CERCA
Cowichan Estuary Restoration & Conservation Association
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CERCA Final Report

Project Title on Contract:

Breaching the Westcan Causeway in Cowichan Bay to Re-connect the Two Parts of the Estuary Artificially Divided by the Westcan Causeway

Project Overview:

The project site is located along the Causeway leading to the Cowichan Estuary Westcan Terminal in Cowichan Bay in the center of the Cowichan Bay Estuary (see attached map). The Causeway constitutes Crown land leased to Western Stevedoring/Tidal Harmony Holdings with 25 years left on the Lease.

The overall goal of the project aims at breaching the man-made causeway and building a bridge across the breach. The bridge is being built at a site where there used to be a trestle bridge supporting the railroad leading to the Westcan Terminal. The trestle bridge had been removed in the 60s and the gap closed by infilling. The in-filling and creation of a solid road connecting the Cowichan Bay Road with the Westcan dock effectively cut the estuary into two sections after the removal of the former trestle bridge. Furthermore, the dyke blocked off the flow of the main stem of the Cowichan River South Fork which used to drain into the southern section of the estuary when the trestle bridge was still in place, preventing proper estuarine ecosystem functioning and salmon smolt from accessing prime habitat located to the south of the Westcan Terminal.

Project Background:

Chinook is the target species of this proposal. The Cowichan River and Estuary have and continue to undergo considerable change, bringing into question the health of the ecosystem. There is increasing understanding that marine survival of Chinook in the Georgia Strait is linked to the health of the Chinook leaving the river and estuary. This reflects the importance of estuary

salt marshes and inter-tidal pools of brackish water critical for the survival of smolt. This has been highlighted by Rugerone (2010) who stressed the importance of the lower river and estuary in ensuring sufficient growth and refuge to maximize potential for survival in the marine waters. It is assumed that the artificial dyke posed a significant habitat stressor, likely contributing to the poor marine survival and the decline of Cowichan Chinook from 10,000 spawners in the early 1990s to a low of only a few hundred natural spawners in 2009. The Cowichan River Chinook, Coho and Chum depend on the lower river and estuary during the most critical time of their life cycle. Quality habitat in the estuary and marshlands is Key for smolt survival. In 2009,

Cowichan River Chinook natural spawning was only 10% of the bilaterally agreed MSY goal of 6500. An expert review identified the lack of connectivity in the Cowichan Estuary as a major contributing factor to reduced productivity of this important Chinook stock. Recent average survival rate for Chinook is less than 1%. This stock is identified as a stock of concern in the southern BC. Cowichan Chinook is considered one of the most important indicators of biological health of the Cowichan watershed and has been identified as a stock of concern in Southern BC Salmon Integrated Fisheries Management Plan. The Cowichan Chinook stock is a Pacific Salmon Commission Chinook CWT indicator for exploitation and marine survival.

Continuing stock re-building will benefit fisheries in southern BC and Washington State. The economic value of Chinook is considered a key component of the southern BC recreational fishery and the WCVI commercial troll fishery. Gislason (2004) estimated the revenues and jobs associated with the recreational fishery in the lower half of Vancouver Island in the order of $250M along with 1800 jobs. The Cowichan Tribes created a way of life around the Cowichan Chinook. Consequently, the opportunity cost of conserving Cowichan Chinook in the fishery is “high”. Similarly, the estimated potential benefit of the proposed work is “High”. This project could double the amount of high value estuarine habitat available to Cowichan Chinook. This work has a potential to significantly increase marine survival and so total abundance.

Project Goals and Objectives:

The proposed intervention focuses on rebuilding Chinook stock from the low escapement of 2009, also benefiting Chum and Coho stocks which all use the Cowichan Estuary at critical periods of their life cycle. This is expected to be achieved by:

- Re-enabling water circulation and ecosystem functioning between the two parts of the Cowichan/Koksilah estuary.
- Increasing freshwater flow into the southern section of the estuary.
- Providing access for salmon smolts and other biota carried by the South Fork of the Cowichan River to the southern section of the estuary which supports the only eelgrass fields left in the estuary.

Project Approach and Results:

The project involved excavation of a 12 m section of the artificial Westcan Causeway to be replaced by a 10m x 8m wide double-lane bridge according to Highway standards. The project had been completed on March 28, 2015.

Project Activities in chronological order:

The original quote for breaching the dyke and construction of the bridge provided by Surespan Ltd. was $103 K. Over the course of the project, the total project costs more than doubled caused

by the request of Western Stevedoring (current Lessee of the Causeway) for a double-lane rather than the conceptualized single lane bridge, a bridge according to BC Highway Standards ($70K), and unexpected costs for the re-location of the underground high voltage power line and telephone cable leading to the Westcan Terminal ($65K). The double-lane bridge required a much more expensive under-structure than anticipated, complex engineering drawings based on complex geo-technical surveys including test pile driving. The total project cost increased to $236K.

