Strategic Recovery Options in High Profile Watersheds

Vancouver Island (Region 1)

Cowichan	Campbell	Cluxewe
Nanaimo	Salmon	Adam/Eve
Englishman	Nimpkish	Wahpeeto
Oyster	Kokish	

Greater Georgia Basin Steelhead Recovery Workshop Nanaimo, February 8, 2003

- Review steelhead recovery strategies and options for selected watersheds from Duncan to Sayward (Lill 2002)

- Outline approved and new funding initiatives to support project/program implementation

Cowichan River

- Wild Stock Trend: Relatively stable at moderate abundance
- Wild Stock Status: Conservation Concern
- Class: Augmented (50,000 WR smolts/year from VITH)

COWICHAN RIVER

Steelhead Objectives & Strategies

- Monitor wild stock through creel census, broodstock CPUE, SHQ, fry densities and summer parr counts
- Monitor steelhead catch rates in commercial (late chum) and Cowichan Tribes' fisheries
- Work closely with DFO, Cowichan Tribes and forest industry on basin-wide habitat restoration with emphasis on erosion/sediment control

COWICHAN RIVER

Steelhead Objectives & Strategies ...CONTINUED

- Re-visit existing side-channels with potential for steelhead rearing improvements
- Investigate electronic fish counting facility at Skutz Falls fishway
- Develop effective technique(s) for steelhead/resident rainbow stock separation (at fry stage)

Nanaimo River

- Wild Stock Trend: Relatively stable at low level
- Wild Stock Status: Extreme/Conservation Concern
- Class: Augmented (VITH program suspended in 1998 due to lack of wild broodstock)

NANAIMO RIVER

Steelhead Objectives & Strategies

- Increase wild stock to >30% of capacity (in 2 consecutive years) and re-open catch and release fishery in lower river
- Pursue annual organic enrichment using pollock bone meal
- Install rearing habitat structures recommended by Gaboury and McCulloch (2002) - 111 LWD sites in Haslam and Deadwood creeks at est. cost of $329,000

NANAIMO RIVER

Steelhead Objectives & Strategies ...CONTINUED

- Investigate warm water releases from Harmac Pulp Ltd.'s Fourth Lake dam
- Monitor steelhead catch rates in Snuneymuxw FN food fishery
- Install spawning gravel between First and Second lakes, and possibly below City of Nanaimo's Jump Lake reservoir

Englishman River

- Wild Stock Trend: Relatively stable at low level
- Wild Stock Status: Extreme/Conservation Concern
- Class: Wild (proposed change from augmented)

ENGLISHMAN RIVER

Steelhead Objectives & Strategies

- Increase wild stock to >30% of capacity (in 2 consecutive years) and re-open catch and release fishery in lower river
- Develop as a south Island steelhead index stream where adults, fry and smolts are counted annually using standard methods
- Install rearing habitat structures recommended by Gaboury (2003) - 16 LWD sites at an estimated cost of $57,000 (Reaches 2,3,4)

ENGLISHMAN RIVER

Steelhead Objectives & Strategies …continued

- Pursue annual organic enrichment using pollock bone meal
- Fine-tune rule curve for storage release from RDN's Arrowsmith Lake reservoir to improve rearing flows
- Support riparian land purchase and side-channel development where steelhead will benefit (i.e., parr over-wintering)
- Work closely with PSEF recovery team and private land owners to improve watershed stewardship over the next 5 years

Oyster River

- Wild Stock Trend: In decline
- Wild Stock Status: Extreme Conservation Concern
- Class: Wild

OYSTER RIVER

Steelhead Objectives & Strategies

- Rebuild wild winter stock to >30% of capacity (in 2 consecutive years) and re-open catch and release fishery above Highway 19A
- Pursue annual organic enrichment using pollock bone meal
- Install rearing habitat structures recommended by Gaboury and McCulloch (2002) - 77 LWD sites at estimated cost of $194,000

OYSTER RIVER

Steelhead Objectives & Strategies ...continued

- Improve stock abundance and habitat capability estimates for this large, low productivity watershed
- Establish presence/distribution of persistent(?) summer-run stock in upper watershed above selective migration barriers
- Identify and develop new side-channels with steelhead fry/parr rearing potential

