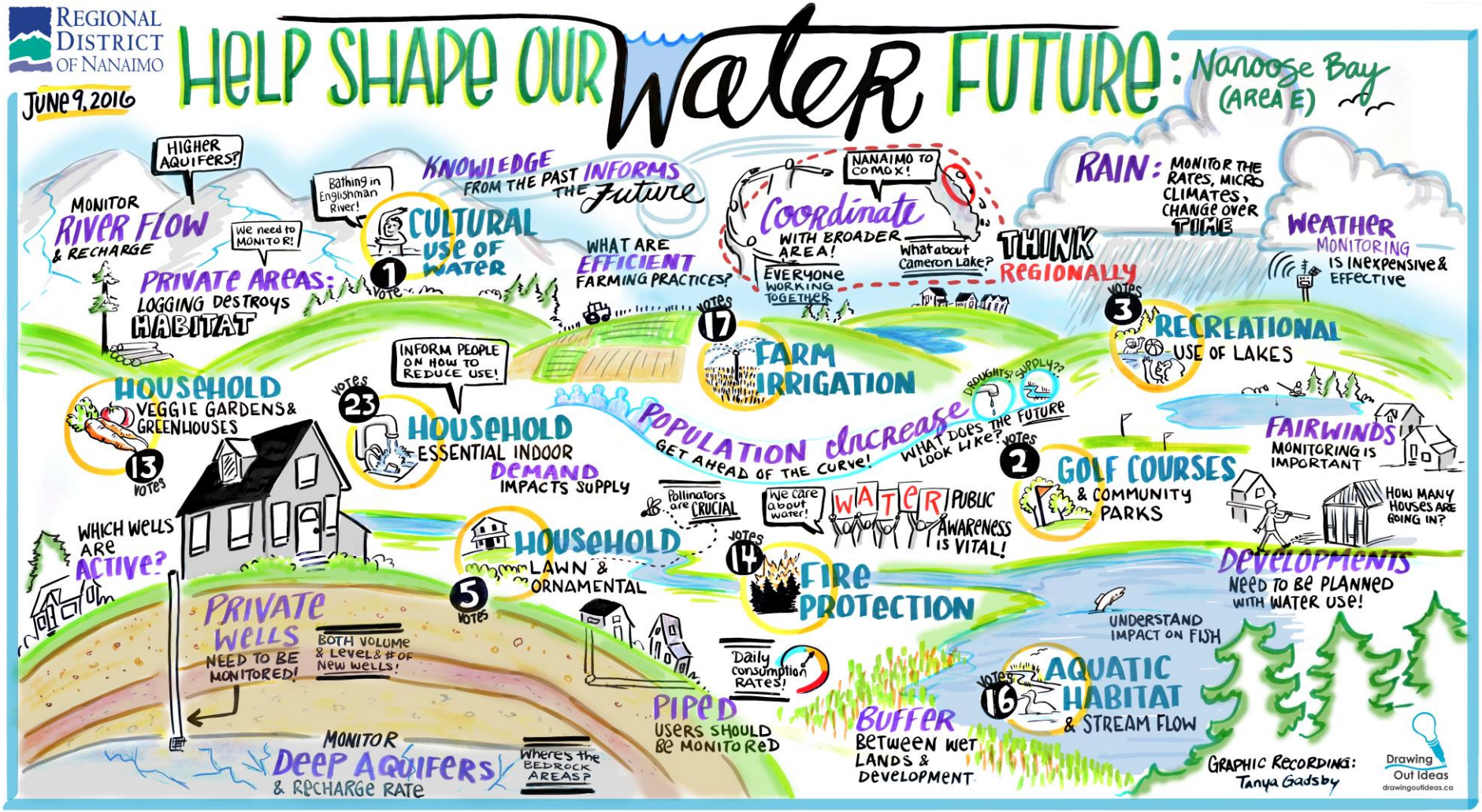

REGIONAL DISTRICT OF NANAIMO
HELP SHAPE OUR Water FUTURE: Nanoose Bay (AREA E)
JUNE 9, 2016
HIGHER AQUIFERS?
MONITOR RIVER FLOW & RECHARGE
We need to MONITOR!
PRIVATE AREAS: LOGGING DESTROYS HABITAT
Bathing in Englishman River!
KNOWLEDGE FROM THE PAST INFORMS THE Future
1 VOTE
CULTURAL USE OF WATER
WHAT ARE EFFICIENT FARMING PRACTICES?
NANAIMO TO COMOX!
Coordinate WITH BROADER AREA!
What about Cameron Lake?
EVERYONE WORKING TOGETHER
THINK REGIONALLY
RAIN: MONITOR THE RATES, MICRO CLIMATES, CHANGE OVER TIME
WEATHER MONITORING IS INEXPENSIVE & EFFECTIVE
17 VOTES
FARM IRRIGATION
3 VOTES
RECREATIONAL USE OF LAKES
INFORM PEOPLE ON HOW TO REDUCE USE!
23 VOTES
HOUSEHOLD ESSENTIAL INDOOR DEMAND IMPACTS SUPPLY
HOUSEHOLD VEGGIE GARDENS & GREENHOUSES
13 VOTES
POPULATION increase GET AHEAD OF THE CURVE!
DROUGHTS? SUPPLY??
WHAT DOES THE FUTURE LOOK LIKE?
2 VOTES
GOLF COURSES & COMMUNITY PARKS
FAIRWINDS MONITORING IS IMPORTANT
HOW MANY HOUSES ARE GOING IN?
Pollinators are CRUCIAL
We care about water!
WATER PUBLIC AWARENESS IS VITAL!
WHICH WELLS ARE ACTIVE?
HOUSEHOLD LAWN & ORNAMENTAL
5 VOTES
14 VOTES
FIRE PROTECTION
DEVELOPMENTS NEED TO BE PLANNED WITH WATER USE!
UNDERSTAND IMPACT ON FISH
PRIVATE WELLS NEED TO BE MONITORED!
BOTH VOLUME & LEVEL & # OF NEW WELLS!
Daily consumption RATES!
PIPED USERS SHOULD BE MONITORED
16 VOTES
AQUATIC HABITAT & STREAM FLOW
BUFFER BETWEEN WET LANDS & DEVELOPMENT
MONITOR DEEP AQUIFERS & RECHARGE RATE
Where's the BEDROCK AREAS?
GRAPHIC RECORDING: Tanya Gadsby
Drawing Out Ideas
drawingoutideas.ca

AGENDA – March 15th 2018

- Welcome from the Director (B. Rogers)
- Area E water monitoring update (J.Pisani)
- RDN Nanoose Bay Peninsula water service area update (G. St Pierre)
- Englishman River Water Service update (V. Figueria)
- Water Conservation (J. Pisani)
- Closing (B. Rogers)

Update on Area E Water Monitoring

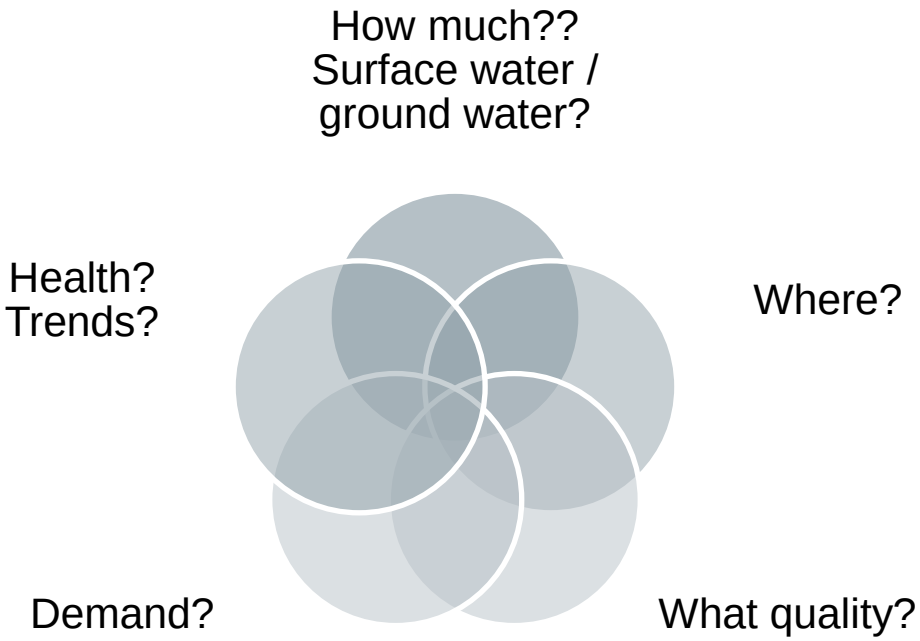
Julie Pisani, Drinking Water & Watershed Protection Program Coordinator

WHAT I WILL COVER:

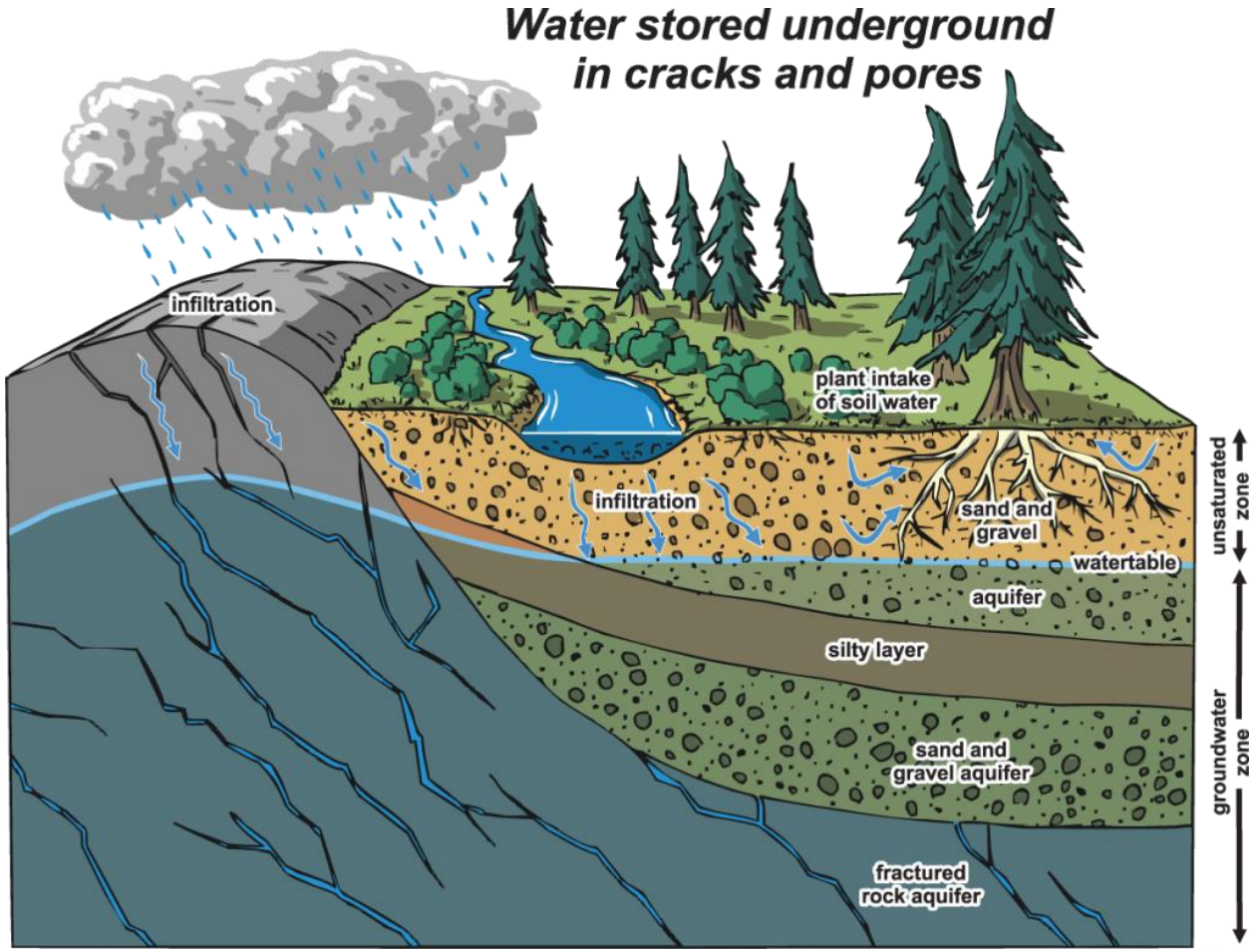
- Objective of water monitoring
- Summary of Area E Water Monitoring Plan recommendations
- What has been implemented to date?
- Preliminary results
- Next steps

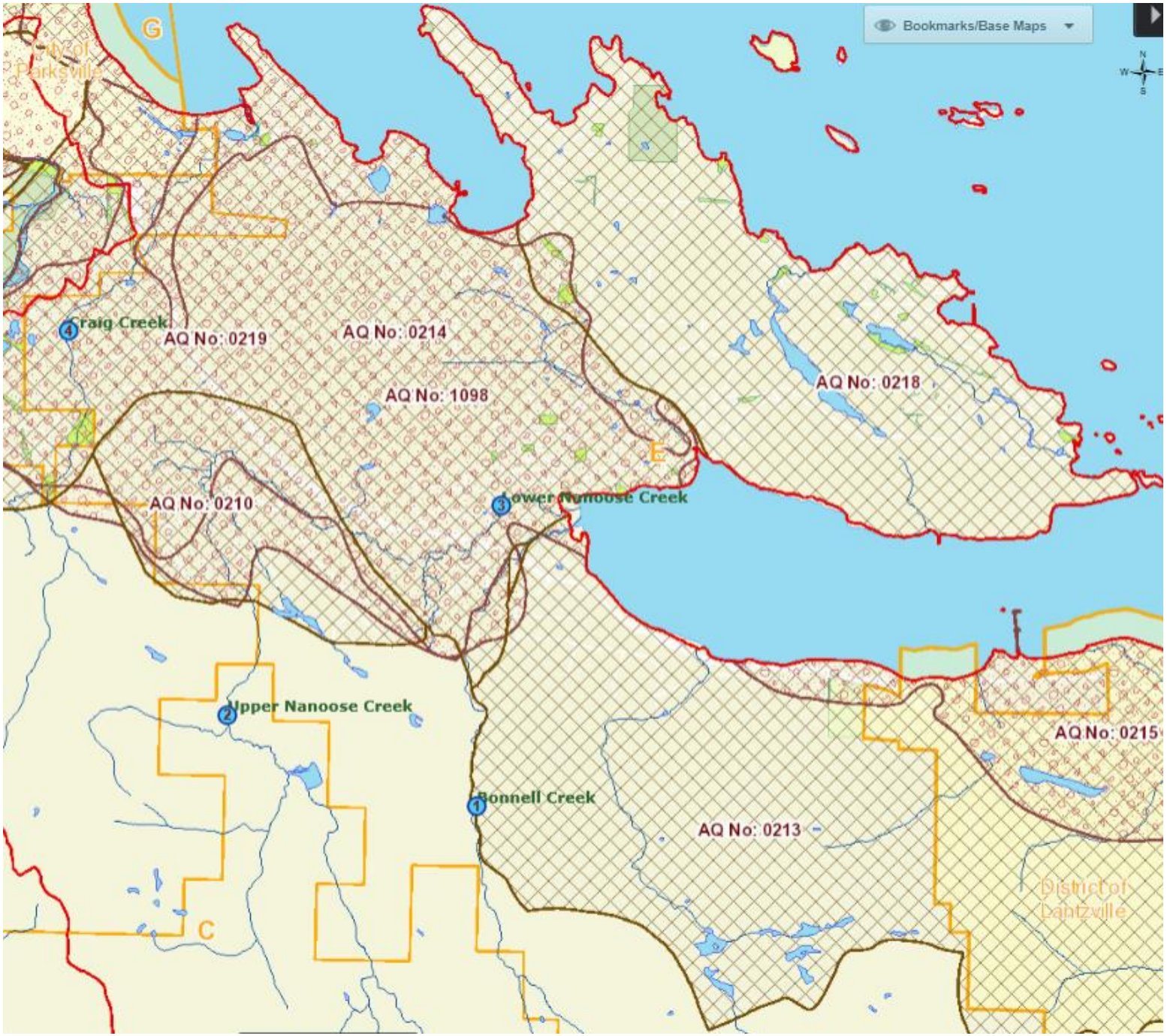
OBJECTIVE OF WATER MONITORING

Gather area-specific information to improve understanding about Nanoose's water resources, to inform decision-making & better manage our water for the future.



