

A collaborative approach towards Arctic grayling recovery within the Swan River watershed

Background

Freshwater species, like Arctic grayling (ARGR) face a broad range of cumulative effects (Figure 1).

Populations of ARGR in Alberta have **declined by 70%** since the 1960's [2].



Members of Swan River First Nation (SRFN) have **lost a treaty right** to harvet an important traditional food source and the **ability to pass down Traditional Knowledge** that is tied to this species.



Figure 1. Distrubution map of Arctic grayling in North America [3]

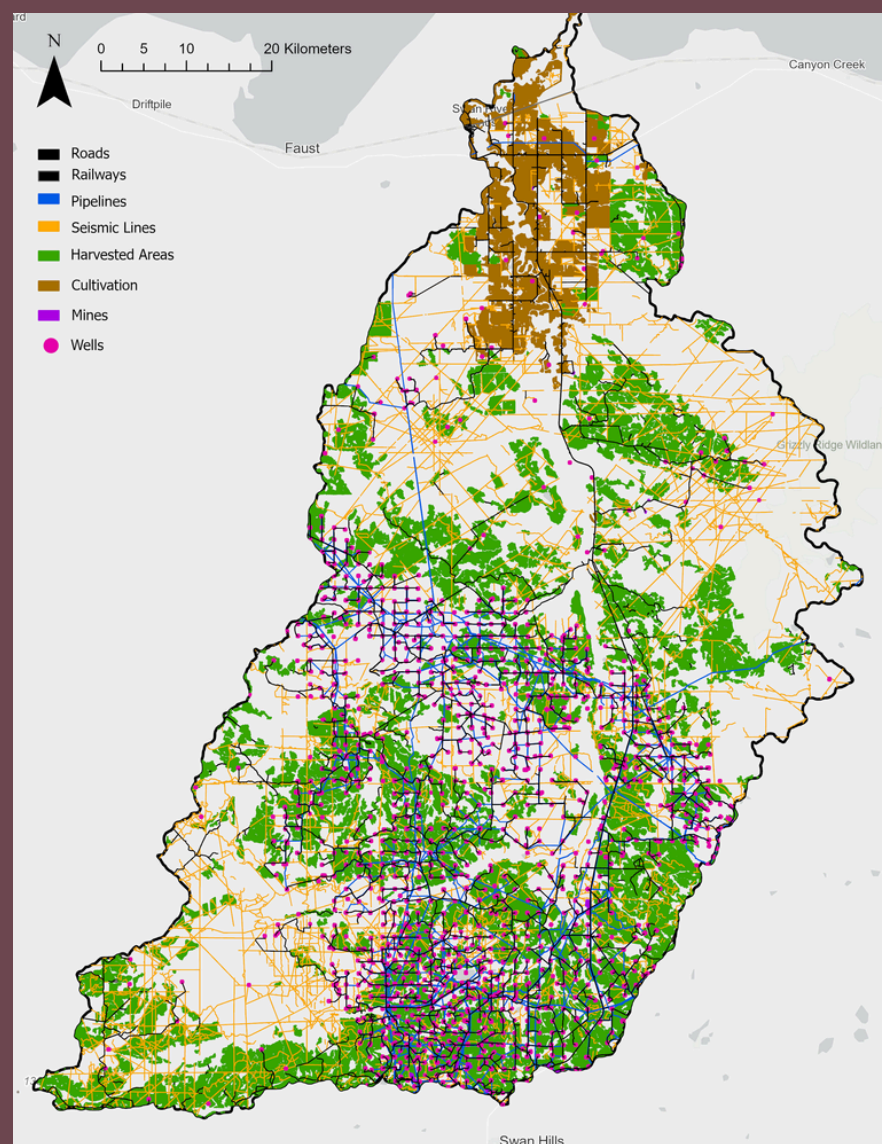
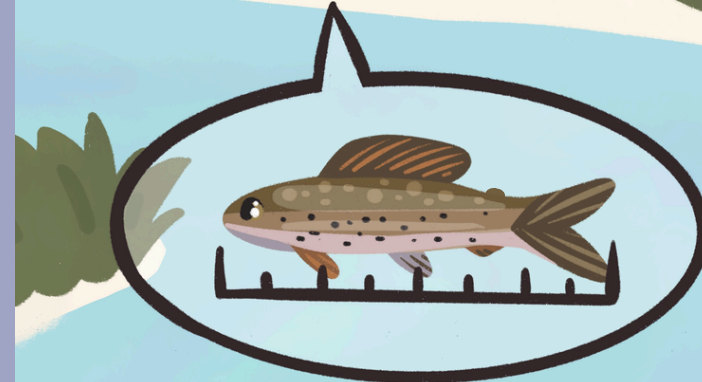


