



October, 2007

**CHEAKAMUS RIVER STEELHEAD
FISH CULTURE PROGRAM
October 2007 Update**

In spring 2006 the Freshwater Fisheries Society of BC (FFSBC) was directed by the Ministry of Environment (MoE) to lead fish culture efforts to supplement the wild stocks of Cheakamus River steelhead following the spill of sodium hydroxide (NaOH) into the river from a CN train derailment.

The objective of the CN funded steelhead program is to release 20,000 smolts annually for two years to supplement the wild adult returns in 2009 and 2010. The fish will not be subject to harvest but allowed to spawn. The steelhead culture program will be closely monitored to try and determine effectiveness, and the Ministry of Environment will be monitoring the recovery to completion.

Previous program updates have reported on Year 1 broodstock capture success, spawning methods and mating structure, rearing locations and numbers of parr produced (April 2007 update). This update includes activities completed in Year 1 of the program including smolt release in the spring of 2007, and broodstock capture and incubation/rearing results through September 2008 in Year 2.

PROGRAM YEAR 1, 2006/2007

Smolt Releases

A total of 21,480 smolts were released in Year 1 of the program. The method and location of release followed broadly the proposed smolt release strategy of varying release dates, methods and sites to potentially maximize survival and distribution of returning adults while minimizing affects of residuals (McCubbing and Ladell 2006 – available at www.certc.ca).

FVTH Reared Fish

A total of 10,679 smolts (ave. weight 77 g) were released directly from the Fraser Valley Trout Hatchery (FVTH) of which 81 were tagged with POST acoustic tags. Of these 2,000 were released at an upstream site (river kilometre 14.5) and 2,000 into Sues' Channel at the NVOS property on May 11th. The remaining 6,679 fish were released at Sunwolf (including the acoustic tagged fish) on May 23rd.

In addition, 2,933 pre smolts were released into Cat Lake as part of a CN funded resident fishery enhancement project which includes lake fertilization. These fish averaged 29g and were released on the 12th of April. Approximately 12,800 additional surplus fish were released to Mill Lake on various dates from December 2006 to April 2007.

Tenderfoot Hatchery Reared Fish

A total of 10,826 steelhead smolts with average weight of 66g were released volitionally from Tenderfoot Creek Hatchery (TCH) on May 6th. Many of these fish passed through the BC Hydro fish enumeration site on Tenderfoot Creek within a few days, and some were observed several weeks later on the BC Rail channel fish counter upstream of the Tenderfoot confluence.

Residuals

Monitoring for residualized fish is ongoing and results will be presented when completed. Anglers are encouraged to report catches of adipose clipped trout to InStream Fisheries Research (instream@telus.net) with date and location of capture, and a tag number if the fish has an external visual (Floy) tag.

PROGRAM YEAR 2 2007/2008

Broodstock Collection Results

A total of 21 fish were collected (12 males and 9 females) for broodstock during March – June 2007, following guidelines in (McCubbing and Melville 2007 – available at www.certc.ca).

One female exhibited fungus infections, and was likely a kelt, therefore she was released back to the river. Of the eight females available one was partially kelted and produced only 31 eyed eggs, one succumb to a fungal infection and was spawned post-mortem producing only 800 eyed eggs, and one was accidentally crossed with a Chehalis male. Only 5 females produced the anticipated number of eggs, which was half of the program goal.

Twelve males were caught in total. One died in holding, and two developed fungal infections and were not expected to survive to spawning, and therefore were released back to the river to increase their chances of survival. The remaining nine males were sufficient to complete the 1:1 mating strategy with the 7 surviving females.

Considerable problems were encountered holding these large and aggressive fish for a period of several weeks while awaiting maturation. Their aggressive behavior resulted in self inflicted injuries which lead to the infections. This is typical of the problems encountered with this type of culture program, and was not experienced in 2006 due to the late capture (and short holding time) of all brood fish. The risks and advantages of both approaches to brood collection are discussed in McCubbing and Melville (2007), available at www.certc.ca.

Incubation and Rearing

The protocols being followed are the same as in Year 1. Each family group was split into two groups; the Tenderfoot (TCH) group is been incubated on 14 degree water, in order to reach target smolt size by May 15th of 2008. Tenderfoot rearing water is cooler than that FVTH and thus growth rates after transfer will be slower requiring this quick start program. This was observed in the size of smolts released in spring

2007, although differences were minimized at around 10% smaller for TCH fish. The second group which will be reared to smolt at FVTH has been incubated on ground water as FVTH rearing temperatures will allow for target smolt size attainment.

A total of 28,900 green eggs were collected which produced 22,700 fry from seven families. This represents about half of the program goal. Equalization was undertaken in September to maximize genetic diversity and reduce excessive family dominance. This resulted in a contribution of 3,444 fry from each of five strong families along with about 700 fry from the two abbreviated groups for a total of about 17,900 fry. Half of this will be reared at FVTH and half at TCH to reduce the risk of catastrophic loss at one facility.

Fish will be adipose clipped and it is planned to transfer the TCH portion of the smolt rearing group in mid-November. Surplus fry will be planted out in either Cat or Mill Lakes as in 2007.

Regular program updates will be provided approximately every six months, or following major events, to the Cheakamus Recovery committees, and the public. The next update will focus on the 2007 smolt release and residual smolt monitoring project.

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