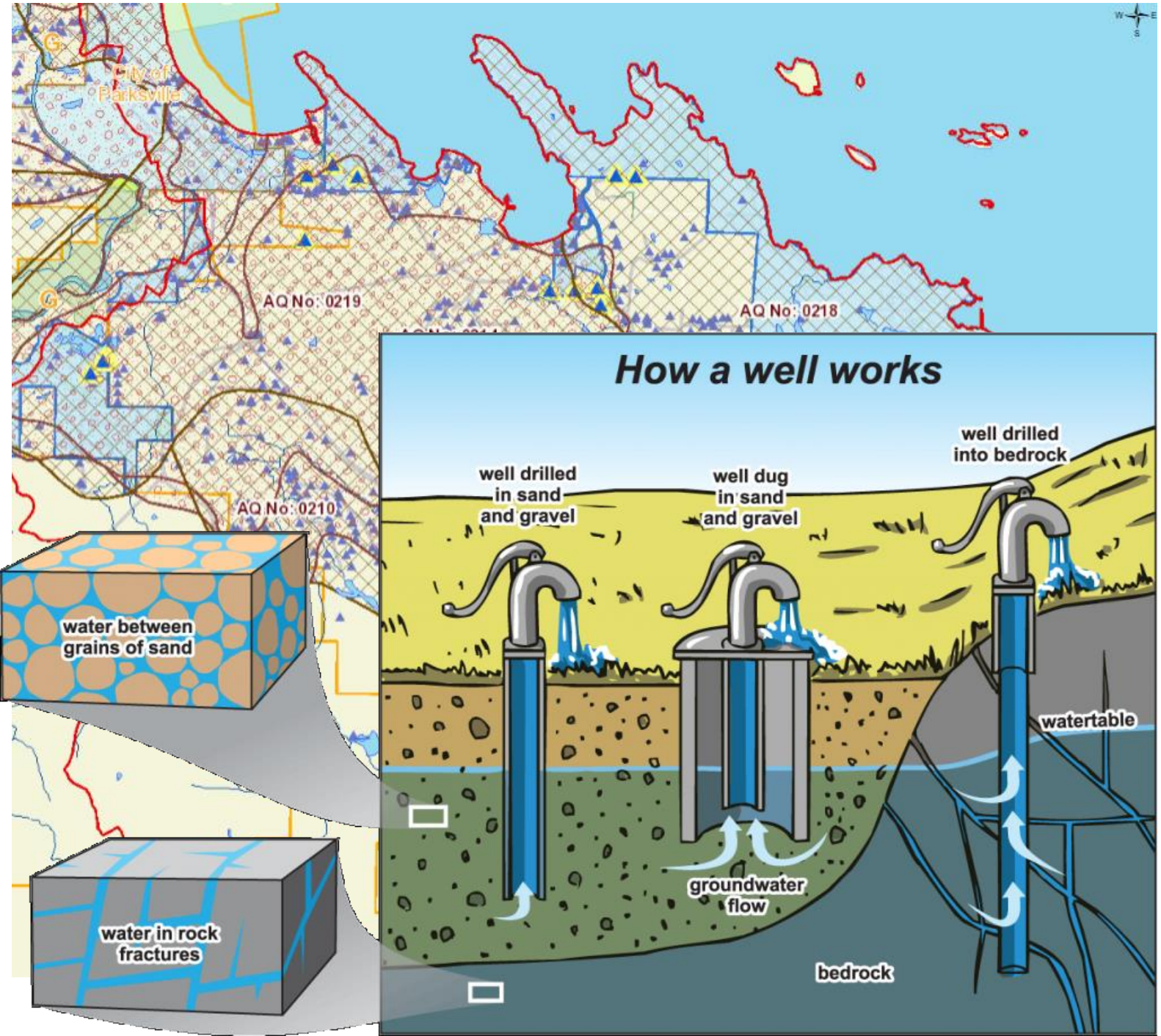
AREA E RELIES ON GROUNDWATER





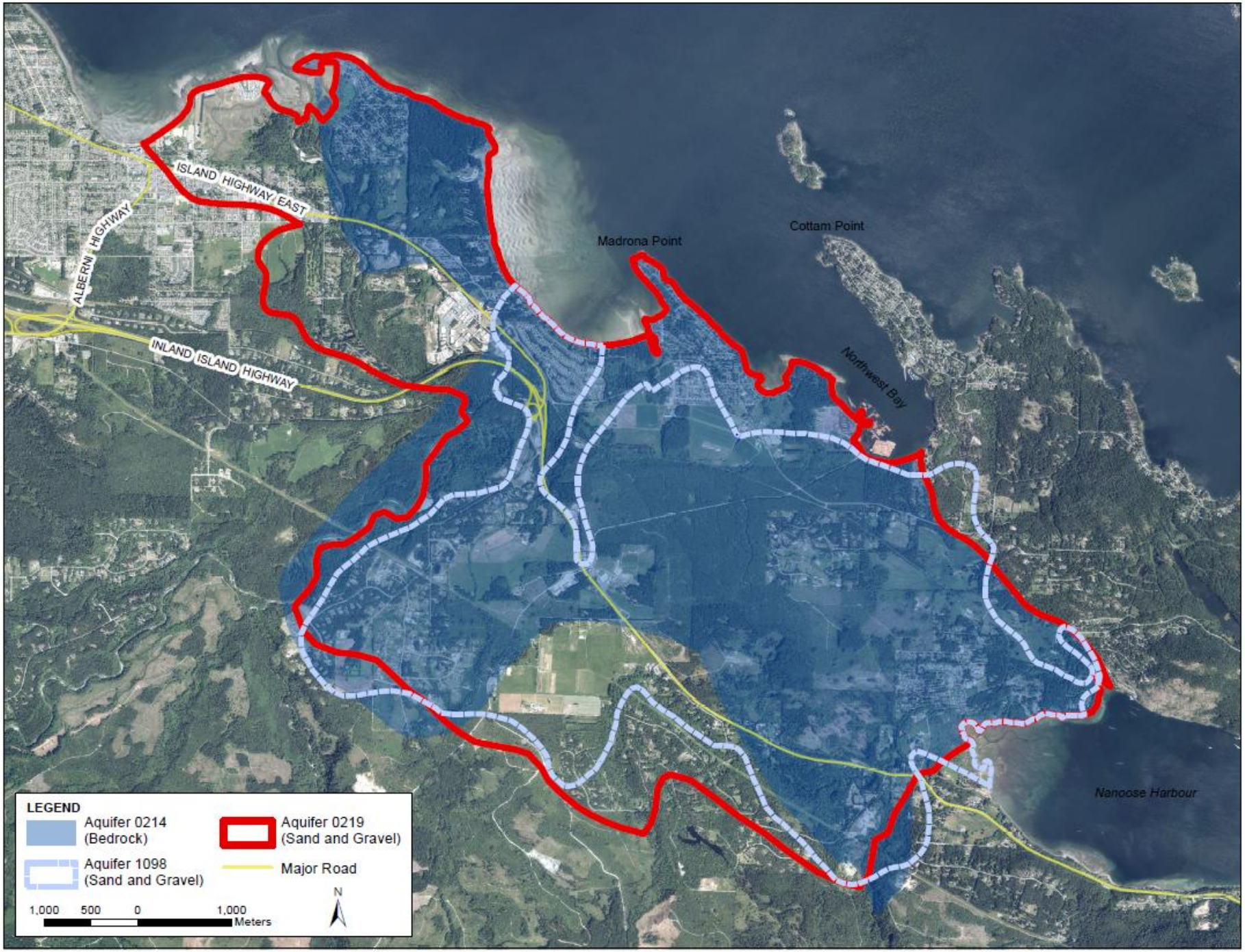
AREA E

- coastal bedrock aquifers
- sand & gravel aquifers
- smaller creeks



AREA E

- RDN water service area on the Peninsula
- Served by RDN groundwater wells
- Private wells provide water in un-serviced locations


ISLAND HIGHWAY EAST
ALBERNI HIGHWAY
INLAND ISLAND HIGHWAY
Madrona Point
Cottam Point
Northwest Bay
Nanoose Harbour
LEGEND
Aquifer 0214 (Bedrock)
Aquifer 0219 (Sand and Gravel)
Aquifer 1098 (Sand and Gravel)
Major Road
1,000 500 0 1,000
Meters
N

PRIMARY RECOMMENDATIONS

AREA E WATER MONITORING PLAN (Golder,2016)

Surface Water Levels

- Lower Nanoose Creek
- Upper Nanoose Creek
- Bonnell Creek

Climate

- Headwater of Nanoose Creek
- Nanoose Peninsula

Groundwater Levels

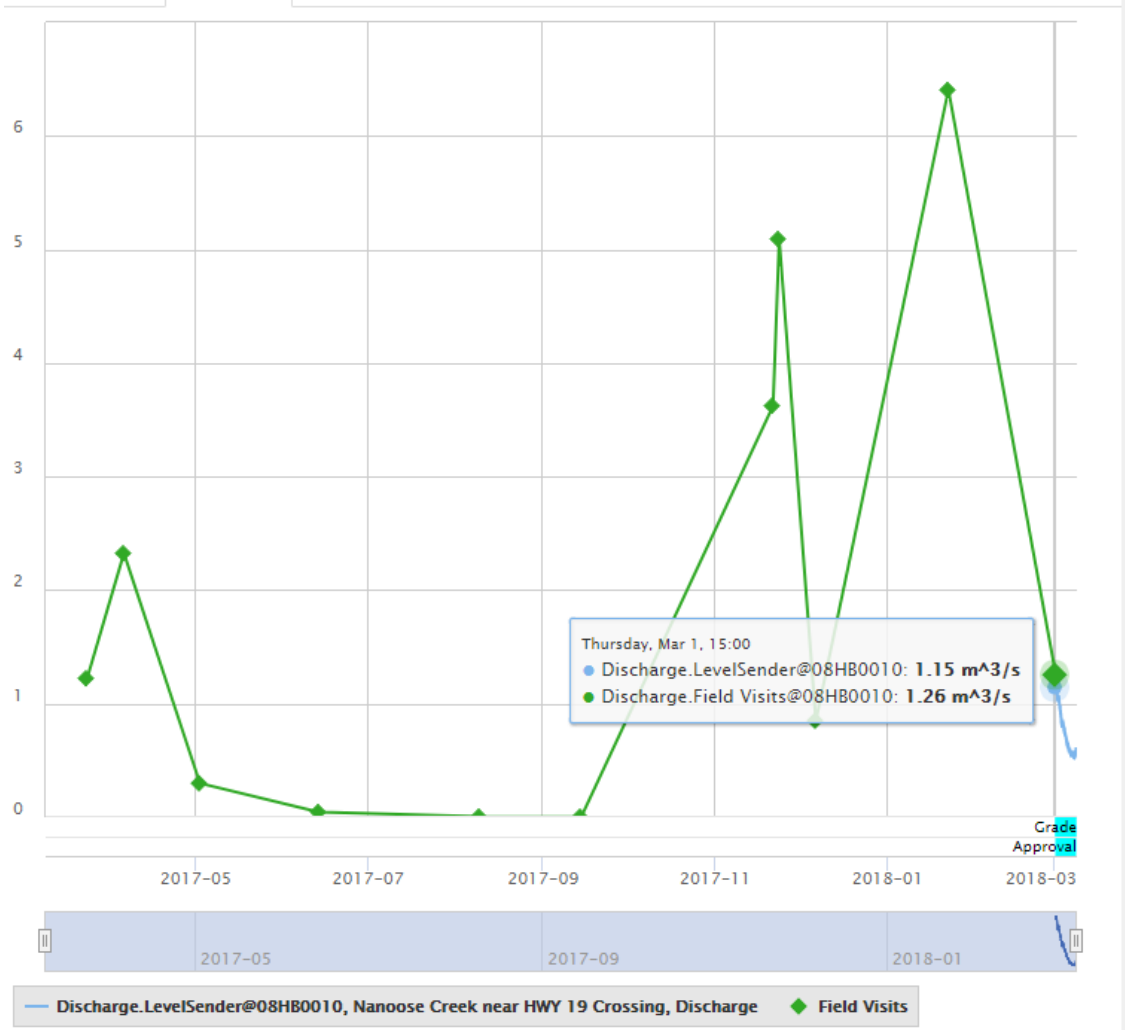
- Aquifer 210
- Aquifer 213
- Aquifer 214
- Aquifer 218
- Aquifer 219
- Aquifer 1098

IMPLEMENTED TO DATE

PARAMETER	LOCATION	PARTNER	YEAR
Streamflow & Level	Lower Nanoose Creek	MFLRNO	2017
Climate – precipitation, temperature, wind	Upper Nanoose Creek	Island Timberlands	2018
Groundwater levels	1- Aquifer 213 (bedrock)	Private well owners	2016
	5 - Aquifer 214 (bedrock)		2015
	2- Aquifer 218 (bedrock)		2017
	5- Aquifer 219 (sand & gravel)		2015
	2- Aquifer 1098 (sand & gravel)		2015, 2017

Still looking for Aquifer 210 - Matthew / Morello Rd

PRELIMINARY RESULTS



Nanoose Creek

Streamflow Gauge

- only 1 year of data so far
- track low & high flows
- compare with groundwater levels – interaction?
- compare with precipitation – delay?

