



***Gitanyow Fisheries
Authority***



**The 2012 Beaver Dam Mitigation and Nuisance Beaver
Control Project
Contract #: 1005-40/EN13844003**



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1. INTRODUCTION

In 2012, the Gitanyow Fisheries Authority (GFA) were contracted by the BC Ministry of Forests, Lands, and Natural Resources Operations (formerly known as Ministry of Forests and Range), Skeena Stikine District office of Smithers, B.C. to perform beaver dam mitigation and nuisance beaver control work in the Kitwanga and Nass Watersheds. The breaching efforts were conducted along the Kitwancool Forest Service Road (FSR) (Km 0 to 1.1), the 26-mile FSR (Km 0 to 1), the Nass FSR (Km 25) and the Mitten Main FSR (Km 33 km; see Figure 1 for site locations). GFA crews inspected these areas weekly or biweekly to identify and dismantle problem beaver dams. Once beaver dam obstructions were found impounding water along the tributary road crossings and ditchlines that could cause water to overtop the roads, GFA technicians would breach dams.

Intensive breaching efforts were also performed in the Upper Kitwanga River over a 4-km wetland section (between 2 and 6 km of the Kitwanga River from the Gitanyow Lake outlet). This wetland is bounded by the 26 Mile FSR (Km 0.1), Highway 37 N to the east, and Weber FSR (Km 1) to the west (Figure 1 & 2).

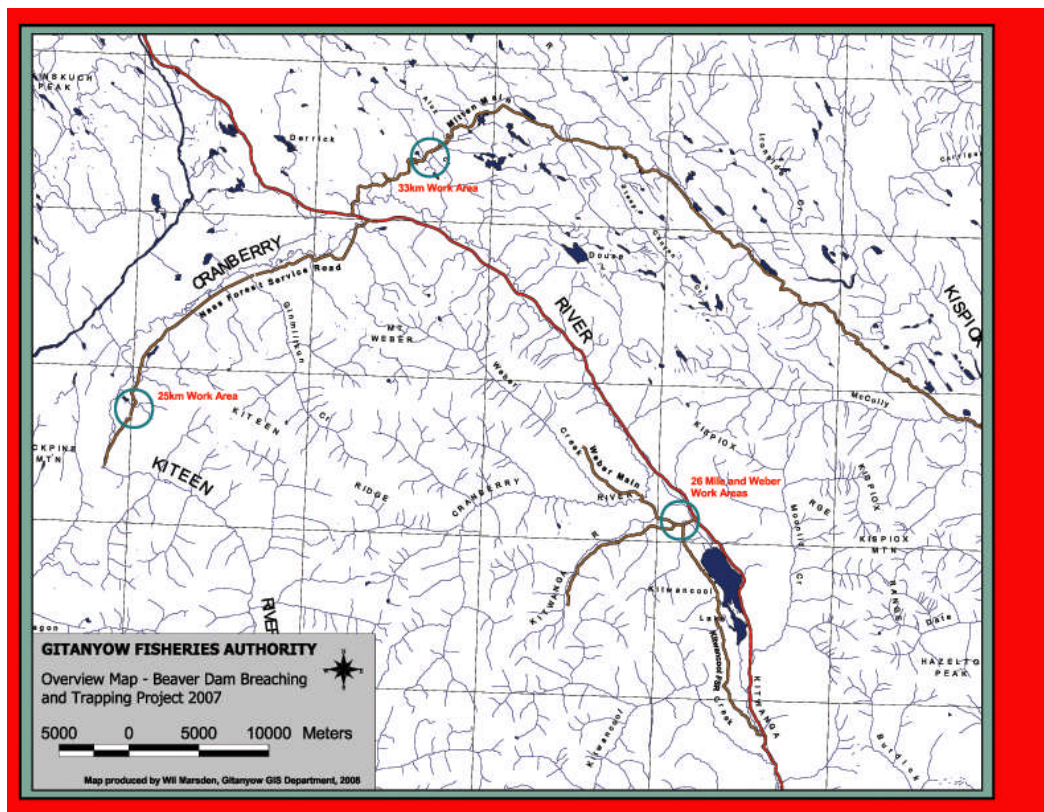


Figure 1: Overview map of project area.

