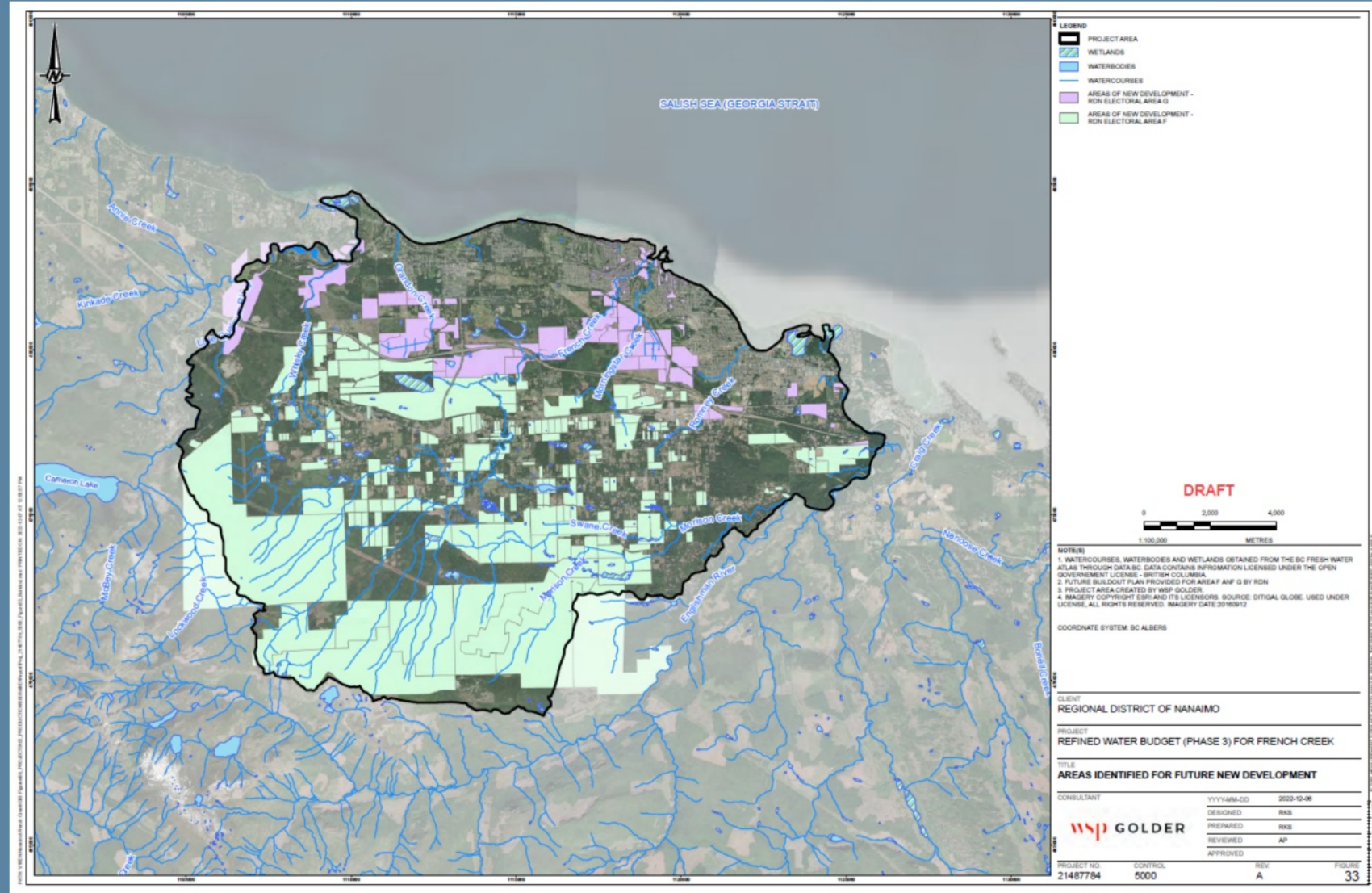
Scenario 3: Land Cover Change

Full subdivision potential build-out

35% lot coverage (impervious) for lots <3 ha

10% lot coverage (impervious) for lots >3 ha

Groundwater recharge rate reduced accordingly



French Creek Water Budget Phase 3

Aquifer Stress - Combined Future Scenario (Climate, Demand at Build Out, Land Cover Change)

Stress Classification

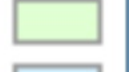
Very High



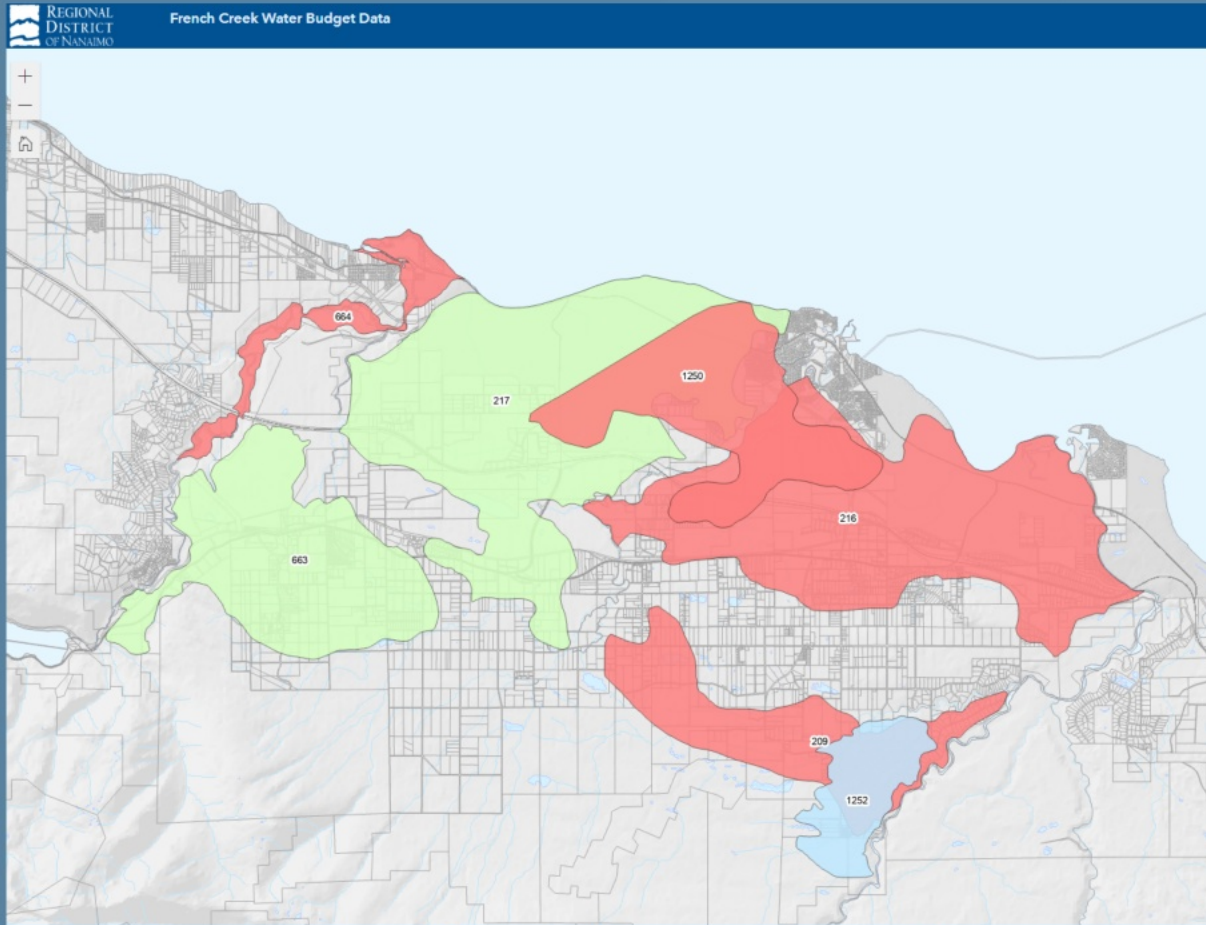
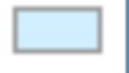
High



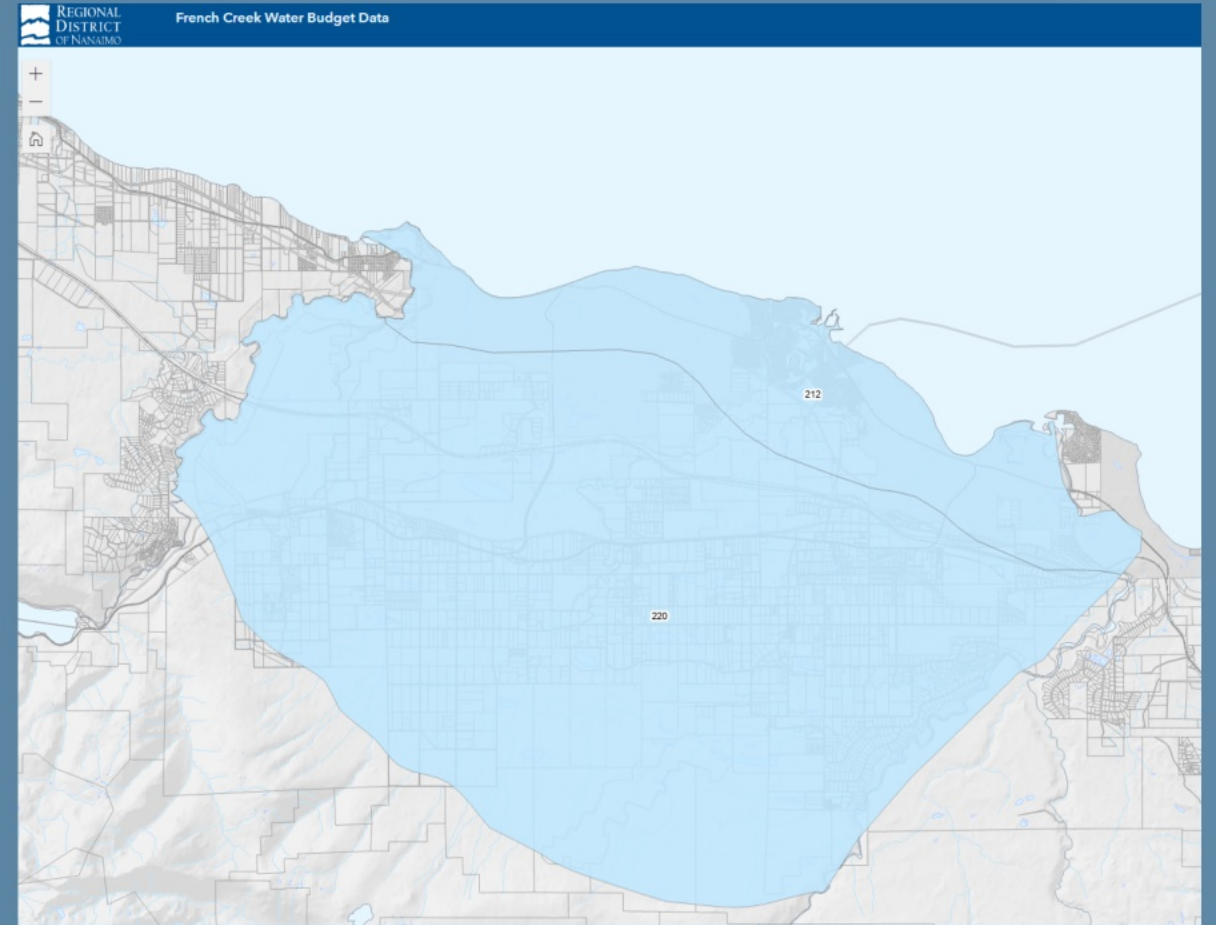
Moderate



Low



Unconsolidated (Sand and Gravel)



