ABORIGINAL AQUACULTURE IN CANADA INITIATIVE

ACCESS TO CAPITAL FOR ABORIGINAL AQUACULTURE DEVELOPMENT - GAP ANALYSIS

Submitted to:

WAUBETEK
BUSINESS DEVELOPMENT CORPORATION
A community Futures Development Corporation

General Delivery
Birch Island, Ontario
P0P 1A0
c/o Todd Gordon

Prepared by:

ReThink Inc.
innovative management solutions

262 Parr Street
St Andrews, New Brunswick
E5B 1M4
www.rethinkinc.ca

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EXECUTIVE SUMMARY

Aquaculture is the fastest growing food sector in the world. The global annual growth rate in production has exceeded 6.0% for inland and marine aquaculture since the year 2000[1]. Commercial aquaculture in Canada began more than 50 years ago with trout farming in Ontario, Quebec and British Columbia and oyster farming in New Brunswick, Prince Edward Island and British Columbia. Today, aquaculture provides approximately 5,000 direct, full-time-equivalent (FTE) jobs in Canada and some 9,700 more in businesses that are in the supplies and services sectors with which it has strong backward and forward linkages. With a gross value of over $2.0 billion, the industry contributes significantly to the broader Canadian economy and is projected to create more than 3,800 new jobs by 2021[2].

There are over 50 Aboriginal communities in Canada involved in aquaculture sector as producers and service providers. The Aboriginal Aquaculture in Canada Initiative (AACI) recognizes that the expansion of the industry has the potential to provide many benefits beyond training and employment opportunities for First Nations and Aboriginal entrepreneurs across Canada. Accessing the appropriate level of funding has been identified as a significant limiting factor on the potential growth of Aboriginal aquaculture development. The Waubetek Business Development Corporation (Waubetek)[3], in association with the Ulnooweg Development Group Inc. (eastern region) and the Aboriginal Aquaculture Association (western region) invited ReThink Inc (RTI) to review the current status of access to capital initiatives by First Nations and Aboriginal entrepreneurs.[4]

Aboriginal participation in the Canadian aquaculture sector is far below the inherent potential and interest amongst First Nations. The requirement for fixed capital and working capital in the sector can be significant, often requiring hundreds of thousands to millions of dollars to establish a venture. The constraints associated with access to capital for Aboriginal aquaculture ventures that have been identified during the survey and interviews are discussed to provide an understanding of key challenges facing the sector. Recommendations are presented to overcome the limitations imposed by the inability to access capital for Aboriginal aquaculture ventures.

Access to capital is a serious constraint for on-going Aboriginal aquaculture development in Canada. As a result, the considerable potential for Aboriginal aquaculture development that exists throughout Canada is unlikely to emerge within the current framework of Aboriginal economic development programming. This analysis suggests that the establishment of approximately 225 Aboriginal aquaculture ventures over the coming decade is practicable to achieve.

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[1] Food and Agriculture Organization of the United Nations (2010). The State of World Fisheries and Aquaculture. 218p ISBN 978-92-5-106675-1.

[2] Access to Capital Requirements in the Canadian Aquaculture Sector. Seafood Value Chain Roundtable Report. 2011. 73 pp

[3] Waubetek is an Aboriginal-owned and controlled organization that delivers business financing and economic development services to First Nations and Aboriginal entrepreneurs throughout south-central Ontario. Its mission is to improve the economies of First Nation people through the pro-active, professional and meaningful provision of business and economic services. Waubetek services 27 First Nations communities in Central and Northeastern Ontario. Waubetek also hosts the Central Canada Aquaculture Business Development Team (ABDT) for the Aboriginal Aquaculture in Canada Initiative (AACI).

[4] Adapted from Waubetek AACI Aboriginal Economic Development Program GAP Analysis RFP documentation. July 2015

1.0 THE AQUACULTURE SECTOR IN CANADA

Commercial aquaculture in Canada began more than 50 years ago with trout farming in Ontario, Quebec and British Columbia and oyster farming in New Brunswick, Prince Edward Island and British Columbia. Today, commercial aquaculture operations exist in every province as well as in the Yukon Territory. The sector accounts for one third of the total value of Canada's fisheries production. Additionally, more than fifty First Nations communities are involved in aquaculture for food, social, ceremonial and/or commercial purposes. Canada's output represents a small fraction of global production ranking 23rd among world aquaculture producers and contributing less than 0.3% of total output.

In 2013, Fisheries and Oceans Canada reported that the Canadian aquaculture output increased to more than 172,000 tonnes (Table 1).[5] Farmed Atlantic salmon is the main species produced on Canadian farms, accounting for 67% of total production, followed by blue mussels (19%), American oysters (6%), rainbow trout (4%) and other finfish and shellfish (3%). British Columbia contributes the most farm-raised fish and seafood, followed by Newfoundland & Labrador, Prince Edward Island, New Brunswick and Nova Scotia. For the inland provinces, trout is the main product, accounting for more than 92% of total production. Ontario is the largest producer, followed by Quebec and the Prairie Provinces.

Today, aquaculture provides approximately 5,000 direct, full-time-equivalent (FTE) jobs for Canadians and some 9,700 more in businesses in the supplies and services sectors with which it has strong backward and forward linkages. With a gross value of more than $2.1 billion, the Canadian aquaculture industry contributes significantly to the broader Canadian economy. In terms of direct, indirect and induced Gross Domestic Product (GDP)[6], aquaculture contributes about $1 billion toward Canada's GDP. Approximately one-half of this contribution is in the form of salaries and wages (+$500 Million). Moreover, aquaculture occurs primarily in Canadian coastal and rural communities, isolated areas where economic development opportunities can be limited and elusive.[3]

With a vast biophysical resource base, experience and expertise in the production, processing and marketing of fish and seafood, coastal infrastructure to expand upon and Aboriginal opportunities and interest, Canada is well positioned to be a leading internationally competitive producer of farm-raised fish and seafood. The Department of Fisheries and Oceans believes that "*Canada has enormous potential to be a world aquaculture leader. Strengths include extensive coastlines and productive marine and freshwater resources, a reputation for quality products, proximity to established and growing markets, an effective and efficient transportation infrastructure, an internationally reputable food inspection system, a skilled workforce and strong management expertise. However, obstacles, such as a cumbersome regulatory framework and trade barriers, keep Canada from realizing its potential*[7]."

[5] Fisheries & Oceans Canada. http://www.dfo-mpo.gc.ca/aquaculture/sector-secteur/socio/index-eng.htm

[6] Direct impact refers to impact arising from the expenditures made by firms in the subject industry (in this case aquaculture). Indirect impact refers to the impacts arising from purchased inputs triggered by the direct demand. Induced demand refers to the demand created in the broader economy through consumer spending of incomes earned by those employed in direct and indirect activities.

[7] DFO Strategic Plan 2005-10

Table 1: Canadian aquaculture output by species and province.
Source : http://www.dfo-mpo.gc.ca/stats/aquaculture-eng.htm (2015)

2013 Canadian Aquaculture Production Statistics (tonnes)

	NL	PEI	NS	NB	QC	ON	MB	SK	AB	BC	CANADA (1)
Finfish											
Salmon	..	..	6,517	18,837	0	0	x	x	x	74,673	100,027
Trout	..	..	203	0	1,262	3,580	x	x	x	62	6,736
Steelhead	..	..	0	0	0	0	x	x	x	682	682
Other Finfish	..	..	60	0	1	22	x	x	x	391	696
Total Finfish	**22,196**	**0**	**6,780**	**18,837**	**1,263**	**3,602**	**x**	**x**	**x**	**75,808**	**130,337**
Shellfish											
Clams	0	0	358	0	0	0	0	0	0	2,476	2,834
Oysters	0	2,812	356	739	10	0	0	0	0	5,592	9,509
Mussels	4,354	22,894	1,051	41	448	0	0	0	0	291	29,080
Scallops	0	0	0	5	11	0	0	0	0	91	107
Other Shellfish	0	0	203	5	22	0	0	0	0	0	230
Total Shellfish	**4,354**	**25,706**	**1,968**	**790**	**491**	**0**	**0**	**0**	**0**	**8,450**	**41,760**
Total Aquaculture	**26,550**	**25,706**	**8,748**	**19,627**	**1,754**	**3,602**	**x**	**x**	**x**	**84,258**	**172,097**
Re-stocking (2)											
Total (incl. re-stocking) (2)	**26,550**	**25,706**	**8,748**	**19,627**	**1,754**	**3,602**	**x**	**x**	**x**	**84,258**	**172,097**

2013 Canadian Aquaculture Production Statistics ($000)

	NL	PEI	NS	NB	QC	ON	MB	SK	AB	BC	CANADA (1)
Finfish											
Salmon	..	..	41,151	117,334	0	0	x	x	x	475,769	634,254
Trout	..	..	1,827	0	10,735	18,000	x	x	x	501	39,089
Steelhead	..	..	0	0	0	0	x	x	x	4,635	4,635
Other Finfish	..	..	408	0	119	505	x	x	x	4,664	7,306
Total Finfish	**181,833**	**3,229**	**43,386**	**117,334**	**10,854**	**18,505**	**x**	**x**	**x**	**485,569**	**870,346**
Shellfish											
Clams	0	0	1,128	0	0	0	x	x	x	7,014	8,142
Oysters	0	7,686	1,463	5,665	170	0	x	x	x	12,357	27,341
Mussels	15,139	30,284	1,601	46	584	0	x	x	x	1,824	49,478
Scallops	0	0	0	11	141	0	x	x	x	726	878
Other Shellfish	0	0	6,679	2	29	0	x	x	x	0	6,710
Total Shellfish	**15,139**	**37,970**	**10,871**	**5,724**	**925**	**0**	**x**	**x**	**x**	**21,921**	**92,549**
Total Aquaculture	**196,972**	**41,198**	**54,257**	**123,058**	**11,779**	**18,505**	**x**	**x**	**x**	**507,490**	**962,895**
Re-stocking (2)											
Total (incl. re-stocking) (2)	**196,972**	**41,198**	**54,257**	**123,058**	**11,779**	**18,505**	**x**	**x**	**x**	**507,490**	**962,895**

(1) Provinces with data not available are not included in the Canada totals.
(2) Sales to outfitters: operations offering lodging and services for hunting, fishing and trapping.

2.0 PURPOSE & OBJECTIVES OF THE STUDY[8]

2.1 Purpose

The purpose of this initiative is to assist decision makers with improving access to capital for Aboriginal aquaculture initiatives in Canada. The report reviews existing funding programs that are applicable to the development of Aboriginal aquaculture ventures in Canada as well as the general views of the proponents who seek to access these programs. The report also provides recommendations on how to improve access to capital.

2.2 Objectives

The principal objective of the review is to provide an analysis of the access to capital challenges faced by the Aboriginal aquaculture sector. The following specific objectives were identified for the study:

- Investigate the status of current aquaculture funding programs that are available to support Aboriginal aquaculture, provincially and nationally;
- Summarize the current investment capital requirements for typical aquaculture ventures in a way that can be used as a proxy to assist Aboriginal involvement in this industry;
- Identify any access to financing challenges and gaps particular to Aboriginal aquaculture in Canada and assess how funding gaps may be affecting development of Aboriginal aquaculture ventures;
- Articulate potential solutions to address the funding gap(s); and
- Collate the information in the form of recommendations for consideration by the Aboriginal Aquaculture in Canada Initiative (AACI) decision makers to address in order to stimulate growth in the Aboriginal aquaculture sector.

[8] Adapted from Waubetek AACI Aboriginal Economic Development Program GAP Analysis RFP documentation.

3.0 ABORIGINAL AQUACULTURE IN CANADA INITIATIVE

The Aboriginal Aquaculture in Canada (AACI) is supported through the Strategic Partnerships Initiative (SPI), led by Indigenous and Northern Affairs Canada (INAC). The AACI is aimed at supporting Aboriginal economic development in the Canadian aquaculture sector. As a key component of the new Federal Framework for Aboriginal Economic Development, SPI has enabled more than a dozen partnering federal departments and agencies to provide a coordinated federal response to existing and emerging Aboriginal economic development opportunities.

