Vancouver Island Steelhead Recovery Plan
(Progress in 2003/2004)

by:

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Introduction

The Vancouver Island Steelhead Recovery Plan (Wightman, et al 1998) has now been supported for five consecutive years by the Habitat Conservation Trust Fund and other partners. In September 2002, the Vancouver Island plan formally became part of a larger provincial conservation initiative called the ***Greater Georgia Basin Steelhead Recovery Plan*** (Lill 2002), which includes 58 high priority watersheds on the east coast of Vancouver Island, adjacent mainland inlets and lower Fraser River. The primary objective of the broad recovery plan is to stabilize and restore wild steelhead stocks and habitats to healthy self-sustaining levels, and to maintain and restore angling opportunities, which benefit both local communities and the provincial economy. This report outlines important progress that has been made in the last 10 months in achieving these objectives in key watersheds on the Island's east coast.

(a) Activities/Techniques

Stock Assessment

- Winter and summer steelhead spawning escapements were enumerated in 24 watersheds through snorkel surveys conducted in standardized or "index" reaches. For some winter run streams this involved replicated swims over time (i.e., January –late April/early May) to produce "instantaneous" abundance estimates expressed as fish per kilometre. On the Englishman River, additional funding from the Pacific Salmon Endowment Fund has increased snorkel survey replicates to the point where a population estimate can be derived using the "area under the curve" method. For most systems, snorkel counts are treated as *relative abundance indices* which are combined with other data like fence/trap counts, juvenile stock monitoring results, Steelhead Harvest Questionnaire estimates of angler catch/effort, roving creel census statistics, etc. to estimate inter-annual steelhead abundance trends. This "weight of evidence" approach has been used on Vancouver Island since 1997 to better determine the conservation status of individual steelhead stocks in relation to setting appropriate angling regulations, establishing recovery plans, and increasing habitat protection, where needed (Appendix i).

- A total of 31 snorkel surveys in 17 Vancouver Island streams, over an combined distance of 248km, counted 724 adult winter steelhead. For summer steelhead, 11 surveys in 9 watersheds over a total of 70.5km, counted 1,048 fish. As of October 16, 2003, three more summer steelhead swims have yet to be done, including Harris Creek (San Juan River tributary), Caycuse River (tributary to Nitinat Lake), and Puntledge River (for a second time).

- Watersheds on the east coast of Vancouver Island (ECVI) continue to experience low steelhead escapements (average winter run peak fish/km =4.0), compared to the 1980s and early 1990s. For Mainland Coast inlet rivers in the Vancouver Island Region, index stocks in the Wakeman, Kakweiken, Ahnuhati and Glendale systems remained in the "extreme conservation concern" zone, with counts of 5 spawners/km or less from mid May snorkel surveys.

- Since 1976, the province has maintained a counting fence on the lower Keogh River (at Port Hardy) for enumerating returning adult winter steelhead from December through March. In 2003, two independent estimates of steelhead escapement were made using mark-recapture and electronic counter/trap results. The estimates were 391 from mark-recapture and 355 from the counter/trap method (McCubbing 2003, unpub. MS). Mark-recapture results indicated that wild Keogh steelhead consisted of 141 fish, with the balance made up of "*Keogh Living Gene Bank*"returns (248) and hatchery strays (2). The level of wild escapement to Keogh remains below that needed for full seeding of available rearing habitat (i.e., estimated requirement is 220 adults at maximum sustained yield).

- In addition to snorkel surveys and population trend data from Keogh, juvenile steelhead population estimates were conducted by electrofishing in 8 Island streams, the majority of which have been sampled annually since 1998. Seven of these were on the east coast and one on the west coast. A total of 54 individual sites (typically $100m^2$ each) were completed to quantify fry populations as an index of spawner abundance and success. Depth/velocity adjusted fry densities will be compared to model predictions of maximum biomass/numbers of juvenile steelhead by size/age, for each watershed in question. Results from this analysis will be available by January 2004.

- In the spring of 2003 the Ministry of Water, Land and Air Protection released a report entitled, ***Environmental Trends in British Columbia 2002***, which examined a number of environmental indicators that collectively represent "the state of our (natural) environment." In the report's Biodiversity section, steelhead trout, white sturgeon and bull trout were selected as indicator species for broad areas of the province. Most steelhead stocks on the southwest coast (in the Greater Georgia Basin) and southern interior were classified at "conservation concern" or "extreme conservation concern," and in need of "recovery initiatives directed at entire watersheds and implemented through partnerships that include all levels of government, First Nations, stakeholders and industry."

<u>Habitat Restoration Design/Prescriptions</u>

- LGL Ltd. of Sidney was contracted by the BC Conservation Foundation (BCCF) to conduct fish habitat restoration assessments on the Englishman, Cowichan, Quatse and Cluxewe rivers on the ECVI. BCCF technicians are working with Marc Gaboury, RPBio., of LGL in identifying mainstem restoration opportunities in the Quatse and Cluxewe, as well as side-channel improvements and sediment-control for the Cowichan. Feasibility and design continues at this time, with final reports expected by March 31, 2004. An earlier report on prescriptions for the mainstem Englishman was completed last January (Gaboury 2003), and was the basis for in-stream restoration work conducted in July-August, 2003. Funding was from HCTF (Vancouver Island Steelhead Recovery Plan) and the regional WLAP grant transferred to HCTF at the end of the 2002/03 fiscal year.

- BCCF is investigating the re-design of the Cameron Lake weir, presently licenced and operated by Fisheries and Oceans Canada (FOC). The objective is to determine the potential for adding another 30cm of storage to Cameron Lake, behind a rebuilt weir/fishway, to improve summer and early fall flow releases to the Little Qualicum River. Summer rearing flows are considered limiting to steelhead parr in the river, especially under drought conditions experienced in 2002 and 2003. Consequently, the potential to increase storage is attractive as a long-term steelhead recovery measure. Benefits for other species like coho and chinook salmon, as well as sea-run cutthroat trout, should also become apparent. BCCF is

working with engineering staff from FOC and Northwest Hydraulic Consultants Ltd. (NHC), and a final report is expected by March 31, 2004.

- Dave Burt and Associates were contracted by the Campbell River Gravel Committee (a consortium of community stewardship groups and federal/provincial fisheries agencies) to conduct an overall assessment of fish habitat restoration opportunities in the Campbell River, from Elk Falls to the tidal reach below the Island Highway bridge. This project evaluated past spawning gravel placements and potential introduction sites against historic spawning locations (from Hamilton and Buell 1976) and production targets for chinook salmon and steelhead trout, as well as other salmon species. It also identified further opportunities for side-channel and tributary improvements, downstream of the John Hart power station. A draft report and large-scale maps have been reviewed by fisheries staff, and a final report is expected by January, 2004. Provincial funding for this project was provided from the WLAP grant transferred to HCTF last March.

- A feasibility study is now underway to assess what needs to be done to improve **low-flow passage** of spawning pink salmon in the lower Quinsam River, at 4 natural bedrock cascades. These sites are passable to pinks and other anadromous species at moderate flows, but extended summer-fall droughts can restrict passage of tens of thousands of pinks to about 13km of the lower river. The objective would be to slightly modify these cascades (i.e., blasting/fishways) to extend the low flow distribution of pinks another 12.3km upstream. Further migration of pink salmon will result in improved marine nutrient recycling in the watershed, increasing juvenile steelhead growth and survival to the smolt stage. If extended summer droughts become more common in future years, it will be critical to ensure the widest possible distribution of pinks within their historic range in the Quinsam system. This project is being undertaken in co-operation with FOC and the Haig-Brown Institute.

- The Fourth Lake dam on the upper Nanaimo River is being assessed in terms of downstream temperature suppression from a low-level (hypolimnetic) outlet. The dam is owned and operated by Harmac Pulp Company Ltd. (parent is US-based Pope and Talbot Ltd.) and water releases are subsequently withdrawn from the lower Nanaimo River for mill production purposes. A joint project with FOC, aided by contracts with Dave Burt and Associates and NHC, will identify possible remediation measures for increasing wild fish growth/survival within the upper watershed influence of this reservoir. Possible changes to the dam's flow-release infrastructure are the focus of part of this work.

- Under auspices of the Puntledge River Water Use Plan, MJL Environmental Consultants were hired by BC Hydro to assess chinook and steelhead spawning habitat issues in *Reach C* (of the Puntledge River) with the primary objectives of (1) identifying, quantifying and mapping functioning and non-functioning spawning habitat; and (2) conducting streamflow transects at spawning sites over a range of discharge (4.5, 6.0 and 10cms) to better determine depth/velocity "suitability" for the species in question. A final report for this project was produced in April 2003 and formed the basis of a Bridge-Coastal Restoration Program (BC Hydro) proposal for mainstem gravel recruitment in the summer of 2004.

- On an opportunistic basis, BCCF staff continue to work with LGL Ltd. on "fine-tuning" site-specific habitat restoration prescriptions in 5 high priority ECVI watersheds, including the Quinsam, Oyster, Little Qualicum, Nanaimo and Chemainus rivers. This follows release of an earlier report by Gaboury and McCulloch (2002) which identified a total of 371 restoration sites requiring just over $1M to construct. Highest priority watersheds in 2003 were the

Englishman and Little Qualicum rivers where joint funding with other partners has increased the scope of work undertaken in the last two years.

Habitat Restoration Projects

- Rearing habitat complexing continued in the Englishman and Little Qualicum rivers with the installation of anchored and rock-ballasted Large Woody Debris (LWD), as well as boulder riffles. A total of 15 sites were completed in the Englishman River with funding provided by HCTF (regular program plus WLAP grant) and the Pacific Salmon Endowment Fund (PSEF). In the Little Qualicum River, extreme fire hazard reduced the amount of in-stream work completed to a total of 9 sites (of 24 originally planned). The LQ project is co-funded by the Pacific Salmon Foundation and Weyerhaeuser Canada Ltd. In-stream work is expected to continue in both watersheds in the summer of 2004.

- FOC, in co-operation with WLAP and BC Hydro (BCRP), completed side-channel improvements at three sites on the Puntledge River, with further work anticipated in 2004.

- Fish passage improvements were attempted at the Comox Lake Dam fishway, on the upper Puntledge, but a further modification of structural design appears necessary to ensure year-round access. WLAP, FOC, BCH and the Freshwater Fisheries Society of BC are co-operating on this project.

- Steelhead and salmon spawning gravel placements were undertaken in the Nanaimo and Ash rivers in July and September, 2003, respectively. Two sites were completed in Nanaimo, with one between First and Second lakes ($150m^3$), and the second in the south Nanaimo River, below the City of Nanaimo's Jump Creek reservoir ($250m^3$). A large ($400m^3$) gravel pad was installed in the outlet of Dickson Lake, on the upper Ash River. This targets summer steelhead and resident rainbow trout and complements an earlier gravel placement near the same location which was funded by HCTF in 1991.

- Stream enrichment was undertaken in the Nimpkish, Davie and Salmon rivers on the ECVI in 2003. Liquid 10-34-0 ammonium polyphosphate was applied at prescribed rates from shore-based drip tanks from mid June to early September. Paterson Creek, an upper Salmon River tributary, was hand-treated with a new organic fertilizer product, Pollock bone meal, which was imported from Alaska and compacted into 4kg logs. The Paterson experiment was part of a larger investigation of the efficacy of this new product, led by the province's Fisheries Research and Development Section at UBC (Dr. K.I. Ashley). In September, the remainder of this first Pollock shipment (approximately 1 US ton) was distributed in Grilse Creek, another upper Salmon River tributary, by a BCCF crew.

- The last of the LESCO and IMC Vigoro slow-release phosphorus briquettes was applied to San Juan River tributaries (Harris, Hemmingsen, Lens, Renfrew creeks) and the Keogh River in June, 2003. There is currently no replacement SRP inorganic product available for use in BC, but discussions continue with potential suppliers in the US and elsewhere.

- Surplus hatchery salmon carcasses were distributed into side-channels and smaller tributaries of the Oyster River, and similar work was conducted at Nanaimo, Little Qualicum, Big Qualicum and Puntledge rivers with the assistance of volunteers. FOC staff at Quinsam River Hatchery placed pink salmon carcasses into reaches of the Quinsam and Campbell rivers, as well as Nunns, Woods and Casey creeks. BCCF is supported by HCTF funding in

developing a carcass distribution plan for each of these rivers in conjunction with FOC and community volunteers, including the South Coast Steelhead Coalition.

Experimental *Living Gene Bank* and other Hatchery Programs

- The Freshwater Fisheries Society of BC's Vancouver Island Trout Hatchery (VITH), in Duncan, continued culturing three winter steelhead stocks in the experimental *Living Gene Bank* program. These include steelhead from Keogh, Quinsam and Little Qualicum rivers. The program's primary objective is to closely match wild stock genetic diversity in a **conservation program** based on the annual capture of wild smolts and raising these to adult spawners in captivity. Smolts from the respective streams were captured for five consecutive years (1998-2002), with the first mature adults spawned in the winter of 2000. First LGB smolt releases took place in May 2001 into their respective natal streams. Five consecutive years of smolt releases are planned, with two now remaining in 2004 and 2005 (Appendix ii).

