

Regional District of Nanaimo Groundwater Initiatives

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INTRODUCTION

- Why we care about groundwater
- Building understanding
- Partnerships
- Nanaimo Lowlands
- Current projects



DRINKING WATER
WATERSHED
PROTECTION

Why we care about groundwater

- Groundwater is the source of **drinking water** for all communities in our region, except City of Nanaimo
- Our Regional Growth Strategy and DWWP Action Plan recognize the importance of water in our **economic and environmental health as a region**.
- **Surface waterbodies** in our region have **recreational, ecological and cultural value** – and it is recognized many depend on groundwater for **base-flow**
- Our communities & **land use planning** jurisdiction exists overtop of productive aquifers – need to understand how land development / **land use change affects groundwater**

Why we care about groundwater



Building understanding

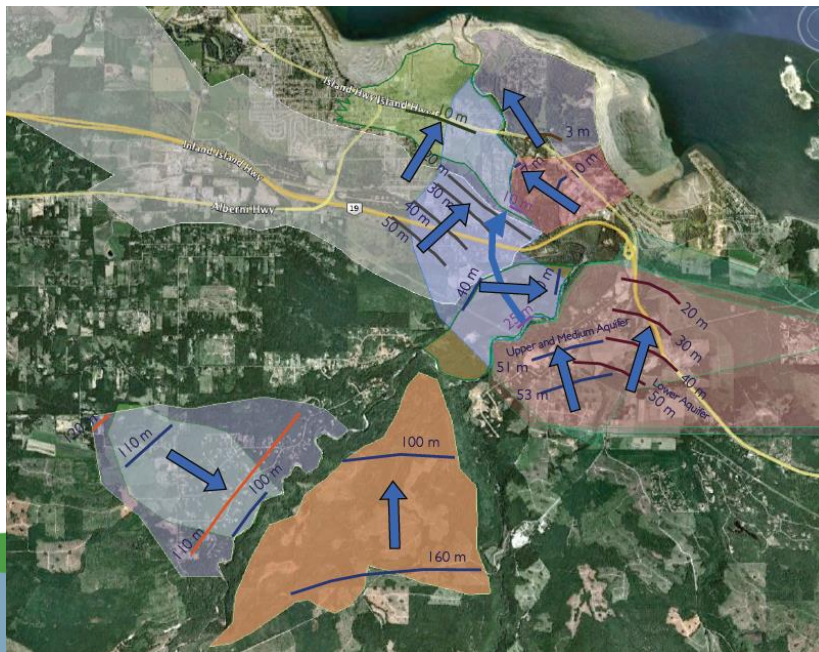
Groundwater dynamics are complex and require detailed science to understand.

How much volume?

Where?

Recharge ? Flow direction ?

Connectivity ?



Images credit: G. Wendling

Partnerships



Province

- Observation Well Network
- Groundwater Protection
- Allocations & Licensing

NRCAN GSC

- Seismic surveys, sonic coring, surficial geology mapping, geochemistry, 3-D modelling