PRELIMINARY RESULTS

Upper Nanoose Creek Watershed

Climate Station

… will be installed this summer in partnership with Island Timberlands

Precipitation

Wind

Temperature

PRELIMINARY RESULTS

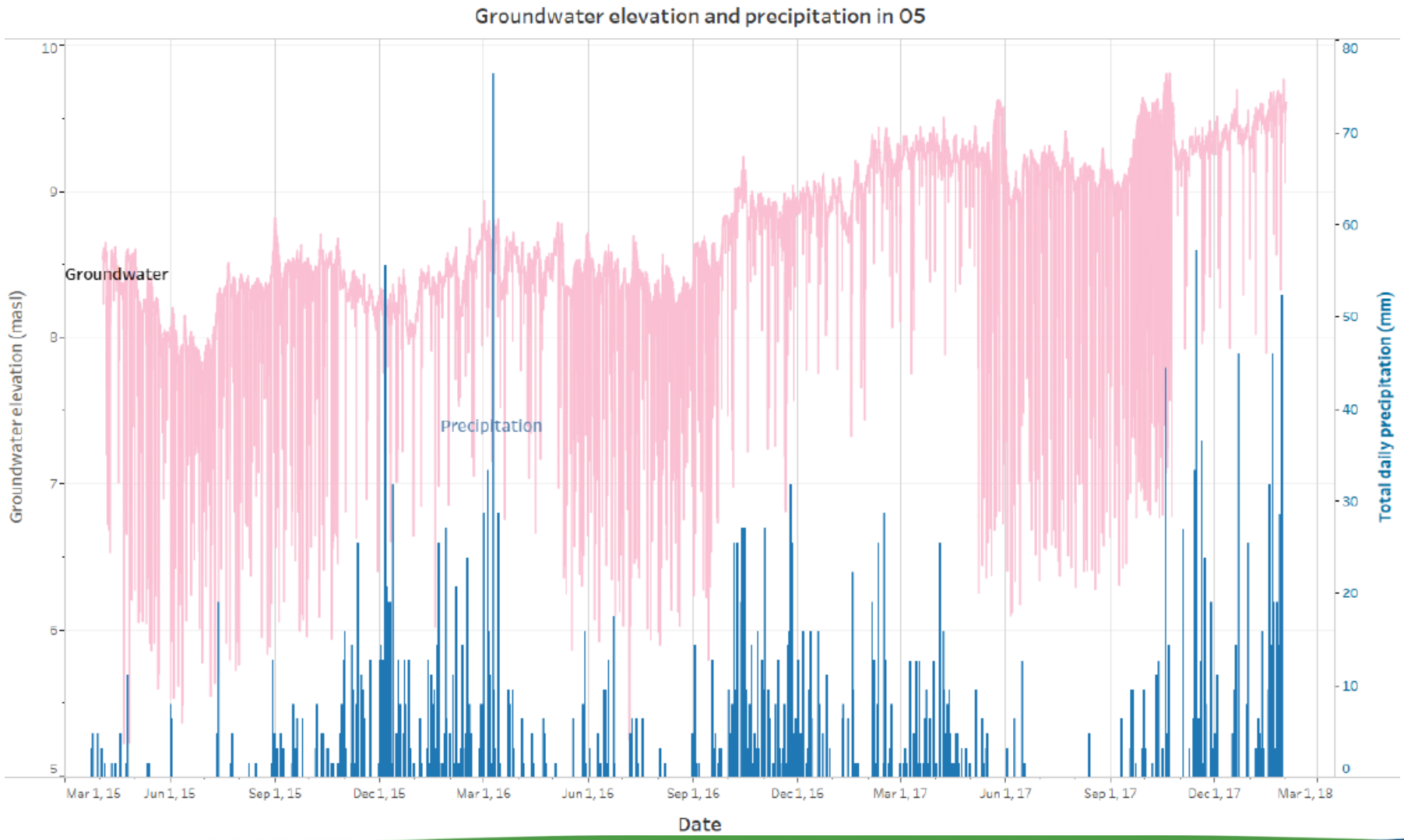
Bedrock & Sand and Gravel Aquifers

Groundwater Level Monitoring

- Need at least 5-10 years of data
- Observe water table fluctuations over time
- Track seasonal patterns
- Impacts of climate events, pumping
- Combine with other data to better quantify volumes / water availability

