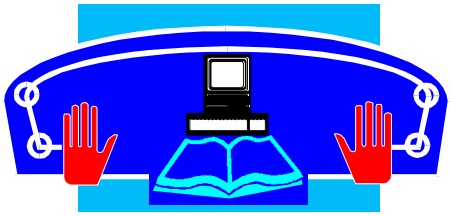

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NWT Fisheries Evaluation Development Issues

RT & Associates

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Fisheries as a Development Tool

Introduction

During the past ten years, the Government of the Northwest Territories (GNWT) has given high priority to developing the commercial renewable resources sector as a means of maintaining and expanding traditional activities, stimulating community development and regional growth, and reducing chronic and severe unemployment. Much of the government's attention has been directed at commercial fisheries development and, with the introduction of the new EDA and the introduction of the Northwest Territories Development Corporation (DevCorp), government driven fisheries initiatives are increasing.

But has fisheries development been successful in fostering economic development? In 1989 the SCONE Report emphasized the need for a developmental ethic in the GNWT that would stimulate economic *"development"* rather than simply economic *"growth"* in the NWT. The SCONE report defines economic development as the kind of economic activity that provides real benefits to local residents - jobs, training, increased opportunities for local business - on a sustainable basis. The authors differentiated between economic growth which is often transitory, and economic development which is longer term and usually leads to an actual change in the structure of the economy. Development also differs from economic growth in its concentration on developing people rather than developing businesses or sectors.

Development is not just about creating jobs, it is also about improving the well-being of a community and helping people to help themselves and become less dependent on government. Economic development is not an end in itself, it is a means to an end - a way of helping people live their lives in a way that corresponds to their values and beliefs. Ultimately economic development is about increasing the choices and opportunities available to all residents and providing the skills and freedom necessary to pursue these

opportunities.

In keeping with this philosophy of economic development, development projects must be community based and reflect community values. Members of the local community must have the dominant role in determining whether and how development should occur and they must also have enough power to significantly affect the development itself. Therefore communities must develop themselves, they can not be developed from the outside or from the top down. The process of community development occurs from the bottom up, from the inside out. The role of government is to assist, support, negotiate, train, facilitate, share resources, share power, and share decision making.

In evaluating whether government initiatives have contributed to real economic development, three fundamental questions need to be asked:

1. Does **the project enhance community** well-being by providing for basic needs as they are defined by the community?

Basic needs can include everything from material needs such as shelter, food, and clothing, to economic needs such as jobs, income, education, training, health and nutrition, to more social, cultural and personal needs such as dignity, self-esteem, freedom, security, support of traditional pursuits, etc. While the provision of benefits such as jobs, food, and income can be fairly easy to measure, other needs such as self-esteem are almost impossible to quantify and therefore are often left out of project planning and evaluation. Non-material needs are real however, and should be included in measuring the impacts of a development project.

It is also important to evaluate who receives the benefits of a project. If jobs are created by a project but are filled by personnel from outside a community, the project does not help meet the community need for jobs. Similarly if community income is increased but those who receive employment and additional income were already the most employable members of the community, the project has not been effective in reducing income disparity and increasing opportunities for most residents.

2. Does the project help move the community away from a position of dependency and towards a position of self-reliance?

To provide lasting benefit, development projects should increase the ability of a community to help itself. One measure of whether a project is helping to reduce dependency is the change in requirements for government support and finding required over time. This might include government funding for fisheries projects, provision of government personnel or outside contract employees, government subsidies, and social assistance payments. The level of government control and decision making is also an important indicator. As a project proceeds, the level of local control and decision making should increase as the role of government decreases.

3. Is the project self-sustaining in terms of natural resources, human resources, economic resources?

Development must be sustainable to provide lasting benefits. This means that development projects must be environmentally sound and ecologically sustainable. For example, fisheries projects must be based on biologically sustainable yields and must not have a net negative impact on non-target species or habitats. Projects must also be self-sustaining in terms of human resources. There must be enough community interest to continue a project in the absence of outside developers. There must also be adequate skills and experience in the community to maintain the project over time and provide new entrants as other people leave. The project must also be economically sustainable. For example, commercial fishing must provide enough benefits over a period of time to provide an incentive to participate. There must also be a market that will purchase fish at a price that enables fishing and processing plants to be viable.

Development is not automatically a natural fallout of economic growth. It must be intentionally pursued with policies, programs and projects specifically designed to foster development with an emphasis on the means of economic self-sustainability as much as the objective of economic growth. The purpose of this paper is to evaluate whether the major

GNWT fisheries initiatives embrace a developmental ethic and encourage real economic development that provides lasting benefits to local residents. We have approached this analysis in two steps. First we review the experience of fisheries development in the developing world and examine one model for development used to help ensure fisheries projects contribute to community economic development. We *then* describe each of the five major fisheries initiatives in the NWT and assess each project in terms of basic development criteria - meeting community needs, increasing self-reliance and sustainability,

Fisheries Development in the Developing World

Governments and international development agencies have been grappling with ways of promoting economic development in the Third World since the end of World War II. Many of the underdeveloped nations made special efforts to develop their fisheries as a means of promoting development because fish was a traditional and vital food supply. Faced with increasing populations, many of these former colonial territories saw the potential of their fish resource as a means to help both achieve national self-sufficiency in food and provide employment. The result was an unprecedented growth in fisheries development activities and increased fish production.

The experience of fisheries development in many of these nations may provide us with useful lessons for NWT fisheries development since the NWT exhibits many of the characteristics of underdevelopment commonly seen in Third World countries. Like most communities in Third World nations, the smaller communities in the NWT have high population growth rates and very young populations. Formal education levels are low and the level of illiteracy is high. Skill levels appropriate to the wage economy are limited and participation rates in the labour force are extremely low. For many in the wage economy, there are extremely high levels of unemployment, low wages and low per capita incomes.

In addition, most NWT economies have been built on the production of commodity products for an external market that controls prices, therefore northern economies tend to

be vulnerable to cyclical outside forces and have a difficult time gaining control over their resources and economies. In many communities, subsistence lifestyles still predominate and links with the formal market economy are weak. Unlike more developed economies, most production, particularly in the renewable resources sectors, is small-scale and uses simple technology.

In the case of fisheries, most NWT fisheries are small-scale artisanal fisheries. Artisanal fisheries can be defined as fishing that uses small-scale beach landing fishing units, often traditional or modified traditional boats or canoes. Artisanal fisheries are characterized by relatively low capital intensity; by a decentralized and scattered pattern of settlement of fishing communities since these need not cluster around a harbour point; and ready availability of fishing technologies to traditional fishermen since there is an obvious line of continuity between old and new techniques and crafts, and since the cost of investment remains reasonable. Artisanal fisheries also tend to be composed of fishing units whose owners are actually personally involved in fishing operations, whether in manual operations or in direct supervisory or coordination tasks.

In most developing countries, millions of fishermen are engaged in traditional small-scale fishing activities and most suffer from persistent poverty. Yet the initial emphasis in Third World fisheries development was, in almost all cases, placed on large scale industrial fisheries. It was assumed that as development progressed, artisanal fisheries would gradually be replaced by modem, efficient and capital intensive fisheries, and fishermen would either acquire new technology or find employment in large-scale fisheries. Development assistance tended to focus almost exclusively on industrial fisheries with national governments perceiving fisheries solely in economic terms - as a way of providing jobs and earning foreign exchange through exports. In many nations fish production increased dramatically as large fleets began to fish in previously unexploited waters using more effective technology.

However, after three decades of fisheries development there were very few success stories with industrial fishing and the goals of fishery development - specifically alleviating persistent poverty in fishing communities - remained elusive, In addition, fish stocks

became depleted under the new pressure of industrial fishing and after only a few years of fisheries development, many countries were facing disastrous effects.

By the mid 1980s it began to be widely recognized that artisanal fisheries were, in most cases, a more appropriate mode of production for poor countries as they provided an important source of food in much of the Third World. Annual production by small-scale fisheries in Third World countries is estimated at 20 million tonnes, representing approximately half of the world's consumption of food fish.

On economic and environmental grounds, artisanal fisheries also remain important. It is usually inappropriate to replace large numbers of small-boat enterprises by one large factory ship or a number of trawlers. While large capital investments in industrial fishing equipment may result in the same amount or more fish on the market, for a short period of time, trawlers or factory ships may ultimately be an unprofitable investment of capital, as fish stocks often cannot sustain more intensive levels of fishing. Indeed, some studies have demonstrated that, even where the size of available stocks is not a limiting factor, large trawlers generate a lower return on capital investments than do smaller vessels. The return to capital on smaller, traditional vessels is around 50 to 70 per cent while the return to capital in industrial fishing averages 3 to 7 per cent.

Large vessels are also of considerably less social benefit as a source of employment. It is estimated that small-scale fisheries provide almost 20 times as many jobs as industrial fisheries at approximately one percent of the capital cost. In addition, those that have traditionally been dependent on fishing often cannot easily shift into urban and industrial occupations therefore artisanal fisheries remain important as a source of employment and income suitable to local conditions and skills.

For these reasons governments and development agencies have acknowledged the importance of artisanal fisheries and are redirecting support to community based fishery projects. Their experience of artisanal fishery development maybe applicable to the NWT as most northern fisheries are artisanal in scale and nature.

Community Based Economic Development as a Model for Fisheries Development

The success of Third World artisanal fisheries management has been varied, some have progressed remarkably well while others have not despite careful planning. There is no absolute "model" for fisheries development that ensures success however one model that has shown considerable promise and success is "*community-based economic development*".

Community-based economic development differs from conventional economic development which often concentrates exclusively on business development and economic growth. Rather, community-based economic development focuses on the community as a whole and seeks to maximize the quality of life for community stakeholders rather than maximizing returns to stockholders in businesses and private enterprises. Community-based development also seeks to give emphasis to long-term economic security rather than short-term profits by blending traditional and modern economic activity, thus sustaining positive community values. Above all, it seeks to empower those who make major life investments in their communities and promote local and regional levels of self-reliance which counters the dependency-producing effects that attend conventional development. This is achieved through maintaining appropriate scale of development, fostering diversification of activity in which import-substitution and the value of cultural regeneration value in the traditional subsistence economy are properly recognized and supported, and planning, implementing and evaluating with a focus on enabling rather than disabling existing community understandings and decision-making processes,

The major guiding principles underlying community based economic development are listed below:

1. An integrated approach to development: Community economic development projects are organized in the interests of the whole community, Accordingly, their goals and strategies relate to the whole community - to its social, economic and cultural

elements.

