

SOCIO-ECONOMIC BENEFITS OF FINFISH AQUACULTURE IN BC ABORIGINAL COMMUNITIES

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TABLE OF CONTENTS

1.0 INTRODUCTION..... 1

2.0 AQUACULTURE IN CANADA AND BC 2

3.0 ABORIGINAL PARTICIPATION IN AQUACULTURE 4

 3.1 Salmon Farming Operations..... 4

 3.2 Salmon Processing Operations 6

 3.3 Training Opportunities for First Nations Employees..... 7

 3.4 Challenges Associated with Aboriginal Participation in Aquaculture..... 7

 3.5 A Success Story: Kitasoo / Xaixias First Nation..... 8

4.0 CONCLUSIONS..... 9

1.0 INTRODUCTION

Aquaculture development represents an important opportunity for Aboriginal people in all regions to contribute to, and fully benefit from, Canada's economic growth and prosperity. The benefits of greater economic participation through aquaculture and related activities include wealth creation; the development of technical; managerial and entrepreneurial skills; the development of community economic infrastructure; revenue for the community; and the opportunity for Aboriginal people to remain in their communities.

DFO (2002). Aquaculture Policy Framework

The purpose of this report is to identify in quantitative and qualitative terms the scope of the socio-economic benefits accruing to First Nations communities in British Columbia through direct and indirect participation in finfish aquaculture. Two types of surveys were developed to solicit data and information regarding aboriginal involvement in the BC aquaculture sector. Industry surveys were distributed to the leading salmon farming companies, processors, and goods and services suppliers having operational engagement with First Nations. Community surveys were sent to First Nations communities involved in aquaculture to generate other information pertaining to community benefits. The results of those surveys are tabulated below.

The report is premised on the following views:

- unemployment in coastal First Nations communities is disproportionately high as a result of the decline of the logging and commercial fishing industries;
- sustainable aquaculture may be a viable replacement industry that is consistent with First Nations' values, as well as First Nations' traditional and historic ties to fishing and the fishing industry;
- coastal First Nations communities are in a unique position to benefit from sustainable aquaculture because of their rights and special access to the sites that are required for sustainable aquaculture;
- coastal First Nations communities can provide the labour and skills that are required for sustainable aquaculture;
- joint ventures can serve to increase aboriginal participation and equity in aquaculture operations;
- the economic and employment opportunities related to aquaculture are not limited to production but also include specialized services such as repair and maintenance, barge transportation, processing, etc.

In summary, the report is premised on the general view that sustainable aquaculture can provide the kinds of economic development and employment opportunities that can sustain coastal First Nations communities and allow people to continue to live in and depend upon their tribal territories for culture and prosperity.

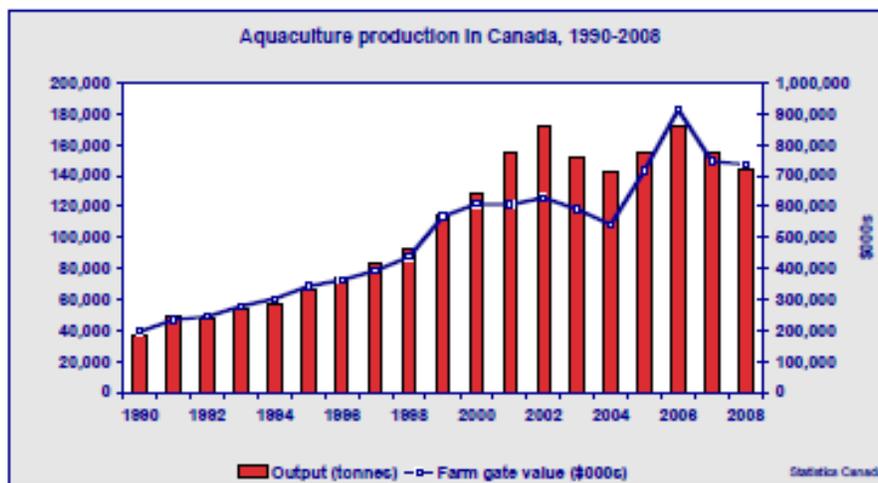
At the same time, however, this report is not intended to gloss over the fact that aquaculture remains a controversial subject among First Nations communities. The ongoing resistance to aquaculture development is a result of many factors, including potential infringement on aboriginal and treaty rights, and potential effects on wild fisheries populations. Aquaculture may also be perceived as a non-aboriginal venture that is technically and financially inaccessible to First Nations but which exploits First Nations' resources with little to no compensation. Clearly, aboriginal opposition to aquaculture development cannot be expected to diminish until aboriginal peoples are full participants in, and beneficiaries from, aquaculture development.