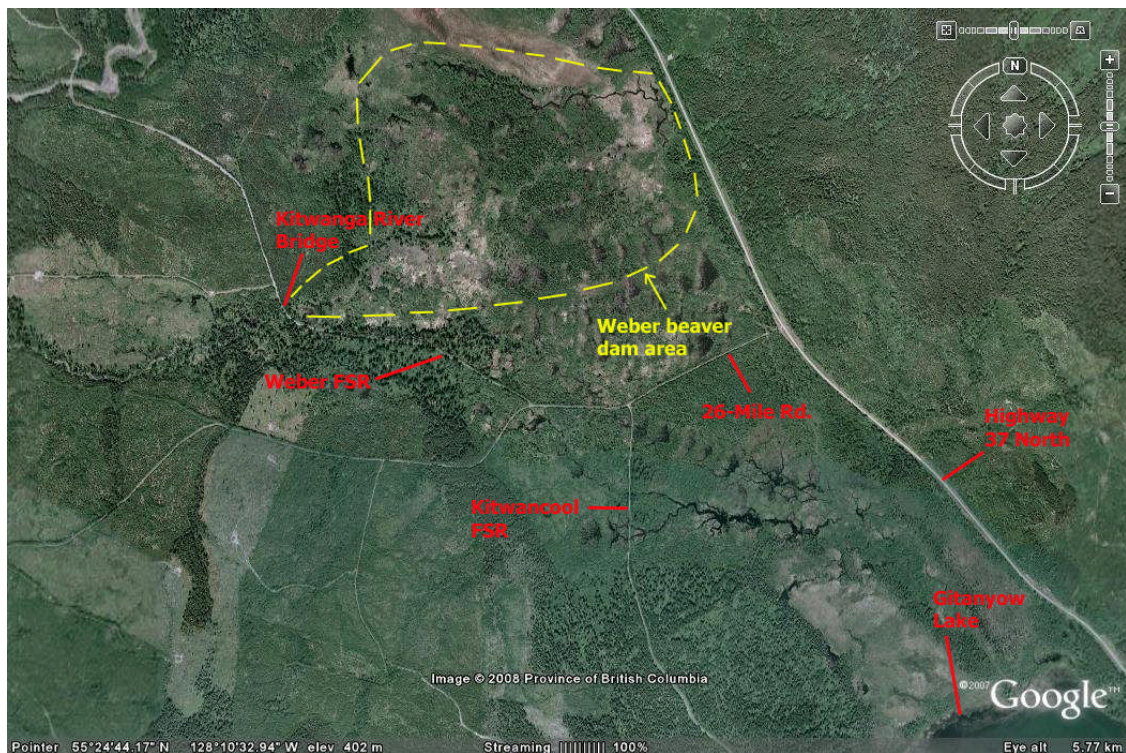


Figure 2: Satellite image showing the approximate location of the Weber beaver dam area and the Kitwancool and 26-mile roads (www.googleearth.com).

Over several decades, beavers have proliferated in the Upper Kitwanga River watershed that likely resulted from riparian logging around the 1960's and collapse of the fur industry in the 1980's. An extensive beaver dam complex became well established, impounding river flow, causing fish migration barriers, and creating diversions all leading to physical and ecological impacts. Currently, the riparian zone of the Upper Kitwanga River is considered prime beaver habitat as the riparian zone is dominated by deciduous plant species including poplar (*Populus* sp.), dogwood (*Cornus* sp.), willow (*Salix* sp.), and alder (*Alnus* sp.).

This report is a summary of the beaver control activities completed by GFA in 2012.

2. METHODS

2.1 FSR Breaching Activities

Beaver dam breaching and trapping along the abovementioned FSR's was carried out over 31 trips from May 1st, 2012 when beavers were first observed damming water along the roads to October 18th, 2012 prior to freeze-up. A crew of 2 or 3 GFA technicians inspected the problem areas weekly to breach the beaver dams. Field crews used a variety of tools including sheers, axes and shovels to remove sticks, organic material and sediment from the dams, to lower the level of the reservoir.

Field crews conducted breaching in accordance with the Skeena Region – Ministry of Water, Land & Air Protection Guidebook: Standards and Best Management Practices for Beaver Dam Removal, May 2005. This requires a reduction in the reservoir levels of no more than 20 cm before letting the flow stabilize and the sediment to settle out. This was done in order to ensure fish were not isolated in pools upstream as a result of rapidly decreasing water levels, and to maintain controlled flows downstream. When beaver activity was observed to be high in certain areas (i.e. dams rebuilt within 1-2 days), an attempt would be made to trap some beavers from those areas to lower their density. Beavers were trapped using #330 conibear traps.

2.2 Upper Kitwanga River Mainstem Breaching Activities

The beaver dam breaching exercises in the Weber area along the Upper Kitwanga mainstem started on May 1st, 2012 April 22nd, 2012 and continued until October 12th, 2012. In the initial survey, crews concentrated on documenting existing beaver dams and periodically breached these dams throughout the summer and fall. The breaching efforts increased in the fall to correspond with the increase in beaver damming activity. Each week a crew of two or three GFA workers would enter the Kitwanga River from Highway 37 North and traverse west towards the Weber FSR bridge. Every beaver dam the crew encountered was breached to maintain river flow and allow for fish passage. The dams were breached using the same protocol as mentioned above, and were breached in an upstream direction to allow the water flow to slowly drain out the downstream end. This breaching method ensured that the water from the breached dams did not build up downstream and blow out the remaining dams causing increased sediment disturbance.