2. Not governed by profit: Community economic development groups must make a profit if they are to survive however profit is a means rather than an end in itself. The goal is not simply to make money, but to ensure that profits are used for the collective benefit of the community.

3. Focus on community gain: Unlike traditional small businesses, community economic development projects are not organized to provide personal financial gain solely for their owners but rather to benefit the whole community with profits reinvested for collective rather than individual gain, and with community members benefiting from goods and services derived from the project.

4. Local control: Community-based economic development is based on the principle that real self-reliance can only be attained through a process of locally controlled development. Outsiders can be involved in the development process by giving advice and assistance, but community-based economic development recognizes that the lasting benefits of a community venture will be much greater, if the final decisions about a project are made within the community by community members. Any policy that leaves developmental planning decisions primarily in the hands of those who do not have to live with the outcomes will not lead to local, regional or national levels of self-reliance.

5. Democracy in decision-making: In all projects, maximizing community involvement through a broad base of community support is regarded as essential to continuing success. Thus, most community enterprises also strive for worker participation in the planning of activities.

6. Small local efforts are viable: The ideal project is local in all respects: it is owned and managed locally, it is located within its own community, it provides work for local people, it makes use of locally available resources, both human and material, and it serves local needs by providing required products and services.

7. Focus on Community Economic development: Traditionally community development has focused on social, recreational, cultural and educational projects leaving economic development to business people and public planners whereas community-based economic development places economics at the centre of community development but also recognizes the importance of social and cultural development. This is what distinguishes community-based economic development from traditional economic or business development.

8. Building **community** self-reliance: Community self-reliance is the underlying goal in all community economic development projects. Greater self-reliance can mean jobs, but self-reliance can also mean decreasing dependence on outside sources of goods, and services and outside government finding.

9. Community Economic Development takes a long time: Community economic development projects are long-term projects; they recognize the long-term nature of community development. Therefore it is necessary to build a project that can survive the coming and going of players and leaders.

In community-based development, it is quality of life not quantity of consumption that becomes the critical social factor, and it is not the number of promised jobs but the potential for ensured livelihoods that is held to be the most relevant economic variable. However, in pursuing community-based development, it is important to recognize that most of the existing institutions through which developmental assistance and approvals flow are conditioned by classical economic assumptions. Alternative development must, therefore, be on guard to assure that its fundamentally holistic approach is not fragmented in the process of implementation.

There are a number of approaches that have been used in community economic development projects, including co-operatives, community development corporations, employee-owned firms, and worker co-operatives. According to a report on community economic self-help and small-scale fisheries development (Jackson 1984) it has been found that these enterprises tend to be sensitive to local needs, do not necessarily require a high

rate of profit, and encourage local skill development,

Elements That Contribute to Successful Fisheries Project Development

Based on experience with fisheries projects in the third world and on community development projects in Canada, there appear to be a number of elements that contribute to the potential success of fisheries projects in meeting community development goals.

1. Clear, consistent goals and objectives that focus on community development and clearly identify the target population

According to a World Bank Staff Working Paper on artisanal fisheries development (Emmerson 1980) the most serious and widespread weakness in artisanal fishery development is a lack of attention to specifying the goals of fisheries development clearly, estimating their mutual exclusiveness or complementarily, and assigning priority in terms of their likely political, social, economic, ecological, and biological costs and benefits. As a result, there is widespread preoccupation with "means to the neglect of ends". For example, in the absence of clear goals for development it is easy to use the number of motors purchased or the number of fish plants built as a measure of success rather than evaluating the impact of a project on the well-being of the community.

Therefore, as their first order of business, governments and other interested parties should articulate or reformulate their policy goals and objectives for fisheries in terms of development objectives and principles.

Policy objectives should address the question "*why* should the fishery be developed?' before questions about *how* the fishery should be developed are entertained. All goals and objectives must be appropriate to the community and the intended beneficiaries. For example, it cannot be assumed that an increase in fish production or improved fisheries technology will benefit those that need help most. The most effective means of ensuring that objectives and projects are appropriate is to have fill and meaningful participation from fishermen and other members of the community from the very beginning of the

planning process and throughout the project's implementation and evaluation.

Goals and objectives must also be clear and measurable. The vaguer a project's goals are, the more difficult to recognize conflicts between them and the more vulnerable project personnel become to making the project a success at the expense of making a success of development. It is easy to measure progress as the provision of hardware; it is much harder to try to determine whether project beneficiaries are being equipped to do things that are worthwhile in terms not merely of the project but of broader development goals.

Multiple goals may have inherent incompatibilities or inconsistencies making it difficult or impossible to fulfill all of the stated goals. Indeed, in some cases the pursuit of one goal can undermine the success of fulfilling a second goal. For example, increasing production of fish for export may defeat the goal of increasing production for local consumption given the finite nature of biological and financial resources.

To enhance the possibility of projects having a positive impact on development, planners must determine how harmonious or discordant different combinations of goals are and create operational priorities that support or at least do not defeat one another. Government policies should support these priorities; and objectives and priorities should be reevaluated as fisheries change. Consultation between stakeholders in the fishery facilitates the establishment of consistent supportive objectives and policies and the modification of objectives and operations when needed.

2. Fishery development plans should be an integral part of an overall regional economic development plan.

The beneficial impact of fisheries projects on community economic development is greatly enhanced if the fishery is developed within the framework of an integrated economic development plan. The mere existence of a fishery resource or a local artisanal fishery does not guarantee that commercial fishery development and/or modernization will benefit the community. Nor is fisheries development necessarily the best or the only means of achieving development objectives. Therefore fisheries should be looked at relative to

other sectors of the economy and a comparative cost-benefit analysis carried out to decide whether fisheries development is an appropriate avenue for economic development. By examining the fishery as part of a larger economic system and asking whether the path to maximum benefits for minimum costs may not lie outside the fishery altogether, the 'possible success of fisheries projects that are pursued are enhanced.

The goal of improved social benefits from fisheries must be approached with programs tailored to the values held by the fishing community if the community is to benefit in a real and lasting way. Therefore, once a decision is made to pursue a fisheries project as part of an overall economic development strategy, a comprehensive plan should be developed using local guidelines, and both the plan and the project should be constantly evaluated to ensure effectiveness. The government must also make an irrevocable commitment to long-range fisheries planning and development.

3. Plans should be based on a realistic assessment of fishery resources available, existing technology, markets to be served, and social and economic conditions.

If fisheries development is to provide lasting benefits to a community, projects must be sustainable over the long term, therefore development plans should include consideration of all biological, technical, economic and social aspects, One of the most glaring failures in fisheries development throughout the world has been the depletion of fisheries resources and the complete failure of fisheries projects due to the fact that political expediency caused governments to act before the needed biological data or adequately trained personnel are in place or the project is economically justifiable.

Through stock assessment surveys, the project management should have a thorough knowledge of the fisheries resource - availability, seasonal and cyclical behaviour, and safe harvest levels. On the economic accounting side, information on opportunity cost should be collected on an ongoing basis. Data must be collected over several seasons before interpretations provide valid indications for the fishery. As projects proceed, ongoing data collection and monitoring should provide the information required for effective management of stocks and all information should be shared among fishermen and

stakeholders.

4. Effective Management and Local Control

To ensure that fisheries development benefits the community, fishery management requires political decisions that filly involve fishers and are supported by legal and administrative frameworks. The FAO recommends that an advisory and coordinating committee be formed in project communities to facilitate progress and help overcome difficulties. All groups that interact in the fishery should be represented.

The FAO recommends that project leaders be experienced and responsible with at least 10 years experience in administration, business, fishing or technological operations, and project management style should be flexible, open, and responsive to changing community needs. Often, the skills required for successful project management are not present in a developing community, therefore there must be a specific mechanism to develop local management abilities and increase capabilities for local control. It cannot be assumed that local people will just gradually take over control and management. FAO estimates that it may take up to 10 years to establish a successful project totally self-managed by community residents.

5. Training

Fishery education and training were declared priorities for most governments that had successful fisheries projects. Training programs should focus on raising the educational level in fishing communities with attention to basic resource management, fishers organizations, and social development and should be based on local conditions and abilities. Training should also focus on developing increased self-reliance in fisheries management and development. Programs for women should be included.

How appropriate is it to provide people with training vs. things? Too often the prestige of modem equipment is allowed to hide the possibility that a lack of skills, including non-fishing skills, may explain local poverty far better than a lack of equipment. In a choice

between training and technology, an emphasis on practical training in fishing and non-fishing activities will generally prove more beneficial than the simple delivery of equipment.

6. Appropriate Technology

Fisheries projects have often concentrated on modernizing equipment and introducing new technologies to increase productivity or efficiency. Unfortunately many of these projects have been failures. The introduction of new technologies without appropriate attention to training, licensing, repairs, spare parts, processing, storage, credit and marketing can result in a loss of productivity and an overall decline in community well-being. The introduction of motorized boats to Indonesia's artisanal fishery in the 1960s and 70s is a good example. By the mid- 1960s, nearly half of all the motorized boats in the country were completely out of commission, and those that were seaworthy were spending more than half of their time unproductively, mainly for a lack of spare parts and an excess of red tape. On the output side, without adequate processing and marketing outlets, the higher yields achieved by making fishing more efficient often glutted local markets, depressing prices. As the number of motorized boats increased more than thirty-fold, the productivity of the boats in Indonesia's fishing fleet declined by a third and productivity per man declined by a fifth.

Three broad lessons can be learned from attempts to introduce new technologies around the world:

1. The choice of technology and the manner of its introduction should be appropriate to the physical, cultural and economic environment;
2. Its use should be coordinated with the conditions necessary for its success; and
3. The community should feel responsible for new technologies.

Using imported technology requires that the community have the skills to use the new technology effectively or the organizational leverage to benefit from it. Therefore to be successful, the introduction of appropriate technology requires close rapport between central and local governments to ensure technologies are adapted to local conditions. Wherever possible, local technologies should be used or adapted for use and pilot projects

should be used to promote transfer of technology and use of infrastructure.

