

KM 8 RE-WATERING

This project is located approximately 11 km north of Squamish along the left (east) margin of the mainstem Cheakamus River. The upstream end of the channel is located near river km 8 and the downstream end near km 7.2.

Project design and construction was completed through an active partnership with Fisheries and Oceans Canada.

RESULTS

Channel re-watering was completed in May 2008 and created a new channel 550 linear metres in length with an estimated 2200 m² of wetted habitat for stream rearing juvenile chinook, steelhead and rainbow trout. Project planning and consultation took place between May and December 2007, and construction commenced in March 2008. The new side channel incorporates 72 large woody debris structures providing a total estimated cover area of 238 m². In addition, channel construction included excavation of pools for juvenile and adult fish, and installation of 39 boulder features providing approximately 180 m² of cover to improve rearing conditions for fish.



CN remains committed to the recovery of the Cheakamus River and continues to work together with environmental consultants and experts on fish recovery and habitat enhancement.

CN Environment is a member of the Cheakamus Ecosystem Restoration Technical Committee (CERTC), which includes additional representation from District of Squamish, Fisheries and Oceans Canada, BC Ministry of Environment and Squamish Nation.

For more information on the recovery of the Cheakamus River, visit www.certc.ca.



KM 8 Restoration

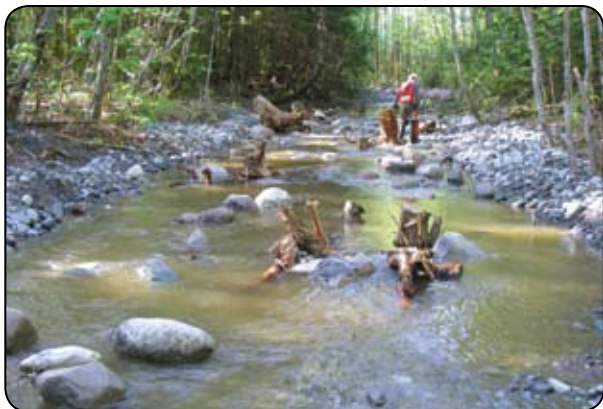
CHEAKAMUS RIVER RECOVERY



PROJECT PHASES

The successful design for the km 8 side channel re-watering project was developed in cooperation with Fisheries and Oceans Canada (DFO), the BC Ministry of Environment and local stakeholders. The project included installation of a surface intake to maintain natural flow conditions and a pipe intake designed by DFO to maintain base flows at low water. Feasibility investigations and project planning also required extensive field work and consultation.

Channel construction was completed in five phases.



PHASE 1: CHANNEL ACCESS

- Created access roads and ramps for construction equipment
- Contoured existing channel bed for use as a temporary haul road

PHASE 2: INTAKE PIPE INSTALLATION

- Constructed a temporary berm to isolate the channel from Cheakamus River during channel excavation and installation of habitat features
- Installed a combination pipe and surface water intake to minimize risk of channel dewatering
- Created an artificial logjam at channel inlet to control debris entry during high flows

PHASE 3: CHANNEL EXCAVATION

- Excavated channel to pre-determined elevations to ensure it would be wetted at low water
- Contoured and reinforced bank slopes with cobble and boulder substrate for bank stability
- Excavated rearing and holding pools in conjunction with installation of habitat structures
- Stockpiled unused excavated materials for future Cheakamus River enhancement projects



PHASE 4: HABITAT STRUCTURES

- Habitat structures consisting of large woody debris and boulder features were installed throughout the channel to provide cover for juvenile fish
- Large woody debris structures were anchored in place to ensure structural stability
 - Single or multiple rootwad clusters
 - Larger triangular structures designed to trap and retain small woody debris
 - A total of 72 structures
- Boulder clusters
 - Groups of 5 to 10 boulders
 - Create resting areas and variable water velocities
 - A total of 39 boulder clusters



PHASE 5: CHANNEL RE-WATERING

- Opened intake pipe to allow initial re-watering and assess channel at base flow conditions
- Removed temporary berm upstream of artificial log jam to allow surface water flow
- Monitored channel re-watering and assessed structural stability