1

CANADIAN THESES ON MICROFICHE

I.S.B.N.

THESES CANADIENNES SUR MICROFICHE

National Library of Canada
Collections Development Branch

Canadian Theses on
Microfiche Service

Ottawa, Canada
K1A 0N4

Bibliothèque nationale du Canada
Direction du développement des collections

Service des thèses canadiennes
sur microfiche

NOTICE

The quality of this microfiche is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us a poor photocopy.

Previously copyrighted materials (journal articles, published tests, etc.) are not filmed.

Reproduction in full or in part of this film is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30. Please read the authorization forms which accompany this thesis.

THIS DISSERTATION
HAS BEEN MICROFILMED
EXACTLY AS RECEIVED

AVIS

La qualité de cette microfiche dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de mauvaise qualité.

Les documents qui font déjà l'objet d'un droit d'auteur (articles de revue, examens publiés, etc.) ne sont pas microfilmés.

La reproduction, même partielle, de ce microfilm est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30. Veuillez prendre connaissance des formules d'autorisation qui accompagnent cette thèse.

LA THÈSE A ÉTÉ
MICROFILMÉE TELLE QUE
NOUS L'AVONS REÇUE

National Library
of Canada

Bibliothèque nationale
du Canada

166

CANADIAN THESES
ON MICROFICHE

THÈSES CANADIENNES
SUR MICROFICHE

0-315-12131-7

60044

NAME OF AUTHOR/NOM DE L'AUTEUR

Daniel S. Buckles

TITLE OF THESIS/TITRE DE LA THÈSE

The Development of Commercial Fishing: an
example from the Yukon.

UNIVERSITY/UNIVERSITÉ

Carleton

DEGREE FOR WHICH THESIS WAS PRESENTED/
GRADE POUR LEQUEL CETTE THÈSE FUT PRÉSENTÉE

Master of Arts

YEAR THIS DEGREE CONFERRED/ANNÉE D'OBTENTION DE CE GRADE

1983

NAME OF SUPERVISOR/NOM DU DIRECTEUR DE THÈSE

Wallace Clement

Permission is hereby granted to the NATIONAL LIBRARY OF
CANADA to microfilm this thesis and to lend or sell copies
of the film.

L'autorisation est, par la présente, accordée à la BIBLIOTHÈ-
QUE NATIONALE DU CANADA de microfilmer cette thèse et
de prêter ou de vendre des exemplaires du film.

The author reserves other publication rights, and neither the
thesis nor extensive extracts from it may be printed or other-
wise reproduced without the author's written permission.

L'auteur se réserve les autres droits de publication; ni la
thèse ni de longs extraits de celle-ci ne doivent être imprimés
ou autrement reproduits sans l'autorisation écrite de l'auteur.

DATED/DATE

May 2/83

SIGNED/SIGNÉ

Daniel S. Buckles

PERMANENT ADDRESS/RÉSIDENCE FIXE

79 Grove Ave

Ottawa, Ontario

K1S 3A7

THE DEVELOPMENT OF COMMERCIAL FISHING:

AN EXAMPLE FROM THE YUKON

© Daniel Buckles, B.F.A.

Submitted in Partial Fulfillment of the
Requirements for the Degree of
Master of Arts

Institute of Canadian Studies
Carleton University

Ottawa

April, 1983

The undersigned recommend to the
Faculty of Graduate Studies and Research acceptance
of the thesis

"The Development of Commercial Fishing:

an example from The Yukon" by

Daniel J. Buckles, B.F.A.,

submitted in partial fulfilment of the requirements
for the degree of Master of Arts

.....
Thesis Supervisor

.....
Director, Institute of
Canadian Studies

Carleton University

Ottawa, Canada

27 April 1983

ABSTRACT

Commercial fishing in the Dawson City area is being fundamentally reshaped by the establishment of an industrial fish processing plant. This study presents an analysis of the impact of this development by focusing on the forces and relations of production before and after the establishment of the plant. Until recently, commercial fishing in Dawson was organized by independent family groups and directed towards local demand which determined the nature, quantity, and price of the product. The establishment of a fish processing plant has reorganized commercial fishing to accommodate more advanced technology and has integrated the fishery into the wider capitalist economy. The new links with international markets have generalized the conditions of production and reduced local control over the labour process. The limits of local demand are being replaced by new limits and the requirements imposed by international market forces. The reorganization of the fishery has also resulted in the emergence of groups of people with conflicting economic interests.