Bedrock

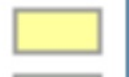
French Creek Water Budget Phase 3

Stress Classification

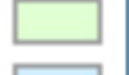
Very High



High



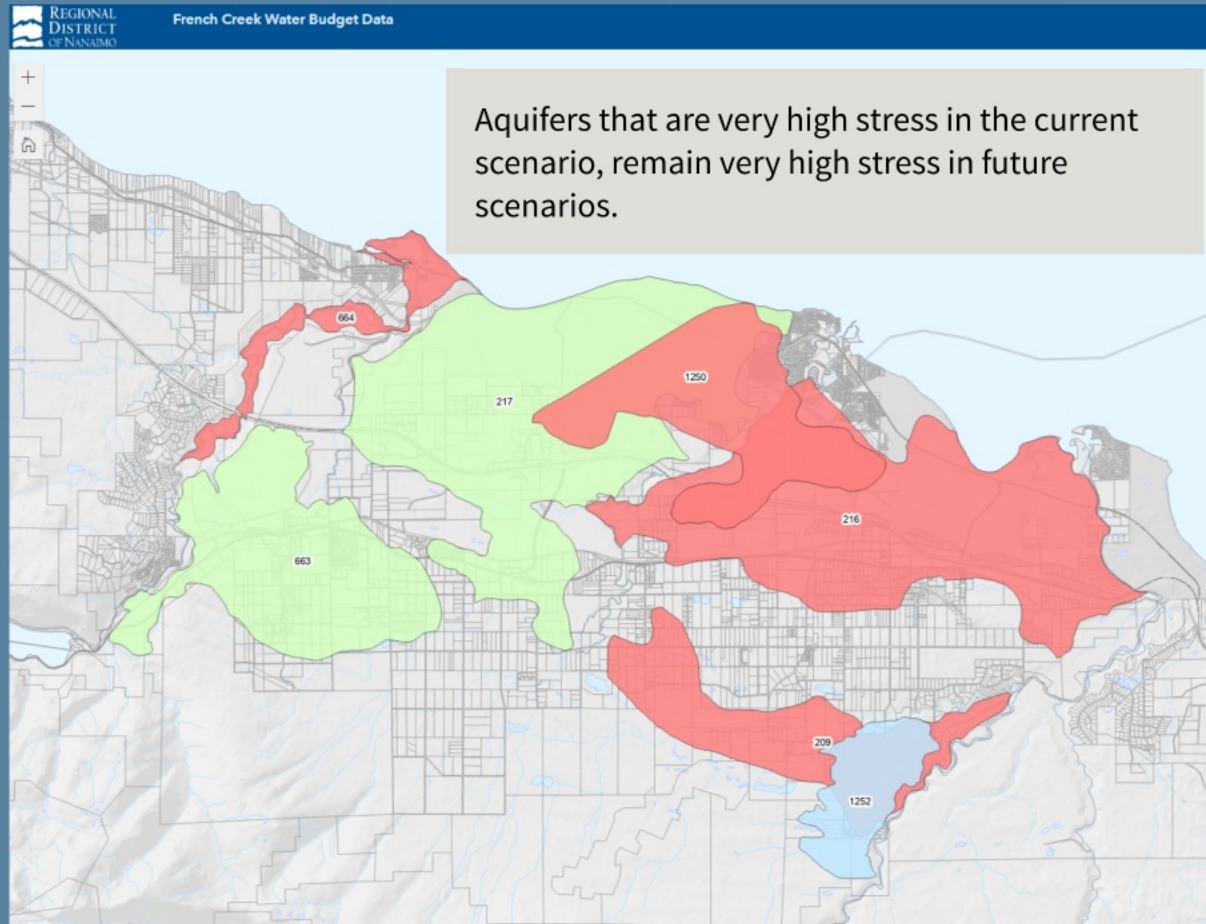
Moderate



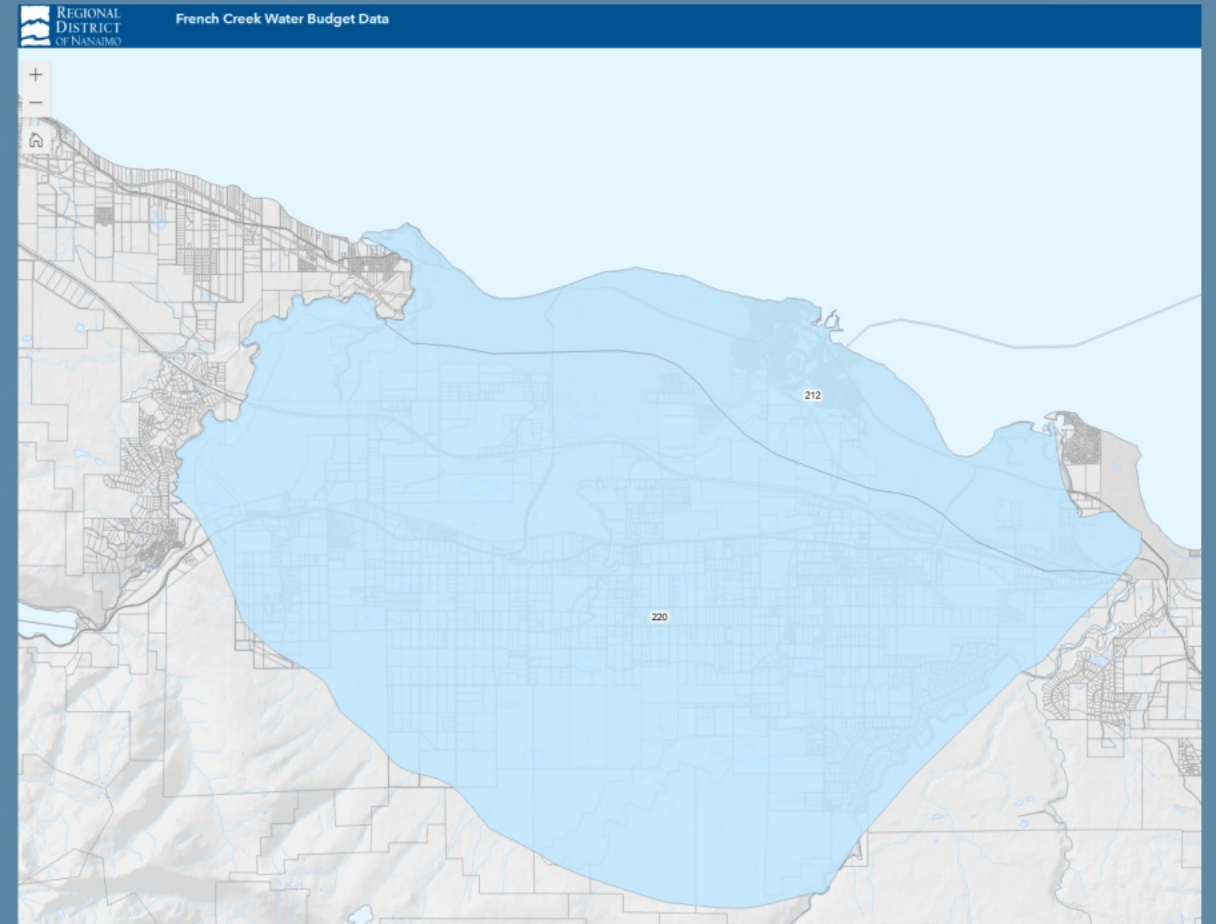
Low



Aquifer Stress - Combined Future Scenario (Climate, Demand at Build Out, Land Cover Change)



Unconsolidated (Sand and Gravel)



Bedrock

French Creek Water Budget Phase 3

Stress Classification

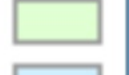
Very High



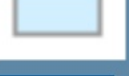
High



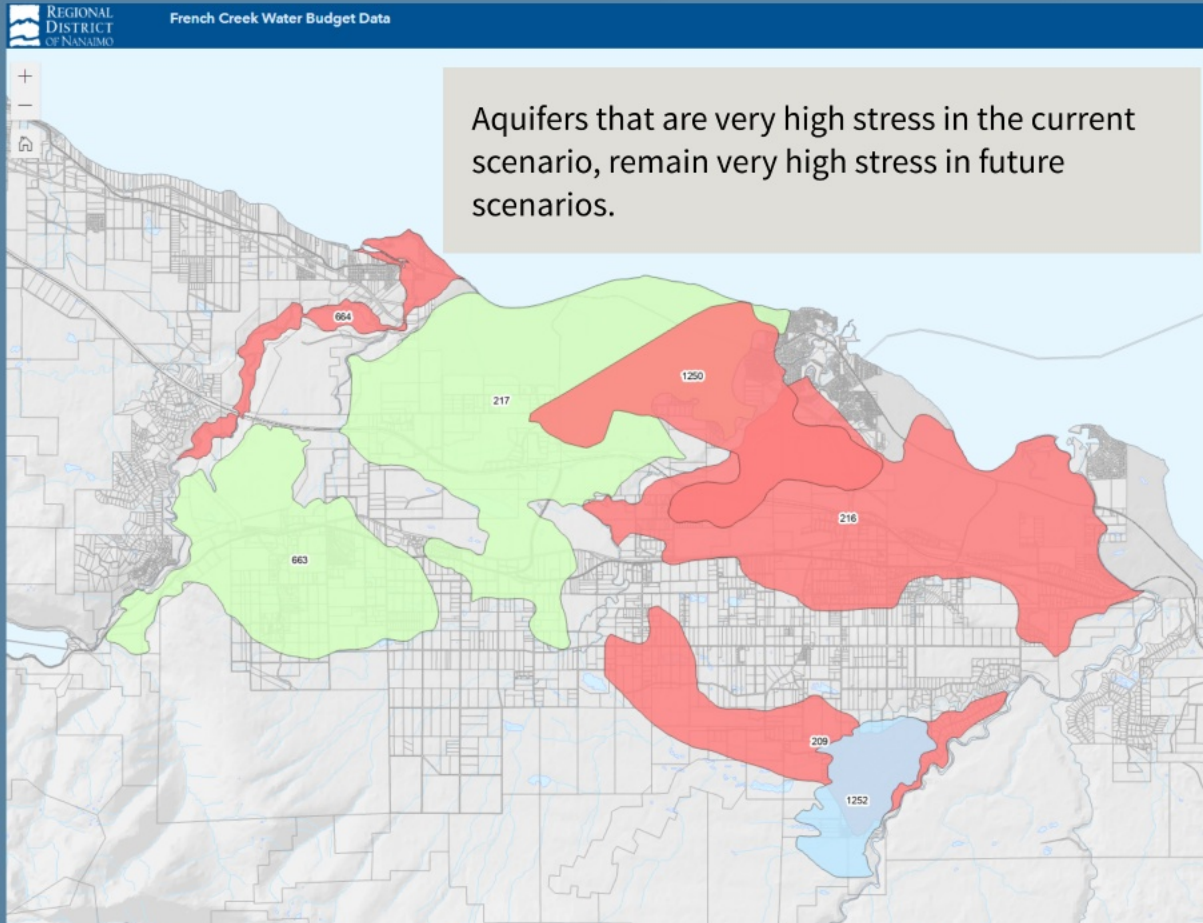
Moderate



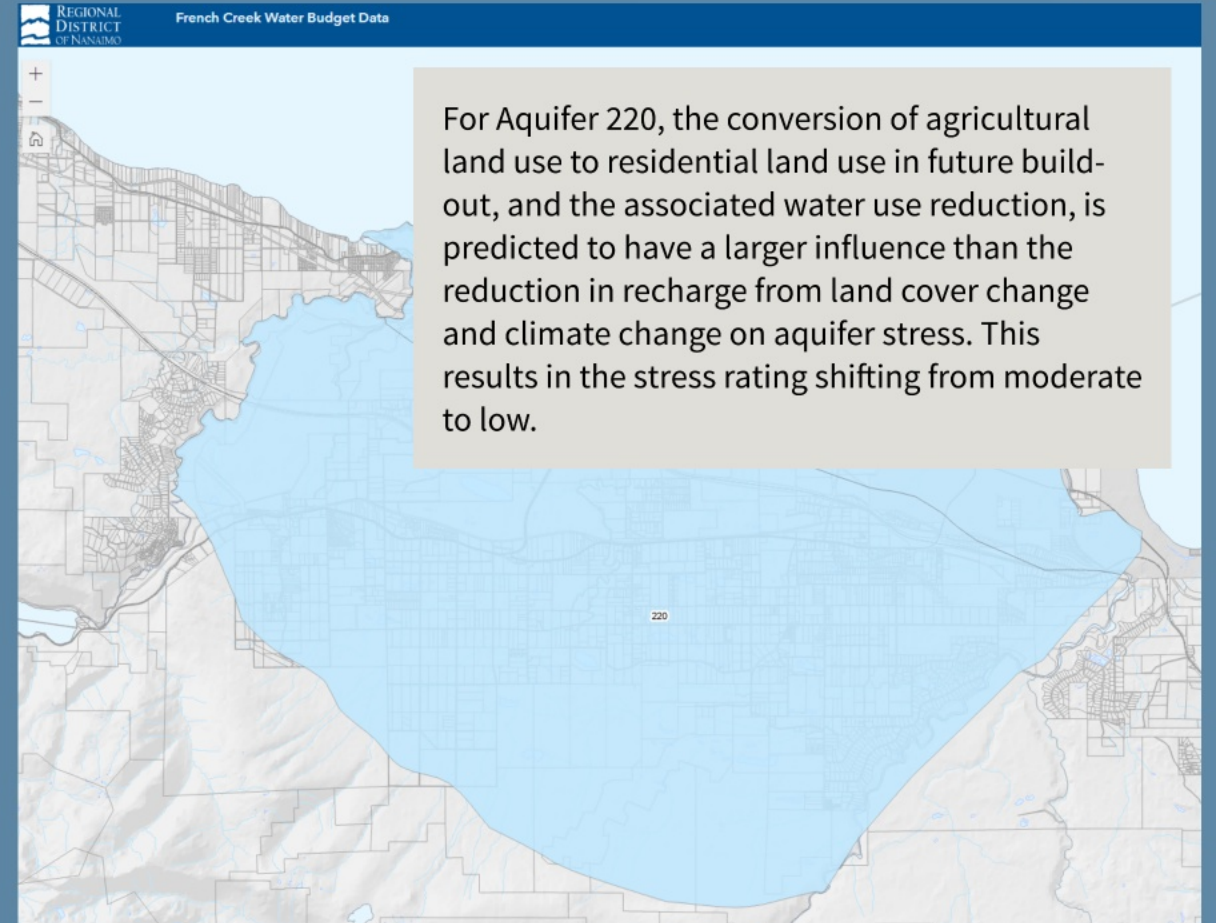
Low



Aquifer Stress - Combined Future Scenario (Climate, Demand at Build Out, Land Cover Change)



