Streamline
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Windermere Creek: Restoration Success Through Partnerships in Stewardship

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Background

The restoration efforts for Windermere Creek owe their success, in part, to area residents and a multitude of vested stakeholders who are dedicated participants in these local stewardship initiatives. The various partners remain committed to the successful management of the Windermere Creek Watershed (Figure 1).

Figure 1. Public meeting to present a summary of the Watershed Restoration Program, assessments, results, examples of proposed stream restoration measures, and proposed water quality sampling programs.

Windermere Creek is a fifth order tributary of the Columbia River. The lower reaches of the creek flow directly through the community of Windermere, located in the East Kootenays of southeastern BC. The mainstem flows 27 km from its origin in the Stanford Range of the Columbia Mountains to its confluence with Lake Windermere. Windermere Creek is the largest tributary to the lake, and is recorded as a regionally important fish stream. Its lower reaches provide spawning habitat for kokanee salmon (*Oncorhynchus nerka*) as well as rearing and spawning habitat for bull (*Salvelinus confluentus*), eastern brook (*S. fontinalis*), rainbow (*O. mykiss*), and westslope cutthroat (*O. clarki*) trout. Slimy sculpin (*Cottus cognatus*) and juvenile mountain whitefish (*Prosopium williamsoni*) have been observed in Reaches 1 and 2 of Windermere Creek.

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EDITOR'S NOTE

In this issue, each of the feature articles reflect a different style of partnership in stewardship. All of the partnerships were established to provide watershed restoration. Windermere Creek is an example of an interior project in a community watershed, where Ministry of Environment, Lands and Parks coordinated the project. In the Bella Coola watershed, the Regional District took the lead, while in the San Juan watershed, where much of the land is privately owned, a formal agreement has provided for the restoration work. Next issue will include an insert featuring the 1998 Coastal Forest Site Rehabilitation Workshop.

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Feature

Multi-Stakeholder Interests

Extensive human land use activity within the Windermere Creek Watershed (Figure 2) includes crown land forest harvesting of 16 percent of the total watershed area, access development (highway, secondary and forest roads), two open pit gypsum mines (one active), gravel pits, agriculture, recreational (golf course, camp grounds) and residential development. Windermere Creek is under review for "Community Watershed" status, as it provides water for agricultural use and for local native communities (it incorporates a portion of Columbia Lake Indian Reservation #3).

The watershed is within licensed guide-outfitter and trapper territories. It provides important wildlife movement corridors for a number of species. Backcountry recreation activities in the Windermere Creek Watershed, such as hiking, fishing and hunting, are popular pursuits for local community members. Karst topography features provide unique swimming opportunities at a "bottomless" sinkhole. The watershed is of spiritual significance to the native community of the Columbia Lake Band and provides berry picking sites close to their local community.

Resource extraction and developments have resulted in considerable impacts to the water, habitat and channel conditions of Windermere Creek. A watershed prioritization completed by Ministry of Environment , Lands and Parks (MELP) recognized the uniqueness of Windermere Creek due to its importance to a broad range of concerns and interests. The need for restoration was considered high at both the local and regional levels.

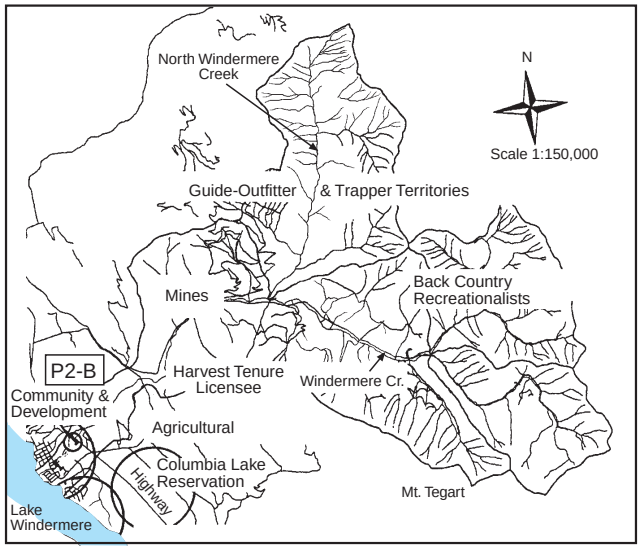

Figure 2. Map of human activity in the Windermere Creek Watershed.

Watershed evaluation criteria incorporated environmental impacts, and noted the opportunity for restoration success with support from the various stakeholders and potential partners. Restoration strategies were developed to ensure a watershed restoration process that was integrated overall, and which incorporated the interests of multiple stakeholders. Restoration was funded through Forest Renewal B.C., in partnership with Slocan Forest Products, Radium Division, and MELP.

