

Industry PROFILE



An integrated approach to nurturing industry development and NWT wealth

FISHERIES

Fish stocks in the Northwest Territories are harvested for subsistence, commercial and recreational use. Fisheries are particularly important to residents of smaller communities in the NWT where the subsistence catch makes a crucial contribution to a healthy diet, and commercial harvests offer an opportunity for cash in communities where income-earning opportunities are limited.

THE INDUSTRY TODAY

To maximize the value from fish resources, all possible uses must be considered. Studies have consistently shown that in many cases, subsistence and sport fishing offer considerably higher value than the commercial fishery. As an example, the replacement value of trout harvested on Great Slave Lake for food would exceed \$3.00 per lb. while the commercial value of this fish is between \$0.50-0.75 per lb., depending upon the season. Values relative to sport fishing are substantially higher, earning upwards of \$50.00 per pound.

GLOBAL AND NATIONAL TRENDS

The total world catch of fish has increased significantly over the past three decades. During the 1980s, the annual harvest grew 4% and the world catch increased from 72 million tonnes in 1980, to approximately 100 million tonnes by 1990. By 1991, the total international trade in fish and seafood was valued at approximately US\$40 billion.

The farming of fish is also growing rapidly, with production now exceeding 14 million tonnes and involving more than 143 countries. Nowhere is the success of

aquaculture more evident than in northern Europe. In Scotland, for example, aquaculture sales of salmon exceed \$400 million annually and directly employ about 5,000 people.

Worldwide, the harvest of wild fish stocks has probably exceeded sustainable levels. Stock collapses are increasingly commonplace as international fishing fleets transfer fishing efforts from one overexploited stock to less desirable stocks, or to populations of fish previously considered too difficult to harvest.



FRESHWATER FISHERIES IN CANADA

In Canada, fish catches have been declining for some time. Until 1988, Canada was the world leader in fish export sales; since then the US has taken over the lead. While the US is a major competitor, it is also Canada's largest single market. The US buys about 60% of Canadian exports, followed by the EEC at a distant second and then Japan is third. The value of Canadian exports is estimated at approximately \$2.4 billion (1991 dollars).

Recent and severe reductions in Atlantic cod stocks and more recently, declines in B.C. wild salmon stocks, have significantly reduced industry employment and sales. Total fish catches in 1995 were down a further 13 per cent from 1994. These declines have been partly offset by a shift to alternate products. For example, the New Brunswick fishery, which has been particularly affected by the decline in cod, still manages to post record sales. This is mainly the result of skyrocketing prices for crabs and other crustaceans.

INGREDIENTS FOR SUCCESS

THE NWT SITUATION

Compared to other areas of the world, commercial fishing in the NWT is almost entirely inland and relatively small scale. The fishing industry in the NWT comprises one main fishery found on Great Slave Lake and a number of small fisheries found mainly in and around the Mackenzie Delta. The Great Slave Lake fishery is the longest running commercial fishery in the NWT.

SUBSISTENCE & SPORT FISHING

Freshwater fisheries in the NWT support subsistence/domestic use, sport fishing and commercial fishing. Many aboriginal families partake in subsistence fishing for food and for sport.

Sport fishing is very popular with many residents of the NWT and is a major tourist attraction.

Aside from the Great Slave Lake fishery, the harvest in the rest of the Western Arctic is very limited.



The Northern Pike

The northern pike is one of the NWT's most well known and widely distributed fish. In fact, this species has a circumpolar distribution, with populations occurring in nearly all parts of Canada, the northern United States, northern Europe, and Asia. Pike are a favorite sport fish for many tourists.

ADVANTAGES & STRENGTHS

FRESHWATER FISHERIES - There is one well-established commercial freshwater fishery in the Northwest Territories - the Great Slave Lake fishery. Production of commercial freshwater fish is estimated at about 1,000 tonnes per year with a value exceeding \$1.5 million. Aside from Great Slave Lake, there are several small, seasonal commercial fisheries in several communities.

Major Fish Products in NWT

Whitefish is commercially harvested from Great Slave Lake and makes up 80% of the lake's total harvest. The NWT supplies about 2% of the total North American market.