Campbell River

- Wild Stock Trend: In decline (both summers and winters)
- Wild Stock Status: Extreme Conservation Concern
- Class: Hatchery (for summer runs); surplus Quinsam LGB winter fry stocked in side-channels

CAMPBELL RIVER

Steelhead Objectives & Strategies

- Create sport fishing opportunities through annual smolt stocking from Tsitika captive brood summer steelhead (under development)
- Improve winter steelhead fishery on passing Quinsam stock as it rebuilds in response to recovery actions
- Improve summer rearing flows for steelhead through BCH's WUP (nearing completion)

CAMPBELL RIVER

Steelhead Objectives & Strategies ...continued

- Pursue approval of inter-agency gravel recruitment plan (for 5-10 years) to improve spawning success downstream of John Hart Generating Station
- Secure WUP flow agreement for Elk Falls canyon (2 km) and place spawning gravel by helicopter
- Continue estuary land purchase, rehabilitation and management through local stakeholder committee process

Salmon River

- Wild Stock Trend: Relatively stable with some recovery (WR)
- Wild Stock Status: WR - Routine Management
  SR - Conservation Concern (White River)
- Class: Wild

SALMON RIVER

Steelhead Objectives & Strategies

- Increase wild winter stock to >50% of capacity and maintain catch and release fishery downstream of Kay Creek
- Install resistivity fish counter in fishway at BCH's diversion dam (for coho and steelhead stock assessment)
- Secure improved stream flows downstream of BCH's diversion dam through Campbell River WUP

SALMON RIVER

Steelhead Objectives & Strategies …CONTINUED

- Improve efficiency of fish screen in BCH's diversion canal through structural upgrade and flow restrictions
- Assess smaller tributaries for steelhead/coho habitat restoration projects (focusing on rearing & passage)
- Expand nutrient enrichment program to other tributaries including Paterson, Spirit, Big Tree, Elk and White

Greater Georgia Basin Steelhead Recovery Workshop Port McNeill, February 15, 2003

- Review steelhead recovery strategies and options for selected watersheds from Port Hardy south to Weyerhaeuser's Eve River Camp (Lill 2002)
- Outline approved and new funding initiatives to support project/program implementation

Quatse River

- Wild Stock Trend: In Decline
- Wild Stock Status: Extreme Conservation Concern (remnant stock)
- Class: Hatchery (Proposed, currently Augmented)

QUATSE RIVER

Steelhead Objectives & Strategies

- Enhance existing steelhead fishery through reinstating 15,000 hatchery smolts/year
- Consider use of hatchery returns as broodstock if insufficient wild adults available
- Stock surplus hatchery fry in underseeded rearing habitat combined with annual inorganic nutrient enrichment

QUATSE RIVER

Steelhead Objectives & Strategies ...CONTINUED

- Conduct full channel condition assessment to evaluate potential for rearing habitat improvements
- Investigate headwater storage potential on Quatse Lake to augment low summer flows
- Assess potential for streambank stabilization through LWD and willow wattling techniques

Cluxewe River

- Wild Stock Trend: In Decline
- Wild Stock Status: Conservation Concern
- Class: Augmented (8,000 hatchery smolts/year plus fry stocking)

CLUXEWE RIVER

Steelhead Objectives & Strategies

- Maintain or enhance steelhead fishery targeting hatchery returns downstream of the current closed area
- Conduct full channel condition assessment to identify limiting factors and prescribe remedial measures (target over 6 km)
- Conduct annual inorganic nutrient enrichment from Skidder Lake Bridge downstream to Highway 19

CLUXEWE RIVER

Steelhead Objectives & Strategies ...CONTINUED

- Assess lower floodplain (below Highway 19) to ensure fish access is unimpeded (debris jams reported as prolific)
- Protect eroding streambank and abandoned landfill to minimize contamination threat

Nimpkish River

- Wild Stock Trend: Relatively stable at Low Level
- Wild Stock Status: WR: Extreme/Conservation Concern

  SR: Extreme Conservation Concern
- Class: Augmented (WR fry stocking by Woss Community Hatchery)

NIMPKISH RIVER

Steelhead Objectives & Strategies

- Work closely with Nimpkish Resource Management Board to ensure steelhead remain a high priority in watershed recovery plans
- Conduct annual liquid and SRP briquette nutrient enrichment in Nimpkish, Davie, Kilpala, Kaipit and Lukwa systems
- Assess tributary rearing habitat restoration to date, and intensify treatment for steelhead, if required

