

Provincial Government Update

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BCGWA Regional Meeting, Langley, BC November 2, 2019









Outline

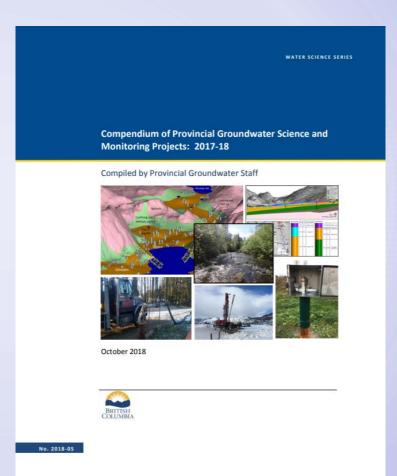
- Groundwater Science Update
- Groundwater Data and Information Update
- Groundwater
 Compliance Update
- Groundwater Licensing Update
- Region Specific Information



Completed Groundwater Science Projects

- Water Budgets
- Aquifer Characterization and Mapping
- Groundwater-Surface Water Interaction Studies
- Compendium 2017-2018
- Water Science Series, available online:

https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-science-data/water-science-series





Ongoing & Future Groundwater Science Projects



- Further Water Budgets, Aquifer Characterization & Mapping
- Further Groundwater-Surface Water Interaction Studies
- Drought Susceptibility and Resilience (with SFU)
- Analytical models and lag times for groundwater pumping impacts on EFN (with UVic)
- Artesian risk mapping and mitigation project (with SFU)
- Aquifer Storage and Recovery Assessment



GWELLS

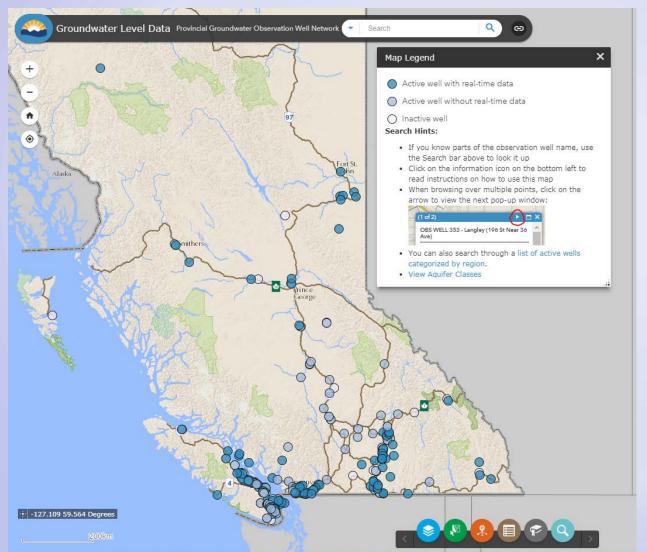


Link

- Search by WTN or WID, address
- Link to original records
- Submission of Well Records
- Edit-ability of Well Records
- Aquifer Summary Page
- Register of Well Drillers and Well Pump Installers
- Integration with other groundwater related applications e.g. Aquifer Factsheets, Artesian advisories, and Water Licensing Information



Groundwater Level Data Interactive Map

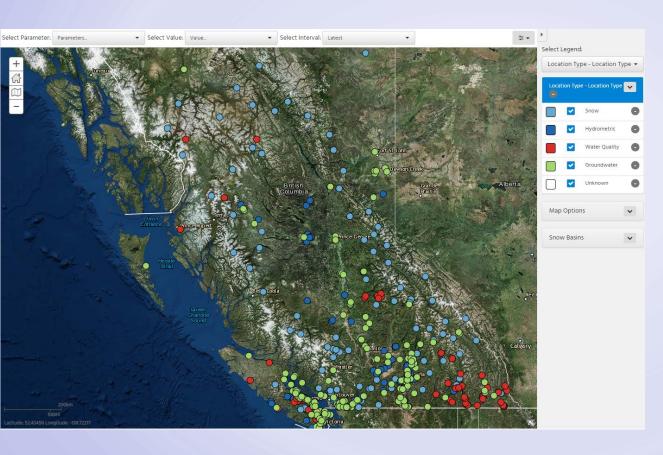


- View hydrographs
- Compare to long-term record (min, max, average)
- Download data