- First returns of marked LGB adults (as ocean age 2's) occurred in the winter of 2002/03, with an estimated 248 in the Keogh River, where an intensive NSERC-supported research program is underway (in co-operation with Dr. Mart Gross of the University of Toronto's Department of Zoology). Keogh LGB returns were dominated by males (60%) and an apparent reluctance by most radio-tagged fish to migrate further upstream than 4.5km above the river's mouth (McCubbing 2003, unpubl. MS). LGB 2-ocean returns to the Quinsam and Little Qualicum rivers were barely detectable, with only 2 seen by swimmers in the Little Qualicum on February 25/26, 2003, and none in the Quinsam where snorkelling, angling and fence trapping were used in a season-long evaluation (Appendix iii). It should be noted, however, that there is no dedicated budget for an LGB evaluation of adult returns to Quinsam and Little Qualicum, so any observation of LGB fish will be incidental to wild stock monitoring. That said, the winter of 2003/04 marks the first in which both 2-ocean (2002 smolts) and 3-ocean (2001 smolts) LGB adults will be returning to all three streams, so the prospect of encountering increasing numbers should be better.

- Two other captive brood steelhead programs are also underway at VITH. These include Puntledge River summer and winter runs and Tsitika summer runs. In the case of Puntledge, the objective is to substantially boost existing smolt production (target is a combined 100,000/year) in an attempt to re-establish a recreational fishery on the river. Preservation of wild stock genetics is not a factor given existing stocks are at remnant levels and have been subject to domestication selection by more than two decades of hatchery intervention (includes the recycling of hatchery adults as broodstock). Captive Puntledge brood are spawned at VITH and fall fry transferred back to the Puntledge River Hatchery for final rearing, smolt imprinting and release. First returns from this program occurred in the summer of 2002 (ocean age 1+ summer runs), but few were detected by snorkelling. Ocean age 2+ summers and ocean age 3 winters should be present in the Puntledge this fall/winter, and snorkel surveys will be used to obtain counts.

- For captive brood Tsitika summers, first spawning of adults will occur this winter at VITH. A decision must then be made on the rearing strategy for a target of 20,000 smolts a year. Initial rearing will be at VITH with fall fry transferred back to an, as yet, undeveloped site supplied by Campbell River water. Three sites have been investigated to date, including the Elk Falls pulp mill owned by Norske Canada Ltd., their pumphouse on the Campbell River, and a possible net pen site in McIvor Lake (an "arm" of Lower Campbell Lake). A final decision on the Campbell River rearing site will be made early in 2004. This project is

supported by Campbell River anglers, businesses, the Pacific Salmon Foundation, and federal/provincial fisheries agencies.

- Several other steelhead hatchery programs are in the rudimentary stage of feasibility study, including Tsolum (a Puntledge tributary), Trent, Tsable, Goldstream and Sooke rivers. These were highlighted as potential new programs in the Greater Georgia Basin Steelhead Recovery Action Plan (Lill, 2002), but the ministry needs strong scientific proof of the extirpation of local wild stocks, before committing resources and developing partnerships for new fish culture programs. This also requires a new provincial policy framework that will be compatible with the recently proclaimed federal *Species at Risk Act.* The provincial Anadromous Fish Committee is working with Al Lill in developing policy criteria that must be met before designating any BC stream for hatchery steelhead stocking. This policy will hopefully be in place by the spring of 2004.

Steelhead Habitat Protection Initiatives

- After more than 3 years, Water Use Plans (WUPs) involving BC Hydro facilities in several Vancouver Island watersheds were successfully completed by late June 2003. Concensus agreements by respective Consultative Committees were reached for Jordan, Ash, Campbell River and Puntledge WUPs. Important steelhead resources are associated with the latter three, and these will benefit from improved conservation flows once the WUPs are approved by government and authorized by the Comptroller of Water Rights (Land and Water BC).

- Flow regulation compliance monitoring has become much more important in Vancouver Island rivers due to unseasonable droughts in recent years. The ministry has worked closely with FOC, Environment Canada, BC Hydro, industrial licencees (e.g., Norske Canada) and regional districts (Capital and Nanaimo) in protecting stream flows for the benefit of wild fish populations. Steelhead are most dependent on summer/early fall flows as they spend 2-3 years growing in streams before smolting and migrating to sea. Hence, conservation flows for rearing steelhead should benefit all native fish species using the same watersheds. Determining conservation flows and "fish-sensitive"ramping rates (i.e., rate of flow change due to manipulation) will continue to occupy ministry time, particularly if summer/fall droughts become more frequent in the future.

- Independent Power Projects (IPPs) have recently become a new workload for regional/Victoria WLAP staff, because of government policy favouring small hydro-electric generating facilities built and operated by the private sector. Potential new IPP sites on Vancouver Island which could impact steelhead include Ucona River (Gold River tributary), Kokish River, and Cruickshank River (Comox Lake tributary). Regional/Victoria WLAP staff are working with counterparts in FOC to review design details of these proposals to ensure adequate conservation flows and screening requirements are met before authorizations are considered.

- The new Forest and Range Practices Act was passed in the fall, 2003 session of the provincial Legislature. With passage of the Act and introduction of new forest practices regulations, it is expected regional WLAP staff will be involved with compliance monitoring in Vancouver Island logging operations.

- The Tsolum River, an important Puntledge River tributary, has been plagued by heavy metal contamination (mainly *Cu*) from an abandoned mine on the northeast face of Mount

Washington for several decades. Various attempts to remedy or improve water quality conditions have been made over the last 10 years, with limited success. More recently, a project was undertaken to divert Pyrrhotite Creek, a tributary of McKay Creek and the Tsolum, into a natural wetland about 4.5km downstream of the old mine site. Pyrrhotite Creek is heavily contaminated with dissolved *Cu* in the spring during annual snowmelt and runoff. The objective of the project is to have most of the *Cu* load sequestered in wetland sediments and macrophyte plant tissues, thereby improving downstream water quality. While this is not considered the ultimate solution for the Tsolum's heavy metal problem, it should result in a measurable improvement. This project is a co-operative venture between TimberWest Forest Ltd. (the drainage landowner), WLAP, FOC, Environment Canada, Tsolum River Restoration Committee (public stakeholders) and Canadian Pacific Ltd. (owner of abandoned mine property).

- From Victoria to Campbell River, middle and upper reaches of ECVI watersheds fall within privately-owned land of two major forest companies, Weyerhaeuser Canada Ltd. and TimberWest Forest Ltd. Most of the old growth forest in these watersheds has been logged, beginning in the early 1900's. Logging of second or even third growth stands is now underway. Given this scenario, the opportunity to protect or acquire large tracts of riparian land adjacent to mainstem rivers is rare. However, on the Englishman River a consortium of conservation organizations, local governments and federal/provincial fisheries agencies have pooled funds to purchase two blocks of land from forest companies in 2003 for preservation of important fish and wildlife habitats, as well as future recreational opportunities. The Englishman land purchases are complementary to other acquisitions in recent years including those on Nanaimo, Little Qualicum and Campbell rivers.

Steelhead Recovery Program Development and Partnerships

- Considerable time and resources continue to be spent on securing adequate steelhead recovery funds both within but mostly outside of government base budgets (Appendix i). In 2003/04, approximately $0.7M supporting this work on Vancouver Island has come from several sources including HCTF, WLAP grants, PSEF, BC Hydro (Bridge-Coastal Restoration Program), Weyerhaeuser Canada Ltd., Pacific Salmon Foundation, Canadian Forest Products (CANFOR) Ltd., and FOC (Habitat & Enhancement Branch). Up to early October 2003, 16 grant applications or letters of enquiry were also sent to non-government foundations throughout North America, but none have been successful to date.

- The funding issue continues to be the greatest challenge facing effective program delivery throughout the Greater Georgia Basin. Lill (2002) indicated a target budget of $3.935M was needed to fully implement steelhead recovery projects and activities on Vancouver Island and in the Lower Mainland region in 2003/04. Current funds available to both regions represent less than 30% of this projection.

- In order to increase the public profile of the Greater Georgia Basin Steelhead Recovery Plan (GGBSRP), a number of meetings have been held with non-government organizations, sport fishing groups and private sector companies to build partnerships and attract more investment in steelhead recovery. The most recent was at offices of the Pacific Salmon Foundation in Vancouver on September 30, 2003 (Appendix iv). Discussions have been encouraging but not directly beneficial in terms of immediate fund-raising needs.

- There is concensus that more must be done to effectively "market" steelhead recovery by engaging more stakeholders in direct action through project involvement and stewardship. "Name recognition" is also viewed as a problem since steelhead have a comparatively low public profile next to Pacific salmon or Fraser River sturgeon, and receive little media attention. Both regions have dedicated HCTF funds for partnership development and promotions, and a number of initiatives are now underway. Co-operative ventures with the BC Conservation Foundation, South Coast Steelhead Coalition, Haig-Brown Institute, Trout Unlimited and Nimmo Bay Resort Ltd. could result in more public exposure of the steelhead conservation issue in the Greater Georgia Basin, and possibly attract more corporate and/or individual donations or sponsorships.

- In late February-March 2003, meetings were held with representatives of TimberWest, Weyerhaeuser, International Forest Products Ltd., Western Forest Products Ltd., the Soo Forest Investment Account (FIA) Coalition, and PriceWaterhouseCoopers Ltd.to discuss the potential for forest industry investment in the GGBSRP through FIA, or through corporate funding commitments like the San Juan Opportunistic Fund (a legacy of the 1996 San Juan Watershed Agreement between the province, federal government, TimberWest and Weyerhaeuser). The intent was to encourage steelhead recovery investments by the forest sector based on the following considerations:
    1. At-risk GGB steelhead are a substantive issue for *Sustainable Forest Management*;
    2. There is a *New Era* government commitment to "restore past stream damage";
    3. There are ancillary forest and wildlife benefits;
    4. There are web-based forest product marketing and local economic benefits;
    5. There are highly positive implications for forest product certification and co-stewardship; and
    6. A watershed stakeholders-based partnership strategy is vital for recovery and sustainability of at-risk stocks of GGB steelhead (Slaney 2003).

  To-date, there has been only limited FIA investments in stream restoration projects where steelhead is the target species. BCCF/WLAP staff continue to meet with forest company officials on Vancouver Island in an attempt to change this pattern. More recent success has been achieved with the San Juan Opportunistic Fund, where both Weyerhaeuser and TimberWest have increased annual spending or commitments to steelhead projects on their private ECVI lands.

(b) Measures of Results

- Annual results of steelhead stock monitoring are summarized in ministry files, data bases, and progress reports and distributed to the public on an on-going basis. The information is used to classify populations according to conservation status, set appropriate sport fishing regulations, identify habitat restoration/protection needs, and establish hatchery program objectives relative to wild stock status, ministry policy and sport fishery demand. Priority watersheds listed in the GGBSR Action Plan (Lill 2002) continue to be surveyed for restoration potential, and specific plans prepared for new project implementation in 2004/05. Englishman, Little Qualicum, Chemainus, Nanaimo, Cowichan, Puntledge, Campbell, Quinsam, Salmon, Nimpkish, Cluxewe and Quatse rivers are leading candidates in that regard. Progress reports on nutrient enrichment projects in the Salmon, Nimpkish and San Juan watersheds are in preparation and will be available by March 31, 2004. Creel census data from the 2002/03 *River Guardian Program* on Vancouver Island have been summarized in two reports (Silvestri and Muirhead 2003; Wright 2003 Draft), the latter of which will be submitted to HCTF by

January, 2004. An accounting statement from BCCF up to January 21, 2004 for their Vancouver Island Steelhead Recovery Plan contract with HCTF is attached (Appendix v).

(c) Benefits/Risks

- A science-based, adequately funded steelhead recovery plan is critically needed for many GGB watersheds where the species is currently considered at-risk. Since 1997, there has been grudging support from the steelhead angling community, sport fishing businesses and First Nations for conservation closures to protect depleted wild stocks on the ECVI. While some relaxation of total closures has occurred in the last two years (i.e., to open areas with angling gear restrictions on 4 previously closed streams), there has been a significant reduction in steelhead licence sales and angling effort, compared to levels observed in the early 1990s. Failure to positively respond to this situation could result in further extirpations of the weakest wild stocks, and lost angling opportunities in the future. Furthermore, public confidence in government's commitment to protect wild rivers and rebuild vulnerable fish stocks could be cast in doubt. The GGBSRP embodies all of the key elements of the government's *New Era* commitment to a *Living Rivers* strategy, and 10 year habitat restoration program to address past damage.

