From: Steves, Harold
Sent: Wednesday, 18 March 2015 03:53
To: Carlile, Cathryn
Subject:

Chum Salmon referral

The Vancouver Province recently ran as story titled "Record-low snowpacks in mountains could harm salmon run on Fraser River". BC's River Forecast Centre said snowpacks in southwestern BC are the lowest since records started being kept thirty years ago. David Campbell of the Forest Centre said "The snowpack is 15 to 20 percent of normal". Concerns were expressed that low water levels and high air temperatures could be lethal to migrating sockeye salmon and many could die before reaching the spawning grounds.

Unfortunately this prediction coincides with a report preparded by climatologists for Metro Vancouver a few years ago that indicated that as the climate warms this region will have less snow and earlier run-off. This could be just the beginning of threats to the sockeye salmon runs.

Before Richmond's dykes were bult in 1907 there was an extensive local run of Chum Salmon just as extensive as the sockeye runs further up river. Richmond was covered with dozens of sloughs. Chum Salmon spawned in the sloughs. First Nations villages were built near the most productive sloughs.

Dykes throughout the valley reduced the Chum Salmon run dramatically. We have an opportunity to reverse that situation with the connection of the "daylighted" Terra Nova Slough to the river as planned. However, it will take time before the runs are substantial enough to augment the Sockey runs

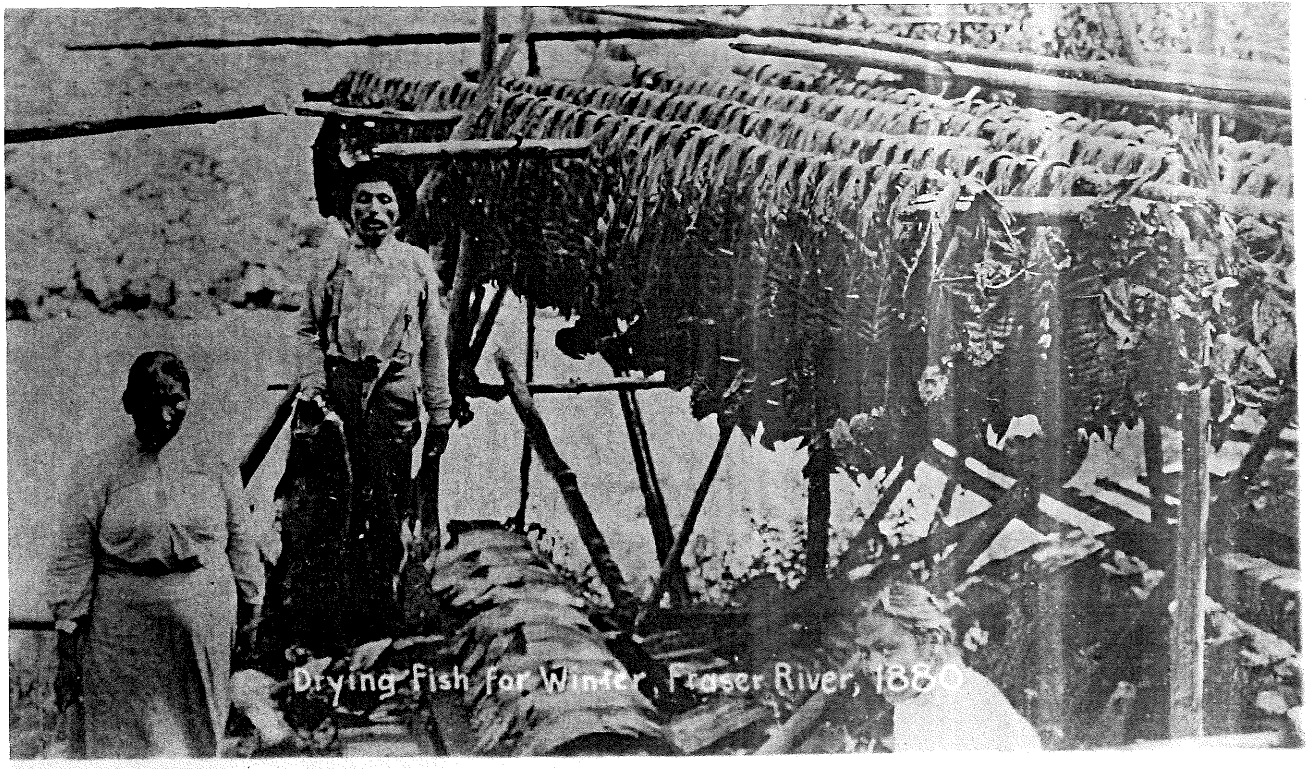
Recently a salmon spawning stream was restored all the way to Still Creek in Burnaby and it even includes a fish ladder.