Unconsolidated (Sand and Gravel)



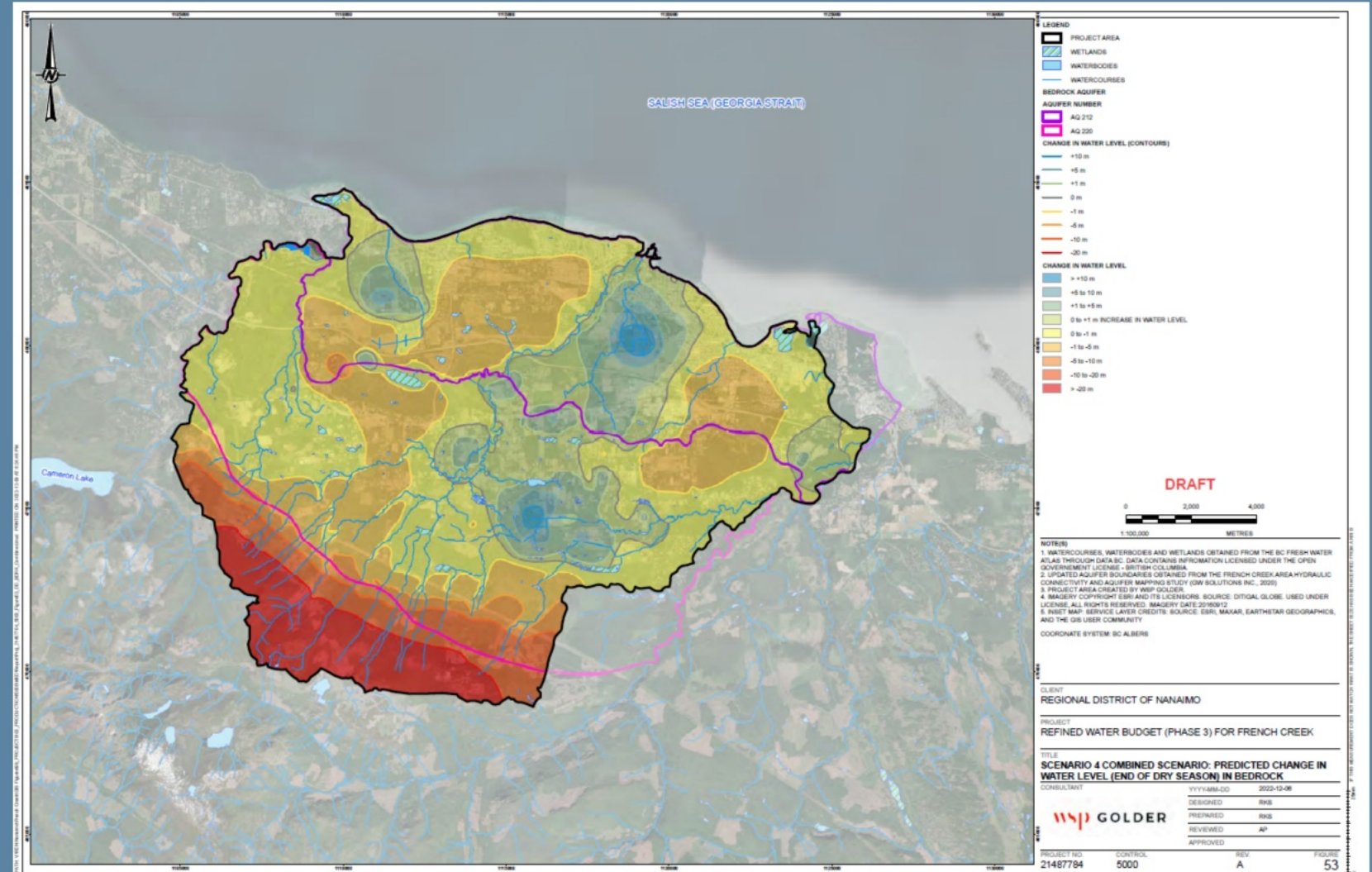
Bedrock

French Creek Water Budget Phase 3

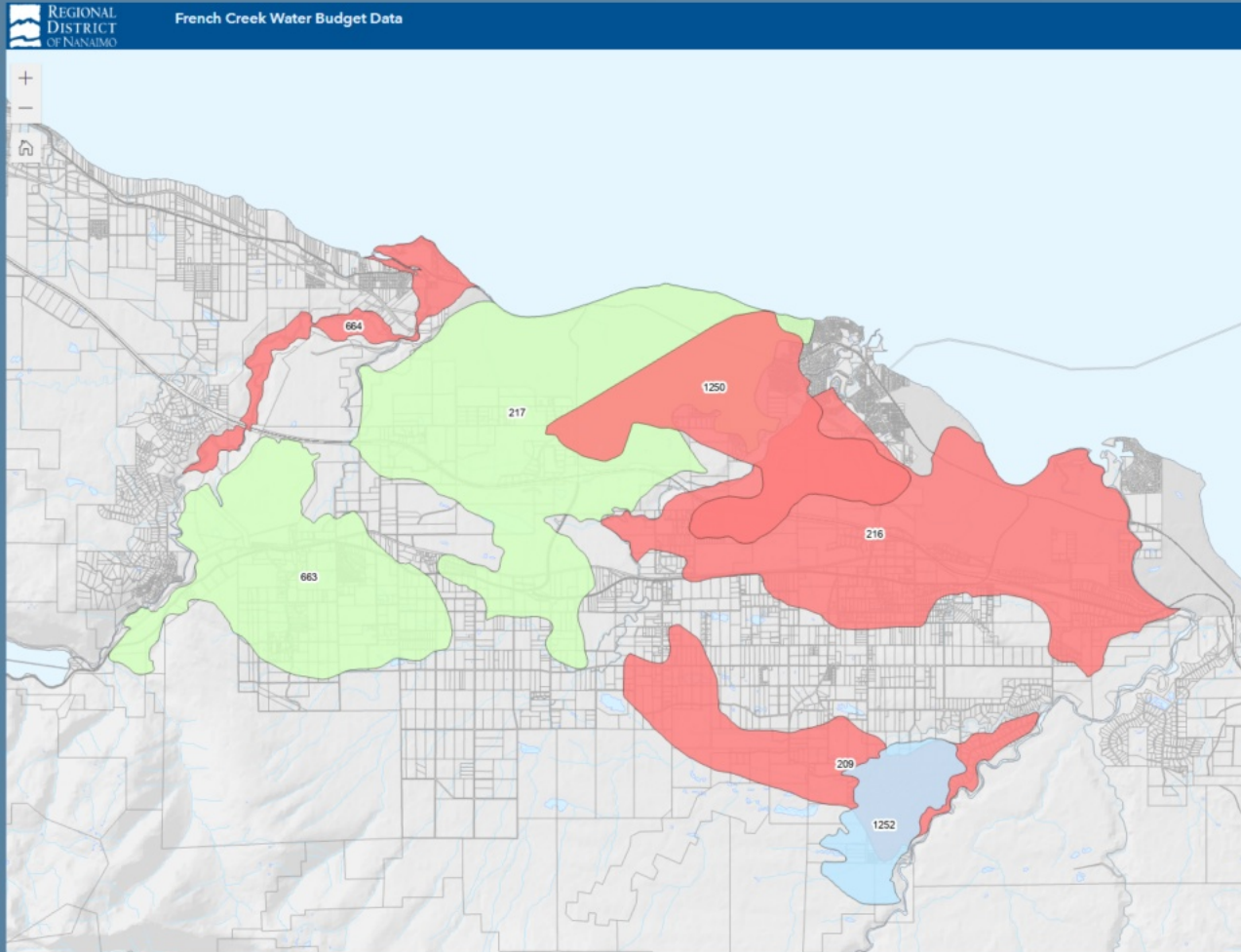
Predicted Water Level Change in Bedrock Aquifers - Combined Scenario

For Aquifer 220, water levels are predicted to decline by over 20m in the upper elevations, reflecting the effects of climate change and reduction in recharge.

Bear in mind that Aquifer 220 is characterized as low productivity.



French Creek Water Budget Phase 3



KEY FINDINGS - Groundwater

The following aquifers are rated as high or very high stress in the current and future scenarios and should be prioritized for management and monitoring:

- Aquifer 209 (private wells)
- Aquifer 216 (Parksville, Epcor, private wells)
- Aquifer 1250 (Epcor, TQB)
- Aquifer 664 (Town of Qualicum, RDN Surfside)
- potentially Aquifer 1248 pending final review (private wells)

French Creek Water Budget Phase 3

KEY FINDINGS - Surface Water

In the combined scenario, groundwater baseflow in French Creek is predicted to decrease by up to 19% from the Future Base Case scenario at the end of the dry season.

French Creek is classified as High Stress (based on water availability and licensed demand) and as Risk Level 3 under the Environmental Flow Needs (EFN) Policy Framework, meaning the aquatic environment may be severely flow-limited and reaching a threshold of concern.




Recall that French Creek is estimated to be hydraulically connected Aquifers 220, 216, 1248, 1250

Using the results to...

- inform Planning Policies -- i.e. Official Community Plans and Development Permit Areas for Aquifer Protection, Regional Growth Strategy (water limits as limits to growth).
- inform Regional Water Supply Planning and Provincial Water Allocation Decisions
- inform Water Management in Community Systems and Water Conservation Efforts for all Water Users (serviced and unserviced).

The **Final French Creek Water Budget Report** will be complete before end of September. It will go to RDN Board Oct. 24th. A **data viewer** being built to help share results with municipal partners, planning staff etc.

