

# Aquaculture & First Nations People

The Waubetek Aquaculture Program and the Northern Integrated Commercial Fisheries Initiative (NICFI) can assist your community participate in this industry.



**WAUBETEK**  
Business Development Corporation

The Waubetek Business Development Corporation is an Indigenous-owned and controlled organization that administers the Northern Integrated Commercial Fisheries Initiative (NICFI) program across central Canada. We have prepared this booklet to assist Indigenous communities, and organizations to become more familiar with what aquaculture (fish farming) is, how it can make positive social impacts, create employment and be an economic driver while continuing to respect Mother Earth and being good stewards of our land and water.

Through the NICFI program, funding is available to help First Nation communities develop sustainable aquaculture operations. This includes costs to expand or upgrade existing aquaculture facilities, for materials required in new and expanded operations, associated costs with entering into an aquaculture business and development activities surrounding aquaculture facilities and processing plants. The intent of this funding is to support capacity-building, revenue and profit generation, employment generation, and self-sustainability of aquaculture operations.

## What is Aquaculture?

Aquaculture is the farming or cultivation of fish, mollusks, crustaceans, aquatic plants, and algae in a natural or controlled marine or freshwater environment. The easiest way to think about it is as underwater agriculture.

Nearly every species now can be cultured, through one of the many types of aquaculture practiced today. However, the species you chose will be based on your local environments, potential markets, and your desired goals and objectives. These factors will determine if the opportunity is feasible for you. Like with any economic opportunity, it is very important to develop a business plan, conduct feasibility studies and carry out environmental assessments to ensure the opportunity you are pursuing makes sense for your community. Three pillars that should be considered through the development and operation of your facility should be ensuring it is economical, as well as environmentally and socially sustainable.

First Nation communities are generally in a favourable position for aquaculture development due to their proximity to water resources, unoccupied lands, and First Nations governance authorities. The numerous examples of First Nation aquaculture projects across Canada demonstrates that this industry is being led by Indigenous participation. These projects have resulted in new job creation, skill development and capacity building, and increased wealth and prosperity for the participating communities.

Aquaculture is a very active industry in Canada, with a wide variety of farmed seafood being produced in every Canadian province, as well as the Yukon Territory. Finfish makes up most of the inland and coastal Canadian Aquaculture production, which sees over 27 different species being cultured, including Atlantic salmon, Rainbow trout, Arctic char, sturgeon, and lake whitefish. On the east and west coasts of Canada, the aquaculture industry is more diversified with at least 20 different species of shellfish being cultured, including mussels, clams, scallops, and oysters. These species, form a significant part of their seafood markets. The emerging cultivation of aquatic plants, such as kelp, sea lettuce and Irish moss, is showing rapid early development and shows promise of a large role in the future of aquaculture in Canada. Broader markets are available for sea urchins, crayfish and sea cucumbers that are being commercially grown albeit, currently in small amounts.



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## Canadian Aquaculture by the numbers in 2019

- Farm gate value of the Canadian Aquaculture production - \$1.23 Billion.
- Canadian farmed seafood production – 187,026 tonnes
- Exports of Canadian farmed seafood - \$1 Billion
- Canadian economic activity - \$5.2 Billion
- Canadian Aquaculture GDP - \$2.1 Billion
- Aquaculture jobs – 21,300

## Why Aquaculture in Central Canada?

- Highly productive and environmentally sustainable use of freshwater aquatic resources with considerable potential for growth throughout all regions of Central Canada.
- Non-extractive, renewable resource industry (i.e. sustainable development).
- Opportunity to produce fresh fish year-round.
- Opportunity to provide diversified experiences for youth and other community members.
- Opportunities for economic development in rural and coastal communities.
- Expanding demand for fresh seafood in domestic and international markets
- Capability to produce to meet the market or internal demand/needs.
- Considerable undeveloped potential.
- Augments the productivity of entire fishery sector.

## Net Pen Aquaculture

The net pen industry accounts for the largest production percentages over any other type of aquaculture in Canada. Net pen aquaculture, also known as cage culture, is used for raising finfish in a net suspended in the water column with a flotation system around its perimeter. The net can be hung in a square, rectangular, or circular configuration. In most cases, a farm is comprised of multiple cages moored to either the shore or uses an ocean/lake bottom anchoring system. Net pen aquaculture is very adaptable towards both freshwater and marine environments. It can be found in oceans, seas, inland lakes and rivers. Where the waterbody freezes during the winter, the cages have the ability to be safely submerged to avoid ice flows during the thaw to protect the fish and infrastructure. It is very important that proper environmental assessments, including fisheries and habitat studies are done well in advance, along with proper site selection to ensure the proposed net pen farm is sustainable long term. Central Canada hosts numerous net pen aquaculture facilities, which can be found in the provinces of Ontario and Saskatchewan. Net pen aquaculture presents a very good option for many communities to consider, and when managed and sited correctly it can be an excellent option to pursue.



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## Land-based Aquaculture (Recirculating Aquaculture Systems and Flow Through)

Recirculating aquaculture systems (RAS) are land-based aquaculture facilities that conserves water by circulating it through a filtration system so it can be used again. RAS facilities are deemed highly sustainable as they reduce the amount of water required (99% of water can be recycled) and space needed for the facility. RAS farming can be fully controlled and monitored, which presents several advantages as the facility is designed to meet the exact needs of species to be raised and the operating plan of the facility. Because the operator can control nearly every element within a RAS facility, they can be very efficient, with fish growing more quickly than in more traditional technologies. These facilities can be geared for freshwater or marine species and constructed to handle nearly any aquatic species. The water treatment systems provide flexibility so that water sourced from wells, municipal systems, ground water, rivers, streams or lakes can be used.