Link



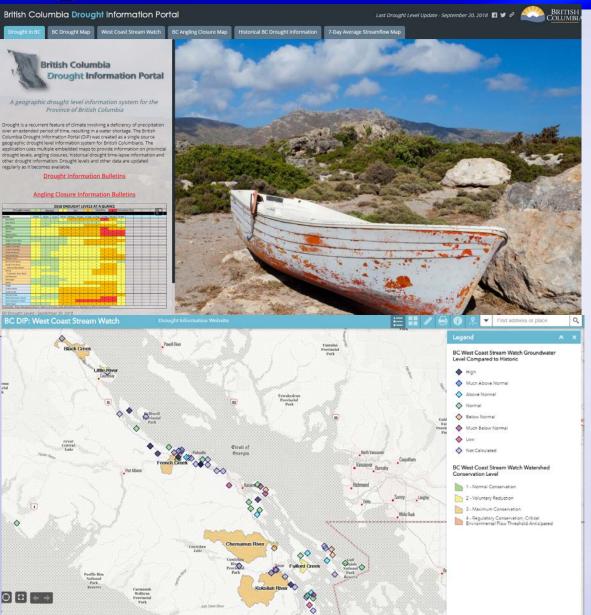
Real Time Water Data (Aquarius)



- View and download data from groundwater and surface monitoring sites
- Statistical analysis and display options







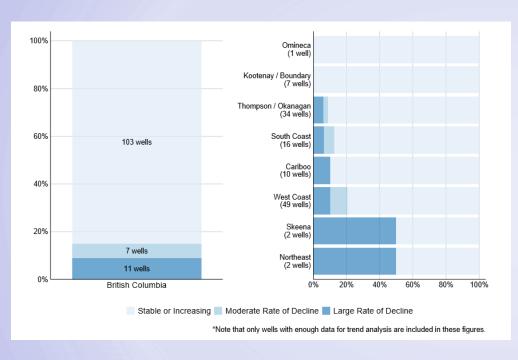
Drought Portal

- Provincial Drought Map and updates during dry season
- West Coast Stream Watch:
 - Current state of drought in priority watersheds (Koksilah R., Chemainus R., French Ck, Black Ck, Little R.)

<u>Link</u>



Long-term Trends in Groundwater Levels





 Evaluation of long-term trends updated analysis was completed in fiscal 2018-2019





Well drilling advisories

- See <u>GWELLS</u> aquifer summary page or <u>Information for Well Drillers & Well</u> <u>Pump Installers > Well Drilling</u> Advisories
- Check advisories for artesian conditions in BC, currently completed for:
 - Coldstream
 - Westwold
 - Surrey and Langley
 - Lower Mission Creek, Kelowna
 - Vancouver, Burnaby and New Westminster
 - Chetwynd



WELL DRILLING ADVISORY Flowing artesian conditions Chetwynd, BC

Flowing artesian conditions exist in low elevation valleys in Chetwynd, BC. Well drillers and home owners should be aware of potential complications and costs of flowing artesian wells.



Where do flowing artesian conditions occur?

The District of Chetwynd is an area of known flowing artesian conditions. The potential areas under artesian pressure are located in Centurion Creek valley stretching from northeast to southwest across Highway 97 and the Pine River valley from Chetwynd towards the southeast (Figure 1).



Flowing artesian wells occur when a well is drilled into an aquifer under pressure that is high enough to force the water level in the well to rise above the ground surface and flow over the top of the well casing.

It is important to properly construct the well to control this flow. Controlling artesian flow conserves groundwater resources, preserves the pressure within the aquifer, and prevents damage to the natural environment (i.e., property damage, flooding, erosion and impacts to surface water). A flowing artesian well can cause substantial damage and incur significant and unexpected costs if not carefully planned and constructed. Well drillers and well owners should be prepared in advance in case flowing artesian conditions are encountered.

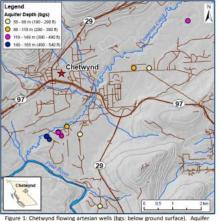


Figure 1: Chetwynd flowing artesian wells (bgs: below ground surface). Aquil depth is inferred from well depth.