Municipalities

- Water use reporting, water conservation

Well Owners

- Rural water quality stewardship - rebates & workshops

Island Health

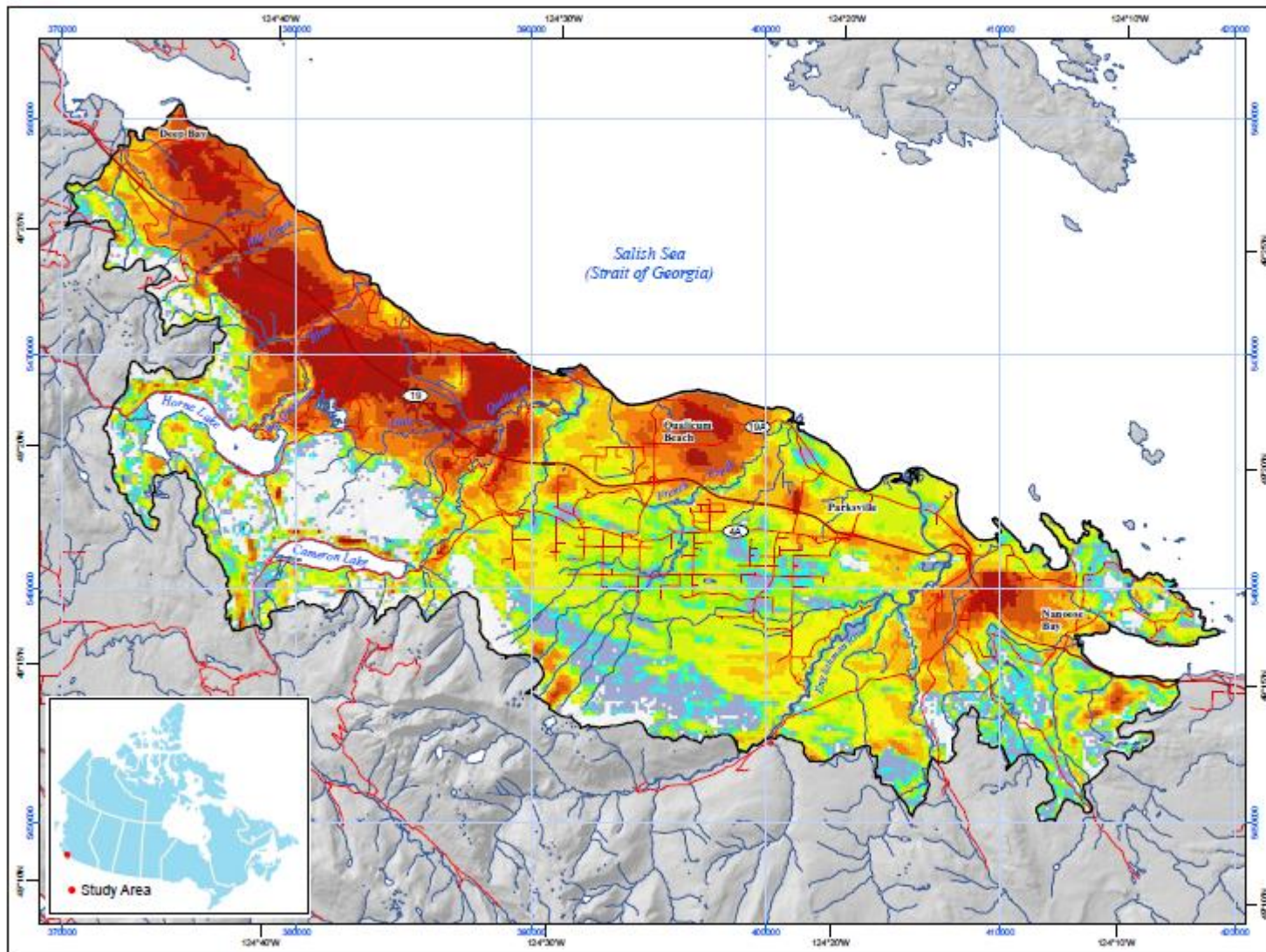
- Drinking water quality guidelines
- Guidelines for Groundwater At Risk of containing Pathogens

Nanaimo Lowlands

- This area (Deep Bay to Nanoose) was identified as a populated region dependent on groundwater where there was a need to increase current knowledge on the resource.
- DWWP program attracted NRCAN / GSC to our region as we provided support (grant funding, coordination, site selection, local knowledge, long term program in place to action findings).
- Project included seismic surveys, observation well drilling, sonic coring, compiling reports, water use information, ongoing monitoring etc.

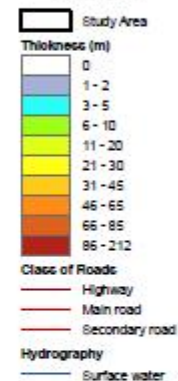


View from Little Mountain, Parksville toward Cameron Lake.



