

Abstracts - Riparian Zone

A Literature Review of Riparian Revegetation Techniques (RM90-3.1)

Prepared by Triton Environmental Consultants Ltd. April 1993

Literature concerning bioengineering approaches, which use vegetation to stabilize slopes and streambanks, was reviewed to identify revegetative techniques which could be applied to the upper Nechako River and its tributaries as a means of controlling sediment input.

Re-establishing a healthy riparian habitat has the benefit of improving salmonid habitat. Few examples of the use of revegetative technique to control erosion exist in North America, and fewer exist for British Columbia, although several have been widely employed in Europe since prior to the turn of the century. Identified revegetation techniques can be classified into methods for: shoreline protection, reconstructing streambanks, and slope stabilization.

Techniques reviewed include methods to propagate vegetation and structural methods which incorporate propagative materials. Selecting the appropriate vegetation involves numerous criteria, but shrubs and grasses are most often recommended for streambank stabilization.

Several species ideal for revegetation are native to British Columbia as well as the upper Nechako River watershed, particularly species within the genus *Salix* (willows), *Alnus* (alders), *Festucas*, (fescues), *Carex* (sedges), and *Trifolium* (clovers).

Riparian Vegetation Pilot Testing (RM91-7)

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In the spring of 1991, a pilot revegetation project was initiated at two test sites in the upper Nechako River watershed. The purpose of this work was to determine the applicability of bioengineering techniques to stabilize streambanks and thereby reduce sediment input to the Nechako River. Stream stabilization techniques utilized during the course of the pilot project included spiling, brush mattressing, contour wattling, seeding, and placement of rooted and unrooted cuttings as well as various types of revetments designed to protect the toe of banks from fluvial erosion. To date, both Pacific willow (*Salix lucida lasiandra*) and Bebb's willow (*Salix bebbiana*) have been established in unvegetated areas without the need for artificial irrigation, but Thinleaf alder (*Alnus tenuifolia*) has not responded well in this pilot project. Soil erosion appears to have been reduced at the two test sites but long term monitoring must be completed prior to making final conclusions regarding the overall success of the bioengineering techniques employed. However, the initial success of the bioengineering methods employed in this project indicate that revegetation is a viable method to reduce erosion of streambanks in the Nechako River area, and that the methods utilized in this pilot project could be applied to other sites within the upper Nechako drainage if there is a requirement to reduce sediment input into the river.