



Flows and Fish Working Group

Cowichan River Flows
Structured Decision Making
Process for Fish

September 13, 2017

Structured Decision Making



Process and Objective

- Expert elicitation
- Representatives from Ministry of Environment, Ministry of Forest, Lands and Natural Resource Operations, Cowichan Tribes, Fisheries and Oceans Canada, BC Conservation Foundation and local guides and sports fishers operating/living on the Cowichan River.
- Met 6 times over a year 2016-2017
- Review of past literature, reference to recent field observation, development of modelling tools
- ***What flows are required in the Cowichan River to provide necessary fish habitat to support all life stages in the river?***

Definitions

- Target flows - the ideal water discharge level sufficient to provide habitat for all fish species
- Minimum Flow – the minimum water discharge level below which there is an increased risk to productivity of salmonids.
- NOT ESTABLISHED - Critical Environmental Flow Thresholds – Irreversible harm to fish, defined under the new Water Sustainability Act. 5% of MADD is roughly at 2.6 m³/s for the whole river.
- Life history requirements, critical habitat and direct knowledge from the field were considered for each of the fish species to determine Key Considerations (page 4)

Gap Analysis

- Side Channel and tributary connectivity analysis
- Flows to navigate migration barriers and sediment management
- Seal and other predation impacts at low flows
- Sewage Dilution
- High Water Temperatures
- Groundwater interaction
- Flows to support out-migrating juvenile Chinook and Early migrating adult Chinook

Develop Alternatives

- Other policy or management alternatives were not identified given a current license is in place for water storage and water withdrawal and operating rules exist that direct flows for the river.
- Decision criteria could be used to inform current weir and flow management
- Triggers were also discussed-focused on what conditions would precipitate a management decision in relation to flows. Reviewed 2008 protocol weir start up decisions (Vessey et al, 2008)

Estimating Consequences through Modelling, Evaluating trade offs and Selecting flows

- Developed an Excel decision tool that helped us 'game' flows and estimate the consequences for current climate only
- used the general guidelines of potential weir height described in the Cowichan Basin Water Management Plan (2005) as a means to check and balance objectives.
- Further analysis is needed on potential storage impacts to shoreline ecosystems and socio-economic value differences with increased storage.

Next Steps

- Continue to fill gaps in knowledge and review results
- Partial implementation in years that are projected to have above average inflows to the Lake and/or springs with significant rainfall
- Monitor and document
- Full implementation of the above flows will require additional storage, a new license and operating procedures.
- Incorporate fisheries flow values into larger made in Cowichan SDM process for other flow values