Area F Official Community Plan Update



Section 4 |
Protecting the Natural Environment

Section 4 Protecting the Natural Environment	71
Section 4.1 Environmentally Sensitive Areas	73
Section 4.2 Surface and Groundwater Systems	77
Section 4.3 Rainwater Management	81
Section 4.4 Tree Protection.....	84
Section 4.5 Natural Hazard Planning and Response	86

Area F Official Community Plan Update

Development Permit Areas for Aquifer Protection

Proposed categories:

1. Intensive Land Use

2. Vulnerable Aquifers

**3. High Stress / Low Productivity
Aquifers**

Proposed requirements:

> **Hydrogeological Assessment & Rainwater
(Stormwater) Management Plan**

> **Rainwater (Stormwater) Management Plan**

> **Rainwater Harvesting System**

Area F Official Community Plan Update

Implementation of Watershed Performance Targets // Rainwater (Stormwater) Management Plan Checklist

Category	Description	Recommended Performance Targets
Baseflow Release Rate (L/s/ha of impervious area)	Replicates interflow and is used to augment stream baseflow discharge	0.2
Retention Volume (m3/ha of impervious area)	Replicates interflow storage and is used to control interflow rate and allow time for water to infiltrate into groundwater aquifers	450
Infiltration System Area (m2/ha of impervious area)	Replicates groundwater recharge and is defined as the area on a lot where water can infiltrate into groundwater systems	120
Flood detention volume (m3/ha of total development area)	Storage to mitigate peak flows for 1 in 50 year storm events. These are generally more suited to larger lot redesign and centralized facilities such as neighborhood scale stormwater ponds	750

REGIONAL DISTRICT OF NANAIMO | AUGUST 2023 | DRAFT ISSUED FOR REVIEW

DRAFT - Checklist for Rainwater (Stormwater) Management Plans Related to Development Applications

Component	Details
Site Conditions Pre- & Post Development	<input type="checkbox"/> Site/ location map including: <ul style="list-style-type: none"> o Topography o Existing mapped watercourses o Underlying mapped aquifers – incl. recharge areas or capture zones o Catchment areas / drainage patterns and flow direction o Setbacks o Downgradient wells <input type="checkbox"/> Summary of the assumed pre-development (natural), existing site conditions. <input type="checkbox"/> Summary of the expected post-development site conditions. Including: <ul style="list-style-type: none"> o Area distribution of land cover types o Total impervious area o Impervious area as % of developed area
Performance Targets	<input type="checkbox"/> Acknowledgement of performance target values as presented in DPA/OCP [see performance targets as developed for French Creek Water Region below]
Local Concerns	<input type="checkbox"/> Document local area concerns at the site and in the surrounding context i.e. flooding, surface water quality, erosion, ecological sensitivity, aquifer vulnerability
Hydrologic and Hydraulic Parameters, Assumptions and Calculations	<input type="checkbox"/> Describe the climate data, IDF curve used <input type="checkbox"/> Examine 10 min, 1h, 6h, 12h, 24h storms & 2-yr, 5-yr, 10-yr, 25-yr, 100-yr events <input type="checkbox"/> Reference runoff coefficients used <input type="checkbox"/> Summarize how climate change was considered in the calculations
Rainwater Management Features	<input type="checkbox"/> Overview of rainwater management features being proposed on site and how they address each category of the performance targets/ water balance approach. <input type="checkbox"/> State the following actual values, and how they are achieved on site, along with a comparison to the performance targets values: <ul style="list-style-type: none"> o Baseflow release rate o Retention volume o Infiltration area o Flood detention volume <input type="checkbox"/> Document the presence and purpose of retention and detention storage facilities on site (E.g. Ponds, bioswales, rain gardens, below-ground infrastructure) <ul style="list-style-type: none"> • Describe how they meet the volume requirements outlined in the performance targets, relative to total development area. <input type="checkbox"/> Document the presence of an outlet structure from the retention storage. (E.g. a pipe with orifice or means to restrict outflow). <ul style="list-style-type: none"> • Describe the assumed outflow rate and how that meets the baseflow release rates described in the performance targets. <input type="checkbox"/> Include features that encourage infiltration . <ul style="list-style-type: none"> • At least 100 sq metres of infiltration area should be provided for every hectare of impervious area, if the performance targets are met.
Receiving Environment / Water Quality	<input type="checkbox"/> Describe how water quality will be addressed to minimize risk to receiving environments. <input type="checkbox"/> Include any applicable water quality test results.
Alternative Targets / Justification of Unmet Targets	If any of the performance targets cannot be met: <input type="checkbox"/> Provide clear justification of why, and what values for baseflow release rate, retention volume, infiltration area and flood detention volume are achieved in the design. <input type="checkbox"/> Alternative targets should be proposed that meet the intent of the overall rainwater management objectives to mimicking the natural water balance of the watershed.
Conclusions and Recommendations	<input type="checkbox"/> Summarize recommendations; maintenance and/or monitoring approaches for proposed rainwater management features. Outline who is responsible for what.

Currently out for review w/ 3 qualified professionals. Committee members can provide feedback now / by Friday to be considered in the review.

Regional Drought Response Summary

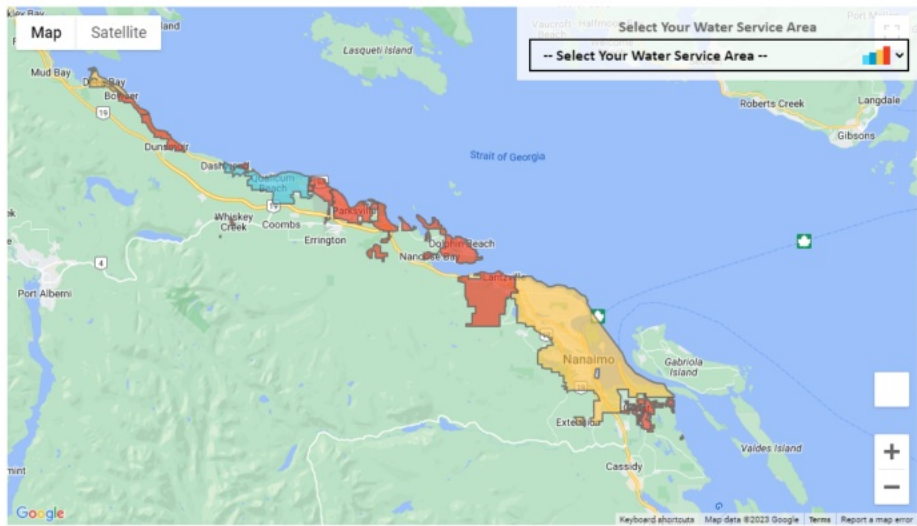
Watering Restrictions Timeline (RDN Service Areas)

- April 1st **Stage 1** (normal)
- May 1st **Stage 2** (normal)
- June 15 **Stage 3** (drought response)
- July 5 **Stage 4** (drought response)

Provincial Drought Rating Timeline (E. Van Island)

- June 8 Level 3 Drought - Adverse Impacts Possible
- June 29 Level 4 Drought - Adverse Impacts Likely
- July 13 Level 5 Drought - Adverse Impacts Almost Certain

What watering restrictions are in effect where you live?



British Columbia Drought Information Portal

BASINS	01-Jun	08-Jun	15-Jun	22-Jun	29-Jun	06-Jul	13-Jul	20-Jul	27-Jul	03-Aug	10-Aug	17-Aug	24-Aug	31-Aug	07-Sep
East Vancouver Island	2	3	3	3	4	4	5	5	5	5	5	5	5	5	5

Level 4 Drought and higher call for local water restrictions and the highest level of conservation. Based on hydrological drought conditions mostly quantified by streamflows.

Regional Drought Response Summary

Public Communications

Watering Restrictions

Please help conserve, because every drop counts!

Watering Restriction Stage	1	2	3	4
Frequency	Any day	Even water day	Even water day	SPRINKLING AND LAWN WATERING NOT PERMITTED
Watering times	Between 7:00 a.m. - 7:00 p.m.	Between 7:00 a.m. - 7:00 p.m.	Between 7:00 a.m. - 7:00 p.m.	Between 7:00 a.m. - 7:00 p.m.
Hand watering (shut-off device)	NOT PERMITTED	NOT PERMITTED	NOT PERMITTED	NOT PERMITTED
Washing vehicles, boats, hoses (shut-off device)	NOT PERMITTED	NOT PERMITTED	NOT PERMITTED	NOT PERMITTED
Pressure washing (shut-off device)	NOT PERMITTED	NOT PERMITTED	NOT PERMITTED	NOT PERMITTED
Filling hot tubs, pools, hot tubs	NOT PERMITTED	NOT PERMITTED	NOT PERMITTED	NOT PERMITTED
Swim lawn permits	Can apply for a permit	Can apply for a permit	Can apply for a permit	Can apply for a permit

What watering restrictions are in effect where you live?

Find out now and learn more about water conservation by visiting teamwatersmart.ca or by scanning the code below!



- Private wells are not subject to municipal watering restrictions, but conservation is encouraged because water is a shared resource.
- Hand watering must be done using a hand-held container or a hose equipped with a shut-off device.
- Micro-irrigation and drip-irrigation consist of water delivered to the root zone of a plant and use less than 20 gallons per hour or less than 20 ft³.
- Washing vehicles, boats, and hoses (shut-off device) must be done using a hand-held container or a hose equipped with a shut-off device.
- During Stage 4 Watering Restrictions, lawn watering is banned, even by hand-watering.
- During Stage 4, flowers, shrubs, and ornamental trees can be watered by hand only between 7:00 a.m. and 7:00 p.m. on your watering day (based on a scheduled watering day). Vegetable gardens and fruit trees are exempt from the Stage 4 watering ban.

Climate change is causing our summer months to be increasingly hot and dry on Vancouver Island, which is resulting in a longer period of high water demand and more stress on our water sources.

Watering restrictions provide a framework for residents to follow in order to make efficient use of this valuable resource which we all share.

NOTICE OF VIOLATION

You have been observed to be in violation of Stage 4 Watering Restrictions.

Please cease all lawn sprinkling and outdoor water use except for drip irrigation and/or hand watering of garden beds.

Failure to comply will trigger Bylaw Enforcement and Ticketing.

Thank you for conserving our shared water resources during this time of extreme drought.

Climate change is causing our summer months to be increasingly hot and dry on Vancouver Island, which is resulting in a longer period of high water demand and more stress on our water sources.

Watering restrictions provide a framework for residents to follow in order to make efficient use of this valuable resource which we all share.

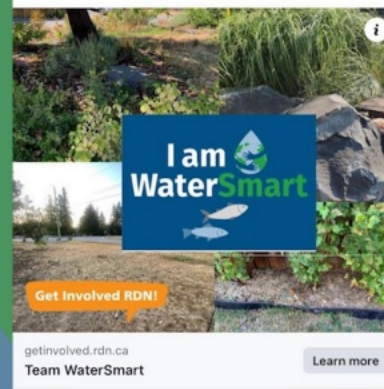


Social media

The WaterSaver contest runs all summer long and closes September 25. Watch for additional water saving tips and contest posts throughout the summer for more entries! Also look for Team WaterSmart's booth at your community events for more chances to win.

For more information and to get your WaterSmart Yard sign click here getinvolved.rdn.ca/team-watersmart

#TeamWaterSmart #IamWaterSmart



- Vegetable gardens and fruit trees are exempt from all watering restrictions even stage 4.
- Drip irrigation of gardens is permitted between 7 a.m.-10 a.m. or 7 p.m.-10 p.m.
- Hand watering of gardens is permitted but must be done using a hand-held container or a hose equipped with a shutoff device.

Not all water providers in the region will be moving to Stage 4 at this time. Please refer to the interactive map of water service areas, including their current watering restrictions at www.rdn.bc.ca/watering-restriction-map

#TeamWaterSmart

Stage 4 Watering Restrictions now in effect



getinvolved.rdn.ca
Team WaterSmart

Learn more

Door hangers

Radio ads / interviews



Regional Drought Response Summary

Provincial Communications

What government is doing



Local water restrictions

In B.C., drought response is a shared responsibility with the Province, the federal government, water providers, regional districts, municipalities and First Nations. During these severe drought conditions, the Province is supporting local governments to conserve water.

Depending on their water sources, the situation can be very different in individual communities - even in communities that are relatively close.

Check with your [local municipal authority](#) or [First Nations](#) for water restrictions in your community.



Temporary Protection Orders

The Province issues Temporary Protection Orders (TPOs) under the Water Sustainability Act. TPOs are only issued if absolutely necessary and water levels put the survival of a fish population or the environment at risk.

Before issuing a TPO:

- Impacted water licensees receive a letter asking for voluntary water conservation
- The Province meets with local First Nations to discuss drought options
- A public information meeting may be held

If a TPO is not followed, regulatory action is taken, including significant fines. [Natural Resource Officers](#) monitor and enforce orders.

[Current Temporary Protection Orders](#) ▾



Supporting farmers and ranchers

The Province is working with the agricultural community and the federal government to support B.C. producers. This includes proactively applying to the federal government for [AgriRecovery funding](#).

- Contact [AgriService BC](#) for help applying to support programs or receive specialized advice.
- View the [summary of available supports and resources](#) (PDF, 479 KB)
- [Additional farming resources during drought conditions](#)

[Home](#) >

Drought information, resources and response for B.C.

⚠ Drought conditions put communities at higher risk of wildfire. [Plan, prepare and stay informed about wildfires in B.C.](#)

English | [繁體中文](#) | [简体中文](#) | [Français](#) | [ਪੰਜਾਬੀ](#)

B.C. is taking action to reduce the impacts of severe drought conditions. Everyone is being urged to do their part to conserve water. Every drop counts.