Lake trout has a delicate and delicious flavour. Although the second highest catch on Great Slave Lake, trout is considered a minor market species due largely to high volumes produced in the aqua farming industry. Lake trout in the NWT is highly valued and sought after in the sports fishing industry.

Walleye or Pickerel has a small discreet commercial harvest in the NWT but large sport fishery. They are excellent eating fish, popular in gefilte fish, and are highly valued in both commercial and sport fishing markets.

GREAT SLAVE LAKE FISHERY

Mandate:

The Federal Department of Fisheries and Oceans (DFO) is mandated with the responsibility to manage activities on the lake. Management is accomplished through legislation and regulations.

Key instruments are:

- Fisheries and Oceans Act;
- Fisheries Act; and
- NWT Fishery Regulations (Federal Regulations).



Lake Trout

Lake trout are a cold water species found throughout the NWT. Because this species does not tolerate warm water, lake trout from southerly populations are forced to retreat to the deep cold waters of the lakes.



The Cisco

The cisco generally grows to be 15-25 cm in length. The cisco is often referred to as a 'forage fish' because it serves as the primary prey fish for many of the larger predatory fish like lake trout and pike. The cisco itself feeds on zooplankton, which consist of tiny crustaceans. In doing so, this species serves as a crucial food chain link between the zooplankton and the sport fish that end up on the dinner table.

Great Slave Lake Advisory Committee

The Committee (commonly referred to as GSLAC) was established by DFO in the late 1970s. The Committee offers advice and information to DFO on management and conservation issues in respect to the GSL.

Membership on the GLSAC consists of the following:

- Akaitcho Territory Tribal Council (1);
- Commercial Fishermen (4);
- Dogrib Treaty II Council (1);
- South Slave Métis Council (1);
- Dene Nation (1);
- Lodge Operators (1);
- North Slave Métis Nation (1);
- Recreational Fishermen (1); and
- DFO -- Chairperson.

The GSLAC has no legislative/regulatory authority. Its role is to offer advice to the Federal Minister on fishery management issues involving GSL. One important element of this is that GSLAC reviews and makes recommendations on applications for commercial fishing certificates.

Legislation and Regulations

All commercial harvesting of fish on the GSL must conform to the Fisheries Act and the NWT Fishery Regulations.

As per regulations, the lake is divided into seven management zones (commonly referred to as Areas). Area 6 is closed to commercial fishing. Areas open for commercial fishing have assigned quotas for whitefish volumes that may be harvested each year. Area 5 is the only area where the quota is monitored for whitefish and trout.

Licensing

All commercial gillnet fishermen on GSL require Commercial Fishing Licenses and Vessel Certificates. The license permits the use of gill nets and allows the fishermen to sell the catch.

Certificates are assigned to vessels and are broken down into two classes: A and B. What distinguishes the classes of certificates is the type of vessels and gear that are permitted. Specifically, Class A fishermen are permitted to use larger vessels, over 2,000 pounds, than Class B certificate holders. These larger vessels can carry greater amounts of gear and personnel, therefore, greater amounts of catch can be harvested and delivered. Class B fishermen are limited to vessels under 2,000 pounds which, limits the amount of gear and personnel that they can carry. This impacts both the size and the delivery capability of the catch.



The Burbot

The burbot is the only freshwater species of the cod family and its range extends to northern North America, Europe, and Asia. The burbot possesses the unique feature of spawning in midwinter under the ice in lakes and sometimes rivers. Burbot grow to be as large as 9 kg in Canada.

Class A fishermen have a greater capital investment at stake than Class B. The trade off for the risk is that Class A fishermen enjoy the advantages of greater security in terms of mobility around the lake, increased capacity and potentially better economies of scale. A reasonably well-equipped Class A fishermen can go anywhere on the lake whereas most Class B fishermen stay within sight of the shoreline.

The type of seasonal certificates available has remained constant since 1978, when DFO and industry agreed on the establishment of a certificate regime for the lake. DFO carried out research that included an economic analysis on the optimal level of vessels within each class to permit the quota to be fully harvested within the established seasonal time frames (100 days per season). Class A certificate holders were always viewed as the commercial/ economic core of the fishery.

