

Transboundary Water Quality Monitoring Program

Hay and Slave Rivers Assessment under the Alberta-NWT Bilateral Water Management Agreement

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Water Stewardship Strategy
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Purpose

Transboundary Agreement Goal: *Maintain Ecological Integrity*

Monitor	Collect Water Samples
Assess	Review Data/Results
Share	Information



What monitoring sites are included?

- **Slave River at Fitzgerald (1960-present)**
- **Hay River near the AB-NWT Border (1988-present)**



What are the steps of the assessment?





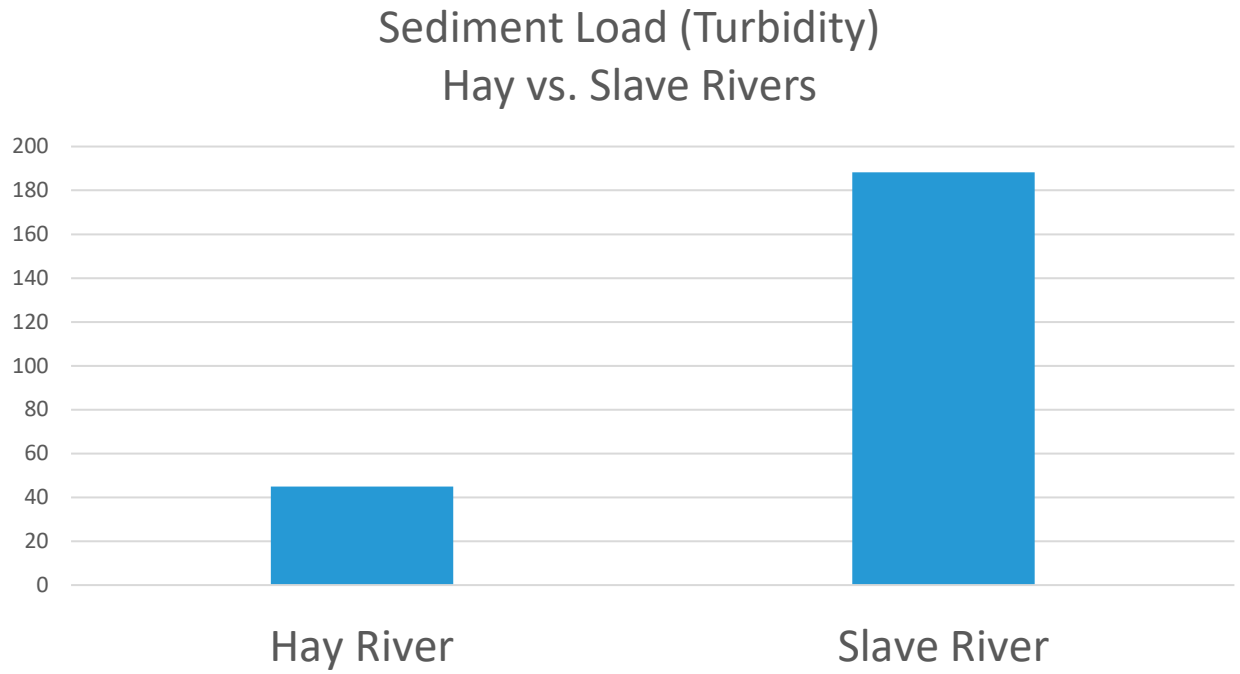
- Each year, monitoring results are compared to site-specific water quality triggers.
- Triggers are numerical values developed from historical water quality data.
- Triggers help identify unusual changes in water quality.

