
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.