Class A certificates offer the holders the greatest opportunity for commercial success/viability but also present to the holders the greatest potential for loss. Placing a lower limit on the number of available certificates limits entry, which shelters some of the risk from competition for stock. Until recently, Class A certificates were fully assigned. Conversely, Class B certificates have a higher number of available certificates, allowing for relatively easy entry into the fishery. Class B certificate holders, due to limits on vessel size, do not enjoy the same advantages in terms of catch capability and capacity as the Class A certificate holders. In return, Class B certificate holders are not required to deal with the same demands of high risk and overhead as Class A certificate holders. Class B certificate holders may use the certificate for either full time commercial purposes or to supplement income. The majority of Class B certificate holders fall into the latter category.

The GSLAC has determined and long held to the practice that only individuals who have resided in the NWT for longer than 2 years are eligible for consideration for a certificate. Conditions of licenses and certificates are described in the NWT Fishery Regulations.

Volumes

Volumes of fish harvested and certificates can be linked. Volumes are most easily measured by tubs of fish delivered to the plant or lake stations. Typically a tub can hold the equivalent of one net full of fish or 80-100 pounds of fish. The volume of fish that may be harvested is limited by size of the vessel. The Class A operator can set and pull 40-50 nets a day producing 3,200-4,000 pounds of fish. The Class B operator can set and pull 10-15 nets per day producing 800-1,200 pounds per day. Production can obviously be affected by a number of factors. Making best use of space on any vessel is critical to fishermen as costs per trip are reputed to be high. As a result, low value fish caught as by-catch, are normally part of the cull.

Gillnet Fishery

The GSL fishery is a gillnet fishery. This type of fishery uses a net hung from buoys like a curtain. Fish collide with the net and get caught by the gills in the mesh. Up until very recently, mesh size was fixed at 5.5 inches. This has since reduced to 5.25 inches. Mesh sizes in the freshwater fishery in Canada differ significantly depending upon the status and productivity of the resource.

FRESHWATER FISH MARKETING CORPORATION

In 1969, as a result of calls for regulation in marketing, the Government of Canada passed into legislation the Freshwater Fish Marketing Act (FFMA). The FFMA gave rise to the establishment of the Freshwater Fish Marketing Corporation (FFMC).

Each of the jurisdictions that wanted to participate in the FFMA/FFMC passed legislation that enabled it to join in the program. Participating jurisdictions include the Northwest Territories (NWT), Alberta, Saskatchewan, Manitoba and northern Ontario.

The federal Minister of Fisheries and Oceans is responsible for the implementation of the FFMA, and consequently, the FFMC.

Elements of the FFMC include:

- Legislatively protected monopoly in participating jurisdictions;
- The Board of Directors, with the President & Chief Executive Officer, govern the FFMC. All eleven positions on the Board are federal Order-in-Council appointments, with five appointed on recommendation of the participating governments. Mr. Bert Buckley is the NWT representative on the Board of Directors. Mr. Buckley was recommended for federal appointment by the Government of the Northwest Territories in consultation with the Fishermen's Federation;
- The mandate of the FFMC is to purchase all fish lawfully fished and offered for sale, to create an orderly market to increase fish trade and to increase returns to fishers;
- The FFMC must be self-sustaining relative to its costs and must disburse all profits; and
- FFMC can own assets, borrow money and hire staff.

The FFMC annually sells approximately 48 million pounds of fish. Dominant species include whitefish, pickerel, mullet and pike. The FFMC serves approximately 40-50% of the freshwater fish market in North America. The remainder is served from the Great Lakes and through imports.

The dominant fishery in the FFMC system is in Manitoba. The principle plant for the FFMC is also in Manitoba.

Dominant markets for the FFMC are the United States followed by the European Union.

Most fish is sold with little or no processing. The majority of this fish is destined for export markets and marketed by FFMC. A small commercial fishery has been emerging which targets sales mainly in the Yellowknife area. This fishery accounts for roughly 90,000 kilograms of fish harvested annually from Great Slave Lake. The majority of this fish is processed into fillets.