Last updated: **September 8, 2023**



Supporting communities

The Province is working directly with communities to respond to these challenges. In preparation for dry conditions, the Province developed a [Drought and Water Scarcity Response Plan](#) (PDF, 1.12 MB). Government is currently using this plan to develop resources and work with communities to respond to their local conditions.



Reducing water consumption

Government is working to save water for essential areas by:

- Reducing water use in provincial government properties
- Helping large industry increase water conservation
- Encouraging voluntary conservation
- Ensuring water licensees remain in compliance of the Water Sustainability Act



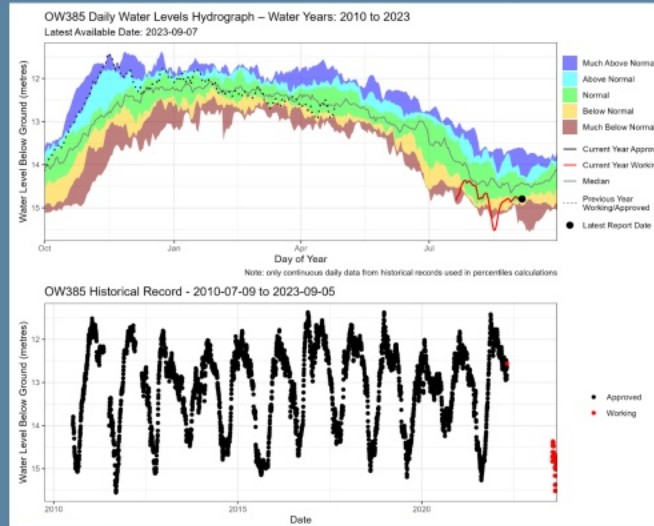
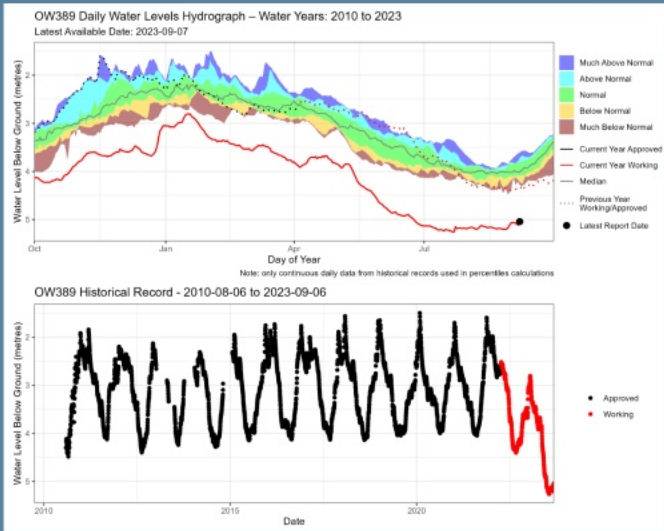
Water reimbursement program

A reimbursement program for First Nations and local governments for the transportation of alternate drinking water is available. If required, First Nations and local governments should contact their [provincial regional emergency coordination centre](#).

Regional Drought Response Summary

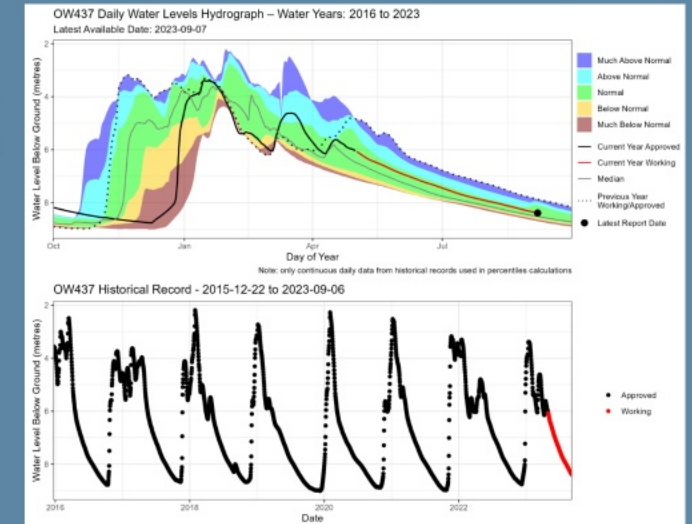
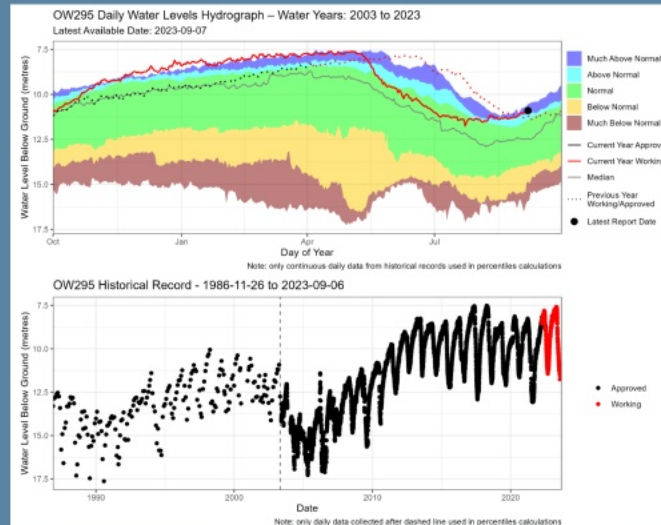
Groundwater Conditions

Aquifer 664 (Little Qualicum) -
Much Below Normal



Aquifer 709 (Gabriola) -
Below Normal

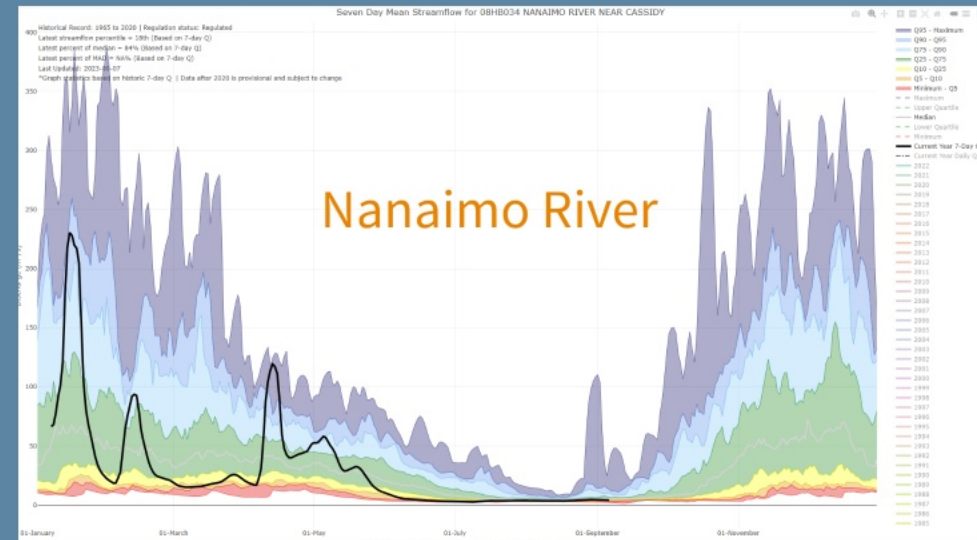
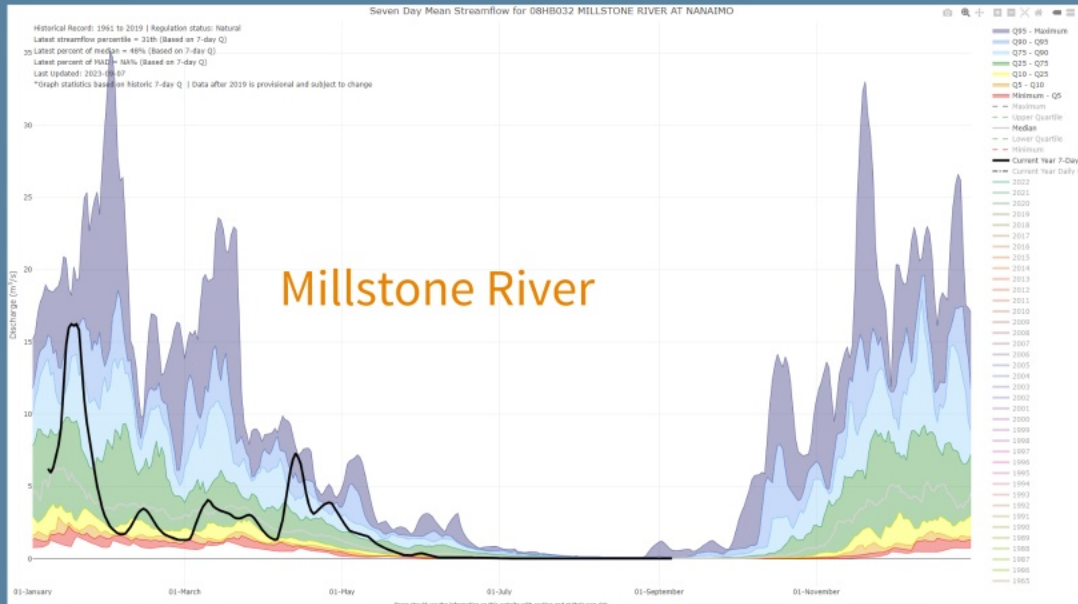
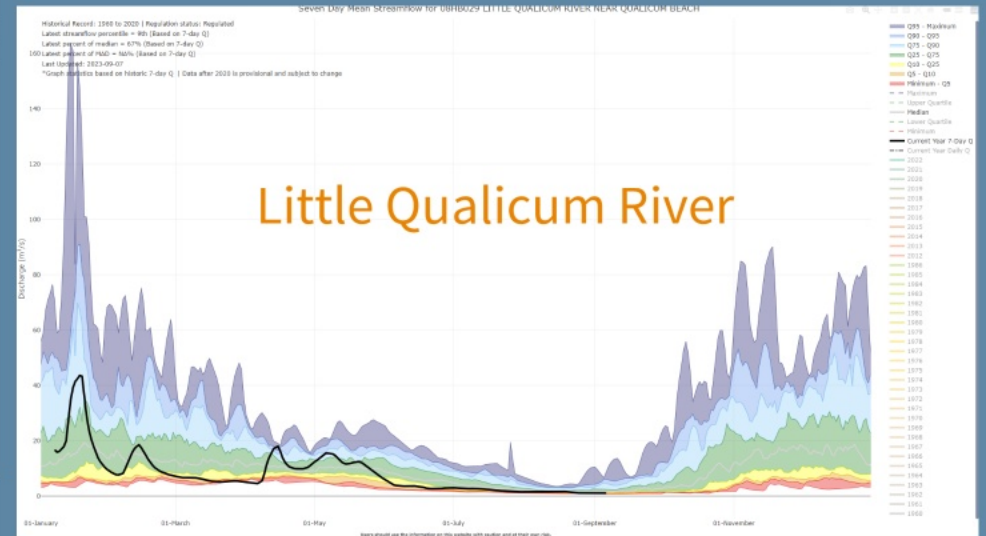
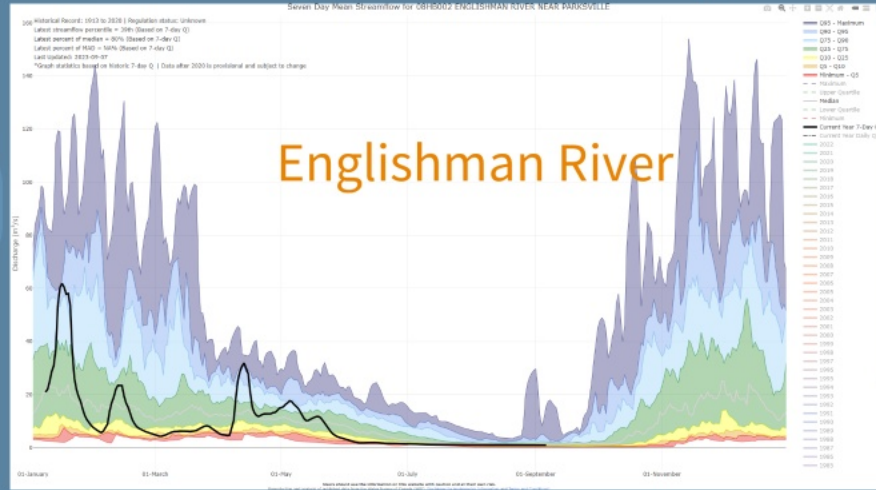
Aquifer 161 (Cassidy) - **Normal**



Aquifer 217 (Qualicum
Beach) - **Much Above Normal**

Regional Drought Response Summary

Streamflows



Regional Drought Response Summary

Key takeaways:

- Inter-regional support and coordination is needed.
- Conservation education and communication first; then tools for enforcement.
- Connect importance of reducing consumption to ecological health.
- New normal?