(d) Extension/Public Information/Participation/Partners

- The GGBSRP website (www.steelheadrecoveryplan.ca), now housed on the BCCF server in Surrey, is the primary extension and public information tool used by the program. There is also a special notice about the GGBSRP appearing in the provincial Freshwater Fishing Regulations Synopsis 2003/04 (pg 23), which will be repeated in the 2004/05 edition. Interviews continue with various media including community newspapers, CBC and VI Land television, BC Sport Fishing magazine, and others. Plans are being made to hire a local sport fishing/conservation writer or journalist to do a story on the program which can subsequently be sent (or sold) to community newspapers, sport fishing magazines and newsletters of major organizations like Trout Unlimited (in the US) and the Sierra Club. We are also exploring the potential for filming an infomercial (5-10 minutes length) which can be distributed to public television networks (e.g., Shaw Cable, Knowledge Network, etc.). This could also be used at fishing or outdoor trade and convention shows, or at science conferences where BCCF/WLAP staff host a display booth or poster session. BCCF/WLAP staff will continue to co-sponsor a series of annual GGBSRP public workshops, with the South Coast Steelhead Coalition. In 2003, there were two on Vancouver Island (Nanaimo and Port McNeill) and three in the Lower Mainland region. Similar workshops are planned for February-March, 2004.

(e) Contractor Performance

- BCCF has consistently been involved with Vancouver Island steelhead recovery since January, 1998. The performance of their administrative and technical staff has been excellent in helping to deliver this program. They remain an essential partner as recovery efforts focus more on habitat restoration in priority watersheds on the ECVI.

(f) Remaining Activities in 2003-2004

- Stock assessment of winter steelhead returns to Vancouver Island streams will get underway in December, 2003. This will continue to mid-May, with a focus on key

indicator stocks like those in the Englishman, Little Qualicum, Quinsam and Keogh rivers on the east coast, and Gold, Stamp-Somass and Harris Creek (San Juan watershed) on the west coast. Assessment will continue to rely on snorkel surveys, fence counts, creel census, in-season guide reports and hatchery broodstock capture results. Three remaining summer steelhead swims will be completed on the Caycuse, Harris and Puntledge rivers when low/clear flows permit.

- Habitat restoration feasibility will continue with BCCF/WLAP staff working with contractors and FOC on the Little Qualicum (Cameron Lake weir upgrade), Nanaimo (Fourth Lake dam outlet improvement), Cowichan (sediment control; side-channel enhancement) Quatse (LWD complexing), and Cluxewe (LWD complexing) rivers.

- BCCF/WLAP will continue to participate on PSEF stakeholder committees charged with delivery of watershed recovery in the Englishman and Nimpkish rivers. Funding proposals for 2004 projects will be prepared and vetted through established approval processes established by these committees.

- Habitat restoration will be low-key until July 2004 due to seasonal weather/in-stream work window shutdowns. In November 2003, surplus salmon carcasses will be trucked from federal or community hatcheries to upper river sites and distributed in the Nanaimo, Little Qualicum, Big Qualicum and Puntledge (Cruickshank River) rivers, with assistance of volunteers from the South Coast Steelhead Coalition and stewardship groups. Habitat materials (i.e., large trees with roots/branches attached) may be acquired and stockpiled near next year's planned work sites on the Englishman and Little Qualicum rivers. Further testing of the new Pollock bone meal fertilizer will occur at the Chilliwack experimental channels, under direction of Dr. K. Ashley, and additional purchases of the raw material from Kodiak, Alaska may occur in advance of possible stream treatments next spring.

- Field monitoring of completed HCTF and other in-stream projects will be done to assess the effectiveness of specific habitat restoration techniques. Spawning and over-wintering fish use, structural durability and erosion tendency will be considered, and progress reports prepared. The information is expected to be emphasized in the HCTF-ordered evaluation of the GGBSRP (by an independent consultant), scheduled for this winter.

- Funding applications for programs like the Pacific Salmon Foundation, Pacific Salmon Endowment Fund, Bridge-Coastal Restoration Program, Vancouver Foundation and others will be prepared, consistent with past years. Progress reporting on all steelhead recovery projects/activities will be done to meet specified deadlines.

- Public consultations designed to better inform stakeholders and seek advice on program direction and specific projects will continue, as will marketing and partnership building. The latter are considered essential to future fund-raising and increased public recognition of the GGB steelhead conservation crisis. Progress and project completion reports from 2003 will be posted on the GGBSRP web site, as will the latest in-season stock monitoring results.

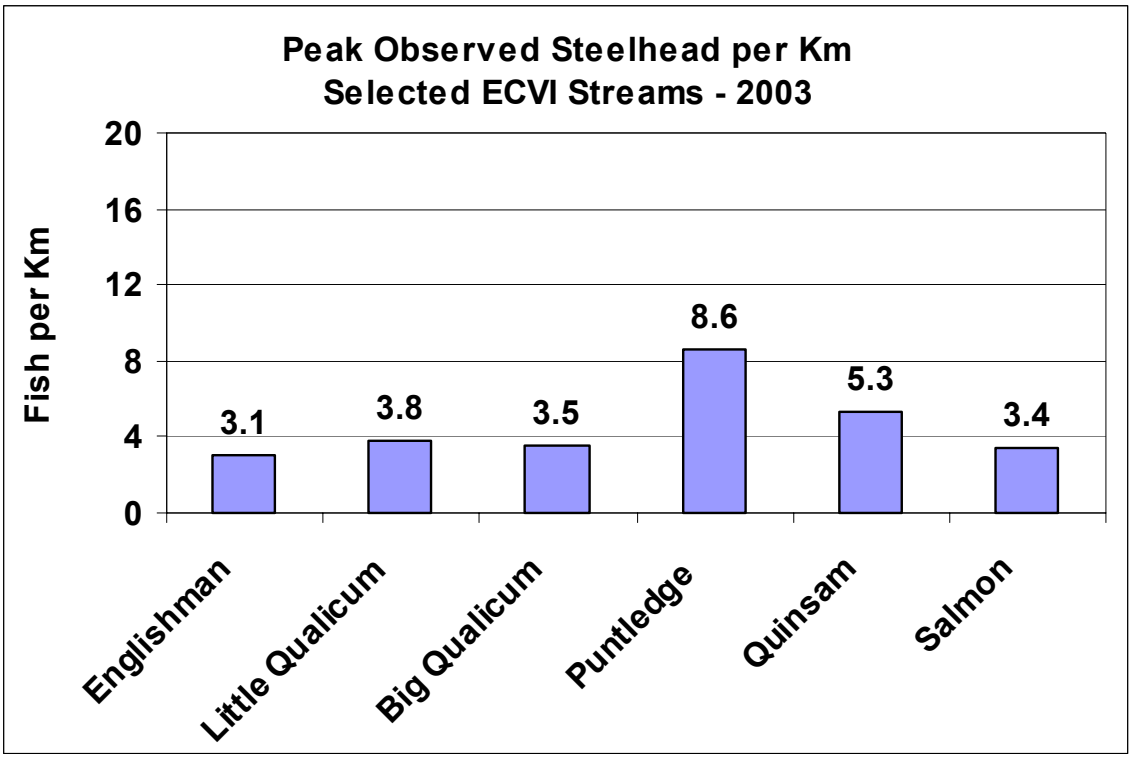
Appendix i

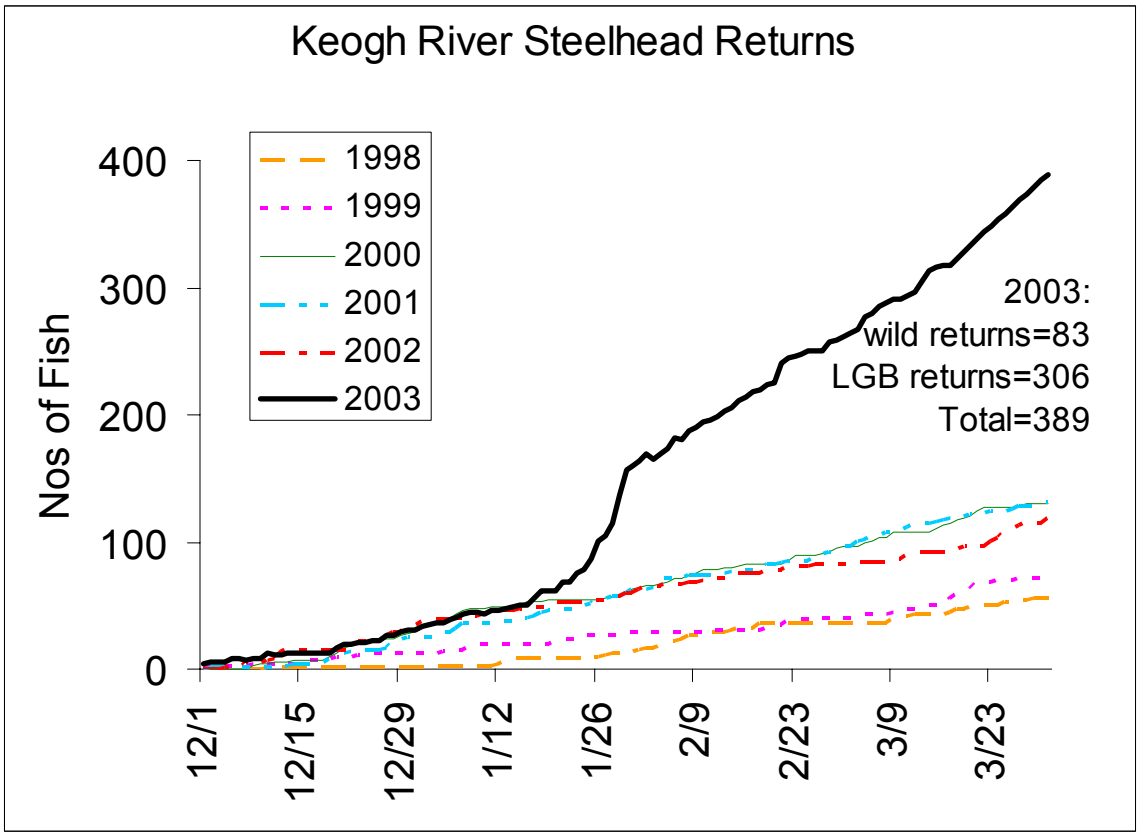
Up-date on Vancouver Island Steelhead Stock Status and Recovery Actions and Budgets for 2003/04 (PowerPoint Presentation to Pacific Salmon Foundation, Vancouver, BC, September 30, 2003)

Steelhead Stock Assessment Vancouver Island Region

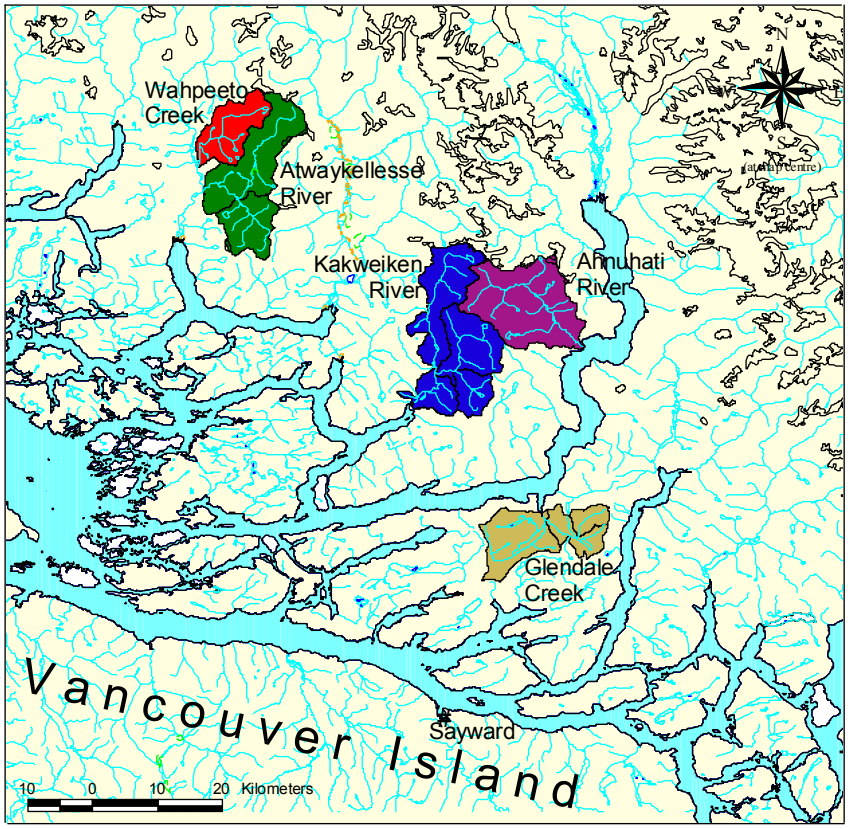
- **31 snorkel surveys in 17 Region One streams (total distance=248 km) counted 724 winter steelhead.**

- **East Coast Vancouver Island continues to have low escapements (average observed peak fish/km=4.0) compared to 1980s and early 1990s.**

