

STATE OF  
THE  
WATERSHED



**Mighty Peace**  
**Watershed Alliance**  
Diverse, Responsible, Connected







Water Quality



Water Quantity

# STATE OF THE WATERSHED

Information on the state of the watershed is essential for the management of water resources and the protection of the environment.

2020



Water Quality



Water Quantity



Water Quality



Boating



Fishing



Fish



Walking



Flora



Walking



Fish



Fish



Watershed



Water Quality



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Water Quality



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## Water Quality

Water quality is a measure of the degree to which water meets defined standards of health or safety. It is a key indicator of the health of the environment and the well-being of the community. The state of the watershed report provides a comprehensive overview of the current state of water quality in the watershed, including a detailed analysis of the data collected over the past year. The report also identifies the key factors that are affecting water quality and provides recommendations for how to improve it. The data shows that water quality is generally good, but there are some areas where it is poor. The most common problem is the presence of sediment, which is caused by erosion and deforestation. Other problems include the presence of nutrients, which can lead to eutrophication, and the presence of pesticides, which can be harmful to aquatic life. The report also shows that water quality is improving in some areas, but it is still a challenge to maintain and improve it. The recommendations for improving water quality include reducing erosion, protecting forests, and reducing the use of pesticides. The report also provides a detailed analysis of the data collected over the past year, including a breakdown of the data by location and by type of water body. The data shows that water quality is generally good, but there are some areas where it is poor. The most common problem is the presence of sediment, which is caused by erosion and deforestation. Other problems include the presence of nutrients, which can lead to eutrophication, and the presence of pesticides, which can be harmful to aquatic life. The report also shows that water quality is improving in some areas, but it is still a challenge to maintain and improve it. The recommendations for improving water quality include reducing erosion, protecting forests, and reducing the use of pesticides.



Water Quality

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Collect science,  
local knowledge  
and concerns

State of the  
Watershed  
Report

Integrated  
Watershed  
Management  
Plan

Review,  
monitor,  
educate

Policy  
recommen-  
dations to  
decision-  
makers





# Indicators



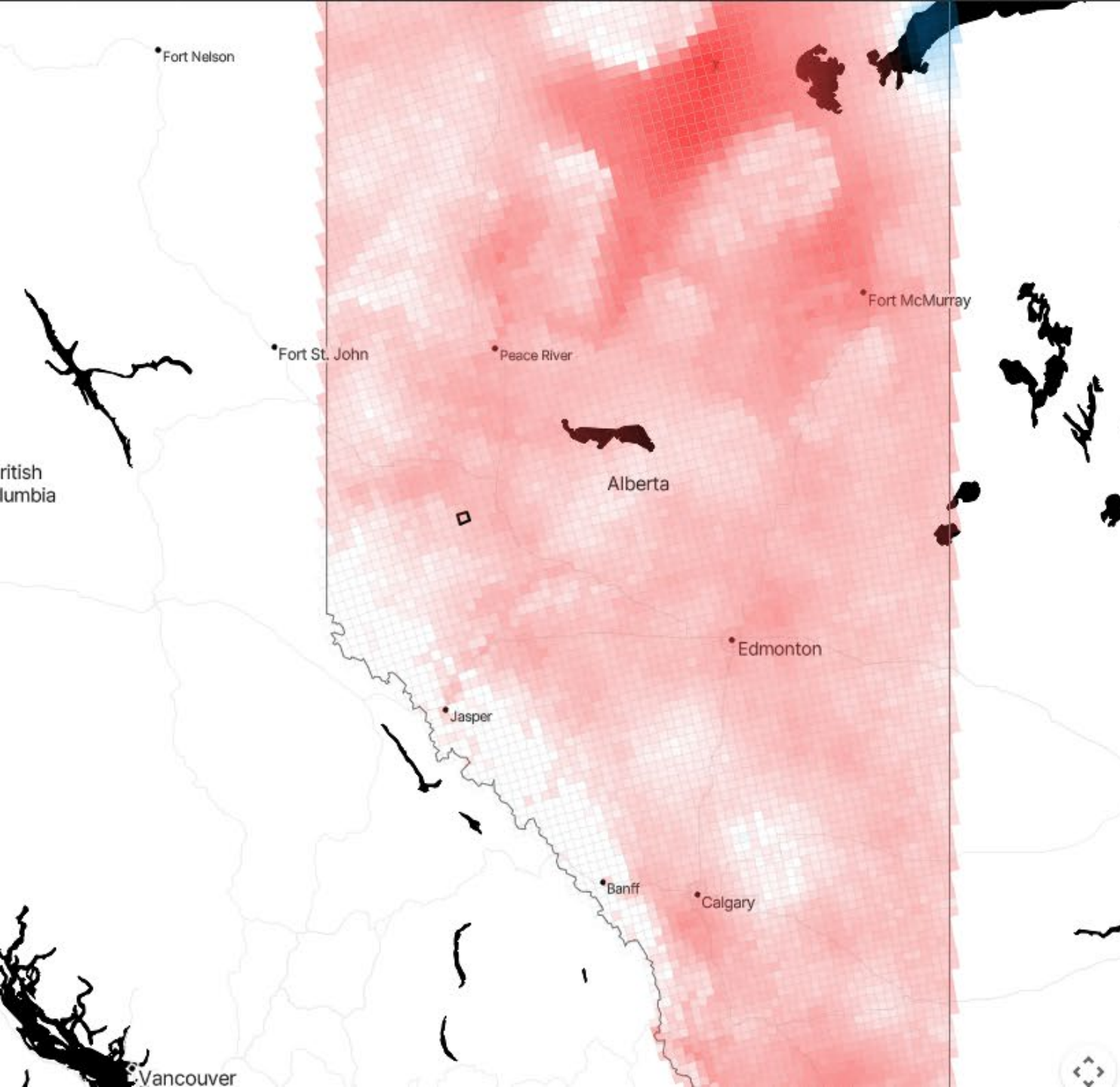
- relevant to the watershed and the people associated with it;
- align with their goals, vision and mission statement
- measurable according to similar standards at future dates
- accessible in terms of data availability
- applicable at various scales of watershed
- likely to contribute to a basic understanding of watershed health