Although Aboriginal people have practiced sustainable aquaculture in their territories for millennia, commercial aquaculture in Canada is relatively new. Aquaculture development has the potential to play a major role in the diversification and strengthening of the local and regional economies of First Nations. First Nations are uniquely positioned to benefit from aquaculture development due to their access to the resources and land. The aquaculture industry is poised for growth and there is recognition that Aboriginal participation is an important catalyst for industry expansion and community development. AACI has provided resources to stimulate Aboriginal aquaculture development by funding to prepare feasibility studies, business plans, pilot projects, consulting assignments, training, and to leverage capital.

Under this initiative, Aquaculture Technical Business Experts (ATBEs), working within regional Aquaculture Business Development Teams (ABDTs), provide business and technical services to interested Aboriginal communities and entrepreneurs. The teams provide support to develop viable and sustainable aquaculture business plans and help proponents bring those plans to life. AACI assistance is provided to businesses involved directly in aquaculture production as well those in related initiatives within the broader aquaculture value chain (e.g. warehousing, equipment manufacturing and maintenance, processing, transportation, etc.) and the commercial production of new species.

Aboriginal Financial Institutions (AFI's)

The delivery of the Aboriginal Business Entrepreneurship Development program (ABED) has moved to a delivery model to a network of qualified Aboriginal Financial Institutions (AFIs). This change by the Department of Indigenous and Northern Affairs Canada was designed to improve service to Aboriginal entrepreneurs by moving decision-making closer to Aboriginal entrepreneurs and communities. All AFIs are authorized to make non-repayable contributions up to a maximum of $99,999 to Aboriginal entrepreneurs and up to $250,000 to community-owned Aboriginal businesses under the authority of the ABEDs terms and conditions, while respecting program eligibility criteria, operational guidelines, and policies.

Across Canada, 14 of the 56 current AFIs are designated Program Delivery Partners (PDP's) for the economic develop programs of the ABED. A complete list of AFIs is provided on the INAC website[9]. These AFIs administer approximately $ 23.5 million in annual equity investment funds for Aboriginal business initiatives in the areas of Agriculture, Forestry, Fishing and Hunting. These funds also cover the annual operating costs incurred by the AFI's in administering the delivery of the programs associated with these initiatives[10]. The AFIs are geographically disperse and First Nations typically work with the AFI in their region.

[9] http://www.aadnc-aandc.gc.ca/eng/1100100033216/1100100033220
[10] K. Were – DFO Ottawa (personal communication)

Five of the AFIs have been dealing with aquaculture development as a significant part of their activities. These AFIs administer approximately $9.4 million in annual development program funding. These funds cover all of the activities for the AFIs and are not designated specifically for aquaculture initiatives.

- The Ulnooweg Development Group Inc. is responsible to service FNs in the Atlantic[11].
- The Waubetek Business Development Corporation services central and northern Canada.
- The All Nations Development Corporation, the Nuu-chah-nulth Economic Development Corporation (NEDC) and the Tale'awtxw Aboriginal Capital Corporation (TACC), service western Canada.

Nevertheless, other AFIs (for example the Nishnawbe Aski Development Fund) support aquaculture initiatives on a limited, case by case basis.

It should be noted that the AFI network also currently has access to a pool of capital that can be delivered in the form of business loans. AFI's have access to a Developmental Loan Capital program that was established with funds provided by Industry Canada (IC). The funds are made available through the Industry Canada Regional Development Agencies (RDA's). There are specific funding agreements in place between the AFI's and the RDA's governing the use of these developmental loan funds.

Across the country there is currently an estimated availability of $50M of developmental loan funds that are not allocated to specific projects. This situation arises as some regions are much more active in the deployment of their developmental loan portfolios. These in turn, end up being the regions that have limited availability of developmental loan funds per individual projects when compared to other regions that may not be experiencing the same level of demand. There is currently no formal mechanism in place that allows for the redistribution of the funds to address this issue and make better use of the total development funds that are available.

In a recent review titled Improving Access to Capital for Canada' First Nations Communities prepared by The Public Policy Forum[12] an independent, not-for-profit organization dedicated to improving the quality of government in Canada; they summarize the access to capital challenges as follows:

" *It is widely accepted that AFIs can and should be key players in improving First Nations' access to market capital. However, an Aboriginal Business Canada report concluded in 2007 that "AFIs individually, and the network as a whole, need to be strengthened significantly with respect to the consistency of loan management practices, AFI financial viability, and the efficiency and effectiveness of their central support organization*."

They recommended that strengthening AFIs would enable these institutions to expand not only the volume but also the range of services they offer, notably mortgage financing. Further, they state that closer collaboration between AFIs and mainstream banks and credit unions could yield further benefits, including:

- Lower commercial lending costs.
- More efficient credit rating of prospective borrowers.
- Improved monitoring of risk factors.
- Expanded opportunities for funding Aboriginal Financial Institutions.

[11] Ulnooweg has also provided subject matter expertise in aquaculture to other regions of the Country
[12] www.ppforum.ca ISBN: 978-1-927009-71-0

Regional Aquaculture Business Development Teams (ABDTs)

The ABDTs are the front line unit providing critical aquaculture support to First Nations. The primary goal of the teams is to provide business facilitation support that will help proponents enhance the operation and the long-term sustainability of their aquaculture enterprises. A recent review of the role and impact of the initiative[13] concluded that the challenges faced by the BDTs included (1) finding effective ways to build trust with their First Nations clients, (2) ensuring that each client has a system of governance in place to formalize decisions taken in relation to the venture and (3) finding systematic ways to build capacity amongst the clientele to recognize opportunities and develop plans to pursue them.

This review has found that the services provided by the BDTs, working with individual proponents and the communities on a regional basis, is an essential component of ensuring the success of economic development projects. Specifically, Aquaculture Business Development Teams have been able to address the main challenges list above by working very closely with clients interested in exploring the opportunities in aquaculture sector and by providing subject matter expertise.

Eastern Canada – Atlantic Canada and Quebec[14]

The AACI has had a direct impact on 15 First Nations in Atlantic Canada and Quebec through the provision of funding and/or advisory services for 13 ongoing projects and 11 more in the planning process. The reach of AACI also extended to activities supporting training, technical and business innovations, business planning, partnerships and business expansions, among others. The aquaculture operations in Atlantic Canada cover a broad range of sectors within the industry, including oyster, clam and scallops farms, finfish farms and hatcheries, seaweed farming, aquaculture services and processing operations. The ongoing projects currently provide 24 jobs with the potential to generate 100 more in the short- to mid-term, and total projected revenues of $23 million once the operations reach maturity and become self-sufficient, which is projected to happen in the next 6-7 years for all of the operations. The potential for the projects currently in the planning stage is difficult to measure at their current stage of development, but general estimations may be similar to the figures for the ongoing projects.

The need to continue building momentum in aquaculture developments in First Nations is clear. In Atlantic Canada, the AACI has provided a much-needed stimulus to advance economic development initiatives, following up on the Atlantic Commercial Fisheries Diversification Initiative (ACFDI). Not only did the AACI provide the means to continue work that had been initiated through ACFDI, but several new opportunities arose. Moreover, interest in aquaculture from most of the Atlantic First Nations communities continues to increase. Community (Band) operated or individual ventures seem to be in the minds of many people and with that, the need to offer a reliable one-stop program that brings those ideas to reality is essential. During 2013-2016, that one-stop program has been AACI and its value is well-recognized by all those who have seen the results first-hand or who have learned of them by word-of-mouth.

[13] Dr. Harvey Johnstone. Shannon School of Business of Cape Breton University. THE BUSINESS DEVELOPMENT TEAM OF ULNOOWEG . A REVIEW. March 2014. 31 pp

[14] Adapted from FINAL REPORT 2013-2016. THE ABORIGINAL AQUACULTURE IN CANADA INITIATIVE (AACI) - ATLANTIC REGION. September 2015.18 pp

Central Canada[15]

In Central Canada, Aboriginal involvement in aquaculture has been concentrated in Northeastern Ontario, where most of the province's aquaculture activity is located. Four First Nation communities are involved directly in aquaculture production of rainbow trout as owner-operators or under lease agreements. Within Manitoba and Saskatchewan, the other two provinces within the AACI Central Canada region, there is also considerable potential for aquaculture development. The work of the Central Canada team continues to include an effort to cultivate interest in Aboriginal aquaculture potential throughout the region.

Western Canada and North[16]

The Aboriginal Aquaculture Association is the lead organization for delivery of AACI services in Western Canada and the North, which includes British Columbia, Alberta, Yukon, Northwest Territories and Nunavut. Every First Nation with the region has been contacted by the Aboriginal Business Technical Experts (ABTEs) and meetings were held with 21 First Nation communities with an interest in investigating or expanding upon aquaculture business development. There has been a marked shift this past year in the kind of services being requested under the Western AACI. Business development assistance, which currently represents 35% of the AACI services being provided, is particularly in demand.

28 First Nations in Western Canada and the North have been supported through the AACI. Ongoing projects currently provide 77 jobs with the potential to generate 195 more in the short- to mid-term, and total projected revenues of $88 million. Services provided through the AACI Western BDT included business development and planning, business expansion, training, technical innovations, and partnership development. The aquaculture operations in Western Canada cover all the sectors within the industry, from direct production of shellfish and finfish to indirect involvement through service providers.

National Aboriginal Aquaculture Fund (NAAF)

Aboriginal Affairs and Northern Development Canada (AANDC) have provided support for projects that contribute to Aboriginal aquaculture business development. This fund is referred to as the National Aboriginal Aquaculture Fund (NAAF) and aims to support eligible early-stage activities in the business development process. NAAF eligibility criteria include early engagement activities, costs associated with partnership and joint venture development, strategic planning and pilot projects. (www.aboriginalaquaculture.com)

Through the end of 2015, the AACI has supported the planning and development of dozens of Aboriginal aquaculture development initiatives throughout Canada. Amongst these, at least 45 projects are at an 'investment-ready' stage of development – 19 projects in the Western Region, 19 in the Eastern Region and Quebec, and 7 projects in Central Region. The scope of the capital requirements for these initiatives and their job creation potential is outlined in Table 2[17]. It is

[15] Adapted from ABORIGINAL AQUACULTURE IN CANADA (AACI) - CENTRAL CANADA REGIONAL FINAL REPORT AND UPDATE. September 2015. 31 pp
[16] Adapted from ABORIGINAL AQUACULTURE IN CANADA INITIATIVE (AACI) - WESTERN CANADA AND THE NORTH. Aboriginal Aquaculture Association. September 2015. 38 pp
[17] Adapted from the AACI Regional Reports

reasonable to conclude that the majority of these projects would not have advanced to their present stage without the support and assistance of the AACI and the ABDTs.

Constraints to Aboriginal Aquaculture Development[15]

The regional Aquaculture Business Development Teams and the Project Steering Committee have identified five principal constraints to the continued development of the Aboriginal Aquaculture sector. These are outlined below.

1. Access to Infrastructure. Distance from suppliers, particularly fingerling suppliers, becomes an issue both for limits to transport distance and the cost. Similarly, although to a lesser extent, the distance to processing and markets starts to be a limiting factor.

2. Access to Expertise and Technical Knowledge. This is a capacity and training issue. The very limited involvement by Aboriginal individuals and communities in the sector (to-date) means that there is a lack of capacity to support new production and other ventures in Aboriginal aquaculture.

3. Access to start-up and initial working capital funds. Access to working capital is a constraint throughout the aquaculture sector in general. The situation in Aboriginal aquaculture is exacerbated by the high level of capital required to establish a commercial scale aquaculture business and the requirement of proponents to pledge equity or collateral to secure financing – even from AFIs. Indigenous proponents often do not have the resources to self-finance and the AFIs simply may not be able to provide enough conditional and loan funding to meet the needs of a given project.

4. Duration and consistency of funding. The time required to achieve steady-state operations that generate sufficient cash flow to sustain an aquaculture venture is often measured in years. The current suite of funding programs is not structured to provide access to funding and/or support for the development activity over long time horizons.

   Access to the Developmental Loan Capital pool, governed by the agreements with the RDA's and not specifically earmarked for aquaculture projects, may be limiting if a region has a high demand for funding projects. Other regions that do not experience the same level of demand for immediate investment may in fact be in a surplus situation. There is no mechanism to reallocate funds to where the need is greatest.