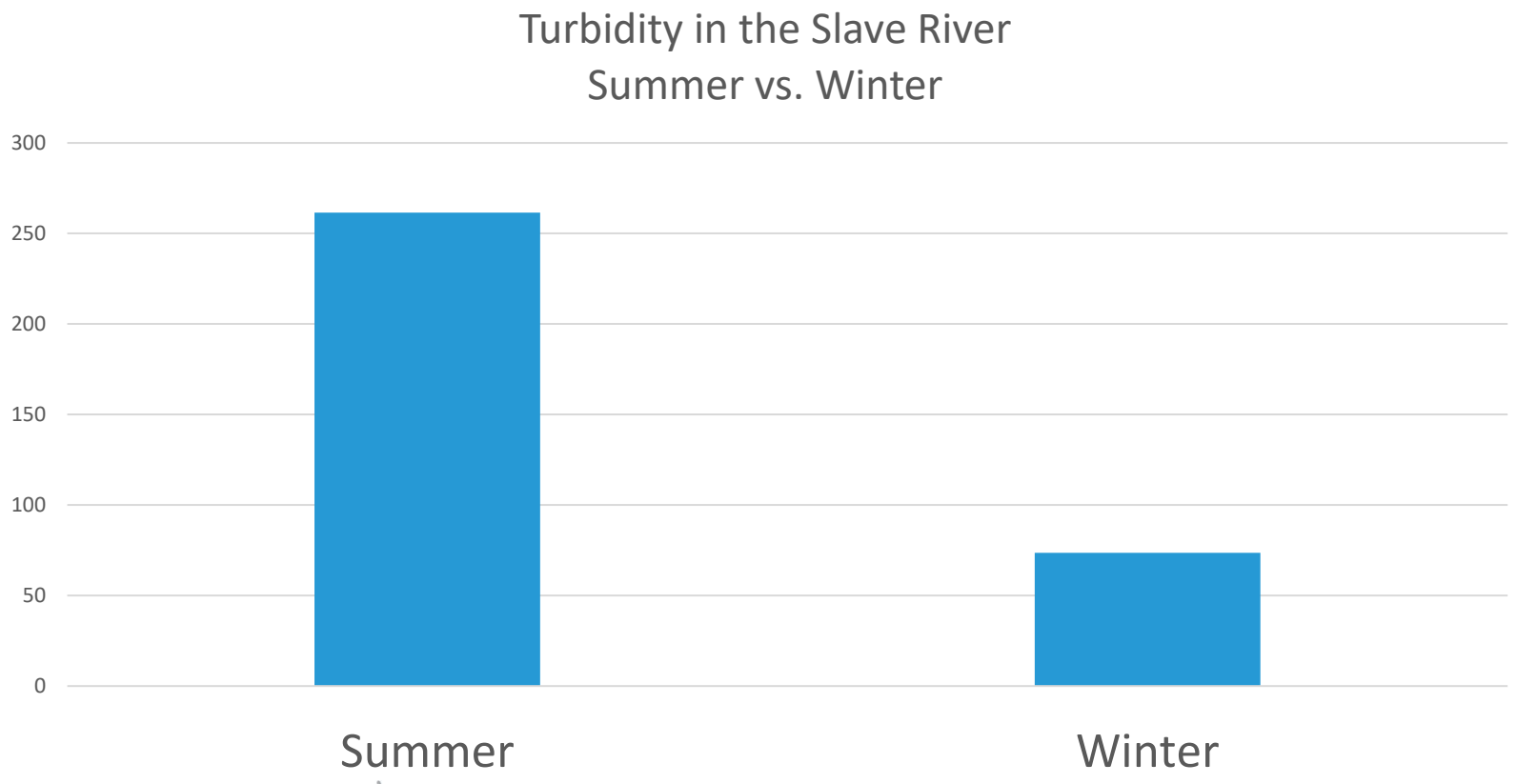
Setting Interim Triggers

- Physical Parameters
- Ions/Salts
- Nutrients
- Metals

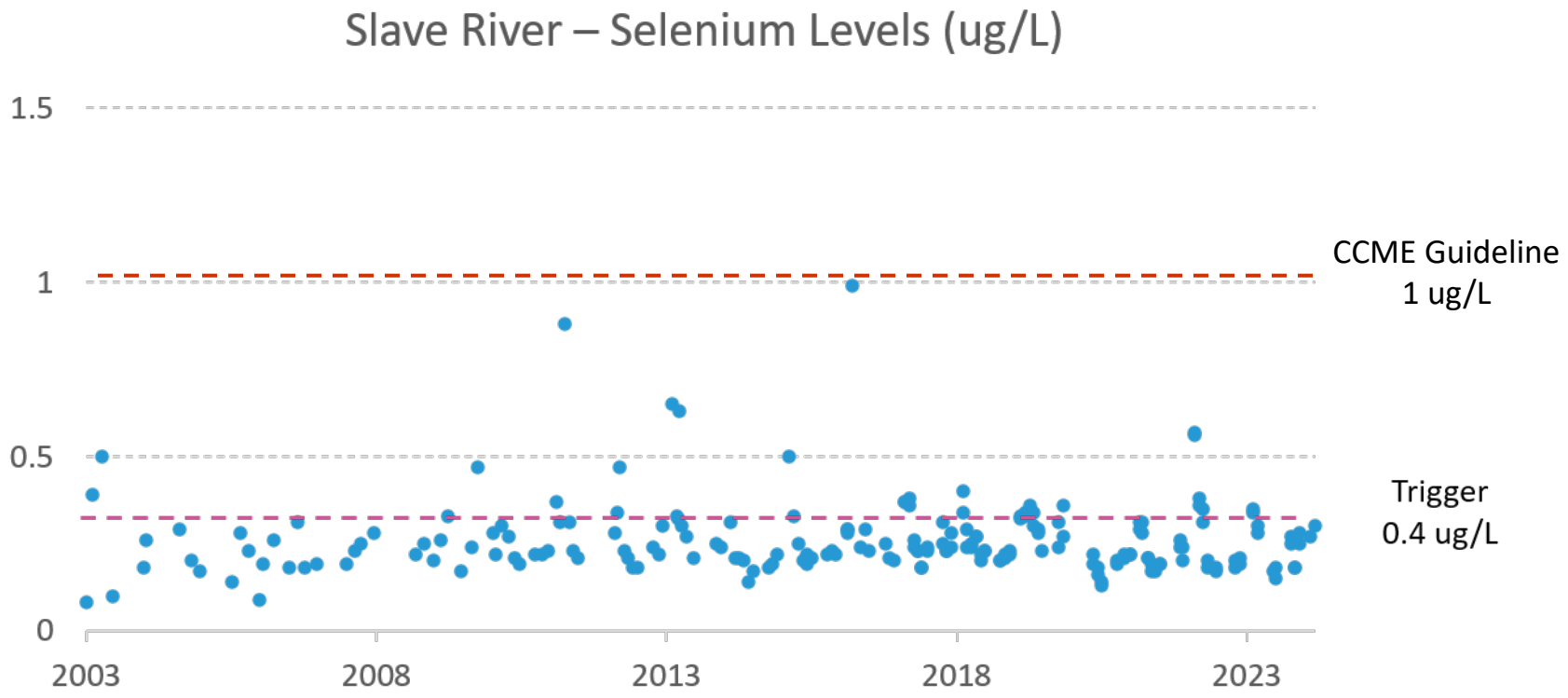