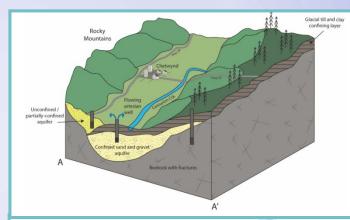
WELL DRILLING ADVISORY No. 2017-01

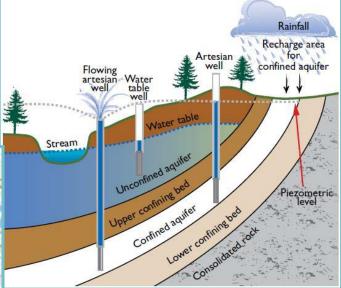


Artesian Flowing Wells

Prevention

- Well Drilling Advisories
- Mapping
 - iMapBC
 - BC Water Resources Atlas
- Other resources (e.g. Qualified Professionals)
- Link







Legislated Requirements



"Under Control"

- Clear of sediment
- Entirely conveyed through casing (if applicable)
- Can be turned off indefinitely
- Does not pose a threat to property, public safety or the environment





Well Record Submission

The <u>person responsible</u> for drilling, altering, or decommissioning a well must provide a completed well construction report to the comptroller and the well owner within 90 days:

- water supply
- permanent monitoring, dewatering, or remediation wells
- recharge or injection wells made by drilling or boring
- closed-loop geoexchange
- geotechnical
- any class of well with artesian flow

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Well Record Submissions

 It's an important reminder that since the WSA came into force, most Well Completion Reports need to be submitted.

Well Completion/Alteration/Decommissioning Report submission is mandatory for most wells under the Water Sustainability Act

- It's important to clarify that it's the responsibility of the driller (not the well drilling company) to submit the well record.
- Failure to submit a well record is a ticketable offense (\$230 per instance).
- The province will be reviewing the QWD registry and well submissions to verify compliance.

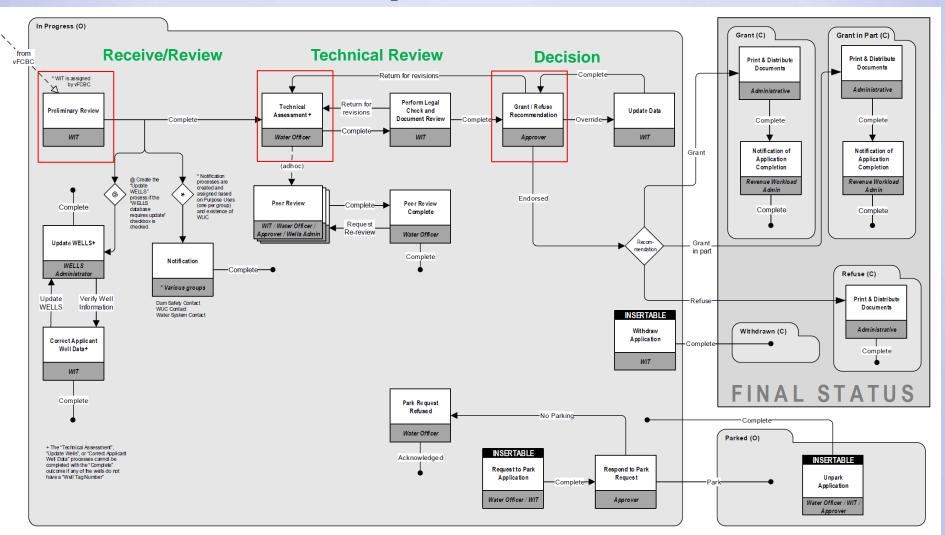
Groundwater Licensing Update

- The Water Sustainability Act requires a licence for non-domestic groundwater use – irrigation, industrial, commercial, etc.
- Existing groundwater use has a transition period. However, rentals accrue from Feb. 29, 2016 regardless when application received
- New groundwater use (after Feb. 29, 2016) must not use water until after licence is granted
- Surface water and groundwater to be managed under the same regulatory regime





How do we process a licence?





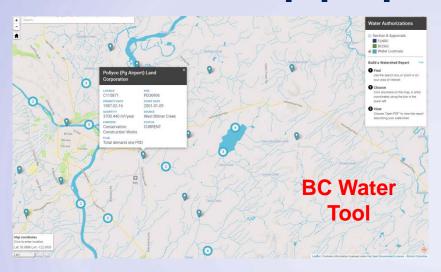
How do we assess the application?

