Habitats

Coquitlam River Main Stem Improvements

Numerous habitat improvement projects have been started or completed in the Coquitlam River Watershed as Compensation Projects over the past 30 years for loss of habitat or access to stream areas as a result of development. These projects are crucial to the survival and growth of salmon populations in the Coquitlam River Watershed. These projects are identified by the headings below:

BC Hydro Water Use Plan

Adequate, timely water flows are crucial to the productivity of all fish habitats in the Coquitlam river watershed. BC Hydro's Water Use Plan was established to ensure proper use of water for all of BC. All interested parties including BC Hydro, government agencies, First Nations, local citizens and others are included in the decision making process. It is then reviewed by the provincial Comptroller of Water Rights under the provisions of *British Columbia's Water Act*, and involves Fisheries and Oceans Canada, other provincial agencies, First Nations, and holders of water licenses who might be affected by the plans. Once accepted by the Comptroller, operational changes, monitoring studies and physical works outlined in the plans are implemented by the Comptroller through orders under the *Water Act*.

The Coquitlam-Buntzen WUP is an example of the BC Hydro Water Use Plan in action. It provided a unique opportunity to investigate the feasibility of restoring sockeye to the Coquitlam River.

Swaboda Channel

The Swoboda Channel is immediately below the Coquitlam River dam adjacent to Grant's Tomb Pond. During off Pink years the channel is used by Coho, Chum, Cutthroat, and Steelhead. The Channel shares the last 70 metres of its run with Grant's Tomb Pond. Through the efforts of BC Hydro, Community Fisheries and DFO they have added a 0.5 metre depth of spawning gravel throughout the channel, added an of an overwintering pond off the common channel, and a 4 metre wide spawning channel to the 70 metre common channel that connects it to Grant's Tomb Pond.

Grant's Tomb Project

Grant's Tomb Pond is located in the Coquitlam River at the base of the Coquitlam Lake Dam. It was created in 1993 by the DFO, BC Hydro, and the Port Coquitlam Hunting and Fishing Club. This project focuses on providing year round rearing habitat for Coho salmon and anadromous (returning) trout. It also provides

important overwintering refuge for salmonid stocks that are rearing in the upper Coquitlam River. Spawning habitat was provided as part of the project to ensure adequate Coho fry recruitment to the newly created ponds. In 1995, a 30 m long dam was built below the water supply pipe, and at the top of this pond complex, to improve the upstream end of the project. An estimated 2,200 Coho smolts are expected to be produced from this project each year.

Placement of Large Woody Debris

In 1998, a program to install five large woody debris catchers was implemented with the result that the overhead and in stream cover increased and scour pools formed off the point at each structure. Juvenile densities increased and adult salmonid use was also noted. In 1999, a second phase was completed adjacent to Upper Coquitlam River Park. Six sites for debris anchoring were chosen. Post-completion assessment showed that fish densities were notably higher in close proximity to the debris catchers. The only Coho fry observed throughout the river was within the log jam structures. Steelhead fry of the year were in the quiet water behind the jams while Steelhead parr (1+) collected at the head of the pools.

Coquitlam River Tributaries, Spawning Channels and Pond Habitats adjacent to the Coquitlam River.

Or Creek and Or Creek Channels and Ponds

Or Creek is the largest of the Coquitlam River tributaries. Its 9 kilometre length drains 25 square kilometres of steep, mountainous watershed. Logging activities in the Coquitlam watershed in the 1980s destabilized bank conditions and resulted in serious slope failures in a few locations that have caused silting in the Coquitlam River. Stabilization work has partially remedied this problem. Funding from DFO, BC Hydro, Port Coquitlam Hunting and Fishing Club, and Province of BC Watershed Restoration Program have constructed a series of connected ponds on the flat below the mouth of Or Creek in the closed portion of the Coquitlam Watershed, which are used by all salmon species except sockeye. Improvements included movement of soil, large debris, clay and boulders to reduce the disturbance of soil in the ponds and overwintering refuge for rearing salmonid stocks. The project also supplied spawning habitat to ensure adequate recruitment to the new ponds. An estimated 3,000 Coho smolts and 25,000 Chum fry are expected annually from this project from the 3000 m^2 of spawning habitat developed in this area.