Landscape	Biological Community	Surface Water Quantity	Surface Water Quality	Groundwater Quantity	Groundwater Quality
Wetland area and status	Fish population	Water level: Peace River Flows	Alberta River Water Quality Index	Groundwater Quantity	Groundwater Quality
Riparian health	Invasive Species	Water level: away from the Mainstem	Lake Water Quality		
Land Use		Allocations and Withdrawals	Phosphorous		
Wildfire			Coliforms		
Climate					





1

SELECT DATASET ?

67yr Change  
1951 - 2017

30yr Averages

Future Averages

2

SELECT CLIMATE INDEX ?

Mean Temperature

Cold Weather

Hot Weather

Warm Days

Summer Days ?

Hot Days

Warm Spells

Tropical Nights

Warm Nights

Frost Free Period

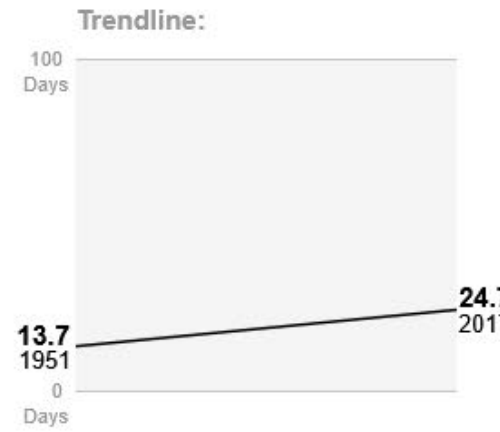
Cooling degree days > 21°C

Growing Temperature

Precipitation

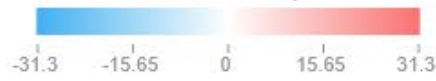
+VARIABILITY

## INDEX CHANGE



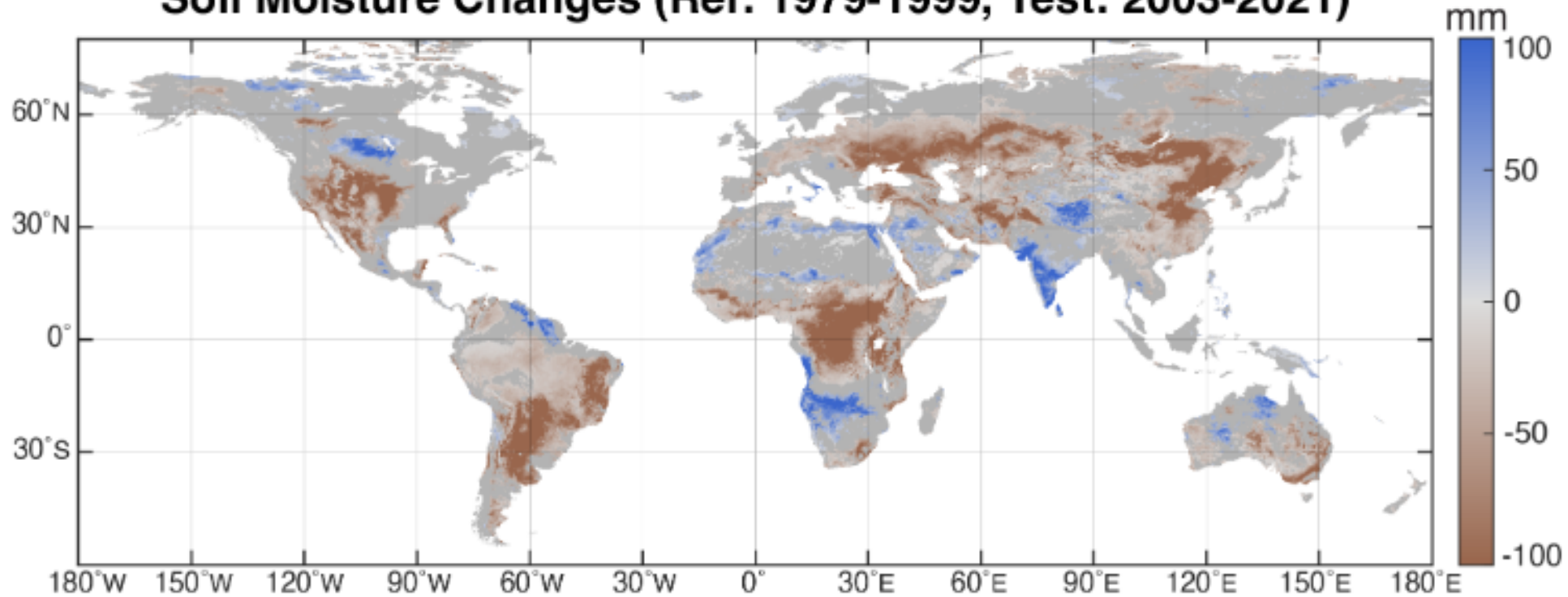
Difference from 1951 - 2017:

**+11 Days**



DATASET	The climate trend indicates
INDEX	summer days
DATES	between 1951 and 2017
LAT/LON	at 54.6977, -117.7996
VALUE	have increased by 11 Days.