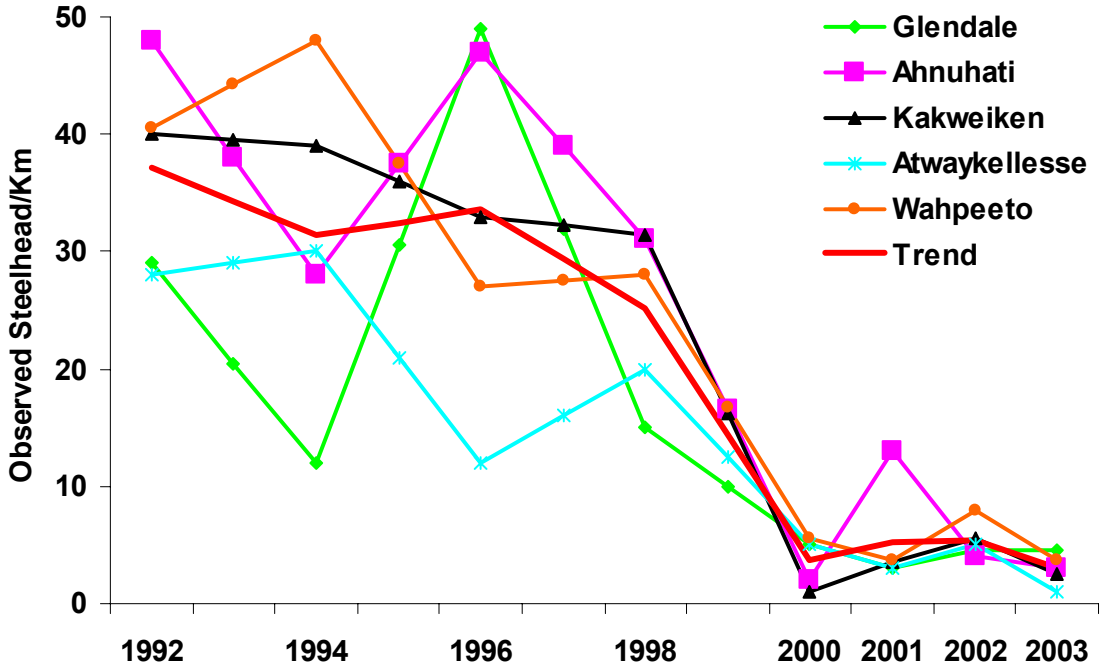

Peak Observed Steelhead per Km
Selected ECVI Streams - 2003
Fish per Km
20
16
12
8
4
0
3.1
3.8
3.5
8.6
5.3
3.4
Englishman
Little Qualicum
Big Qualicum
Puntledge
Quinsam
Salmon


Keogh River Steelhead Returns
Nos of Fish
400
300
200
100
0
1998
1999
2000
2001
2002
2003
2003:
wild returns=83
LGB returns=306
Total=389
12/1
12/15
12/29
1/12
1/26
2/9
2/23
3/9
3/23

Region 1 Mainland Coast Steelhead Index Rivers



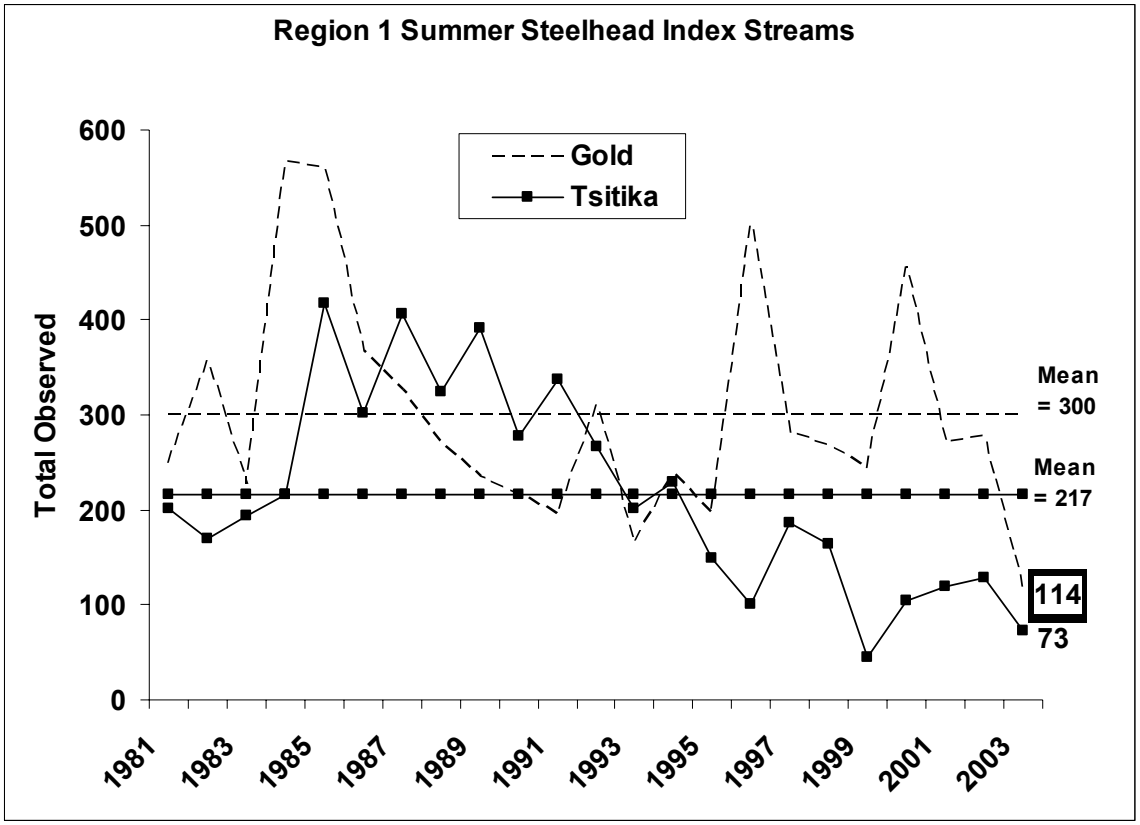
Mainland Coast Snorkel Survey Index Sections 1992-2003



Steelhead Stock Assessment Vancouver Island Region

- **Six summer run steelhead snorkel surveys to date. Five more swims scheduled in next two weeks.**

- **Summer run counts appear to be down in most west and east coast streams surveyed.**



Vancouver Island Workplan Priorities- 2003/04

(1) Habitat Protection

- **Water Use Plans with BC Hydro – 4 complete, awaiting approval/implementation**

- **Flow Regulation Compliance – BC Hydro, Regional Districts, Industry**

- **Independent Power Projects – New sites in Island watersheds (eg. Zeballos, Gold tribs, Kokish, Cruickshank, China Creek, etc.)**

Vancouver Island Workplan Priorities- 2003/04

Habitat Protection (Cont')

- **Forest Industry – Results Based FPC – compliance monitoring with Habitat Protection**

- **Mining – Mount Washington Mine – diversion of Pyrrhotite Creek to remove dissolved Cu**

- **Habitat Acquisition – Blocks 564, 602 on the Englishman River (completion by fall, 2003)**

Vancouver Island Workplan Priorities- 2003/04

(2) Habitat Restoration

- **Rearing Habitat Complexing (LWD/Boulders) – Little Qualicum (9 sites completed), Englishman (15 sites completed)**
- **Side Channels/Alcoves – Puntledge River (3 facilities completed/improved by DFO)**
- **Fish Access – Comox Lake Dam Fishway (modification underway), Salmon River Smolt Screen (pending WUP approval)**

Vancouver Island Workplan Priorities- 2003/04

(2) Habitat Restoration (Cont')

- **Spawning Gravel Placements**
  - **-Nanaimo Lakes (between First and Second)**
  - **-South Nanaimo River**
  - **-Dickson Lake (Ash River)**

- **Nutrient Enrichment**
  - **-Liquid 10-34-0 used in Salmon/Memekay; Nimpkish/Davie**
  - **-Pollock bone meal – Paterson Creek (Salmon River), Chilliwack River mesocosms**
  - **-SRP (last of LESCO/Vigoro products) – San Juan tribs and Keogh**
  - **-Salmon Carcasses – Campbell/Quinsam, Puntledge, Oyster, Big Qualicum, Little Qualicum, Nanaimo**

Vancouver Island Workplan Priorities- 2003/04

(3) Habitat Restoration Prescriptions

-Fine tuning of Gaboury & McCulloch (2002) – ongoing for Quinsam, Oyster, Little Qualicum, Nanaimo, Chemainus
-Campbell River spawning gravel/habitat restoration 5-year plan
-Quatse/Cluxewe rearing restoration plans
-Cowichan River sediment source survey
-Cowichan River side-channel upgrade feasibility
-Cameron Lake weir upgrade feasibility (Little Qualicum)
Fourth Lake dam (Nanaimo R.) outlet modification

Vancouver Island Workplan Priorities- 2003/04

(4) Fish Culture Programs

-Existing Steelhead Sport Fishery Enhancement – Cowichan, Stamp, Puntledge, Quatse, Cluxewe

-Experimental Living Gene Bank (LGB) – Little Qualicum, Quinsam, Keogh ($1M NSERC Grant)

-Anadromous Cutthroat – Little Qualicum (Englishman, Millstone), Puntledge, Oyster, Campbell

Vancouver Island Workplan Priorities- 2003/04

(5) Fish Culture Feasibility

-Campbell River – Tsitika SR captive brood (Norske Canada water supply/rearing site feasibility)

-Tsable, Trent, Goldstream, Sooke Smolt Programs – on hold pending revised provincial policy on fish culture for sport fishery enhancement and steelhead conservation (fall/winter 03/04)

Vancouver Island Workplan Priorities- 2003/04

(6) Marketing, Partnerships, Public Awareness

-Website Upgrades (minimum 2/year) www.SteelheadRecoveryPlan.ca

-Media Strategy, Infomercial, T-shirts, hats, decals, "Steelhead as provincial fish emblem", Steelhead recovery linked to 2010 Olympics

-Partnership Building – BCCF, HCTF, SCSC, PSF, PSEF, BCIT, Trout Unlimited, Weyerhaeuser Canada, DFO, BCRP, Haig-Brown Institute, others?

Vancouver Island Steelhead Recovery Plan Budget Summary 2003/04

Vancouver Island Region

WLAP Grant to BCCF carry-over	**75,000 (as of April 1, 2003)**
HCTF carry-over at WLAP	**63,215 (Fert. purchase/appl)**
HCTF 2003/04 to WLAP/BCCF	**292,428 (5 projects)**
HCTF/WLAP Grant to BCCF	**114,625 (7 projects)**
($213K for VISRP)	
Sub-total	**$545,268**

Vancouver Island Steelhead Recovery Plan
Budget Summary 2003/04…...Continued

Sub-total	**$545,268**
PSEF (Englishman Recovery Plan)	**55,378 (4 projects)**
BCH (BCRP)	**20,000 (Salmon River fert.)**
Weyerhaeuser Canada Ltd. (FIA)	**20,000 (Salmon River fert.)**
Weyerhaeuser (SJOF)	**25,000 (LQ restoration)**
PSF	**20,000 (LQ restoration)**
PSF	**2,588 (Campbell R. Gravel Plan)**
Canfor Ltd. (FIA)	**5,500 (Nimpkish fert.)**
DFO (HEB)	**17,000 (LQ weir feasibility & Lens Ck smolt counts)**
Sub-total	**$710,734**

Vancouver Island Steelhead Recovery Plan
Budget Summary 2003/04…...Continued

Sub-total	**$710,734**
NGO Sector	**$220,875 (8 declined thus far)**
(16 applications/letters of enquiry to date)	
GRAND TOTAL	**$931,609**

Region 1 HCTF Letters of Intent 2004/05 – Submitted

·Mainland Coast Low-Level Nutrient Sampling	11,756
·Stream Enrichment Program Implementation (yr 1 of 5)	29,852
·Englishman River Bank Stabilization – SEED Project	4,007
·Quatse Lake Storage Improvement Feasibility	15,763
·ECVI Riparian Prescription & Planting Program	23,463
·Cluxewe River Habitat Restoration Prescriptions	5,658
·ECVI Salmon Carcass Program (yr 1 of 5)	4,128
·Toquart Lake Outlet Gravel Placement 2004	9,500
·Kokish River Estuary Rehabilitation Plan	14,500
TOTAL	$118,627
HCTF Continuing VISRP Projects	$250,000
WLAP Grant (balance)	$135,375
GRAND TOTAL	**$504,002**

Appendix ii

Summary of Vancouver Island Trout Hatchery Living Gene Bank steelhead smolt/fry releases to the Keogh, Quinsam and Little Qualicum rivers, as well as captive brood steelhead releases to the Puntledge River 2000-2003

Freshwater Fisheries
Society of B.C.