Other small commercial fisheries sell mainly whole fish into local markets.

Early fishermen in the NWT (RWED, GNWT)



WHITEFISH - The major freshwater fishery is on the Great Slave Lake. The dominant species found on the Great Slave Lake is whitefish.

The fishery is primarily based in Hay River, with about 6-8 people fishing out of Yellowknife. There has not been a great deal of involvement by other communities around the Great Slave Lake in recent years.

Prospects for development of whitefish fisheries outside of Great Slave Lake are extremely limited.



Lake Whitefish

Lake whitefish are the main commercial fish in the NWT. Lake whitefish are traditionally one of Canada's most commercially valuable fish species. Lake whitefish diet consists of a wide variety of bottom-living invertebrates and small fishes, with zooplankton occasionally making up a the remainder of the diet.

Hay River Docks (RWED, GNWT)



HUMAN RESOURCE DEVELOPMENT

A major disadvantage in the development of commercial fisheries is lack of training. Commercial fishing is a small business venture and requires a lot of interaction with buyers, shipping companies, governments and suppliers. For people involved with commercial fishing, basic skills in reading and writing in English are essential. Even relatively small boats are filled with complicated equipment, motors, depth finders, radar, radios and other types of equipment. Manuals have to be read and instructions understood. Furthermore, people have to keep up with the latest technologies. The industry and markets are rapidly changing. People in the industry can only keep up to date by studying literature on fish sales, fish preparation and marketing trends, knowing how to access technology, maximizing production and where and if necessary, being prepared to diversify operations to accommodate opportunities.

Human Resource Development is affected by competition in the economy. The NWT economy is vibrant with unprecedented growth in both the public and private sector. Wages are generally two to three times higher than the current minimum wage coupled with generous benefits. Employees or helpers in the fishing industry generally receive the equivalent of minimum wage with few, if any benefits. Young people in the NWT are being drawn from sectors such as the fishery. These are being replaced often by labor imported from southern Canada.

In the NWT, training and apprenticeship programs have been developed jointly by The Department of Fisheries and Oceans and the NWT Fisherman's Federation. These courses are not linked to the fishing license process. As currently structured, there are 3 levels of training; New Fisherman, Certified Fisherman (with levels of achievement) and Master Fisherman (the highest level). Courses cover a wide range of areas including maintenance and repair, fishing techniques, management, seamanship and safety issues. While these courses have contributed to professional development within the industry, the basic training issues have changed little.

Lack of basic business management skills continues to plague the industry at all levels. Running a successful fishing business is complicated, yet most fishermen don't treat their fishing activities like a business. For example, few realize that depreciation is not just a paper transaction for income tax purposes. You have to save money to replace equipment like nets, motors, boats and other items. In the NWT, most fish is processed and sold through the FFMC. Unless fishermen decide to develop and market a unique product, there is little need to develop fish processing, marketing or packaging skills. These are provided directly through FFMC. However, should a business or fisherman decide to market processed products within the NWT, focused training might be required in processing, marketing and packaging skills. For example, fish can be smoked in a variety of forms, using different techniques and varying brine mixtures. Aside from adjusting the mixture to meet local product and market conditions, operators have to be aware of health and safety standards.

PROCESSING PLANTS

Training in fish handling, preparation, and in the management of a fish processing plant can be undertaken through a combination of formal and on-the-job training. Management of the fish plant, whether in full scale processing or just packaging, requires advanced business skills and training. Managers have to know about budgets, contracts, bookkeeping, health and safety, tax and employment regulations. These skills cannot be developed without significant training and education. In addition to these direct needs, plants need access to businesses and people with trades training including refrigeration, electrical, mechanics, welding and so on. The costs of obtaining these trades have increased recently. Costs for fuel and wages have also increased at a similar rate.