2.0 AQUACULTURE IN CANADA AND BC

Aquaculture is practiced in every province as well as in the Yukon; however, most activity is concentrated in British Columbia and the Atlantic Provinces. Production in Canada increased more than four-fold between 1990 and 2006. Output (in round weight equivalent tonnes) increased from 40,000 to 170,000 t, while farm gate value increased from \$195 to just over \$900 million (Figure 1). The decline in output value to the \$740 million range in 2008 was due to price weakness and a cut in production on the east coast due to changes in the management system.¹

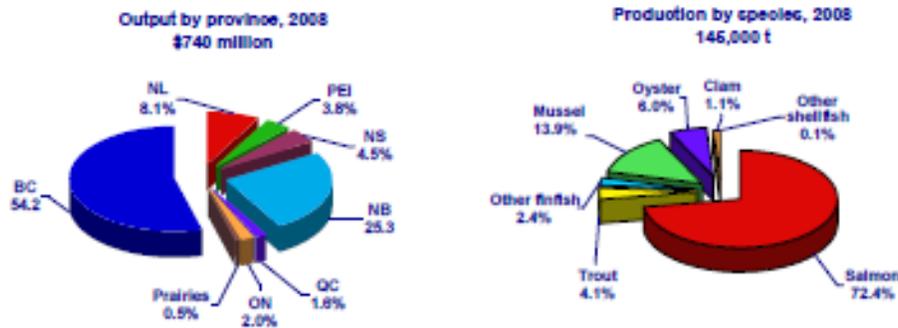
Salmon is the main species produced on Canadian farms, accounting for 72% of total production, followed by mussels (14%), oysters (6%) and trout (4%). British Columbia contributes the most farm-raised fish and seafood, followed by New Brunswick, Prince Edward Island, Nova Scotia, and Newfoundland & Labrador (Figure 2). More than 54% of total aquaculture production in Canada occurs in BC.

Figure 1: Canadian aquaculture production tonnage and value (1990-2008)¹



¹ Gardner-Pinfold Consulting Economists Ltd. Socio-Economic Impact of Aquaculture in Canada. Fisheries and Oceans Canada Ottawa, Ontario K1A 0E6. 54 p.

Figure 2: Canadian aquaculture output by species and province (2008)¹.



Aquaculture is especially important in rural Canada where it has contributed to the revitalization of many coastal communities which depend on the wealth generated from more than 16,000 stable, year-round, well-paying jobs and by providing the critical economic activity necessary to stimulate infrastructure development and growth in secondary and tertiary businesses. In addition, the sector increasingly attracts young people - over half of the employees on aquaculture farms are between the age of 21 and 35 years (this factor is relevant to current and future aboriginal participation in aquaculture because young aboriginal people are one of the fastest growing demographic groups in Canada).

Overall economic impacts are generated through direct, indirect and induced demand² in the economy expressed in terms of industry and consumer purchases of goods and services. In addition, increased employment is particularly important because of the significance generally attached to jobs; i.e. the spin-off benefits generated by income spending, the self-esteem and social contribution of employed individuals, the reduced need for social services or under-the-table activities, etc.

Aquaculture, forestry, fisheries, agriculture and other resource industries are the key sectors in rural Vancouver Island and along the central coast of BC. The salmon farming industry is concentrated in Campbell River and North Vancouver Island. With the decline in forestry and commercial fisheries, aquaculture occupies an increasingly important place in the economy of the region. The major salmon farming companies are headquartered in Campbell River as are many of the processing companies as well as those that supply goods and services to the sector (e.g. nets, maintenance, transportation, packaging, containers, diving services, machinery, fish health, etc.). There are more than 200 such companies on Vancouver Island alone, many of which are wholly dependent on salmon aquaculture¹.