One effective way of introducing a new technology or technique is to look at previous changes - both planned and unplanned - and evaluate what the results and impacts were. It also helps to know who introduced a previous change and why. Often innovation spreads not through material incentives alone but outward from a handful of entrepreneurs along networks of social respect. Identifying and recognizing these networks can prove valuable in adapting and sustaining any future change as success is often enhanced by introducing new technology through respected members of the community.

The more responsible fishermen and stakeholders feel for making an innovation succeed, the more likely that the innovation will succeed. Therefore steps should also be taken to encourage local responsibility for project innovations and to link a project to diverse local needs.

Aside from the obvious question of its physical fit with the resource, new hardware should also be assessed in terms of economic efficiency and effect on employment. Successful application of new techniques requires coordination with other elements of the fishery and other opportunities in the community. If change displaces labor, developers should explore in advance what can be done to accommodate the surplus elsewhere in the economy - in fish processing, infrastructure, handicrafts etc.

7. Ongoing Evaluation

The FAO stresses the critical importance of ongoing evaluation of fisheries projects. It recommends the formation of a monitoring and evaluating group that might include an economist, a fishing business operator, a biologist/researcher, a community representative, and a government planner. This group should conduct an independent review of the results of pilot-level operations and make suggestions to project management and the advisory committee on modifications that will guide current and future activities.

The evaluation group and the advisory and coordinating committee should also make clear

recommendations for further developments including the future role of government, project staff and the private sector in order to sustain the momentum of project activities.

8. The Special role and needs of small-scale fisheries and rural fishing communities.

In addition to the above elements which hold true for fisheries development in general, there are also special considerations that result from the small-scale nature of artisanal fisheries.

Typically fisheries development is meant to encourage and/or help fill-time fishermen. However, artisanal fishing is often a part-time activity forming only part of an integrated round of economic pursuits. By combining land and sea resources, people who live in maritime communities gain flexibility. Conversely, vulnerability tends to increase with dependence on a single livelihood, especially one as unpredictable as fishing. Therefore, the "part-time" mentality of many fishermen should be respected as an effective and rational way of maximizing security and minimizing risk.

By not necessarily encouraging fishermen to conform more closely to the standard notion of a professional, fill-time fisherman, and by differentiating between members of the community depending on what they actually do, have and want, it should be possible to work out policies that balance different constraints and opportunities in an open-ended way. Therefore fisheries planners need to look at how the fishery integrates with other aspects of the community and how changes in the fishery will affect other aspects of the economy.

Developers should also look at the opportunity costs of helping full-time rather than part-time fishermen. Full-time fishing and willingness to abandon that occupation often go together whereas part-time fishing is often a hedge against risk. Fisheries projects that select or create full-time fishermen may create a greater risk and a greater chance of abandonment and failure. In many cases part-time fishermen are a better risk.

Artisanal fisheries also tend to be based on relatively simple fishing technologies that require a low level of capital investment. When artisanal fisheries are expanded to a more commercial focus, it is often difficult for local fishermen to qualify for the cash needed to upgrade their equipment. Therefore, local technology should be used if possible and loan 'programs should be made flexible through lines of credit for local re-lending institutions for small loans to individuals. Credit systems should be made more accessible to small-scale producers, processors, and distributors.

Developmental Path of NWT Fisheries

Each of the major NWT fishery initiatives has followed a slightly different developmental path which has influenced the way the fishery operates and the degree and distribution of benefits.

The following section describes the developmental path of each fishery and summarizes some of the primary benefits and impacts of development. The information presented on each fishery is based on the results of interviews with representatives of ED&T, Department of Fisheries and Oceans (DFO), Freshwater Fish Marketing Corporation (FFMC), NWT Development Corporation (DevCorp) and various stakeholders and participants in the regions as well as written materials and records that were made available to us. A list of people interviewed and references cited is appended.

Great Slave Lake Fishery

The Great Slave Lake fishery is an example of a fishery that developed as a purely economic activity along conventional economic development lines. The fishery was initiated by outside private interests without the direct involvement of government and was based on the presence of an available resource, a ready market, available capital and labour, and the pursuit of profit.

Great Slave Lake opened for commercial fishing in 1945 with a private fish company establishing a base camp and fishing fleet in the Gros Cap area. Fish were dressed or filleted, frozen and barged out to Alberta for sale in the southern market. In 1948, the Mackenzie Highway was completed to Hay River. By 1949 the commercial quota on the lake was increased allowing rapid expansion of the commercial fishery and by 1949-50 there were 7 private fish companies operating on the lake during the summer and 13 during the winter. The improved access provided by the highway allowed these companies to take advantage of lower transport costs and to develop a winter fishery to take advantage of the higher market prices offered during the winter season. Improved access also allowed development of the more profitable fresh fish market. By 1949 Great Slave Lake was the largest single producer of whitefish in North America.

The number of companies, boats and fishermen involved in the Great Slave Lake fishery continued to increase until the mid- 1950s. Most of the boats on the lake were owned by the fish companies and were rented to "skippers" for the season. Fishermen worked in crews of 2 to 4 men, including the skipper who had overall responsibility, Through an informal agreement a skipper would affiliate himself with a specific company and would deliver all of his catch to that company, In return, the companies would rent fishing boats, supply leads and corks for nets, and offer substantial credit or cash advances. Most companies also operated "floating stores" which followed the fleet and provided supplies to fishermen. Fishermen were paid a flat rate as fish were delivered. There were a few privately owned boats but these also affiliated themselves with their favourite companies.

The fishing companies were headquartered in southern Canada, operated their own stores outside of Hay River and conducted all of their finances through southern banks. Consequently they did not contribute significantly to the local economy. Although they did hire a number of reliable and experienced local fishermen, they tended to show a hiring preference for non-resident fishermen. Most of the fishermen were native Cree and Chipewyan men from northern Alberta and Saskatchewan or from the large lakes of Manitoba who took up seasonal residence in the NWT during the fishing season.

The number of private companies involved in the Great Slave Lake fishery peaked in the

early 1950's and after that declined steadily. Four companies were still located in Hay River in 1969 when the FFMC was established and fish sales from the NWT were turned over to the crown corporation. In that same year one of the surviving companies was bought out by a group of local fishermen who formed a company called the Syndicate of Fishermen. With 15 men and 9 fishing boats they formed the first and only locally owned and owner operated fishing company to operate on Great Slave Lake. The effort failed and the syndicate was disbanded leaving the FFMC as the sole fish buying agency in the NWT.

The Freshwater Fish Marketing Corporation (FFMC) has a monopoly over all freshwater fish exported from the NWT and was formed with the mandate to increase the returns to fishermen through the orderly marketing of fish and the promotion of national and international sales. Since its inception, FFMC' S relationship with the fishermen of Great Slave Lake has suffered from a great deal of controversy and relations have often been strained.

In 1972 the Great Slave Lake Advisory Committee was formed to provide a forum for local input into the management of the fishery. The Advisory Committee has five members representing the Dene/Metis, four members from the NWT Fishermen's Federation (an organization representing the interests of Great Slave Lake fishermen) and one representative from the private tourism sector representing recreational and sports fishing interests. The committee also has non-voting representatives from DFO, Renewable Resources and Economic Development and Tourism. The Committee is chaired by the DFO representative and its purpose is to provide advice and recommendations to DFO regarding licensing, quotas, openings and closures of fishing areas, and recreational fishing quotas. Although this organization does not have any legislated decision making power it is a formalized avenue for public input into management and both the DFO and the Fisherman's Federation representatives interviewed felt that the committee was both effective and useful as a forum for cooperative fisheries management.

To protect the lake from localized over fishing the lake was divided into four

administrative areas in 1949 and these areas have persisted more or less unchanged until today. As the fishery progressed, quotas were periodically adjusted downward according to changes in exploitation and production. The areas fished changed with the level of profitability and the more remote areas that were not profitable to harvest were abandoned.

In 1979 DFO introduced a licensing policy and certificate system on Great Slave Lake which restricted the number of operators on the lake to 28 summer Class A (whitefish boats) and 80 summer Class B (skiffs) licenses, and 32 winter Class A (Bombardier) and 30 Class B (skidoo) licenses. The certificates are issued by DFO annually after the Great Slave Lake Advisory Committee reviews applications and makes recommendations on who should be awarded a certificate based on production performance during the previous year. Certificates effectively restrict the level of production for each operator by restricting the type of equipment that can be used. Class A operators take a much larger catch and account for 800/0 of the total annual harvest.

By 1981, low market prices for whitefish resulted in a situation where the price offered to fishermen by FFMC was too low to provide a financially viable industry on Great Slave Lake. Therefore the Government of the Northwest Territories, through Economic Development and Tourism, began offering a freight subsidy and price subsidy on whitefish to reduce the costs of fishing operations on the lake, thereby increasing fishermen's incomes.

The subsidy was intended as a short term interim measure to counter the effects of low market prices however the subsidy program was entrenched in legislation in 1985 and the subsidy has been required in each subsequent year with annual payments now exceeding **$600,000.** The fishery has come to expect this level of support and a recent cost and earnings study shows that without a high level of government subsidy, the average fishing operation, regardless of size, is not viable in the long term. Indeed, most are no longer viable even in the short run. The Great Slave Lake fishery, once a profitable market driven industry has become dependent to a large degree on government support and must rely on the political will of the government to continue in its present form.

It is clear from the above description that the developmental path taken in the Great Slave Lake fishery is fundamentally different from other fisheries in the NWT which, as will be seen in later examples, were government driven from the outset. In the case of the Great Slave Lake fishery, initial development of the lake resulted from a market demand and the ability of a private company to make a profit harvesting and selling Great Slave Lake whitefish. The objective was simply to make a profit without the additional social objectives of job creation. In fact, the jobs that were created went primarily to non-residents. The success and profitability of the fishery is seen in the rapid expansion of fish companies participating and the increase in crew members and harvest size. As the economics became less attractive, harvesting leveled off and eventually declined.