   It is recognized that the overarching issue of access to capital has been the subject of much discussion in forums such as the National Aboriginal Fisheries Forum (NAFF) – http://www.afn.ca. What is being identified here is a specific barrier to access to an existing pool of capital. There is a need to develop a workable solution to this allocation mechanism and unlock the opportunity to better utilize the existing pool of developmental loan capital that is in place today.

5. Access to Sites. The regulatory regime for aquaculture development across the country is complex and continues to evolve. The regulations can be in conflict with granting access to the development of aquaculture operations as the availability of leases/sites to carry out aquaculture operations are not easily accessible either to lack of spaces, difficult and non-encouraging processes, or lack of knowledge on opportunities.

Table 2: Potential Aboriginal aquaculture projects that have been brought to the 'investment-ready' stage of development through the support of the Aboriginal Aquaculture in Canada Initiative.

A. National Perspective

Region	Investment-Ready Projects	Current Jobs	Future Jobs	Projected Annual Revenue	Operating Capital Needs	Investment Capital Needs	Financing Required for Self-Sufficiency
Eastern Canada	19	24	127	$23,795,000	$18,169,000	$9,650,000	$28,244,000
Central Canada	8	8	26	$7,245,345	$2,578,000	$7,059,519	$9,637,519
Western Canada	19	77	272	$88,176,000	$10,378,000	$12,037,800	$22,415,800
Total	**46**	**109**	**425**	**$119,216,345**	**$31,125,000**	**$28,747,319**	**$60,297,319**

B. Eastern Canada & Quebec

Project Type	Current Jobs	Future Jobs	Projected Annual Revenue	Operating Capital Needs	Investment Capital Needs	Financing Required for Self-Sufficiency	Projected Time To Self-Sufficiency
Shellfish hatchery	0	3	$225,000	$150,000	$300,000	$450,000	2 to 3 years
Fish hatchery	2	2	$150,000	$360,000	$250,000	$610,000	2 to 3 years
Oyster farm	0	2	$135,000	$200,000	$200,000	$400,000	4 to 5 years
Clam management	0	30	n/a	$250,000	$0	$250,000	4 to 5 years
Oyster farm	4	4	$200,000	$390,000	$20,000	$410,000	3 years
Environmental monitoring	2	2	$75,000	$60,000	$10,000	$70,000	1 to 2 years
Oyster farm	5	5	$300,000	$270,000	$30,000	$300,000	2 years
Oyster holding facility	0	4	$1,650,000	$300,000	1,500,000	$1,800,000	3 years
Scallop farm	0	3	$250,000	$200,000	$150,000	$350,000	3 to 4 years
Halibut farm	0	11	$7,000,000	$3,600,000	$3,810,000	$7,410,000	5 to 6 years
Trout farm	0	23	$9,700,000	$5,000,000	$2,700,000	$7,700,000	5 years
Aquaculture servicing	2	2	$350,000	$300,000	$335,000	$635,000	1 to 2 years
Oyster spat	0	2	$100,000	$75,000	$175,000	$250,000	1 to 2 years
Trout farm	4	4	$3,000,000	$5,980,000		$5,980,000	3 years
Live fish transport	2	2	$100,000	$50,000	$35,000	$85,000	2 years
Net washing	2	2	$60,000	$50,000	$10,000	$60,000	2 years
Fish hatchery	0	3	n/a	$150,000	$450,000	$600,000	
Fish processing	0	20	$500,000	$784,000	$100,000	$884,000	3 years
Oyster farm	1	2					
Total	**24**	**127**	**$23,795,000**	**$18,169,000**	**$9,650,000**	**$28,244,000**	

Table 2 (cont'd): Potential Aboriginal aquaculture projects that have been brought to the 'investment-ready' stage of development through the support of the Aboriginal Aquaculture in Canada Initiative.

C. Central Canada

Project Type	Current Jobs	Future Jobs	Projected Annual Revenue	Operating Capital Needs	Investment Capital Needs	Financing Required for Self-Sufficiency	Projected Time To Self-Sufficiency
Fish hatchery	0	3.5	$950,000	$560,000	$1,808,000	$2,368,000	2 to 3 years
Trout farm expansion	5	7	$1,500,000	Proprietary – information not available			
Trout farm expansion	3	7	$900,000	Proprietary – information not available			
Aquaponics Pilot Project	0	2 to 3	$280,000	$75,000	$775,000	$939,510	3 years
Alternative land-based	0	4	$400,000+				
Trout land-based pilot	0	4	$1,300,000	$917,000	$2,402,519		
Trout land-based pilot	0	3 to 4	$1,915,345	$1,026,000	$2,074,000	Unknown	4+ years
Aquaculture protocol	0	0.5					
Total	**8**	**26**	**$7,245,345**	**$2,578,000**	**$7.059,519**	**$9,637,519**	

D. Western Canada & The North

Project Type	Current Jobs	Future Jobs	Projected Annual Revenue	Operating Capital Needs	Investment Capital Needs	Financing Required for Self-Sufficiency	Projected Time To Self-Sufficiency
Shellfish farm	0	4	$150,000	$100,000	$60,000	$160,000	3 to 5 years
Land-based finfish farm	0	8	$2,500,000	$1,000,000	$3,000,000	$4,000,000	
Shellfish hatchery	0	6	$750,000	$400,000	$2,740,000	$3,140,000	2 to 4 years
Shellfish farm	0	4	$150,000	$100,000	$75,000	$175,000	
Shellfish hatchery	11	5	Proprietary – information not available				self-sufficient
Scallop farm	9	6					
Scallop farm	2	8	$250,000	$112,000	$48,000	$160,000	
Shellfish farm (oysters)	4	10	$200,000	$113,000	$452,800	$565,800	
Clam farm	4	2	$250,000	$30,000	$50,000	$80,000	3 to 4 years
Oyster farm	0	8	$1,250,000	$300,000	$400,000	$700,000	
Shellfish farm	12	75	$50,000,000	$2,000,000	$1,000,000	$3,000,000	Operation is self-sufficient
Processing plant	21	75	$30,000,000	$5,000,000	$260,000	$5,260,000	
HPP Proof of Concept	0	3	$1,000,000	$400,000	$2,300,000	$2,700,000	
Oyster hatchery	4	10	$500,000	$300,000	$750,000	$1,050,000	4 to 5 years
Shellfish farm	5	30	$350,000	$225,000	$100,000	$325,000	Planned
Shellfish farm	0	4	$200,000	$120,000	$150,000	$270,000	2 to 3 years
Oyster farm	3	5	$416,000	$38,000	$152,000	$190,000	4 years
Scallop farm	0	3	$90,000	$100,000	$400,000	$500,000	2 years
Aquaponics	2	6	$120,000	$40,000	$100,000	$140,000	2 years
Total	**77**	**272**	**$88,176,000**	**$10,378,000**	**$12,037,800**	**$22,415,800**	

4.0 FINANCING AN AQUACULTURE BUSINESS[18]

Most modern aquaculture businesses are capital intensive and the magnitude of short-term and long-term capital resources required to construct, equip and operate an aquaculture operation usually requires the borrowing of capital. Short-term capital (Working Capital) requirements are the operating resources needed to address things such as the purchase of aquaculture feeds, seed stock, fuel, as well as to cover payroll and other operating input costs. Long-term capital or fixed investment capital (Capex) requirements are the resources required to purchase fixed assets such as land and equipment.

Capital is classified according to its source. Capital provided by the owners, including shareholders or partners, is commonly referred to as equity capital. Capital that is borrowed is referred to as debt capital.[19]

Access to adequate financial resources is essential to any successful business venture. Business loans usually require the preparation of financial projections that include an Income Statement and a Balance Sheet. The Balance Sheet is used to provide a snapshot of a company's financial condition by listing the assets and the liabilities for the venture. From the Balance Sheet, the net worth (owner equity) can be calculated as well as a number of commonly used financial ratios such as equity/assets ratio (owner equity), debt/assets ratio, debt/equity ratio and current ratio (liquidity). These ratios are used by lenders to help determine the credit worthiness of a loan[20].

The credit worthiness of an operation is the lender's evaluation of the profitability and the risks associated with lending to a borrower. Credit scoring is commonly used in commercial lending. It is a weighted average of a series of characteristics including estimated profitability, the projected liquidity (current ratio), solvency (debt/equity ratio) and the collateral position (ratio of the loan balance to the assets pledged as collateral). The credit score will change over time as the values of the metrics change. The lack of collateral is usually the first obstacle related to accessing capital. Most commercial lenders to the aquaculture sector do not believe that their mandate is to support farming ventures with no successful track record.

The current debt load, the calibre of the management team and the historical performance of the venture are important factors taken into consideration when evaluating a loan application. This is consistent with the Three Cs[21] model for evaluating investments - Collateral, Character and Capacity to Repay.

[18] Adapted from Access to Capital Requirements in the Canadian Aquaculture Sector. Seafood Value Chain Roundtable Report. 2011. 73 pp

[19] Adapted from: Engle, Carole. R. (2010). Aquaculture Economics and Financing. Management and Analysis. Wiley Blackwell. (www.wiley.com/wiley-blackwell)

[20] IBID

[21] Also known as the 5 C's that lenders use when considering a loan. The two additional factors are Capital (or starting financial position) and Conditions (additional factors a lender needs to encourage repayment of the loan)

4.1 Commercial Lending Instruments

Financial institutions such as the commercial banks (banks) are a source of capital and all have loan programs or commercial lending instruments. Loans are structured in a way to take into account the associated risks of providing ventures with capital. Banks have the goal of capitalizing on the levels of risk and earn a margin or profit.

Central to the profitability of any business (including banks) is the ability to manage cash flow. For financial institutions, this is identified as credit quality in terms of loan-to-value calculations. Banks look at the natural lending cycle for a business enterprise from start-to-finish. To properly monitor an enterprise risk, they take into account the entire scope of the business activity. They define and track multiple credit, market and operational risk metrics commonly known as the key risk indicators (KRI). To generate these risk metrics, they collect, aggregate and analyze data in multiple transactional and historical systems.

Although risk assessment is done in a comprehensive and structured way, different lenders will have different tolerances for higher-risk loans. Aquaculture loans have traditionally been viewed as higher-risk loans. The terms and conditions of a loan may vary from institution to institution and may also be influenced by reputational risk. This means the lenders not only evaluate a host of financial risks but may also assess the reputation metrics such as negative press, investor confidence, attitude of the local community, history of fines, lawsuits, etc.

To ensure that the borrowers will be able to service the debt associated with the loan and address the institutions' KRIs, lenders to the aquaculture sector appraise the value of the enterprise using a combination of the available chargeable assets, the historical earnings of the company, the viability of the business over an extended period of time (multiple year classes) and the principals' demonstrated ability (managerial experience, technical expertise, etc.) to run a successful business[22]. This appraisal process has not been consistent among banks and has created challenges for aquaculture ventures, particularly with respect to working capital loans and lines of credit. When there is limited information about the farming success of a particular species or methodology being proposed and/or geographic location, this may add the perception of risk.

Lenders need to ensure that the collateral used to secure the loans is collectible in the event of a default (or change in circumstance). One common approach is for the parties to enter into a security agreement that sets out the rights of the lender with regard to the collateral. The agreement can be between the lender and the company or between the lender and one or more key individuals with the company. This type of agreement is usually referred to as a General Security Agreement (GSA) or in the case of the Province of Quebec a Universal Movable Hypothetic.

Collateral is typically identified as real estate, equipment or any other tangible or intangible property that has monetary value equivalent to the loan, plus interest. A GSA provides that in the event of default, the lender may take possession and control of the collateral without the need for judicial assistance or the lender may dispose of the collateral by sale to pay off the remaining

[22] Adapted from: Report on Access to Capital in the Canadian Tidal Waters Commercial Fishing Industry. May 2010, 55 pp. Report produced for the Seafood Value Chain Roundtable – 2010.

balance on the loan. For the duration of a General Security Agreement, the debtor may not transfer ownership or possession of the identified collateral to any third party[23].

It is also common practice for financial institutions to ask for personal guarantees to secure the repayment of the company's indebtedness in the event that the borrower defaults in making payments; the only exception tends to be for larger corporations that have established a long and stable track record. Lenders view the requirement for personal guarantees as a way to ensure that the proponent is committed to the success of the venture for which they are borrowing the funds. Lenders may require producers to carry a variety of insurance instruments, including but not limited to stock insurance and business liability insurance. In some cases, the lenders ask to be the named beneficiary on the policy.

