EXECUTIVE SUMMARY

A Water Use Plan is a technical document that, once reviewed by provincial and federal agencies and accepted by the provincial Comptroller of Water Rights, defines how water control facilities will be operated. The purpose of a water use planning process is to develop recommendations defining a preferred operating alternative using a multi-stakeholder consultative process.

The Wahleach Water Use Plan consultative process was initiated in September 2000 and completed in October 2002. The consultative process followed the steps outlined in the 1998 provincial government's *Water Use Plan Guidelines.* This report summarizes the consultative process and records the areas of agreement and disagreement arrived at by the Wahleach Water Use Plan Consultative Committee. It is the basis for the Wahleach Water Use Plan. Both the Wahleach Consultative Committee Report and the Wahleach Draft Water Use Plan will be submitted to the Comptroller of Water Rights.

Wahleach Hydroelectric Facility

The Wahleach hydroelectric facility is part of the BC Hydro Coastal Region. The facility came into service in 1952. It is situated in the Lower Mainland approximately 25 km west of Hope and 100 km east of Vancouver.

Wahleach Dam is situated at the outlet of Jones Lake Reservoir. Although the lake existed before the hydroelectric facility, the Wahleach Dam has raised its level. The original lake elevation was around 619.0 m and was raised to an operating range of 623.3 m to 641.6 m by the Wahleach Dam. Water is drawn from the reservoir through the Four Brothers Mountain via a 4.2 km tunnel and a 500 m penstock. The penstock connects to a single 60 MW nameplate generator located in a powerhouse on the south bank of the Fraser River. Additional water is supplied by the diversion of Boulder Creek into Jones Lake Reservoir.

The Consultative Committee

The Wahleach Water Use Plan Consultative Committee initially consisted of 16 members. Eleven members actively completed the Wahleach water use planning process. Interests included First Nations archaeology and traditional use, fish, flood control, power generation, water quality and wildlife. The representatives included BC Hydro, provincial and federal agencies, First Nations and local stakeholders. The main Consultative Committee and Subcommittees held a total of twenty-five meetings to work through the steps outlined in the *Water Use Plan Guidelines*.

The Consultative Committee explored issues and interests affected by the operations of BC Hydro's Wahleach hydroelectric facility and agreed to the following objectives for the Wahleach Water Use Plan:

Fisheries

• Jones Creek Non-Anadromous	Maximize fish populations in Jones Creek non-anadromous
• Jones Creek Anadromous	Maximize fish populations in Jones Creek anadromous
• Jones Lake Reservoir	Maximize fish populations in Jones Lake Reservoir
• Herrling Island Sidechannel	Maximize fish populations in Herrling Island Sidechannel
Flooding	Minimize risks to safety and property damage from flooding
Greenhouse Gases	Minimize contributions to climate change
Power Generation	Maximize the net revenue from power generation
Recreation	Maximize quality and quantity of recreational experience
Wildlife	Minimize impacts to wildlife

There were no specific First Nation objectives developed during the Wahleach water use planning process. However, First Nations participated throughout the Wahleach water use planning process to develop fish and wildlife objectives and performance measures, create operating alternatives, and select a preferred operating alternative.

Recommended Operating Alternative

The Consultative Committee developed nine Wahleach water use planning objectives. Performance measures were identified based on these objectives. Operating alternatives were then developed to address the various objectives and run through BC Hydro's Optimization Model, Environment Model and Power Values Model. The Consultative Committee used the modelling results and performance measures to compare how well each operating alternative performed in satisfying the water use planning objectives.

On 7 October 2002, all Consultative Committee members present, excluding Frank Kwak of the Fraser Valley Salmon Society, accepted Alternative SalmonSIR628BCD+Siphon for the Wahleach hydroelectric facility. The recommended operating alternative includes a minimum flow release from the Boulder Creek Diversion Dam, a Jones Lake Reservoir minimum elevation level, a Jones Lake Reservoir fertilization program, a Jones Creek minimum flow, a Jones Creek fish habitat enhancement project, and curtails generation to zero for a two-hour period every twenty-four hours.