Vancouver Island Trout
Hatchery
& Freshwater Eco-Centre
1080 Wharncliffe Road
Duncan BC Canada V9L
2K7
Phone: (250) 746-1425
Fax: (250) 746-7163

Media Release
Dec. 15, 2003

FRESHWATER FISHERIES SOCIETY HOPEFUL STEELHEAD 'LIVING GENE BANK' WILL HELP REBUILD ENDANGERED SPAWNING RUNS

Biologists with the Freshwater Fisheries Society of B.C. and the Ministry of Water, Land and Air Protection will keep a close eye on east Vancouver Island rivers this winter, looking for the return of steelhead raised and released from hatcheries as part of an intensive conservation effort. Along with the living gene bank program, other techniques such as stream nutrient enrichment, habitat protection and restoration and changes to angling regulations are also being put into place to help in this conservation effort.

The monitoring is part of the experimental steelhead "living gene bank" program, a project designed to determine if new hatchery techniques can be developed which will help save certain east coast Vancouver Island steelhead runs from extinction. Steelhead runs dropped to perilous levels in the mid-1990s, forcing the closure of steelhead angling seasons. Biologists realized immediate steps were needed to try to keep the fish from disappearing from small coastal island rivers. Thankfully the Ministry of Water, Land and Air Protection and BC Hydro's Bridge Coastal Fish and Wildlife Restoration Program decided to fund this living gene bank program. Hatchery staff collected wild steelhead smolts from the Keogh, Little Qualicum, Quinsam and Puntledge rivers, starting in 1998. The smolts were raised to adults. Eggs and milt were collected from the adult fish and the progeny of those parents were released back in to their home rivers. New sets of smolts were collected each year over a five year period, to create new sets of brood fish every year. And every season since 2000, hatchery smolts have been released back into the rivers. The last release of living gene bank steelhead smolts will take place in the spring of 2005.

Careful monitoring will continue for five more years. More than 800,000 smolts will have been released in total. The program has been carefully designed to protect the genetic make-up of each individual run. DNA profiles were collected from adult fish used for hatchery reproduction, to help avoid brother-sister crosses. Small numbers of eggs were taken from large numbers of fish, to maximize genetic diversity making sure no single fish contribute too much to the genetic make-up of the overall population. The idea is to try and bolster wild stocks in these systems. The first returns of the first generation of gene bank steelhead in the winter of 2003 brought hope and disappointment. In the Keogh River, 100 wild steelhead returned along with more than 200 gene bank fish — a positive return. But returns of both wild and LGB steelhead in the Little Qualicum and Quinsum rivers were dismal. It's hoped the steelhead in those rivers simply chose to spend an

extra season in the ocean and will return this winter. Fisheries biologists will be watching the rivers closely hoping these fish will be returning this winter. Hopefully from this will come significant direction on whether or not this is a viable way to help rebuild steelhead populations.

In addition to the steelhead program, the Vancouver Island Trout Hatchery raises and releases more than 350,000 rainbow and cutthroat trout to augment or provide significant Vancouver Island recreational angling opportunities. B.C.'s hatchery program was transferred by government to the newly created Freshwater Fisheries Society of B.C. April 1, 2003. The society is funded almost entirely by fees collected from the sale of B.C. freshwater fishing licences. The society works in cooperation with the Ministry of Water, Land and Air Protection to provide B.C. sport fishing opportunities.

Media contacts:
Dan Hayward, Manager, Vancouver Island Trout Hatchery (250) 746-5180

Living Gene Bank

2000 Progeny Releases

Stock	Life Stage	from	to	#	g	Clip	Date	Release
Little Qualicum	Fry	TR 30 VITH	Little Q. River	14,996	3.20	RM	16-Jun-00	Scatter plant
	Smolt	Little Q. Hatchery Channels	Little Q. River	23,350	79.2	Ad	20-Apr-01	Volitional
				38,346				
Keogh	Smolt	O'Connor Lake Net Pens	Keogh River	21,958	93.0	Ad	May 15 - 23/01	Truck to below trap
				21,958				
Quinsam	Fry	TR 14 VITH	Quinsam Channels	725	2.1	RM	15-Jun-00	Scatter Plant
	Smolt	Quinsam Hatchery Channels	Quinsam River	12,188	81.7	AdCWT	01-May-01	Volitional
				12,913				
Puntledge (WR x SR)	Fry	TR 09 VITH	river	3,443	3.2	LM	27-Jun-00	Scatter Plant
				3,443				
Puntledge WR (include Wild)	Smolt	Puntledge Hatchery Raceway(lower)	Puntledge River	51,316	60.5	Ad	April 13 - 20/01	Volitional
				51,316				
Puntledge SR (include Wild)	Fry	TR 05 VITH	Cruikshank River	5,923	2.3	nil	12-Jul-00	Helicopter
		TR 24 VITH	Cruikshank River	12,753	2.2	nil	12-Jul-00	Helicopter
	Smolt	Puntledge Hatchery Channel(upper)	Puntledge River	44,899	86.4	Ad	April 23 - May 3/01	Volitional
				63,575				

Living Gene Bank

2001 Progeny Releases and Transfers

Stock	Life Stage	from	to	#	g	Date	Comments	Clip
Little Qualicum	Fry	TR 32	L. Qualicum River	11,058	2.2	27-Jun-01	scatter plant	LM *
	Fry	TR 15	L. Qualicum River	565	5.1	12-Sep-01	scatter plant	LM
	Fry	TR 16	L. Qualicum River	1,035	5.1	12-Sep-01	scatter plant	LM
	Smolt	Hatchery	L. Qualicum River	31,180	73.8	08-May-02	Volitional	AD, CWT
				43,838				
Keogh	Smolt	Net Pen	Keogh River	5,078	88.7	22-May-02	Truck to	AD, CWT
	Smolt	Net Pen	Keogh River	5,083	88.7	23-May-02	below trap	AD, CWT
	Smolt	Net Pen	Keogh River	5,035	90.4	24-May-02	"	AD, CWT
	Smolt	Net Pen	Keogh River	5,022	89.4	29-May-02	"	AD, CWT
	Smolt	Net Pen	Keogh River	5,292	85.7	30-May-02	"	AD, CWT
	Smolt	Net Pen	Keogh River	1,214	85.7	30-May-02	"	AD, CWT
	Smolt	Net Pen	Keogh River	5,795	57.5	06-Jun-02	"	AD, CWT
				32,519				
Quinsam	Fry	TR 13/14	Elk Falls Channels	5,409	2.9	13-Jun-01	scatter plant	LM
	Smolt	Hatchery	Quinsam River	10,934	81.3	01-May-02	Volitional	AD
	Smolt	Hatchery	Quinsam River	1,684	45.0	23-May-02	Grouse nest	AD
	Smolt	Hatchery	Quinsam River	1,939	30.0	24-May-02	Grouse nest	AD
				19,966				
Puntledge WR	Fry	TR 25	Puntledge Channels	7,000	2.5	11-Jul-01	scatter plant	RM
	Fry	TR 25	Puntledge River	7,796	2.5	12-Jul-01	scatter plant	RM
	Smolt	Hatchery	Puntledge River	35,000	67.1	20-May-02	Volitional	AD
				49,796				
Puntledge SR	Fry	TR 09	Cruikshank River	5,778	1.9	12-Jul-01	Helicopter	
	Fry	TR 27	Cruikshank River	19,841	3.9	12-Jul-01	Helicopter	
	Fry	TR 28	Cruikshank River	30,345	3.9	12-Jul-01	Helicopter	
	Wild Fry	TR 30	Cruikshank River	17,152	2.6	12-Jul-01	Helicopter	
	Smolt	Hatchery	Puntledge River	41,497	64.4	29-Apr-02	Volitional	AD
				114,613				

Notes: Little Qualicum Fry * clipper error 1300 given RM from TR 32, rest LM

Very heavy otter predation on Puntledge Winter smolts at Puntledge Hatchery

Living Gene Bank

2002 Progeny Releases

Stock	Life Stage	from	to	#	g	Date	Comments	Clip
Little Qualicum	FRY	TR 33	L. Qualicum River	8,600	2.3	24-Jun-02	Scatter plant	RM
	FRY	TR 15	L. Qualicum River	1,477	2.3	24-Jun-02	Scatter plant	RM
	SMOLT	Hatchery	L. Qualicum River	28,750	84.3	07-May-03	Volitional	AD
				38,827				
Keogh	SMOLT	Net Pen	Keogh River	5,155	88.8	21-May-03	Truck to below	AD
	SMOLT	Net Pen	Keogh River	6,471	88.8	22-May-03	Trap	AD
	SMOLT	Net Pen	Keogh River	5,445	83.4	23-May-03	"	AD
	SMOLT	Net Pen	Keogh River	6,166	74.1	27-May-03	"	AD
	SMOLT	Net Pen	Keogh River	3,371	84.3	28-May-03	"	AD
				26,608				
Quinsam	FRY	TR 13	Elk Falls Channels	6,180	2.5	21-Jun-02	scatter plant	RM
	SMOLT	Hatchery	Quinsam River	1,584	47.5	22-Apr-03	Volitional	ADCWT
	SMOLT	Hatchery	Quinsam River	15,219	75.8	28-Apr-03	Volitional	ADCWT
	SMOLT	Hatchery	Quinsam River	1,576	56.0	09-May-03	Volitional	ADCWT
				24,559				
Puntledge WR	SMOLT	Hatchery	Puntledge River	16,155	53.9	02-May-03	Volitional	AD
	SMOLT	Hatchery	Puntledge River	27,208	72.6	03-May-03	Volitional	AD
				43,363				
Puntledge SR	FRY	TR 03	Cruikshank River	4,338	1.5	09-Jul-02	Heli releases	no clip
	FRY	TR 08	Cruikshank River	1,395	2.3	09-Jul-02	Heli releases	no clip
	FRY	TR 26	Cruikshank River	16,499	2.4	09-Jul-02	Heli releases	no clip
	FRY	TR 27	Cruikshank River	19,519	2.9	09-Jul-02	Heli releases	no clip
	FRY	TR 28	Cruikshank River	18,254	3.2	09-Jul-02	Heli releases	no clip
	SMOLT	Hatchery	Puntledge River	45,010	78.3	02-May-03	Volitional	AD
				105,015				

Living Gene Bank

2003 Progeny Releases + Transfers

Stock	Life Stage	from	to	#	g	Date	Comments	Clip
Little Qualicum	FRY	TR 31	L. Qualicum River	15,086	3.1	27-Jun-03	RELEASE	LM
	FRY	TR 31	L. Qualicum River	16,763	3.5	01-Jul-03	RELEASE	LM
	FRY	TR 32	L. Qualicum River	20,226	3.4	01-Jul-03	RELEASE	LM
	FRY	TR 32	L. Qualicum River	5,916	2.8	14-Jul-03	RELEASE	LM
	SMOLT	TR31+TR34	Big Q Hatchery	15,215	7.6	26-Aug-03	Rearing in Burrows Pond	AD
	SMOLT	TR32+TR33	Big Q Hatchery	17,414	8.5	26-Aug-03	Rearing in Earthen Channel	AD
				10,620				
Keogh	SMOLT	TR29+TR35	Connor Net Pens	11,595	12.5	08-Sep-03	TRANSFER	AD
	SMOLT	TR30+TR11	Connor Net Pens	8,119	10.1	08-Sep-03	TRANSFER	AD
	SMOLT	TR36	Connor Net Pens	10,586	9.1	08-Sep-03	TRANSFER	AD
				30,300				
Quinsam	FRY	TR 45	Quinsam River	28,489	2.5	25-Jun-03	Heli release	LM
	FRY	TR 46	Quinsam River	10,653	3.4	25-Jun-03	Heli release	LM
	SMOLTS	Quinsam Hatchery		22,083		28-Apr-03	REARING	AD
				61,225				
Puntledge WR	FRY	TR 25	Puntledge River	30,595	2.6	24-Jun-03	Heli releases	RM
	FRY	TR 21	Puntledge River	21,167	2.3	04-Jul-03	Scatter plant	RM
	FRY	TR 23	Puntledge River	15,717	2.3	04-Jul-03	Scatter plant	RM
	SMOLT	TR 21	RW 08	10,556	7.2	11-Aug-03	TRANSFER	AD
	SMOLT	TR 22	RW 08	10,220	7.4	11-Aug-03	TRANSFER	AD
	SMOLT	TR 25	RW 08	7,587	8.0	11-Aug-03	TRANSFER	AD
	SMOLT	TR 26	RW 08	7,507	7.7	11-Aug-03	TRANSFER	AD
	SMOLT		TR 25	6,494	8.1	26-Sep-03	REARING	AD
	SMOLT		TR 26	7,129	8.7	26-Sep-03	REARING	AD
				116,972				
Puntledge SR	FRY	TR 28	Cruikshank River	24,320	2.2	24-Jun-03	Heli releases	no clip
	FRY	TR 26	Cruikshank River	25,905	2.8	24-Jun-03	Heli releases	no clip
	FRY	TR 27	Cruikshank River	25,981	2.8	24-Jun-03	Heli releases	no clip
	SMOLT		RW 07	34,326	15.9	26-Sep-03	REARING	AD
	SMOLT		RW 15	15,557	14.0	26-Sep-03	REARING	AD
				126,089				

Appendix iii

Quinsam River Winter Steelhead Investigations December 2002 through April 2003

Quinsam River Winter Steelhead Evaluations

December 2002 through April 2003

By:

Rick Axford
Senior Fisheries Technician
Nanaimo Regional Office
Ministry of Water, Land and Air Protection
Environment Stewardship Division

This report summarizes the results of work conducted by Rick Axford (provincial fisheries), staff from Quinsam River hatchery, Harlan Wright, Brad Smith and Scott Sylvestri of B.C. Conservation Foundation Steelhead Recovery Team and Kevin Pellet, a student of Malaspina college Fisheries Program.