Map 10
Thickness of Sediments
Nanaimo Lowland
(Parkville Area)
British Columbia

LEGEND



1:175 000



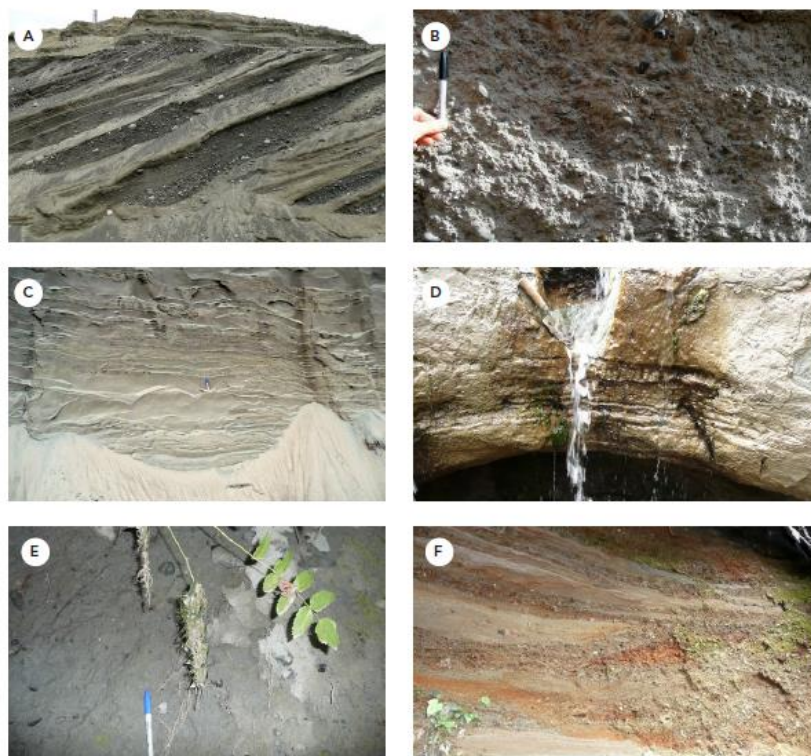


Figure 2.4.2. A) Capilano: foreset bedded gravel in a glaciofluvial delta (photo by A. Pugin). B) Vashon: diamicton with sandy silt rich matrix and abundant clasts. C) Quadra Sand: cross-bedded and fine- to medium-grain sand. D) Cowichan Head: thin-bedded sand and silt. E) Dashwood: dense muddy diamicton. F) Mapleguard: cross-stratified gravelly sand.

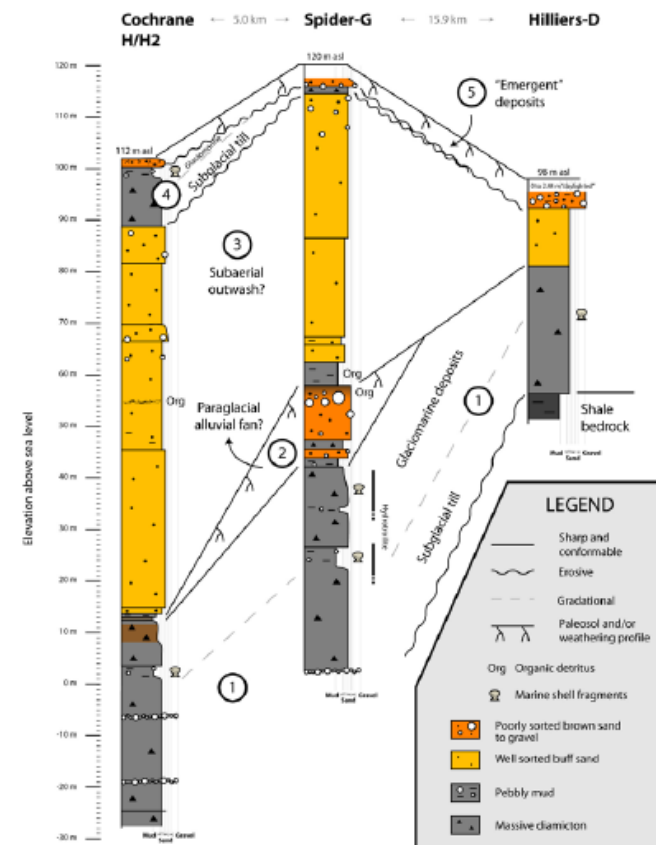


Figure 2.4.1 Stratigraphic logs of rotonic core highlighting succession from surface of Vashon Drift (4), Quadra Sand (3), Cowichan Head Formation (2), and Dashwood Drift (1).