The Consultative Committee recommends that the Wahleach hydroelectric facility be operated according to the following operating conditions:

Table 1: Recommended Operating Conditions for the Wahleach Hydroelectric Facility

System Component	Condition	Time of Year	Purpose
Boulder Creek	Minimum flow of 0.14 m^3/s	Year-round	Fish passage above the bypass
Jones Lake Reservoir	Minimum elevation 628 m Fertilization program: $40,000 per year for fertilizer application $40,000 per year for reporting and analysis [1]	Year-round	Jones Lake Reservoir fish and recreation
Lower Jones Creek	Minimum flows:[2] 1.1 m^3/s 0.6 m^3/s Fish habitat enhancement project	15 September to 30 November All other times	Jones Creek fish
Herrling Island Sidechannel	Curtails generation to zero for a two-hour period each day	15 September to 30 November	Avoid fish spawning in high dewatering risk areas in Herrling Island Sidechannel

1. Fertilization program to be reviewed after five years to determine whether costs could be reduced.
2. Subject to available inflows and augment sources from the Boulder Creek bypass valve and the fish water release siphon. Measured at a staff gauge to be installed in Jones Creek near Laidlaw.

At the October 2002 Consultative Committee meeting, the Committee recommended that BC Hydro begin monitoring Boulder Creek inflows and Jones Creek anadromous fish habitat productivity immediately, before the implementation of the Wahleach Water Use Plan.

Consequences of the Recommended Alternative

The expected consequences of the recommended operating alternative are summarized in Table 2. Benefits of the recommended operating alternative, relative to status quo operations, include: an increase in fish habitat in Jones Creek anadromous, and an increase in fish and wildlife habitat and recreation at Jones Lake Reservoir. Costs of the recommended operating alternative, relative to status quo operations, include a decrease in net revenue and an increase in greenhouse gas emissions.

Table 2: Expected Consequences of the Recommended Operating Alternative

Water Use Interest	Consequences Over Status Quo Operations	
Net Revenue	–	Decrease of $626,000 per year over status quo operations
	+	Increase of $604,000 per year over current licensed operations
Fish in Jones Creek	+	Increase in average fish spawning habitat from provision of minimum flows
	+	Increase in fish spawning and rearing habitat from the fish habitat enhancement project
Fish in Jones Lake Reservoir	+	Increase in pelagic and littoral productivity from minimum reservoir elevation level of 628 m and a fertilization program
Wildlife in Jones Lake Reservoir	+	Increase in riparian habitat from minimum reservoir elevation level of 628 m
Fish in Herrling Island Sidechannel	+	Decrease in fish stranding from curtailing generation to zero for a two-hour period every twenty-four hours
	–	Decrease in fish habitat over status quo operations
Fish in Boulder Creek	+	Increase in fish passage from provision of minimum flows
Recreation	+	Increase in recreational opportunities from minimum reservoir elevation level of 628 m
Flood Control	0	Neutral
Greenhouse Gases	–	Increase in greenhouse gas emissions due to reduced hydroelectric generation

Monitoring Program

The Consultative Committee discussed sources of uncertainty associated with implementing the recommended operating alternative. On 7 October 2003, the following monitoring program was accepted by all Consultative Committee members present, excluding Frank Kwak of the Fraser Valley Salmon Society:

- Jones Creek Anadromous – Salmonid Productivity Monitoring
- Jones Creek Anadromous – Channel Stability Assessment
- Jones Creek Anadromous – Pink Salmon Genetic Composition Assessment
- Jones Lake Reservoir – Entrainment Monitoring
- Herrling Island Sidechannel – Chum Salmon Spawning Behaviour Observations

The annual costs of the monitoring program, including development of detailed terms of references and synthesis of monitoring results, vary from $145,000 to $160,000 with an overall average cost of $149,000 per year over the period of the program.

The Consultative Committee recommended that a Wahleach Water Use Plan Monitoring Advisory Committee be established consisting of representatives of:

- BC Hydro
- Community representatives
- First Nations
- Fisheries and Oceans Canada
- Fraser Valley Salmon Society
- Ministry of Water, Land and Air Protection

The Consultative Committee recommended that the mandate of the Wahleach Water Use Plan Monitoring Advisory Committee should be to:

- Manage the implementation of the fish habitat enhancement project in Jones Creek anadromous.
- Review annual monitoring program results and assess the need to recommend a review of the Wahleach Water Use Plan.
- Recommend improvements to the monitoring program within existing Wahleach Water Use Plan budgets.
- Support periodic communication with the public (e.g., newsletters, annual reports).
- Ensure publication of monitoring program reports.
- Nurture co-operation and collaboration to improve the environmental database and to build common understanding (ongoing).

Review Period

Five years after the implementation of the Wahleach Water Use Plan, the Wahleach Water Use Plan Monitoring Advisory Committee will review the results of the monitoring program and assess the need to recommend to BC Hydro a review of the Wahleach Water Use Plan. The Monitoring Advisory Committee will also review the Jones Lake Reservoir fertilization program to determine whether the cost could be reduced. If the Wahleach Water Use Plan is not reviewed five years after implementation, then the Plan will continue for an additional five years.