

# Instream and Channel Restoration Projects

the fertilized reach compared to the other reaches until 1997. Also, electrofishing surveys indicated increased juvenile rainbow trout biomass in the fertilized reach compared to the untreated reaches. By 1996, there was evidence of straying of fish from T2 into T1, possibly in response to a food gradient and deep pool availability in low summer flows.

## Mesilinka River

The Mesilinka River is a large cool river located in B.C.'s northern interior 280 km north of Prince George. The headwaters originate in the Omenica mountain range and flow for a distance of about 120 km prior to joining B.C.'s largest body of water, the Williston Reservoir. The external control in this project, the Nation River, is located about 100 km south of the Mesilinka River. Fertilization was selected as one of the few practical options for mitigating for loss of habitat in the lower Mesilinka and Omenica Rivers because large reaches of the Parship, Finlay and Peace rivers and their numerous tributaries, were flooded by impounding the Peace system as the expansive Williston Reservoir.

Peak periphyton biomass (measured as chlorophyll *a*) in 1994 was 10 times and 2 times higher in T1 and T2, respectively, than the control reach. By 1994, benthic invertebrate biomass increased 2 times in T1 but less so in T2. Adult fish densities were higher in T1 and T2 following the first year of nutrient treatment, mainly due to a response from mountain whitefish. By 1995-97, fish populations continued to increase in treatment reach T1, but less so in treatment reach T2. Increases in abundance ranged between 1.5 and 3 times, except

for highly migrant bull trout in T2 which lagged until a marked increase in 1999. Large rainbow trout (> 30 cm) increased 3 times in both reaches. Given the cold climate and longevity of the target species in the Mesilinka (e.g., bull trout, Arctic grayling), several years of fertilization will likely be required before the overall response is confirmed.

## Lessons Learned

- To date, the results of experimental stream fertilization inferred from the response of five streams strongly demonstrate that low-level seasonal addition of limiting nutrients can substantially increase the trophic productivity of oligotrophic streams. (methods including slow release are described in technical circular 9)
- The effective distance of fish growth resulting from nutrient additions was approximately 15 km on average (range 12-15 km) in the Salmon River.
- This technique is applicable to streams with depressed nutrient influxes (lacking salmon carcasses), as well as to increase fish survivals in disturbed watersheds, such as the Salmon River. ▲

Based on : Slaney, P.A. and K.I. Ashley. 1998. Case Studies of Whole-stream Fertilization in British Columbia. Restoration of Fisheries by Enrichment of Aquatic Ecosystems. 1999. pp. 83-98, In: J.G. Stockner and G. Milbrink (Eds.). Proceedings of the International Workshop at Uppsala University, March 30 to April 1, 1998, Uppsala, Sweden. 219 pp.

## Update

### Conferences

**Technologies for New Millennium Forestry, Demo 2000 International.** Sept. 11-16, Kelowna, B.C. For updated information, consult the following websites: [www.cwfc.org](http://www.cwfc.org) or [www.forestindustry.com](http://www.forestindustry.com). This event is organized every four years, so don't miss it. Approximately 8,000 - 10,000 registrants are expected from over 30 countries.

**International Conference on Ecology and Management of Wood in World Rivers.** Oct. 23 - 27, 2000. Corvallis, Oregon. Call for papers: abstracts must be received by April 1, 2000.

Further information on abstract formatting and registration are available at the conference website at <http://riverwood.orst.edu>.

### Workshops

**Watershed Assessment in the Southern Interior of B.C.** March 9 and 10, 2000. Penticton Lakeside Resort. Penticton, B.C. The objectives of the workshop are to present recent hydrologic research to assist in watershed analysis in the interior of B.C., to present research on the four main topics included in watershed analysis to enable better watershed assessments,

and to present research about topics related to watershed analysis. For registration information, contact April Anderson tel: 250-226-7641.

