

## **Habitat Restoration**

- Habitat Prescriptions – Priority rivers
- Shovelnose Extension Project
- Seymour River Nutrient Enrichment
- Funding sources for project implementation

### **Habitat Prescriptions – Priority rivers**

The Action Plan of the Greater Georgia Basin Steelhead Recovery initiative targets habitat restoration and other habitat improvement measures to offset serious declines in steelhead stock productivity. Much of the decline in stock abundance is a result of depressed smolt-to-adult survival in the ocean, but it is also exacerbated by historical impacts to steelhead and salmon streams from slope failures and loss or impairment of steelhead habitat. Many stocks have declined to 30 % of estimated carrying capacity, and thus there is a significant conservation concern. Some stocks are at serious conservation risk, or 10 % of capacity (Lill 2002). Therefore, there is an urgency to implement stock recovery plans over the next few years.

#### **Steelhead Habitat Restoration at Lower Mainland Streams**

Steelhead streams that are of priority for initial efforts on habitat restoration and related enhancement are on the Squamish, North Shore, Coquitlam River and Chehalis. In the fiscal year 2003/04, a consultant along with Lower Mainland Steelhead Recovery staff will develop habitat prescriptions on nine (9) systems.

[\(Reports for all nine systems will be completed by March 31, 2004\)](#)

#### **Work entails the following biophysical assessment and habitat prescription tasks:**

1. conduct FHAP level 1 surveys (Johnston and Slaney 1996) over each distance;
2. identify/interpret and prioritize limiting factors to juvenile steelhead production;
3. identify and prioritize instream and off-channel restoration opportunities;  
provide detailed instream habitat rehabilitation prescriptions;

Streams targeted for habitat prescriptions, with assessment-prescription distances and suitable timing, are proposed as follows:

<u>Stream/River</u>	<u>Target Distance</u>	<u>Timing - Month(s)</u>	<u>Comments</u>
• Lynn Creek	1-1.5 km	June	Completed
• Capilano River	5 km	Sept.	
• Seymour River:	1-1.5 km	May/July	Completed
• Coquitlam River: Incl. Orr Creek	2 km	June	Completed
• U. Silverhope Creek	3 km	July	Completed
• Chehalis River	1-2 km	August	Completed
• Mamquam River	2 km	August	Postponed to late summer
• Cheakamus River	2 km	Sept.	
• Upper Squamish River - West side-channels	10 km	Sept/Oct or Feb	

### **Shovelnose Extension Project**

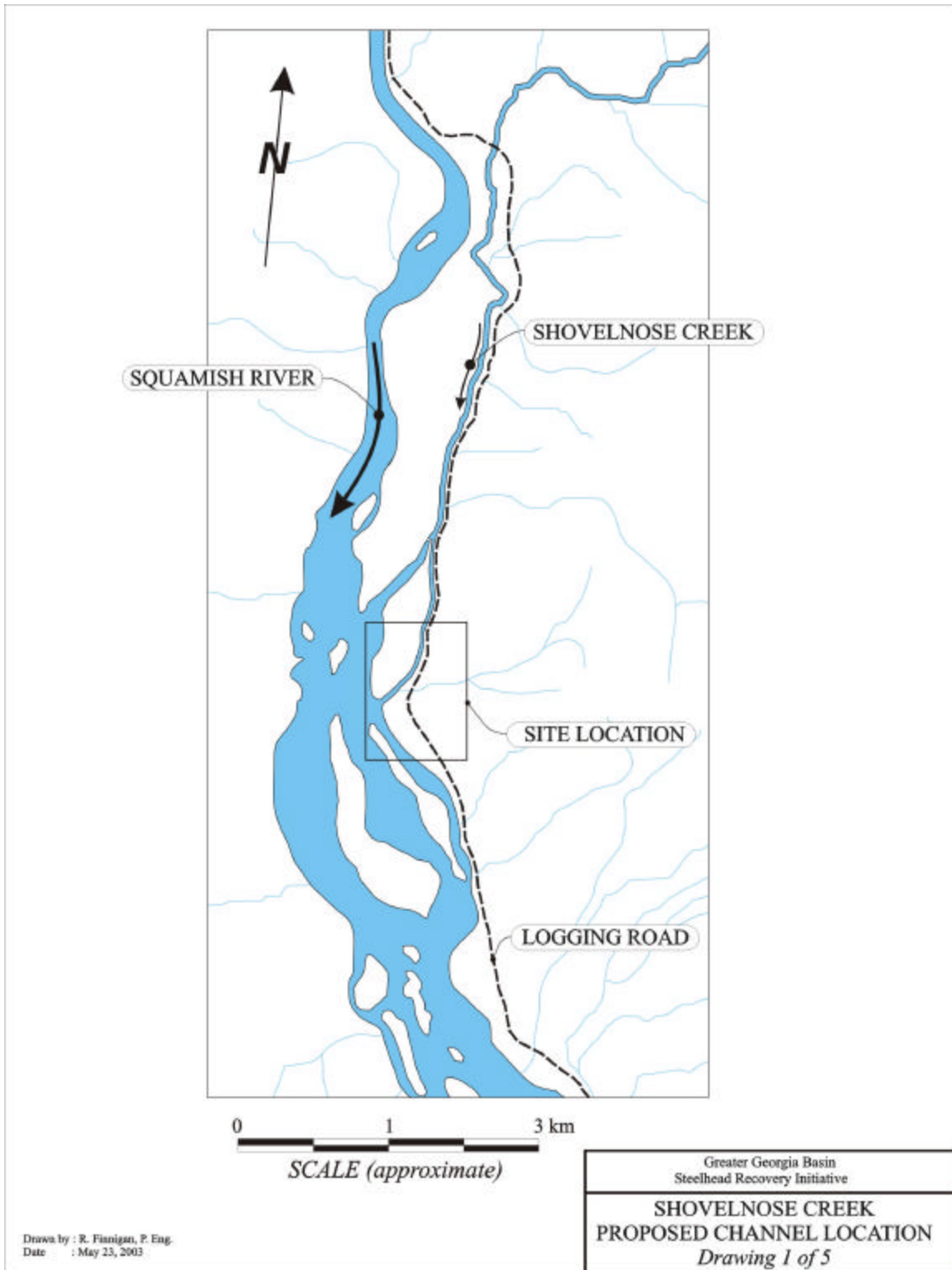
Shovelnose Creek is a tributary to the Squamish River, located at approximately km 30 on the Squamish Valley Road. The lower portion of the creek was damaged in the 1980s during a major debris slide, which eliminated fish habitat. A series of Watershed Restoration Program (WRP) and Steelhead Society projects in the 1990s stabilized the lower portion of the creek and created summer rearing, over wintering and spawning habitat for coho and chinook salmon and steelhead trout. To this day the highest mean juvenile steelhead densities in the Squamish River are found in the artificially constructed Shovelnose side-channel.