### Soil Moisture Changes (Ref: 1979-1999, Test: 2003-2021)

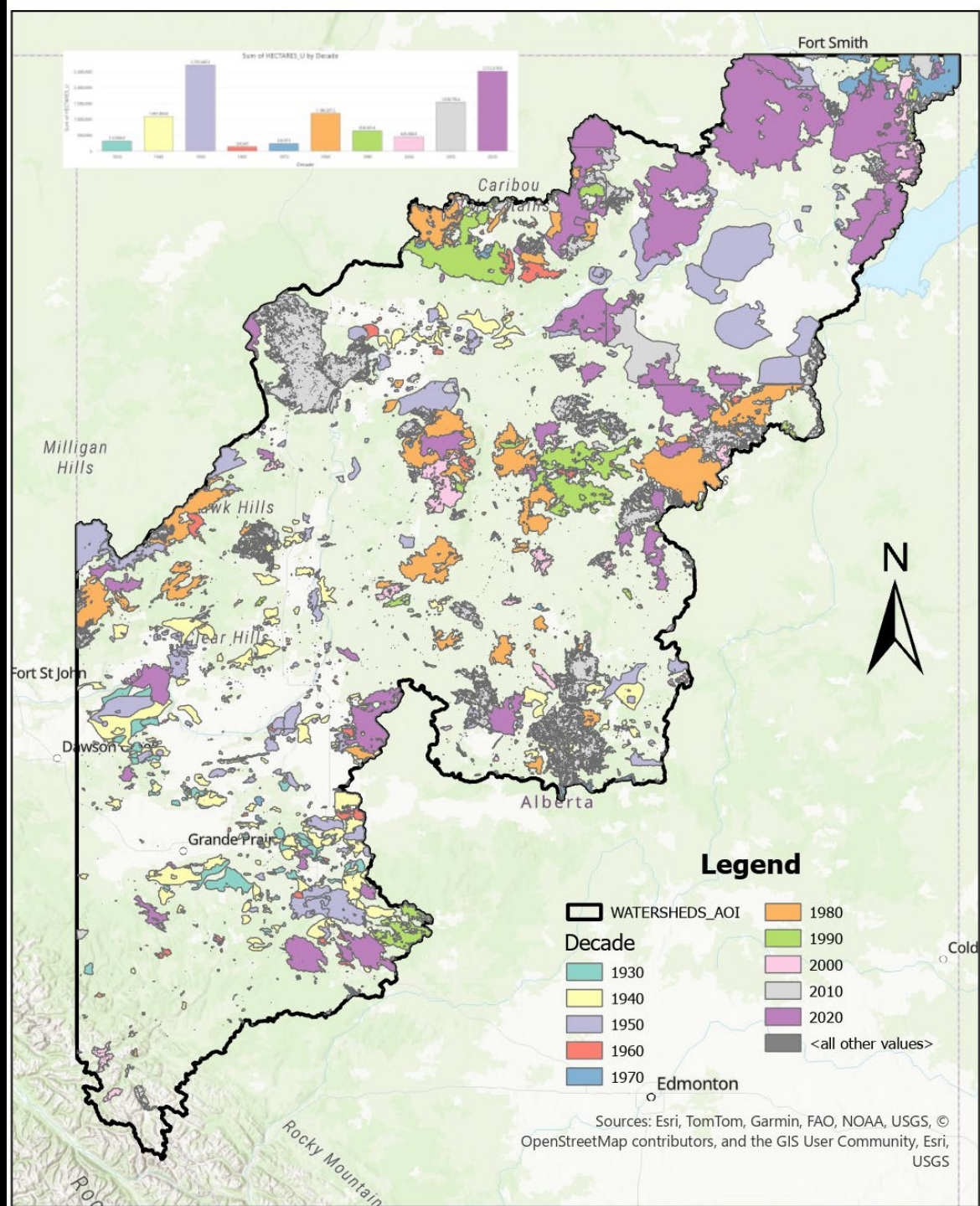


**Figure S4: Global map of soil moisture change.** Changes in soil moisture for the period of 2003-2021 (Test) in comparison with the reference period of 1979-1999 (Ref), estimated by ERA5-Land. As in Figure 2, dark gray indicates areas where the change in the mapped variable was statistically not significant ( $p > 0.05$ ).

Abrupt sea level rise and Earth's gradual pole shift reveal permanent hydrological regime changes in the 21st century. Ki-Weon Seo et al. Science 387, 1408 (2025). DOI: 10.1126/science.








Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Esri, USGS





What is the  
state of this  
watershed?