A strong level of stakeholder involvement was key to project success for this high profile watershed. Stakeholders included:

- Westroc Industries Ltd. (mines),
- the Windermere Community Association,
- local residents (including 49 licensed water users),
- area guide-outfitter and trapper, local clubs and organizations (Rod & Gun, Fly Fishing Clubs, Greenways and Pathways),
- East Kootenay Health District,
- Ktunaxa Kinbasket Tribal Council,
- Columbia Lake Indian Band,
- Ministry of Transportation and Highways,
- Regional District of East Kootenay,
- Columbia Basin Fish and Wildlife Compensation Fund,
- local Chamber of Commerce,
- tourists, and
- the Ministry of Forests.

Agra Earth and Environmental Limited was retained under contract by Slocan Forest Products to complete assessments and provide restoration prescriptions.

The Process for Success

Assessments & Data Collection

Overview Interior Watershed and Fish Habitat Assessment Procedures (IWAPs and FHAPs) were conducted in 1997 to provide a preliminary assessment of the location, nature and extent of the effects of human impacts on the watershed and affected habitat. Based on the results of the overview studies, a Level 1 FHAP commenced in late l997/early l998, concurrently with a Channel Condition and Assessment Procedure (CCPA), to provide more detailed information on the watershed, and to identify specific restoration opportunities.

Plan Reviews & Prescriptions

A multitude of associated plans and reports were reviewed by the Ministry of Environment, the licensee, and the consultant, to ensure coordination with other initiatives and existing data. These included timber resource plans, access management plans (development and deactivation), lake studies, historic stream discharge

information, fish population information, water quality studies, and community plans. **Ultimately, a coordinated effort among biologists, foresters, engineers, and hydrologists was used to develop high priority restoration prescriptions for Windermere Creek.**

Meetings

Meetings were conducted at a variety of technical and consultative/informative levels. Initial meetings were organized by the Ministry of Environment, the licensee, and the consultant, to establish strategies considered likely to be successful for both the Windermere Creek Watershed and the area stakeholders. Individual and "round table" meetings were then held with stakeholders that held specific vested interests (mines, highways) to provide opportunity for an information exchange regarding the various ways in which their agencies could participate in the proposed restoration activities, and to ensure that their concerns could be presented and addressed. **A high level of support was achieved through these discussions**.

Because of extensive public interest in watershed issues and the large number of vested stakeholders for Windermere Creek, public consultation meetings were identified as an appropriate forum for the presentation of study results and proposed strategies for restoration (Figure 1). Letters of invitation were mailed to the identified stakeholders and media to encourage their attendance and participation. Further advertisements were posted in the local newspapers and post offices.

An initial public meeting held in October l997 was extremely successful, with 41 people attending. A summary of the Watershed Restoration Program, assessments, results, examples of proposed stream restoration measures, and proposed water quality sampling program was presented. The following issues were identified by public and agencies: water quality, sewage treatment, fisheries, and stream restoration. Discussions were initiated on the development of public greenways and future opportunities for the community in watershed management. **This public meeting was important in establishing successful partnerships early in the process, for averting potential problems or conflicts, and for gaining widespread support from the community, the agencies, and stakeholders in attendance**.

An ongoing public awareness campaign was initiated. The Ministry of Environment and Slocan Forest Products staff sent press releases, encouraged newspaper coverage, and made personal presentations or tours with local groups such as the Rod & Gun & Flyfishing Clubs, general public, and local elementary and university school groups (Figure 3).

Figure 3. As part of an ongoing public awareness campaign the Ministry of Environment and Slocan Forest Products give presentations to local groups.

A follow-up meeting in February l998 provided the detail and design for the prescribed works and methodology, and once again provided participants with an opportunity to discuss any potential concerns. **These meetings also set the framework for successful consultation processes in the future.**

Dealing With the Issues

Partners were kept informed at all stages of the restoration. Potential issues such as access and water quality were identified and addressed early in the process. Strong communication links quickly resolved emerging problems, and allowed for open information exchange throughout the process.

Road Closure:
Road closure was required during actual restoration activities, but did not become an issue because:

1. A public campaign to communicate the closure was conducted in advance of activities.
2. The timing of the closure (several days) was coordinated with the industrial mine operation, accommodating their schedule to prevent hauling shut downs.

Fire Hazard Restrictions:
During the period of restoration activity, extreme fire hazard conditions forced industrial operators to "early shift." Through consultation and discussions with key agency partners, restoration activities involving heavy machinery were allowed to continue under special permitted conditions.

Scheduling of Activities:
Scheduling restoration activities was limited to an August fisheries work window, but with planning and

Feature

preparation prior to activities, consultants, contractors and government agencies ensured that this timetable was met. Required permits, authorizations and notifications were prepared well in advance of field activities, including in-stream works approvals, letters of authorization for private land access, notifications by letter (and sometimes including personal visits) to downstream water users and property owners, and authorizations for removal of snags or trees, as required for safety or to accommodate restoration operations.

Safety Issues:
Worker safety was stressed as paramount with all project participants. Prior to initiation of the project, a safety plan was devised which defined work site safety procedures, as well as the roles, responsibilities and equipment and training requirements for all involved. An equipment inspection was completed prior to the commencement of field activities. "Walk through" reviews of all construction sites and plans were also completed with field participants (Figure 4).