4.2 Venture Capital Funding

Venture capital is private financial capital usually provided to early-stage, high-potential, start-up companies. The venture capital investment makes money by owning equity in the new companies, which usually have a novel technology or business model. The typical venture capital investment occurs after the initial funding round and is used to grow the venture with the intent of generating a return through a realization event, such as an initial Public Offering (IPO) or sale of the shares of the company.

Venture capitalists are very selective in deciding what sectors to invest in and the success rate of a proposal is in the order of one in four hundred opportunities presented. Fund managers are most interested in ventures that may be higher risk but that show exceptionally high growth potential and which are capable of providing the financial returns (and successful exit event) within the required timeframe.

Venture capital can be attractive for new companies with limited operating history as they are typically too small to raise capital in the public markets and/or have not reached the point where they are able to secure a bank loan. In exchange for the high risk investment, venture capitalists usually get significant control over a company's ownership.

Companies wishing to raise venture capital tend to require a combination of qualities, such as innovative technology, potential for rapid growth, a well-developed business model, and an impressive management team. Venture capitalists also seek a well-defined exit strategy; usually within four to seven years. Companies with a capacity to generate minimum returns in excess of 25% per year will find it easier to raise venture capital.

Because investments typically require three to seven (3–7) years to be monetized, venture capitalists carry out detailed due diligence prior to investment. Venture capitalists also nurture the companies in which they invest to increase the likelihood of reaching an IPO stage when valuations are favorable. Venture capitalists typically assist at various stages in the company's development:

[23] http://www.ehow.com/facts_7360396_general-security-agreements.html

4.3 Federal and Provincial Government Programs

The Federal Government of Canada has introduced a variety of programs through Crown Corporations and Agencies such as Farm Credit Canada (FCC), Export Development Canada (EDC), the Business Development Bank of Canada (BDC), the Atlantic Canada Opportunities Agency (ACOA), the Western Economic Diversification(WD) and Canada Revenue Agency (CRA) that assist in providing business loans to the aquaculture sector.

In addition to the Aboriginal Aquaculture in Canada Initiative, Fisheries and Oceans Canada has administered a number of fisheries development funds such as the Pacific/Atlantic Integrated Commercial Fisheries Initiative and the Aquaculture Innovation and Market Access Program. These initiatives were designed to help mitigate the risk of producing and marketing aquatic species. The programs were created to improve the competitiveness of the Canadian aquaculture sector by encouraging the development and adoption of innovative technologies and to position Canadian aquaculture products in the marketplace based on their environmental performance and traceability.

INAC (previously called Aboriginal Affairs and Northern Development Canada) hosts a number of Aboriginal business and entrepreneurship development programs designed to provide a range of services and support that promote the growth of a strong Aboriginal business sector in Canada. A formal review of these programs is readily available by visiting the website(s) for the respective agencies.

Provincial governments have programs that are specific to supporting the development of aquaculture as well as Aboriginal business initiatives in their respective jurisdictions. These programs usually work in concert with federal government agencies and commercial financial institutions to apply three-way risk mitigation[24].

The regional Aquaculture Business Development Teams for the Aboriginal Aquaculture in Canada Initiative as well as staff from Fisheries and Oceans Canada provided a summary of the federal and provincial programs that have been available to Aboriginal aquaculture proponents (Table 3). The list is not exhaustive; however, it illustrates past efforts by governments to put in place a number of different mechanisms to promote economic development. It also establishes precedence for the idea of a dedicated fund specifically for the development of Aboriginal aquaculture enterprises that would serve to address the current barriers to entry.

[24] A Review of Industry's Funding Requirements and Financial Programs Relating to Fisheries and Aquaculture. March, 2009. Report prepared for the New Brunswick Department of Agriculture, Aquaculture and Fisheries. ÉcoRessources Consultants. 108 pp

Table 3: List of programs available for Aboriginal aquaculture initiatives

A. Provincial / Territorial Programs [25]

Ontario

Name:	Aboriginal Economic Development Fund (AEDF)
Agency:	Ministry of Aboriginal Affairs
Objectives:	The fund supports projects that:diversify Aboriginal economies Economic Diversification projects up to $100,000 Regional Partnership projects up to $100,000 Business & Community Funds up to $50,000
Limits:	na
Equity:	na
Link:	http://www.ontario.ca/page/funding-aboriginal-economic-development

Name:	Economic Development & Trade
Agency	Ministry of Ec. Dev., Employment & Infrastructure
Objectives:	Human Resource Development & Training
Limits:	
Equity:	
Link:	https://www.ontario.ca/ministry-economic-development-employment-and-infrastructure

Name:	Aboriginal Peoples Programs
Agency:	Ministry of Aboriginal Affairs
Objectives:	Multiple
Limits:	na
Equity:	na
Link:	http://www.ontario.ca/page/programs-and-funding-aboriginal-peoples

New Brunswick

Name:	Aboriginal Affairs Grants
Agency:	Aboriginal Affairs Secretariat
Objectives:	Small-scale, non-profit projects/initiatives of a social, cultural, and educational nature. AAS provides small grants to individuals, First Nation communities, and Aboriginal Organizations for a variety of events, projects and initiatives to help improve the government's relationship with First Nation communities and Aboriginal organizations.
Limits:	< $2500
Equity:	na
Link:	http://www2.gnb.ca/content/gnb/en/services/services_renderer.15036.Aboriginal_Affairs_Grants_Program.html

[25] There are other programs available for the development of aquaculture ventures that are not specific to Aboriginal ventures. For example: NLDFA has the Aquaculture Working Capital Loan Guarantee program and the Aquaculture Capital Equity Program: The objective of these programs is to assist in increasing production of commercial aquaculture products in the province, from both hatcheries and marine sites, thereby increasing employment and spin-off opportunities in the processing, manufacturing, supply and service sectors, primarily in rural Newfoundland and Labrador. http://www.fishaq.gov.nl.ca

Nova Scotia

Name:	Aboriginal Community Development Fund
Agency:	Office of Aboriginal Affairs
Objectives:	Community and Economic Development Planning Strategic Capacity Building Aboriginal / Mi'kmaq Innovation
Limits:	10% mminimum
Equity:	na
Link:	http://novascotia.ca/abor/acdf

British Columbia

Name:	First Citizens Fund Aboriginal Business Loan Program
Agency:	Aboriginal People
Objectives:	Business loans are available to Aboriginal entrepreneurs in British Columbia. All Nations Trust Company (ANTCO) delivers the Aboriginal Business Loan Program in partnership with four Aboriginal Capital Corporations located throughout the province.
Limits:	$75,000
Equity:	na
Link:	http://www2.gov.bc.ca/gov/content/governments/aboriginal-people/economic-development

Name:	Aboriginal Training for Employment Program
Agency:	Aboriginal People
Objectives:	Job development funding and funds for training programs
Limits:	na
Equity:	na
Link:	http://www.aved.gov.bc.ca/aboriginal/programs.htm

Name:	Investment Agriculture Foundation of BC
Agency:	Aboriginal People
Objectives:	Open to all emerging sectors in the BC agriculture, agri-food and agri-based products industries and also includes those initiatives under the Agri-Food Futures Fund that have expired or run out of funding.
Limits:	na
Equity:	na
Link:	http://www.iafbc.ca/funding_available/programs/emerging-sectors/default.htm

Name:	Aboriginal Business and Entrepreneurship Skills Training (BEST) program
Agency:	Aboriginal People
Objectives:	Provides a 12-part training series at no charge to participants in Aboriginal communities across B.C.
Limits:	na
Equity:	na
Link:	http://www2.gov.bc.ca/gov/content/governments/aboriginal-people/economic-development/bes

Quebec

Name:	Quebec's Action Plan for Fishing and Aquaculture
Agency:	Agriculture, Pecheries et Alimentation
Objectives:	Various
Limits:	na
Equity:	na
Link:	http://www.mapaq.gouv.qc.ca/fr/Peche/md/nousjoindre-redirect/Pages/index-peche.aspx

Manitoba

Name:	Entreprenuership Manitoba: Aboriginal Business
Agency:	Entrepreneurship Manitoba
Objectives:	Non-specific
Limits:	na
Equity:	na
Link:	http://www.gov.mb.ca/jec/emb/smbus/guides/aboriginal.html

Alberta

Name:	Agriculture and Rural Development Programs & Services
Agency:	Alberta Agricutlure & Forestry
Objectives:	The Ministry contributes to three of the government's four key opportunities. Unleashing Innovation, Competing in a Global Marketplace and Making Alberta the Best Place to Live, Work and Visit. The Department is responsible for the management of programs designed to facilitate the development of all components of the agriculture and food industry, to sustain the natural resource base of the industry and to encourage the development of rural communities.
Limits:	na
Equity:	na
Link:	http://www.agric.gov.ab.ca/app52/programsservices

Name:	Growing Forward 2
Agency:	Alberta Livestock and Meat Agency Ltd.
Objectives:	The purpose of this program is to help meat processors, livestock producers and livestock producer groups invest in new and innovative ways of getting Alberta-made products into new markets, enabling Alberta's agri-industry to cultivate new customers and increase profitability.Under the Growing Forward 2 Agri-Processing Product and Market Development Program, successful applicants are eligible for reimbursement of 50% of certain costs related to product and market development.
Limits:	na
Equity:	Reimbursement of 50% of elegible costs
Link:	http://www.growingforward.alberta.ca/Programs/index.htm?contentId=AGRI_PROD_DEV_PRG&useSecondary=true&active=yes

North

Name:	Northern Aboriginal Economic Opportunities Program (NAEOP)
Agency:	Canadian Northern Economic Development Agency
Objectives:	The program is delivered by the Canadian Northern Economic Development Agency (CanNor) in Canada's three territories. CanNor works closely with Aboriginal governments and organizations to understand and address the economic development needs of Aboriginal groups in accordance with the Federal Framework for Aboriginal Economic Development
Limits:	na
Equity:	na
Link:	http://www.cannor.gc.ca/eng/1385486556734/1385486648146

Name:	Entrepreneurship and Business Development Fund
Agency:	Canada Business Network
Objectives:	Start or grow a business
Limits:	< $3,000,000
Equity:	Unspecified amount of equity required
Link:	http://canadabusiness.ca/eng/program/2070/sgc-61/

B. Federal Programs

Name:	Aboriginal Business and Entrepreneurship Development
Agency:	Indigenouse and Norther Affairs Canada
Objectives:	Business planning Establishment (capital) costs Business acquisitions Business expansions Marketing initiatives that are local, domestic, or export oriented New product or process development Adding technology to improve operations and competitiveness Operating costs in association with capital costs Financial services, business support, business-related training, and mentoring services
Limits:	<$99,999 for Aboriginal individuals and incorporated businesses < $250,000 for community owned businesses
Equity:	10% cash equity
Link:	https://www.aadnc-aandc.gc.ca/eng/1375201178602/1375202816581

Name:	Community Opportunity Readiness Program (CORP)
Agency:	Indigenous and Norther Affairs Canada
Objectives:	Economic opportunities - up to $21.3 Million per annum is available nationally. Community infrastructure projects - up to $3,000,000 with a min 10% equity required from community Equity Gap - up to $1,000,000 / 70% for acquisitions or expansions and 60% for start-ups Business advisory services - up to $250,000 / >20% equity
Limits:	See above
Equity:	See above
Link:	https://www.aadnc-aandc.gc.ca/eng/1100100033417/1100100033418

Note:	Equity gap funding provides financial support, in response to proposals, for viable, community-owned businesses where there is an equity gap. Equity gap is the amount of money needed to finance a business after all other funding sources have contributed their maximum. An equity gap funding does not replace the requirement for business proponents to provide their own equity funding or to replace any other programs currently available; it completes a financing package where no other financing can be obtained. The financial support enables a business to obtain conventional debt financing to carry out a viable business plan for a business start-up, expansion and/or acquisition.