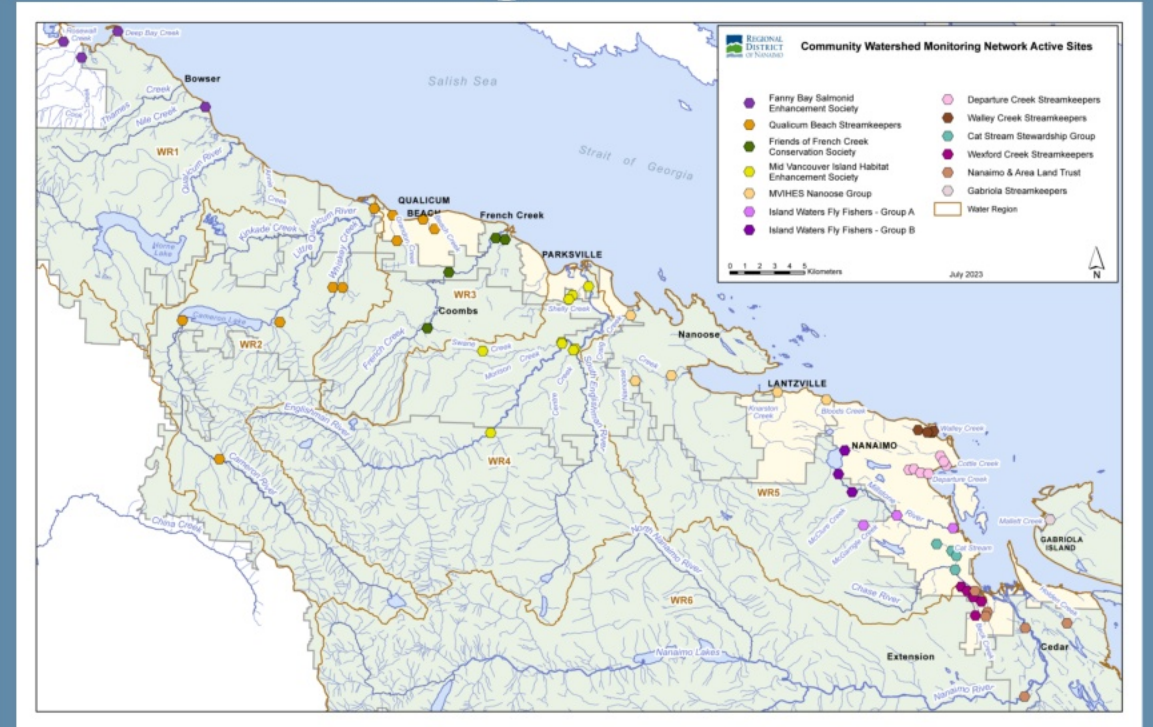


Information & Science

Community
Watershed
Monitoring
Data Results
2022

Community Watershed Monitoring Network

- Program began in 2011
- Partners: 14 community watershed stewardship groups, Ministry of Environment, Mosaic Forest Management, and RDN DWWP



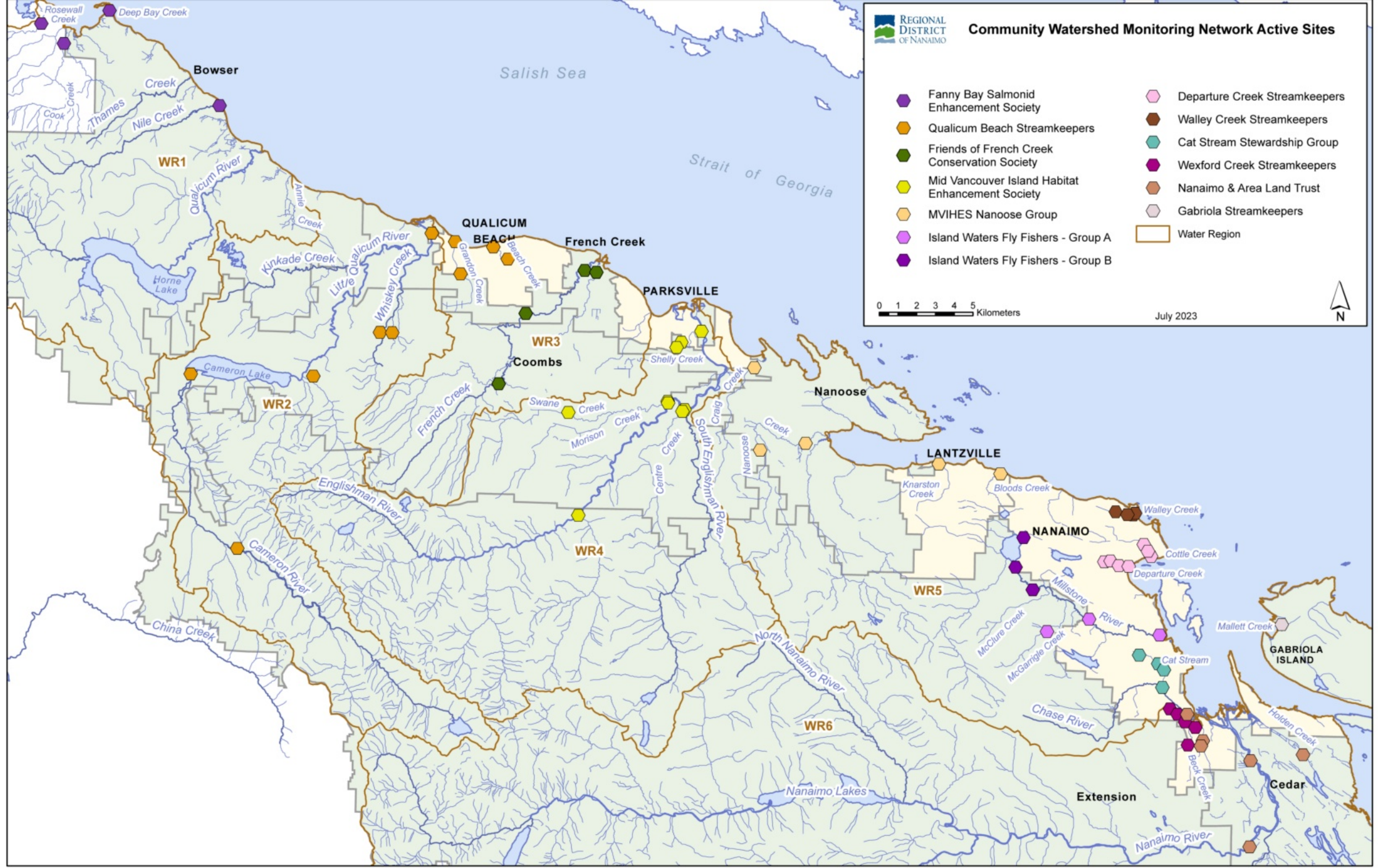
- Trained volunteers collect water chemistry data during two 5-week periods across the region
- Data publicly accessible
- Results reported to public annually



- Fanny Bay Salmonid 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

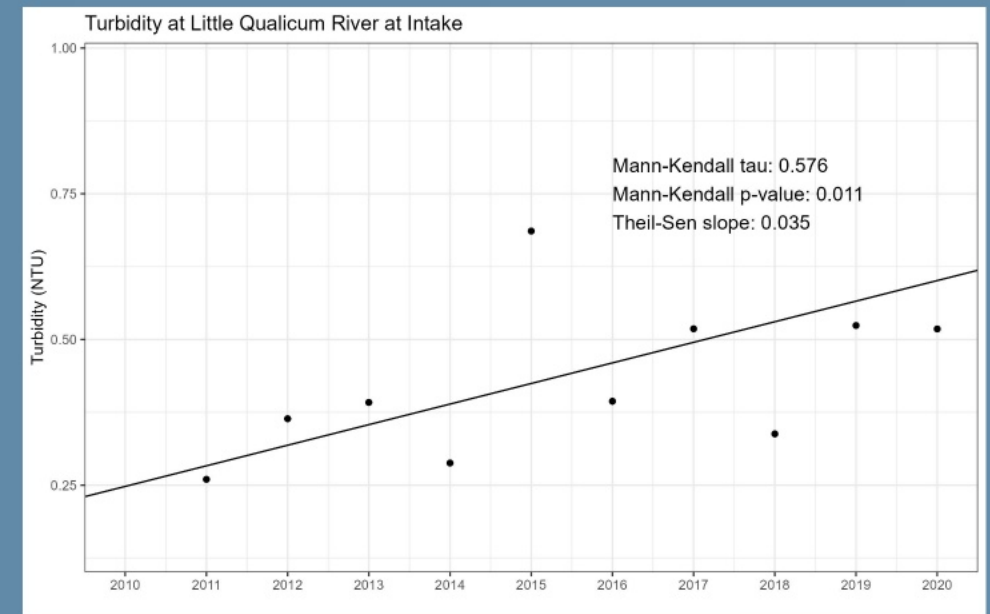
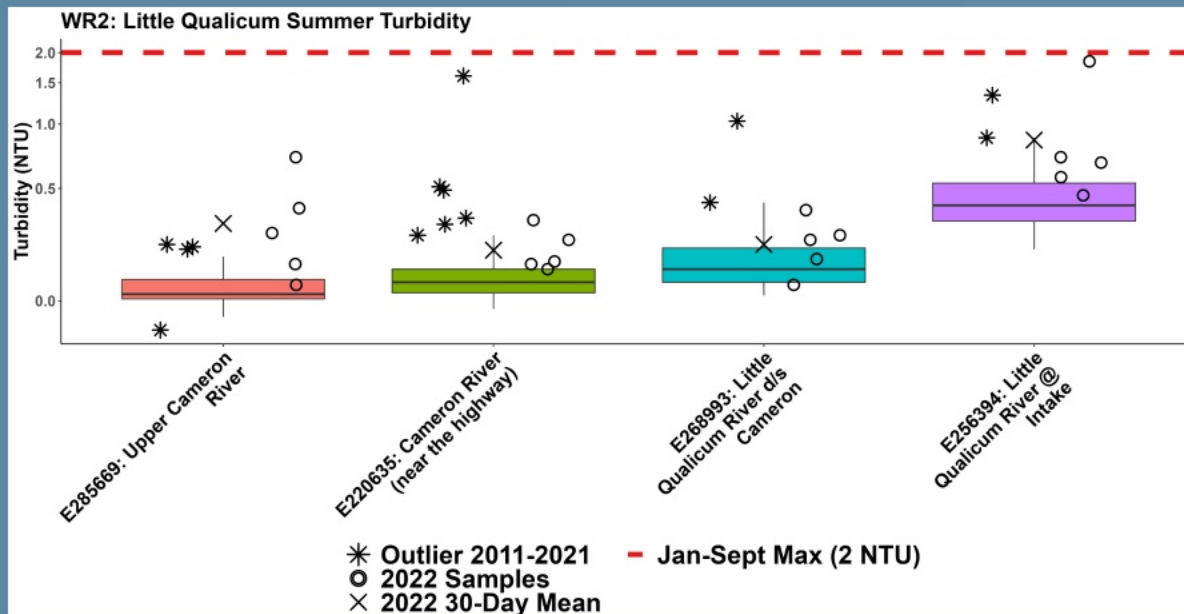


July 2023



Surface Water Quality Data Results 2022

- Data analysis completed by Ecoscape Environmental Consulting:
 - Box plot visual comparison of 2022 data to all previous years
 - Compilation of sites with values outside of water quality guidelines
 - Trend analysis of sites with 6 years+ data
 - Geodatabase of site basins and 500 m upstream area of influence
 - Memorandum of data analysis completed (www.rdn.bc.ca/cwmn)



2022 Data Trend Analysis Results

- *Completed on sites with 6 years+ data*
- *Recommendations are and will continue to be supported through agency and steward partnerships and collaborations*