3. RESULTS

3.1 Breaching Activities – Kitwancool FSR, 26-Mile, Nass FSR and Mitten Main

Depending on the locations visited, anywhere from 4-10 beaver dams were breached each visit. In total, 31 site visits were made throughout the duration of the project. Dam breaching efforts were increased in late August and September when beavers were increasing their effort to build up dams prior to freeze-up. Photos #1 through #4 illustrate some of the breaching activities completed along target roads, typical roadside dams and evidence of FSR flooding. Beaver trapping was not undertaken in 2012.



Photo 1: August 14th, 2012. Looking upstream under the bridge at km 3 on the 26-Mile FSR, before breaching.



Photo 2: Looking upstream at same dam as previous photo after breaching.



Photo 3: Looking east on 26-Mile FSR, road flooding caused by beaver dams (August 10, 2012).



Photo 4: Looking west on 26-Mile FSR, typical beaver dam requiring breaching to prevent water from flooding the road (taken September 24, 2012).

3.2 Upper Kitwanga River Mainstem Breaching Activities

Initial breaching efforts in the Upper Kitwanga River commenced on May 21st, 2012. Initially the area was surveyed to document problem dams along the mainstem of the Upper Kitwanga River. Subsequent visits were performed where dams were breached throughout the summer to maintain river flow. These breaching efforts were increased in the fall until October 12th, 2012 when the project was completed. Over 20 beaver dams were surveyed and some were breached during each visit to maintain adult fish passage in the Upper Kitwanga River.

4. CONCLUSION

The 2012 beaver dam mitigation and beaver control work along target FSR's in the Kitwanga and Cranberry Watersheds was successful in reducing flooding and erosion of roads. Without implementing these breaching activities, roadway washouts and associated sediment events are likely.

In the short-term, breaching beaver dams and harvesting beavers along target FSR's is a temporary solution for a long-term problem. Ideally, a combination of beaver control and

the implementation of an effective beaver stop management plan at all problem road-crossings should be pursued to help pass water and maintain the integrity of the Kitwanga and Cranberry Watersheds, and the roads that intersect them. As in previous years, it is again recommended that a more detailed study of the 26-Mile FSR be performed to look at options of re-locating it outside of the Kitwanga River floodplain (Kingston 2007).

4.1 Coho Migration and Spawning Success

The beaver dam breaching in the Upper Kitwanga River was again successful in temporarily eliminating the migration barriers for coho salmon and other salmonids through the 4-km beaver dam problem area during the critical spawning season. This work provides upstream access for salmonids to over 80,000m³ of excellent spawning, rearing and over-wintering habitat.

Intensive enumeration of adult coho salmon upstream of Gitanyow Lake has never been carried out, however crews are instructed and trained to look for coho as they move through the area breaching dams. GFA crews observed several adult coho salmon migrating through the work area and crews consistently observed large numbers of coho fry throughout the 4 km stretch in the Weber area.

Furthermore, at the immediate downstream end of Gitanyow Lake, GFA is regularly capturing coho smolts by means of a smolt fence as they migrate downstream from the upper Kitwanga River to the Skeena River en route to the ocean. These smolts being captured are likely the progeny of coho adults that migrated through the Weber beaver dam area, as all other coho spawning areas are downstream of the fence.

The beaver dam breaching program beneficially provides an additional 9 km of spawning, rearing, and overwintering habitat in the Upper Kitwanga River and is a critical component of the coho rebuilding program.

5. RECOMMENDATIONS

As breaching beaver dams is only a temporary solution to this problem, it is recommended that other avenues of restoration be pursued in 2013 and beyond to rehabilitate the area. Ideally a combination of the options suggested in the Upper Kitwanga River Beaver and Coho Salmon Management Plan would help to maintain uninhibited passage for coho salmon and continuous water flow to Gitanyow Lake (McCarthy & Hamelin, 2003), including riparian prescriptions to increase the conifer content. As well, beaver dam fish-ladders may prove to be effective in some locations in allowing fish access without requiring breaching of dams. This could be an option in a select number of dams in the Weber area to maintain deep-water ponds that would provide important rearing habitat for coho juveniles, as well as the other species such as Dolly Varden char and cutthroat trout. The beaver dam breaching program beneficially provides an additional 9 km of spawning, rearing, and overwintering habitat in the Upper

Kitwanga River and is a critical component of the coho rebuilding program. GFA highly recommends continuing and expanding the beaver dam breaching and trapping program.

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