Figure 1. 2023 human footprint of the Swan River watershed (ABMI, 2023).

Methods

Angling was conducted by 2 individuals for 90 minutes moving upstream.

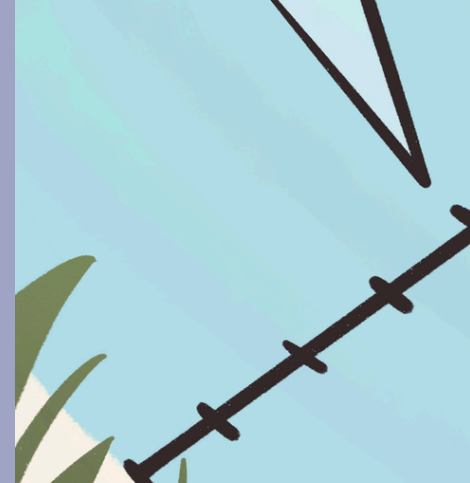
Captured fish were identified by species and fork length was measured.



Wetted and rooted width was measured at start, middle, and end.



Stream temperature and conductivity were measured at start of site.



Results

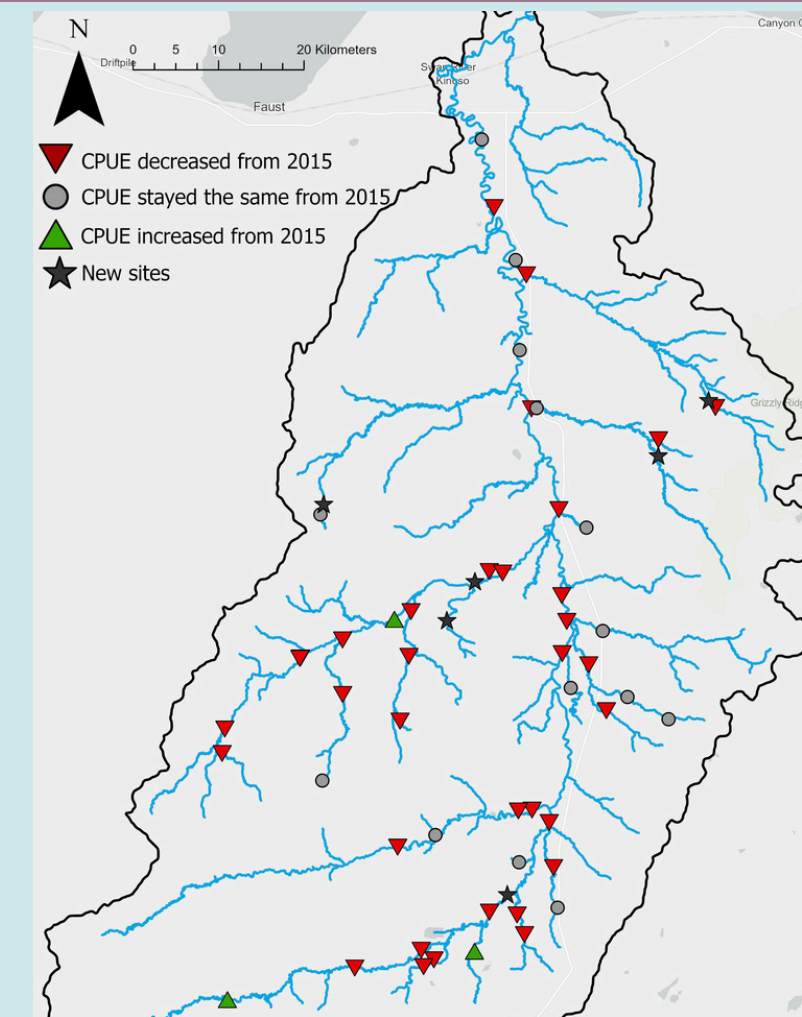


Figure 3. Change in CPUE from 2015 to 2026.