TABLE OF CONTENTS

	<u>Page</u>
PREFACE.....	1
CHAPTER ONE	
The Labour Process.....	6
CHAPTER TWO	
The Social Relations of Production.....	35
CHAPTER THREE	
Industrial Development.....	63
CHAPTER FOUR	
Some Implications.....	85
CONCLUSIONS.....	110
LIST OF ILLUSTRATIONS.....	117
NOTES.....	118
BIBLIOGRAPHY.....	123

The Impact of Industrial Fish Processing on a Small Salmon
Fishery in Dawson City, Yukon Territory.

PREFACE

Until recently, commercial fishing in the Dawson City area was organized by independent family groups and directed towards local demand for fresh and smoked salmon. Fishing was a small segment of the local economy which provided a seasonal livelihood for a limited number of fishermen. Despite the fact that Indians comprise a third of Dawson's population, the majority of commercial fishermen were White.¹ In 1982 an industrial fish processing plant was established with the financial support of the Federal Government. Fish processing and marketing which was previously controlled by fishermen is now controlled and operated by an Indian-owned company. This has resulted in a new division of labour, namely, greater concentration and organization of production, the use of wage labour and a shift to export markets. Productivity has increased and industrial jobs for local Indian people have been created. At the same time, commercial fishing has been fully integrated into the wider capitalist economy and groups of people with particular and conflicting economic interests have emerged:

This study examines the nature and effects of these changes. Emphasis has been given to a descriptive analysis of changes in the forces and relations of production in the commercial fishery and some of the implications for White and Indian workers. Development is viewed as a social process in that technological changes are "closely bound up" with social relations of ownership and control over the means of production.² Thus the organization of commercial fishing and the distribution of the benefits of production are central to the analysis.

The thesis presents an analysis of commercial fishing in Dawson before and after the establishment of an industrial fish processing plant. Chapter one provides a review of the relationships between the environment, fishing technology, and the organization of work. Chapter two examines the "pre-plant" social relations of production in the commercial fishery including access to resources and instruments of production and the market relations that integrate family fishing operations into the wider capitalist economy. Chapter three provides an outline of the establishment of the fish plant and its first year of operation and a context for an examination of the nature and implications of the development covered in chapter four. This chapter details the reorganization of production to meet the needs of the

fish plant and the new social relations of production resulting from the increasing division of labour in the fishery. In the conclusion the essential changes are summarized and some more general implications are examined.

Interest in this subject is a result of several years of residency in Dawson City and close association with many of the local fishermen. In addition, the period from May to September 1982 was devoted to researching the issues relevant to the study of fishing in the Yukon. Representatives from the Department of Fisheries and Oceans in Whitehorse, Vancouver and Ottawa were interviewed as well as from the Department of Regional Economic Expansion, a major supporting agency for the new fish processing company. Also, representatives from the Council for Yukon Indians and the Dawson Indian Band were interviewed. A trip was made to Alaska to interview representatives of the Alaskan Department of Fish and Game responsible for the management of the commercial and subsistence fisheries on the Yukon River in Alaska. The Alaskan officials were most cooperative in providing information on Yukon-Alaska relationships regarding the harvest of the common salmon population.

While basic research involved contact with various regional and national government officials, the greatest insights into the central issues were gained through several

months spent working with fishermen at their camps along the Yukon River. In addition, I was periodically employed in the fish processing plant washing fish and spoke at length with plant workers and management.

A research grant from the Northern and Native Studies Programme at Carleton University and the provision of a boat and motor by the Department of Fisheries and Oceans permitted the undertaking of a more ambitious research project than would otherwise have been possible. Sandy Johnston and Patrick Milligan of the Fisheries office in Whitehorse were particularly helpful. Frank Taylor, the fish plant manager in Dawson, generously provided access to the plant and its operations plus the benefit of his extensive experience. During my numerous visits to outlying camps I was received with characteristic Yukon hospitality and a trust and acceptance that made my research project not only possible but also a most memorable and rewarding experience.

Special thanks are owed to Wallace Clement and Jacques Chevalier, for their encouragement as well as their invaluable advice and suggestions. In addition to those mentioned above, many other friends provided support and useful remarks. Frank and honest comment was provided by the many individuals contacted during the development of the research project. However, the views expressed in this

thesis are based on my own interpretation of the situation and issues involved.

CHAPTER ONE

THE LABOUR PROCESS

Natural resources and raw materials, tools and machines (means of production) combine with human labour in definite labour processes by means of which material production is organized. "The simple elements of the labour-process are (1) purposeful activity, that is, work itself, (2) the object on which that work is performed, and (3) the instruments of that work."¹ Work activities involve the transformation of natural objects by human labour "into a condition where they can satisfy human needs. ...This process of transformation is the process of material production."²

This chapter examines the labour process of commercial fishermen in the Dawson City area prior to the introduction of industrial fish processing including the relationships between the environment, fishing technology, and the organization of work.