WR(s)	Site(s)	Parameter(s)	Trend	Interpretation/Recommendation
1, 2, 5	Rosewall Creek, Annie Creek, Upper Cameron River, Nanoose Creek, Chase River	Dissolved Oxygen	Increasing	Improvement: No Action Required.
1	Big Qualicum River	Temperature	Decreasing	Improvement: No Action Required.
2	Little Qualicum River	Turbidity	Increasing	Values still in reasonable range but continued monitoring warranted.
3	Grandon Creek	Dissolved Oxygen	Increasing	Values still low relative to instantaneous minimum but improving. Targeted nutrient sampling recommended.
3	Beach Creek	Turbidity	Increasing	Land Use / Riparian Assessment recommended to determine cause. Potential for stormwater mgmt. improvements and riparian planting.
4	Centre Creek	Dissolved Oxygen/ Temperature	Increasing/ Decreasing (Improving)	Slow rate of change, exceedances still occurring; continued monitoring recommended.
4	Upper Englishman River	Sp. Conductivity	Increasing (Degrading)	Values still relatively low, but fast rate of change. Physical/Riparian assessment recommended.
4	Upper Englishman River	Turbidity	Increasing	Slope of trend low; continued monitoring recommended.
4	Swayne Creek	Temperature	Decreasing	Improvement; Continued monitoring recommended.
4	Shelly Creek	Temperature, Turbidity/ Dissolved Oxygen	Decreasing/ Increasing	Improvement; Continued monitoring recommended.
4	Shelly Creek (at Hamilton Rd.)	Sp. Conductivity	Increasing (Degrading)	Land Use / Physical Assessment to identify sources.
5	Walley Creek	Sp. Conductivity	Increasing (particularly summer period)	Values in reasonable range but continued monitoring warranted. Likely due to low flows making water less dilute.
5	Millstone River	Dissolved Oxygen/ Turbidity	Decreasing/ Increasing (Degrading)	Riparian assessment and lake assessment (Brannen Lake) recommended.
5	Chase River confluence w/ Cat Stream	Sp. Conductivity	Increasing	Likely influenced by road run-off. Review stormwater mgmt.

Data to Action Workshop - July 12, 2023

40+ attendees from stewardship organizations, local and senior government, private consultants, and members of the public

Event included

- Information booths and interactive displays - IWFF, QBS, BCCF, and DWWP
- Handouts with 2022 data results by Water Region
- Catered lunch
- Native plant giveaway
- Presentations
- Interactive discussion



Data to Action Workshop - July 12, 2023

...from boots and monitoring equipment in the creek, to policy actions and water stewardship outcomes!

Presentations

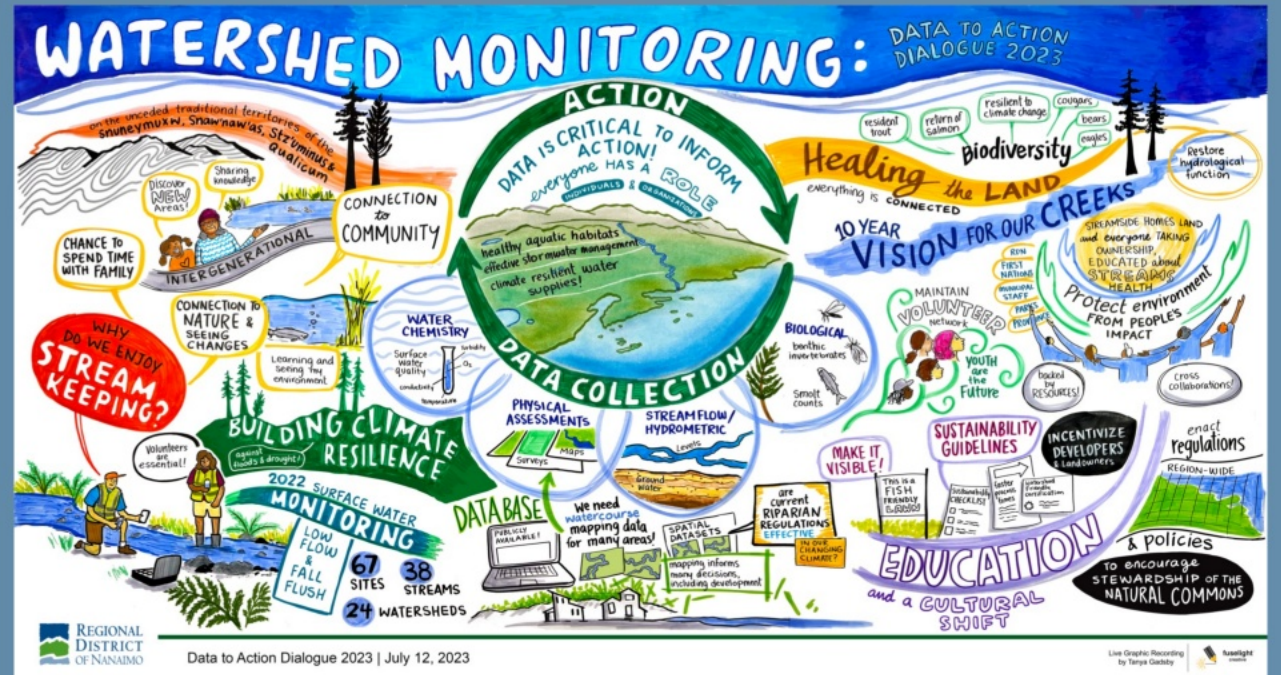
- Data to Action and event moderator (Julie Pisani, RDN DWWP)
- 2022 water quality data summary (Lauren Fegan, RDN DWWP)
- Technical guest presenters:
 1. Provincial Hydrology Program (Sarah Hardy, ENV)
 2. Community Flow Monitoring Network (Aliandra Badger, BCCF)
 3. Community Stream Mapping (Arin Yeomans-Routledge, Weaver Tech)



Data to Action Workshop - July 12, 2023

Graphic Artist Info-graphics

- Live graphic artist recording of the event with a facilitated discussion
- Two info-graphics were produced:
 1. Recording of workshop presentations and discussions
 2. Data to Action info-graphic



WATERSHED MONITORING:

DATA TO ACTION
DIALOGUE 2023

on the unceded traditional territories of the Snuneymuxw, Snaw'now'as, Stz'uminus & Qualicum

Discover **NEW** Areas!

Sharing knowledge

CHANCE TO SPEND TIME WITH FAMILY

INTERGENERATIONAL

CONNECTION to COMMUNITY

WHY DO WE ENJOY STREAM KEEPING?

CONNECTION TO NATURE & SEEING CHANGES

Learning and seeing my environment

WATER CHEMISTRY

- Surface water quality
- conductivity
- temperature
- Turbidity
- O₂

BUILDING CLIMATE RESILIENCE

against floods & drought!

2022 SURFACE WATER MONITORING

LOW FLOW & FALL FLUSH

67 SITES

38 STREAMS

24 WATERSHEDS

Volunteers are essential!

ACTION

DATA IS CRITICAL TO INFORM ACTION!

everyone HAS A ROLE

INDIVIDUALS & ORGANIZATIONS

healthy aquatic habitats

effective stormwater management

climate resilient water supplies!

DATA COLLECTION

PHYSICAL ASSESSMENTS

- Surveys
- Maps

STREAMFLOW/HYDROMETRIC

- Levels
- Ground water

Healing the LAND

everything is CONNECTED

Biodiversity

- resident trout
- return of salmon
- resilient to climate change
- cougars
- bears
- eagles

Restore hydrological function

10 YEAR VISION FOR OUR CREEKS

STREAMSIDE HOMES LAND and everyone TAKING OWNERSHIP, EDUCATED about STREAMS HEALTH

Protect environment FROM PEOPLES IMPACT

MAINTAIN VOLUNTEER Network

YOUTH are the Future

backed by RESOURCES!

Cross collaborations!

RDN

FIRST NATIONS

MUNICIPAL STAFF

PARKS PROVINCE

DATABASE

are current RIPARIAN REGULATIONS EFFECTIVE

IN OUR CHANGING CLIMATE?

We need watercourse mapping data for many areas!

SPATIAL DATASETS

mapping informs many decisions, including development

PUBLICLY AVAILABLE!

EDUCATION

and a CULTURAL SHIFT

enact regulations REGION-WIDE & policies

To encourage STEWARDSHIP OF THE NATURAL COMMONS

INCENTIVIZE DEVELOPERS & Landowners

MAKE IT VISIBLE!

This is a FISH FRIENDLY LAWN

SUSTAINABILITY CHECKLIST

- faster process times
- Watershed Friendly certification

Data to Action Workshop - July 12, 2023

Positive outcomes

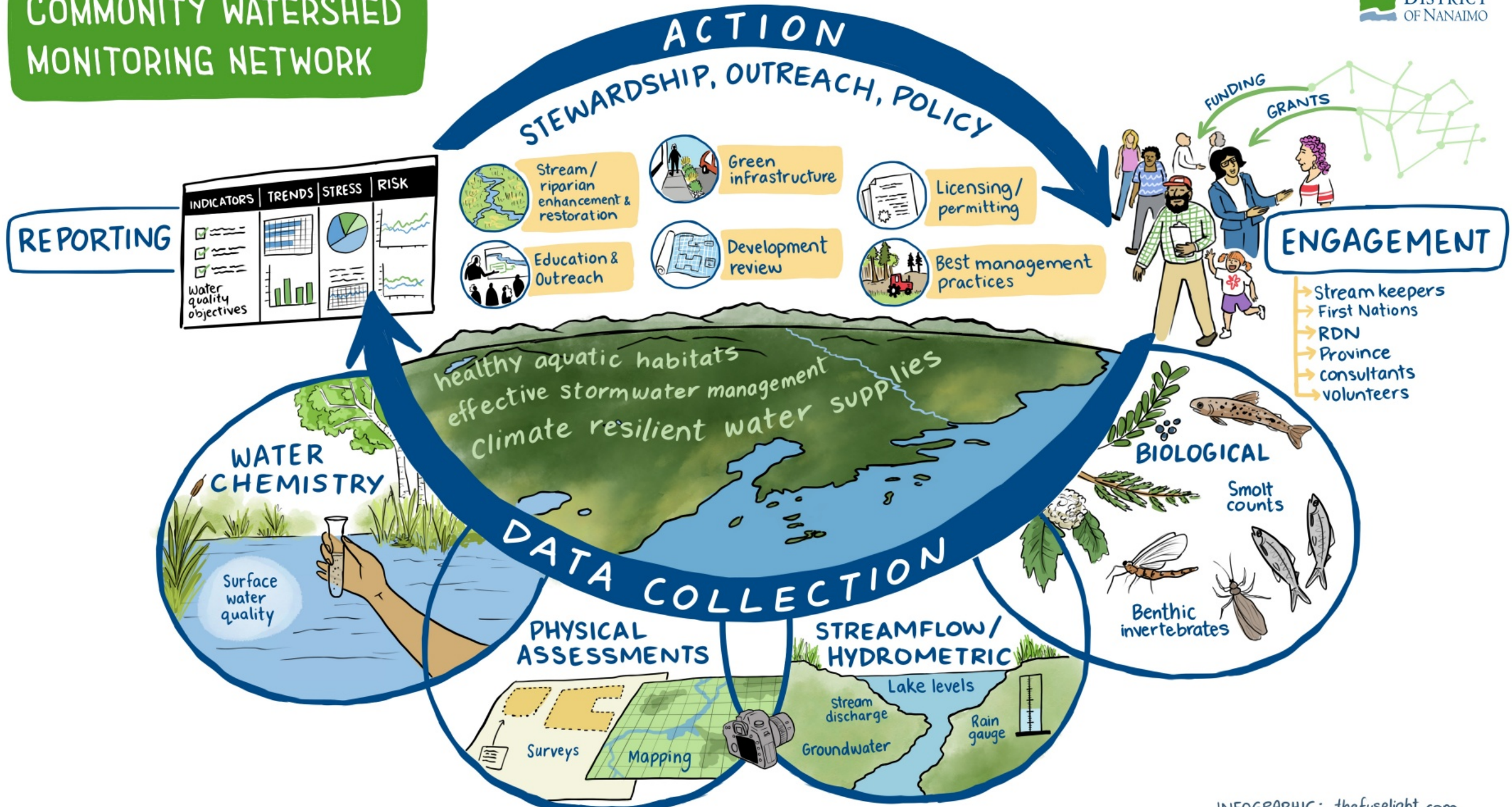
- Increased understanding of our watersheds - Water Region summaries, presentations, infographics, and technical memo distributed in-person and digitally
- Making connections and relationships to enhance and expand watershed stewardship



www.rdn.bc.ca/cwmn

www.getinvolved.rdn.ca/watershed-stewardship-network

COMMUNITY WATERSHED MONITORING NETWORK





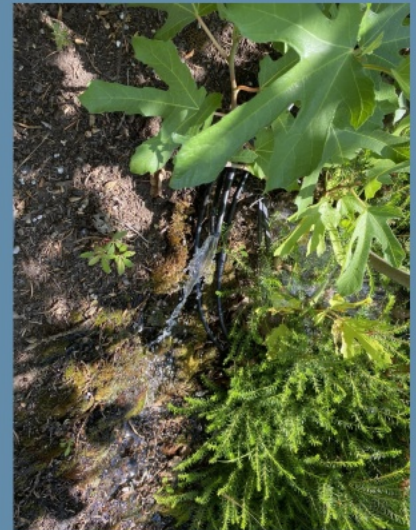
Awareness & Stewardship

**Team WaterSmart
Irrigation Checkups
& Summer Events**

**Youth Ambassadors
Pilot Program**

Residential Irrigation Check-Ups 2023

- 15 irrigation checks completed in July 2023 for high-water-users within Lantzville, Nanoose Bay, Parksville and Nanaimo
- Irrigation checks were offered to those on a waitlist from 2022
- Each resident received a comprehensive report outlining findings including:
 - Leaks and inefficiencies
 - Recommendations for improvements
 - General WaterSmart landscaping tips