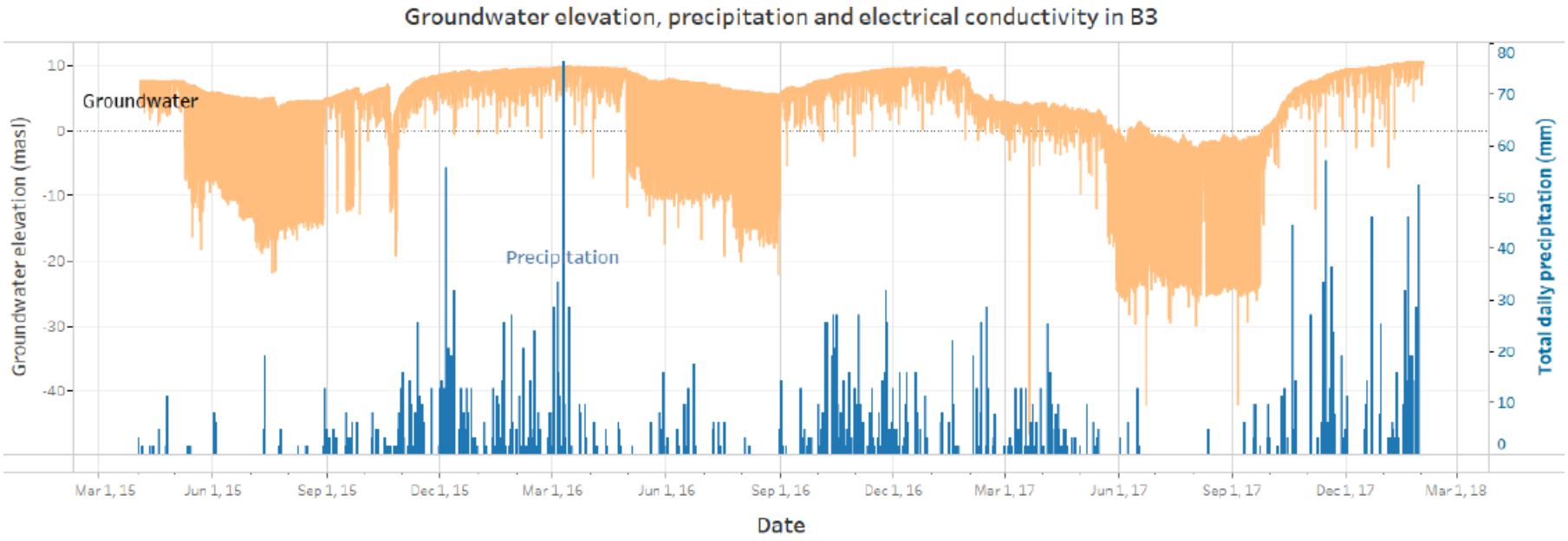
PRELIMINARY RESULTS

AQUIFER 219



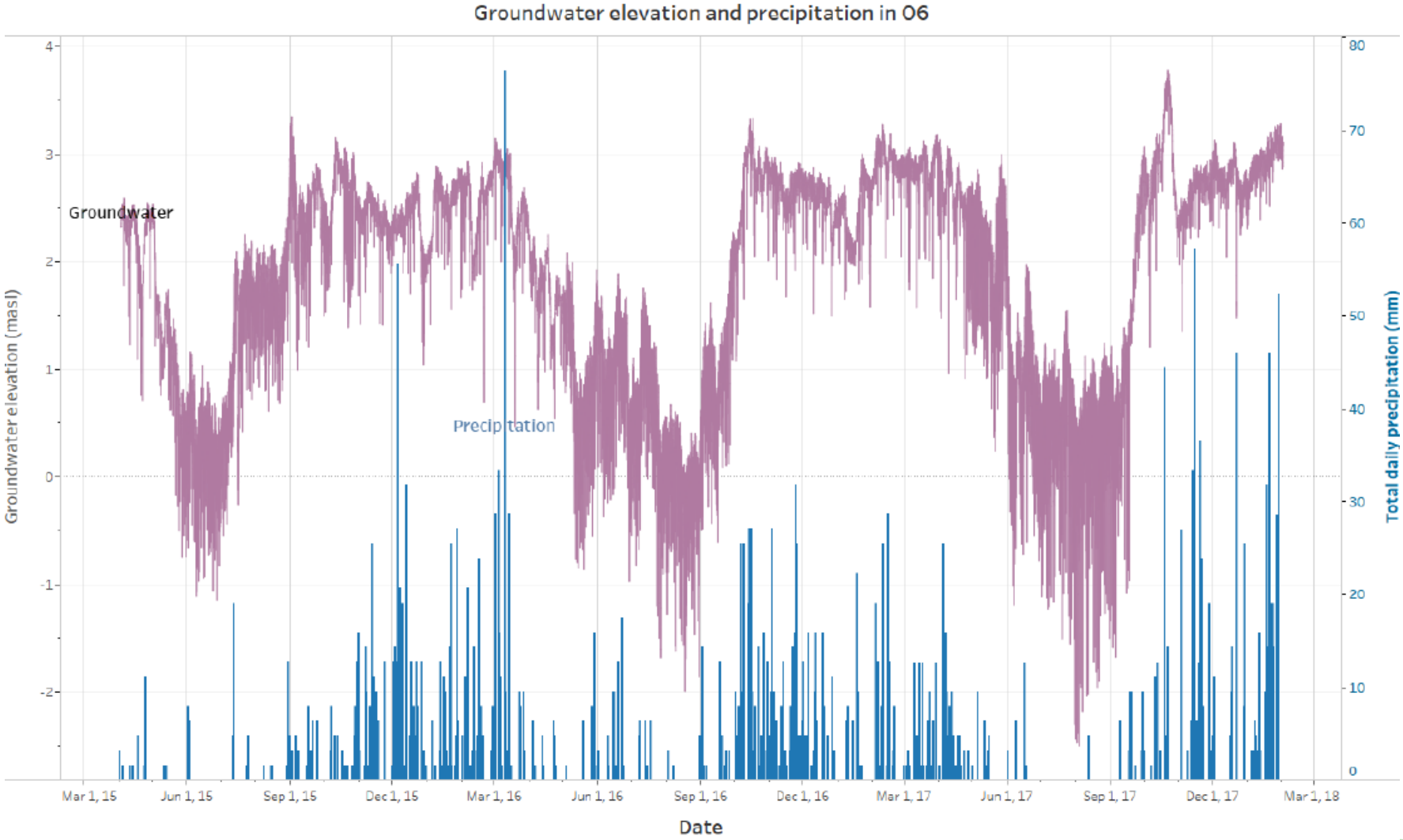
PRELIMINARY RESULTS

AQUIFER 214



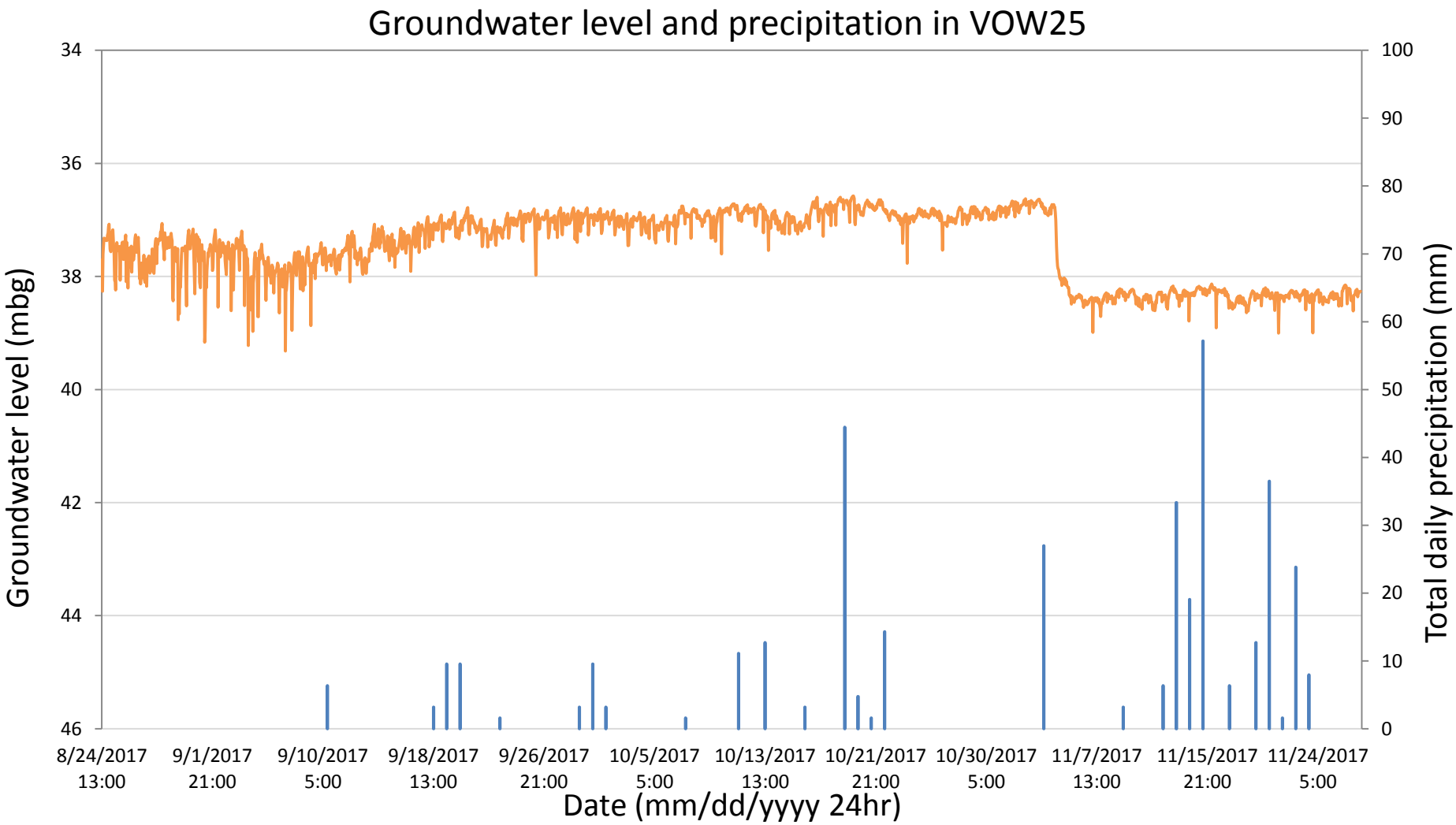
PRELIMINARY RESULTS

AQUIFER 1098

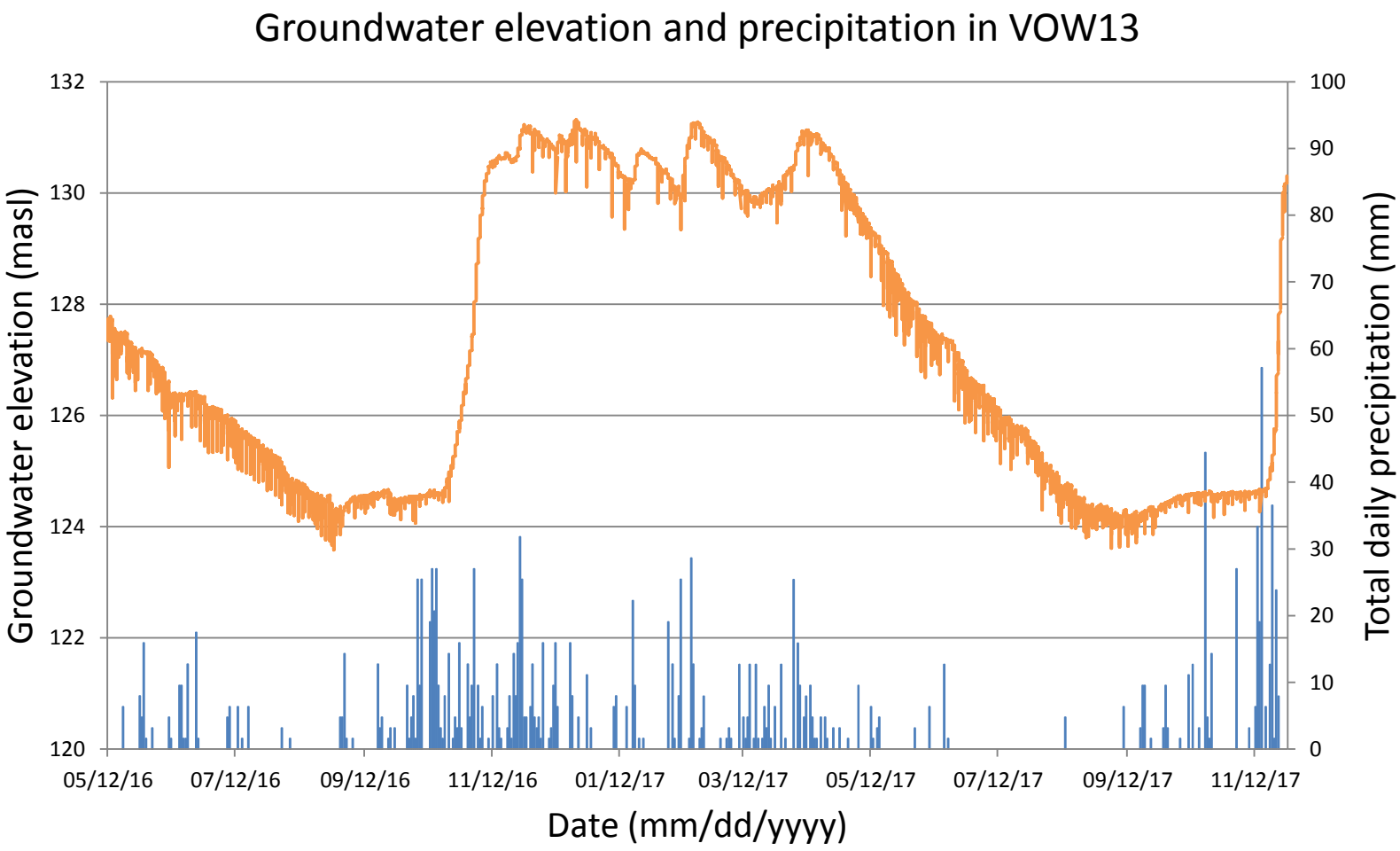


PRELIMINARY RESULTS

AQUIFER 1098

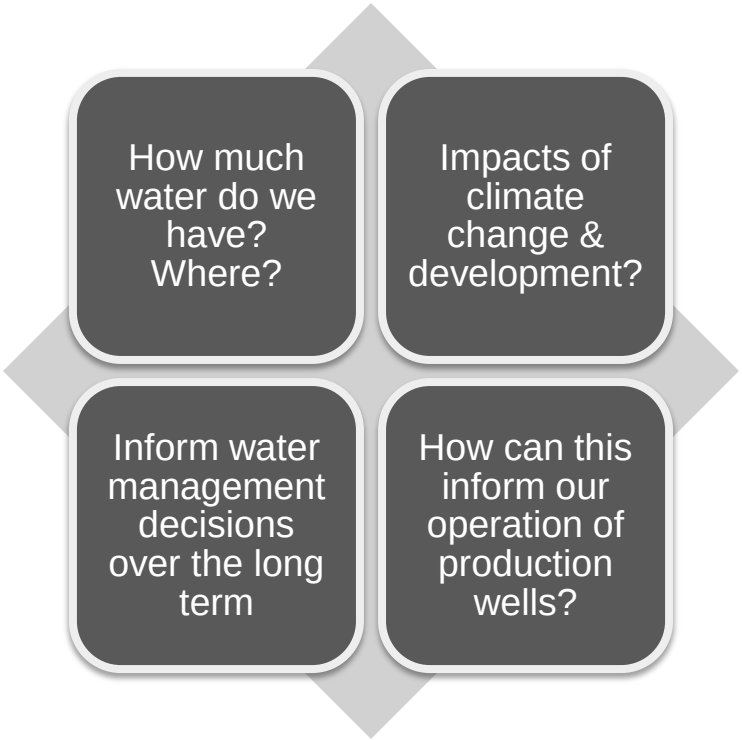


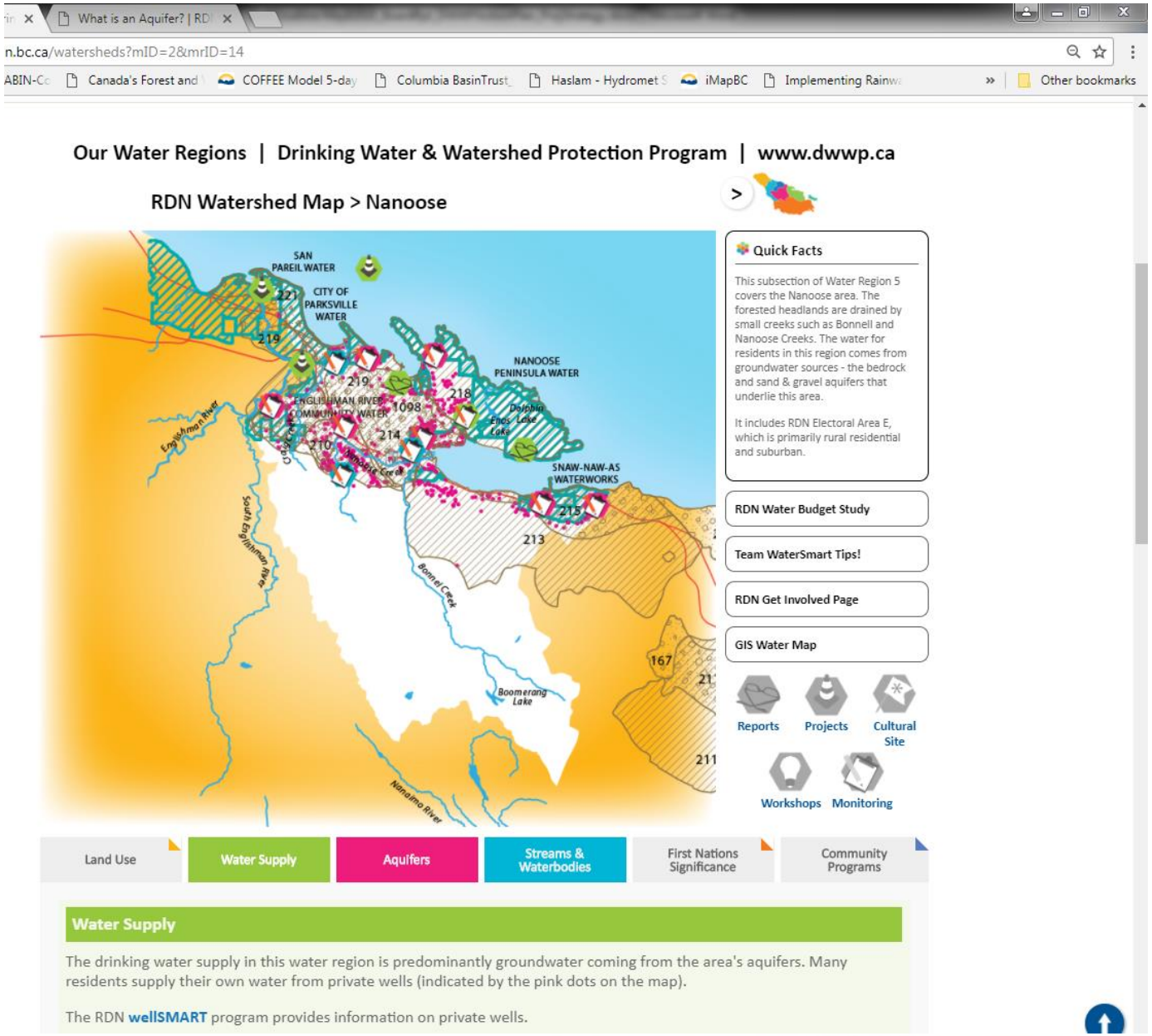
PRELIMINARY RESULTS



