

## ENVIRONMENT AND SOCIO-ECONOMIC

### Fish and Aquatic Habitat

**Report:** **Site C Fisheries Studies – Halfway River and Moberly River Fall Mountain Whitefish Migration and Spawning Study 2009**

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**Summary:** Fish studies in Fall 2008 indicated that mountain whitefish from the Peace River spawned in the Halfway River and the Moberly River. This 2009 study follows-up to gain a better understanding of the mountain whitefish's use of the Peace River tributaries for spawning and the relative importance of these systems to the mountain whitefish population.

In 2009, upstream and downstream fish fence and traps were placed on the Moberly River from 23 September to 24 October to enumerate fish. Kick net surveys for mountain whitefish eggs were completed on large sections of the Halfway River and Moberly River to ascertain the distribution of mountain whitefish spawning sites.

During the 2009 study, water temperature and river discharge of the Moberly River and Halfway River were within the range expected for mountain whitefish spawning activity. River discharge was at or approaching base flow in both tributaries. Water temperatures rapidly declined during the study period and reached 0°C by mid-October. This caused surface and frazil ice formation on the Moberly River and Halfway River. These conditions prevented full operation of fish traps on the Moberly River, hindered effective egg surveys on both systems, and prevented the scheduled snorkel survey on the Moberly River. Despite these conditions fish traps were fully operational for 28 of the 31 sample days and eggs surveys on the Moberly River and Halfway River were completed.

In total, 3,097 fish were collected in fish traps on the Moberly River. A total of 14 species were recorded. Young mountain whitefish (53 fish) accounted for 18.2 % of the downstream catch in the small fish hoop net; redbreast shiner and longnose sucker were the other numerically important species. Adult mountain whitefish (112 fish) accounted for 15.2 % of the

downstream catch of the large fish trap; longnose sucker was the other numerically dominant species. In the upstream large fish trap, 2,050 adult mountain whitefish were captured, which represented 99.1 % of that sample.

The majority of adult mountain whitefish in the fish traps were in spawning condition at the time of capture and the size distribution of fish was consistent with the size distribution of the adult cohort of the Peace River mountain whitefish population. In total, 104 mountain whitefish previously marked and released in the Peace River were recaptured in the fish traps. The recaptured fish traveled as far as 80 km downstream and 25 km upstream to access the Moberly River.

In total, 67 sites on the Moberly River and 133 sites on the Halfway River were examined for the presence of mountain whitefish eggs. Surveys on both tributaries located sites containing mountain whitefish eggs. In the Moberly River, eggs were recorded at many sites that were widely distributed within the sampled section. The egg survey on the Halfway River recorded a small number of sites that contained eggs, but these sites also were widely distributed. The findings indicate that mountain whitefish spawning activity is widespread in the Moberly River and the Halfway River.

The results of the present study were consistent with findings made by the 2008 investigation. The second year of data improves the baseline data set and increases the certainty regarding the understanding of the ecology of Peace River fish populations.