Team WaterSmart Summer and upcoming Events 2023

Summer Events:

- July 16 – Qualicum Beach Days
- August 12 – Lantzville Minetown Day
- August 13 – Coombs Fair

Upcoming Events:

- River's Day events-
 - Sept 22 Nanaimo River Watershed Tour
 - Sept 23- Nanaimo River Walking Tour
- Oct 3- Elder College Active Aging Week- Nanoose Place
- Oct 14- Gabriola Farmers Market
- Oct 18 Island Roots Market- Nanaimo
- Oct 29 Cedar Farmer's Market

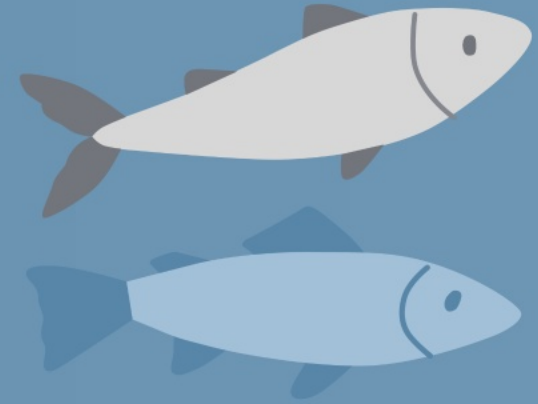


Youth Ambassadors Pilot Project

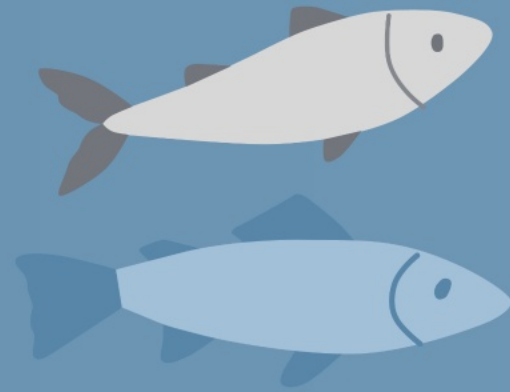
Summary:

- Pilot program launch Sept 2023 with full program launch Sept 2024
- With support of champion teachers, the pilot program will be introduced to Eco-clubs at NDSS and Wellington High school later in September
- Pilot Program includes RDN departments:
 - Water Services- DWWP
 - Energy and Sustainability -Climate Resilience
 - Parks Operations -Invasive Species

This program will be developed with input from youth to ensure there is buy-in and that the program fits their needs.



Youth Ambassador Pilot Project

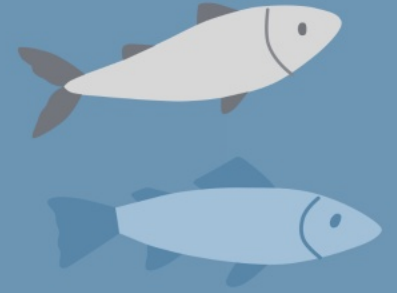


Goals:

- 1. Facilitate youth engagement and participation in climate action and environmental stewardship in their local communities.
- 2. Build capacity and inspire youth to take on leadership roles within their schools, communities, and beyond.
- 3. Encourage collaboration and partnerships between youth, community organizations, businesses, schools, and government agencies to amplify the impact of environmental initiatives and create a network of support.
- 4. Increase environmental awareness among youth participants by providing education and training opportunities



Youth Ambassador Pilot Project



Youth-led projects

in this category, youth are leading an event or collaborative opportunity and can access the RDN's youth ambassador program to support through different channels (i.e., funding, advertising, etc.)

RDN Offered Opportunities

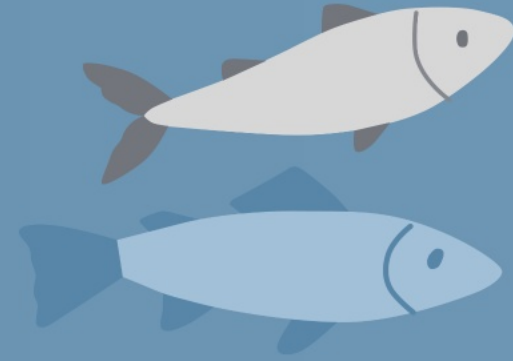
RDN will offer various opportunities to students to work alongside RDN staff in different departments. During the pilot program, these opportunities will be sent to the champion teachers who will place students from their classrooms and Eco Clubs

Education and Training

RDN will offer training and education opportunities for youth to learn more about climate change, water protection and science, invasive species and other topics related to environmental protection in our region.



Youth Ambassador Pilot Project



Next steps:

Sept 2023- meet with youth at Eco-clubs at NDSS and Wellington to introduce program and gather input

Sept 2023- June 2024- support projects and offer opportunities to youth based on input, gather feedback at end of school year

Summer 2024- revise program as needed based upon feedback from pilot program

Sept 2024- Full program launch - program opens up to more or all schools in SD 68 & 69 and expands to include all students, not just eco-club participants.



WellSmart Workshops 2023

WellSmart workshops feature speakers from the Ministry of Forests and Island Health and give residents an opportunity to learn about proper well maintenance and protect the quality and supply of their drinking water

Two in-person workshops this fall:

October 26, 6-8 p.m. at the Aggi Hall on Gabriola Island

**November 1, 6-8 p.m. at the Cavalotti Hall,
East Wellington Nanaimo**

Register for free at rdn.bc.ca/wellsmart



Upcoming School Watershed / Treatment Plant Field Trips

- Six Watershed Field trips for Grades 4&5 are planned for Fall 2023:
 - 3- SD 68 Nanaimo River, 3- SD 69- Englishman River
 - **Nanaimo River**- visit the City of Nanaimo Water Treatment plant then head up to the source of our drinking water at Jump Lake
 - **Englishman River**- visit the City of Parksville Water Treatment Plant then, visit the Englishman River Hatchery and learn about watershed health at the Englishman River Regional Park

Both trips include place-based learning activities and special guests. Pre and Post-trip activities are provided to the teachers and the content is connected to Grade 4&5 curriculum Life & Earth science



Upcoming Community Watershed Monitoring Stewardship Recognition Event

A thank-you event to celebrate CWMN volunteers & introduce potential new members to the program!



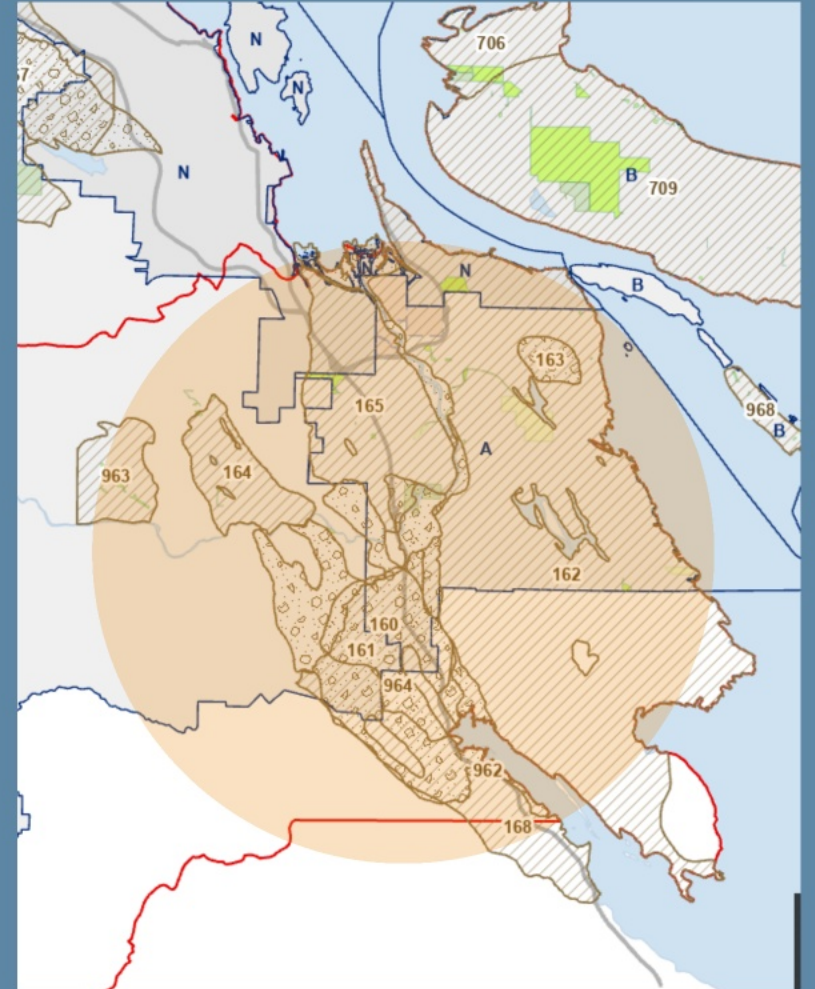
- **Thursday, November 23rd, 12:00pm to 3:00pm, at Nanoose Place**
 - Catered lunch, door prizes, games and activities, and more!
 - Event open to the public who are interested in learning more about volunteering
 - Opportunity for CWMN groups to showcase their group to potential new recruits with a short presentation and/or info table
 - Invitation to CWMN members coming soon
 - Promotion through partner networks, RDN social media, & Get Involved



Cedar-Yellowpoint-Cassidy Water Budget

Phase 3 - Scoping

- Identifying study area
- Engaging partners
- Determining project objectives
 - quantify water availability in groundwater and surface water sources
 - estimate demand in current and future scenarios
 - assess relative stress
 - identify critical areas for management
- Procurement- winter; project start- spring





Drinking Water & Watershed Protection

September 13, 2023 // Technical Advisory Committee Meeting

AGENDA

ROUNDTABLE

**PROJECT UPDATE
PRESENTATIONS**

**NEW
BUSINESS**

A photograph of a forest stream with two blue callout bubbles. The stream flows through a dense forest with trees showing autumn foliage in shades of green and yellow. The water is clear and flows over rocks. Two blue callout bubbles are overlaid on the image: a larger one on the left and a smaller one on the right.

New Business

**Updated Committee
Terms of Reference**

Updated Committee ToR

Board interest to make this committee an **"Advisory Committee - Select"**.

That means there would be Board membership (1-3 Directors appointed; one would Chair).

Membership would otherwise stay the same / similar.

Would create a more direct linkage with the Board, improve communications with Directors about program activities.



Thoughts? Comments?



Drinking Water & Watershed Protection

September 13, 2023 // Technical Advisory Committee Meeting

AGENDA

ROUNDTABLE

**PROJECT UPDATE
PRESENTATIONS**

**NEW
BUSINESS**

Thank you!

next meeting: December 6, 2023





Drinking Water & Watershed Protection

September 13, 2023 // Technical Advisory Committee Meeting

AGENDA

ROUNDTABLE

**PROJECT UPDATE
PRESENTATIONS**

**NEW
BUSINESS**