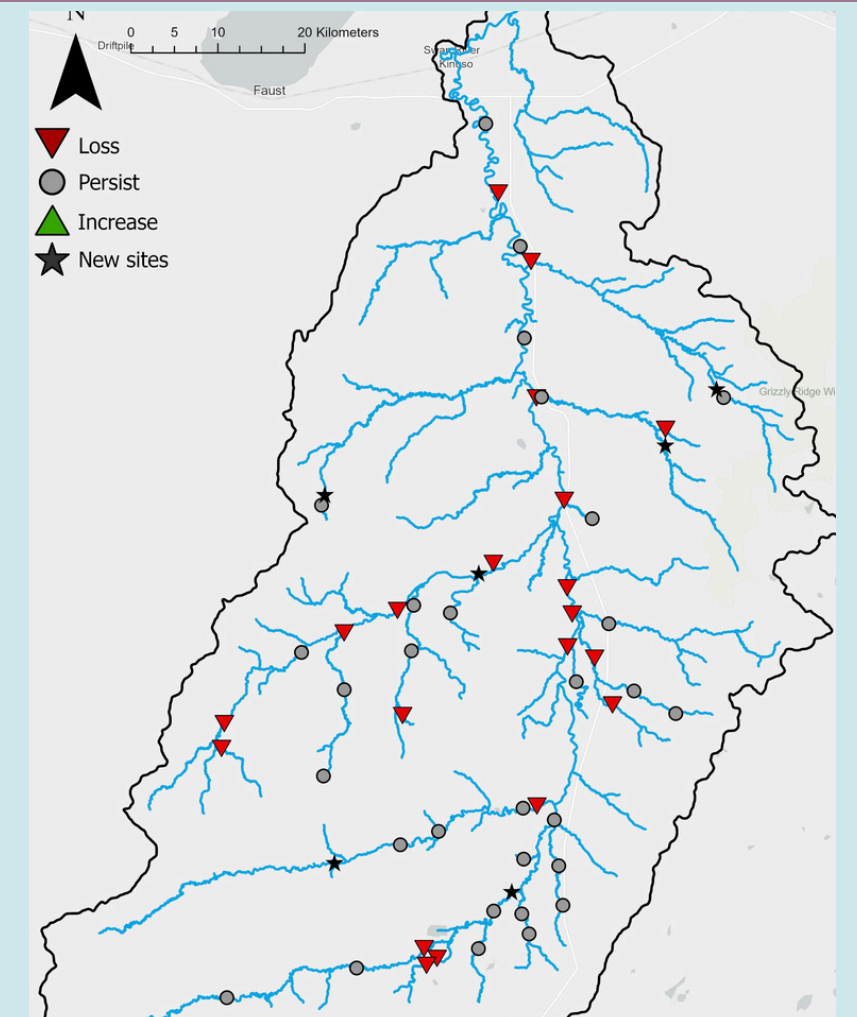


Figure 4. Change in occurence from 2015 to 2026.

Objectives

➔ **Reassess CPUE** (catch per unit effort) of ARGR in the Swan River watershed.

➔ Evaluate whether **different land-use parameters** are associated with **increases or decreases in ARGR relative abundance and occurence**.

Key Findings

From sites that were sampled both in 2015 and 2026:

- ➔ **68% decreased in CPUE**, 441 caught in 2015, 150 caught in 2026.
- ➔ **38% lost occurence**.
- ➔ 26% did not change in CPUE.
- ➔ 0.6% increased in CPUE.
- ➔ 0% increased occurence.

Conclusion / Next Steps

Although there has been a zero harvest limit on ARGR for over a decade, CPUE and occurrence appears to still be decreasing within the Swan River watershed.

Linear mixed models will be used to assess whether relative abundance and occurrence are decreasing in relation to spatial patterns of land use change.

Contact

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