Bombardier for winter fishing (FFMC)

CAPITAL AND INVESTMENT

In the commercial fishery, the rule of thumb for small vessels is that you need to have sales equal to the total value of your vessel every year to be worthwhile. This means that if your boat and motor costs \$8,000, you need to catch about \$8,000 worth of fish every year to make it a viable commercial venture. You need about 1/3 of this to pay your wages, 1/3 to pay off the boat and about another 1/3 to pay for supplies and equipment. Government assistance can reduce the capital cost of purchasing a boat. However, it doesn't change the basic rules of business. The fishing operation still has to make enough money to pay for the boat, equipment, supplies and wages. We have to be very careful about the operation's ability to service its debt. If more than 1/3 of sales are needed to simply make boat loan payments, the fisherman will not have

sufficient resources to pay for supplies and equipment replacement. The first equipment failure may well put the operation out of business. Second, in order to see fishing as a life style or employment alternative, the fisherman needs to make some return on his/her work. If all the money goes to paying for the boat and equipment, the person will likely see little merit in continuing. The same rules apply to the winter fishery, where the major mobile equipment includes snowmobiles or bombardiers.

A concern for fishers is the ever-increasing cost of capital, operations and maintenance versus prices arising from fish sales. Prices for fish sold through the FFMC have generally not kept pace with costs. For example, in 1977 the purchase price for an F150 Ford Pick-up truck was approximately \$7,500. Today the same truck will cost roughly \$25,000. Costs for fuel and wages have also increased at a similar rate. During this same period the price of whitefish has increased from \$0.42 per pound to approximately \$0.80 per pound.

PUBLIC INFRASTRUCTURE

All public infrastructure on Great Slave Lake is owned and operated by the Federal Government or a federally owned crown agency.

PRIVATE INFRASTRUCTURE

Government financing of fishermen has typically focused on individual ownership of boats and equipment. At one extreme, the government has simply given away boats and equipment to fishermen, and at the other, it has required equity contributions and full debt financing at commercial rates of interest. Under the current program scheme administered by the department of Resources, Wildlife and Economic Development and the Fishermen's Federation, the gap between the two extremes is being bridged by offering fishers access to equity, which is typically in short supply, in order that they may lever additional programming dollars to be coupled with financing either through the Business Credit Corporation or more conventional financing institutions.

PROCESSING PLANTS AND EQUIPMENT

The main processing plant and delivery stations on Great Slave Lake are owned and operated by the FFMC. Sales from fish harvested on Great Slave Lake do not contribute to capital debt repayment. Proceeds from sales are used to offset wage and operating costs of the facilities including upkeep and maintenance.

MARKETS AND SALES

At present, there are only three inland lakes in the NWT that are fished commercially on a regular basis: Great Slave Lake, Kakisa Lake and Thathlina Lake. Thathlina and Kakisa are small pickerel lakes located south of Hay River. A few native fishers fish them and the catch is flown to Hay River. The Great Slave Lake fishery is the largest inland lake fishery in the NWT. Alberta and Manitoba fish companies established the Great Slave Lake fishery between 1945 and 1950, when catches of more than 3.5 million pounds a year were taken. The annual catch has declined steadily to about 2.2 million pounds.

Whitefish, trout, northern pike, inconnu and pickerel are all harvested from Great Slave Lake. In the early years of the commercial fishery, lake trout was the predominant species. Price and demand for lake trout has been low for over 15 years, and the current catch amounts to only 2% of total sales. Prices for lake trout have been largely impacted by the aqua farming industry with production meeting or exceeding market demands.

Pickerel is the most profitable of the freshwater species, but unfortunately, there is very little pickerel in Great Slave Lake. Total sales are about 13% of the NWT's total. Pickerel production is more important to the Thathlina and Kakisa fishermen since it makes up a high percentage of their catch. Pickerel is harvested at discreet times of the year when stocks migrate to and from Great Slave Lake. The fisheries are short term in duration rather than extending the full 12 months of a year.

