

Lévesque, F. M. Larose, and G. Beauchamp, 2007. *Projet de restauration du saumon de la rivière Betsiamites – Bilan des activités réalisées en 2006. (Salmon restoration project in the Betsiamites River. Review of 2006 activities.)* Report submitted by Génivar, Société en commandite, to the Société de restauration du saumon de la rivière Betsiamites. 59 pages and appendices.

Abstract

In 2005, the initial agreement between the Betsiamites Band Council and Hydro-Québec, signed in 1999 to provide for ways to restore and enhance the Atlantic salmon (*Salmo salar*) population in the Betsiamites River, was renewed for five years (2005–2010). This report provides the results of the restoration, fish monitoring and development activities conducted in 2006.

Other than reconditioning spawners, the restoration consisted of capturing live salmon, transferring them to the Tadoussac fish hatchery, incubating the eggs produced by the salmon and stocking fry from the incubators. In 2006, the salmon monitoring activities included native fishery, estimation of the number of smolts migrating seaward in spring and a redd (nest) survey in the main spawning grounds in the fall.

The main activity for the project consisted in capturing live adult salmon to make up the stock of spawners needed for egg production. During the summer of 2006, 76 salmon were caught with traps set in the Betsiamites River, with a total effort of 250 trap-days. The fishing success was 0.30 salmon/trap-day. Of the spawners caught, 38 were released into the river, 32 were taken to the Tadoussac fish hatchery and 6 died. As of October 18, 2006, 66 spawners were being reconditioned, including 27 females and 39 males.

Between October 25 and December 13, 2005, 100,188 eggs were deposited in the incubators in the Nipi River and 135,852 in incubators at the Bersimis-2 dam, for a total of 236,040 eggs. They were produced by 31 spawning females, reconditioned in the preceding years or transferred live to the Tadoussac fish hatchery in 2005.

The overall embryonic survival rate during incubation, i.e., from egg-laying in the fall of 2005 to fry stocking in spring 2006, was 81%. In the Nipi River incubators, the mean survival rate was lower (68%) than at the Bersimis-2 dam (90%). The fry were marked prior to stocking. After they fully emerged, a total of 191,152 fry were stocked: 150,577 into the Betsiamites River and 40,575 into the Boucher River in spring 2006.

During the spawning survey in fall 2006, 300 salmon redds were counted, 274 of which were in the main stem of the Betsiamites River on November 26 and 27, and 26 in the Boucher River on November 15. This is the highest number of redds counted since 1992.

In spring 2006, the smolt study caught 601 individuals migrating downstream. Of these, 539 smolts were marked, then released live upstream of the traps set at the Nid de Corbeau rapids (km 25). Sixteen of them were recaptured. The Peterson model was used to estimate smolt abundance in the Betsiamites River at 19,122, with a 95% confidence interval between 12,353 and 35,875. Smolts in the Betsiamites River are large, measuring an average 142.7 ± 13.1 mm long (fork length); they are also heavy, weighing an average 32.2 ± 9.7 g, and migrate seaward at an average age of 2.1 ± 0.4 years.

During the summer, 15 traditional fishers were present on the river between June 5 and September 8, 2006. They used a maximum of 37 nets per day throughout the summer for a total fishing effort of about 2,060 net-days. The number of salmon caught, as recorded in the reports and in voluntary declarations, was 322. The corresponding fishing success was estimated at 0.16 salmon/net-day. This is the best success recorded since native fishery monitoring began in 1990.

Age assessment of the salmon caught by native fishing in 2006 showed that the population consisted of 23.6% grilse, 62.7% age 2 first-time spawners, 5.5% age 3 first-time spawners and 8.2% repeat spawners. The great majority of these salmon (91%) smoltified at age 2, the other 9% at age 3.

The high success of live salmon caught in the traps, the native fishing success and the record number of redds counted in the fall of 2006 indicate that the Betsiamites River population is increasing in size. This trend appears to be the result of spring stocking in 2002 and 2003, although upstream migration in 2006 in the rivers along the upper north shore of the St. Lawrence was higher than the average for the previous five years.