LOWER BINGS CREEK RESTORATION 2000:
A REPORT

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BACKGROUND

Much of Lower Bings Creek (Reaches 1 and 2) had become choked with Reed Canary Grass. Channel width in the target section had decreased from a mean of 6-7 m to an average of 1.18 m since the mid-1980's due to Reed Canary Grass encroachment from the sides. Reed Canary Grass became established many decades ago when lower Bings was cleared and ditched for agricultural purposes. The channel's flow capacity was reduced and several breakout channels had established along the left (north) bank. Bedload build up had also occurred due to increased channel constriction and beaver activity and the creek was spilling into the field to the north at flows greater than 40 LPS. Flows above this level occur for at least nine months per year (WSC, 1990). Reduced flushing was also thought to be at least partly responsible for summer oxygen sags and very high summer temperatures. Oxygen concentrations as low as .025mg/L and temperatures as high as 24º have been recorded in the Lower Bings target section (Burns, 1999).
Bings Creek is important fish habitat. The lower 1882 m support coho and chum salmon, cutthroat trout (resident, sea-run and spawners from Somenos Lake), sea-run brown trout and an occasional steelhead. Resident cutthroats and brown trout (introduced) are present above the falls at 1882m. An important element of Bings Creek's fish habitat value is its refuge value for salmonids that must leave Somenos Lake to escape deteriorating water quality conditions. Prior to 1999, Bings Creek was the only one of Somenos Lake's three major tributaries that was accessible to juvenile salmonids. Richards Creek is blocked by a long stretch of low quality water and Averill was blocked by the Island Highway and E&N Railroad culverts. These were improved in 1999.

OBJECTIVES

Project objectives were to increase flow capacity of the channel by deepening and widening it and removing Reed Canary Grass and to establish a riparian canopy to shade out Reed Canary Grass and moderate stream temperatures. These measures would improve fish habitat by increasing water movement thus increasing oxygen concentrations, increasing depth somewhat and reduce spill into the field on the north.

RESULTS

Prior to excavation, Reed Canary Grass was cut with brush cutters and a scythe so the excavator operator could see the channel. 165 m of channel was excavated between Aug. 30 and Sept. 1, 2000. The treatment area was divided into three sections of 41, 51 and 73 m. The sections were dried by damming them off with sandbag/poly dams and pumping the water around them and the fish were salvaged and released downstream. A total of 130 coho fry between 54 and 90 mm, 13 cutthroat fry and one parr, 168 sticklebacks, 335 sculpins (all *Cottus asper*) and 108 lamprey ammocytes were salvaged. Stop nets prevented the fish form moving upstream. A stop net was also located at the upstream end of each work section. Approximately 1000 m^3 of material was removed from the channel. It consisted of Reed Canary Grass sods, muck-detritus and sand-pea gravel. Average channel width was increased from 1.24 m to 7 m, mean wetted width increased from 1.24 m to 2.7 m, and average depth improved from .167 m

to .289 m. Habitat units changed from 20 % to 42% percent pools, 58 to 19% riffles 9 to 59% glides and 13 to 0% slough. Twenty cubic metres of donated gravel (Butler Brothers) was deposited in the channel to firm up the bottom somewhat and improve spawning habitat in the upper 146m. It was placed at variable depths to provide pools and riffles. Eleven high spots were placed to increase depth and provide riffles. Eight of these were reinforced with rock weirs that were placed on September 8 by Fish First. Channel bank slopes were constructed at 3:1.

Special effort was made to plug breakout channels on the north bank. Reed Canary Grass sods were uprooted, turned over and punched into the spill points.

Because the channel banks were so raw, Reed Canary Grass cuttings were placed over them to provide protection from raindrop impact and rill erosion, shade out initial reed Canary Grass sprouting (new shoots appeared on bare spots just three days after excavation) and provide a somewhat firmer footing for people planting riparian vegetation.

Riparian planting began on Aug. 31 and continues. 92 m of streambank was planted with willow cuttings (largely Scouler's with some Pacific) and some Red Osier and Black Cottonwood from a source within Somenos Marsh. In addition to the willow cuttings, the lower 92 m was also planted with cut off trees that were angled over the streambank to provide protection from aerial predators and provide some shade (stream temperature during the project only ranged between 14 and 17º so shade was not particularly important from a temperature viewpoint).

A future planting plan has been provided by Dave Polster and will be implemented by Fish First and volunteers. Initial planting was done by MOE staff and volunteers.

PHOTOS

Photo 1: The channel was choked with Reed Canary Grass and Carex

Photo 2: Reed Canary Grass was cut by hand with a scythe or gas powered brush cutters prior to excavation

Photo 3: The fish were salvaged as the pumps were drying the sections to be excavted

Photo 4: The channel sections were excavated with a 245 class excavator with a cleanup bucket

Photo 5: Following excavation, RCG cuttings were cast over the raw banks to retard its growth

Photo 6: Willow, cottonwood and red osier cuttings were planted along with some whole pole saplings to discourage aerial predators.

REFERENCES

Burns T. 1999. A Salmonid Production Plan for the Cowichan Valley Regional District. For: Fisheries Renewal BC

Water Survey of Canada, 1990. Historic Streamflow Summary to 1990