Name:	Aboriginal Business Development
Agency:	National Aboriginal Capital Corporation Association (NACCA)
Objectives:	A typical capital corporation has a revolving-loan capital fund from which it offers secured term loans. Variation among the corporations allows them to be sensitive to the needs of local and regional market conditions. Services may vary, but capital corporations generally offer loan guarantees, operating loans, and technical and advisory services. A goal for ACCs is to access business resources and increasingly lever capital from commercial sources, then continue to see it invested and re-invested in Native communities.
Limits:	na
Equity:	na
Link:	http://impactinvesting.marsdd.com/knowledge-hub/funds/aboriginal-capital-corporations-2/

Name:	Community Futures Loan (CF Loan) Program
Agency:	FedNor
Objectives:	Small business loans
Limits:	< $250,000
Equity:	na
Link:	http://fednor.gc.ca/eic/site/fednor-fednor.nsf/eng/Home

5.0 CAPITAL REQUIREMENTS

5.1 Capitalization of the Aquaculture Sector

In Canada, four species of aquaculture production represent over 90% of the output (tonnes) and market valuation of the sector: Atlantic salmon, rainbow trout, blue mussel, American oyster. The following synopsis of the primary species farmed in Canada is adapted from the Regulatory/Impacts/Alternatives/Strategies (RIAS) 2015 report entitled *Economic Opportunities for Aboriginal Aquaculture in Canada.* The report was prepared for Fisheries and Oceans Canada.

Salmon

Atlantic salmon (*Salmo salar*) is the predominate species farmed in Canada. In BC, two species of Pacific salmon – Chinook (*Oncorhynchus tshawytscha*) and Coho (*Oncorhynchus kisutch*) – are also farmed. Farmed salmon had a farm-gate value of over $600 million in 2012. The farm-gate value represents a product's value once it is sold by the producer. Farmed salmon is Canada's third-largest seafood export by value, the largest agri-food export from BC, and a significant economic contributor to coastal and rural communities on the east and west coasts.

Rainbow Trout

Rainbow trout (*Oncorhynchus mykis)* is produced in Alberta, BC, Manitoba, New Brunswick, Nova Scotia, Ontario, Quebec, Prince Edward Island, Newfoundland and Labrador, and Saskatchewan. Trout farming accounted for a farm-gate value of $28.8 million in 2012. Ontario was the largest trout producer with a farm-gate value of $18.3 million, followed by BC at $5.7 million, Quebec at $1.95 million, Nova Scotia and New Brunswick at $1.4 million each.

Mussels

Mussels are the most prevalent species of shellfish cultivated in Canada, representing over half of the total value of all shellfish produced. In Eastern Canada, the primary mussel species farmed is the blue mussel (*Mytilus edulis*). In BC, both blue mussels and Mediterranean mussels (*Mytilus galloprovincialis*) are farmed. In 2012, the total production value of mussels was $44.5 million. Over half of Canada's mussels are produced in Prince Edward Island. Newfoundland and Labrador was the second largest producer at around 30% of the total value or $13.5 million.

Oysters

In New Brunswick, Prince Edward Island and Nova Scotia, the primary oyster species farmed is the American oyster (*Crassostrea virginica*). In BC, the primary farmed species is the Pacific oyster (*Crassostrea gigas*). In 2012, 43% of the volume of Canada's oysters was produced in BC; the remainder was produced in Atlantic Canada, primarily in Prince Edward Island and New Brunswick.

There are significant differences in the amount of fixed capital investment and working capital that are required for creating a viable farming operation for each species. Typically, shellfish farms are smaller than finfish farms and therefore require less capital. In Table 4, capital investment (capex) and working capital requirements are presented for eight typical aquaculture ventures for the

species listed above, plus geoduck clams and marine finfishes. Differences in culture practices exist – for example, land-based versus net-pen culture of rainbow trout and sub-tidal and inter-tidal culture of geoduck – and these are reflected in the tables. For each of the eight ventures, an economically practical scale is reflected to provide an indication of the scope of the investment required to launch each venture. That is, it is unlikely that ventures below the production levels presented in Table 4 would be financially successful.

Despite the current interest in land-based production of Atlantic salmon in closed-containment or recirculating aquaculture systems, a full vetting of this technology is not included in this review. A 2014 report entitled "*Review of Recirculation System Technologies and their Commercial Application*" prepared by University of Sterling in association with RAS Aquaculture Research Limited (prepared for the Highlands and Islands Enterprise – www.hie.co.uk) concluded that "*At the present time, successful and economically competitive RAS farms for salmon grow out look some way off and will require further technology development. Business plans that rely on product achieving premium prices or operating at planned capacity without major incident in the first two years should be treated with caution given the long history of failed projects in this area. RAS technology is still at an early stage of development, so any projects proposing commercial grow-out for low value commodity species facing competition from lower cost production methods should be considered very high risk*." Therefore, since this production scenario is not yet proven to be a financially attractive opportunity, it has been excluded.

The Namgis First Nation in Port McNeill, British Columbia launched the Kuterra[26] project in 2013 in the quest to investigate the feasibility of raising Atlantic salmon on land using RAS technology. They are testing the thesis that land based farming can be more environmentally friendly than the ocean-based systems as there may be no need to use antibiotics, pesticides and other chemicals; and that a contained system that keeps contaminants, including fish waste, out of the ocean; and a readily controlled environment that lets producers use about 30-per-cent less feed than would be required in ocean pens to raise the same amount o inventory. (see. WENDY STUECK. — The Globe and Mail Published Friday, Apr. 03, 2015 7:13PM EDT). This project has achieved international attention and regular reports are provided on their progress http://www.kuterra.com/

The geoduck scenarios assume that the proponent has access to a marine lease (either sub-tidal or inter-tidal) but no ability to harvest wild geoduck from the site. Fisheries and Oceans Canada's Interim Protocol for Pre-Seed Harvest of Subtidal Geoduck Aquaculture Sites allocates the wild geoduck located on an aquaculture site to the wild fishery, prior to the establishment of aquaculture operations. Essentially, the policy supports a purge fishery which precludes geoduck aquaculture producers from accessing the wild geoduck within their lease, thereby eliminating a potential source of cash flow necessary to finance the venture. Since it can take up to 10 years for a marketable product to be ready for harvest from wild seed collection, access to wild geoduck within the site boundaries during the critical start-up period would enable producers to harvest geoduck and use the revenues to offset the working capital requirements necessary to finance aquaculture operations. The Supreme Court of Canada has ruled that the Crown has a legal duty to consult and, if appropriate, accommodate Aboriginal groups when it contemplates conduct that might adversely impact potential or established Section 35 or Treaty rights of Aboriginal groups.

[26] KUTALA means salmon in the language of the 'Namgis people. TERRA means land. And KUTERRA means salmon from the land. http://www.kuterra.com/

One could argue that granting access to wild geoduck within the boundary of an aquaculture lease is an appropriate accommodation.

The capital requirements of all marine fishes raised in marine net pens is presumed to be similar to those of Atlantic salmon. Empirical data and information suggest that the capital costs to construct an intensive, recirculating aquaculture facility range from around $8,000 per tonne of annual production capacity to more than $20,000 per tonne. As a rule of thumb, however, capital costs for a recirculating aquaculture venture are expected to range from $10,000 to $16,000 per tonne.

The 2014 Grand Basin Capital report *Aquaculture Partnerships. A Guide for Aboriginal Communities* determined that few Aboriginal communities have taken an active approach to making investments in the aquaculture businesses that operate in their territory. The community can often provide land, political capital, and a pool of employees to help develop a venture. The report goes on to lay out the case for developing partnership that can address a number of technical and financial gaps that are common barriers to development.

Table 4: Estimated capital requirements for establishment of viable farming operations for American oyster[27,28], blue mussel[29,30], marine finfish, geoduck[31], rainbow trout and Atlantic salmon aquaculture[32, 33]

	American Oyster	Blue Mussel
Production (tonnes)	40	500
Fixed Capital	$ 150 000 - $ 300 000	$ 500 000 - $ 1.000.000
Working Capital	$ 200 000 - $ 400 000	$ 600 000 - $ 800 000
Total Investment	$ 350 000 – $ 700 000	$ 1.100 000 – $ 1.800 000

	Marine Fishes (Land-Based)	Geoduck (Sub-Tidal)	Geoduck (Inter-Tidal)
Production (tonnes)	200	50	20
Fixed Capital	$ 3.200.000	$ 160.000	$ 490.000
Working Capital	$ 2.100.000	$ 2.210.000	$ 570.000
Total Investment	$ 5.300.000	$ 2.370.000	$ 1.060.000

	Atlantic Salmon (Net Pens)	Rainbow Trout (Land-Based)	Rainbow Trout (Cage Culture)
Production (tonnes)	1.500	100	200
Fixed Capital	$ 2.000.000*	$ 800.000	$ 1.000.000
Working Capital	$ 6.0000.000	$ 450.000	$ 800.000
Total Investment	$ 8.000.000	$ 1.250.000	$ 1.800.000

[27] Profile and Potential of the BC Shellfish Aquaculture Industry (2002). Kingzett Professional Services Ltd; Transport Canada. Replacement Class Screening Report for Water Column Oyster Aquaculture in New Brunswick. Canadian Environmental Assessment Agency. Moncton, NB. 2007. 124p.

[28] School of Marine Science Virginia Institute of Marine Science, (1999). An Intro to Culturing Oysters in Virginia.

[29] Couturier, C. Centre for Aquaculture and Seafood Development, Memorial University – pers. comm.

[30] Woods Hole Oceanographic Institute (2003). Business Planning Handbook for the Ocean Aquaculture of Blue Mussels

[31] Canadian Aquaculture Systems Inc. (2012). Financial feasibility of geoduck aquaculture in British Columbia. Prepared for Fisheries and Oceans Canada. 34 p.

[32] Fisheries and Oceans Canada (2010). National Aquaculture Strategic Action Plan Initiative (NASAPI). First Nation and Aboriginal Workshop, Moncton, NB. Feb 10-11, 2010.

[33] Boulet, David, A. Struthers, É. Gilbert (2010). Feasibility Study of Closed Containment Options for the BC Aqua Industry. (2010) DFO 61pp;
B. D. Chang , K. A. Coombs & F. H. Page (2014) The Development Of The Salmon Aquaculture Industry In Southwestern New Brunswick, Bay Of Fundy, Including Steps Toward Integrated Coastal Zone Management, Aquaculture Economics & Management,18:1, 1-27, DOI: 10.1080/13657305.2014.855952
RTI & CAS (2010) Feasibility Assessment of Freshwater Arctic Char & Rainbow Trout Grow-Out in New Brunswick. NBDAAF 117 pp;
Liu, Y., & Sumaila, R. (2007). Economic analysis of net cage versus sea-bag production systems for salmon aquaculture in British Columbia. Fisheries Centre Working Paper #2007-05. Vancouver, BC: The University of British Columbia;
Gardner Pinfold (2014). Feasibility of Land-Based Closed-Containment Atlantic Salmon Operations in Nova Scotia. NSDAF 52 pp

Note: The values included in Table 4, although referenced, are provided for the purposes of illustrating the differences in the investment scope for each species. In reviewing the literature and speaking with subject matter experts across the country, the authors found that the actual costs of an operation ***may vary considerably*** due to specific conditions and parameters of a location and therefore should be investigated on a case-by-case basis.

The marine fishes (e.g. Sablefish) land-based schedule is based on Recirculating Aquaculture Systems (RAS) technologies. A number of reports have assessed the various biological and economic aspects of RAS technologies for a number of species of interest[31].

The following key points are noted from the Grand Basin Capital report:

Access to Working Capital Aquaculture projects operate for long periods of time, and it may take many years of operations before becoming profitable. Because of this risk, Aboriginal communities may have difficulty securing the funding they need to build the business – especially if the community does not have a track record with aquaculture. By partnering with a company with experience, it may be easier to secure working capital and outside investments if necessary.

Access to Managerial Expertise If the community is new to aquaculture, it is unlikely that manager-level employees will be available internally. Working with an established partner may make it easier to find, attract, and retain talent.

Access to Operational Expertise Many Aboriginal communities have existing traditional knowledge that can be used for the development of aquaculture operations, but large- scale operations can present unique challenges. Partnering with industry players with operational expertise can help make the operations more efficient and effective.

Access to Partner's Networks Partners, particularly those that are established, may have other connections that Aboriginal communities can take advantage of. For example, they may help secure access to hatcheries, processing facilities, transportation services, and cold storage facilities.

