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Ministry of Forests
Southern Engineering Group
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October 18, 2023

Attn: Hans Beurskens, Engineering Program Specialist

Subject: Gorman Creek fish presence/absence sampling at 13.3 km on the Dogtooth FSR – letter report for fish collection permit CB23-814124

Background

Ministry of Forests (MoF) contracted Lotic Environmental Ltd to review the potential for fish to be present in Gorman Creek (Watershed code 300-909500-38200) in the vicinity of an undersized culvert at 13.3 km on the Dogtooth Forest Service Road (UTM 492169.00 m E, and 5688787.00 m N; the project). This letter report provides the results of the fish presence/absence review.

Desktop review

First, a desktop review was conducted. This review identified the following (Province of BC 2023[1] and Timberland Consultants Ltd 2001[2]):

- The project is located between Reach 2 and 3 of Gorman Creek, with fish presence unknown in this stretch of the creek. The nearest reported fish presence was 4 km downstream at the confluence with Holt Creek, where Rainbow Trout, Bull Trout and Westslope Cutthroat Trout were documented. There were no barriers documented in Gorman Creek between the project and Holt Creek.
- Although the reach where the project is located was not sampled, it was categorized as potential fish bearing based on gradient (15%, with gradients ranging from 6 to 8% downstream).
- Fish sampling completed upstream of the project, in Reach 6 of Gorman Creek, resulted in no fish captured. Fish absence was unexpected as historic fish information indicated that Gorman Lake (00279KHOR) was stocked with Rainbow Trout.

[1] Province of BC. 2023. BC Habitat Wizard map-based database tool. Available. HabitatWizard - Province of British Columbia (gov.bc.ca).

[2] Timberland Consultants Ltd. 2001. Reconnaissance (1:20,000) fish and fish habitat inventory of West Bench study area, WSC:300. Prepared by Corby Shurgot and Sheri Petrovcic. Prepared for Evans Forest Products Ltd.

Field review

On July 21, 2023, Sherri McPherson, Senior Aquatic Biologist (BSc, RPBio) of Lotic Environmental Ltd conducted a site visit with Hans Beurskens (RFT), Engineering Program Specialist, MoF. The creek braided upstream of the crossing, with half draining towards an already established bridge (Structure N3-095), and the rest towards the culvert (Figure 1). The stream length for this secondary braid upstream of the bridge was approximately 200 m, and the average gradient was 23%. The stream had a step pool morphology, with some log and boulder jam structures that appeared would impede upstream migration (see photo documentation below). Based on the results of the field review, the likelihood for fish to be present was low. However, sampling was required to confirm this.