Flow through systems are also located on land and operate similar to RAS facilities, except they do not recycle the water as described above. Depending on the water source, the water would be treated entering the facility, used by the fish, and then treated again before re-entering the original water source. There are some differences in external and internal environmental compliances and technologies compared to RAS; however, it is a reasonable option for consideration.



## Pond Culture

Pond culture is a type of aquaculture that is heavily used throughout the world and depending on the desired species, regulatory environments, and business goals, it could be another alternative farming method. Pond culture can be used for recreational purposes and is typically classed as extensive aquaculture growing. Some ponds are natural, whereas others can be man-made with pipe work and drainage. Typically, pond culture represents a more labour intensive approach to culturing fish and can be more of a challenge to address bio-security and other challenges.

## Aquaponics

Aquaponics is a combination of aquaculture (growing fish and other aquatic animals) and hydroponics (growing of vegetables or plants without soil). Aquaponics combines these two technologies in a symbiotic combination in which plants are fed aquatic animal waste. The plants clean the water; the water, then passes through a water treatment facility before it is reused, as in a RAS facility. Within this type of system, the microbes produced have a very important role as the beneficial bacteria converts the fish waste into elements the plants can use to grow. There are many types of aquaponics systems including drip irrigation, flood and drain, nutrient film technique and deep raft culture. Aquaponics is an option that remote communities looking at addressing food security challenges, capacity building, nutritional concerns, and local business development might wish to consider.



## Enhancement and Rehabilitation

Enhancement and rehabilitation are applications of aquaculture that focus on a (or many) particular species of fish and supports their populations through the spawning and hatching process within a fish hatchery. These facilities can be relatively small; however, have the potential to make large positive impacts within the targeted ecosystem. Many communities are aligning with this sort of model in their own communities to enhance those fish species that they have strong traditional and economic ties, or with species that are under pressure or at risk thus requiring intervention. Enhancement and rehabilitation can be very rewarding and a socially bonding experience for the community, while ensuring these species have the support needed to secure their place for generations to come. When managed correctly, these facilities can support community's commercial, recreational or sport fishery.



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## Summary

Aquaculture is an industry with features that set it apart from many others resource based industries. It can provide communities with economic/business options to access commercial markets by scaling operations and products to supply grocery outlets locally, across North America, or even globally. The different models can be designed to fit almost any location, maximize available environmental resources and assets, and be consistent with your business or other requirements. Food security and economic development can be addressed for communities through various forms of aquaculture and aquaponics. The rehabilitation of targeted species can reduce the stress off the wild population and could potentially support well managed increased activity within the commercial or recreational fishing sector. Additional information may be obtained by following the contact information provided elsewhere in this booklet.

## Northern Integrated Commercial Fisheries Initiative (NICFI) Overview

The Waubetek Business Development Corporation are co-delivery partners with the Department of Fisheries and Oceans. Each project submitted for NICFI aquaculture development funding must be aligned with the community's or Community Fisheries Enterprise business development plan. It must also support capacity-building and sustainability in aquaculture and related activities.

Eligible activities for aquaculture development funding support may include but not limited to:

- Expansion or upgrades to existing ocean finfish, shellfish, or freshwater/land-based aquaculture facilities where the expansion or upgrades have already been approved under the aquaculture license.
- Equipment, gear and/or infrastructure for new or expanded aquaculture operations, where the equipment, gear and/or infrastructure.
- Acquisition of an existing aquaculture operation
- Business plan development, feasibility studies (includes technical and management advisory costs)
- Other start-up costs funded on a one-time basis (administration, salaries and wages for project management/technical advice, training, etc.)

The following activities are not eligible for aquaculture development funding:

- Working capital projects (subsidizing ongoing operational expenditures)
- Scientific studies



## **Program Flexibilities**

The Aquaculture Development component of the NICFI program is proposal driven. It has flexibilities to enable multi-year contribution agreements for projects to be implemented in stages with secured funding. Multi-year agreements may extend from one to five years.

## **General Application Requirements**

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### **Business Cases -**

All prospective applicants must work with the Business Development Team to develop a business case, which includes all supporting information, prior to submitting their application to the NICFI Program Authority. Note that there is no cost to the applicant for the services provided by the BDT.

### **Financial Details -**

All applications must include detailed budget information, outlining the complete costs for each project, and the sources of funding expected. Note that each application must include a minimum 10% cash contribution from the applicant to the total project costs.

### **Letter of Support -**

All applications must include a letter of support from the authorized representative of the applicant, e.g. Chief, Executive Director, President, Mayor, or Band Council Resolution (BCR), etc., authorizing the submission of an application under NICFI.

### **Application Deadline -**

Applications should be submitted to the NICFI Program Authority by November 30. If the program budget has been fully allocated, projects will be considered for the following Fiscal Year. This is a fiscal year managed program which opens April 01 requiring projects to be completed by March 31 each fiscal year.

### **Eligibility –**

NICFI Aquaculture Development funding can be accessed by Indigenous groups not eligible for Atlantic Integrated Commercial Fisheries Initiative (AICFI) or Pacific Integrated Commercial Fisheries Initiative (PICFI), or organizations that provide related support services. Indigenous Communities and eligible groups within Ontario, Manitoba, Saskatchewan, and Alberta can apply.

### **Confidentiality**

All information provided by an applicant in the application and supporting documentation, and all collaboration with the BDT, will be held in confidence by the NICFI Program Authority even after projects are approved. The evaluation of applications will also be carried out under strict confidentiality by those involved.

## Contact Information

To begin working within the program, please contact Nicholas Huber, the Senior Aquaculture Development Officer for the Waubetek Business Development Corporation.

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