



**'Namgis Land-Based Recirculating
Salmon Aquaculture Pilot Project
Backgrounder
2010-09-01**



Summary

The 'Namgis Land-Based Recirculating Salmon Aquaculture Pilot Project (the "Project") is a pilot plant facility aimed at demonstrating the technological and commercial viability of producing salmon in a land-based, closed containment, recirculating aquaculture facility.

The Project will be located on 'Namgis traditional territory on Northern Vancouver Island, and is being developed in conjunction with the SOS Marine Conservation Foundation.

The goal is to demonstrate that innovation in salmon farming techniques can reduce the impacts of salmon aquaculture on the marine environment, ensuring a long-term sustainable industry for coastal communities in British Columbia.

The Project is currently at the stage of completing the Front End Engineering and Design for the pilot facility. This is the first of the four Project phases and has been made possible through the support provided by the Province of British Columbia through the Aquaculture Innovation Fund; by Fisheries and Oceans Canada through the Aquaculture Innovation and Market Access Program; the Pacific Salmon Foundation; Tides Canada; the Gordon and Betty Moore Foundation; Enterprising Non-Profits and the SOS Marine Conservation Foundation.

With further funding, the Project will progress to investigate the rearing of both Atlantic and Coho salmon, the use of alternative energy sources, composting of solid waste, and using the liquid waste to grow vegetables (aquaponics). The design of this pilot facility is being optimized to allow for future development of a large-scale, integrated commercial facility.

The Project is scheduled to lead to the first fish being harvested in the last quarter of 2012, with the sustained production rate (of about 100 tonnes/annum of 5 to 7 kg Atlantic salmon and 75 tonnes/annum of 3.5 kg Coho salmon) being achieved by mid 2013.

Project Importance

The Project has the potential to solve some of the major challenges restricting the economic and growth potential of Canada's existing salmon aquaculture industry and thereby serve as a driver to the open-net cage salmon farming industry moving out of the marine environment. This would remove the environmental impacts of these farms on wild salmon including:

- Increasing biosecurity by reducing the risk of detrimental impact of:
 - The amplification and spread of sea lice to the wild salmon populations; and
 - The spread of disease among the salmon population within an open net pen facility; from one open net pen facility to another; and from farmed salmon in open net pens to the wild salmon populations.
- Reducing the risk of detrimental impacts to the marine organisms and the marine environment due to the discharge of waste into the marine environment.
- Removing the risk of economic loss and the potential environmental damage due to the escape of non-indigenous species.

Project Objectives

The Project has the following main objectives:

- To demonstrate and prove the viability of the technology for raising salmon to full size in a land-based recirculating aquaculture system.
- To validate the operating costs and production parameters for the Commercially Sized Facility. This will include:
 - Testing the overall operating efficacy of the land-based closed containment facilities and water recirculation and filtration technology
 - Assessing disease containment capability
 - Assessing the actual environmental impact of make-up water consumption levels; effluent disposal and the practicability of recycling waste products; quantities of non-recyclable waste and; overall material balance
 - Firming up the economic factors for large-scale commercial facilities including fish growth rates/production rates; optimum design parameters; reduction in capital and operating costs; derivation of scalability factors and; testing of market premiums obtainable for "environmentally friendly" produced salmon.
- To be of a size to enable salmon to be produced and sold at prices that result in an ongoing operating profit to the 'Namgis people.
- To optimise the design(s) for the Commercially Sized Facility. In order to do this, the Project will need to be designed with spare capacity in critical areas so that the operating parameters can be assessed with different combinations of technology, fish husbandry and species selection. To achieve this goal, key equipment will need to have sufficient operating flexibility to vary the critical operating criteria. Additionally, key components of the facility will need to be oversized to allow scaleup to commercial capacity if the Pilot is successful.
- To perfect the design for the Commercially Sized Facility to allow fish to be raised in such facility in segregated batches that will limit the spread of disease within the facility in the event of an outbreak.

Project Schedule

The Project will be executed in four phases:

Phase 1: Front End Engineering and Design (FEED) - Preliminary Engineering/Site Selection/Initial Permitting/Initial Environmental Assessment (Jun to Oct 2010). Subject to approval by the Project Steering Committee, Advisors and 'Namgis Council with a Go-No Go decision scheduled for about November 2010), the Project will move to the next phase.

Phase 2: Detailed Engineering/Procurement/Construction (Dec to Oct 2011)

Phase 3: Commissioning and Operations Training (Sep to Nov 2011)

Phase 4: Operations to grow out the first batch of salmon will commence in about August 2011. The first fish will be harvested in the last quarter of 2012, with the sustained production rate (of about 100 tonnes/annum of 5 kg salmon and 75 tonnes/annum of 3.5 kg salmon) being achieved by about mid 2013.

The Project Team

A listing of Project team members and duties for Phase 1 are set out below. Additional expertise in fish husbandry, environmental assessment, legal and marketing will be contracted as required.

Position(s)	Incumbents
Steering Committee	Chief Bill Cranmer – 'Namgis First Nation Chief Councilor Eric Hobson – President, The SOS Marine Conservation Foundation Doug Aberley – Director, 'Namgis Treaty and Natural Resources Department Jackie Hildering – Communications Director, SOS Marine Conservation Foundation Garry Ullstrom – 'Namgis Chief Financial Officer
Advisors to the Project	Malcolm Lund – Financial Advisor (SOS Marine Conservation Foundation) Andrew Wright – Engineering (SOS Marine Conservation Foundation, Solutions Advisory Committee) Henry Nelson – Fish Husbandry and Operations Advisor ('Namgis Hatchery) Catherine Emrick – Funding (Tides Canada)
Project Director	Doug Aberley - 'Namgis Representative
Project Manager	Gary Robinson, BSc., Dipl. Aquaculture
Project Controls and Accounting	Garry Ullstrom - 'Namgis Chief Financial Officer

FEED	John Holder, JLH Consulting Inc & Holder Timmons Engineering LLC
Marketing Consultant	Garry Ullstrom - 'Namgis Chief Financial Officer
Environmental Consultant	Doug Aberley - Director - 'Namgis Treaty and Natural Resources Department
Regulatory/Permitting Specialist	Ed Jackson - 'Namgis Forester and Referrals Officer