OUTLOOK / NEXT STEPS

- Continue to collect data → Analysis via numerical model
- Closer to answering the questions:





RDN Drinking Water & Watershed Protection website
www.dwwp.ca

Nanoose Water Monitoring Website

www.nanoosewatermonitoring.ca

Update on Area E Water Monitoring

QUESTIONS? FEEDBACK? IDEAS?

jpisani@rdn.bc.ca / *www.dwwp.ca*

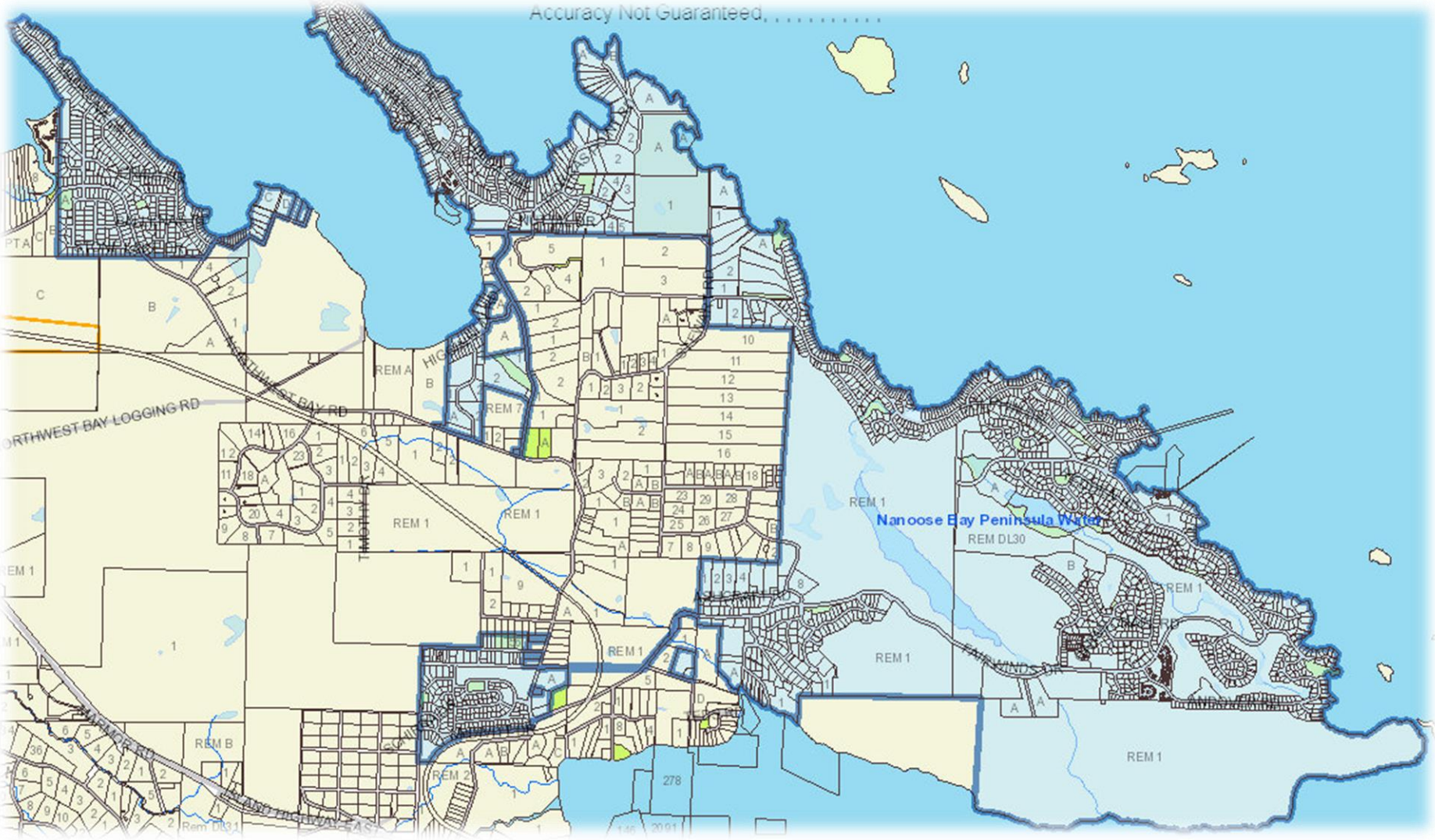
Water Operations and Capital Projects Update