Capacity Development Although formal educational opportunities may be available for potential employees, on-the-job training is the most effective way to train staff. Partners can help train people from the community for a long-term benefit.

5.2 Potential Capital Requirements in Support of Aboriginal Aquaculture Development

Information provided by the ABDTs (see Table 2) in conjunction with that from the RIAS report and from this present initiative has been compiled to quantify the amount of capital required to develop Aboriginal aquaculture over a 10-year time frame. This projection is based on a simple estimate of the number of aquaculture ventures for each species that would be developed by First Nations and/or Aboriginal entrepreneurs over the next 10 years. For each species, the required amount of fixed capital and working capital has been included, as outlined in Table 4. These capitalization requirements are presented in Table 5.

This analysis suggests that the establishment of nearly 225 Aboriginal aquaculture ventures over the coming decade is practicable. The majority of these ventures (~150) would be engaged in the production of shellfish – predominantly oysters, geoduck and mussels. It is realistic to expect that about 50 trout farms could be established in this same period as well as about 25 salmon farming ventures. In total, it is projected that these ventures will require an investment of approximately $370 million dollars and more than 800 direct jobs could be generated from this level of development.

Species	System	Capital Requirements/Venture			No Ventures	Total Capital Requirements		
		Working	Fixed	Total	2016-25	Working	Fixed	Total
Salmon	Net Pens	$ 6,000	$ 2,000	$ 8,000	20	$ 120,000	$ 40,000	$ 160,000
Trout	Land Base	$ 450	$ 800	$ 1,250	40	$ 18,000	$ 32,000	$ 50,000
Trout	Cage Culture	$ 800	$ 1,000	$ 1,800	10	$ 8,000	$ 10,000	$ 18,000
Mussels	Suspension	$ 700	$ 750	$ 1,450	20	$ 14,000	$ 15,000	$ 29,000
Oysters	Marine	$ 175	$ 250	$ 425	94	$ 16,450	$ 23,500	$ 39,950
Marine Fish	Land Base	$ 2,100	$ 3,200	$ 5,300	1	$ 2,100	$ 3,200	$ 5,300
Geoduck	Sub Tidal	$ 2,210	$ 160	$ 2,370	20	$ 44,200	$ 3,200	$ 47,400
Geoduck	Inter Tidal	$ 570	$ 490	$ 1,060	20	$ 11,400	$ 9,800	$ 21,200
Sub-Total					225	$ 234,150	$ 136,700	
				Total Capital Required for Aboriginal Aquaculture Development (2016-25)				**$ 370,850**

Table 5: Projected capitalization requirements ($000) to support approximately 225 new Aboriginal aquaculture ventures throughout Canada from 2016 through 2025.

Note: The development projections over a 10-year period in Table 5 are provided for the purposes of illustrating the magnitude of the investment that should be considered to address the potential development of Aboriginal aquaculture. The core assumptions have been adapted from the Regulatory/Impacts/Alternatives/Strategies (RIAS) 2015 report entitled *Economic Opportunities for Aboriginal Aquaculture in Canada – Table(s) 1 and 2.* The final number is conservatively presumed by the authors to be based on the following:

- Salmon - 18 new leases would become available in BC, 2 in Atlantic Canada
- Trout (land based) – BC, Prairies, QC, NS, NB and the North (Yukon, NWT and Nunavut) would see the development of between one and five new sites each.
- Trout (cage culture) – 10 new sites between ON (Lake Huron, Lake Superior) and SK (Lake Diefenbaker)
- Mussels – A total of 20 leases would be developed between PE, NS and NL
- Oysters –development would be primarily in BC, NB, PEI and NS
- Marine Finfish – BC development only
- Geoduck – BC development only

5.3 Perceptions of Risk

The aquaculture sector has become symbolic of many things to different people and groups. It has become a metaphor for difficult questions about the collision of humanity and environment, notions of rights and justice, and the rise of intense local/global interactions and conflicts. One of the reasons why aquaculture is so controversial is that it is a relatively new claimant to an already fragile ecological, economic and cultural spaces. This means that a sector's reputation can affect an individual company's ability to borrow funds. This is evolving into a risk to the most important core of a business' intangible asset – its reputation. It is viewed by lenders as an indicator of past performance and of future prospects.

Although reputation will not appear as a discrete balance sheet item, it represents a significant proportion of the difference between a business' market and book values (less any quantifiable intangibles such as licenses and trademarks). Since intangibles usually represent over 70% of market value, reputation is often a business' single greatest asset[34].

The difficulty in risk mitigation for aquaculture operations is in determining the rate of occurrence of an event and the evaluation of the severity of the impact (if any). There have been several attempts to modularize and quantify these risks. Perhaps the most widely accepted formula for risk quantification is the Composite Risk Index, which uses the probability of an event and severity of the impact to generate a value ranging from 0 to 25:

Composite Risk Index = Impact of Risk Event x Probability of Occurrence

The overall risk assessment is then determined to be Low, Medium or High, depending on the calculated value of the Composite Risk Index. Once risks have been identified and assessed, all techniques to manage the risk fall into one or more of these four major categories[35]:

(i) Avoidance (eliminate, withdraw from or not become involved);
(ii) Reduction (optimize - mitigate);
(iii) Sharing (transfer - outsource or insure);
(iv) Retention (accept and budget).

Optimizing the risk equation means finding a balance between a negative risk event resulting from the activity being carried out and the benefit of the activity to the operation. Many aquaculture operations currently implement robust best management practices (BMPs) and standard operating procedures (SOPs) to mitigate risk. Nonetheless, producers are encumbered by high insurance premiums, inadequate insurance coverage, or no coverage at all. It is not within the scope of this report to conduct a review of the insurance instruments available to the aquaculture sector; however, a review of potential improvements to insurance instruments would likely benefit producers and lenders.

[34] Adapted from: "Why reputation risk is a core aspect of business continuity management." Chris Woodcock. (www.continuitycentral.com)
[35] Adapted from: Simmonds, Scott (1995). The Risk Management Process Utilizes Four Steps, Fish Farming News, Vol. 3-2, 1995. Compass Publications, Inc.

6.0 ANALYSIS & RECOMMENDATIONS

Aboriginal participation in the Canadian aquaculture sector is far below the inherent potential and interest amongst First Nations. The requirement for fixed capital and working capital in the sector can be significant, often requiring hundreds of thousands to millions of dollars to establish a venture. Access to capital is a serious constraint for on-going Aboriginal aquaculture development in Canada.

The constraints associated with access to capital for Aboriginal aquaculture ventures that have been identified during the survey and interviews are discussed to provide an understanding of key challenges facing the sector. The discussion leads directly toward the development of recommendations for moving forward.

6.1 Discussion of the Issues

Access Constraint #1:

a. Aboriginal aquaculture proponents have indicated that there can be insufficient capacity to develop the robust business plans and financial projections required by the lending agencies.

b. Further, the technical and business expertise that can be made available for them to draw on to help manage the aquaculture ventures varies from region to region.

Elements of the Issue:

- Business loans usually require the preparation of 5-year financial projections that include Income Statements, Cash Flow Statements and Balance Sheets.
- The Balance Sheet is used to provide a snapshot of a company's financial condition by listing the assets and the liabilities for the business venture. From the Balance Sheet, the net worth (owner equity) can be calculated as well as a number of commonly used financial ratios such as equity/asset ratio (owner equity), debt/asset ratio, debt/equity ratio and current ratio (liquidity).
- Business plans need to clearly articulate the working capital requirements to achieve positive cash flows. This can be determined from the income statements and cash flow statements.
- Aside from the capacity to manage fish or shellfish production, financiers also require assurances that the proponents have the business acumen to manage the venture.

These constraints arise primarily as a function of not being able to access both the technical and financial expertise to prepare technical business plans for the loan applications. In addition, once the operations are running, there can be a further gap in being able to access both the technical and financial expertise to help manage the business venture. Consequently, these constraints directly affect the two of the 3 Cs; namely the matters of 'character' (i.e. the strength and credibility of the management team for a venture) and the 'capacity to repay' the investment. The latter are essential to generating sufficient confidence in the business plan and the management team to warrant making an investment into the venture.

The regional Aquaculture Business Development Teams (ABDTs) are the front line unit providing critical support to First Nation entrants. The primary goal of the team is to provide business facilitation support that will help proponents enhance the operation and the long- term sustainability of their aquaculture enterprises. This review has found that the services provided by the Aquaculture Business Development Teams, working with individual proponents and First Nation communities on a regional basis, is an essential component of ensuring the success of a project.

However, funding of aquaculture projects can be technically complex, as they take a long time to generate cash flow. The individual business plans should include detailed scrutiny of the venture proposals. Where subject matter expertise is not available in house through the ABDT's a multidisciplinary team of independent reviewers should be engaged. There is precedent for this type of engagement in other business sectors that use of 3rd party reviews and Project Management committees for plan implementation.

In the Atlantic, Ulnoweeg has introduced the concept of Project Management Action Teams (PMATs) to strengthen project management in the Atlantic, and has suggested that this concept could be enhanced with the added feature of including subject-matter expertise beyond what is available through the ABDTs. Also, an independent third party evaluator and an Application Review Board (ARB) are already in place to support the AICFI project funding process.[36]

Access Constraint #2:

a. Proponents require equity or collateral to successfully support a loan application.

b. There is an inability to mortgage assets to help secure loans (collateral).

c. There is a perception of high-risk lending regarding aquaculture ventures.

Elements of the Issue:

- The aquaculture industry's reputation is influenced by historical failures and concerns regarding environmental sustainability.
- Commercial lending institutions tend to have insufficient confidence to invest in aquaculture ventures
- Commercial scale aquaculture ventures tend to be capital intensive and the magnitude of the requirement generally exceeds the resources of the proponent. Therefore, access to grants and/or loans is required.
- There is some inconsistency in how grants and loans are applied in the different regions.
- The *Indian Act* and the *First Nations Land Management Act* do not allow Aboriginal assets to be pledged as collateral. Therefore, with limited owned assets, it is difficult to secure eligible forms of collateral to help qualify for loans from lending institutions.
- Current government and commercial financing programs typically require 20% equity participation to qualify for a loan. Proponents often have limited ability to come up with the 20% required.

[36] D. Simms, F. Salazar and A.Desbarats -personal communication on role of the Atlantic ABDT's

Undeniably, the reputation acquired as a result of historical failures in the commercial aquaculture sector affects an individual company's ability to borrow funds. This is evolving into a risk to the most important core of a business' intangible asset – its reputation. It is viewed by lenders as an indicator of past performance and of future prospects.

Aquaculture ventures generally require significant sums of investment and working capital before the venture attains a position of positive cash flow (see Table 4). Moreover, this period can span 24 months or more. A requirement for 20% owner equity in support of a loan or grant application often puts available financing out of reach for many individuals.

Collateral is typically identified as real estate, equipment or any other tangible or intangible property that has monetary value equivalent to the loan, plus interest. A common measure of business solvency is measured by the *Debt-to-Asset ratio (= total farm liabilities ÷ total farm assets*). It is in this equation that a long-term (non-recurring) asset, such as an aquaculture tenure or lease impacts the value of a business. Tenures and leases only have value as a long-term asset if they can be transferred or sold in much the same way as real estate. When the wording of a tenure or lease document does not allow for this, it is not accounted for as a long-term asset on the Balance Sheet and usually cannot be pledged as collateral. Since Aboriginal land cannot be pledged as collateral, access to financing is constrained.

Smaller, transferable assets such as cage systems, fish pumps, feeding systems etc. can often pledged as security against financing using commercial instruments such as conditional sales contracts. Typically, a loan will not recognize the full value of the asset being pledged as collateral and therefore the proponent must still provide a portion of the financing from other sources.

In some instances, working capital can be provided from Aboriginal Financial Institutions (AFIs) via an assignment of sales agreement. Under such agreements, producers are paid in advance for their harvestable product. When the product is delivered to the processing plant, the processors pays the AFI directly. The AFI withholds the monies to cover the advance payment plus interest and remits the balance of the funds from the sale to the producer. Seafood processors and fish feed manufacturers sometimes offer similar financing.