NIMPKISH RIVER

Steelhead Objectives & Strategies ...CONTINUED

- Work with NRMB and Namgis FN on selective fishery sites/methods to minimize steelhead bycatch in salmon fisheries
- Upgrade steelhead abundance and habitat capability estimates, including genetic stock ID as required by PSEF recovery plan
- Increase River Guardian Program and COS patrols in Nimpkish Valley to reduce persistent poaching losses

Kokish River

- Wild Stock Trend: In Decline

- Wild Stock Status: WR: Special Concern

  SR: Conservation Concern

Class: Augmented (winter run fry stocking by Kokish PIP hatchery

KOKISH RIVER

Steelhead Objectives & Strategies

- Expand inorganic nutrient enrichment from mainstem d/s of Ida Lake to upper Bonanza and Tsulton rivers following feasibility study
- Assess debris jams below Bonanza Lake and undertake selective LWD removal to enhance adult steelhead/trout passage, and promote scouring of organic fines
- Consider further spawning gravel placements in the outlet of Ida Lake

KOKISH RIVER

Steelhead Objectives & Strategies ...CONTINUED

- Assess steelhead habitat capability of upper Bonanza River, and identify remedial measures as required
- Review IPP 'small hydro' proposals for Kokish River and ensure provincial flow standards are met for steelhead life-history needs

Tsitika River

- Wild Stock Trend: Stable at Low Level
- Wild Stock Status: SR: Conservation Concern
  WR: Special Concern
- Class: Wild (Donor stream to Campbell River captive brood program)

TSITIKA RIVER

Steelhead Objectives & Strategies

- Conduct annual inorganic nutrient enrichment of 20 km of the mainstem and lower 5 km in both Claud Elliott and Catherine creeks
- Review options for botanical/geotextile treatments or ‘terracing’ of eroding streambanks, where identified as habitat concerns
- Monitor lower canyons to ensure ‘safe passage’ of summer steelhead and coho, annually (subject to periodic debris blockages at falls/chutes)

TSITIKA RIVER

Steelhead Objectives & Strategies ...CONTINUED

- Liase with Fisheries and Oceans salmon managers to ensure minimal interception in Johnstone Strait commercial net fisheries
- Monitor presence of adult/juvenile Atlantic salmon based on fish farm escapes and potential for colonization (last juveniles seen in 1999)

Adam/Eve Rivers

- Wild Stock Trend: Likely Declining
- Wild Stock Status: WR – Conservation Concern
  SR – Special Concern
- Class: Wild

ADAM/EVE RIVERS

Steelhead Objectives & Strategies

- Conduct annual inorganic nutrient enrichment of 15 km of Eve River mainstem and 10 km of the upper Adam River (above anadromous barrier – targets stream resident brown trout stock)
- Upgrade steelhead abundance and habitat capability estimates for Eve River summer and winter run stocks

ADAM/EVE RIVER

Steelhead Objectives & Strategies ...continued

- Link steelhead restoration to similar strategy for blue-listed sea-run Dolly Varden char in upper reaches and tributaries of Eve watershed
- Review past FRBC watershed restoration projects and expand or re-direct new work, as required (hillslope sediment control; riparian silviculture; instream habitat improvement)

Wahpeeto Creek
(Wakeman Watershed)

- Wild Stock Trend: In Decline
- Wild Stock Status: Conservation Concern
- Class: Wild

WAHPEETO CREEK

Steelhead Objectives & Strategies

- Conduct a biophysical/habitat capability assessment to better understand steelhead potential (smolt yield)
- Conduct water chemistry and flow monitoring (June – October) to profile low-level nutrients (N,P) and determine suitability for inorganic nutrient enrichment
- Assess lower floodplain for potential side-channels and over-wintering alcoves (swamps, ponds, abandoned gravel pits) for improving juvenile steelhead and coho survival

WAHPEETO CREEK

Steelhead Objectives & Strategies …CONTINUED

- Review hillslope and riparian erosion problems and prescribe treatments, where necessary (sand infilling of stream channel very evident)
- Consider ballasted LWD structures to enhance rearing for juvenile steelhead and coho, particularly in first 2 km downstream of anadromous barrier (falls)