Cover Photo:
Kevin Pellet, Malaspina University/College Biology Student holds typical large three year ocean wild male steelhead. Harlan Wright, B.C. Conservation Foundation Technician holds the net, Rick Axford, Ministry of Water Land and Air Protection, caught the fish and took photo.

Introduction:

Three Vancouver Island rivers (Keogh, Quinsam, and Little Qualicum) were selected for an experimental hatchery program known as the steelhead *Living Gene Bank*, in an attempt to rebuild endangered winter steelhead populations. Wild smolts were collected from the three rivers over a 5-year period (1998-2002), and reared to maturity at the Vancouver Island Trout Hatchery (VITH) in Duncan. Captive adults were spawned and resulting progeny returned to their home streams as fall fry, where they were reared to yearling smolts and released the following May, coincident with the seasonal ocean migration period. The Quinsam River program was supported by BC Hydro (Bridge-Coastal Restoration Program) and provincial/federal government hatchery programs.

The goal is to stock LGB smolts for one steelhead generation (five years). The first returns of 2-year ocean adults occurred in the winter/spring of 2003, following the initial smolt release in May 2001. The primary evaluation of the LGB experiment is at Keogh River which has a long-term fish counting facility, including a new weir with electronic (resistivity) counters. A $1M NSERC grant through the University of Toronto's Department of Zoology (Dr. Mart Gross) will also critically examine the genetic effects and reproductive success of LGB steelhead in the Keogh watershed, in co-operation with provincial fisheries research staff (Bruce Ward).

In 2003, monitoring of returns of adult LGB steelhead to the Quinsam River was conducted on a much smaller scale, using snorkel observations and tagging of angled/trapped fish to obtain baseline population data. Dedicated funding for this evaluation was not provided, however, it might lay the groundwork for more intensive monitoring over the next four or five years when most returns are expected (two and three year old ocean adults returning from multiple years of smolt releases).

Project Summary:

This project started to address several key questions and provide baseline data for an LGB evaluation of the Quinsam and Little Qualicum rivers . Some of the questions are:

1) Do LGB smolts released into the wild return from the ocean and migrate to traditional steelhead spawning areas in the watersheds in question?

2) If they return, what are their survival rates and are these rates similar to other hatchery or wild steelhead stocks (better/worse)?

3) Do these fish home to their hatchery rearing/release sites, or do they distribute throughout the stream and spawn in areas where wild stocks are typically be observed?

4) Are there obvious differences between LGB and wild steelhead from the same donor stock (e.g., size at age, distribution/reproductive behaviour, and survival)?

Methods:

The Quinsam River evaluation included tagging adults captured by angling or trapped at the hatchery fence. Angled fish (wild, hatchery and LGB) were measured, tagged and released above the fence. Fish collected from the trap were measured, recorded and

released above the fence with as little handling as possible. Wild fish were tagged using two yellow floy tags; hatchery fish (from the previous "augmentation" program) were tagged with two blue floy tags;and, LGB fish were to be tagged with two florescent orange floy tags. Two tags placed high on the back would assist in identification during subsequent snorkel surveys. Release above the fence provided all fish with the same access opportunities without migration delays caused by the fence structure. Upstream releases were also intended to reduce the incidence of repeat angling/trap captures.

With the fence structure being open on weekends and during freshets, LGB or other hatchery fish that homed to the hatchery site could have volitionally moved upstream. All steelhead captured more than a kilometre below the fence were released at their capture sites to avoid long transport distances and handling stress. Snorkel observations were to provide information on the distribution of wild, hatchery and LGB fish, and the relative numbers of three "stocks" in spawning areas. Hatchery steelhead from past stocking programs made separation from LGB adults potentially more difficult, although many of the former were over 4 kilograms (i.e., three year ocean) and therefore larger than expected LGB returns (all 2 year ocean). Quinsam LGB smolts were also nose tagged with Coded Wire Tags (CWT's), so that returning adults with missing adipose fins could be checked with a metal detector for presence or absence of CWT's.

Fish Angling and Sampling Methods:

Given the detailed data collection involved, and the "closed to fishing" regulation imposed on the Quinsam River (December 1 – June 30), experienced DFO or provincial fisheries staff were involved with angling, sampling and transport of steelhead. Angling used bait (preserved roe) and small hooks to increase capture efficiency while reducing serious hooking injuries. When a fish was hooked, it was played to exhaustion before landing. The fish was then easier to handle without anaesthetic. Fish were landed using a soft mesh net. After removing the hook, fish were kept in water during the measuring/tagging/photo/scale sampling process (which involved the attention of at least two crew members) to reduce time and stress, as much as possible. All tags were applied at the base of the dorsal fin. Since this project includes intensive fish handling, biological sampling and live fish transport, it necessarily limits the participation of volunteers and non fisheries staff.

Results:

A total of 59 winter steelhead were captured with 58 returned to the river (1 died after release from apparent bruising and internal bleeding). Of those released, 8 were captured in the fence trap with the other 50 captured by angling. Capture details, including a summary of males vs. females; trap vs. angled; and hatchery vs. wild are appended to this report. None of the adult steelhead captured were determined to be of *Living Gene Bank* origin, and no potential LGB steelhead were seen during snorkel surveys.

The sampled population consisted of 38 (64.4%) wild (15 males and 23 females) and 21 (35.6%) hatchery origin steelhead. It is believed the hatchery origin steelhead were from

late 1990's releases that included both smolts and fry. Most of the hatchery adults were large four year ocean fish (likely from smolt releases), but some had spent 2 or more years in fresh water (fry releases), and then returned after 2 or 3 years of salt water residence.

Recommendations:

This limited project should be considered an important component of the larger *Living Gene Bank* evaluation, and will hopefully be continued. Future assessment of the Quinsam and Little Qualicum LGB returns could include hatchery staff and a small number of skilled volunteers (if properly supervised) to reduce overall costs.

This project should include the capture and tagging of all fish for improved population estimates of both wild and hatchery-origin returns. Snorkel surveys to observe marked/unmarked ratios, as well as the distribution of tagged fish are a critical part of this evaluation project.

Scale sampling and fish measuring (length/weight) may not be required as it increases handling time and requires more data analysis by fewer existing government staff.

Fish captured within 1 km. below the Quinsam Hatchery should be transported and released above the fence/trap. This will give these fish access to the upper river without delay and reduce the impact of multiple captures. The fence and trap should be opened most of the time, or even all season, to reduce potential migration delays.

Scale Analysis Summary

WILD			
NUMBER	FW-AGE	SW- AGE	TOTAL AGE
1	2	2	4
10	2	3	5
0	3	2	5
10	3	3	6
1	2	4	6
1	regen	2	5 or 6
2	regen	3	5 or 6
HATCHERY			
NUMBER	FW-AGE	SW-AGE	TOTAL AGE
0	1	2	3
0	2	2	4
0	3	3	6
0	1	3	4
6	2	3	5
0	3	2	5
6	1	4	5
1	regen	3	4,5 or 6

Note: Total 3 and 4 year ocean age fish was 34. Total 2 ocean age was 2. Ratio 17:1

Length Frequency Data

HATCHERY		WILD	
LENGTHS	NUMBER	LENGTHS	NUMBER
60-65	1	60-65	2
65-70	0	65-70	4
70-75	2	70-75	3
75-80	5	75-80	13
80-85	9	80-85	11
85-90	4	85-90	3
90-95	0	90-95	1

March Snorkel Survey Results

YEAR	COUNT	DISTANCE	FISH/KM	IN	OUT
March 6 & 10, 2000	30	7.3	4.1	sandpits	Campbell confluence
March 8 & 12, 2001	58	7.3	7.9	sandpits	Campbell confluence
March 8, 2002	24	7.3	3.3	sandpits	Campbell confluence
Feb 28 & Mar 5, 03	39	7.3	5.3	sandpits	Campbell confluence

FILE NOTE

Date: January 22, 2003
File: 34560-20/SNORK
xf: 34560-27/(*Quin*)

SNORKEL SURVEY REPORT

Quinsam River

DATE: January 16 & 17, 2003
WEATHER: overcast, light drizzle (16th), sunny (17th)
WATER TEMP.(°C): 5.0 @ 1300 hrs (16th)
DISCHARGE (m^3/s): 5.7 (per Environment Canada website)
VISIBILITY (m): 3.0 (upper), 1.5-2.5 (lower)
PERSONNEL: S. Silvestri, B. Smith
AREA: upper: Sandpits to hatchery fence (~ 4.3 km)
lower: Hatchery fence to Campbell River (~ 3.0 km)
Total distance = 7.3 km

1. **Fish Observed**:

Adults

A total of 17 steelhead were observed (12 wild, 2 hatchery and 3 unknown) for a density of 2.3 fish/km. Five fish were observed in the lower section (all wild) downstream of the lower Argonaut Bridge. Twelve fish were observed evenly distributed throughout the upper section. Of the twelve, five yellow Floy-tagged (wild) and one blue Floy-tagged (non-LGB hatchery) fish were noted. Fish were moderate to bright coloured and ranged in size from 2.5-6.0 kg. Several fish had fungus patches, scarring and predator marks.

40 resident rainbow trout (~25% hatchery; 16 @ 25-35 cm, 13 @ 35-45 cm, 11 @ 45+ cm)
17 cutthroat trout (~66% hatchery; 7 @ 25-35 cm, 8 @ 35-45 cm, 2 @ 45+ cm)
20 trout (species and stock unconfirmed; 12 @ 25-35 cm, 7 @ 35-45 cm, 1 @ 45+ cm)

Juveniles

No juveniles were observed.

2. Notes

- No illegal anglers were observed. Two staff members of the Quinsam River Hatchery were fishing the rip-rap run (on their lunch hour), attempting to capture LGB steelhead for the Floy-tagging program. A styrofoam float was retrieved in the lower section downstream of the rip-rap run. A Gooey Bob was noted in the run downstream of the lower Argonaut Bridge. No other evidence of recent angling was noted.
- Visibility in the first 500 m downstream of the hatchery fence was very poor (~1.5 m), likely due to the accumulation of organic debris and leaf litter on the hatchery fence panels. Water streaming through the panels would break-up the debris and send it floating down the river channel as small-suspended particles. Visibility improved downstream of the Cold Creek confluence.
- The Campbell River mainstem was surveyed between the Quinsam River confluence and the upper Highway 19 Bridge on January 16. No fish were observed.
- Portions of the Elk Falls side-channel were snorkel surveyed on January 17. The visibility was 5+ m and the water temperature was 5.0 ^{o}C. A group of approximately 300 fish was observed in the pool directly downstream of the side channel intake. Another group of 100 fish was noted in the first pool of the secondary channel (left bank channel), underneath the upper footbridge. A large group of coho fry (~500) was also noted in this pool. Other smaller groups of 10-20 fish were noted in a few other pools surveyed between the intake and the lower footbridge. The fish were a mix of cutthroat and rainbow trout (2:1 ratio of hatchery to wild). Approximately 30 medium/large fish were noted (mostly hatchery cutthroat). One bright wild steelhead was observed in the intake pool (~3-4 kg). Several LGB steelhead pre-smolts were also noted.

Brad Smith
Fisheries Technician
BC Conservation Foundation

/dm
sns(creek)
cc: All Fisheries staff
Steelhead Crew
P. Law, Urban Habitat Biologist, MWLAP, Nanaimo
District Conservation Officers, Nanaimo
D. Ewart, Manager, Quinsam Hatchery, Campbell River
A. McLean, Biologist, BC Hydro, Campbell River

FILE NOTE

Date: March 10, 2003
File: 34560-20/SNORK
xf: 34560-27/(*Quin*)

SNORKEL SURVEY REPORT

Quinsam River

DATE:	February 28 and March 5, 2003
WEATHER:	overcast, rain on March 5
WATER TEMP.(^{o}C):	4
DISCHARGE (m^3/s):	3 (per BC Hydro website)
VISIBILITY (m):	effective vis. = 2.5, horizontal sechii = 4.5
PERSONNEL:	S. Silvestri, H. Wright
AREA:	upper (Mar. 5): Sandpits to hatchery fence (~ 4.3 km)
	lower (Feb. 28): Hatchery fence to Campbell River (~ 3.0 km)
	Total distance = 7.3 km

1. **Fish Observed**:

Adults

A total of 39 steelhead were observed (27 wild, 7 hatchery, and 5 unidentified) for a density of 5.3 fish/km. Fifteen were observed in the upper and 24 were observed in the lower section. Seven yellow Floy-tagged fish and 3 blue Floy-tagged fish were noted *(See notes section)*. Fish were moderately coloured to dark and 3 were confirmed kelts. One large fecund female with significant head injuries was observed resting in slack water below the fence. The fish were typically large ranging in size from 3.5 to 8 kg.