Slade Creek

Slade Creek is a small stream that flows into the Coquitlam River at the Al Grist Memorial Hatchery. It was stocked with Coho fry by PCDHFC volunteers and it has a significant, highly visible population of spawning Coho. DFO has constructed a small fish ladder, that has facilitated access to Coho spawning areas upstream, and added two small ponds that support rearing Coho. These are excellent of examples of small, low cost improvements that can increase fish habitat areas and support larger salmon populations. This creek is also an alternative water source for the PCDHFC hatchery.

The Archery Range Improvements

The Archery Range Habitat Improvement Project was a joint effort between the land owners, the City of Coquitlam Leisure and Parks Services, DFO and BC Hydro. It is located on the Coquitlam River along Pipeline Road. This project was undertaken in 1994 to increase spawning area. It included the creation of a 50 metre flood protection dyke at the head end of the pond complex, excavation of a 95 metre long outlet channel to provide fish access to the habitat complex, and a side channel to limit flood flow through the channel. Since completion of this project some maintenance has been required to prevent for preventing silt build up in the ponds. Rip rap armouring of the diversion weir at the lower spawning/rearing channel and placement of gravel at the rearing pond outlet created an additional 30m^2 of spawning habitat.

Overland Off-channel Habitat

The Overland Off-channel Habitat is approximately 100 metres north of the confluence of Pritchett Creek on the east side of the Coquitlam River. This habitat was built by the Port Coquitlam and District Hunting and Fishing Club, DFO, and BC Hydro to:

- Provide winter habitat for Coho and Steelhead salmon, and Cutthroat trout.
- Improve salmon returns and increase delivery of marine-derived nutrients to the Coquitlam watershed
- Increase wetland habitat
- Increase off-channel habitat

This included producing 2 ponds and a ground water channel in 2002. The ponds are resting areas for migrating Coho, Steelhead, Cutthroat and the occasional Chinook, during migration. The ground water channel supplies the habitat with necessary water flow.

Oxbow Lake

Oxbow Lake is located along River Drive, just off of Shaughnessy Street, in Coquitlam. In 1994 a project was began to rejoin the lake with the Coquitlam River. With some funding from the DFO and BC Hydro, the project was accomplished by River Springs Strata and the City of Coquitlam Leisure and Parks Services.
Reconnecting Oxbow Lake (1,500 metre length) and the Coquitlam River increased stable rearing/overwintering and spawning habitat for salmonids. In 2009, The Oxbow Side Channel Restoration Project began. This project resulted in 2600 square metres of rearing and 540 square metres of spawning compensatory salmonid habitat being refurbished and 640 square metres new rearing and 4600 square metres new spawning habitat being created to benefit Coho and other salmonids.

Grist Channel

Grist Channel is a small tributary of the Coquitlam River. Located near Coquitlam River Park just off of Ozada Avenue that was enhancements were constructed in 1997. Six pools and spawning riffles were created in the upper 175 metres of Grist Channel. The pools were completed with large wood and boulders and the riffles were constructed from gravel suitable for use by spawning salmon. The channel was also extended in the south by 125 metres. This created or rehabilitated 1000 square metres of rearing pond and over 1500 square metres of stream channel habitat. It is estimated that 1250 Coho smolts and 300 trout will be produced due to these restorations. The flow of water between Maple Creek and the Grist Channel was only connected twice a year during high flow periods, and prior to the DFO partnership with the Maple Creek Streamkeepers to create a well to supplement creek flows during dry periods (low flow) and to ensure adequate water supply for migrating fish. The channel is used by Coho and Chum salmon and Steelhead and Cutthroat trout.