Setting Interim Triggers

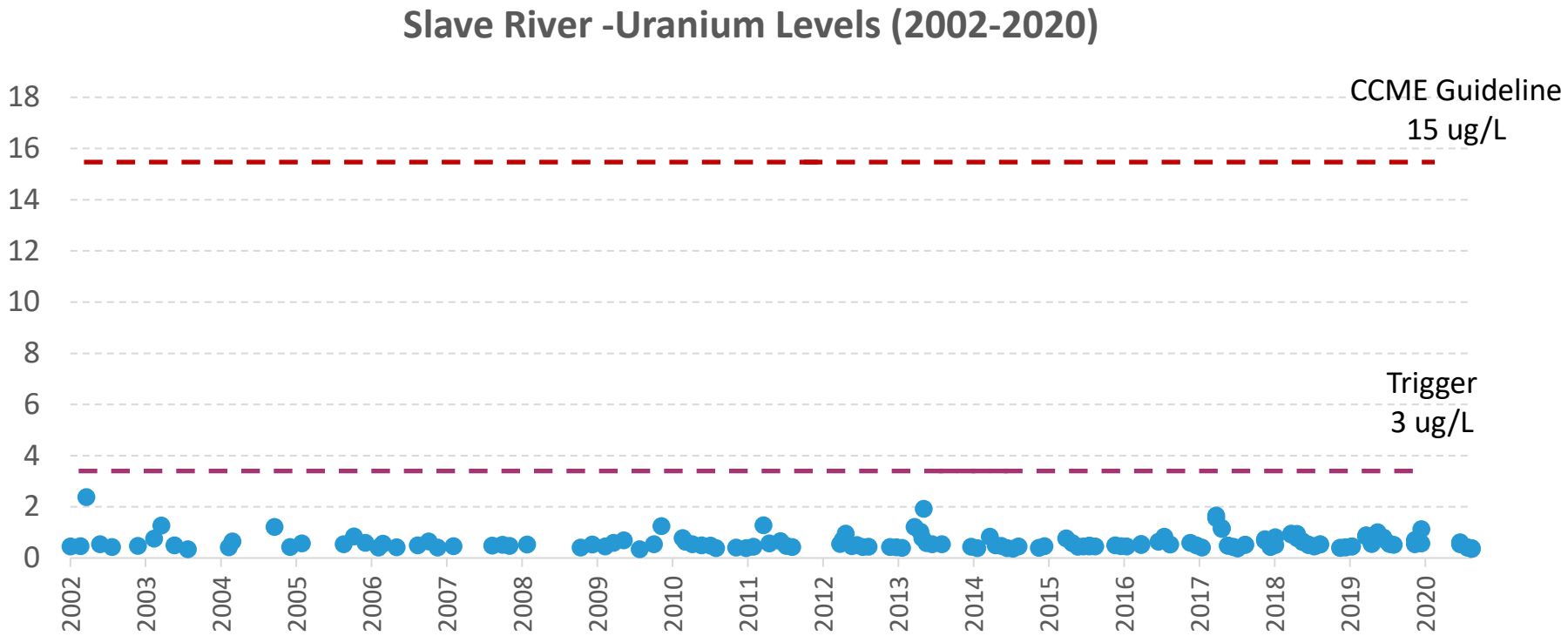



Turbidity in the Slave River
Summer vs. Winter
300
250
200
150
100
50
0
Summer
Winter