In August, 2003 the Greater Georgia Basin Steelhead Recovery Plan spent 3 weeks extending the existing side channel by approximately 1.2 km. This was accomplished by diverting water from the existing channel (just prior to its confluence with the Squamish mainstem) in to what was a dry side-channel. In the top 600 m of the channel a constructed riffle/pool sequence was complexed with boulder clusters, large woody debris structures and cutbanks, while the lower portion had the potential for steelhead habitat and just required the addition of water (Figure 1 and 2). Habitat was designed for juvenile steelhead rearing and over-wintering, but benefits to coho and chinook are also anticipated. The channel averages 4 m in width, thereby creating approximately 4,800 m<sup>2</sup> of new targeted steelhead habitat for the Squamish River. In-kind partners on the project included DFO and the South Coast Steelhead Coalition, with support from Interfor.

[\(Report expected by December 2003\)](#)



**Figure 1.** Freshly constructed extension channel containing boulder/LWD complexing (Aug 11/2003).



**Figure 2.** Shovelnose Creek Extension project location.

## Seymour River Nutrient Enrichment



Fifteen streams are being evaluated for their potential to increase steelhead productivity by nutrient enrichment. Increasing the productivity of freshwater habitat by replacing marine derived nutrients, once supplied by historic salmon spawning runs, is one of two major recovery options available to steelhead managers. This project is key to the development of a river nutrification strategy for the Lower Mainland.

Currently on the Seymour River, the stream enrichment process using liquid fertilizer will improve habitat productivity for the majority of the rivers length (~18.5 Km). By positioning the release of the liquid fertilizer in the upper portion of the river we have, in a sense, treated the entire length of the river. The fertilizer will improve productivity during the summer rearing season and increase growth and survival of juvenile steelhead over the winter months. This project is the first phase of a partnership between the Seymour Salmonid Society, DFO, GVRD, South Coast Steelhead Coalition and WLAP to increase steelhead and salmon production in this semi-pristine river close to the Greater Vancouver urban core. The Seymour Salmonid Society provided in-kind contributions of manpower for daily monitoring and adjustment fertilizer addition.

<http://steelheadrecoveryplan.ca/r2-focus3.htm> - hr-sey

## **Funding sources for project implementation**

Over the past year significant progress was made developing partnerships and funding sources. A number of partnerships have been, or are being developed with government agencies (e.g. DFO, GVRD, BC Hydro), industry (e.g. Interfor, Terasen), not-for-profit foundations (e.g. Pacific Salmon Foundation), and public organizations (e.g. South Coast Steelhead Coalition, Seymour Salmonid Society). Over the next several months, efforts will be made to expand partnerships with the forest industry and others. In addition, funding applications will be made to those partners willing to co-fund projects.

Partnership building is an ongoing activity and will continue throughout the project. It is recognized that partnerships, particularly those involving co-funding, are an essential component of steelhead recovery in the Lower Mainland.