RECOMMENDATION:

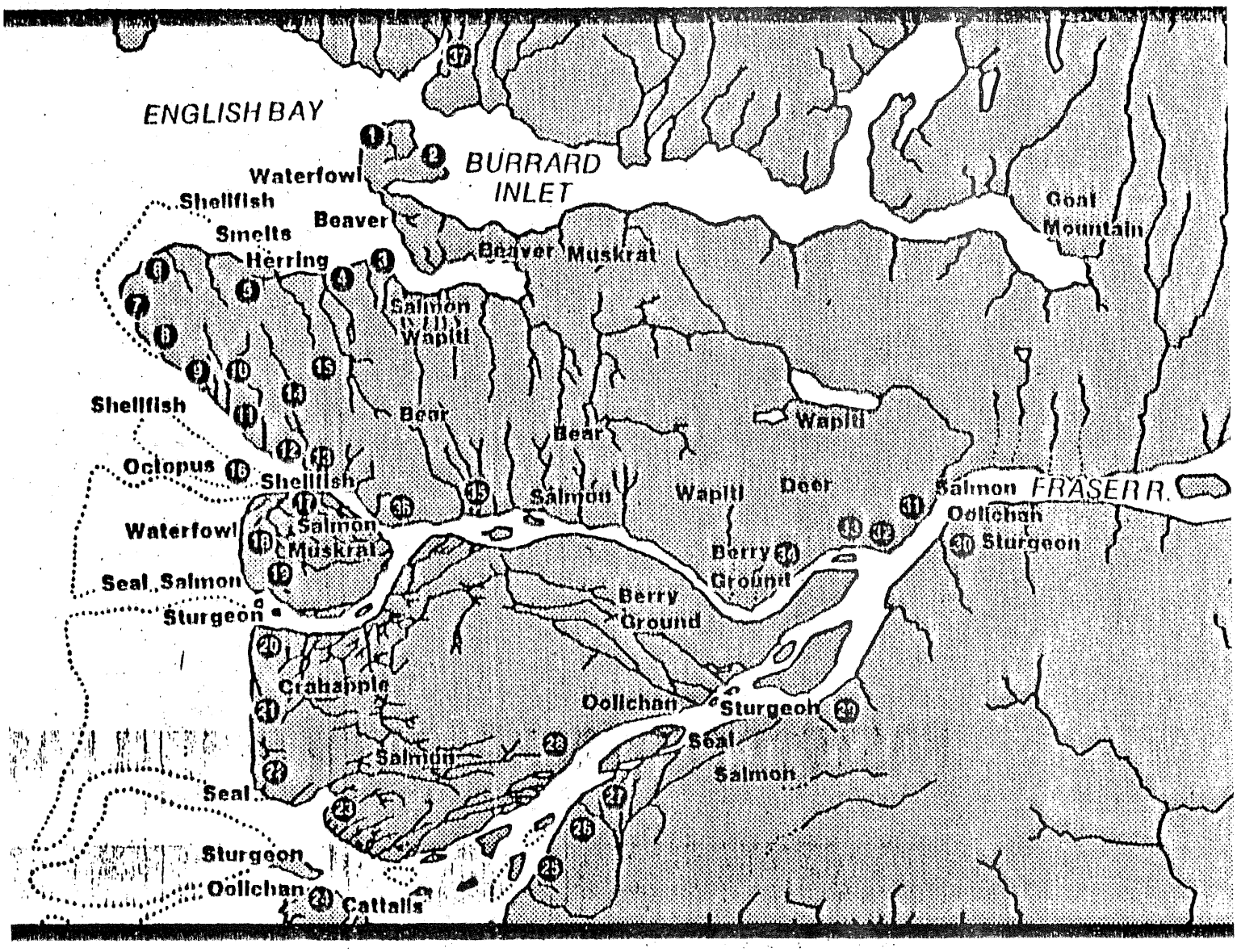
Refer to Staff the issue of establishing of a salmon spawnng slough at Terra Nova and stocking it with Chum Salmon fry as planned . And further, consideration of what other sloughs have the potential for daylighting and stocking with Chum Salmon.