Liability Issues:
A number of local groups and community members expressed a keen interest in participating in the restoration activities. Unfortunately, liability issues limited volunteer involvement with the field activities. However, qualified local residents were hired to participate in water quality sampling, fish sampling, and to coordinate community involvement.

Figure 4. "Walk through" reviews of all construction sites and plans were completed with field participants.

Partnerships Get the Job Done!

To date (August l998), restoration activities have been completed at seven high-priority sites. These includes stream bank stabilizations and revegetation applying bioengineering techniques; stream bank revetment and sediment controls; fish passage barrier removals and gradient controls; and construction of an inlet catch basin and drain system for diversion of a spring-fed discharge. The project employed 'standard' restoration techniques, including v-log weirs, large woody debris placement and tree revetment, boulder cluster armoring, live cutting placement, revegetation techniques, and construction of an inlet catch basin/drain system. Stakeholders supported these prescriptions and activities. Their support could be attributed, in part, to the time and effort taken to provide education and disseminate information in the planning stages.

Partners brought personal expertise to the process, including engineers, foresters, biologists, hydrologists, public relations and community liaisons. The project was cost-effective, particularly as key partners and stakeholders generously donated time, materials and equipment.

The Benefits

Ultimately, the restored habitat and channel conditions are a project success. This project rehabilitated approximately 2,000 m^2 of stream channel, which should result in high quality fish spawning, rearing and overwintering habitat. Spring-fed discharge now provides significant flow to Windermere Creek. In addition, fish of the fall kokanee run (1998) were able to spawn upstream over an additional 0.8 km of prime habitat, where passage was previously not possible. These tangible accomplishments provide encouragement for all stakeholders and participants to continue their support of the project.

An important aspect of the Windermere Creek restoration was that in all possible cases, the project employed displaced forest workers, who also received new skills training. Local contractors were hired, which further strengthened community support for the project.

The area licensee and mines resource operations will benefit from the positive public relations that show them as good corporate community partners for their participation in these restoration initiatives.

The community of Windermere, local property owners, and downstream water users will benefit from the creek channel stabilization and sediment control measures. Local clubs, schools and groups have been presented with educational opportunities; these organizations look forward to future development of interpretive trails and "greenspaces."

Local agencies and vested stakeholders have formed positive working partnerships. The framework now exists for continued future successful watershed management.

Taking Ownership through Stewardship

The overall success of the Windermere Creek restoration depended on positive working partnerships that provided support from early in the process. These positive results demonstrate that successful watershed restoration and management is primarily the result of stakeholder "buy-in" and support, whereas the resolution of technical issues is a secondary, although still important, consideration.

Opportunities have been identified and prescriptions developed for additional high priority Windermere Creek restoration sites, with continued financial and project support through multiple partners dedicated for 1999-2000. With potential funding limitations pending, strong stakeholder support and partnership arrangements can provide an avenue to ensure that some restoration initiatives and management processes are able to continue. The Windermere Creek Watershed management process will remain one that incorporates public participation and addresses the concerns identified by the public and stakeholders. Proposed local programs that promote local stewardship, such as Streamkeepers, Greenways and Pathways, and community-based water sampling and monitoring programs, will ensure the successful management of the watershed. Ongoing monitoring is key to evaluating the progress and success of the project, so that future restoration strategies can be adapted accordingly.

As demonstrated for Windermere Creek, encouraging and maintaining diversified partnerships is critical to the continued success of watershed management.

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The San Juan Watershed Agreement

Bud Iverson and Deb Epps

Introduction

The San Juan Watershed Agreement establishes a cooperative and jointly managed program with the objectives of protecting, improving and replacing fish habitat and fisheries-related recreational opportunities. This agreement concerns the 665 km^2 drainage of the San Juan River, located on the southwest coast of Vancouver Island, approximately 80 km west of Victoria (Figure 1). The main valley lies east-west and has been eroded along a major fault line with different terrain and geology to the north and south. The south side of the drainage is composed of easily erodible sedimentary rock while the north side is composed of more stable intrusive and volcanic rock. The length of the San Juan River is just over 50 km and is composed of two distinct types of stream channel morphology. Most of the streams, particularly the headwater reaches, are steep bedrock/boulder-controlled channels. The other channel morphology type is a 1-2 km wide floodplain found in the lower 10 km of the San Juan mainstem. The floodplain contains numerous wetlands relic channels and small low gradient minor tributaries (Griffith, 1997).

The agreement for the San Juan Watershed recognizes both the economic and social values provided by forest management, and also that fulfillment of private property rights includes protection of publicly-owned environmental values such as fisheries, water quality and quantity. It was signed on August 1, 1995, and will terminate on December 31, 2001.

The agreement provides for the establishment of a Management Committee and a Steering Committee. The Management Committee consists of an Assistant Deputy Minister from the MELP, the MOF District Manager, the DFO Chief of Habitat Policy Unit and the Chief Forester from both MacMillan Bloedel Limited and TimberWest Forest Limited. The Steering Committee is composed of a representative and an alternate from each participating entity.