The uncertainty for lending institutions revolves around confidence in the management of the inventory (business experience, technical expertise, etc.) and a general discomfort with the length of time involved in the production cycle. Lenders need to be certain that enough of the inventory will make it into the marketplace as a saleable product to cover a loan. They typically use a margining calculation whereby their total exposure is limited to a portion of the final cost of the product. They tend to mitigate their assessment of risk with requirements for collateral and guarantees which may put the loan out of reach.

Access Constraint #3:

a. The terms of loans are often not commensurate with the production cycle of aquaculture ventures.

Elements of the Issue:

- Lending agencies often require blended payments of principal and interest to commence before the venture is generating cash flow (i.e. pre-sales).

This issue is critical during the startup phase of an aquaculture venture when working capital is usually in short supply. Working capital represents the amount of day-to-day operating liquidity employed by a business. It is required to fund the expenses associated with feed, labour, utilities and other inputs before sales are recognized. Also known as operating capital, it is most often measured as the difference between current assets and current liabilities. In practical terms, the need for working capital financing arises when investments in short-term assets (especially inventories and accounts receivable) exceed financing from short-term liabilities (trade accounts payable, also known as supplier financing). This difference can be filled by obtaining short-term financing. Working capital financing can be a particular problem for growing firms since rapid sales growth generally results in increased needs for inventory and receivables with the result that growing firms may be especially short on cash.[37]

Access Constraint #4:

a. Utilization of developmental loan funds, that may be surplus to one region of the country and could be made available to support Aboriginal aquaculture projects, is restricted by a combination of how the funds are located between the regions and how active the individual region is in its development portfolio.

Elements of the Issue:

- Opportunities to leverage development support across agencies and programs (e.g. capital, training, management support, etc.) are not fully exploited in the interest of helping ventures become successful. INAC has been working on this issue for some time
- There are ongoing discussions with the network of AFI's who are organized through the National Aboriginal Capital Corporations Association (NACCA) which will be key to finding a solution to this problem.

Investment is essential to drive industry growth, development, diversification and sustainability and numerous economic development programs exist for these purposes. There is a specific need to address the funding requirements associated with Aboriginal aquaculture development and create a mechanism to better utilize existing programs and services that can help to fulfil this need for the benefit of Aboriginal communities.

[37] Definition of Working Capital is adapted from: Working Capital Financing and The Canada Small Business Financing Program (CSBF) found at www.ic.gc.ca

There is an opportunity to bring together a Working Group of the appropriate agencies such as INAC as well as the rest of the federal family and work together with NACCA to find workable solutions to unlock the opportunity to better utilize the developmental loan funds available. This working group could then use a forum such as NAFF 3 to table a resolution on a new way forward.

The regional ABDT's (and the Fisheries Enterprise BDT's that are part of AICFI and PICFI) would also need to be fully engaged in this process to fully describe investment needs for Aboriginal Fisheries and Aquaculture.

Access Constraint #5:

a. Non-aboriginal partners are reluctant to invest in business partnerships located on reserve lands or in First Nations territories.

Elements of the Issue:

- There is a limitation in the ability to develop effective collaborative partnerships, joint ventures, or cooperatives, constraining the acquisition of the appropriate level of working capital[38,39].
- Lenders require additional security to provide financing as their perception of risk is high.
- Due to restrictive aspects of the *Indian Act* and the *First Nations Land Management Act*, the administrative processes to develop businesses on-reserve are costly. The land designation process requires legal and accounting expertise and the process is cumbersome and can take years to implement.
- In some communities, there is opposition to the development of aquaculture ventures in traditional territories.

One of the controversies regarding aquaculture is that it is a relatively new claimant to already fragile ecological, economic and cultural spaces. Moreover, within the aquaculture sector, there is limited experience associated with partnerships between Aboriginal communities and non-aboriginal organizations (perhaps with exception on the west coast). This is unfortunate since such partnerships would appear to offer considerable potential. Aboriginal communities can generally offer development sites and a labour pool while non-aboriginal ventures can provide capital and experience. Further efforts to foster effective partnerships would appear to be warranted.

6.2 Implications of Access to Capital Constraints

In the business development process, there is a natural progression from planning through design and development, financing, implementation and management. These steps have been further defined as they relate specifically to the development of Aboriginal aquaculture ventures.

1. Preliminary Assessment
   - Opportunities awareness

[38] This issue is also explored in more detail in the Aqua Metrix Research report prepared for the Aboriginal Aquaculture Association: Improving Access to Aquatic Resources for First Nations. 18pp

[39] This issue is also explored in the Grand Basin Capital report (May 2015) prepared for the Aboriginal Aquaculture Association: Aquaculture Partnerships. A Guide for Aboriginal Communities

- Community engagement
- Asset mapping / resource assessment

2. Early-Stage Business Development
   - Project scope and scale
   - Initial production plan
   - Preliminary facility design
   - Feasibility assessment

3. Business Development & Planning:
   - Preparation of business plans
   - Proof of concept (pilot scale evaluations, if necessary)
   - Establishment of partnerships

4. Investment & Financing
   - Securing equity to leverage additional financing
   - Securing debt capital for construction of the farm and purchasing equipment
   - Securing working capital for operational requirements

5. Operations Management
   - Project launch and implementation
   - Training and skills development
   - Operational assistance and mentoring
   - Performance management

Early in the process, financial requirements are modest; moreover, resources are generally available from several funding sources to offset the costs (see Table 3, for example). Similarly, for operating ventures (step 5), resources are typically available to provide ongoing assistance. Moreover, at these stages, the 'equity' contribution from the Aboriginal entrepreneur or First Nation community is generally only a few thousand dollars, presenting a very low 'barrier to entry'. The balance of the funds required for the initial planning and development steps is often in the form of grants from economic development programs. Consequently, numerous projects get started.

At the investment stage (step 4), however, there are often constraints to accessing sufficient resources to launch Aboriginal aquaculture ventures. The 'equity' component, though still only 10% to 20% of the total investment, is now proportionately much larger and few individuals or communities have the resources to contribute. The potential exists to establish partnerships to facilitate access to capital from non-aboriginal partners who are able to bring investment and experience to the project. Other sources of capital for investment are also required to enable Aboriginal entrepreneurs and First Nations to proceed independently. This process, and the comparative availability of investment resources is illustrated in Figure 1.

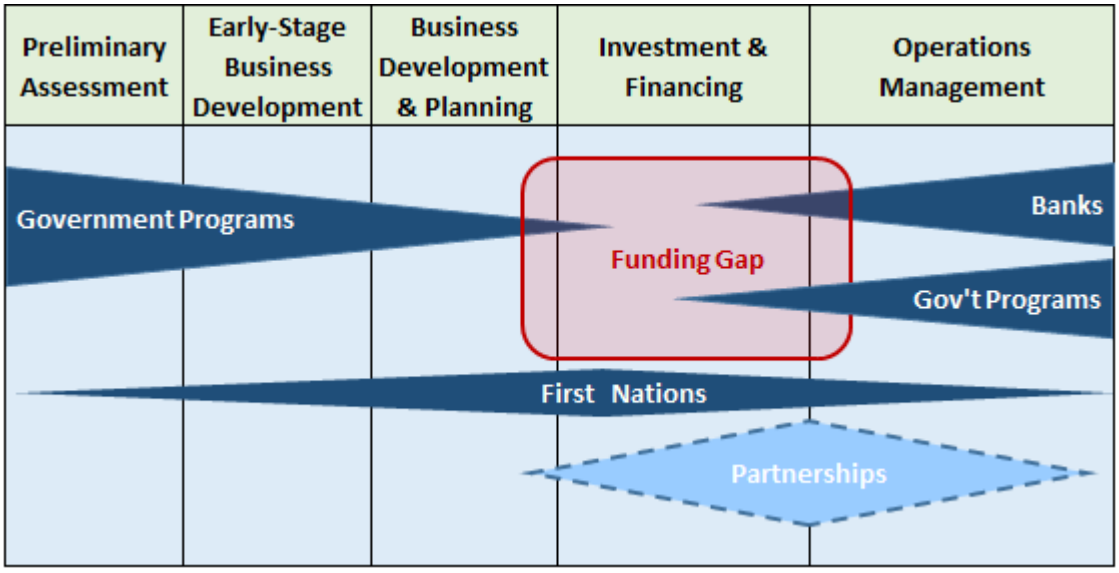

Figure 1: Stages in the business development process showing typical sources of funding and the identified gap in the access to capital for Aboriginal aquaculture ventures.

The near 'investment-ready' projects identified in Table 2 exemplify this constraint. Amongst these 46 projects, an investment of more than $60 million is required to launch the ventures. The equity requirement to qualify for other sources of funding is itself in excess of $12 million. Moreover, the fourteen AFIs that support Aboriginal economic development have only $ 23.5 million for all of their economic development initiatives. Consequently, the majority of the projects identified in Table 2 are unlikely to secure sufficient capital without substantive changes to the investment programming for Aboriginal economic development. Furthermore, the considerable potential for Aboriginal aquaculture development that is outlined in Table 5 requires more than $370 million in investment. Clearly, these targets are not accessible within the framework of existing Aboriginal economic development programming.

6.3 Recommendations

The culmination of this review exercise is the identification of "what needs to be addressed." The following recommendations are intended to help mitigate the impact that limited access to capital may be having on Aboriginal aquaculture development across the country. Effective mitigation of the underlying causes that have been identified and discussed will require the timely implementation of the following:

Access to Capital Constraints	Potential Solutions / Recommendations
1a. Insufficient capacity to develop robust business plans and financial projections 1b. Limited technical and business expertise to manage aquaculture business ventures	A. Support the continued professional development of the technical and financial expertise that exists within the ABDTs to assist clientele with technical and business plans. Where the subject matter expertise is not available in house, identify a pool of multidisciplinary independent subject matter experts that will complement the ABDTs in addressing technical challenges
2a. Insufficient equity and/or collateral to provide seed funding in support of loans and grants 2b. Inability to mortgage assets to secure loans 2c. High-risk perception of lending institutions regarding aquaculture ventures	B. Create an Aboriginal aquaculture development fund to provide up to 25% equity (repayable from positive cash flow) C. Establish loan guarantee program for up to 75% of face value of loans
3a. Terms of loans are often not commensurate with the production cycle of aquaculture ventures	D. Loans could be structured to accrue interest until sales commence; i.e. a flex loan program
4a. Utilization of developmental loan funds, that may be surplus to one region of the country and could be made available to support Aboriginal aquaculture projects, is restricted by a combination of how the funds are located between the regions and how active the individual region is in its development	E. Federal and provincial economic development agencies to provide input into a "*Guide to Federal and Provincial Government Programs in Support of Aboriginal Aquaculture Development*" F. Form a Working Group of the appropriate agencies to find workable solutions to unlock the opportunity to better utilize the developmental loan funds available. G. Host an aboriginal aquaculture development workshop in Ottawa for First Nations, aboriginal and government economic development agencies to share ideas and program information
5a. Non-aboriginal partners are reluctant to invest in business partnerships located on reserve land or in First Nations territories	H. Promote dissemination of the "*Aquaculture Partnerships – A Guide for Aboriginal Communities*" throughout the aquaculture sector.

A. Provision of Technical and Financial Expertise

Providing technical and financial expertise to assist First Nations and aboriginal entrepreneurs with the preparation of business plans and funding applications will facilitate greater participation in aquaculture development. The services provided by the Aquaculture Business Development Teams, working with individual proponents and the Communities, on a regional basis, is an essential component of ensuring the success of a project.

Within each region, consideration should be given to the creation of a pool of members consisting of subject-matter experts in various aspects of business management who will be able to complement the work of the ABDT's in mentoring as a business development tool and to serve as a source of technical knowledge to address specific challenges that may arise during the business plan development and implementation process.

The members of the pool should have the necessary skills set and experience (domain knowledge) to provide business development and technical assistance to the Aboriginal Aquaculture Business Development Teams as well as to the aquaculture ventures directly. Such assistance could relate to providing a clear understanding of the production processes, costs and performance evaluation, as required. Numerous investment funds and agencies utilize this type of process, in particular for businesses that are in the pre-revenue stage.