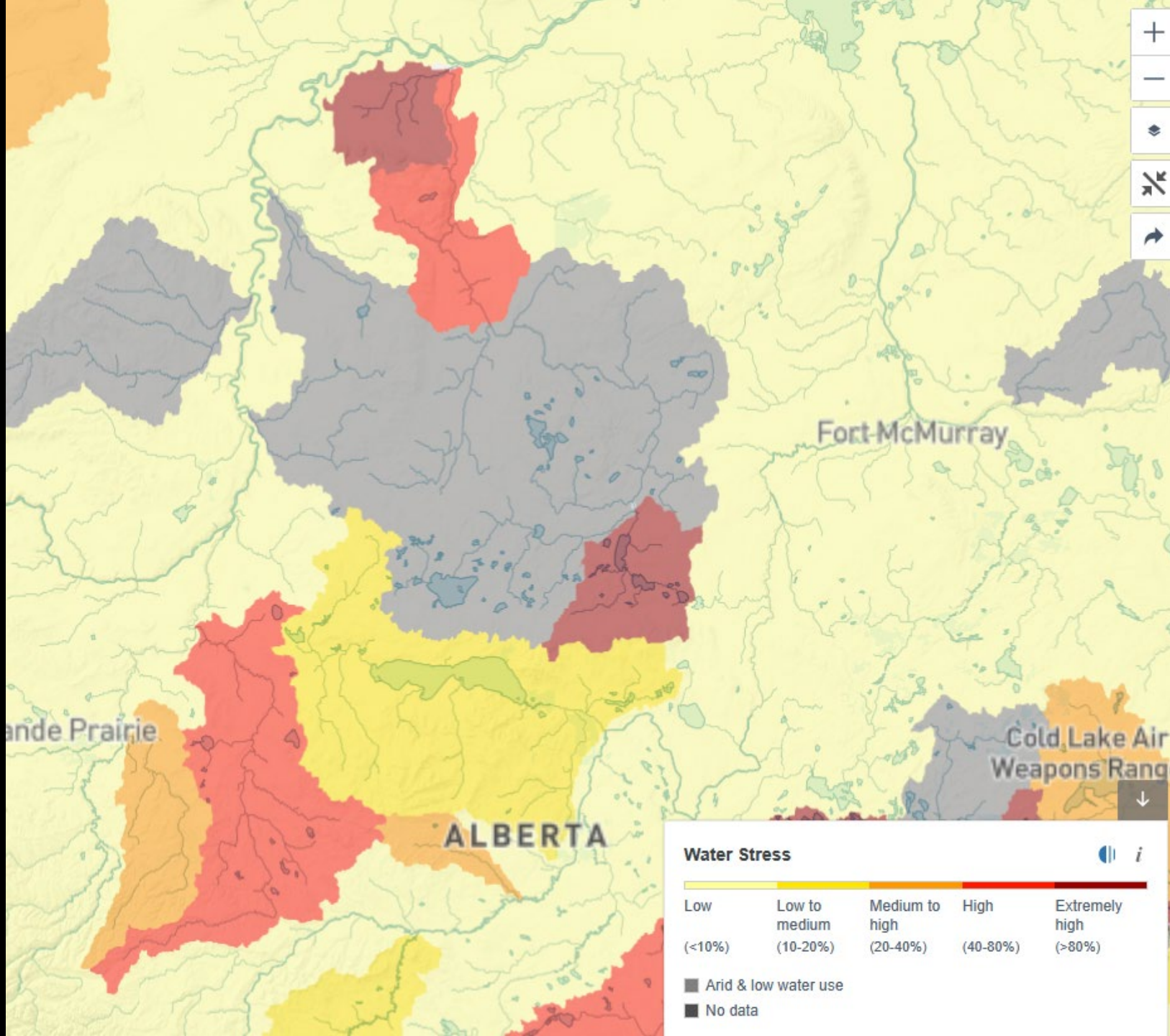
# Turbidity





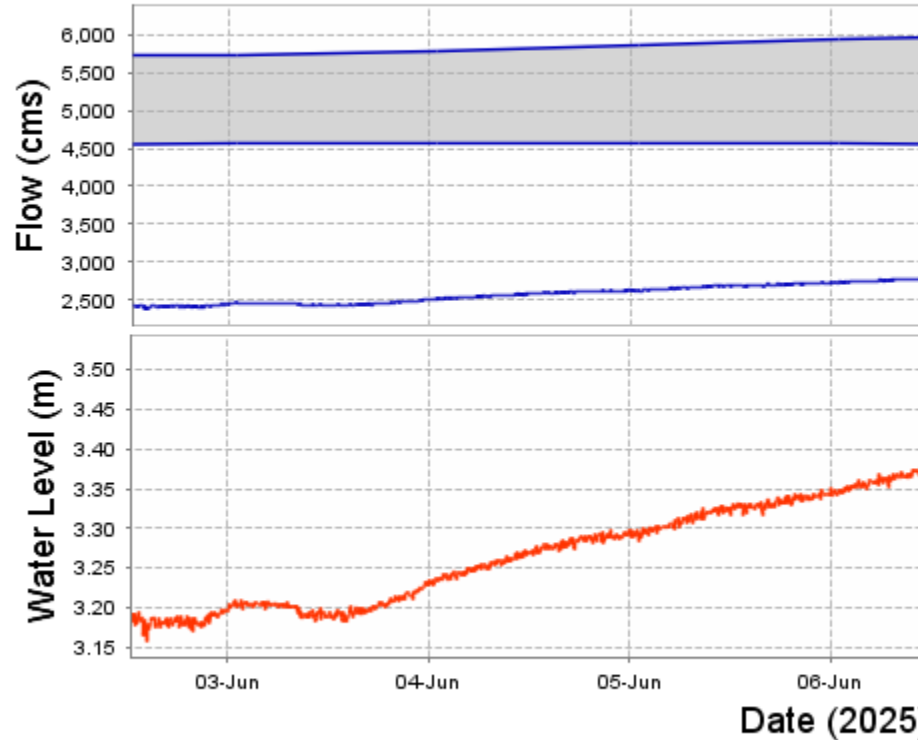


Scale



# What is the relevant scale?

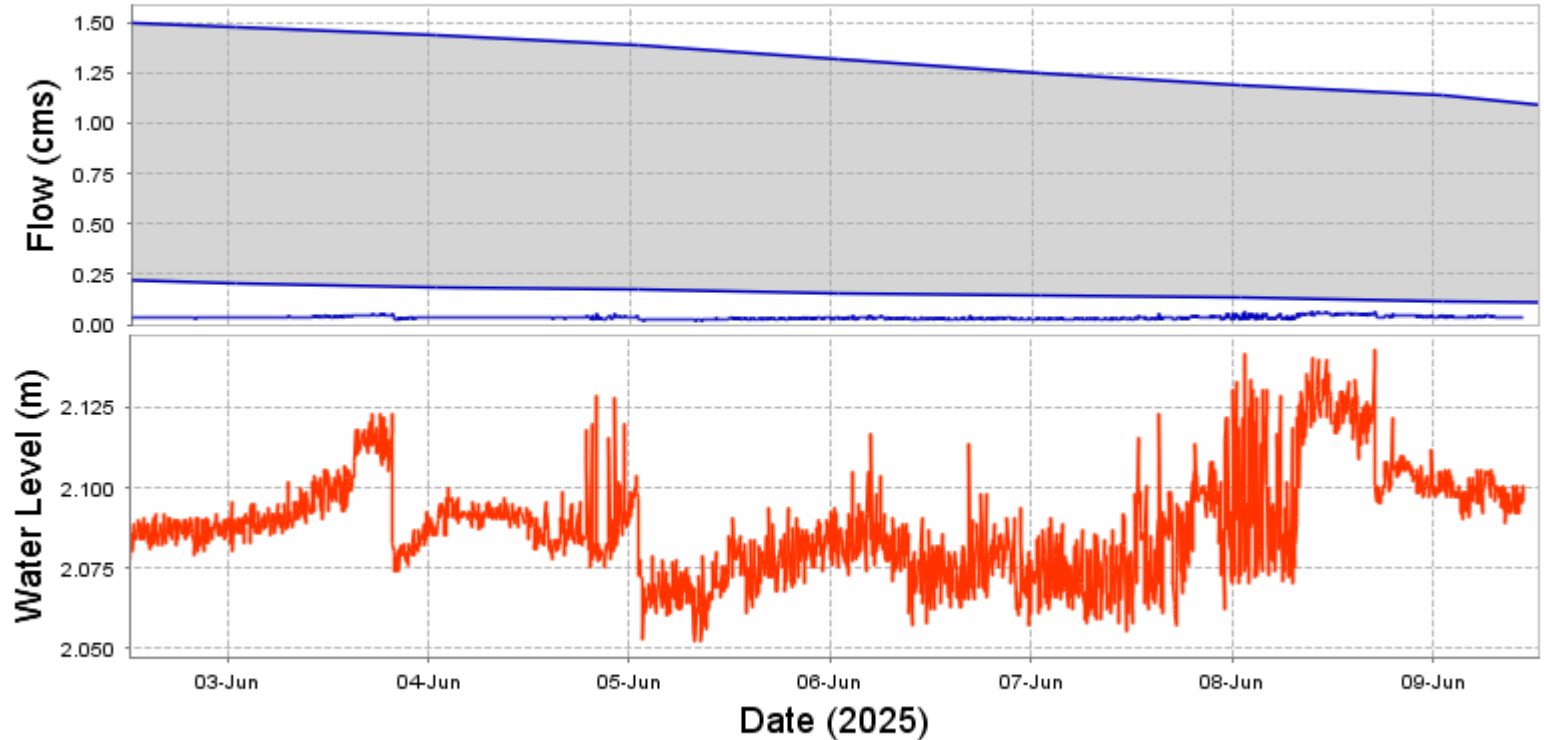
Calculated flow (blue), normal flow range (grey), and water level (red) for Slave River at Fitzgerald (AI)



— Recorded flow — Upper quartile — Lower quartile — Water Level

Generated at: 2025-06-09 12:27:18

Calculated flow (blue), normal flow range (grey), and water level (red) for 07FD011 Hines Creek above Gerry Lake - WSC



— Recorded flow — Upper quartile — Lower quartile — Water Level

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# What we would like...