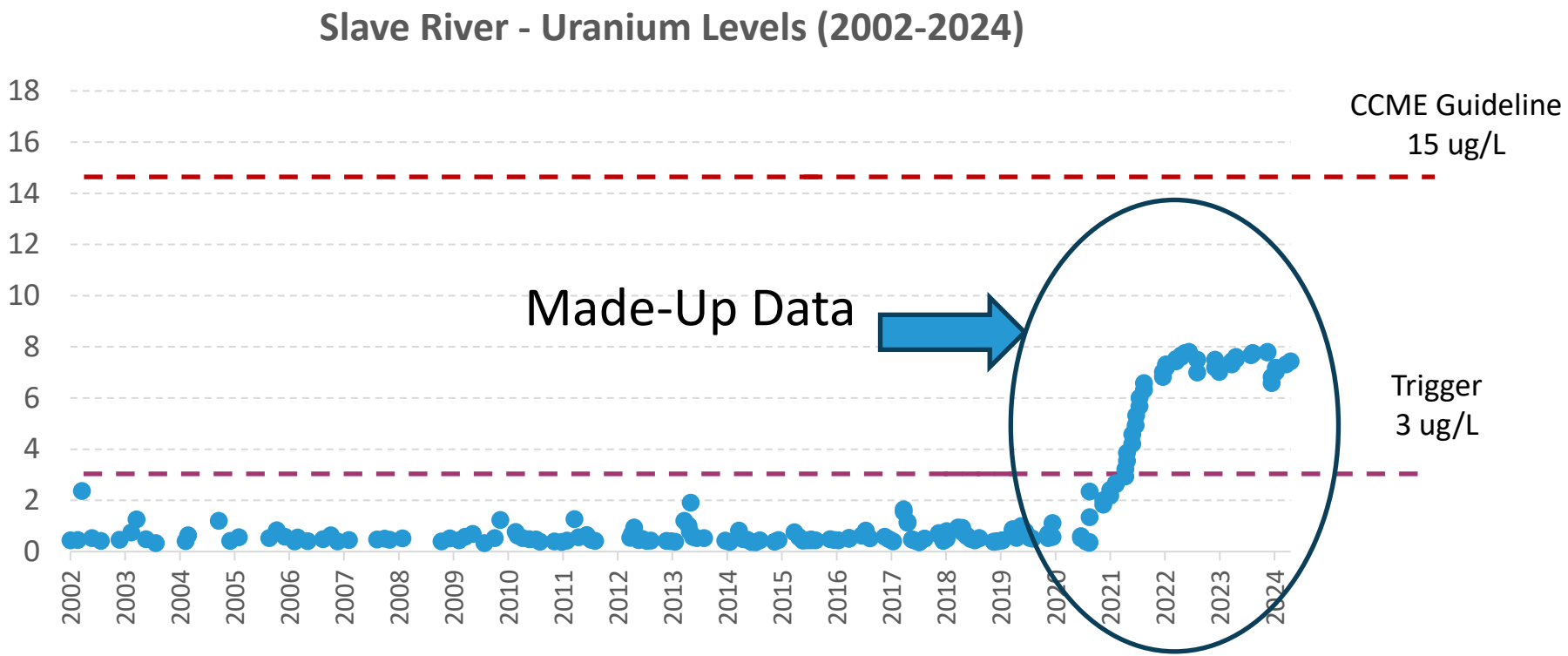
Interim Triggers in Use



Interim Triggers in Use



Interim Triggers in Use



What happens when we find unexpected results?

Unexpected results prompt a closer review.

Other steps may include:

- reviewing historical data
- examining river flows, sediment levels, weather events
- comparing data to nearby sampling sites
- checking against available aquatic life guidelines



If a potential concern is identified, further investigation may be needed.

Results

Key Messages

- Annual assessments have not identified evidence of adverse water quality effects attributable to upstream activities.
- Some recent trigger exceedances were associated with unusually high flows in 2020 and low flows in 2023–2024.
- Magnesium and sulphate concentrations in the Slave River are gradually increasing, with similar changes observed in the Peace River.

Ongoing Work

- Ongoing monitoring and assessment will help us track changes in water quality and better understand the influence of upstream activities and climate change.

Looking Ahead — Why Monitoring Matters

Upstream developments and emerging pressures

- Coal mining
- Pulp & paper
- Agriculture
- Hydroelectric development
- Emerging industries (data centres? and nuclear energy?)
- Potential release of treated oilsands mine water?

Our ongoing commitment

- Monitor: Continue collecting and reviewing water quality data
- Dig Deeper: Look more closely, initiate additional monitoring or studies
- Collaborate: Work with Alberta and NWT Water Partners

Thank you!