Initially the role of government in the Great Slave Lake fishery was limited primarily to biological management of the resource. DFO was responsible for licensing, setting quotas and monitoring the impact of harvesting. With the involvement of FFMC however, the marketing function shifted from the private sector to the public sector and government's role increased as it began to provide funds (through the Small Business Loans and Guarantees Fund, the Eskimo Loan Fund, Special ARDA, EDA, and various northern development programs offered through DIAND) for fishermen who wished to enter the commercial fishery as owner/operators but were unable to purchase commercial fishing equipment. By the early 1980's, with the provision of the whitefish subsidy, the GNWT also became an important player in the economic success or failure of the fishery and of individual fishermen.

A second fundamental difference between the Great Slave Lake fishery and other NWT fisheries lies in the makeup of the participants in the fishery, Almost all of those involved in the Great Slave Lake fishery originally came from outside the NWT in the pursuit of a commercial activity. Thus, unlike other NWT fisheries which developed jobs for local residents, the GSL fishery developed through the use of imported labour. Although many of these fishermen have become long term NWT residents, this pattern still continues to some extent as many fishermen have maintained strong family ties with their original homes and family ties, combined with the long history of native participation in provincial freshwater fisheries, drives Great Slave Lake operators to seek crews outside the NWT.

Fishing crews tend come up to GSL for a season of fishing then return home for the remainder of the year.

The GNWT has tried to encourage local hire by instituting a northern employment bonus which provides a price bonus to fishermen who hire 1000A NWT residents, however fishermen continue to have a difficult time hiring and keeping crew members from the NWT and hiring family members may be a way of increasing the chances of keeping a crew throughout the season.

Great Slave Lake also differs from other NWT fisheries simply in terms of size and longevity. Unlike the other NWT fisheries which are all still in the developmental stages, Great Slave Lake has been consistently fished on a commercial basis for almost 50 years and can be considered a mature fishery. Total annual production on Great Slave Lake is in the order of 1.65 million kgs and the fishery employs approximately 300 fishermen and crew and an additional 23 people in processing.

Therefore the needs of the Great Slave Lake fishery can be assumed to be quite different from other fisheries being developed in the NWT. However, the fishery can still be examined using the same criteria for economic development.

Community Benefits

In terms of employment the fishery provides employment to approximately 109 licensed fishermen and additional seasonal helpers. Generally whitefish boat and bombardier operators hire three helpers (in addition to the owner/operator) and snowmachine and skiff operators hire one additional helper. Most fishermen and helpers operate out of Hay River therefore it is useful to look at the impact of this level of employment on the community. According to the 1991 Census, the community of Hay River had a labour force of 2,310 with a total of 1,724 people employed and 960 men employed. Assuming that 95% of those fishing on Great Slave Lake are men, those employed in the fishery represent 300/0 of Hay River's employed labour force during the fishing season. The impact of this employment is even greater if we examine the type of people employed in

the fishery. Most of the fishermen on the lake are native men who have been fishing all their lives and have few other prospects for employment. Many have little or no formal education or training. Thus, even though they operate out of a community with a greater range of employment opportunities than most NWT communities, their options are few and unemployment among this sector of the population is high.

The government's apparent goal is to keep the commercial fishery going because it represents the sole source of income for most fishermen. One of the problems in this respect is the fact that although there are several government departments now involved in managing the fishery, no one is directly responsible for the economic and social welfare of the fishermen. If the current objective of this fishery includes sustaining the social and economic life of these fishermen, then there is a need for a clearly defined objective and a program to put the objectives in place.

With respect to income, the Great Slave Lake fishery is estimated to bring in gross revenues of $1,635,753 resulting in a total net income to fishermen of $714,298 (ED&T 1992). The certificate system in place on Great Slave Lake has effectively created and maintained a two tiered system of harvesting on the lake. The type of certificate held by fishermen determines their potential production and therefore their potential income.

	Bombardier	Snowmachine	Whitefish Boat	skiff
Average Gross Revenues	**$35,205**	**$3,506**	**$45,720**	**$6,726**
Average costs	**$53,057**	**$10,820**	**$52,506**	**$13,505**
Net Revenues	**($17,852)**	**($7,314)**	**($6,786)**	**($6,779)**
Owners wages	($3,211)	($1,091)	($7,344)	($3,686)
Subsidies & Contributions	$6,971	$1,457	$30,919	$7,543
Net Cash Flow	*($9,429)*	*($4,154)*	*$18,314*	*($1,612)*

Adapted from: ED&T Financial Performance Great Slave Lake Fishery

Notes to the table Average Gross Revenues represents sales of fish only and do not include government subsidies.
Average Costs do not include owner/operator wages but do include depreciation
Net Revenues are Gross Revenues minus Average Costs
Owner's wages are calculated baaed on a minimum wage of $5.80/hr. Owner's wages contained in () indicate that there was not enough revenue generated to actually receive the wage.

Subsidies and contributions include price and freight subsidies paid and contribution made to fishermen through BDF and EDA programs

Net Cash Flow includes government subsidies and contributions, assumes an owner's wage has been taken and has depreciation added back in.

It is clear from the above table that revenues earned by all classes of fishermen are too low to provide an economically viable operation. Even with government support, winter fishery operations do not provide even a minimal income to operators and do not provide enough income to cover costs and replace capital. Snowmobile operations, with their low production levels, are particularly poor because they do not really benefit from price and transportation subsidies which are based on production. This is also true to a lesser extent for small skiff operations.

The larger summer fisheries fare slightly better. Average whitefish boat operators receive high levels of government subsidy which allows their operations to pay the owner a minimum wage and provides a large enough positive cash flow to cover capital replacement costs. However, government subsidies and other assistance for the average whitefish operator total $30,919 exceeding the average total wage bill (crew and owner/operator) of $24,376. As the production of a whitefish boat operation increases its economic viability increases because the subsidy it receives is tied to production. Therefore, if production is high enough, a whitefish boat operation can make a profit. Indeed, large whitefish boat operations average a net cash flow in excess of $20,000 after owner's wages of $8,525 and crew wages of $19,855 totaling $28,380 for wages. However this requires a government inputof$35,527.

The inability of fishermen to earn enough income to cover costs and replace capital is further evidenced by the large number of fishermen who apply to ED&T for equipment finding under the EDA support for the traditional economy initiative.

It should be remembered that these are average figures and some operations fare better than others however, in all cases, the wage returns to the owner operators are extremely low, if a wage is taken at all. In a detailed survey of GSL fishermen carried out in 1991, only one fishermen reported taking a wage when listing expenses. The income paid to

fishing crews are also very low (averaging approximately $300 per week) and this probably contributes to the difficulty in attracting and keeping skilled crew members.

Community Self Reliance

When commercial fishing began on Great Slave Lake the majority of fishermen were directly associated with the fishing companies and did not own their own boats. Gradually there was a shift towards self employment and owner operated boats and by 1969, when FFMC took over fish sales, all boats were privately owned and continue to be privately owned to this day. For those that could afford to buy fishing units, this shift resulted in individuals owning their own mode of production which provides a means for a large measure of self-reliance and control over one's life, an extremely important contributor to well-being.

Various programs have been offered through Economic Development and Tourism and DIAND to assist fishermen with insufficient capital to but the equipment needed to enter the commercial fishery. However, under current market conditions, most operators cannot make enough money to replace their capital and the current programs offered by ED&T for capital purchases are very difficult for GSL operators to access because of the equity requirements and the need to show financial viability. With declining markets for whitefish, the independence and self-sufficiency of the fishery has been reduced and the number of self-employed operators has gradually decreased over time.

In terms of local decision making and control, Great Slave Lake fishermen have gained increased input into the management of the fishery with the formation of the NWT Fishermen's Federation and the Great Slave Lake Advisory Committee. Although fishermen do not have legislated control or mandatory input into the fishery the Fisherman's Federation has become a strong voice for fishermen. The Federation sits on various steering committees and has been increasingly involved in the administration of and decision making surrounding the fish subsidies provided through ED&T. FFMC also appoints a representative from the fishermen to its Fisherman's Advisory Committee tasked with bringing fishermen's concerns to the attention of FFMC. Complaints by Great

Slave Lake fishermen about FFMC and the frequent assertions that the NWT would be better off outside FFMC indicate that fishermen may feel they do not have enough influence over the activities of FFMC. Because of the lack of legislated authority given to the NWT Fishermen's Federation and the Great Slave Lake Advisory Committee, the degree of influence exerted by the fishermen varies with the personalities involved. Those with authority (DFO, FFMC) can choose whether or not to listen to the advisory bodies.

The NWT Fisherman's Federation has taken a further step toward control over the fishery by becoming the proponent in a local test marketing project with a small processing operation in Hay River with target markets in Yellowknife, Hay River and other nearby centres. If this initiative is successful and a full scale project develops, fishermen would have an alternative market for their fish which would possibly provide greater returns on their effort. If nothing else, a successful local marketing project run by the Federation would provide more direct control over the processing and distribution of their product.

The main issue in the Great Slave Lake currently is its lack of economic sustainability. The resource appears to be healthy but fishing is not financially viable without high levels of ongoing government support. The fact that fishermen continue to fish indicates they are still receiving some benefit from fishing however the cost to sustain the industry in its present form is high. To make this fishery viable, some tough decisions are required about who will fish and how the fishery should be supported. In terms of community development and community input the question becomes who should decide? If some fishermen must leave the fishery, who should they be? how should it be done? and what will they do after leaving the fishery? It is in dealing with these larger issues of the Great Slave Lake fishery that the level of community input and community self-reliance will be tested.

Baffin Turbot Fishery

The Baffin Turbot fishery began as a government initiative, was turned over to a newly-formed local company with broad based ownership, and is now a joint venture with the NWT DevCorp.

According to ED&T officials, the Baffin turbot fishery was originally developed by the government to create local job and income opportunities in Pangnirtung. This was particularly important because there were few other opportunities for job and income creation in the community in the 1980's, yet the community had a rapidly growing population with very high levels of unemployment. Oil and gas development had proven not to be a realistic development opportunity in the region, trapping had virtually disappeared and tourism was not a panacea for job creation. Government therefore decided to concentrate on renewable resource development, in particular fisheries, which tied in well with local lifestyles and skills.