presented by: Gerald St. Pierre, P.Eng., PMP
Project Engineer, Water Services

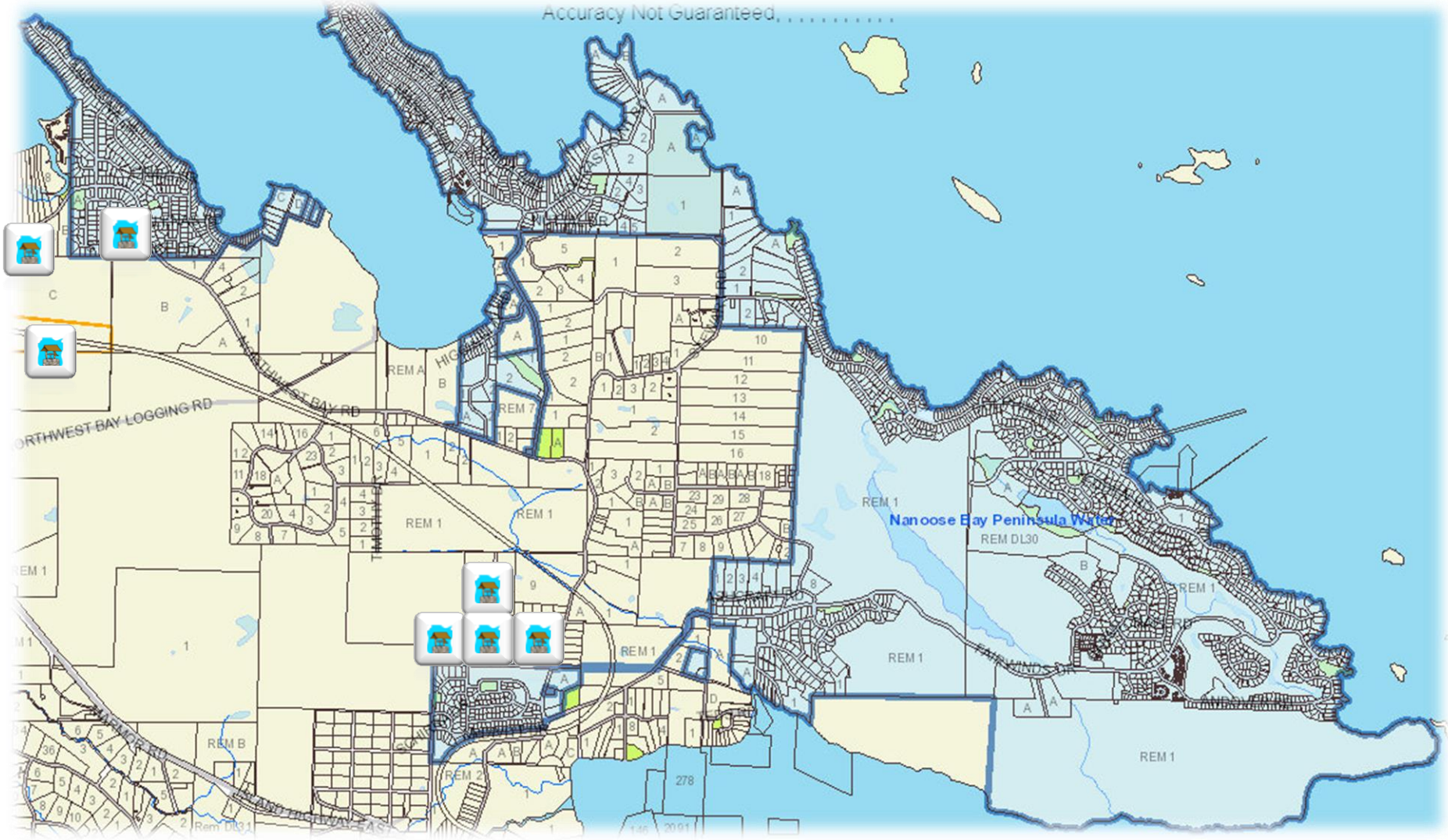
Water System Quick Facts

- 12 supply wells
- 6 reservoirs (3,243m³)
- 7 pressure zones
- 10 pressure reducing valves
- ~ 290 Fire Hydrants
- ~ 60km of watermain

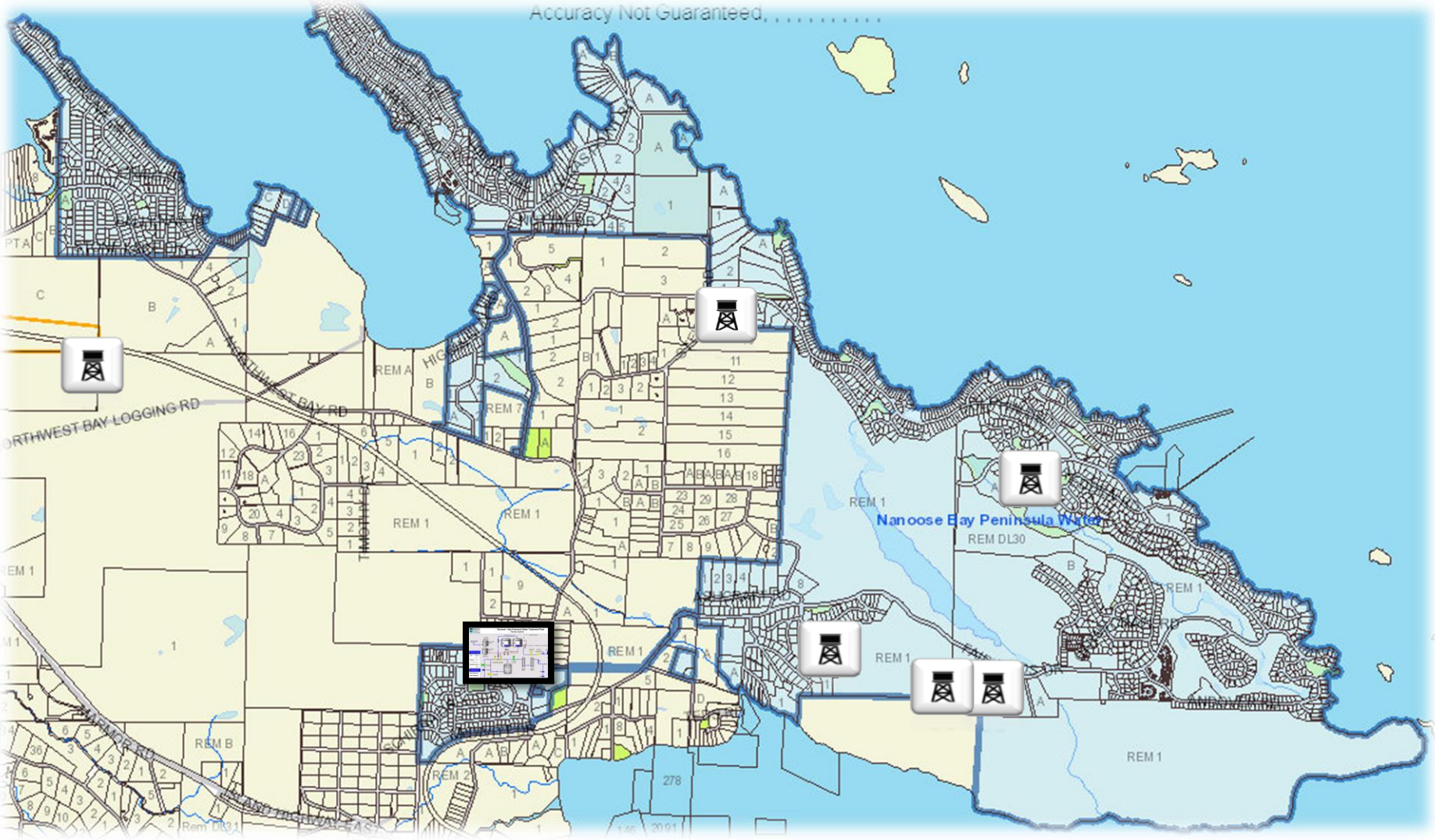
Extents of the Nanoose Water Service Area



Current Supply Well Locations



Reservoir Locations and WTP



Nanoose Water System Information

- A variety of information on your water system can be found here:

http://www.rdn.bc.ca/nanoose-bay-peninsula

- Weekly lab test results going back to 2005
- Groundwater and surface water production volumes
- Historical well level data
- Annual water system reports
- And more!

2014 Referendum Capital Projects Status

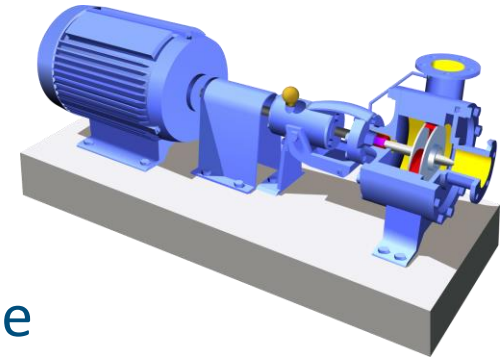
- A successful referendum in 2014 allowed for $2.6 Million in borrowing
- 14 projects identified to be completed over a 5 year period
- Replacement of aging AC pipe and fireflow improvements

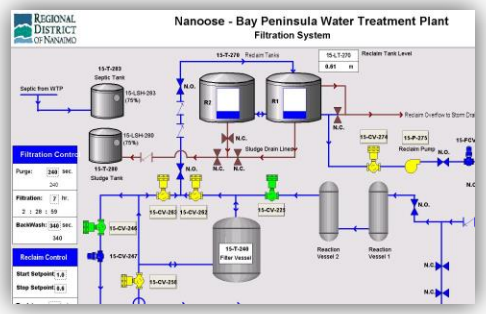
Current Status of Projects

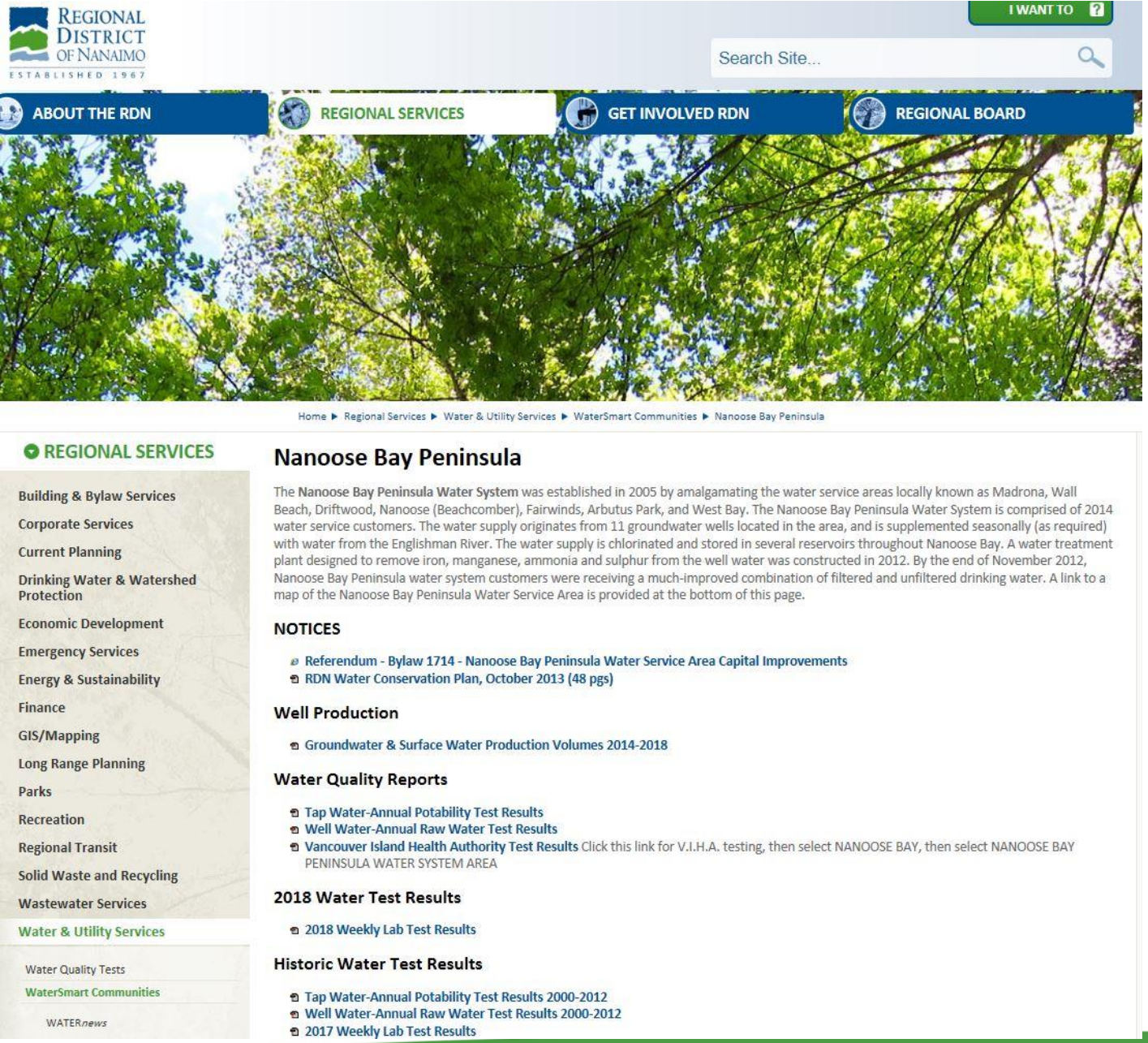
Projects	Status
Garry Oak Drive Watermain and PRV	Complete
Harlequin/Sea Lion Loop & Footbridge	Cancelled
Arbutus Crescent Watermain	Complete
Hemlock Drive Watermain	Complete
Ashcraft Road Watermain	Complete
Schirra/McDivitt Watermain	Complete
West Bay PRV Upgrade	Complete
Marine Drive Watermain	Complete
Anchor Way Watermain	To be completed this summer
DCC Major Update Study	To be completed later this year
Dolphin Drive Watermain	Planned for 2019
Outrigger Road Watermain	Planned for 2019
West Bay Pumphouse Upgrade	Planned for 2019
Dorcas Point Road Watermain	Planned for 2019

Other 2018 Projects

- Nanoose Bay Pumpstation Design and Construction
- Water Systems SCADA Master Plan
- Installation of a backup generator at the Nanoose Water Treatment Plant
- Water Systems Condition Assessments and Capital Plans







Nanoose Bay Peninsula Water System webpage

- water quality reports
- historic water level data
- well production volumes, etc.

www.rdn.bc.ca/nanoose-bay-peninsula

Update on NBP Water Operations & Capital Projects

QUESTIONS? FEEDBACK? IDEAS?

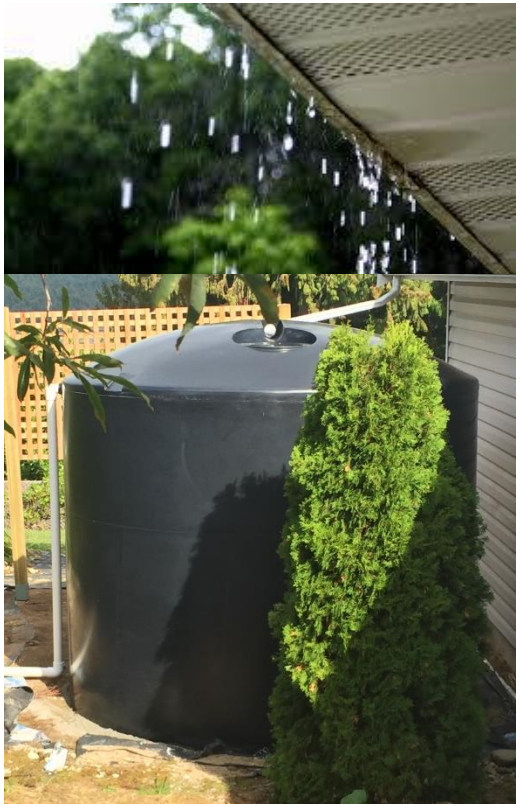
gstpierre@rdn.bc.ca

Englishman River Water Service Update

presented by: Vaughn Figueira

WATER CONSERVATION

- Target outdoor water use: *water demand doubles to triples in summer months*
- Educational workshops, community displays (www.teamwatersmart.ca)
- Irrigation Check-ups
- Rebates:
  - Rainwater Collection (up to $750)
  - Irrigation Efficiency - drip, smart controllers, rain sensors etc. (up to $550)
  - Soil Upgrades -adding topsoil, mulch to increase water retention (up to $100)



WATERING RESTRICTIONS

- Clear region-wide framework for sprinkling to encourage efficiency& minimize waste.
- Provides means to require outdoor water-use reductions during drought periods or operational emergencies.

	April & October	May to September	Only as Required	
STAGE	**1**	**2**	**3**	**4**
Sprinkling Times	Between 7 PM – 7 AM	7-10 AM OR 7-10 PM for a max. of two hours	**VOLUNTARY HEIGHTENED WATER USE REDUCTIONS**	**Sprinkling Ban: Lawn Watering Not Permitted**
Frequency	Any day	Every Other Day Even # houses – Even days Odd # houses – Odd days		
Pop-up spray, Rotors & Sprinklers	Only during permitted times	Only during permitted times		
Hand-watering & Drip Irrigation (trees, shrubs, flowers)	Anytime	Anytime		Only between 7-10 AM or PM
Vegetable Gardens	Anytime	Anytime		Anytime

We love Area E Water

THANK YOU FOR COMING!