² *Direct impacts* include expenditures for goods and services necessary for production, such as hatchery and grow-out operations, harvesting, processing, marketing and corporate administration. *Indirect impacts* are derived from the purchase of inputs such as smolts, feed, cages and moorings, nets, vessels, vehicles and outside services. *Induced impacts* are generated from expenditures in the broader economy as a result of earned income by those employed in direct and indirect activities being spent on consumer goods and services.

Aquaculture generates about 6,000 FTE of employment in British Columbia, comprised of 2,220 FTE in *direct* activities, 2,330 FTE in *indirect* jobs and 1,410 FTE in *induced* activities. The aquaculture industry was responsible for \$223.3 million in labour income in 2007. This accounts for about half of total GDP generated in British Columbia by aquaculture. Total *direct* labour income was \$78.4 million, resulting in average income of \$35,250 per FTE employed in direct aquaculture activities. *Indirect* income earned by those employed in support industries was \$95.1 million, with average incomes of about \$40,900. Those employed in induced activities in the broader economy earned \$50.4 million, for an average income of 35,700. The total value of aquaculture output in BC in 2007 was \$560 million. The sector accounts for about 9% of total employment in central and northern Vancouver Island and about 11% of total labour income¹.

	GDP (\$000)	Employment (FTE)	Labour Income (\$000)
Direct	151,100	2,220	78,400
Indirect	167,900	2,330	95,100
Induced	106,300	1,410	50,400
Total	425,300	5,960	223,900

3.0 ABORIGINAL PARTICIPATION IN AQUACULTURE

3.1 Salmon Farming Operations

Today, commercial salmon hatcheries and on-growing farming operations are located throughout Mid and North Vancouver Island, particularly in the following areas: Alberni / Clayoquot; Campbell River; Broughton Islands; Nootka Sound; Esperanza Inlet; Gold River; Saltery Bay; Sechelt; Clio Channel; Baxter; Dawley Pass; Warne Island; Indian Bay; Eagle Bay; McCalls; and Klemtu. Within these areas, fish culture operations occur within the traditional territory lands of at least 28 First Nations, including:

- Ahousaht
- Mowachaht/Muchalaht
- Xwemaljkwu (Homalco)
- Sliammon
- Kwicksutaineuk-ah-kwaw-ah-mish
- Mamalilikulla-Qwe'Qwa'Sot'Em Band
- Gwa'sala/Nadwxda'xw
- Qwe Qwa Sot Enox
- Kitasoo/Xai'xias
- Tla-o-qui-aht
- Huu-ay-aht
- We Wai Kum
- Ucluelet
- Gwawaineuk
- Namgis
- Komox
- Kwaikah
- Kwakiutl
- Tlowitsis
- Tseshaht
- We Wai Kai
- Klahoose
- Tsawataineuk
- Ehattesah
- Nuchatlaht
- Sechelt
- Quatsino
- Heiltsuk

Information compiled from the completed surveys indicates that annual output of farmed salmon in BC is approximately 77,300 metric tonnes (mt). Of this amount, 60,500 mt (78%) is produced in aboriginal territories under various operational and protocol agreements with the respective First Nations.

Amongst the companies that responded to the survey, 108 aboriginal people are employed in various management, production and administrative positions. Aboriginals account for 14.1% of the labour force in this sub-sector of the BC aquaculture industry and earn 12.8% of total labour income in the sector. Additional details regarding the number of employment positions and total labour income in the salmon production sub-sector are provided in Tables 1 and 2, respectively.

The 108 aboriginals employed in salmon farming operations earn \$5,441,000 annually. Average wages for aboriginal employees are presented in Table 3. While average wages for aboriginal managers are higher than for non-aboriginal managers, the average labour income for aboriginals employed in production and administration positions is less than that for non-aboriginal employees (Table 3).

Table 1: Number of management, production and administration employment positions held by aboriginals and non-aboriginals within leading salmon farming companies in BC.