- ***March 2014***: Pacific Salmon Commission Southern Fund approves $ 103K grant.
- ***March 2014***: Permit application submitted to Cowichan Estuary Environmental Management Committee advising of permits needed by DFO, CVRD, Cowichan Tribes and FLNRO.
- ***June 2014***: All permits secured in principle except for FLNRO permit subject to an on-line application by Lessee Western Stevedoring.
- ***July 2014***: DFO funding of 32K approved in principle, funds re-allocated from Sandy Pool Project.
- ***July 2014***: First Geo-technical survey by Onsite Engineering completed.
- ***August 2014:*** Second and third Geo-technical surveys by Ryzuk Engineering completed.
- ***August 2014***: Signing contract with Pacific Industrial Marine Ltd. for bridge construction, main contractor.
- ***October 2014***: Successful funding application under Wetland Fund of 78K.
- ***November 2014***: Western Stevedoring finally agrees to on-line permit application to FLNRO, causing an 11 months delay of the project.
- ***January 2015***: All project contracts signed, including BC Hydro, Telus, and Duncan Paving in anticipation of final permit expected from FLNRO. All contractors are aware of March 31 deadline, the end of the current fiscal year.
- ***February 27, 2015:*** FLNRO permit received.
- ***March 1, 2015***: Kick-starting the dyke breaching/bridge construction project by placing the sign displaying our partners, sponsors and donors at the entrance of the Causeway.
- ***March 2, 2015***: BC Hydro placing vaults on either side of the proposed breach prior to breaching the dyke.

- ***March 6, 2015***: Received DFO cheque of $32,900 from BCWF.
- ***March 9, 2015***: Pacific Industrial Marine (PIM) starting construction work; asphalt removal from road at bridge location, pounding pilings for bridge support structure (7 pilings on either side of the bridge) through road bed.
- ***March 10, 2015***: All 14 pilings are in place. Starting to cap pilings and begin excavation at bridge location. Cowichan Tribes Archaeological Technician on site throughout excavation process.
- ***March 11, 2015***: Breaching dyke under the bridge, traffic channelled around the excavation site until bridge in place.
- ***March 16, 2015***: Bridge support structure completed; precast slabs and pier caps set; side-walls stabilized and contoured with over-sized rocks.
- ***March 17, 2015***: Bridge deck concrete panels installed and deck surface finished to re-channel traffic across the bridge, preparing road bed for bridge approach, compacting fill.
- ***March 20, 2015***: Attachment of bridge railings completed. Traffic now flowing smoothly across the new bridge.
- ***March 21, 2015*****:** Hydro finished prep work for final cutting and re-connecting power line on March 21/22 minimizing interruption of operations on Westcan Terminal.
- ***March 23, 2015***: Causeway is breached, water flowing through the breach.
- ***March 24, 2015***: PIM finalizes construction work of breach, placing rip-rap, and oversized rocks for bank stabilization.
- ***March 25, 2015***: Coast Photo Studio contracted for drone survey of construction site to be incorporated into a video-clip produced to illustrate bridge project from start to finish.
- ***March 26, 2015***: Site visit and project inspection by Ivy Whitehorn, Wetland Funds, one of the main donors of the project who was highly pleased about project success. While standing on the new bridge 2 separate schools of Chum smolts drifted with the current from the South Fork of the Cowichan River underneath the bridge to the south section of the estuary: first proof of project success.
- ***March 28, 2015***: Official inauguration of the bridge. It was a well attended event (approximately 50 persons) including Arved Charley, a well known and respected Elder and Councillor of Cowichan Tribes, Lori Iannidinardo, CVRD Director Area D, John Lefebure, Mayor of North Cowichan and Brad Eshelman, CEO of Western Stevedoring. Brad Eshelman pledged additional $12,500 to cover part of CERCA's budget shortfall of the Bridge Project. Ribbon cutting ceremony with media present.

Project Partners:
CERCA in Cooperation with Western Stevedoring

Financial Contributions:

Pacific Salmon Commission Southern Fund
Department of Fisheries and Oceans

Ministry of Environment National Conservation Wetlands Fund
Sidney Anglers Association
Western Stevedoring
Nanaimo Foundry

In Kind Contributions:

Ryzuk Engineering
Herold Engineering
Mark's Instant Sign Shop
Pacific Industrial & Marine
Duncan Paving
BC Hydro
Shawnigan Lake Cable
RM Consulting

Letters of Support:

Department of Fisheries and Oceans
Cowichan Estuary Environmental Management Committee
Cowichan Valley Regional District
Cowichan Tribes
BC Wildlife Federation

The new bridge across the Causeway that splits the Cowichan Estuary in half.