

Target: We want healthy fish populations in the watershed.

Indicator:

Salmon and steelhead pre-smolt abundance in the Cowichan watershed meets or exceeds target population densities set by DFO (Fisheries and Oceans Canada) and FLNRORD (provincial Ministry of Forests, Lands, Natural Resource Operations and Rural Development).

Rationale

Like many coastal BC watersheds, the Cowichan watershed is considered a salmon-driven ecosystem. The massive nutrient load that salmon bring back into the river and shorelines every year when they return from the ocean is akin to adding fertilizer to the garden. Many species feast on the nitrogen-rich fish, eggs, and carcasses, and then cycle those nutrients far upslope. So, protect the fish, and feed the forest.

The fish themselves are also an irreplaceable food and cultural resource for First Nations, an important driver for the recreation and tourism industry locally, and a big part of why the Cowichan is internationally renowned and recognized as a Canadian Heritage River.

A juvenile salmonid indicator was chosen as a measure of watershed health acknowledging that watershed factors only dictate the success of the freshwater component of the salmon life history - we can't control what happens at sea before the adult salmon return! If water quality, water quantity and riparian habitats are healthy enough to protect fish in their juvenile life stages in the watershed, and if there are enough eggs to hatch from returning salmon, then the species should be sustainable. Steelhead¹ were selected for the first target as they spend more time in the river than other types of salmon (up to three years instead of a few days or months for other species), so they are more influenced by watershed factors. Also, unlike chinook and other salmon, they are not targeted by fisheries in the marine environment so the number of adults returning more accurately reflects the health of the watershed.

The working group plans to set targets for species other than steelhead, beginning with chinook, which are of vital importance to Cowichan Tribes and a key indicator of watershed health. Indeed, the health of a whole community was once supported by this iconic species.



¹ Steelhead were considered an anadromous trout until about 10 years ago when they were re-classified as a pacific salmon.

Progress

Progress on this target is closely linked to achievements in the related Flows target due to the interconnectivity between these values (see Flows target profile for more information). Managing river flows is key to meeting this target to ensure adequate conditions for adult migration and spawning, to prevent eggs or alevins (larval salmon still in the gravel) from drying up and to provide enough water for juvenile rearing and downstream migration. These conditions are all supported by the work associated with the Flows target.

Coordinated habitat restoration work in the watershed from the lake tributaries to the estuary has contributed significantly to ensuring sustainable salmonid populations in the river. This whole-of-watershed approach to restoring habitat has recently been bolstered through a \$2.7-million partnership between Cowichan Tribes and Fisheries and Oceans Canada. This work will include extensive riparian restoration in both the Cowichan and Koksilah watersheds,

Governance is the process by which we become the architects of our own future.

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major restorative works in the Cowichan Estuary, and the development of a new approach to managing the Stoltz bluffs – a major source of sediment input to the Cowichan River that has been the focus of considerable community effort for over a decade.

As well, a Cowichan chinook rebuilding framework has been developed through extensive engagement of local experts, traditional knowledge and agency professionals. Finally, a coordinated, well-

documented, targeted fry salvage program is implemented annually depending on need and opportunity to effectively re-distribute juveniles to suitable under-utilized habitats.

Monitoring

Steelhead juvenile densities are monitored annually by field crews resourced through a partnership between FLNRORD and the British Columbia Conservation Foundation, with the results being compared to guidelines developed by Provincial staff. As well, chinook salmon are closely monitored on the Cowichan through a partnership between DFO and Cowichan Tribes using a variety of tools including a counting fence, DIDSON sonar monitors, coded transponder tagging (called PIT tags), downstream trapping and a dead-pitch program. In fact, more effort goes into monitoring Cowichan chinook than any other salmon stock on Vancouver Island!

Next Steps

- Complete Cowichan River Water Use Plan (spring 2018)
- Identify a conservation water license holder for the weir at Cowichan Lake
- Secure funding to design and build a higher weir
- Create chinook salmon fisheries target
- Continue partnering with FLNRO on a flow monitoring regime and response for Koksilah River
- Continue to assess and improve salmon and steelhead monitoring programs on Cowichan and Koksilah Rivers
- Continue to implement and assess salmonid habitat restoration works in the Cowichan watershed