The history of fishery development in Pangnirtung covers three phases. The initial work was carried out by the HTA who were funded through the EDA to undertake an exploratory fishery. The HTA worked closely with ED&T to set up an exploratory fishery intended to use regional skills and resources to determine the commercial fishery potential of Cumberland Sound and to introduce methods and equipment used in commercial fisheries to Pangnirtung residents. In 1986 two Greenland fishermen were brought to Pangnirtung and trained eight Baffin fishermen to fish through the ice for turbot using long lines. Over the next two seasons these Baffin fishermen trained other fishermen in Pangnirtung to use the longline fishing gear and by 1989 the fishery began to operate as a regular winter fishery operating from February to April with fishermen actively pursuing turbot fishing as a source of income. A total of 43 fishermen were involved.

During this period of development, the turbot fishery projects were sponsored by the Pangnirtung Hunters and Trappers Association however project decisions were made largely by government personnel responsible for fishery development. To encourage more

community involvement and local decision making, and to begin linking production to market, it was decided to establish a locally owned and controlled commercial entity. Based on past experience, it was decided that any new commercial fishing entity should be broadly owned throughout the community so that DFO could assign resource allocations to the commercial entity without seeking the community's input through the HTA, making the allocation process simpler and faster. In effect, HTA input would be implied through an overlap of ownership and community representation.

In 1988 community meetings were held to discuss establishing a commercial fishing entity and in December 1988 Cumberland Sound Fisheries Ltd. (CSFL) was formed. CSFL was a private" company that included the Pangnirtung HTA, the Pangnirtung Eskimo Co-op Ltd., P&L Services (a local Inuit owned scallop fishing operation), and 40 other individual residents of Pangnirtung as shareholders. CSFL was 1000A locally owned and controlled. Because the owners of CSFL had limited experience and expertise in running a commercial fishery the company's board of directors was guided by advisors and the board hired an experienced plant manager to run the operation, however the board retained final authority on all matters.

Inexperience and poor management led to financial difficulties and in 1990 the fishery was left facing bankruptcy. At that time the NWT DevCorp was asked to invest in the fishery. The NWT DevCorp was chosen as an investment partner because of the DevCorp's policy of divesting shares once a project achieved stability and earned a profit. During the 1991 season a new, experienced general manager and an experienced office manager were hired to run the fishery. Some ownership of the company was given to the NWT DevCorp in exchange for the DevCorp's investment, however the local CSFL board retained decision-making control and they were provided with good advice from the new management. It was felt that once the company was making money local ownership would resume (Ashley 1993).

In 1992 the NWT DevCorp provided another major investment to the Pangnirtung fishery including construction of a new fish plant and the provision of operating subsidies for the first five years of operation allowing the company to carry operating losses while it was

implementing a new strategy to diversify. This required incorporation of a new company, Pangnirtung Fisheries Limited (PFL). In this new company, the NWT DevCorp owns 51% of controlling shares and appoints four of the seven directors to the board thereby assuming effective decision making control over the operation. Cumberland Sound Fisheries, representing local control and involvement, appoints three board members.

PFL operated the 1992 and 1993 fishery and is expected to begin using the new fish plant during the 1994 season.

Community Benefits

The Pangnirtung turbot fishery has grown rapidly in terms of both the number of people involved and the volume of fish harvested. The following table summarizes the growth of the fishery between 1989 and 1992. Over this four year period commercial fish landings increased by 17 1°/0, gross fishing income increased from $184,459 to $544,822, an increase of 195°/0, and the number of licenced fishermen (not including fishermen's helpers) more than doubled from 43 in 1986 to 93 in 1992. Income from processing also increased by 11 7"A from $70,572 in 1989 to $153,147 by 1992. Total direct income injected into the community increased from $255,031 in 1989 to $697,969 in 1992, an increase of 1730A. This represents a cumulative direct local income of approximately $1.8 million dollars over a four year period. According to NWT DevCorp records, direct community income increased again in 1993 to $755,012.

Pangnirtung Winter Turbot Fishery Statistics 1989-1992

	1989	1990	1991	1992
Landings (H&G pounds)	276,082	431,843	267,990	748,480
Season Length	14	18	12	21
Licensed Fishermen	43	77	61	93
Direct Local Income	$255,031	$550,602	$259,351	$697,969
Gross Fishing Income	$184,459	$346,635	$187,593	$544,822
Processing Income	$70,572	$203,967	$71,758	$153,147
Average Price/pound	$0.67	$0.80	$0.70	$0.73

(adapted from Ashley 1993)

To appreciate the importance of this income and employment to the community of Pangnirtung we can compare income from the turbot fishery to income and employment figures for the community as a whole. In 1992 there were 93 licensed fishermen involved in the turbot fishery and each of these fishermen hired a "helper". In addition, there were an average of 22 labourers, a manager and a bookkeeper employed in the processing facility for a totalof21 O people employed in the turbot fishery.

According to the Canadian Census, the labour force in Pangnirtung consisted of 465 persons in 1991 with 325 residents employed. Based on this figure, the 1992 turbot fishery provided seasonal employment to approximately 46 per cent of the community's labour force and 65% of the employed labour force. By these measures, the Pangnirtung turbot fishery has become a major employer in the community and has been very successful in providing employment.

However, the employment offered by the turbot fishery is seasonal; in 1991 the fishing season lasted 12 weeks. In 1992 participation increased and the season was extended to 21 weeks. With these changes the turbot fishery is estimated to have provided approximately 20 pys for fishermen (based on BDF's definition of py and average net income provided by Ashley 1993) and helpers and 15 pys in the processing facility and

management.

It is important to note that all of the fishermen are local Inuit men. The fishery has proven to be attractive to local residents and for the most part this fishery is accessible to the average male resident of Pangnirtung through his ownership of a snowmobile and qamutiik and his arctic outdoor skills. For most of those participating, there are few options available in the community for earning cash as they tend to be unilingual Inuktitut speakers with little or no formal education. Interviews carried out with random fishermen (Ashley 1993) indicate that most of the fishermen would otherwise have been involved primarily with hunting during the fishing season if the turbot fishery was not operating.

The employees in the processing plant (not including the manager and administrative staff) are Inuit women. Most of the women working in the fish plant are unilingual Inuktitut speakers and have virtually no formal education therefore the jobs available to them were very limited. When interviewed, most of these women indicated that they would not be working if the fish plant jobs were not available.

Interest and involvement in the fishery seems to be high with new fishermen participating each year. In addition, according to a 1992 report submitted by the manager of the processing facility, both turn over and absenteeism in the processing plant were low. The manager also observed that plant workers take pride in their work and seem very happy.

In terms of income, approximately half the fishermen earned gross revenues of under $5,000 during the 1992 season, 23 per cent made between $5,000 and $10,000 and21 per cent earned over $10,000 in gross earnings. The Pangnirtung EDO has estimated the average fisherman's gross income to be $15,030 for the 1992 season. However, fishermen must cover the costs of their operations before receiving any personal income therefore net income is a more appropriate measure of benefit to the fishermen.

Using costs and earnings calculated for an average Pangnirtung fisherman (Ashley 1993) it is estimated that in 1992 the average fisherman received a net income of $4,316 for the 21 week season or an average of $206 per week. The average fisherman's helper was paid

$2746 for the 21 week season or approximately $130 per week.

Although these figures are an improvement over 1991 when the average fisherman made approximately $100 per week and fishermen's helpers were paid approximately $85 per week, fishermen's incomes are well below minimum wage. Assuming fishermen work a standard 40 hour week, 1992 incomes represent an hourly wage of $5.15 for fishermen and $3.25 per hour for fishermen's helpers.

Yet, even at these low levels of return the fishery is increasingly popular therefore we assume that fishermen derive some benefit from the turbot fishery. One important benefit appears to be that income from the fishery contributes to the cost of the fisherman's skidoo which is also used for hunting and in-town transportation. Ashley (1993) suggests that without this income hunters might find it more difficult to purchase hunting equipment and supplies. These conclusions are supported by a financial and economic analysis of the 1986-1990 turbot fishery conducted by DFO (Topolniski 1993) in which the author suggests that the fishery appears to make a contribution to the maintenance of traditions and life-styles with the fishery providing some cash income to fishermen while absorbing a share of the costs of multiple use capital equipment such as skidoos and sleds. Participation in the fishery is further enhanced by the fact that many of the local residents enjoy fishing.

Plant workers fare better than fishermen in terms of income. In 1992, $153,147 was paid to plant labourers for an average income of approximately $7,000 per person. Fish plant workers also indicated they enjoyed the regular hours and steady employment provided by the fish plant during the fishing season.

In 1992, fishermen and plant workers became eligible for Unemployment Insurance benefits for the first time. This was seen as a major benefit by fish plant workers and, because UIC is viewed as *"earned"* income rather than welfare, most of those interviewed by Ashley said the employment/UIC cycle provided a year round source of income that did not have the negative stigma of social assistance payments while still allowing ample time to pursue more traditional pursuits. Ashley adds a warning however that these UIC

benefits may act as a disincentive to obtain other employment during the off season thereby limiting the extent to which seasonal employees reduce their dependence on government. Without the initiative to pursue other employment between fishery seasons, fishery workers become dependent on the fishery and UIC benefits, and thus more prone to complete dependence on government if the fishery fails. This has been clearly seen in the current moratorium on the northern cod fishery in Newfoundland.

Analysis of social assistance payments to the community show that social assistance payments decrease during the months the turbot fishery operates relative to the rest of the year. Prior to the beginning of the turbot fishery, average March and April social assistance payments tended to be higher than the average monthly payment for the same year.

Development of the fishery is also thought to have provided a positive impact on individual and community morale, and to have been beneficial in checking alcohol related incidents and crime. This is supported by interviews conducted by Ashley (1993) with the local RCMP and some community leaders. The opportunity for participants in the fishery to earn a cash income rather than relying on social assistance is also believed to have had a positive impact on the self-esteem of individuals which may to some extent explain the strong interest in turbot fishing when compared to the relatively low returns to fishermen.

It appears that the turbot fishery has had a positive impact in the community by providing employment and income to members of the community that would otherwise likely not be employed, although this success is tempered by the fact that the monetary return to fishermen is low, much lower than what would be considered an acceptable minimum wage. The fishery also appears to make a positive contribution in terms of increasing self-sufficiency in its support of traditional harvesting activities and the reduction of social assistance requirements during the fishing season. The success of the fishery is enhanced by an apparently large stock of fish in close proximity to the community, a strong southern market for turbot wirh a seasonal price advantage for winter caught fish helping to offset high transportation costs, and good daily transportation links to southern markets.