Management			Production			Administration		
Aboriginal	Non-Aboriginal	% Aboriginal	Aboriginal	Non-Aboriginal	% Aboriginal	Aboriginal	Non-Aboriginal	% Aboriginal
11	130	8%	94	417	18%	3	109	3%

Table 2: Employment income (\$000) earned by aboriginal and non-aboriginals in management, production and administration positions within the leading salmon farming companies in BC.

Management			Production			Administration		
Aboriginal	Non-Aboriginal	% Aboriginal	Aboriginal	Non-Aboriginal	% Aboriginal	Aboriginal	Non-Aboriginal	% Aboriginal
\$ 761	\$ 6,918	10%	\$ 4,527	\$ 23,580	16%	\$ 153	\$ 6,603	2%

Table 3: Average annual labour income per person for aboriginal and non-aboriginal employees in the BC salmon farming sector

	Aboriginal	Non-Aboriginal
Management	\$ 69,198	\$ 53,218
Production	\$ 48,155	\$ 56,547
Administration	\$ 51,018	\$ 60,035

3.2 Salmon Processing Operations

Salmon processing operations are located throughout Mid and North Vancouver Island and on the mainland, particularly in the following areas: Klemtu; Port Hardy; Egmont (Sunshine Coast); Tofino; Campbell River; and Quadra Island. Within these areas, fish processing operations occur within the traditional territory lands of at least 15 First Nations, including:

- Kitasoo/Xai'xais
- Gwa'sala/Nadwxda'xw
- Wei Wa Kai
- Wei Wa Kum
- Nu-cha-nulth
- Kwakiutl
- Tla-o-qui-aht
- Homalco
- Heiltsuk
- Kitimaat
- Sechelt
- Quatsino
- Namgis
- Ahousaht
- Bella Bella

Aboriginal people hold 178 of 487 positions in salmon processing operations in BC. In total, aboriginals represent 36.6% of the labour force and earn 32.2% of total labour income in the sector. Additional details regarding the number of employment positions and total labour income in the salmon processing sub-sector are provided in Tables 4 and 5, respectively.

The 178 aboriginals employed in salmon processing operations earn \$5,557,000 annually. The average labour income for aboriginals employed in management, processing and administration positions is less than that for non-aboriginal employees in the salmon processing sector (Table 6).

Table 4: Number of management, processing and administration employment positions held by aboriginals and non-aboriginals within the leading salmon processing companies in BC.

Management			Production			Administration		
Aboriginal	Non-Aboriginal	% Aboriginal	Aboriginal	Non-Aboriginal	% Aboriginal	Aboriginal	Non-Aboriginal	% Aboriginal
3	30	9%	170	254	40%	5	25	17%

Table 5: Employment income (\$000) earned by aboriginals and non-aboriginals in management, production and administration positions within the leading salmon processing companies in BC.

Management			Production			Administration		
Aboriginal	Non-Aboriginal	% Aboriginal	Aboriginal	Non-Aboriginal	% Aboriginal	Aboriginal	Non-Aboriginal	% Aboriginal
\$ 209	\$ 2,158	9%	\$ 5,082	\$ 8,109	39%	\$ 266	\$ 1,414	16%

Table 6: Average annual labour income per person for aboriginal and non-aboriginal employees in the BC salmon processing sector.

	Aboriginal	Non-Aboriginal
Management	\$ 69,633	\$ 71,927
Production	\$ 29,894	\$ 31,926
Administration	\$ 53,244	\$ 56,573

3.3 Training Opportunities for First Nations Employees

Salmon farming and salmon processing companies reported that systematic technical training is generally provided to most employees to enhance the skills necessary for specific positions. Aboriginal employees have benefitted from skills development and training in the following areas:

- First Aid (Basic and Advanced)
- Marine First Aid / Transportation Endorsement First Aid
- Small Vessel Operator Proficiency
- Small Non-Pleasure Vessel Basic Safety (MED A3)
- Underwater Egress and Sea Survival
- Workplace Hazardous Materials Information System (WHMIS)
- Specific Equipment Operation
- Transportation of Dangerous Goods
- Ergonomics
- Fork Lift Certification
- Computers & Software
- Processing Plant Safety & Orientation
- Plankton Identification
- Safety Representative