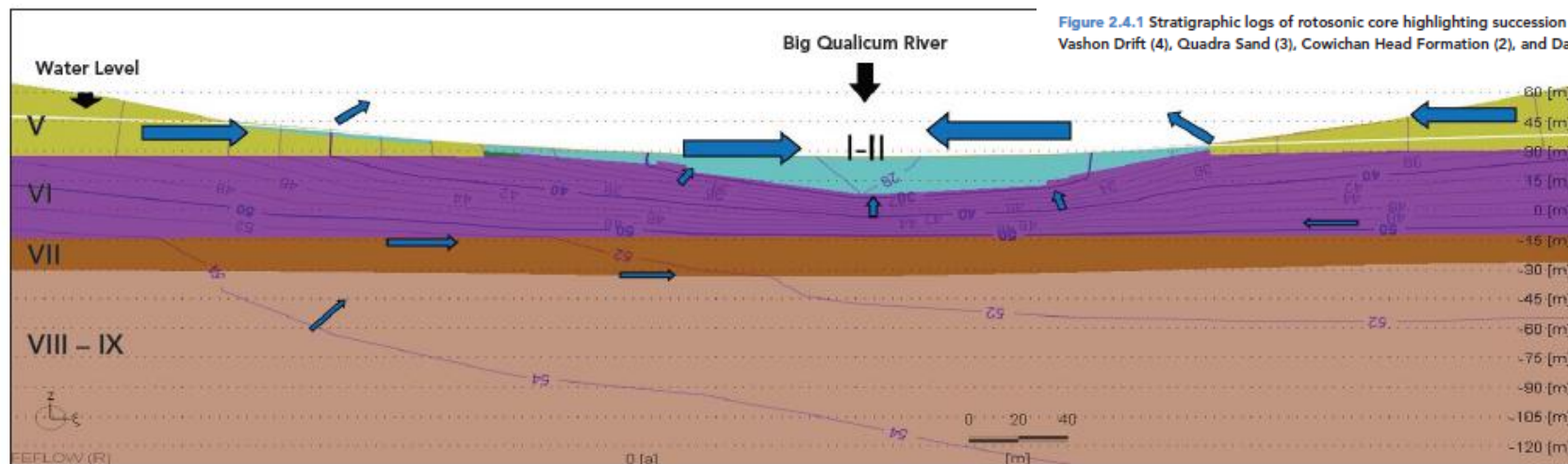
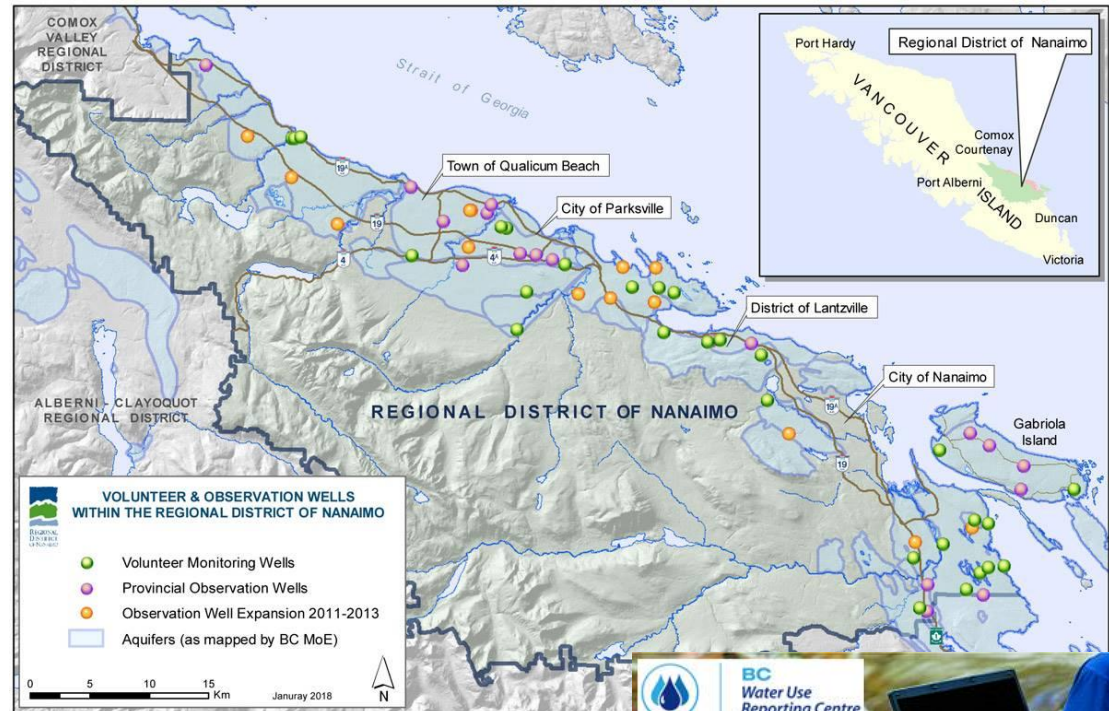