- Concerns
- Changes in the watershed/landscape
- New or changing pressure/human activities
- Variety of perspectives





# Table Discussions



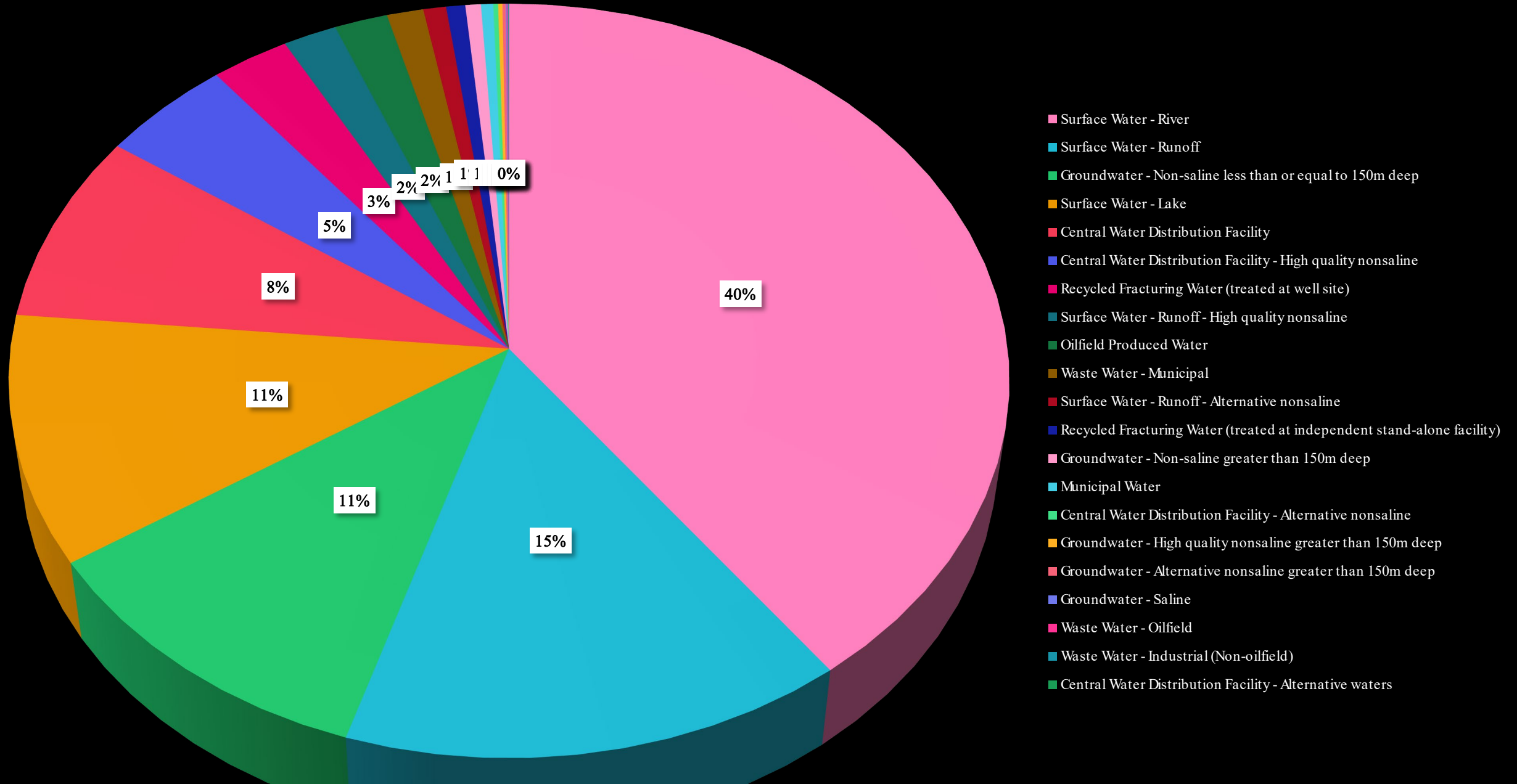




- Irrigation
- Nuclear
- Lithium mining



# Sources of water used for fracking in the Peace 2015-2025







[Home](#) / [Water Availability](#) / [Proposed Amendments to the Water Act to Improve Availability](#)

## Proposed Amendments to the Water Act to Improve Availability

Water is a precious resource and must be managed to meet the province's growing needs. A resilient and efficient water management system is essential for safeguarding the health of Alberta's communities, environment and economy.





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# Table Discussions