However the fishery has not been without its problems and in terms of increasing local control and decision making, the turbot fishery has not been as successful.

Community Self-Reliance

According to three respondents, the degree of local control and involvement in decision making in the fishery has declined sharply since the arrival of the DevCorp. At the beginning of the 1993 turbot fishing season, only one of the three community members of PFL's Board of Directors had been appointed, the board had not yet met, and there were no plans for a board meeting in the near future. This was in sharp contrast to previous years when there was considerable CSFL board activity as the fishery started and operated because the board was required to meet and make decisions on a regular basis. In addition, according to several respondents, at the last annual general meeting of Cumberland Sound Fishery there were not enough shareholders present to form a quorum. If this level of community involvement in management is any indication of the longer term PFL board activity, then board meetings are likely to become infrequent and ineffective with the community having no real input.

Ashley points out that in addition to the loss of local control resulting from the new company structure, the apparent lack of interest in the board also results in the loss of a forum for business education through practical board experience. If the community does not participate and learn through its experience on the Pangnirtung Fishery Limited board, it is unlikely that the community will have acquired the skills needed to run the board in the event that the NWT DevCorp divests its interests in the fishery.

In his analysis of the Pangnirtung fishery Bruce Ashley also suggests that a limited private company may not have been the most appropriate form for the Pangnirtung commercial fishery ownership to take. He argues that the explicit goal of a limited company to achieve profits, coupled with the profits achieved early in their operation, set high expectations for the fishery to be a consistent profit generator. This is an unrealistic expectation given the generally poor performance of fish processing businesses even when they receive government subsidies. The goals of the Pangnirtung fishery have always been

the creation of jobs, income and training opportunities. These are at least as important as generating a profit yet they tend not to be reflected in the mandate of limited companies.

He further suggests that a more appropriate structure may have been a workers' or producers cooperative. A producer's cooperative may have had the same advantages of local control and ownership but have been better able to address the issue of profit expectations and other commercial fishery objectives. The mandate of the organization could have been built on jobs, income, and training as well as profits. As a cooperative, without the overriding profit goal, perhaps fishermen and employees would be more willing to adjust their wages and income to the profitability of the business. At present the community expects the fishing company or government to subsidize the operation to maintain the jobs and income.

The community has not lost all input into the fishery however. According to several interviewees, the EDA Management Sub-committee in the region provides a useful forum for overall coordination of government players in development of the fishery and one of the ED&T officials interviewed indicated that there was strong local involvement in fisheries management through the local EDA sub-committee because the community was politically aggressive.

It should also be noted that the extent of the Pangnirtung turbot fishery resource is not fully understood and it is not clear what level of turbot harvest is sustainable. There is a danger that government initiatives have encouraged people to enter commercial fishing with the expectation that they will all be able to make good money harvesting turbot without regard to the fact that resource depletion might force government to "put the brakes on" to avoid another East coast disaster. Given the unknown quantity of the resource and limited knowledge of the turbot market, a large investment in a processing plant may be premature and may encourage people to enter the fishery expecting it to indefinitely provide a good income to an increasingly large number of people. This level of exploitation may not be biologically or economically sustainable.

Cambridge Bay Char Fisheries

The Cambridge Bay char fishery differs from other NWT fisheries because it is an established fishery, owned and operated by a broad-based locally owned co-op independent of the government.

The Cambridge Bay char fishery began in 1965 with an experimental fishery designed to provide an inexpensive source of food for relief issue in the Cambridge Bay area. Harvests in the first year totaled 17,955 kg taken by gill net in Cambridge Bay and Wellington Bay.

Initially the GNWT owned and operated the Cambridge Bay fishery, however around 1977 the Ikaluktutiak Co-op took over the enterprise and has been running it since that time. Under the Co-op's management, commercial char landings have consistently averaged about 45 tonnes a year with landed values in excess of $200,000 annually. Cambridge Bay has been the most consistent char producer in the territories and for this reason has been called the most successful of the char fisheries.

The Cambridge Bay fishery operates on a fly-in basis. Fishermen fly out to fish camps in the spring and travel by boat in the fall where they use both gill nets and weirs to capture char on their spring and fall runs. Char is then flown from the various fishing site to the fishplant in Cambridge Bay where it is processed and shipped fresh or frozen. The high costs of flying the char to the processing plant and problems associated with variable weather conditions frequently result in high costs and supply problems.

The day-to-day operations of the fishery are overseen by a manager who is responsible for all aspects of the fishery. The manager reports to a Co-op Board of Directors elected by Co-op members which includes approximately 90% of the residents in the community.

Until 1992 the Co-op fishery sold its char to FFMC which was, by law, responsible for marketing the catch. However, in 1992 the GNWT negotiated an exemption for char

from the FFMC marketing monopoly. It was felt that the FFMC was not directing adequate effort and resources to marketing char resulting in low market prices for char and less than optimum prices for the char fishermen.

The exemption was granted easily because char was such a minor player in FFMC'S slate of products and more of a nuisance than a money maker. This left NWT fisheries free to pursue their own markets for char, however it also left the Ikaluktutiak Coop without a market for their char.

The Co-op appealed to ED&T for marketing assistance and was referred to the NWT DevCorp. However, the Ikaluktutiak Coop and the NWT DevCorp were not able to reach a satisfactory working relationship. The DevCorp was unwilling to purchase char at the price asked by the Coop and the Coop was unwilling to accept the price offered by the DevCorp. Consequently, the Ikaluktutiak Coop did not fish its char quota in 1992.

The NWT DevCorp has offered to take over the running of the Cambridge Bay Char fishery and build a new processing plant in Cambridge Bay - infrastructure that is badly needed if the Cambridge Bay fishery is to stay in business and diversify its product range. However, according to the Co-op fishery manager, the Co-op is not interested in that kind of arrangement because the DevCorp requires controlling shares (510/0) of the enterprise before it will build the new plant.

The Co-op manager stated that the CO-Op had been very successful running the fishery for 20 years and was not interested in being taken over by an outside agency. The Co-op readily admits they need help marketing their char but they do not want to lose control of the fishery. As a result, an impasse seems to have been reached and the Coop is now undertaking its own marketing initiatives with a southern based fish broker.

Management of this fishery by the well-established local Co-op has provided stability and continuity to the Cambridge Bay char fishery. This stability, combined with the presence of a strong local fisheries manager and a niche market for char have been identified as major factors in the success of the fishery. The availability of a large stock of char and the

willingness of community members to participate in the fishery and to fish in isolated regions has also been identified as critical to the success of this fishery.

Community Benefits

The manager of the Ikaluktutiak Coop was very reluctant to provide specific information about the performance of the Cambridge Bay fishery therefore we are restricted to making some general observations about the community impact of the fishery.

According to the CO-Op fisheries manager, the fishery was started as a business venture with the intention of being profitable and bringing money into the community. It was also intended to create local employment.

The manager stated that up to 70 people are employed on a seasonal basis in the different facets of the fishery, people that would otherwise be on welfare. Fishermen are also eligible for UIC although it was unknown whether anyone had received UIC benefits. All money from the fishery stays in the community, including the transportation costs from fishing sites to the plant in Cambridge Bay.

Information available from ED&T records (Eggers 1992) indicate that during the 1990/91 season the Cambridge Bay export char fishery provided employment to 33 fishermen representing approximately 12 per cent of the male labour force in the community, Gross revenues to fishermen totalled $29,338 and net revenues totalled $20,310 resulting in an average net income of $813 per fisherman. The processing facility was estimated to provide direct income of $37,000.

This level of income is very low, however it was acknowledged by all interviewees that the income earned from the fishery is very important to those that participated. Of the 70 people employed in the fishery, there are up to 35 fishermen, most of whom are elderly. The disposable income earned from the fishery allows fishermen to purchase equipment such as guns, motors, boats, and skidoos which are needed to pursue fishing and hunting, a lifestyle that older people enjoy and value. These people have very few alternative

sources of disposable cash income.

However, in recent years it has been observed that youth are not being attracted to fishing as an occupation and fishing skills are not being passed down from old to young. It was therefore felt that there is a need to promote fishing as a worthwhile and valuable occupation if the fishery is to continue.

Community Self-Reliance

The Ikaluktutiak Co-op fishery is the only example of a commercial fishery in the NWT that has successfully been directed and managed by a local organization over an extended period of time.

Some sources have indicated that the fishery is actually run solely by the manager; that he has complete power over decision making and therefore this fishery is not really an example of community control. However, the manager is ultimately responsible to the elected Co-op Board of Directors and the Co-op members thus there is a formal mechanism built into the structure of the fishery that provides for community input into decision making.

ED&T has had limited involvement in this fishery, however there has been a high level of cooperation between the Co-op fishery, DFO and the local HTA in developing and directing commercial fishing in this area. Quotas are set on each river by DFO and are assigned to the HTA who in turn allocate the licenses. However, as the major player in the commercial fishery, the Coop has developed a high level of control over the resource allocation and is involved in all decision making regarding quotas and licensing. Any conflicts and allocations of quotas are controlled by the HTA, and the HTA and the Coop together decide who will be licensed. If there are any major decisions to be made, for example on new fishing areas, changes to quotas, etc., fishermen are consulted and the Co-op calls a public meeting.

An example of this cooperative decision making can be seen in the small commercial

whitefish fishery established by the HTA. The area the HTA fishes in and the size of the quota was determined by DFO, the HTA and the Co-op working together to ensure that there would be no conflict between the HTA and Co-op fishery.

The level of success of the Co-op fishery can be seen in its consistently high level of export char production and the level of participation by local community members. The Cambridge Bay fishery has managed to operate for over 20 years without a government bailout and without requiring large ongoing capital investments. Quotas have been well managed with fish counts done daily at fishing sites and quality has been improving with the use of weirs in addition to gill nets. However the future of this fishery is in question if the Co-op is unsuccessful in securing a strong market for its product with prices that will cover their costs. If not, it is likely that the fishery will be taken over by another agency.