**2000 Interior Forest Site Rehabilitation Workshop** in Kamloops on April 12th & 13th, 2000 at the Best Western Towne Lodge. The IFSR will again be an interesting two-day event based around this year's theme "*Results and Accomplishments - toward better forests, stabilized channels and cleaner water.*" The emphasis will be on lessons learned over the last 5 years and various projects of the WRP program - what techniques and measures have stood

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the test of time, which have not and which ones provided sound investments. Presentations will focus on experience gained from the accomplishments of successful projects. Consistent with this theme and the purpose of the workshop, expressions of interest for presentations, which relate to the topics listed below, will be considered for the workshop agenda, according to merit. The workshop will be preceded by a one-day seminar on April 11, which will focus on interior watershed processes (specific topics to be defined). For further information please contact Tom Rankin at tel:(250) 573-3092 fax: 250-573-2882 or e-mail at [trankin@telus.net](mailto:trankin@telus.net)

## Courses

### INTRODUCTORY COURSES:

**Forest Worker Training.** This five-day course is designed to introduce participants to the WRP and the field techniques used on WRP projects. Feb 28 - March 3, 2000, Campbell River, B.C. April 3 - 7, 2000, Vernon, B.C. May 1 - 5, 2000, Prince George, B.C. Registration Fee: \$ 710.00 + \$ 49.70 gst

**Fish Habitat Assessment Procedure (FHAP).** This 2.5-day workshop combines classroom and field components in assessing fish habitat for watershed restoration work. Available on demand.

### Introduction to Fish Habitat Rehabilitation Procedures (FHRP).

This 1.5-day workshop introduces participants to the various techniques used to rehabilitate fish habitat that has been impacted by past timber harvest practices. April 26 - 27, 2000, Vernon, B.C. Registration Fee: \$ 225.00 + \$ 15.75 gst

### Riparian Assessment & Prescription Procedures (RAPP).

This workshop will introduce participants to the WRP RAPP as described in the WRP Technical Circular No. 6 (1999). April 17 - 19, 2000, Chilliwack, B.C. May 8 - 10, 2000, Prince George, B.C. Registration Fee: \$ 330.00 + \$ 23.10 gst

### ADVANCED COURSES:

**Fish Habitat Rehabilitation: Off-Channel Habitat.** This practical workshop will give an in-depth description of off-channel WRP projects; when off-channel habitat is appropriate, how to determine the type of off-channel habitat to use, prescribing rehabilitation projects and the design and implementation of prescribed projects. May 2 - 3, 2000, Chilliwack, B.C. Registration Fee: \$ 315.00 + \$ 22.05 gst

**Fish Habitat Rehabilitation: In-Stream Structures, Large Woody Debris and Boulders** This practical workshop will give an in-depth description of in-stream WRP projects, including large woody debris (LWD) and boulder structures; when in-stream structures are appropriate, how to determine the type of structure to use, prescribing rehabilitation projects, and the design and implementation of prescribed projects. April 26 - 28, 2000 Port Hardy, B.C. October 25 - 27, 2000 Kelowna area Registration Fee: \$ 315.00 + \$ 22.05 gst

### Channel Condition Prescriptions and Assessments Procedure (CCPA)

The CCPA is an objective and repeatable method of assessing changes in stream channel morphology brought about by timber harvest activities. April 13 - 14, 2000, Chilliwack, B.C. June 14 - 15, 2000, Prince George, B.C. Registration Fee: \$ 290.00 + \$ 20.30 gst, if applicable.

To express your interest in WRP courses and/or receive course delivery details, contact the FCSN office in Vancouver at tel: 604-222-9157, fax: 604-222-1730, email: [pcb@interchange.ubc.ca](mailto:pcb@interchange.ubc.ca), or leave a message on our toll-free registration line: 1-877-222-9993. For course information, contact Phil Blanchard at: 250-477-5560, email: [prb.fcsn@home.com](mailto:prb.fcsn@home.com). For information on the WRP program, contact Heather Deal, WRP Training Coordinator, Ministry of Environment 604-222-6768 or [Heather.Deal@gems1.gov.bc.ca](mailto:Heather.Deal@gems1.gov.bc.ca)

## Streamline

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Streamline's goals are to communicate information on practical approaches to watershed restoration including the rehabilitation of stream channels, riparian zones and hillslopes, and to act as a link between geographically separated WRP proponents and their contractors by facilitating the sharing of information and ideas between the regions of B.C. We rely on our readers' participation. **Please send articles and project descriptions (with relevant photos and drawings), as well as information for our "Update" section. We reserve the right to edit submissions for appropriate content, style, and relevance to the Technical Bulletin.**

WRP Publications, Technical Circulars and Videos may be ordered from:  
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