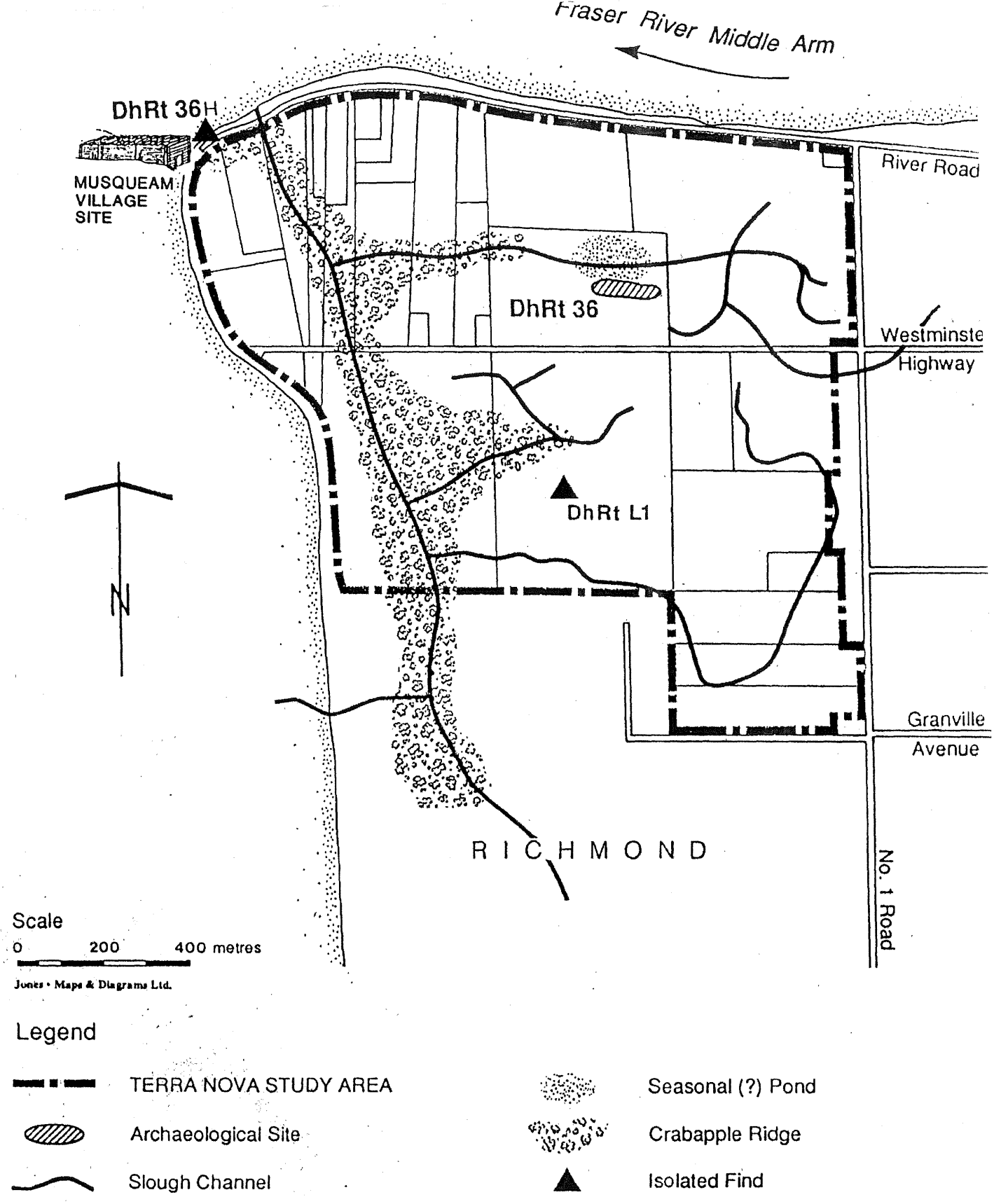
That information and videos provided by Metro Vancouver on how the Still Creek salmon run was established be referred to staff.