30 resident rainbow trout (~24% hatchery; 2 @ 25-35 cm, 18 @ 35-45 cm, 10 @ 45+ cm)
12 cutthroat trout (~33% hatchery; 4 @ 25-35 cm, 8 @ 35-45 cm)
16 trout (species and stock unconfirmed; 7 @ 25-35 cm, 8 @ 35-45 cm, 1 @ 45+ cm)

Juveniles

No juveniles were observed.

2. **Notes**

- No evidence of anglers or recent angling was observed upstream of the hatchery fence. Some terminal tackle was observed below the fence, likely from Quinsam Hatchery staff and MWLAP permitted anglers.
- A total of 44 steelhead were tagged and released from mid-December to mid-February. All fish were captured at, or below the hatchery fence. Yellow Floy-tags were placed on wild fish, and blue Floy-tags were placed on hatchery fish. Orange tags were intended for Living Gene Bank fish, although none were captured, confirmed by checking for

coded-wire tags. Approximately 80% of the fish were released upstream of the fence. One of those fish was recovered dead a few days after release.

- In order to apply a mark-recapture formula, the following assumptions were made:

  1. The ratio of tagged to untagged fish in the reach swum is representative of the entire anadromous length. This assumption may be incorrect because ~80 % of the tagged fish were released upstream of the hatchery fence. The fence is known to delay upstream migration; therefore, there may have been a higher ratio of tagged fish upstream. It is also possible that the run peaked during high water events and fish escaped upstream of the fence when conditions were not conducive to marking.
  3. The ratio of tagged to untagged fish has not changed significantly since the fish were tagged. This assumption is likely true as fish were captured and tagged throughout the run. Tagging efforts were scheduled regularly; such that periods of peak migration were not missed.
  4. Population losses from mortality and emigration were the same for tagged and untagged fish. Tagged fish may have suffered a low rate of mortality from handling, while untagged fish likely experienced minor injuries and possible mortality from attempting to migrate past the fence.
  5. Fish did not lose the tags. There was not fungus or sign of injury near the tag insertion areas. No fish were observed with one tag missing.

  Following Peterson's method:

  $$N_c = \{M+1)(n+1) / R + 1\}-1$$

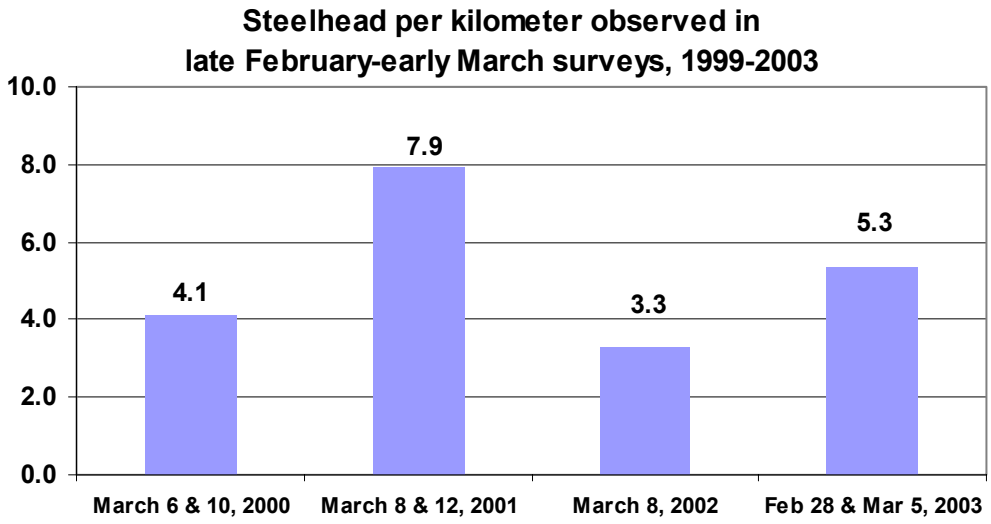
  Where N_c = estimated population;
  M = total marked;
  n = number unmarked; and
  R = number of marks recaptured (or observed)

  N_c = **162.6**

  95% C.I. = 162.6 +/- 21.6

  Thus, accepting the above assumptions, we can say with 95% confidence that the number of adult steelhead in the Quinsam River was between 141.0 and 184.2. There is potential for error, considering the lack of confirmation surrounding the above assumptions.

- The observed density of 5.3 steelhead per kilometer is average compared with snorkel counts in the same section during the past 3 years *(see following chart)*. Although the upper section was surveyed 5 days later than the lower, the distribution of the fish likely did not change significantly with river flows at 3 m^3/s.



Harlan Wright
Fisheries Technician
BC Conservation Foundation

/dm
sns(creek)
cc: All Fisheries staff
Steelhead Crew
P. Law, Urban Habitat Biologist, MWLAP, Nanaimo
District Conservation Officers, Nanaimo
D. Ewart, Manager, Quinsam Hatchery, Campbell River
A. McLean, Biologist, BC Hydro, Campbell River
D. Hayward, Manager, Vancouver Island Trout Hatchery, Duncan

Appendix iv

Presentation by Al Lill (Co-ordinator, GGBSRP) to Stakeholder Representatives at Pacific Salmon Foundation, Vancouver, BC, September 30, 2003

Wightman, Craig WLAP:EX

From: Alan Lill [alanlill@shaw.ca]
Sent: September 24, 2003 3:28 PM
To: rodney.a.clapton@clarica.com; boz@seaside.net; Melinda Coleman BCCF; Paul Kariya; Rich Chapple; Pat Ahern; Peterson, Don WLAP:EX; Criag Orr; 'Ennis@Fish.Bc.Ca'; Down, Ted WLAP:EX
Cc: Alley, Jamie WLAP:EX; Laurel Goodger; Wilson, Greg FISH:EX; Pacific Streamkeepers Federation; Mauro Vescera; Martin, Al WLAP:EX; John A. Fraser; Wightman, Craig WLAP:EX; Tautz, Art WLAP:EX
Subject: Re: Greater Georgia Steelhead Recovery Implementation Meeting - 10 am September 30, 2003 Pacific Salmon Foundation Offices in Vancouver

Hi

This is just a reminder and to confirm your attendance at the GGBSR Implementation Meeting next Tuesday.

Expected Attendees:(23)

Pat Ahern and Rod Clapton, South Coast Steelhead Coalition
Bob Boswell and Tony, BC Wildlife Federation
Melinda Coleman BCCF
John Fraser and Gordon Ennis, Pacific Fisheries Resource Conservation Council
Paul Kariya and Rich Chapple, PSF/PSEF
Al Martin, Ministry Water Land Air Protection
Zo Ann Morton, Pacific Streamkeepers Federation
Craig Orr, Bridge-Coastal and SFU
Don Peterson, Freshwater Fisheries Society of BC
Brian Springinotic and Liz Stanlake, Habitat Conservation Trust Fund
Mauro Vescera and Jamie Alley Living Rivers/Vancouver Foundation
Ed Woo, Fisheries and Oceans Canada

Presenters
Craig Wightman, Greg Wilson and Art Tautz, WLAP
Pat Slaney
Al Lill (Chair)

There have been some minor changes to the agenda.

It is still intended to keep presentations quite short so as to allow maximum time for
discussion and brainstorming.

Implementation Meeting
10.00 AM September 30th, 2003 at Pacific Salmon Foundation Boardroom
Suite 300, 1682 West 7th Ave. Vancouver, BC V6J 4S6
604-664-7664

Updated Agenda

10.00 Introductions and Review of the Agenda

10.10 Plan Implementation

Plan Status Updates (Lill, Wightman, Wilson, Slaney)
Consultation Sessions &
Emerging Fish Culture and Wild Salmon Policy Considerations (Lill, Tautz and Woo)

Discussion on progress to date

12.00 Lunch Break

12.30 Partnership Building Roundtable
HCTF (Springinotic/Stanlake)
WLAP (Martin)
Fisheries Society (Peterson)
DFO (Woo)
Living Rivers/Vancouver Foundation (Alley/Vescera)
PSF/PSEF (Kariya/Chapple)
Pacific Fisheries Resource Conservation Council (Fraser/Ennis)
BC Hydro Bridge Coastal (Orr)
SCSC (Clapton, Ahern)
Streamkeepers (Morton)
BCWF (Boswell)
BCCF (Coleman)

Discussion on "growing the plan" and getting an increased public profile

14.00 Coffee Break

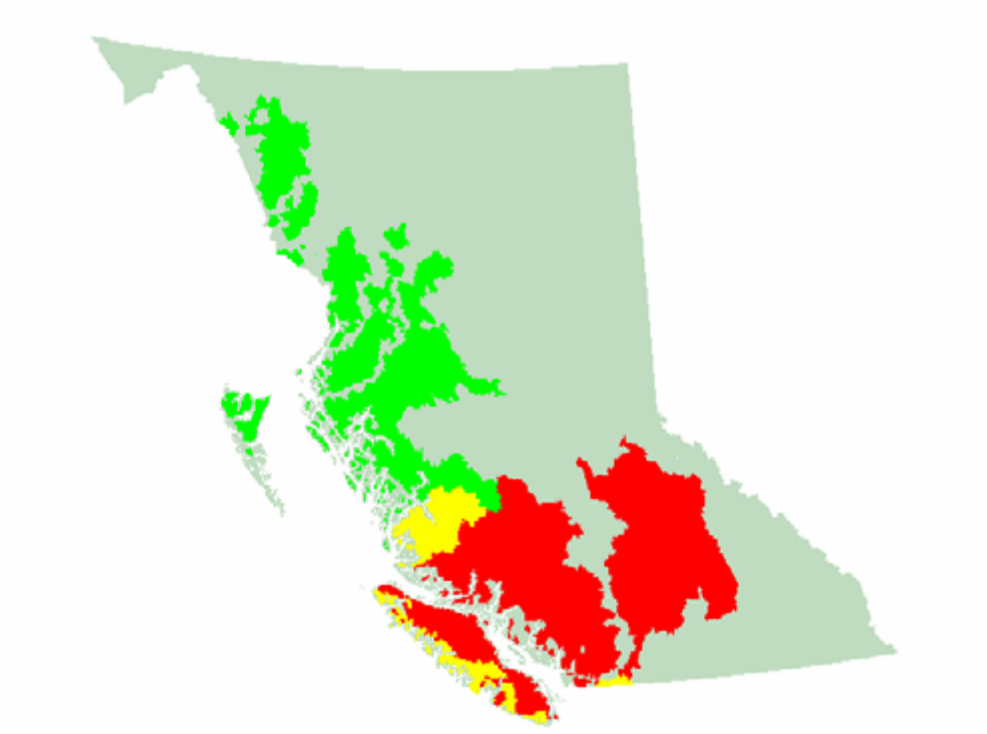
14.15 Management Options

Do we need a forum like this one? If so who should be here? (Intro Lill)

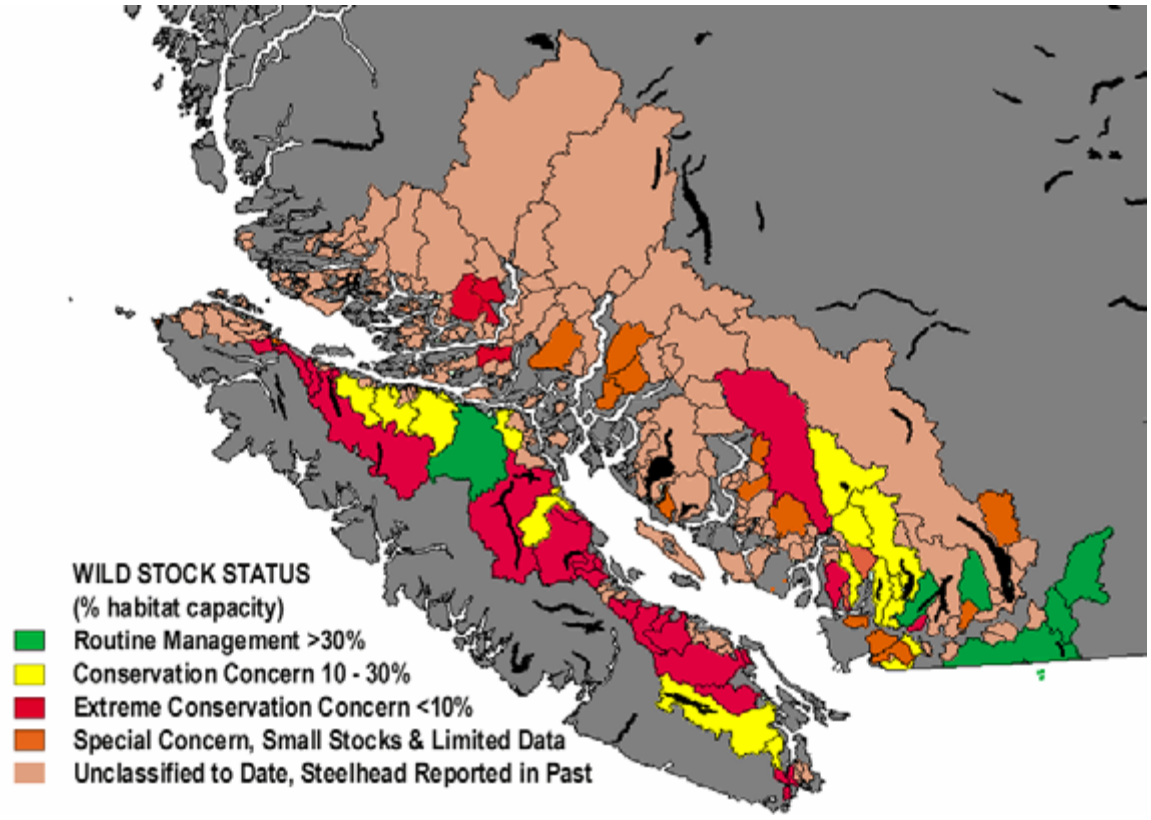
15.00 Adjournment

See You Tuesday
Al Lill, 5569 Cortez Road, North Vancouver BC V7R 4P9
604-908-4366 alanlill@shaw.ca