Whitefish is by far the most economically important of the freshwater species in Great Slave Lake and accounts for 56% of all sales to FFMC. Essentially all of the whitefish caught in Great Slave Lake meets the quality standards for export grade and could be sold to the USA. A small percentage of the whitefish catch is sold to smokehouses. One advantage of whitefish production in the NWT is the winter ice fishery. Up until recently, the lack of competing supply from the Great Lakes during the winter mean that FFMC was able to acquire a significant price premium for this fish during the winter months. As well, a significant portion of the Great Slave Lake summer catch is delivered in August when fresh sales are high, bringing in a higher price than frozen product.

Currently, the NWT produces less than 3% of the national freshwater fish production, down from 12% in 1949. The decline is due to a decline in the Great Slave Lake fishery and a relative increase in production from other Canadian lakes. However, the NWT has maintained a 2% share of the FFMC'S whitefish production.

Demand for northern pike, once considered a low-value roughage fish, is up, but volumes in the NWT are too low to take advantage of container load shipments to primary markets in France and Finland. Inconnu is a fish native to Great Slave Lake that is used primarily by smoke houses. Production varies widely, and current sales are less than 5% of the total. The harvest is quite price sensitive, and if either the price is too low or stocks are showing signs of depletion, fishermen reduce their fishing effort. Most Inconnu is sold into the specialty-smoked market and is used as a substitute for smoker jumbo whitefish.



Fishing and camping on the Great Slave Lake (RWED, GNWT)

FUTURE GROWTH OF NWT FRESHWATER FISHERIES - FISH MARKETS

The USA is an extremely large market for freshwater fish and accounts for approximately 70% of FFMC'S sales. The domestic market is second at 15% and the remainder is split equally between Finland and France. Fresh fish generates a greater profit than frozen or processed fish. Therefore, a fishery can increase its revenue by timing its production to meet the best fresh fish markets. Detroit and Chicago are the two largest markets for fresh whitefish because of high consumer awareness and a preference for whitefish among the large Jewish and Catholic segments of the population. Whitefish and other foods face strong competition from other types of fish products. Interviews with selected buyers indicate that fresh whitefish makes up only 23% of their total fish purchases and smoker whitefish represents 18% of total fish purchases.

Approximately 77% of major distributors' fish purchases are other types of fish. Ocean fish is a major competitor for new markets, particularly in coastal cities. Buyers may prefer to purchase ocean fish because they tend to be larger, require less boning, and distributors can take advantage of schemes that other countries are offering.

Whitefish is also facing increased competition from farmed fish. The same dealers that carry NWT whitefish sell farmed varieties of salmon, common trout and catfish. Some consumers perceive farmed

fish to be less polluted than naturally harvested fish. As well, farmed fish are competitively priced and less subject to seasonal price variation because of a more predictable supply. Fish farms are able to benefit from reduced transportation costs, harvesting and storage costs as the fish can be raised close to target markets and delivered fresh.

Most fresh whitefish is sold to restaurants that are willing to pay a higher price than are retail stores. Supermarkets have been reluctant to provide shelf space for whitefish because the price is too high relative to other fresh food products. Fish is presently receiving significant price pressures from poultry in major food retail chains.

However, the greatest source of competition for fresh NWT whitefish comes from Great Lakes whitefish. In fact, most buyers in the US said they found a distinct difference between Great Lakes whitefish and FFMC whitefish with the quality of Great Lakes whitefish consistently higher. Many buyers felt that FFMC fish were not chilled quickly enough after being caught and that the fish had been handled excessively. At the end market, Great Lakes whitefish is fresher and lighter in colour than FFMC whitefish and comes in a greater range of sizes allowing the distributor to target markets more effectively.

CONCLUSIONS

The Great Slave Lake whitefish fishery is a mature fishery with established markets, known stocks and commercial quotas, and a management structure in place. There is little growth potential for this fishery given current regulatory constraints. The resource, as proven in many southern fisheries, is susceptible to over fishing and requires careful monitoring of stocks and harvests. Known stocks may also allow for increased harvest. The majority of commercial whitefish harvest is exported with very little value added processing because of the nature of the market. Subsidy programs must be carefully structured to stimulate development without creating dependence or inequities.



Backbay, Yellowknife NWT (RWED, GNWT)

Recreational fishing is an important contributor to the economy. (RWED, GNWT)