Mackenzie Delta Broad Whitefish Fishery

The Mackenzie Delta Broad Whitefish fishery is a test fishery initiated by the local HTA. The HTA ran the fishery for the first year, however under the rules governing their charter an HTA cannot own assets therefore the operation of the fishery was turned over to the business arm of the Inuvik Community Corporation, the Ummaarmiut Development Corporation (uDC), which has operated the fishery for the last four years. The UDC is a registered business which undertakes renewable resource business projects on behalf of the Inuvialuit residents of Inuvik. According to ED&T officials, UDC appears to focus primarily on investments that will provide financial returns for the Inuvialuit claim beneficiaries.

The initial intent of this project, according to the HTA, was to start a commercial activity for its members. The Inuvik HTA has a number of members who choose to live on the land year round, fishing, hunting and trapping. The HTA wanted to create a means of providing a cash income which would allow these people to buy the supplies needed to spend the winter at their camps.

The HTA worked closely with ED&T's Renewable Resource Development Officer to develop a plan for a test fishery that would qualify for EDA finding. During this process the objectives for the fishery were expanded and modified to include the following:

1. to undertake five years of test fishing activities to provide sufficient biological data to see a commercial quota established
2. to refine operations to make the project as viable as possible
3. to create employment and incomes for residents at the plant and incomes for fishermen
4. to provide training to local residents so that they can undertake all of the managerial and operational positions
5. to test different technologies to improve catching methods and quality of products.

A sixth objective of replacing fish imports from Winnipeg was also added.

The test fishery was a five year project which has recently been completed and the proponents are now hoping that a commercial quota will be assigned allowing further development to take place. However, it is recognized by all involved that the Delta fishery requires more work before it is either viable or sustainable.

The fishery is carried out by fishermen living in camps along the Mackenzie River Delta. In 1992 there were six camps in operation with two to three fishermen at each camp. Fishermen harvest broad whitefish, pike and inconnu using traditional gill nets and keep their catch on ice. Fish are picked up daily by a collector vessel which delivers ice to the fishermen and transports the fish to Inuvik where the fish are filleted, frozen and vacuum packed.

The size and extent of the Mackenzie Delta fish resource is not known therefore biological research has been a major component of the test fishery. In the past there have been camps along the Mackenzie Delta that harvested fish so people could feed their dogs. According to the chairman of the HTA who has been fishing in this area for 50 years, the total catch currently harvested is much smaller than the harvests taken 30 years ago when

everyone required fish to feed their families and their dogs. At that time the catch was always enough to meet the community's needs and there was never a shortage of fish.

There have been past attempts to fish commercially in the Delta but there were problems with management and concerns about over fishing when some residents complained their domestic catches were going down. A review of the history of commercial fishing in the Delta suggests that the area may have abundant fish resources but they are not uniformly distributed resulting in a need for detailed resource inventories before any development can take place.

Given the paucity of information about the Delta fish stocks and a history of problems with commercial fishing, DFO has been very conservative in establishing commercial and test fishing quotas. Therefore, one of the primary objectives of the Delta test fishery is to collect enough biological information to establish a commercial quota.

Throughout the course of the test fishery biological data has been regularly collected by DFO under the administration of UDC. Biologists have taken samples and measurements from the catch including scales to determine aging, samples of liver to detect chemical contamination, blood samples to help determine genetics, size, length, weight, and catch per unit effort. In 1993 the Gwich'en Tribal Council also provided samples from Arctic Red River, Fort McPherson, Aklavik and Inuvik which will provide a wider perspective on the Mackenzie Delta fishery potential. Local harvesters recognize the need for biological data collection and assist in data collection.

It is expected that if a commercial quota is granted on completion of the test fishery it will be similar in size to the current test fishery quota and on the conservative side. Because of the lack of a commercial quota and the uncertain future of the fishery, capital investment in the fishery has been kept very low and technology has also been an area of investigation during the course of the test fishery.

The major constraint facing the Mackenzie Delta fishery is the market. Throughout the history of attempts to commercially fish the Mackenzie Delta, the high cost of shipping

fish out of theregion andthe low market price for whitefish has made it impossible to export whitefish to the south and cover costs.

Given these constraints, the test fishery project is looking at developing local and northern markets for fish products. There have been problems in the past with local marketing when fish was sold to the Northern Store which in turn did not make much of an effort to sell product. The Northern Store also brings up fish from Winnipeg which competes directly with local fish products. The local Inuvik market is also limited both in terms of size and demand because many residents supply their own fish or are supplied by family members. To counter these problems there will be a greater push in the local market through newspapers, flyers, and direct contact by letter to commercial outlets such as hotels and institutions such as the hospital. There are also a number of projects anticipated in Inuvik which would enhance local market penetration of fish products including:

- a proposed primary and secondary meat and fish processing facility combined with a wholesale sales division;
- UDC and the Inuvik Community Corporation are assessing the feasibility of establishing a country food store in Inuvik. If this project proceeds, the country food store would provide a local retail outlet for Mackenzie Delta fish products.
- preliminary planning is underway for a dryfish and drymeat production centre

The delta fishery is also working on developing a market for whitefish in the Yukon where there is apparently a high demand for whitefish that is not being supplied. The Yukon market has the advantage that fish can be transported by road rather than air, reducing costs. The Yukon Indian Development Corporation is interested in joint venturing with UDC on the marketing of fish and other products.

Community Benefits

In terms of employment benefits, the Mackenzie Delta fishery provides between 20 and 30 short-term seasonal jobs each year. This past season there were five active camps with

two to three fishermen per camp. A collector vessel, with a crew of two, made one trip a day from Inuvik to each of the camps bringing in ice and bringing out iced fish. The processing plant is located in Inuvik and employs eight local people. There is also a manager and bookkeeper, both local Inuvik residents. In addition, it is hoped that one person will be assigned to product marketing for three months after all the fish is processed and packaged.

Employment is expected to remain at current levels if a commercial fishing quota is granted, however there may be further employment opportunities if value-added products such as smoked fish, and local retail sales are pursued.

While the fishery has been successful in employing as many as 30 employees working full-time during each fishing season, the season is only 3 weeks long therefore total employment provided has been low. Expressed as PYs (based on 40 weeks of work) the test fishery provides only 2.5 PYs for combined harvesting, processing, and management. If a marketing person was hired for 3 months, PYs would increase to 2.8.

Although this level of employment is very limited, all of the people we interviewed stressed that the employment provided by the fishery was extremely important to those participating because it provided one of the very few sources of cash income available to these people.

According to our interviews, 8- 10 families depend on the fishery to provide the cash they need to spend the winter on the land, and this is their only source of wage employment. The majority of these people have no formal schooling or training and would otherwise be unemployed. They do, however, own the equipment needed to fish and have the required skills and experience. They also enjoy fishing. According to the chairman of the HTA, the test fishery program has been very successful because the jobs created have gone to people who live on the land. In fact, three of the camps used for commercial fishing are occupied by the fishermen year round for hunting and trapping.

During the 1992 season fishermen received a total of $29,000 from fish sales. Assuming

there were 12 active fishermen, each fisherman received an average gross income of $2,320. Fishing expenses have been estimated by ED&T to average approximately $361 per fisherman resulting in an average net seasonal income of $1959 per fisherman or an average of $653 per week. Assuming an eight hour day, seven day week, this represents an average hourly return of $11.66.

The HTA hoped to provide enough cash through the fishery to allow hunters to buy supplies to overwinter in their camps. The plant manager estimated that hunters and trappers require $5,000-$7,000 to stay at a camp for the winter depending on the size of their family. This money is required to buy food staples, gas, traps, etc. Based on this estimate, an average seasonal income of $1959 provides 30 - 40°/0 of a hunter and trapper's winter cash needs.

The project also generated approximately $44,000 in 1992 for plant workers and collection vessel crew. Plant workers received $12.50 per hour and the foreman received $14.00 per hour.

In total the test fishery injected $74,000 in direct wages into the community, not including wages earned by local residents hired to assist with biological research. This represents only a very small portion of total community income, but the fishery is recognized locally as an important activity for a limited number of people since it allows families to stay on the land to trap and hunt. The cash from fishing is seen as a means of supplying needs for trapping and is a valuable addition to trapping particularly now that trapping income has fallen so low and the costs of harvesting have risen.

The chairman of the HTA was particularly pleased that the money that was generated by the fishery stayed among HTA membership. He also spoke about the pride shown by those working in the fish plant:

> *"When I go into the fish plant and I see how everyone is working and there is" such pride. I feel proud. . . . To us I feel that getting our own people out and doing this kind of work, making some money for ourselves, 1'm really*

proud we are able to do this. "

Community Self-Reliance

From the start of this project there has been a high level of local community involvement and control. The project was initially proposed by the local HTA who worked closely with the Renewable Resources Officer to develop a plan and proposal for the EDA. The Renewable Resources Officer played a very important role in getting the fishery organized and funded and the representatives of the UDC and HTA that we spoke with indicated that without the Renewable Resources Officer's key role, nothing would have been accomplished. He is credited with not only getting the fishery going but also with working well with the local stakeholders to ensure the fishery was developed to meet their goals.

The Renewable Resources officer described his current role in the fishery as gap filling. At various stages in the process he has been facilitator, secretary, and bookkeeper but as local residents have become more experienced his role has diminished. He is now a member of the fisheries steering committee that guides the development of the fishery and he helps the UDC do the implementing party work plan for the EDA. Once the test fishery stage of the project is over, his role in the administration of the project will likely be reduced.

The fishery is supervised by a regional steering committee which represents the interests of all parties involved with the fishery including the UDC, HTA, DFO, ED&T, Renewable Resources and the Fisheries Joint Management Committee. This steering committee has been seen by many as the key to the successes achieved by this fishery. Many of the individual members of the steering committee have been involved since the inception of the project providing a degree of continuity and experience.

The steering committee supervises bookkeeping, the plant manager, and marketing. The UDC is the official proponent of the project and has the final say in all disputes. With the ending of the test fishery phase of the project next year, the responsibility for management of the project will be turned over to the proponents.

As the fishery has progressed the level of local control has increased. According to one source, "local people have been involved since day one and are now in positions of control. They are essentially the management of the project now".

All those interviewed also felt there was also ample opportunity and a suitable mechanism for broader based public consultation through HTA meetings and through meetings with the Fisheries Joint Management Committee. There has been a high level of cooperation between the fill range of government agencies and local organizations involved and everyone felt decision making had been effective and consultation successful.

Local self-sufficiency has also been enhanced by the high level of training made available to local residents. A local manager has been trained and now manages the fishery and processing plant. He in turn has trained two other employees to run the plant as he would prefer to retire. All of these trainees have been local residents, as are all of the plant employees so that the fish plant is now completely managed and operated by local native residents. These residents are undertaking training of any new staff as a matter of course and there is no longer a requirement for trainee or trainer designated staff.

The increase in local self-reliance and direct benefits to the community as a result of training can be seen in the increase in expenditures that are paid to local and NWT reisdents and business as shown in the table below. Over the course of the test fishery, as local residents were trained in all aspects of the fishery, less money needed to be spent outside the NWT. The money now spent outside the territories is largely for capital equipment which is not available in the NWT and for employers shares of UIC and CPP.

Expenditures Paid To:	1989	1990	1991	1992
NWT Residents	27%	20%	37%	55%
NWT Businesses	35%	39%	32%	34%
Outside NWT	38%	41%	31%	1 1°A

This fishery is a good example of local residents and government agencies working closely to reach a common goal. Given the developmental nature of this fishery and the principle objective of providing cash income to subsistence harvesters the project has been kept small scale and capital investment has been relatively low. Fishermen use the same equipment for domestic and commercial harvesting, therefore those involved have not major capital outlays to participate in the fishery and the skills and expertise required are present in the community.

However, the test fishery results have also indicated that commercial fishing in the Mackenzie Delta will not become financially viable without substantial quotas being available and without attaining a better return on the harvest. Therefore the market problem must be addressed if this fishery is to be sustainable.

There may also be future conflicts regarding the ownership of the fishery. The UDC is primarily interested in investments that will yield a financial return to the corporation. In 1991 the UDC expressed the view that the poor financial performance of the commercial fishery did not provide any financial benefit to the corporation and that the fees they received for administering the project were not adequate. If the fishery is not seen as worthwhile to the corporation it may consider withdrawing or reducing its involvement.

Keewatin Char Fisheries

Commercial fisheries development in the Keewatin region began in the early 1960s as a government initiative aimed at providing employment and a source of food to a population facing serious economic hardship. A government run fish plant was established in Rankin Inlet and local Inuit residents were hired as wage employees to harvest and process fish from the Rankin Inlet area.

The processing facility operated for almost 20 years processing a wide range of fish species and products, but was plagued by a number of serious problems including lack of economic viability and the collapse of the local char population in the Diana River in

1984-85. To keep the commercial fishery operating after the depletion of local stocks, the government turned to other quota areas as a source of fish and individuals in other Keewatin communities were encouraged to fish for sale to the Rankin Inlet plant. This resulted in the formation of active commercial fisheries in Whale Cove, Arviat and Chesterfield Inlet.

Initially, the government had been responsible for organizing and running the fishery however in the mid- 1980s there was a push towards privatization and individual residents and community groups were encouraged to take over economic ventures being run by the government. During this period the fisheries in Arviat, Whale Cove and Chesterfield Inlet were turned over to local businesses and organizations with varying degrees of success. Throughout this period however, the government still played a very large role in organizing and directing the fishery. Government, through ED&T, provided the **infrastructure and finding for capital equipment, developed the marketing relationship with FFMC, made shipping arrangements for transporting fish to market, organized the fishermen each year, and managed most of the fish plants.**

In the late 1980s there was another shift in policy and the government once again took over the role of planning and implementing economic ventures in high risk areas such as renewable resource development. As a result, the Arviat fishery became the only private fish business in the Keewatin in a commercial fishery that was otherwise planned and run by the govermnent. Char was harvested in Arviat, Whale Cove, Chesterfield Inlet and to a lesser extent from Rankin Inlet, and was either shipped directly to FFMC (fresh or frozen) or shipped first to the Rankin Inlet plant for processing and holding then shipped to FFMC. However char production was inconsistent and quality was often a problem.

The Keewatin char fishery continued to operate with high levels of support and management from ED&T until 1992 when the NWT DevCorp took over the Keewatin fishery. The DevCorp is currently constructing a new fish plant in Rankin Inlet and has taken over product development and marketing for char products. The DevCorp has concentrated on producing value added products for sale in the upscale southern market in the belief that the greater returns on these products will increase the economic viability of

the char fishery and ultimately increase the interest of and benefits to local fishermen.

The Keewatin char fishery is earned out by individual fishermen fishing from small wood and canvas canoes using standard gill nets. Inconsistent production levels have always been a problem with the Keewatin fishery and have been attributed to a number of factors including poor weather, distant quotas and low returns to the fishermen which discouraged participation in the fishery. However, production over the past two years has been down and during the 1993 season all of the major char producing rivers near Keewatin communities showed extremely low production raising concerns that the local char populations have become seriously depleted. The state of the char stocks has therefore become a important issue in this fishery.

Community Benefits

The Keewatin char fisheries provide seasonal employment that may last up to two months each year. There are approximate y 125- 150 licensed fishermen participating each year representing approximately 13 per cent of the region's male labour force. There are an additional 12 people working in the fish plant. Some of the employees working in the fish plant may eventually have year-round employment in the processing plant because the plant will be processing both fish and caribou.

The harvesting sector of the Keewatin fishery has never been very well organized and participation in the fishery can be sporadic with different people participating each year depending on what other opportunities are available in the community. Most of the men who harvest fish are older Inuit men with few other job opportunities available to them except summer time construction work which sometimes draws participants away from fishing.

In 1991 it was estimated that total gross revenues earned by Keewatin char fishermen were approximately $122,000. After expenses this provided a total net income of $89,082 or an average seasonal income of $890 per fisherman (Eggers 1992). This low average return to fishermen is due to a combination of high harvesting costs and a large number of

fishermen harvesting limited quotas. Analysis of harvesting patterns in Arviat indicated that most fishermen only made 2-4 commercial sales during the season before the nearby quotas closed, resulting in low per capita incomes. It is likely that this same pattern exists in other Keewatin communities.

However, in spite of low average income earnings, community members throughout the Keewatin stress the importance of the commercial fishery, particularly for those members of the community that cannot get other jobs. Commercial fishing is seen as an important source of cash income to cover the costs of subsistence harvesting and it is estimated that at least 50°/0 of the people who participate in commercial fishing do so to offset the costs of maintaining their domestic harvesting lifestyle; their intention is not to make a large amount of money or operate as a real business. In this sense the commercial fishery has been very successful in providing an opportunity for a large number of people to make a small amount of money.

Community Self-Reliance

In terms of enhancing community self-reliance and increasing community control, the Keewatin char fishery has had limited success. Throughout its development the fishery has required high levels of government involvement not only for finding but also to organize and coordinate the fishery.

According to the Rankin Inlet EDO, fishermen have input into the fishery through the HTA which must be consulted before any project goes forward. However, turnouts at meetings regarding the fishery are low and there seems to be little interest in the fishery, probably due to the low financial returns available to fishermen.

Most of the people we interviewed stressed the importance of increasing community involvement in the process of developing the fishery, particularly in the face of possible resource depletion. The char rivers near Keewatin communities are used for both commercial and domestic fishing therefore there has been a lot of conflict in management issues such as stock assessment and setting realistic quotas. The size and nature of the

char stocks in the Keewatin are not understood and the level of domestic harvest is not known to DFO, therefore it is difficult to set realistic, sustainable quotas for commercial harvesting. In addition, quotas are set for the commercial harvest but no other restrictions are placed on entry to the fishery resulting in a large number of fishermen fishing the nearby quotas, each earning only a small amount of money.

Those interviewed felt that communities and government agencies must work more closely together and work towards co-management if the fishery is to be developed. It was also felt that choices must be made about whether certain rivers should be designated for either domestic or commercial fishing and clearer regulations were needed to manage the resource. Without these decisions commercial fishing could not be sustained. However, these decisions must be made with fill community participation, not by government agencies alone.

Summary

In the introduction to this paper we listed three questions that need to be asked in evaluating whether fisheries development in the NWT have contributed to economic development:

1. Does the project enhance community well-being by providing for basic needs?
2. Does the project help move the community away from a position of dependency and towards a position of self-reliance?
3. Is the project self-sustaining in terms of natural resources, human resources and economic resources?

With respect to providing for basic needs, fishery development has shown some success. With the exception of the Great Slave Lake fishery, all of the major fisheries in the NWT have been developed with the primary objective of providing employment and a source of cash income to local residents. For the most part, fisheries development has fulfilled this objective by not only providing employment, but by providing employment to those most

in need - older, often unilingual residents who have little formal education or training and few other employment prospects. However, because of the seasonal nature of most fisheries, employment is limited to a few weeks or months each year and income earned by fishermen tends to be low. In many cases, fishermen only just cover their costs.

Yet, in every community, the fishery is seen as a very valuable part of the economy and fishermen continue to participate. It appears that continued participation in the fishery is, in many cases, due to the fact that cash income from commercial fishing helps subsidize the costs of participating in a harvesting lifestyle and enables harvesters to pursue traditional pursuits. For most of those participating, it is this combination of commercial and traditional pursuits that makes commercial fishing worthwhile.

In terms of enhancing community self-reliance and increasing community control, fisheries development has had varied success. In some communities the fishery continues to rely heavily on the government to organize and run the fishery. In others, such as Cambridge Bay, community organizations have full control of the fishery and work with government agencies to co-manage the resource. All of the fisheries continue to receive some level of government finding, support or subsidy.

Sustainability is also an issue in each of the fisheries examined:

- the Great Slave Lake fishery is not economically viable or sustainable in its present form and requires high levels of government subsidy;

- the Pangnirtung turbot fishery is built on a resource that is not well understood therefore biological sustainability may be an issue. In addition, reduced levels of community control over the fishery may result in the community not developing the required skills to keep the fishery going if the NWT DevCorp turns ownership back to the community;

- the Cambridge Bay fishery may not be sustainable in terms of human resources as recruitment into the fishery is low and there appears to be little interest in fishing

among younger residents. Marketing and therefore economic sustainability is also a critical issue in this fishery;

- the Mackenzie Delta broad whitefish fishery will not be economically sustainable unless a large commercial quota is granted and a market is found that will provide higher returns on the harvest;

- the Keewatin char fishery is facing serious resource problems and may not be biologically sustainable.