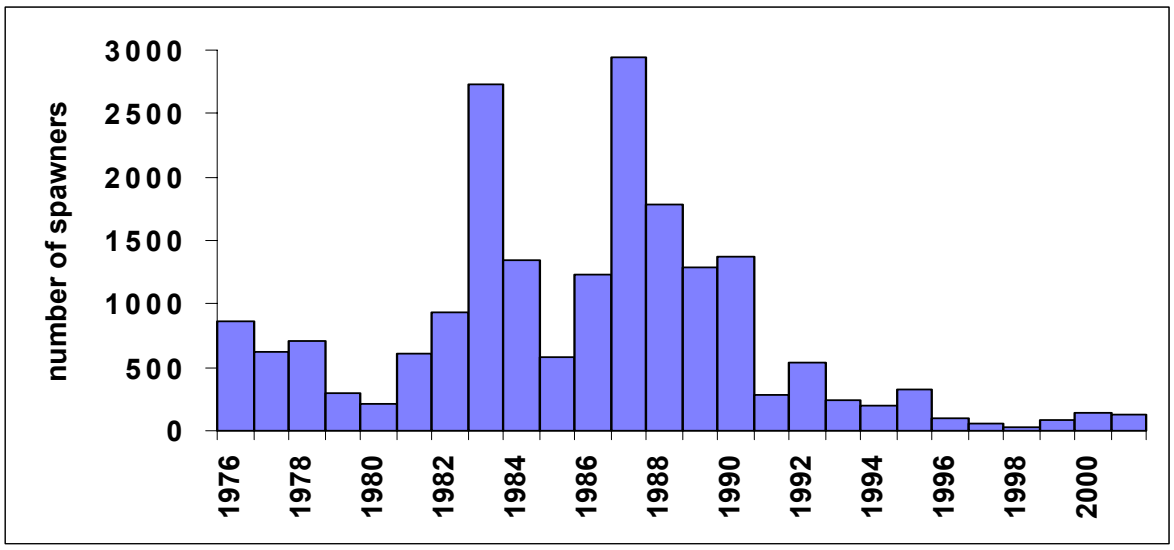
BC Steelhead Status
Major Concerns and Opportunities in Greater Georgia Basin



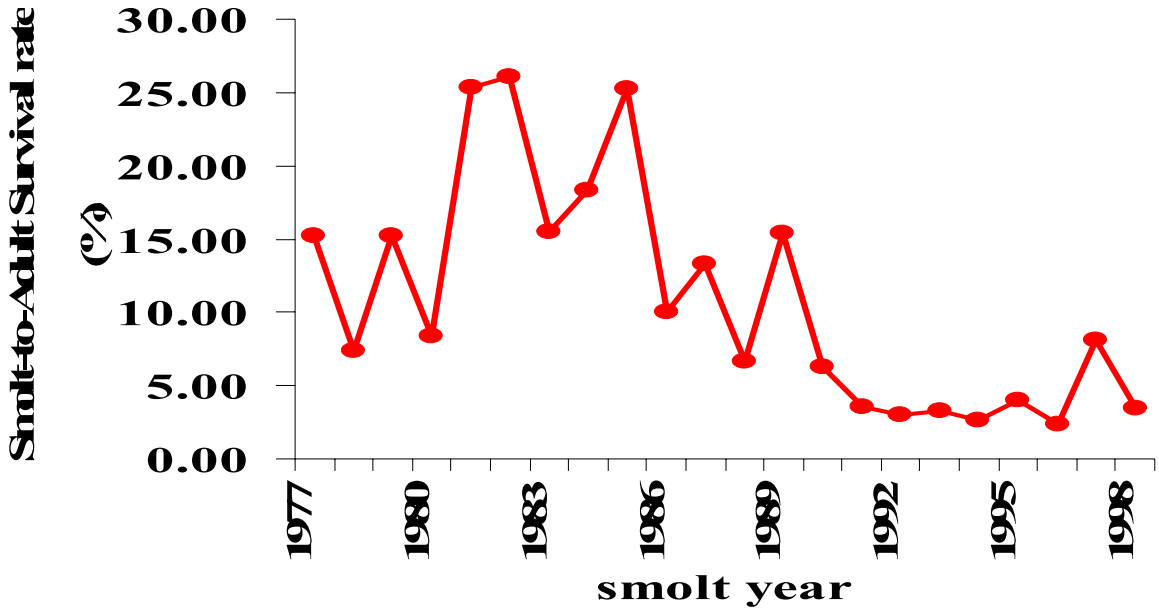
Greater Georgia Basin Steelhead Watersheds



Reduced Wild Stocks
(Keogh River Adult Returns)



Reduced Ocean Survival
(Keogh Steelhead Smolts)



Steelhead Recovery Objectives

-Stabilize and restore wild steelhead stocks and habitats to healthy self-sustaining levels

-Maintain and restore angling opportunities

Dual Approach

-Stand-Alone GGB Steelhead Recovery

-Partner with Multi-Species Recovery Initiatives

Funding Challenge

-A long term program is required with funding continuity for at least 10 years
-Less government base funding available
-Limited resources from any one source

GREATER GEORGIA BASIN STEELHEAD Recovery Plan
www.SteelheadRecoveryPlan.ca

Types of Funding Required

-Dedicated GGBSRP operational resources for core BCCF staff, stock assessment, river guardians, planning etc.

-Restoration Project funds - primarily multi-species benefits Stream Enrichment

-Keogh Steelhead Research Watershed

Funding Sources

-Applications to HCTF etc.
-WLAP
-Fish Culture DFO & FFSBC
-Donations/Sales to BCCF
-Foundations and Other Sources
-Joint Multi-Species Ventures
-PSEF Watershed Recovery Plans
-Volunteer Projects

Estimated Total Funding Requirements for an Effective GGB Steelhead Recovery Plan

-2001/02:	**Spent Approx. $1.7 Million**
-2002/03:	**$1.9 Million Had ~$1.5 M**
-2003/04:	**$3.7 Million Have~ $1.5 M so far**
-2004/05:	**$3.9 Million**
-2005 onward:	**$4 Million**

Progress to Date

-Report Released – end of September 2002

-Endowment Fund Watershed Recovery Plans –Englishman, Nimpkish, Squamish

-Steelhead Recovery Website

-Four Area Workshops co-chaired with South Coast Steelhead Coalition

-Field programs Underway

-Forest Company Meetings on FIA

-Research Results

Feedback Received at four workshops

-Strong Support for the Recovery Plan & Community and Angler Involvement

-Identified More Restoration Opportunities To Be Investigated Universal Support for Enrichment

-Steelhead Fish Culture is Controversial

-Want More Enforcement of Regulations

Required Follow Up

-Develop slow release fertilizers

-Steelhead Fish Culture Issues

-Stream Designations

-Report Back - Spring 2004

Issues and Concerns: Wild versus Hatchery Steelhead

-Does hatchery supplementation represent a risk to wild populations?
-Conditions for altering existing programs or initiating new ones?
-Role of fish culture in stock recovery?
-What is a wild stock?
-Stream Designation System?

Objectives and Strategies in each Stream Designation

Class	Wild	Augmented	Hatchery
Objectives	Wild stock and Habitat	Wild stock and Habitat	Fishable stock
	Wild Catch and Release Angling	Wild Catch and Release Angling	
		Hatch. Retention Angling	Hatch. Retention Angling
Hatchery	LGB if required	Native Brood	Native or Transplant Brood
Recovery Strategies	Restoration Fertilization	Restoration Fertilization	Restoration

Where to from here?

Some Factors to Consider

-Public Profile
-Ability to Obtain Resources
-Cost-Effectiveness
-Coordination
-Avoiding Duplication
-Acceptance by Governments
-Funding Partners Interest

Implementation Options

-Status Quo (Government Lead)

-Not for Profit Society

-Partnership

Status Quo Provincial Lead

-WLAP-FFSBC Management Committee (Program Coordinator)

-WLAP-FFSBC-BCCF Technical Work Group

-Regional WLAP/BCCF Steelhead Teams

-Stewardship Volunteer Projects South Coast Steelhead Coalition

Not for Profit Society Option

-Board of Directors (Board Chair & Coordinator)

-Technical Work Group

-Regional Steelhead Teams

-Stewardship Volunteer Projects South Coast Steelhead Coalition

-Administrative Functions

Partners Management Option

-Partners Management Committee (Program Coordinator)

-Stewardship Volunteer Projects South Coast Steelhead Coalition

-Technical Work Group

-Regional WLAP/BCCF Steelhead Teams

Discussion

-Public Profile

-Ability to Obtain Resources

-Cost-Effectiveness

-Coordination

-Avoiding Duplication

-Acceptance by Governments

-Funding Partners Interest

Appendix v

Budget Summary (January 21, 04) from BC Conservation Foundation for Vancouver Island Steelhead Recovery Plan Contract with HCTF, 2003/04

British Columbia Conservation Foundation

Project Budget Update 2003/2004

Today's Date :	21-Jan-04		
Regional Contact:	Pat Stephenson	nanaimo@bccf.com	
CLIENT NAME :	Craig Wightman	PROJECT NAME	VI Steelhead
CLIENT AGENCY:	MWLAP	BCCF PROJECT #	110408
ADDRESS :	2080A Labieux Road	CLIENT CONTRACT #	2978103
CITY,	Nanaimo,		$
PROVINCE :	B.C.	TOTAL CONTRACT	163,000.00
			$
POSTAL CODE :	V9T 6J9	FEES	18,111.12
		CARRY-OVER OR	
TEL. NUMBER :	250-751-3230	SUBSIDY	
			$
FAX NUMBER :	250-751-3103	WORKING BUDGET	144,888.88

GL ACC'T.	EXPENDITURE	Working Budget	Spent to Date	Committed Cost	Balance Of Funds
4050	Equipment Rental		0.00		0.00
4051	Other Charges		0.00		0.00
4055	Coordinator/Mgmt Charges		0.00		0.00
4056..5030	Contract wages	102398.45	98709.74	3688.71	0.00
5110	Sub Contracts	3864.16	3864.16		0.00
5115	Premises Rent		0.00		0.00
5210	Equipment > 100		0.00		0.00
5220	Equipment < 100	1324.33	1324.33		0.00
5230	Equipment Repairs	59.13	59.13		0.00
5235	Rentals	260.00	260.00		0.00
5240	Communications	1832.19	1782.64		49.55
5245	Computer Costs	56.07	56.07		0.00
5300	Materials/Supplies/Courier	5429.15	5273.07	109.92	46.16
5400	Project Publications	1392.76	1392.76		0.00
5500	Vehicle Operating Costs	582.88	579.13	3.75	0.00
5520	Transportation	737.91	737.91		0.00
5530	Vehicle Rental	18659.74	16586.57		2073.17
5540	Mileage (only)	381.84	338.84	43.00	0.00
5545	Travel Costs/Fuel	3350.00	3298.29	20.00	31.71
5550	Accommodation/Food	1262.09	1160.46		101.63
5555	Allowances	30.00	30.00		0.00
5560	Per Diem (only)	2168.18	2131.75	22.50	13.93
5600	Miscellaneous		0.00		0.00
5700	Training / Safety		0.00		0.00
5750	Employee Advances		0.00		0.00
5800	GST	1100.00	1036.64	3.70	59.66
	TOTAL	**$144,888.88**	**$138,621.49**	**$3,891.58**	**$2,375.81**

Budget Check $ - % working budget spent 95.67%

Comments:

HW expense claim committed Jan 21, 2004

Overtime committed and employment benefits as of Dec 26, 2003

- JC - 28.50 hours, MM - 78 hours, BS - 22.50 hours, HW - 21.00 hours

Billings to date - internal check		
3050	fees	0.00
3100..3359	expenses	-224.78