Maple Creek

The DFO in partnership with the Maple Creek Streamkeepers created a well, to supplement creek flows during dry periods and to ensure adequate water supply for migrating fish.

Maple Creek is a small tributary of the Coquitlam River. It is located near westside of Coquitlam River Park south of Ozada Avenue. Maple Creek and the Grist Channel are only connected during the 2 periods of high flow annually. It is used by Coho, Chum, Steelhead and Cutthroat. It was enhanced through the efforts of Fisheries Renewal BC, BC Hydro, Forest Renewal BC and the DFO in 1997. This created or rehabilitated 1000 square metres of rearing pond and over 1500 square metres of stream channel habitat. The DFO, in partnership with the Maple Creek

Streamkeepers created a well to supplement supply for the creek during periods of low flow to ensure adequate supply for migrating fish.

There were many advancements done in Maple Creek including, placing 16m^3 of spawning gravel and improvements on the connecting channel from Maple Creek to a Coquitlam River side channel. It is estimated that 1000 Coho smolts will be produced annually from this and Grist Channel water way.

Riverview Sheep Paddock Pond

The Sheep Paddock Pond is located on the Coquitlam River in the Colony Farm Park at Mundy Creek. It was created in 2004 through a joint effort between North Fraser Salmon Assistance Program, DFO, GVRD (Metro Vancouver Parks), The Burke Mountain Naturalists and The Colony Farm Park Association. This work has created approx. 3800 square metres of rearing habitat. This improvement could produce up to 2000 Coho smolts annually and also provides 9,000 square metres of wildlife habitat for multiple species. During the second phase of this project it was determined that Coho numbers were not at an encouraging level. Phase 2 increased the amount of fresh water added to the pond during high tide to alleviate oxygen and temperature issues. It also created an inter-tidal rearing channel to complement phase one construction. These new additions created 3200 square metres of rearing habitat during high tide and 900 during low tide. The total area of other wildlife habitat after phase 1 and 2 was 11,500 square metres.

Wilson Farm Habitat and Water Level Improvements

The Wilson Farm Habitat is included in the Colony Farms Regional Park. This area was impacted by the Port Mann/Highway 1 Improvement (PMH1) Project in 2010. In response to this they have proposed a compensation project to enhance the area. The project includes:

- Preserving old-field habitat for birds and other wildlife
- Restoring tidal flows
- Improving riparian areas with more diverse native plantings
- Providing important fish rearing habitat in existing and new channels
- Adding new ponds for fish, bird and amphibian habitat

Through these projects the Wilson Farm area will be improved by circulating water through areas that were stagnant and adding more liveable wildlife habitat within the Colony Farm area.

Habitat Compensation Projects

Projects in the Coquitlam River watershed to improve and enhance fish habitat is ongoing as resources are available. Other projects underway or in progress are noted below. More information will be provided on these projects as resources become available.

- Fish Trap and Channel
- Kingsway Bridge
- Maple Creek
- Mundy Creek side channel development
- Flood Gate Improvements
- Sekora Pond
- New Well
- Red Bridge
- Habitat Pier (above Maple Creek)
- Dam Trap and Habitat Complex

Coquitlam Reservoir Sockeye Salmon Restoration Program

Restoring sockeye salmon to the Coquitlam Reservoir is a joint initiative of the Kwikwetlem First Nation, DFO and BC Hydro, Metro Vancouver Regional District, and the Cities of Coquitlam and Port Coquitlam. These efforts created high hopes for success in the summer of 2006 when 11 sockeye adults returned (from some 200 smolts that exited the reservoir in 2004) and were released above the Coquitlam Lake Dam. This was the first known return of sockeye in 100 years. Since that time there have been few (2 males one year) or no returns and the program has been unsuccessful because it has not been possible to get even a few uninjured, out migrating sockeye smolts from the reservoir to the Coquitlam River below the dam. The current strategy should focus on improving conditions for successful out migration of sockeye smolts from the reservoir to the Coquitlam River below.

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