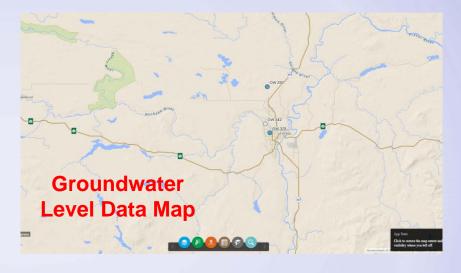
- Adequacy of supply
- Likelihood of hydraulic connection to streams and other aquifers
- Potential impact on nearby groundwater users
- Other relevant issues

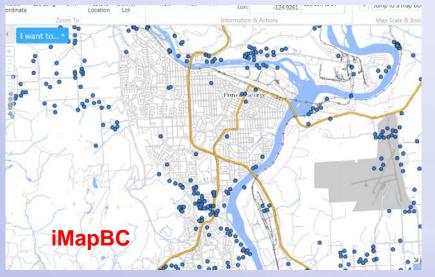




Tools to help prepare the technical report









UPDATE Groundwater Licensing Summary

F	Received-Existing Use				Granted-Existing Use				
South Coast	West Coast	North Area	South Area	South Coast	West Coast	North Area	South Area		
715	724	853	1062	69	68	176	254		



South Coast Region Groundwater Science Update

- Aquifer Characterization and Mapping (recently updated):
 - Chilliwack report available soon
 - Abbotsford report available soon
 - Nicomekl-Serpentine
 Watershed-preliminary EFN
 study (report available soon)
 and ongoing aquifer mapping
 and water budget

WATER SCIENCE SERIES

Assessment of Aquifer-Stream Connectivity Related to Groundwater Abstraction in the Lower Fraser Valley

Phase 1 Field Investigation

Glenn Hall, Diana M. Allen, Mike Simpson, Habtamu Tolera, Bryan Jackson, Mary Ann Middleton, and Michele Lepitre







South Coast Region Groundwater Science Update

- Groundwater-Surface Water Interaction Studies
 - Otter Park, Langley
 - Phase 2: Pumping test and water level monitoring – fieldwork complete (reporting to be combined with phase 3)
 - Phase 3: A Hydrogeological Assessment of Hydraulic Connectivity

WATER SCIENCE SERIES

Assessment of Aquifer-Stream Connectivity Related to Groundwater Abstraction in the Lower Fraser Valley

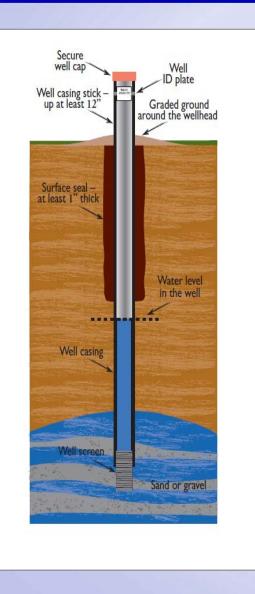
Phase 1 Field Investigation

Glenn Hall, Diana M. Allen, Mike Simpson, Habtamu Tolera, Bryan Jackson, Mary Ann Middleton, and Michele Lepitre









South Coast Region Groundwater Compliance Summary

- GWPO role has been vacant for 1 year
- Artesian risk mapping and mitigation project (with SFU)
- Joint Compliance Project with NRO's



South Coast Region PGOWN Update

- Over the past year we have added new wells to Squamish, Langley, Dewdney and Deroche.
- 54 active PGOWN wells in the South Coast Region
- Actively monitoring almost 20% of mapped aquifers in the South Coast Region
- More expansion planned over the coming months/years





South Coast Region Groundwater Licensing Summary

BRITISH COLUMBIA	Groundwater Application Summary							
October 31, 2019	FCBC	GW	Parked	Granted	Total	Active		
Existing Use	441	205	0	70	716	646		
New Use	1	27	12	24	64	40		
STU	0	10	2	32	44	12		
Amendments	0	2	0	11	13	2		
Total	442	244	14	137	837	700		



Thank You!

More information

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WSA and **GWPR**

http://engage.gov.bc.ca/watersustainabilityact

http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater