Resource Roads and Water

Roads in the Simonette

Landscape

fish's perspective

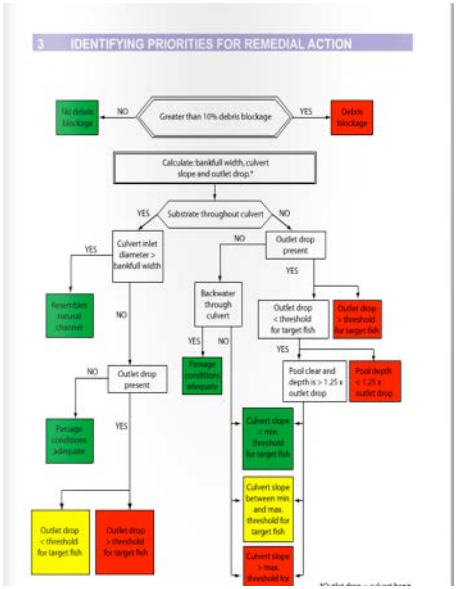
Communities are about Probabilities

- Floods, droughts,
- wildfire,
- cold winters,
- sediment, spills, etc

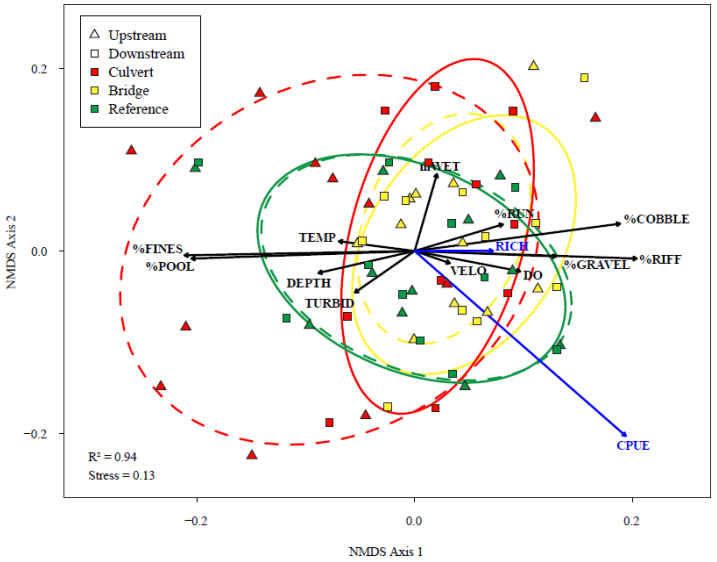
1. Do the assessment procedures identify crossings that are barriers?
2. Are these a first order control on fish communities?

Culverts **Bridges** **References**

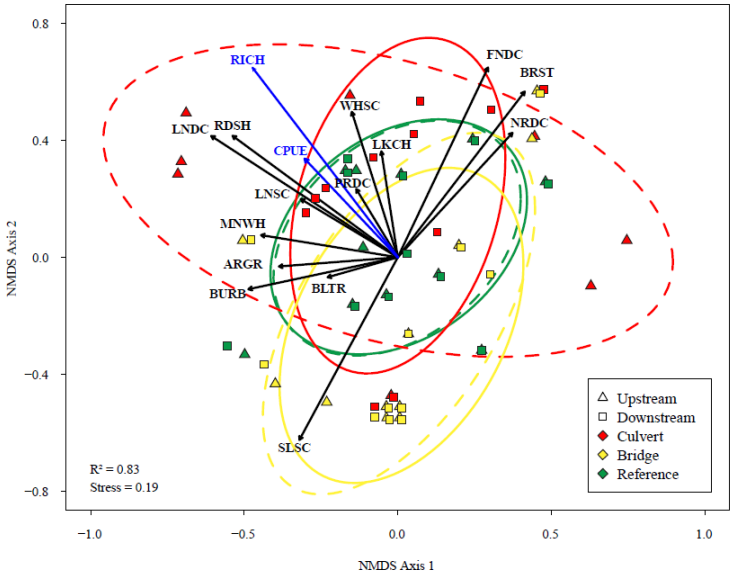
Treatments



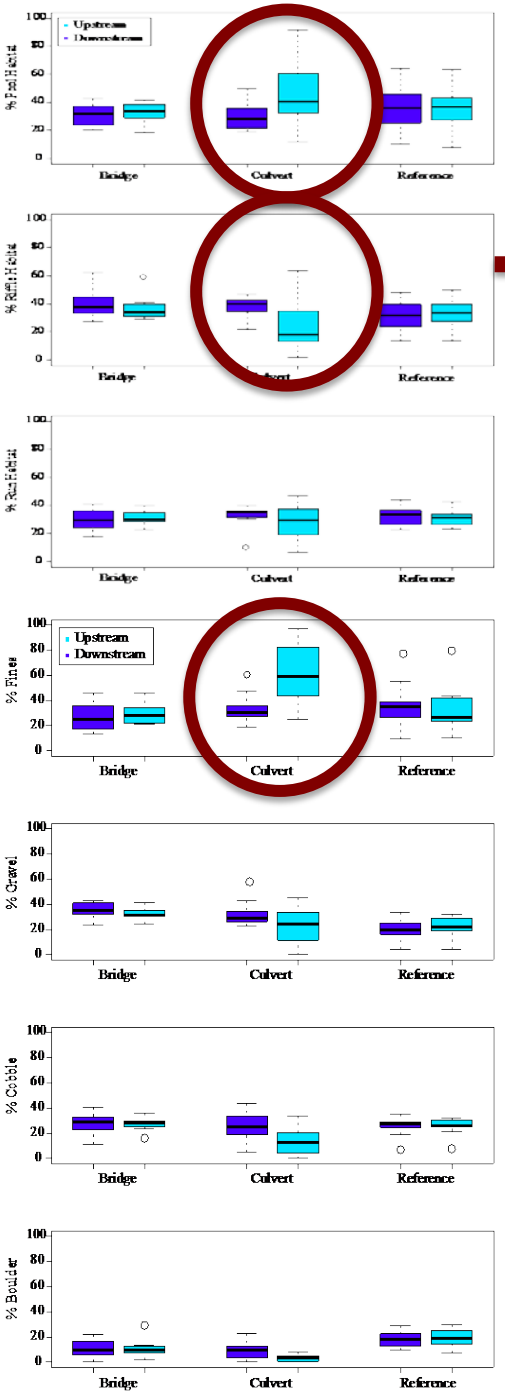
Habitat

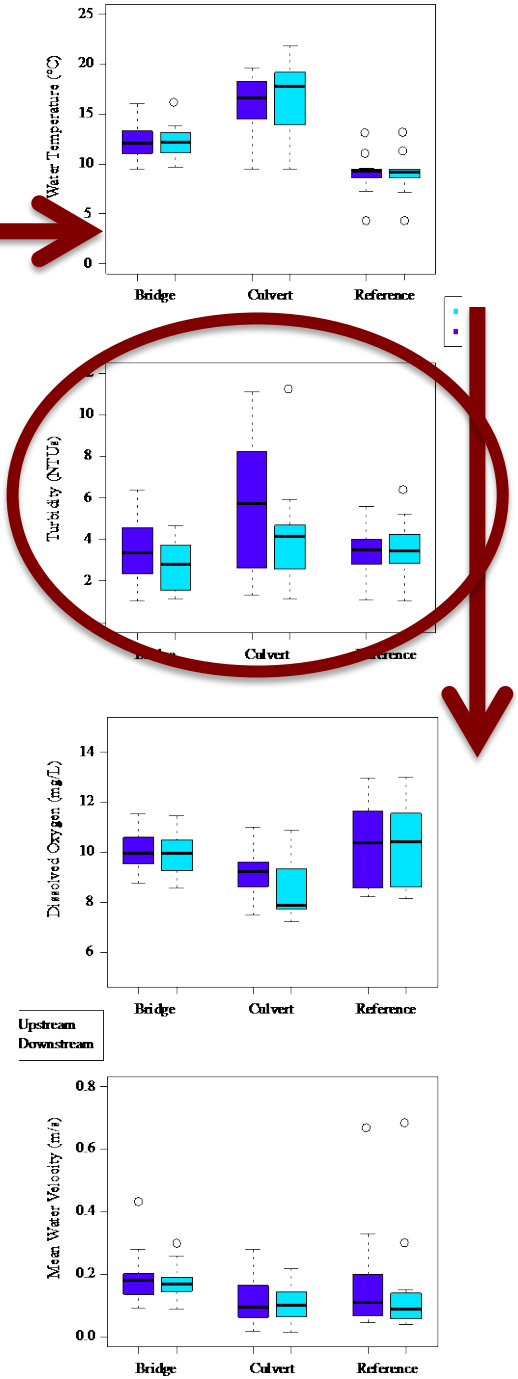


Fish communities



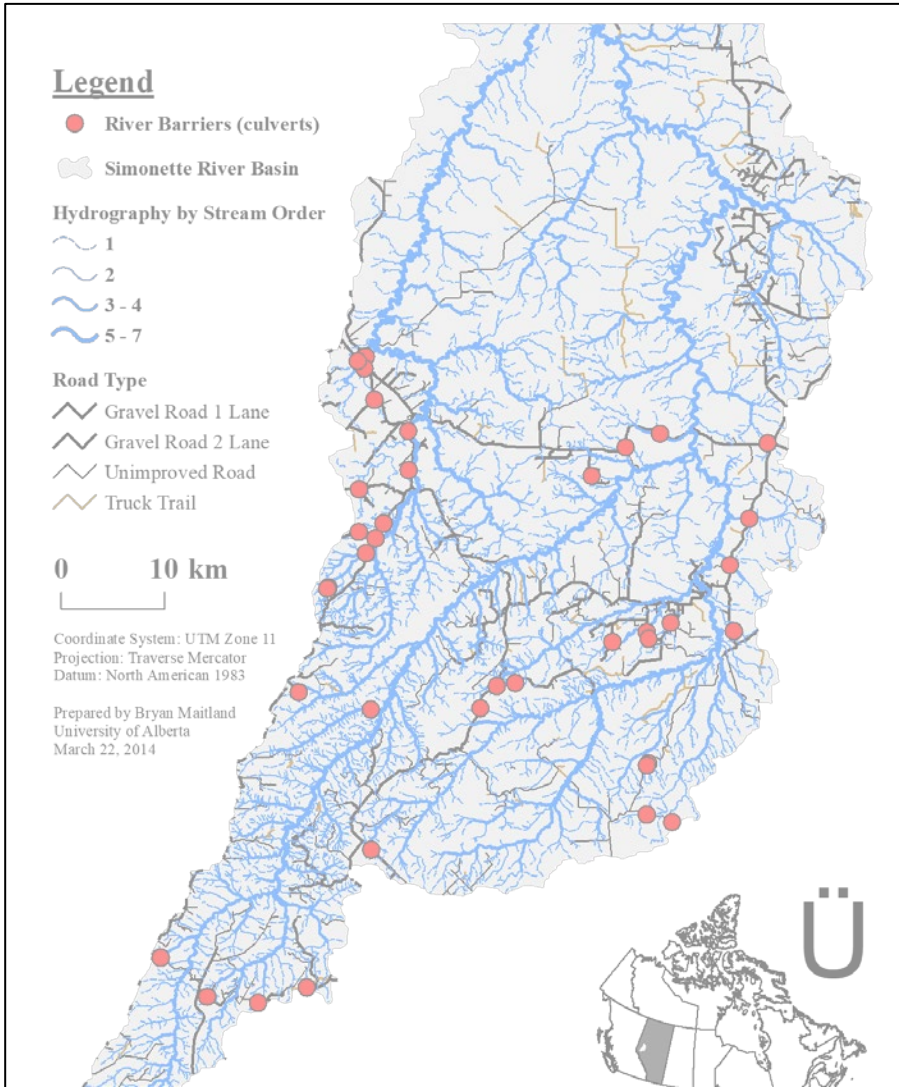
Non-metric multi-dimensional scaling (NMDS)





Summary

1. Do the assessment procedures identify crossings that are barriers?
   - Maybe, we think so.
2. Are culverts a first order control on fish communities?
   - Not for the reasons we thought.
   - There are likely other problems.
3. Given limited resources how should we prioritize removal of crossings
   - DCI methods show some promise
   - Needs more work – cumulative effects or other pressures.



Geomorphic Road Analysis and Inventory Package (GRAIP)

http://www.fs.fed.us/GRAIP/

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http://www.fs.fed.us/GRAIP/

		16,420	4%

crossings, excavated stream crossings, and any other drain point within 10 m of stream crossings

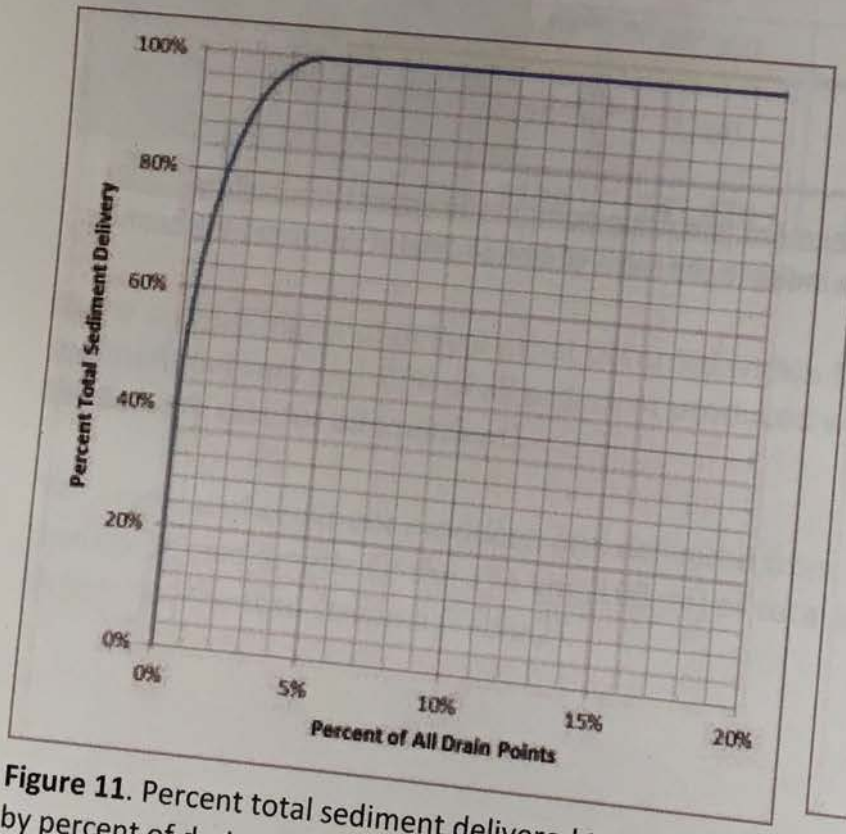


Figure 11. Percent total sediment delivered to streams by percent of drain points. 4% of all drain points deliver 100% of the delivered sediment.

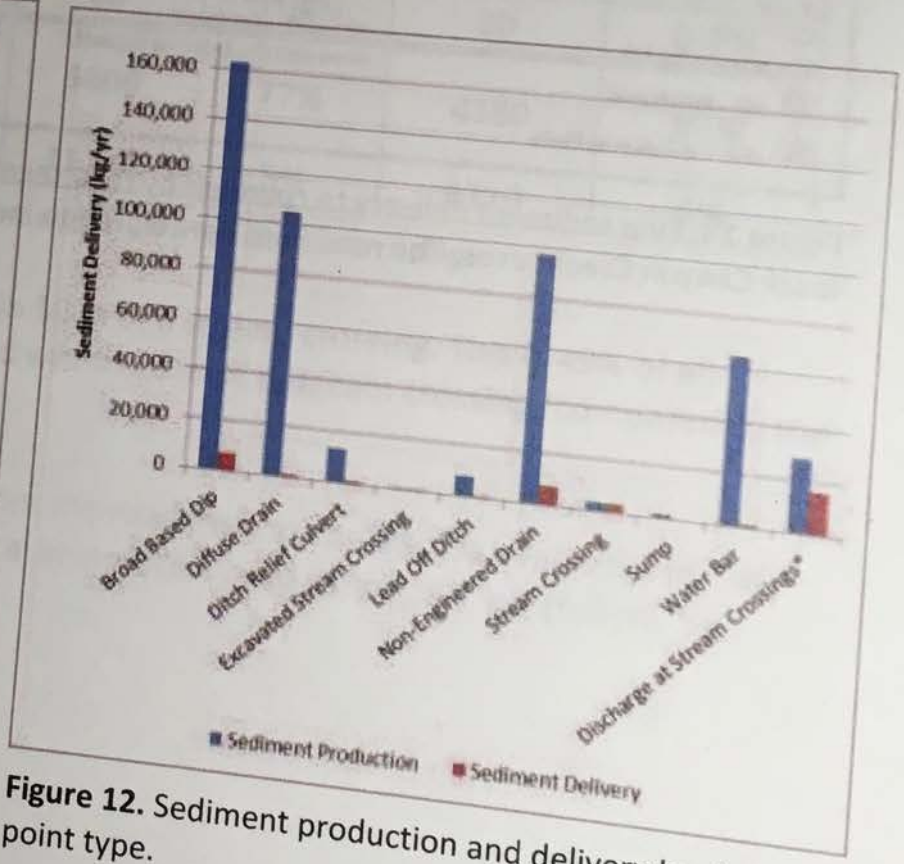
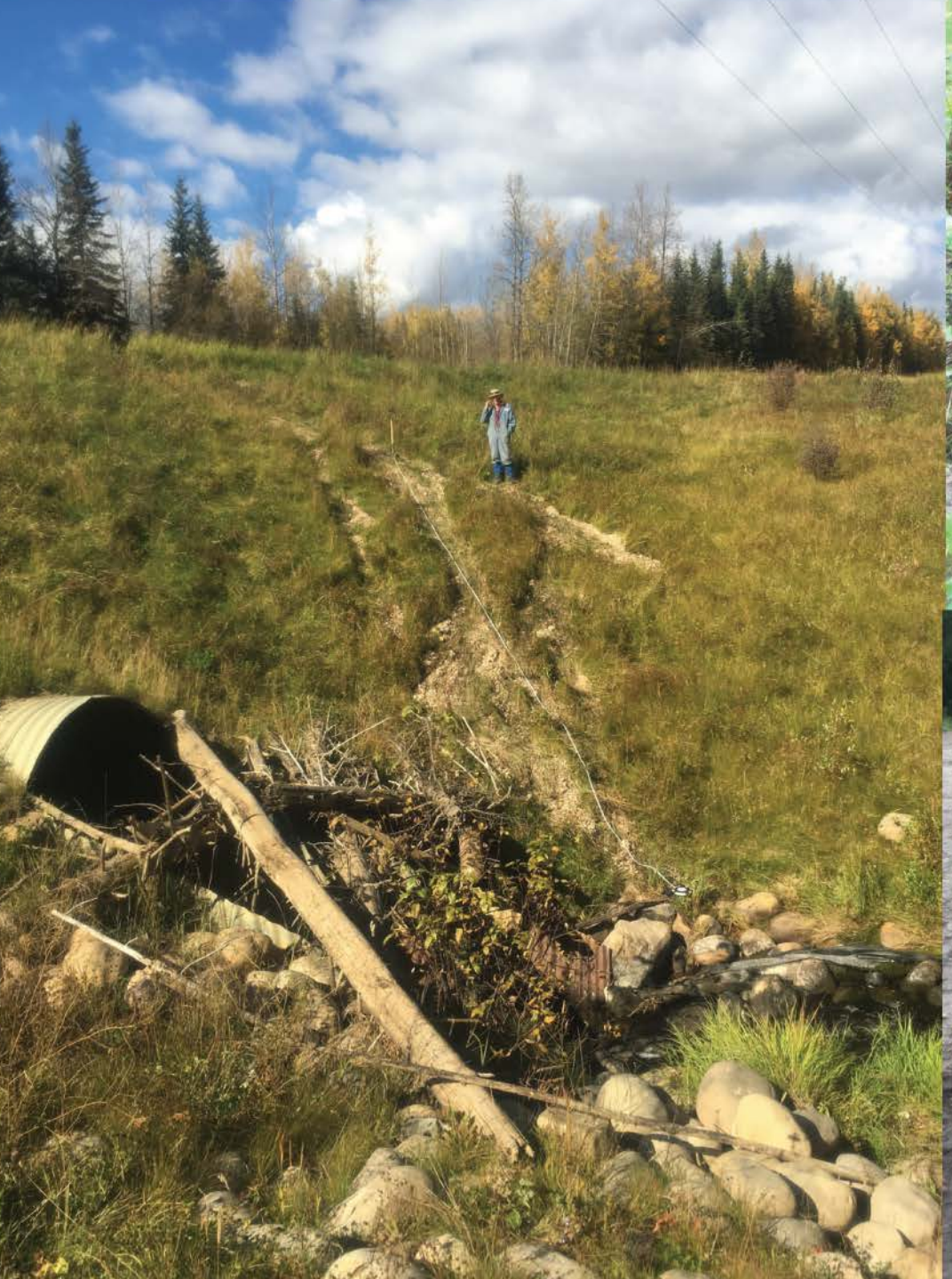
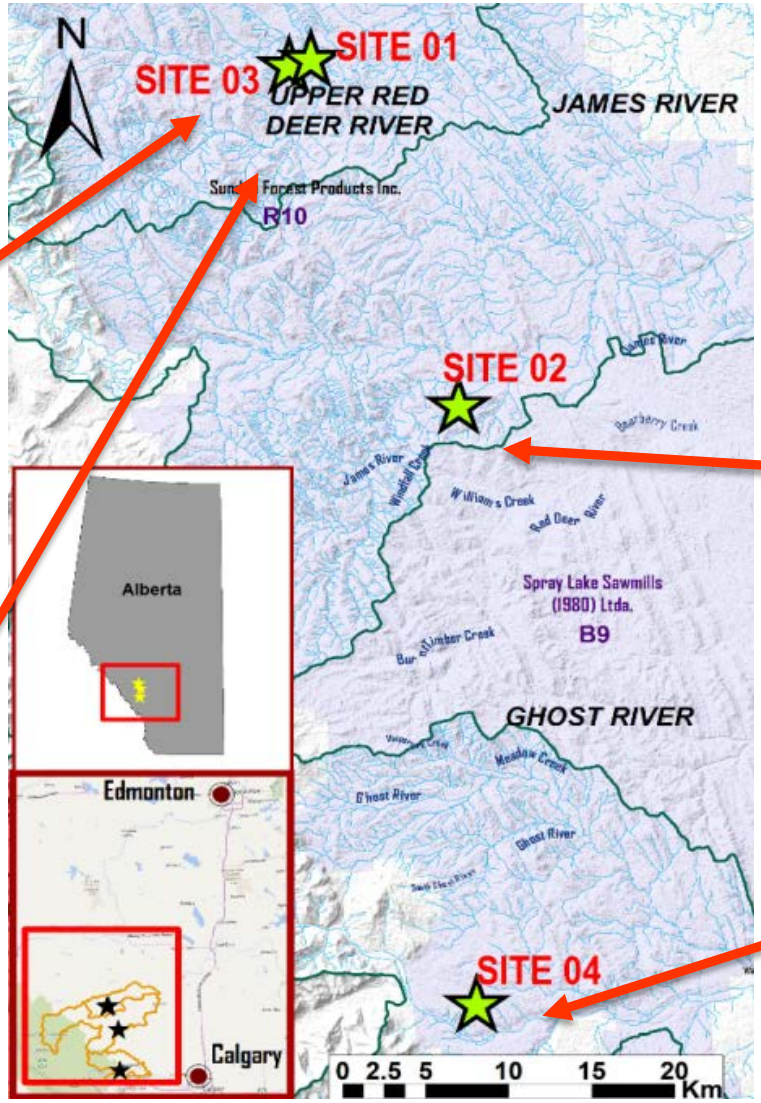


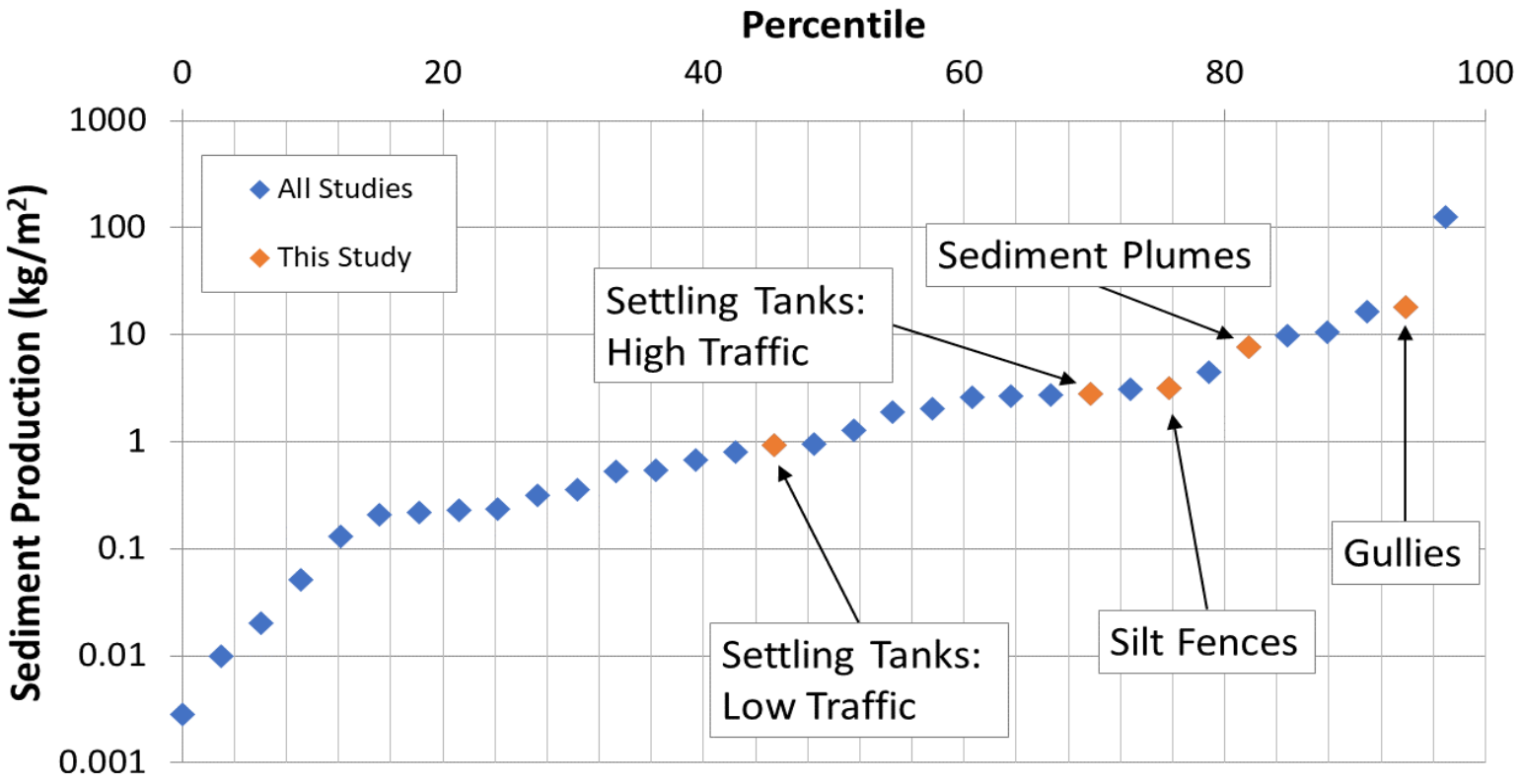
Figure 12. Sediment production and delivery by drain point type.




N
SITE 01
SITE 03
UPPER RED
DEER RIVER
JAMES RIVER
Sundre Forest Products Inc.
R10
SITE 02
James River
Windfall Creek
Williams Creek
Red Deer River
Spray Lake Sawmills
(1980) Ltda.
B9
GHOST RIVER
Meadow Creek
Ghost River
SITE 04
Alberta
Edmonton
Calgary
0 2.5 5 10 15 20
Km

Set up erosion sites

Sediment Rates

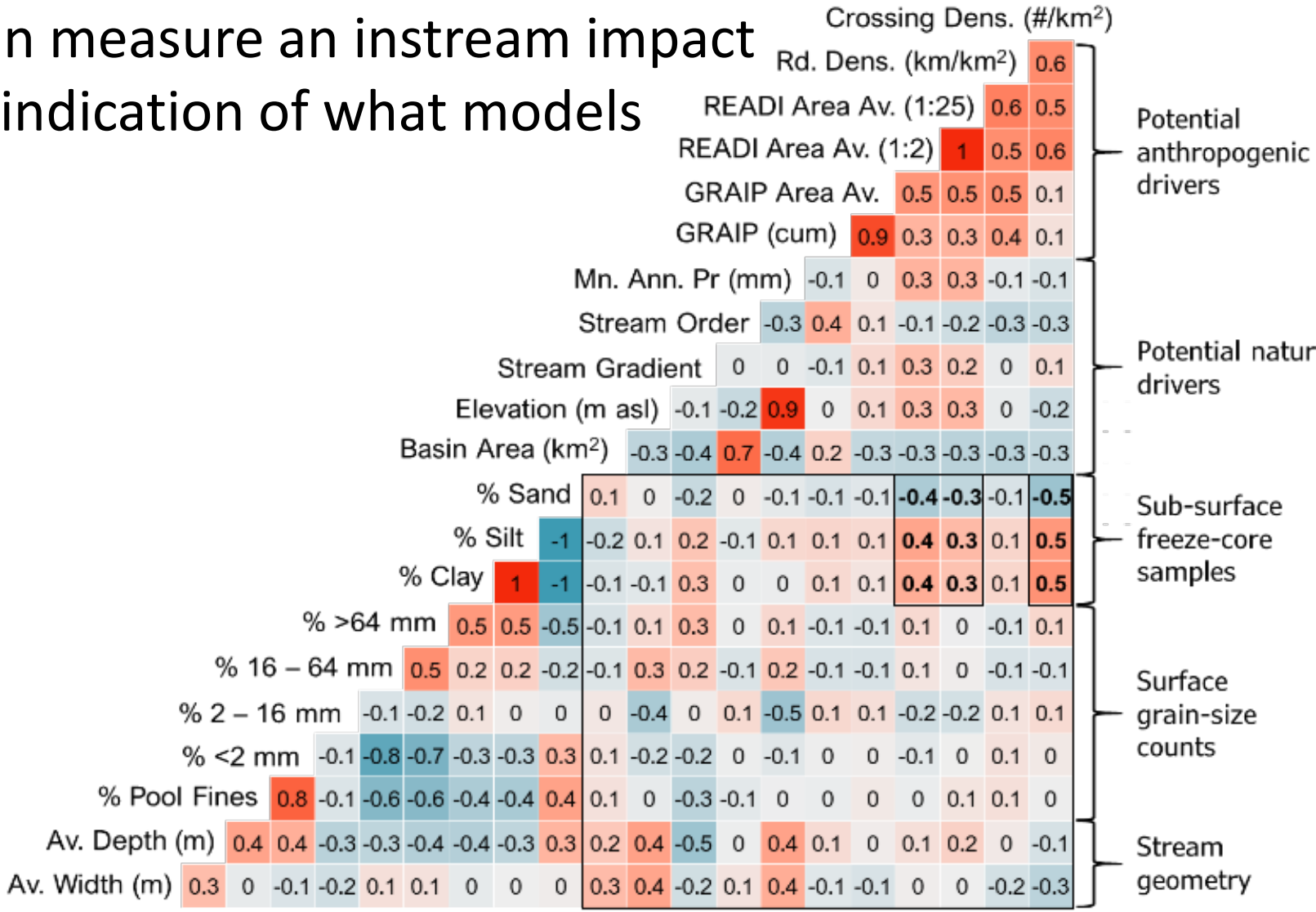


Gullies

Amount of connections

In stream impacts

- We can measure an instream impact
- Gives indication of what models work



Proposed

Species at Risk Act
Recovery Strategy Series

Recovery Strategy for the Rainbow Trout (*Oncorhynchus mykiss*) in Canada (Athabasca River populations)

Athabasca Rainbow Trout

2020

Canada

Proposed

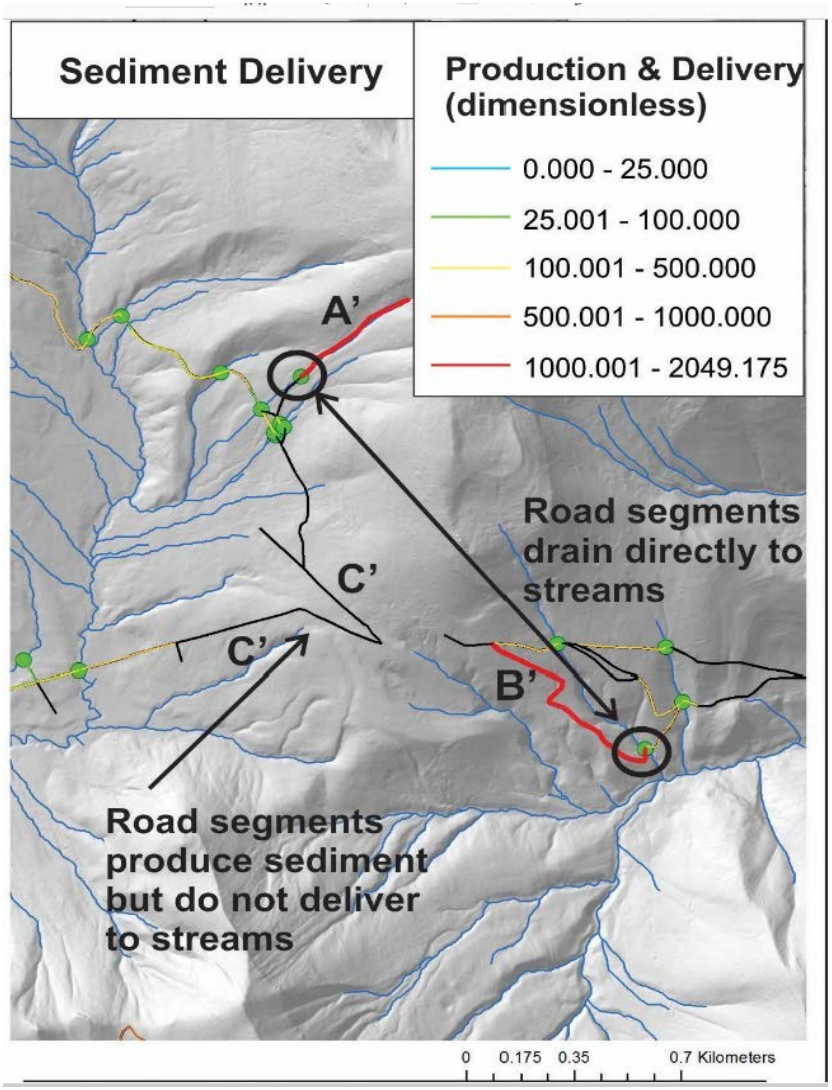
Species at Risk Act
Recovery Strategy Series

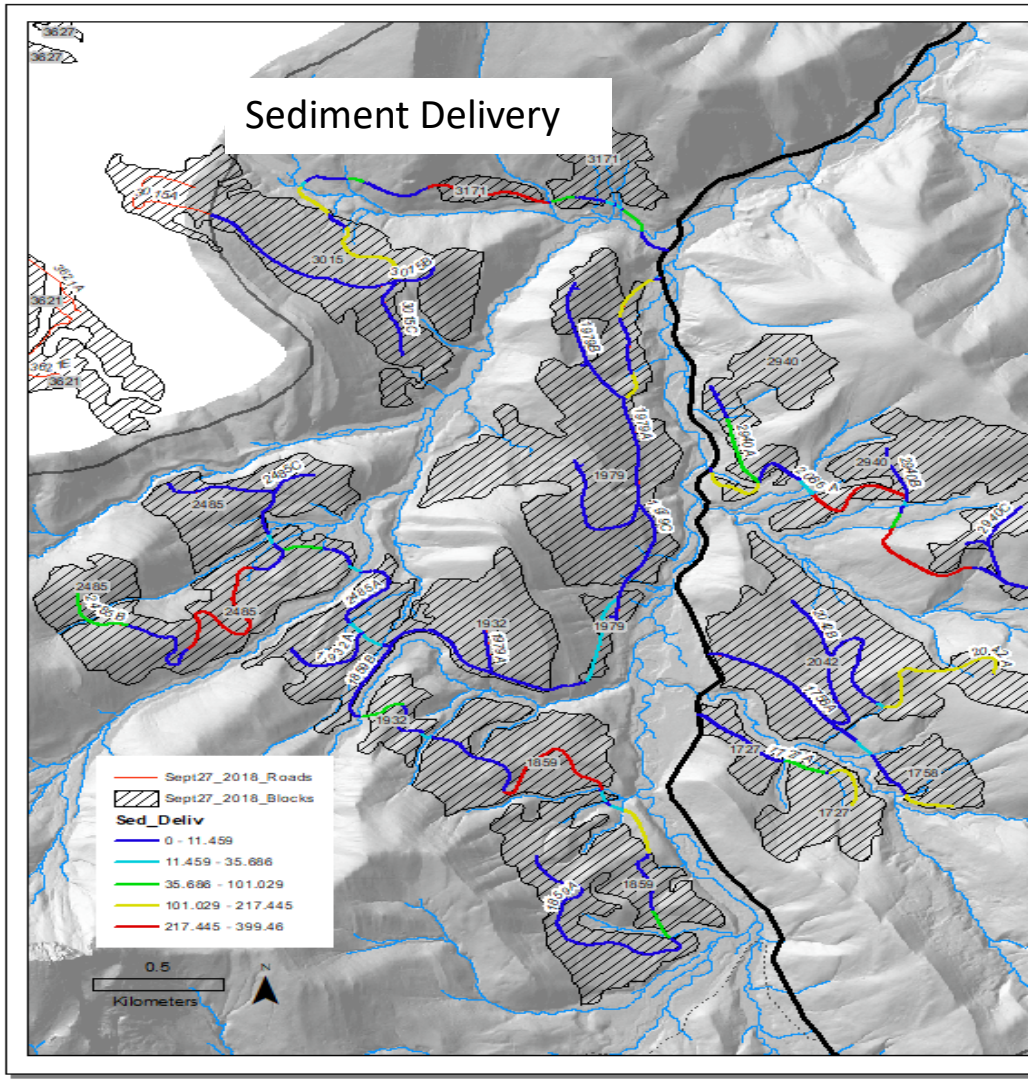
Recovery Strategy for the Bull Trout (*Salvelinus confluentus*), Saskatchewan-Nelson Rivers populations, in Canada

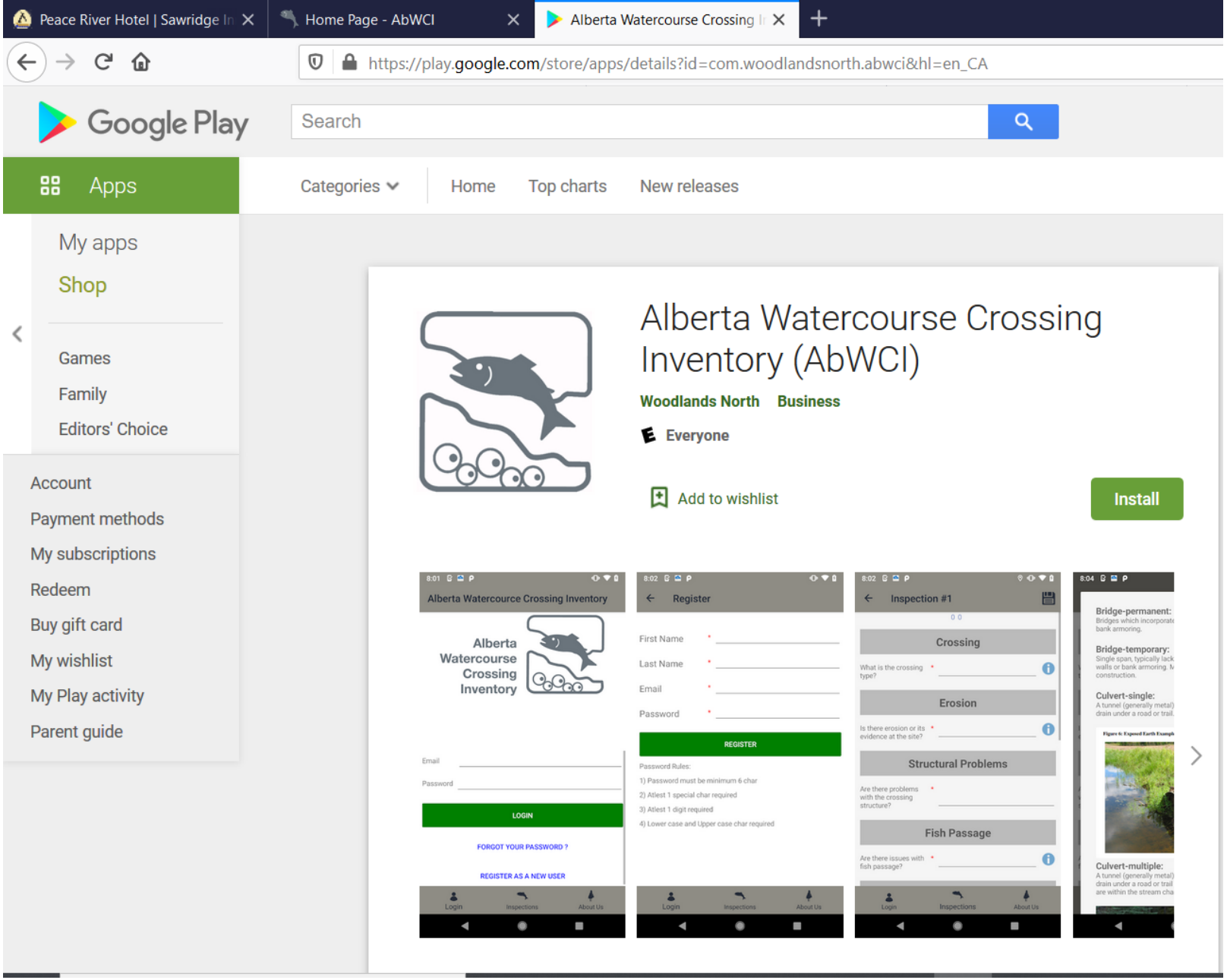
Bull Trout

2020

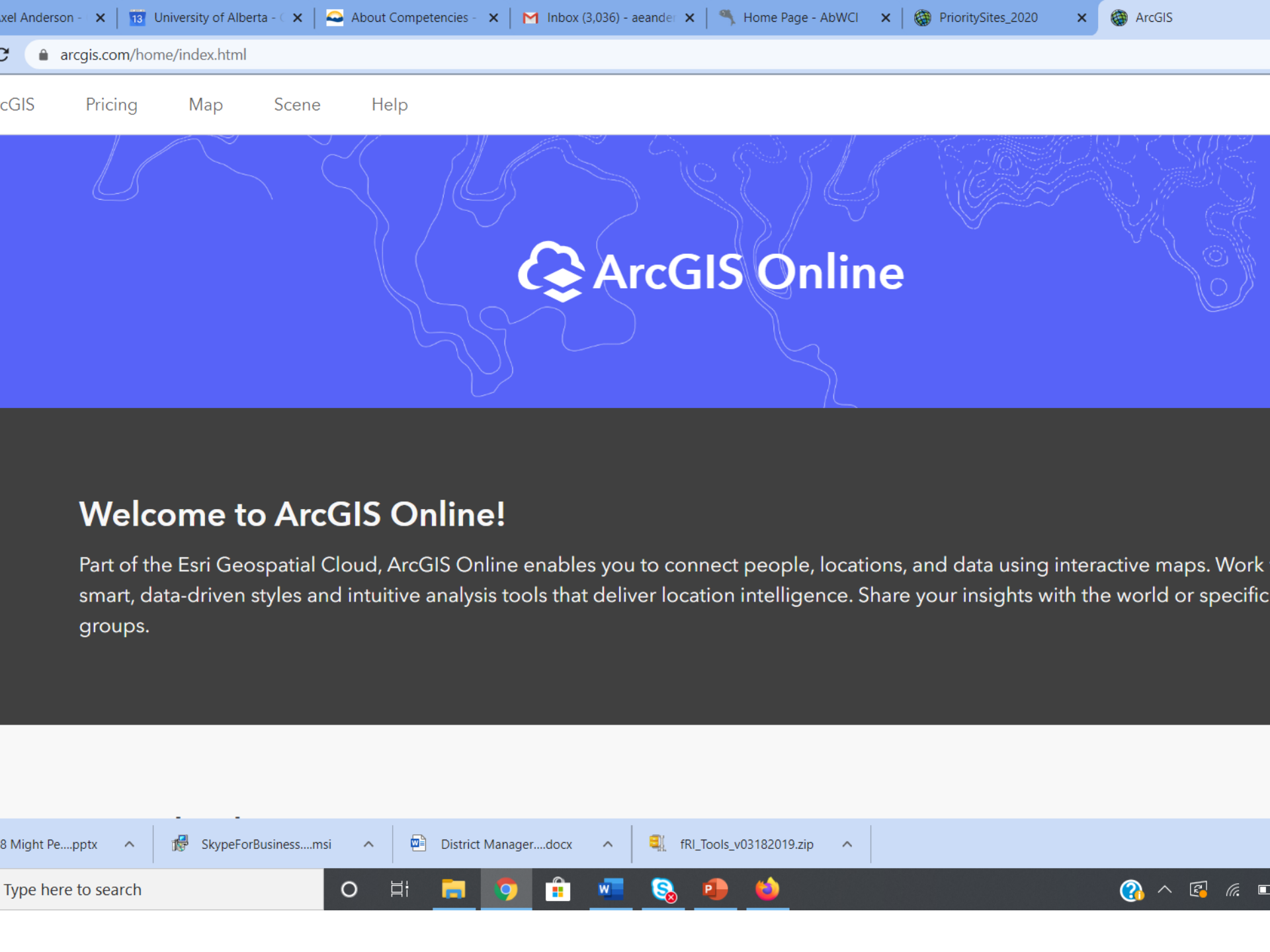
Canada


Sediment Delivery
Production & Delivery (dimensionless)
0.000 - 25.000
25.001 - 100.000
100.001 - 500.000
500.001 - 1000.000
1000.001 - 2049.175
A'
C'
C'
B'
Road segments drain directly to streams
Road segments produce sediment but do not deliver to streams
0
0.175
0.35
0.7 Kilometers


Sediment Delivery
Sept27_2018_Roads
Sept27_2018_Blocks
Sed_Deliv
0 - 11.459
11.459 - 35.686
35.686 - 101.029
101.029 - 217.445
217.445 - 399.46
0.5
Kilometers
N



https://abwci.azurewebsites.net/Account/Login?ReturnUrl=%2F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fRI_Tools_v03182019.zip
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- Move beyond relative amounts to predict sediment yield
- In stream measures of cumulative effects


Thank you