3.4 Challenges Associated with Aboriginal Participation in Aquaculture

The growth of sustainable aquaculture in British Columbia is constrained by a number of challenges, particularly related to perceptions about the environmental and social sustainability of the sector and the cumbersome regulatory framework within which the sector operates. Nevertheless, the scope of challenges encountered by First Nations and aboriginal peoples engaged in the sector can be considerably more complex. The following issues have been identified as significant challenges to aboriginal engagement and participation in the BC aquaculture sector:

- access to investment capital;
- band opposition;
- insufficient education and apprenticeship programs;
- insufficient training and skills for management positions;

- increasing expectations for science-and-technology based qualifications for aquaculture workers; and
- social issues.

3.5 A Success Story: Kitasoo / Xaixias First Nation³

Located on BC's central coast, the Kitasoo First Nation relied for decades on the economy of the commercial salmon industry – and faced extreme economic hardship when the industry collapsed. As part of their economic revitalization plan, the Kitasoo developed a salmon farm in partnership with an established salmon farming company. Today, salmon farming provides 15 full-time equivalent jobs for Kitasoo First Nation members worth \$450,000 annually.

The Kitasoo have also constructed a processing plant. The plant currently processes 1.4 million pounds of farmed salmon each month – generating gross revenues of ~\$2.2 million monthly. Processing activities employ 30 full time equivalent jobs at full operation – contributing approximately \$1 million in wages to the village economy.

The Kitasoo have retained final decision-making powers in all matters pertaining to environmental impacts and decisions - making it clear to their industry partner that the farm will be shut down if environmental degradation occurs. After four years of operations, independent environmental monitoring has found that the environmental integrity of the region remains intact. Kitasoo Chief Councillor and Band Manager Percy Starr proudly proclaims: *“No one should be fooled into thinking that the Kitasoo First Nation had sold out and sacrifices any part of its environmental heritage in order to become part of the salmon-farming industry.”*

³ Canadian Aquaculture Industry Alliance (2011). Canadian Aquaculture: An Important Economic Contributor. <http://www.aquaculture.ca/files/economic-benefits.php>

4.0 CONCLUSIONS

Overall, the survey results suggest that more than 286 aboriginal people are employed in the BC salmon aquaculture sector. Together, these employees earn almost \$11 million dollars in annual salaries and wages. Socially and culturally, at least 28 First Nations in BC have benefited from the employment and prosperity generated from direct and indirect involvement in commercial aquaculture. Such benefits include the influx to the community of new skills and knowledge, enhanced business leadership and expertise in running a business, and community self-esteem and health. Successful operations are a source of pride for the community and increase the capacity of the community to function independently⁴.

Gaining access to new sites means developing mutually beneficial operating agreements with First Nations, on whose lands many of these high productivity sites are located. Agreements are already in place for 78% of total salmon production in the province. The objectives of the agreements are to facilitate dialogue with First Nations, encourage and provide a framework for direct participation in the industry, and provide operational security for the company and potential for growth. If implemented effectively, protocol agreements create capacity amongst First Nations and generate economic opportunity¹. Agreements can also be used to help First Nations acquire equity positions in existing and future operations.

Looking to the future, BC's aboriginal communities are well-positioned to generate additional socio-economic benefit through enhanced engagement in commercial aquaculture. For example, many coastal aboriginal communities have proximity to production sites, thus creating potential employment opportunities. With proper training and education, many more employment opportunities could be realized in aquaculture, particularly for youth. Establishment of strategic partnerships between First Nations communities and corporate ventures in the aquaculture sector can enhance sustainable aboriginal economic development. First Nations offer tangible assets in the form of production sites, labour and traditional ecological knowledge while the private sector offers experience, capital, market access and training; hence, the ingredients for sustainable economic development are in place.

⁴ Diane Urban, Ph.D. (2006). *Aquaculture Discussion Paper: An Overview of Concepts and Terms Associated with Aquaculture, Sustainable Aquaculture in Canada, and Impacts Aquaculture has on First Nation Peoples*. Prepared for Assembly of First Nations. 39 p.