Harold Steves



Drying Fish for Winter, Fraser River, 1860





Sources:
Richmond Archives MP-047; NAPL A5 939:10, A 5984:96;
Matson, Peck & Topliss Plans 82347 and 82350; Trutch 1859.

FIGURE 20 Archaeological Resources of Terra Nova

From: Simon So [Simon.So@metrovancouver.org]
Sent: Friday, 13 February 2015 6:11 PM
To: Steves, Harold
Cc: Carol Mason; Tim Jervis
Subject: Still Creek/Brunette River

Director Steves,

Thank you for your interest in the recent return of salmon in Still Creek and Brunette River, as presented as part of the February 5 Utilities Committee orientation. This exciting phenomenon is a culmination of many years of inter-agency collaborative efforts that resulted in significant improvements of water quality and fish habitat in the Still Creek/Brunette River watershed. By acting on a recommendation in the Still Creek Integrated Stormwater Management Plan, the return of salmon was further enhanced with the construction of the fishway at Cariboo Dam by Metro Vancouver in 2011. For the first time in many years, fish are now swimming freely above the dam and have been spawning as far upstream as Grandview Hwy. in Vancouver.

My staff has put together a short article (copy attached) titled "*One step two step three step four….I hear salmon at the door"* which contains web links to a number of related documents, including:

- Brunette Basin Watershed Plan
- Still Creek Integrated Stormwater Management Plan
- Still Creek/Brunette River Waterway Newsletter
- MV Ecological Health Plan
- Cariboo Dam Fishway Video

As mentioned to you today, there is a collection of videos on Salmon Return to Still Creek on YouTube.

Attached also, for your information, is a report titled "*Annual Update on Fisheries Initiatives in the Capilano, Seymour and Coquitlam Watersheds"* which was presented to the Utilities Committee in September 2014. It outlines the fisheries initiatives that MV have been undertaking in the three watersheds.

I hope you will find the above information somewhat useful. Please contact me should you have any further enquiries.

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metrovancouver
SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Utilities Committee

From: Heidi Walsh, Supervisor - Environmental Management and Water Sampling, Water Services

Date: September 4, 2014 Meeting Date: September 11, 2014

Subject: **Annual Update on Fisheries Initiatives in the Capilano, Seymour and Coquitlam Watersheds**

RECOMMENDATION

That the Utilities Committee receive for information the report titled *Annual Update on Fisheries Initiatives in the Capilano, Seymour and Coquitlam Watersheds* dated September 4, 2014.

PURPOSE

To provide the Committee with the 2014 annual update on the fisheries initiatives associated with the Capilano, Seymour and Coquitlam watersheds.

BACKGROUND

To facilitate Metro Vancouver's mandate of providing sufficient supplies of high quality drinking water as well as to accommodate important fisheries initiatives, Metro Vancouver has worked with other organizations including Fisheries and Oceans Canada (DFO), the Ministry of Forests, Lands and Natural Resource Operations (Fish and Wildlife Branch), BC Hydro, local First Nations and stewardship groups. The initiatives described in this report are varied. Successful initiatives have typically been based on a number of years of collaborative assessment and planning as well as rigorous scientific assessment. This report provides the Committee with an update on all significant fisheries initiatives and projects currently underway.

DISCUSSION

The key fisheries initiatives for each watershed are described below:

a) Capilano Watershed

The Capilano River, below Cleveland Dam, supports four (4) species of Pacific salmon (coho, chinook, pink and chum) as well as steelhead and cutthroat trout. Fisheries and Oceans Canada operates a fish hatchery below the Cleveland Dam on the Capilano River. This facility includes a weir, fish ladder and holding pond which were included as part of the Cleveland Dam construction in 1954. These three structures enable collection of adult salmon for transport and spawning above the dam. As part of its program, the hatchery annually transports a maximum of 7,500 adult coho salmon and all surplus steelhead trout (averaging 30 adults) above the Cleveland Dam into the upper reaches of the Capilano River. After these adult fish spawn, the resulting juvenile fish mature in the Capilano Watershed until they are ready to smolt (migrate from fresh to salt water).