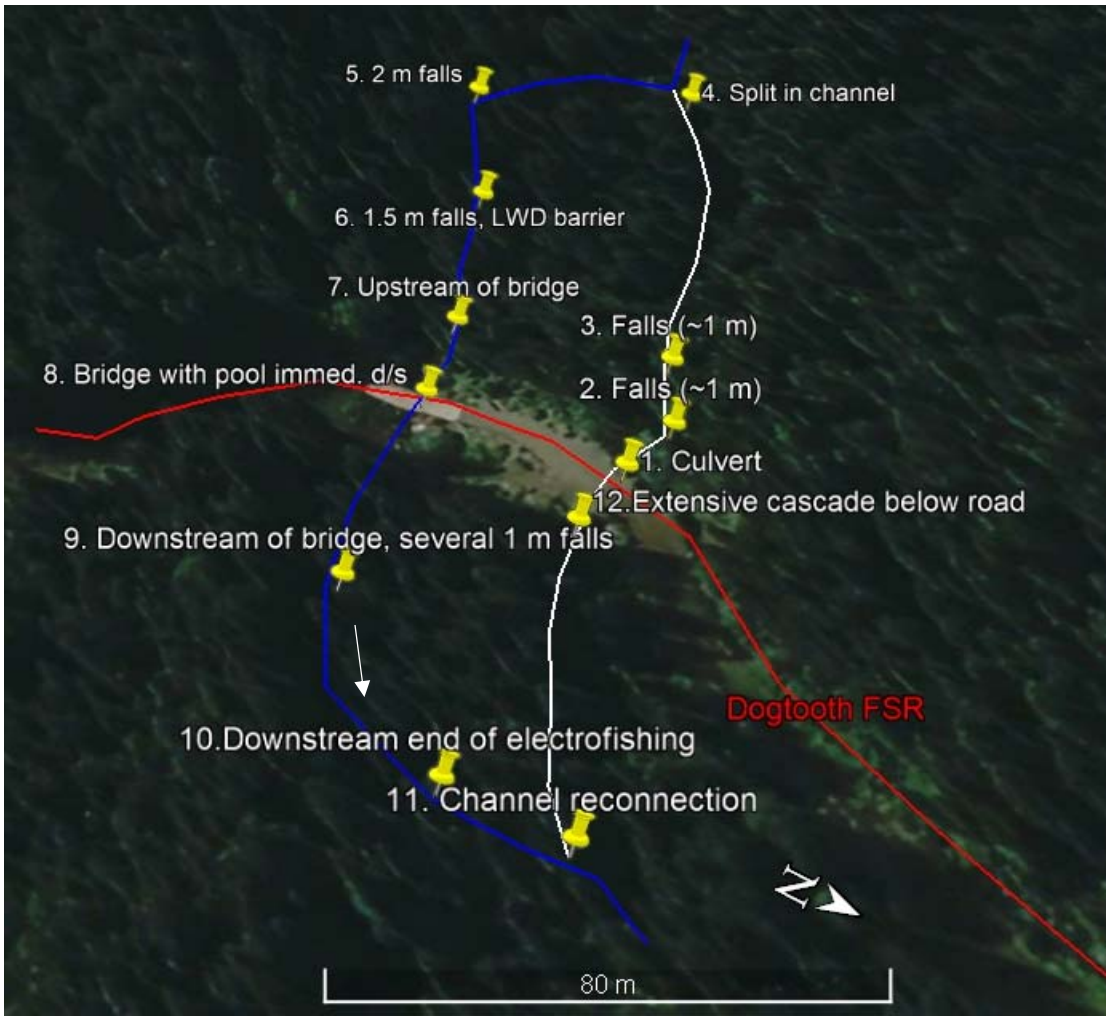

Figure 1. Overview map with photo-documentation references

A fish collection permit was obtained to conduct fish sampling to determine if fish were present in the stretch of Gorman Creek that braids through the culvert (Permit CB23-814124). Electrofishing was conducted on September 12, 2023 by a two person crew from Lotic Environmental - Sherri McPherson (as above) and Lisa Lasmanis (Aquatic Biologist, BSc).

The conductivity meter failed to operate on this day, but it was known to be low (~53 µS/cm) from the Holt Creek Habitat Wizard Stream report (Province of BC 2023). The water temperature was 10 °C. Electrofishing settings applied were 450 volts, 40 hertz, and 15% duty cycle. Sampling focussed on areas where fish would be visually evident, including pools and other habitats with non turbulent water (**Error! Reference source not found.**). Both the original and braided channel were sampled for the length of their divergence. This resulted in sampling completed over a length of 70 m upstream and 70 m downstream of their respective crossings, for a total length of 280 m. Electrofishing was completed to the upstream end of where the two channels split. Upstream of this, the gradient increased with greater presence of cascades and fewer pools. At the downstream end, sampling was halted within 20 m of where the two channels reconnected due to difficult terrain. It was confirmed that the electrofisher was functioning as a small rodent was caught struggling for a few seconds in the electric current. Electrofishing was completed for a total of 1082 seconds. Overall, no fish were evident.

Figure 2. Example of pool habitat sampled.

Photo-documentation

Photo documentation from both the July and September site visits are provided below. Figure 1 is to be cross referenced for locations.

Photo 1. Culvert crossing requiring upgrade (Sept. 12, 2023).

Photo 2. Falls in culvert/braided channel (Sept. 12, 2023).

Photo 3 Step pool in braided channel (July 21, 2023).

Photo 4. Upstream view of split in channel, with channel at left side of photo flowing to the bridge and at right side to culvert (July 21, 2023).

Photo 5. 2 m falls in original channel (July 21, 2023).

Photo 6. 1.5 m falls in original channel (July 21, 2023).

Photo 7. Channel immediately upstream of bridge, with ~1 m falls present (Sept. 12, 2023).

Photo 8. Pool downstream of bridge (Sept. 12, 2023).

Photo 9. Original channel downstream of bridge with several 1 m falls (Sept. 12, 2023).

Photo 10. Downstream extent of review (Sept. 12, 2023).

Photo 11. Upstream view of braided channel, near where it reconnects below the road with the main channel (Sept. 12, 2023).

Photo 12. Braided channel downstream of culvert crossing, with 2 m falls (not shown) and extensive steep cascade channel (Sept. 12, 2023).

Conclusions

Overall, the habitat and fish sampling findings identified steep habitat with several boulder and LWD pools, and no fish present. Because of this, it was determined that the braided section of Gorman Creek could be managed as non fish bearing habitat, with a culvert installed that does not allow for fish passage.

Sincerely,

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Reviewed by

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