B. Create an Aboriginal Aquaculture Development Fund

Establish a development fund that will address the issues of owner equity and collateral by providing repayable loans for up to 25% of the equity. Fund contributions would be repayable once a venture attains positive cash flow. The fund would not replace the various grants that are currently in place, but be a fund that fills in those gaps that exist in terms of gaining access to an equity financing program

It is envisaged that fund would be National in scope, but to ensure its effectiveness, it would be managed by the regional agencies that have been promoting the development of Aboriginal aquaculture ventures. Recently, there has been precedent for such funds in Newfoundland and Labrador (http://www.releases.gov.nl.ca/releases/2015/fishaq/0514n02.aspx).

C. Establish an Aboriginal Aquaculture Loan Guarantee Program

Create a refurbished community-based loan guarantee program for up to 75% of the value of the loans. This could provide a mechanism for supporting aquaculture development without having to invest cash into a venture. It could also function as mechanism for the community to invest in aquaculture development. The loan guarantee programs should be used to cover a proportion of a venture's working capital requirements.

Consideration should be given to providing an "Aboriginal Aquaculture Tax Credit" to organizations that invest in Aboriginal aquaculture development.

Further, other options should be reviewed, such as the development of Resource Revenue Sharing Agreements with the primary objective of enabling First Nations to establish tenure

rental and license fees associated with the development of commercial aquaculture ventures within their traditional territories.

D. Establish a Formal Flex Loan Program

Establish a loan program that does not need to be structured to demand principal and interest payments before the venture is able to generate cash flow. The loans could accumulate interest only until cash is being generated through sales. This would address the incongruity between loan repayments and the lengthy production cycle associated with aquaculture.

E. Create a "*Guide to Federal and Provincial Government Programs in Support of Aboriginal Aquaculture Development*"

To enhance utilization of available programs and services that can support Aboriginal aquaculture development, federal and provincial departments, ministries and agencies should collaborate to develop a "*Guide to Federal and Provincial Government Programs in Support of Aboriginal Aquaculture Development*". The Guide would list pertinent details for each program, including:

- Applicant eligibility requirements
- Eligible activities
- Funding objectives and limits
- Stacking Limits
- Minimum level of proponent investment required
- Total program funding available per annum
- Important dates
- Key contacts, etc.

Such a guide was produced by Fisheries and Oceans Canada in the 1990s and by the US Inter-Agency Working Group on Aquaculture before that. The Guide would serve to catalogue all programs, services and activities of federal and provincial agencies that could directly or indirectly support Aboriginal aquaculture development. The Guide could be published online to facilitate ease of access. Additionally, it will be necessary to re-visit the content of the Guide on a regular basis to keep it current. The Table of Contents for the US Guide to Federal Aquaculture Programs and Services is provided in the Appendix as an example.

F. Development Funding Access Working Group

The Developmental Loan Capital program has an estimated availability of $50M of developmental loan funds that are not allocated to specific projects. There is currently no formal mechanism in place that allows for the redistribution of the funds to make better use of the total development funds that are available.

A Working Group of the appropriate agencies could work together with NACCA and the regional ABDT's (and the Fisheries Enterprise BDT's that are part of AICFI and PICFI) to fully describe investment needs for Aboriginal Fisheries and Aquaculture and identify workable solutions to unlock the opportunity to better utilize the developmental loan funds available.

This working group could use a forum such as NAFF 3 to table a resolution on a new way forward.

G. Host a National Aboriginal Aquaculture Development Workshop

Organize an Aboriginal Aquaculture Development Workshop for First Nations and aboriginal and government economic development agencies. Prior to a national workshop, regional meetings should be convened to solicit input from First Nations and aboriginal entrepreneurs throughout the country. The objectives of the national workshop could entail:

- To provide an overview of aboriginal aquaculture development in Canada;
- To provide models that explain typical production systems and financials (e.g. production cycle, inventory management, risks and risk mitigation, markets, typical investment and working capital requirements by species, etc.);
- To present case studies on Aboriginal aquaculture ventures;
- To provide an understanding of the financial requirements in aquaculture development;
- To present and distribute "*Aquaculture Partnerships – A Guide for Aboriginal Communities*" and to discuss successes and failures in partnership agreements;
- To present principal challenges associated with Aboriginal aquaculture development, including a presentation of the results of the Gap Analysis study;
- To present the results of the Strategic Partnerships Initiative's 3-year investment into aboriginal aquaculture development;
- To discuss the need for federal and provincial agencies to contribute to the creation of a "*Guide to Federal and Provincial Government Programs in Support of Aboriginal Aquaculture Development*";
- To discuss the establishment of an Aquaculture Advisory Board(s) to provide expertise regarding Aboriginal aquaculture investments.

H. Promote dissemination of the "*Aquaculture Partnerships – A Guide for Aboriginal Communities*"[40]

The Aboriginal Aquaculture Association has compiled a comprehensive guide to establishing mutually beneficial partnerships for aquaculture development. To take full advantage of this effort, the Guide should be disseminated to all First Nations economic development offices as well as the offices of regional organizations such as Waubetek and Ulnooweg. Copies should also be distributed to the Canadian Aquaculture Industry Alliance as well as all regional aquaculture associations throughout Canada.

[40] http://www.aboriginalaquaculture.com/partnership-guide/

Appendix – US Interagency Working Group on Aquaculture Guide to Federal Aquaculture Programs and Services

Guide to Federal Aquaculture Programs and Services

Product of the Interagency Working Group on Aquaculture

Objective

The National Aquaculture Act of 1980 (16 U.S.C. 2801, *et seq.*), section 4(e)(5) requires that a catalog be developed and made available describing all Federal programs and activities that directly or indirectly encourage, support, or assist U.S. aquaculture. This *Guide* was prepared by the Interagency Working Group on Aquaculture (formerly the Joint Subcommittee on Aquaculture) under the National Science and Technology Council's Life Sciences Subcommittee with the goal of fulfilling this requirement.

Coordination of Federal Aquaculture-related Programs

The National Aquaculture Act of 1980 provided for an interagency coordinating body to provide leadership and to facilitate the coordination of federal programs associated with aquaculture in the Federal government. This is done through the Interagency Working Group on Aquaculture (IWG-A), which reports to the National Science and Technology Council (NSTC) and the Office of Science and Technology Policy (OSTP) in the Executive Office of the President.

This *Guide* is intended to be a dynamic document subject to periodic updates. Suggestions for updates are welcome and can be sent to mmayeaux@nifa.usda.gov.

Assistance and Services
Subject Matter Index

Grant and Loan Portals and Information
- Catalog of Federal Domestic Assistance
- Grants.gov
- Small Business Innovation Research Programs

Business and Farm Grant and Loan Programs
- Farm Services Agency
- Rural Development
- Economic Development Administration
- Farm Credit Administration
- NOAA Fisheries Finance Program
- DOE Loan Programs
- US EPA Grant Programs
- National Science Foundation Grants
- Small Business Administration

Disaster Assistance Programs
- Disasterassistance.gov
- USDA FSA Disaster Assistance Programs
- U.S. Small Business Administration (SBA)

Information Services
- USDA National Agricultural Library
- NOAA National Sea Grant Library
- Department of Interior Library

International Assistance and Services
- USDA Foreign Agricultural Service
- NMFS International Services
- United States Agency for International Development (USAID)

Marketing Services
- USDA Agricultural Marketing Service
- USDA Foreign Agricultural Service
- NMFS Seafood Marketing and Trade

Import/Export Services
- Export.gov
- Animal and Plant Health Inspection Service (APHIS)
- DOC International Trade Administration
- US Fish and Wildlife Service (FWS)

Aquaculture Statistics
- USDA ERS
- National Agriculture Statistics Service
- Census of Aquaculture
- NOAA NMFS Fisheries Statistics Division

Research Assistance and Services
- Agriculture Research Services
- National Institute of Food and Agriculture
- National Centers for Coastal Ocean Science
- National Marine Fisheries Services
- National Sea Grant College Program
- U.S. Fish and Wildlife Services
- U.S. Geological Survey
- NSF

Regulatory Agencies and Information
- Regulations.gov
- USDA Animal and Plant Health Inspection Service (APHIS)
- National Marine Fisheries Service (NMFS)
- Food and Drug Administration (FDA)
- U.S. Fish and Wildlife Services (USFWS)
- U.S. Army Corps of Engineers
- Environmental Protection Agency (EPA)

Aquaculture Extension
- USDA Cooperative Extension System
- NOAA Sea Grant Marine Advisory Program

Aquatic Animal and Plant Health Assistance and Services
- National Aquatic Animal Health Plan
- Animal and Plant Health Inspection Service (APHIS
- USDA ARS Aquatic Animal Health Program
- Aquatic Animal Drug Application Program (AADAP)
- USFWS National Fish Health Centers

National Research Support Programs
- National Research Support Program-7 (NRSP-7)
- National Animal Genome Research Program (NRSP-8)

Federal Department and Agency Index

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- Agricultural Marketing Service (AMS)
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- Agricultural Research Service (ARS)
- Economic Research Service (ERS)
- Foreign Agricultural Service (FAS)
- Farm Service Agency (FSA)
- Federal-State Marketing Improvement Plan (FSMIP)
- National Agricultural Statistics Service (NASS)
- National Institute of Food and Agriculture (NIFA)
- Natural Resources Conservation Service (NRCS)
- Risk Management Agency (RMA)
- Rural Development (RD)

Department of Commerce (DOC)
- National Oceanic and Atmospheric Administration (NOAA)
- Office of Aquaculture
- Office of Habitat Conservation
- Office of Oceanic and Atmospheric Research
- Office of Protected Resources
- Office of Science and Technology
- Office of Sustainable Fisheries
- Economic Development Administration
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- National Centers for Coastal Ocean Science
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Department of Energy (DOE)

Department of Health and Human Services (DHHS)
- U.S. Food and Drug Administration (FDA)
  - Center for Food Safety and Applied Nutrition (CFSAN)
  - Center for Veterinary Medicine (CVM)

Department of Interior (DOI)
- United States Fish and Wildlife Service (USFWS)
- United States Geological Survey (USGS)

Department of State (DoS)
- Bureau of Ocean's Environment and Science

National Science Foundation (NSF)

U.S. Environmental Protection Agency (EPA)
- Water Quality Programs
- Monitoring Shellfish Waters
- Effluent Discharge Standards
- National Pollutant Discharge Elimination System
- Permits

U. S. Army Corps of Engineers (USACE)

U.S. Agency for International Development (USAID)

Appendix – Methodology Used for Collating Data for the Gap Analysis

1. A list of companies and individuals who are actively involved in or are pursuing the opportunities with Aboriginal based aquaculture enterprises was compiled with assistance of the Project Steering Committee. This list represents over 50 different initiatives across the Country.

2. A consultation tool (survey) was created and sent to the identified proponents as a means to collecting basic tombstone data. The survey was supplemented with telephone interviews in order gain a better understanding of the existing issues (Gaps) associated with access to capital.

3. Interviews were also conducted with the ABDTs in the regions that currently have Aboriginal aquaculture clients. Other AFIs as well as representatives of Federal and Provincial governments were contacted about Aboriginal aquaculture development opportunities and constraints.

4. A review of the status of the principal aquaculture funding programs that are available to support Aboriginal aquaculture provincially and nationally was conducted. The information was collated with the assistance of the Project Manager, the ABDTs and was discussed with the Project Steering Committee. Table 3

5. A summary of the current investment and working capital requirements for typical commercial scale aquaculture ventures for shellfish and finfish was complied. The information was used as a proxy to understanding the magnitude of the investment required for development as well as the differences between species and rearing methods. Table 4

6. Using the data from previously published reports, an estimate of the number of Aboriginal aquaculture ventures that may require capital over a 10-year planning horizon was developed. Table 5.

7. Key issues associated with accessing capital throughout the stages in the business development process identified from the interview process and the literature review were vetted using a Horizontal and Vertical causal analysis tool. The identified Gaps in the access to capital for Aboriginal aquaculture ventures were summarized. Figure 1.

8. Solutions to the Gaps were identified and vetted by the Project Steering Committee. Key recommendations to address the Gaps were prepared for the report. Section 6.0.

Disclaimer

ReThink Inc., its affiliates and its employees ("RTI") as well as the members of the Project Steering Committee have used their best efforts in preparing this report. The analytical procedures followed by RTI are to the best of its knowledge, consistent with available data and information.

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