In order to improve the survival rate for out-migrating smolts, Metro Vancouver initiated a trap and truck program in 2008. Smolts are captured in three rotary screw traps located on the upper Capilano River and in ten trap nets located within the Capilano Reservoir. Once trapped, Metro Vancouver staff record essential information on the smolts. They are then transported by tank truck around the Cleveland Dam and released in the lower Capilano River.

The 2014 season was the most successful to date for coho collection and transport. Over 47,000 coho smolts were captured, the majority of these in the reservoir trap nets. Steelhead smolts tend to be more difficult to capture due to the current small population size and their preference to rear in the fast moving main stem waters. The 2014 season yielded 161 steelhead smolts. The majority of these were captured in the rotary screw traps operating in the main stem of the upper Capilano River. While these traps are designed to trap steelhead smolts, they have been found to provide relatively low capture efficiency. However, they do provide an excellent opportunity to gather the data required for population estimates of both coho and steelhead.

Recently, Metro Vancouver commissioned an expert review of the effectiveness of the Capilano Trap and Truck Program. A key conclusion of the review was that a minimum of 3,000 Steelhead smolts are required annually to effectively sustain the Capilano steelhead run. The review proposed evaluation of a potential river diversion and steelhead smolt screen, as an alternative to the rotary screw traps, upstream of the reservoir.

In 2010, Metro Vancouver initiated development of a Joint Water Use Plan for the Capilano and Seymour Watersheds. The objectives of this Plan are to address the need for a continued supply of clean, safe drinking water, provide protection and enhancement of existing fish habitat, as well as investigating the potential for hydropower generation. Fish habitat assessments completed in conjunction with the Plan prioritized enhancement opportunities along both river systems. Enhancements such as providing off-channel rearing and spawning habitat for steelhead trout below the dam reduce the need for additional water releases from the reservoirs for fish. As such, these enhancements have been identified as a high priority.

b) Seymour Watershed

The Seymour River supports four (4) species of Pacific salmon (coho, chinook, pink and chum) as well as steelhead and cutthroat trout. The Seymour Salmonid Society operates the Seymour Fish Hatchery downstream of Seymour Falls Dam. This hatchery is jointly funded by the Department of Fisheries and Oceans, Metro Vancouver and community sponsors. Metro Vancouver provides core funding for this hatchery, currently contributing $125,000 annually.

Each year, with Metro Vancouver's support, the hatchery transports an average of 40,000 juvenile coho above the Seymour Dam. These coho remain in the upper watershed until they are ready to smolt. The spillway on the Seymour Falls Dam is designed and operated to facilitate the safe passage of out-migrating smolts.

Metro Vancouver and the Seymour Salmonid Society operate a rotary screw trap located 11 km downstream of the Seymour Dam. Information generated from this trapping process indicates that juvenile salmonid stocks are near capacity given the current amount of available rearing habitat in the Seymour River below the dam. The Capilano-Seymour JWUP proposes environmental flow releases from the dam that will expand access to both previously unavailable rearing habitat as well

as more regular fish access to existing enhancement projects. With time, information gathered from the rotary screw trap will help determine the success of these initiatives.

Over the years Metro Vancouver has been directly involved in the implementation of a variety of habitat restoration projects within the Lower Seymour Conservation Reserve. The projects include the introduction of woody debris, provision of gravel and nutrients to the Seymour River below the dam as well as the creation of significant off-channel habitat projects.

The current Seymour River Estuary Restoration Project, located where the Seymour River flows into Burrard Inlet, will provide a safer, more effective transition between freshwater and marine habitat for both returning and departing fish. Metro Vancouver is partnering with the Rivers Institute - British Columbia Institute of Technology (lead), The Habitat Conservation Trust Fund, Seymour Salmonid Society, District of North Vancouver, and First Nations on this project. Overall, $445,000 of funding has been secured for the project. Metro Vancouver has contributed $70,000 and is also providing in-kind support. Habitat enhancements include the placement and anchoring of large wood, planting of native aquatic species and removal of invasive species. The project includes a component of public education on the importance of a healthy river estuary.

c) Coquitlam Watershed

The Coquitlam River supports four (4) species of Pacific salmon (coho, chinook, pink, & chum) as well as steelhead and cutthroat trout. The lake also supports a kokanee population (land locked sockeye). The Al Grist Memorial Fish Hatchery, located below BC Hydro's dam on the Coquitlam Reservoir, is operated by the Port Coquitlam Rod and Gun Club in cooperation with Fisheries and Oceans Canada.