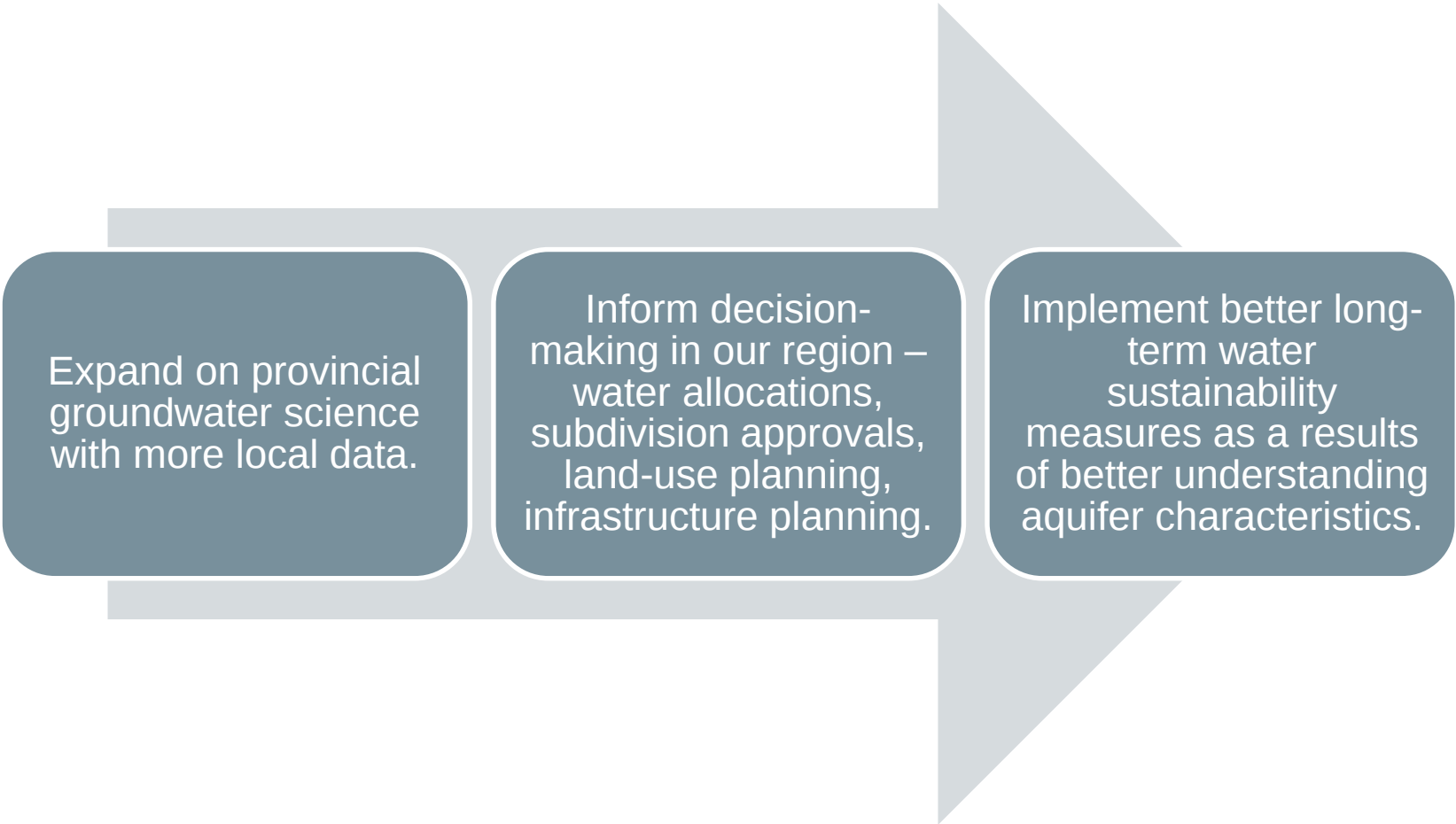
Figure 5.2.1. Cross-section of the Big Qualicum River and the relationship between the river and the various hydrostratigraphic units. Purple lines represent hydraulic heads.

Current RDN initiatives

- Volunteer Observation Well Monitoring Network
- Workshops for well owners (wellSMART)
- Rebate Programs : water quality testing & wellhead upgrades
- Water conservation campaigns
- Planning tools: aquifer protection development permit areas
- Water Use Reporting
- Water Budget (phase 1 2013, phase 2 underway)



What we want to get out of it



Expand on provincial groundwater science with more local data.

Inform decision-making in our region – water allocations, subdivision approvals, land-use planning, infrastructure planning.

Implement better long-term water sustainability measures as a result of better understanding aquifer characteristics.