



Williston Trial Tributaries

GMSMON-17 Williston Trial Tributary Habitat Study

GMSWORKS-19 Williston Trial Tributaries Project

Williston Trial Tributary Habitat Study

Monitoring of the biological response of tributary access

The Peace Water Use Plan Committee recommended trial projects to improve fish and wildlife access to tributaries excluded by reservoir drawdown or debris. The focus of this study is to determine the response of fish and wildlife habitat and the abundance and diversity of vegetation, song birds and amphibians to the tributary enhancements.



Questions We Wanted to Answer

1. Does access for spring spawners improve?
2. Is the area and quality of fish and amphibian habitat created maintained over time?
3. Does the abundance and diversity of riparian vegetation, songbirds and amphibians around tributaries change?



Study Update

- Baseline monitoring of trial and control sites began in 2011.
- One year of post-construction observations see habitat changes due to improved connectivity with the reservoir and natural variability.
- Additional monitoring will be required to determine if any changes are a result of the 2014 project work.

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Lessons Learned

- A review of the study approach has found that monitoring abundance and diversity of fish will not be able to link changes to the enhancements while rejecting other factors.
- Instead, habitat characteristics will be monitored to better understand the effect of the treatment.



Key Findings and Next Steps

- The paired study approach (trial sites and control sites) will continue to evaluate the predictions for the trial tributary sites.
- A review of the study approach relating to amphibians and songbirds is underway to ensure the study is effective.

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Trial enhancement of tributaries to improve fish access

The Peace Water Use Plan Committee recommended trial projects to improve fish and wildlife access to tributaries excluded by reservoir drawdown or debris. At low reservoir elevations, migration is potentially restricted by muddy barriers and accumulation of debris at some of the tributary mouths. This project identified and ranked impacted tributaries and selected two for remediation techniques.



Project Objectives

1. Identify the tributaries around Williston Reservoir that are impacted by the operation of the reservoir and/or by accumulations of debris.
2. Select two sites for remediation and enhancement.



Debris plug and debris trap project at Ole Creek.

Project Update

- Two locations for enhancement trials were selected: Six Mile Creek (40 km north of Mackenzie) and Ole Creek (250 km northwest of Mackenzie).
- Construction was completed in 2014.
- Debris was removed at Ole Creek and barriers to prevent further debris accumulation were installed.
- Contouring berms were constructed at Six Mile to reshape the channel braiding observed at low reservoir elevations.

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Lessons Learned

- Designs were based on early survey and site visit information and had to be changed late in the process when it was found conditions had changed.
- Site access for construction and monitoring is a challenge in a reservoir environment and can impact construction costs and schedules.
- Barges may not be operative during low elevation.
- Road bans and permit processes may delay or prohibit access.



Braided channels and reshaping project at Six Mile Creek.

Key Findings and Next Steps

- Physical works were successfully completed at the trial sites. Ongoing inspections of the site integrity continues.
- Biological effectiveness monitoring continues under GMSMON-17.