BC Hydro operates a fish trap and truck program to capture returning sockeye salmon adults and transport them above the dam. The program has resulted in 31 returning adult sockeye since 2006. While this number of returns could be viewed as disappointing to this point, the knowledge gained from this work has been considerable.

Following the Coquitlam-Buntzen Water Use Planning process completed in 2003, BC Hydro funded biological and technical feasibility studies to determine the potential for salmon restoration above the dam. To guide this work the Kwikwetlem Salmon Restoration Program (KSRP) was developed. This ongoing partnership includes BC Hydro, Metro Vancouver, Kwikwetlem First Nation, local and senior governments as well as community stewardship groups. In 2014, the KSRP received funding through BC Hydro's Fish and Wildlife Compensation Program enabling development of a sockeye re-establishment plan. This plan will reflect BC Hydro's operational requirements as well as Metro Vancouver's Coquitlam Reservoir Expert Panel recommendations which included limiting returning sockeye adults entering the reservoir to 15,000 (+/- 5,000) to reflect high quality drinking water supply requirements.

As part of the Coquitlam UV Disinfection Facility construction, habitat compensation was completed in Slade Creek near the Coquitlam Watershed Gate. Metro Vancouver staff will monitor the habitat site for three years to ensure that it is functioning as designed.

ALTERNATIVES

This is an information report; no alternatives are presented.

FINANCIAL IMPLICATIONS

To date, the initiatives described in this report have been funded from base budgets, partnerships with other organizations and external funding.

SUMMARY / CONCLUSION

Metro Vancouver continues to proactively participate in a variety of meaningful fisheries initiatives throughout GVWD's watershed lands, located both above and below the dams. A key Metro Vancouver objective is to ensure that fisheries protection and enhancement initiatives are evaluated, planned and implemented in a manner that consistently meets the Corporation's mandate of providing consistently high quality drinking water supplies. As existing and new fisheries initiatives are assessed, decisions made will continue to be based on the availability of solid scientific information.

One step two step three step four...I hear salmon at the door.

Still Creek and the Brunette River flow through the heart of the Central Valley of Metro Vancouver. Historically these waterways have provided passage and spawning areas for multitudes of salmon and other wildlife. In the early part of the 20th century, the Cariboo Dam was built on the Brunette River to reduce flooding and allow easier movement of logs downstream to saw mills in New Westminster. The river channel was straightened and much of the natural habitat was lost. Fish numbers dwindled and at one point, the river was considered dead.

Step 1...lets work together. Through the efforts of many, the watershed has been brought back to life one step at a time. Metro Vancouver, the municipalities of Vancouver, Burnaby, Coquitlam, Port Moody and New Westminster, stewardship groups, educational institutions, DFO, and the province formed the Brunette Basin Coordinating Committee to work toward improving the watershed. This group developed the Brunette Basin Watershed Plan , a first of its kind in the region to guide efforts toward restoration. Other plans for Stoney Creek, Still Creek and currently Eagle Creek were created to guide restoration efforts on the tributaries of the Brunette.

Step 2...lets clean this thing up. A joint initiative between MV, VCR and Burnaby eliminated sewage flowing into Still Creek and has returned the water quality to that of a typical urban stream.

Step 3...if we build it they will come. Since the late 1990's Metro Vancouver has partnered with DFO, municipalities and stewardship groups and more recently the HWY1 improvement project to create a number of in-stream improvements allowing fish to move further and further upstream each year. From riffle weirs, to rearing ponds, to logs, to fish friendly culverts, each project has allowed fish to re-establish themselves all the way up to the Cariboo Dam.

Step 4...the fishway. Acting on a recommendation in the Still Creek plan, Metro Vancouver spearheaded the design and construction of a new fishway created specifically for the types of fish in the river. Working with the BBCC, a concept was born, and in 2011, Metro Vancouver crews successfully built the new Cariboo Dam fishway .

What a success. For the first time in most of our lives, fish are now swimming freely above the dam and have made it as far upstream as Grandview Highway in Vancouver. Through continuing efforts with our partners, such as the actions in the new Ecological Health Action Plan , salmon will continue to take their rightful place in our watershed community.
http://www.youtube.com/watch?v=7XWH4us7M8w