

# Fish Passage Decision Framework for BC Hydro Facilities

**Purpose** - To establish a process which will determine how BC Hydro will address fish passage issues at BC Hydro facilities.

**Background** - The development of some of the BC Hydro dams in certain coastal rivers resulted in a blockage to migratory fish. The result often meant the elimination or the reduction of specific salmon runs in the rivers. Proposals for fish passage have been initiated by public and First Nation groups, with Fisheries Agencies support, on several of the coastal BC Hydro facilities. The rationale for fish passage is to re-establish selected species of fish to the portions of the watershed they historically utilized.

**BC Hydro Statement of Strategic Intent** - BC Hydro's long term goal, stewardship ethic and environmental policy establish the commitment to minimizing our impacts, and where possible, restoring the environment. The *Fish Passage Decision Framework* will ensure that fish passage decisions are based on a Triple Bottom Line approach, with sound defensible criteria.

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The construction of several of BC Hydro hydro-electric facilities resulted in a blockage to fish that previously used the portion of the watershed above the dam. Fish passage is required to re-establish selected species of fish to portions of the watershed that they historically utilized. There have been several fish passage proposals, involving the construction of fish ladders at hydro-electric facilities.

The Compensation Programs were established by BC Hydro as a mechanism to help address footprint impacts. The Compensation Programs finance technically sound proposals to restore habitat in the watersheds impacted by the hydro-electric facilities.

While the blockage of fish passage is defined as a footprint impact, there is insufficient funding in the Compensation Programs to take on the expensive proposals. As a result, BC Hydro is proposing the establishment of a formalized approach to help analyze the issue and to ultimately make decisions to address fish passage at the BC Hydro level. The following “Decision Framework” provides a formalized approach aimed at ensuring Triple Bottom Line (TBL) decision making and is applied to fish passage proposals.

Fish passage proposals to date have only involved salmon species. Resident species may be considered at a future date or as required under regulatory requirements such as the Species at Risk Act or recovery planning initiatives.

## **Compensation Program Role:**

### **Step 1 - Preliminary Screening**

To determine whether a fish passage proposal for a specific watershed addresses a footprint impact, the following screening question will be asked:

*“Did the facility block passage of a fish stock at the time of construction?”*

Proposals that satisfy this condition will proceed to Step 2.

### **Step 2 – Stakeholder and FN Engagement - Strategic Watershed Prioritization**

Each of the Compensation Programs has strategic plans (BCRP Strategic Watershed Plans; PFWWCP Strategic Implementation Plans; CBFWCP Dam Impact Assessments). These are developed in consultation with the Compensation Program infrastructure (Board, Planning Committee, Steering Committee, and Technical Committees), BC Hydro, First Nations, DFO, MOE, and other stakeholders through a series of consensus building workshops. The planning process establishes priority restoration opportunities for each watershed.

Fish passage opportunities are ranked by the strategic planning processes. Ranking is based on Provincial and Federal agency species objectives and on preliminary biological and technical feasibility criteria.

### **Step 3 - Environmental Feasibility Studies**

In order to assess the potential for success for a fish passage proposal, initial environmental feasibility studies must be undertaken. The Compensation Program will fund the studies at their discretion and consistent with their mandate. The environmental feasibility of each fish passage proposal must include the following assessments:

- Target species are available in the watershed in sufficient numbers to support rebuilding a sustainable population. If the target species is not available and a donor stock transplant is proposed, a thorough risk assessment related to suitability of the donor stock and impact on the donor stock must be undertaken.

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- Potential ecological and disease impacts to native species.
- Existence of high quality spawning and rearing habitat below the dam.
- Other physical impediments downstream that may restrict fish migration to the dam.
- Sufficient spawning and rearing habitat above the barrier to support the target fish population numbers established in the Watershed Plan, or the known potential to restore sufficient habitat. Feasibility studies must be undertaken to assess this potential.

The results from the environmental feasibility studies will be provided to the Fisheries Agencies (DFO & MOE) for decision in circumstances requiring their approval. Once the analysis indicates the fish passage proposal meets the above criteria and is supported by the Fisheries Agencies as a high priority, the proposal will be reviewed by the Program's Technical Committee and recommendations will be forwarded to the Compensation Program management structure.

## **Step 4 – Preliminary Technical Feasibility Consideration**

If infrastructure is part of the proposal, an inquiry should be made to BCH Engineering about the feasibility of the fish passage. At this stage, the technical feasibility assessment will be undertaken by BC Hydro at a cursory level only. More detailed analysis and assessment will be carried out in step 6 if determined appropriate.

## **Step 5 – Compensation Program Endorsement**

Based on the priority ratings and the completion of the required process, the Compensation Programs will recommend BC Hydro consider the proposal.

## **BC Hydro Role:**

### **Step 6 – TBL Driven Business Case Development**

The Triple Bottom Line (TBL) decision making approach will follow a structured approach to explicitly integrate environmental, social and financial objectives. The process will provide a rating from high to low for fish passage proposals.

**(a) Environmental Assessment:** in consultation with the Compensation Programs and Technical Committee, BC Hydro will further assess the environmental feasibility if required.

**(b) Financial/Technical Assessment:** options to provide fish passage will be analyzed to ensure technical feasibility for the proposed river system.

- Dam structure integrity must be maintained; therefore designs for upstream and downstream passage facilities must undergo an engineering review.
- The fish passage proposal must be able to operate within the current Water Use Plan (WUP) operating parameters for the facility. If not, the proposal will be deferred until the scheduled WUP review takes place.
- Designs and costs for additional structures, such as screens to reduce potential juvenile migrant fish mortality, must be considered.

**(c) Social Benefits Assessment** – fish passage at the proposed site will be considered with respect to added societal value. Considerations may include:

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- Intrinsic values – there is demonstrated evidence that the intrinsic value of the watershed will be positively impacted by the proposal (i.e. improved ecosystem biodiversity).
- Cultural – First Nation have identified the importance of returning fish providing food, ceremonial, spiritual values.
- Socio-economic – there is demonstrated evidence that there will be an increase in tourism, recreation, jobs and / or a new or enhanced fishery

The proposal will move to step 7 if the evaluation of the above indicates it has a high potential for success.

### **Step 7 –BCH Board of Directors Approval**

The proposed fish passage project will need to be evaluated with respect to BC Hydro's economic and business practices and must fit within BC Hydro's long term capital plan. The business case may include a detailed trade-off analysis and will include a detailed design.

If accepted by the BC Hydro Board of Directors, BC Hydro will be responsible for the management of design and construction of the passage facility. Regulatory Agency review and approval will be required. BC Hydro will be responsible for ongoing operation and maintenance of the passage facility.

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