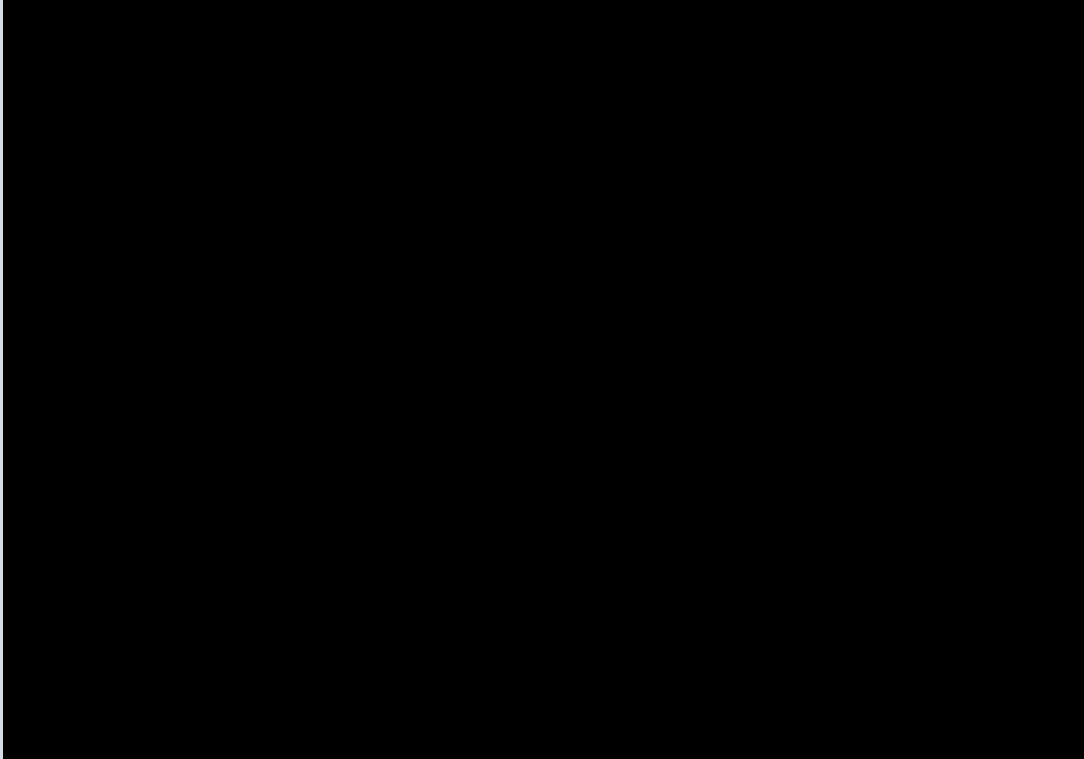


Nechako Environment Water Stewardship Society

Beaver Dam Analogs

“Climate Change Adaptation”

Before contact we had millions of beavers and
millions of salmon



Today – we have drought

- Omineca Region – 3 years Level 4 & 5 drought heading to 2025
- Decade of largest wildfires on record
- Nechako Reservoir and river at all time historic low
- Nechako Valley - 2023 - No hay, no pasture - no water & record cattle sales. 30% of herd - \$50 M



NEWSS – Our history

- Working with the agricultural sector to bring stewardship to their operations – over 50 projects
- 32 streams that flow into the Nechako River – 25 have salmon natal and non-natal
- Multiple fish passage culverts replaced with bridges or properly sized culverts
- Launched the e-DNA program with UNBC and SD 91 – 4 years data over majority of streams
- Handed out Kms of fence posts and wire to eliminate livestock from streams
- Launched the beaver dam analog program to rehydrate streams, grow riparian zones and create fish habitat

We see two types of streams needs utilizing different techniques:

- Higher gradient – water moves through quickly
- Slow low gradient streams
- Those that need water to grow or enhance the riparian zone and support aquatic life
- Those that recognizes recent beaver activity and enhance or controlling opportunities



Knight Creek

- Early success's in slowing and holding water
- Supporting a growing a riparian zone
- Salvaged 800+ fish in August 2024 at this site



East Murray Creek

- Slowing water down
- Growing a riparian zone
- Wind break and snow retention
- Feeding water into the aquifer
- Supporting adjacent fields moisture



West Murray Creek

- BDA located in the right spot for the protection of the road
- Beaver house is still usable
- Some existing beaver food but lots of opportunity to grow more riparian



NEWSS – comparing last fall to this spring



Bad beaver solutions

No anchor spot for beaver



Didn't anticipate this BUT...early days



NEWSS – scaled up productivity to fit the needs



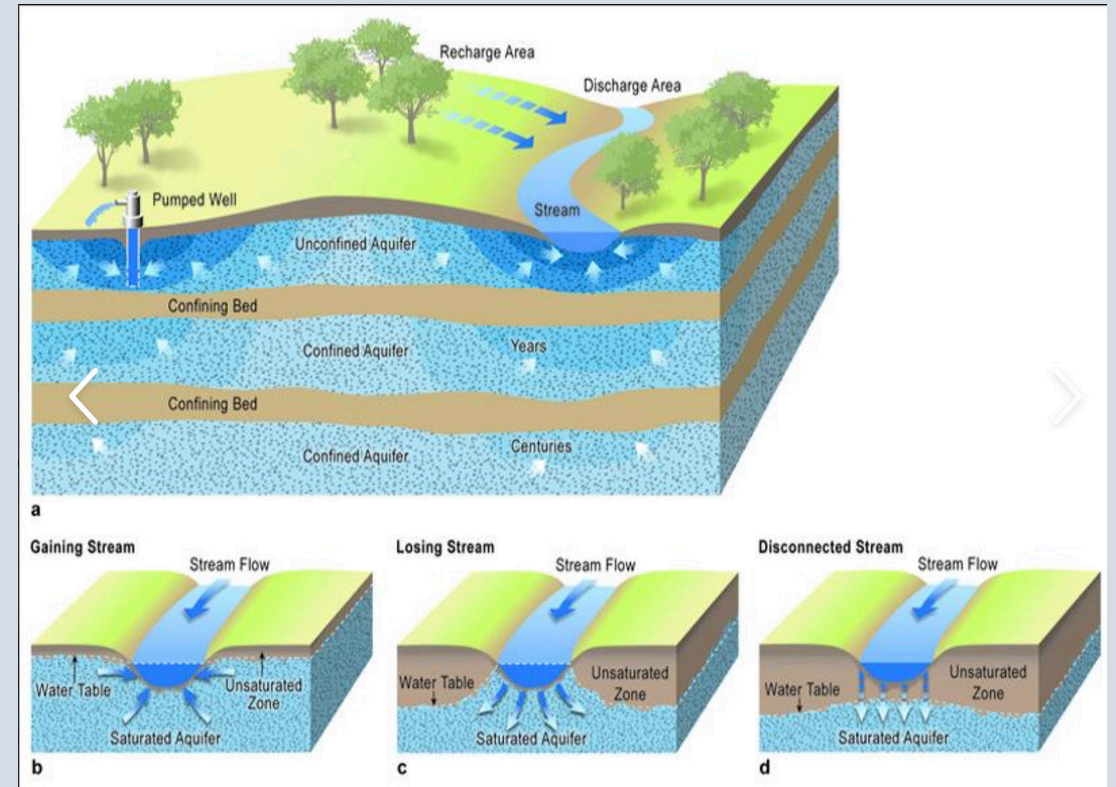
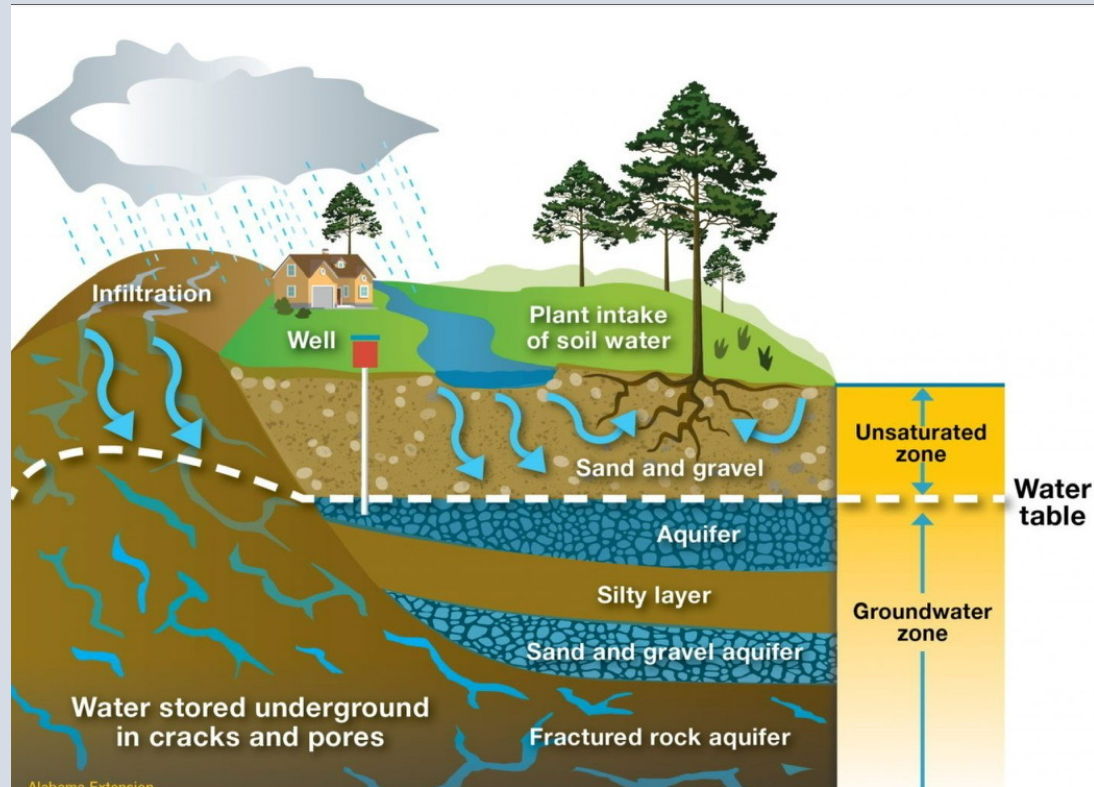
NEWSS – second growth plantation thinning and sorting willows by needs –planting or beaver dam



NEWSS – over wintering but really an all seasons pond



Understanding Aquifers – educating the agricultural community the reciprocal value of the aquifer to their business model



NEWSS – timely finish

Lessons learned year one:

Good to work with the Ministry staff from the beginning.... Limit the surprises

Great to work with the BCWF for the provincial overview and staff advise.

Don't bite off more then you can chew – we almost did!

Add all the science you can to bring that added value: shallow monitoring wells

The good for the landowner piece, fish passage studies , aquifer health



NEWSS

BDA's values to the agriculture community

1. Aquifer health
2. Farm water sources
3. Permitted Irrigation
4. Sub irrigation
5. Livestock watering
6. Wildfire interface including:
 - Tree species changes to deciduous
 - Safe zones for livestock and responders
 - Water sources for First responders including bucket ships
7. and adds "Stewardship Values" included fish



NEWSS – BDA's and additional features including monitoring wells and over wintering ponds



Knight Creek BDAs: Locations & Comparison

Freshet (April 8, 2025)



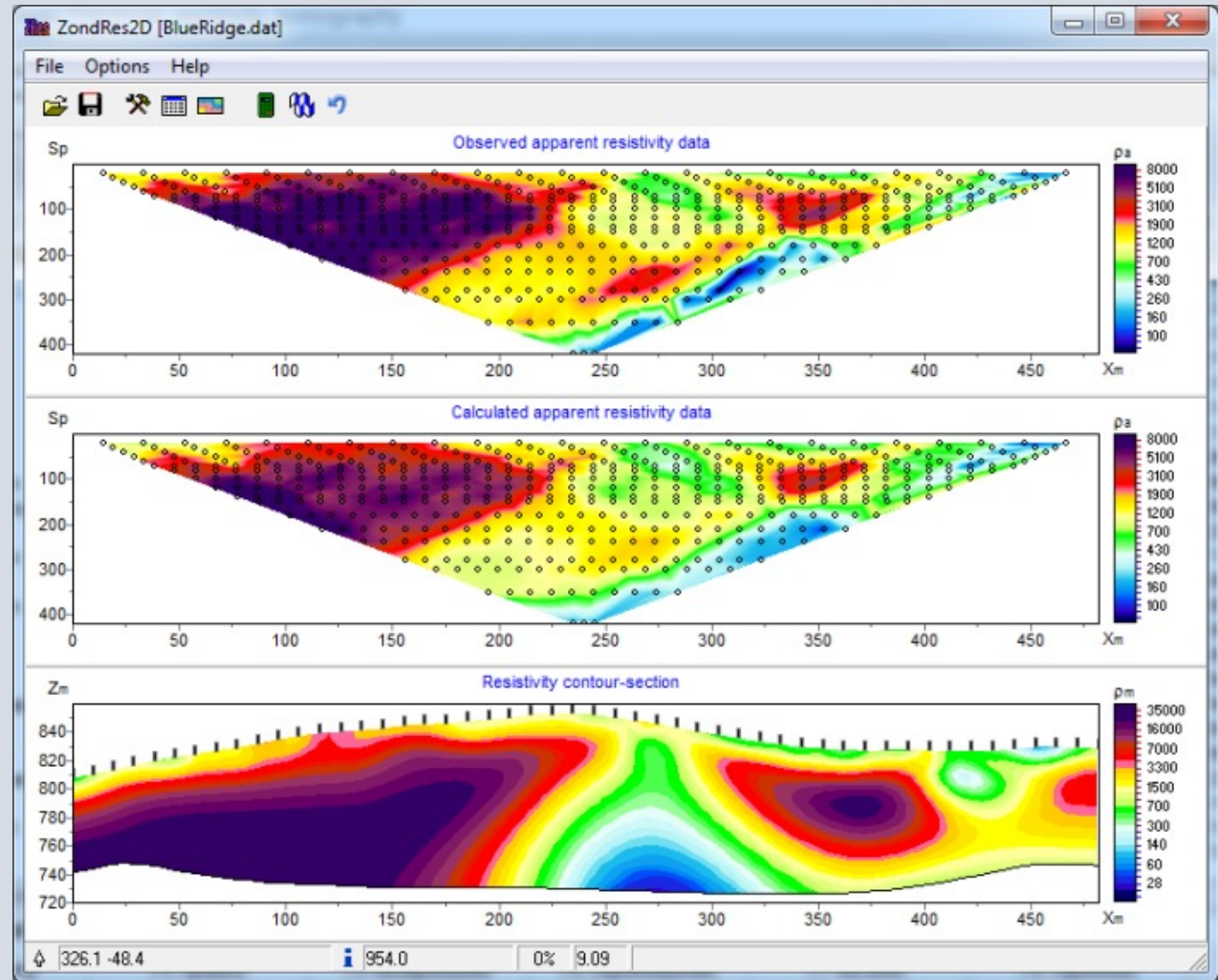
Post-Freshet (April 22, 2025)





BDA Monitoring program

- 18 shallow wells that have instrumentation and record temperature and water volume – report out automatically
- Annual drone flights to monitor riparian growth
- Electrical Resistivity Tomography – ERT...this will demonstrate water penetration by building a 3 D model
- Monitoring fish uptake and health through e-DNA and fish trapping in streams and ponds



Proof of concept: demonstrating fish passage

- In partnership with Spruce City wildlife, DFO and the UFFCA we are going to PIT tag 1000 Chinook fry from their hatchery and monitor their in and out migration over three years.
- We are also going to include instream species like rainbows, suckers



Creating success through results

- If the land owner see's benefits to their fields and livestock through increased water.....
- If we can grow healthy riparian zones back....
- If we can increase fish habitat and send them to the ocean fatter and healthier.....
- If we can demonstrate our influence on filling the aquifer....
- We all win!

Thank you to our funders & supporters

- BC Salmon Restoration Innovation Fund – BCSRIF
- Nechako Environmental Enhancement Fund – NEEF
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