The Setting

For centuries, Han Indians gathered seasonally to fish for salmon at the confluence of the Yukon and Klondike Rivers where Dawson City is now located. Frederick Flewelling, a missionary to the Klondike, wrote in 1896: "As one approaches a camp the first thing seen is row upon row of the brown-red salmon drying."³ During the Klondike Gold Rush the local Indians were forced to move their fish camps down river so that a city could be planned for the multitude of workers who poured into the region. The population of Dawson City swelled to 20,000 between 1896 and 1898 but declined very rapidly after 1900. Today there are fewer than 1,300 permanent residents. Gold mining is still important locally but tourism is now the main activity. Although commercial and food-fishing is only a small part of the local economy, it is of great importance to some people both as a livelihood and a source of food.

Salmon fishing in the Yukon Territory mainly occurs on the Yukon River which is the fifth largest water drainage system in North America. From its headwaters in the Coast Mountains of northwestern British Columbia, the river flows north and west through the Yukon Territory and Alaska for over 2,000 miles to the Bering Sea. It drains an area of approximately 330,000 square miles, one third of which is in

Canada (Map 1). The valley of the Yukon is expansive and in many areas the river is over a half mile wide and frequently braided by sand bars and islands. The banks vary from sharp rock cliffs to wide floodplains characterized by thickets of willow and alder and dense stands of white spruce. The river's current is a swift 5 to 7 miles per hour for much of its length.

In early May the ice begins to break along various sections of the river as melting snow from the mountains and hillsides raises the water level. For a week or so the river is choked with floating ice, trees, and debris as tributaries flush the remnants of winter into the Yukon. By mid-June the daylight hours have been extended to 20 hours and more. Summer is usually warm with temperatures ranging into the high 80's and a mean July temperature of 60 degrees Fahrenheit. Temperatures begin to fall during August and ice often forms on the river by mid October.

All five species of pacific salmon are found in the Yukon River but only the king (or chinook, spring) and chum (or dog) salmon penetrate into Canadian territory in significant numbers.⁴ Other fish, primarily longnose suckers, Arctic grayling and slimy sculpin, inhabit the river, but the salmon is by far the most abundant. Salmon are anadromous, living in both fresh and salt water during

Map 1. The Yukon River drainage, 330,000 square miles.

The Yukon River

Indian Incampment; mouth of the Flondike, 1896

Indian Engineering, Mohan, 1900-1901

Pawson Fishermen, circa 1900

various stages in their life cycle. The king salmon hatch in the gravel of freshwater streams and the mainstem Yukon, remaining two years in the river before migrating to sea. Immature ocean king salmon usually spend four to five years at sea and return to the river to spawn in their sixth or seventh. Males mature earlier and as a result usually spend only two to three years at sea. They feed mainly on such small fishes as sand lance, herring and rock fish and migrate over a wide area in the Bering Sea and the North Pacific.⁵ Growth continues along the migration and to maturity, at which time they average 20 to 25 pounds. King salmon have achieved weights of over 100 pounds and are the largest of the pacific salmon.

The timing of the run varies by several weeks depending on when the ice breaks up on the river and ice conditions on the Bering Sea.⁶ The king salmon enter the river during June and July and migrate through the Dawson area, 1,500 miles upstream from the ocean, between mid-July and mid-August. There is some evidence that king salmon stocks destined for spawning grounds in the upper drainage (Yukon bound fish) are more abundant during the early portion of the run while lower drainage stocks (Alaska bound fish) are more abundant later.⁷

The run builds gradually until an abrupt peak is reached about the third week of the migration. After the peak, the

number of migrating fish drops off quickly and by the end of the fifth week only stragglers remain. As the run proceeds upriver, specific populations branch off into tributary streams where spawning occurs. Spawning king salmon are found throughout the watershed.

The life cycle of the chum salmon is quite different. They hatch in late winter and emerge in early spring; young immediately proceed to sea, feeding on insect larvae on the way. The majority of immature chum salmon are distributed in the Bering Sea and northern Gulf of Alaska and return to spawn after 3 to 5 years at sea. They tend to collect at the mouth of the Yukon and enter the river in a series of runs.⁸

Fall and summer chum salmon occur as two distinct populations in the Yukon drainage.⁹ Summer chum salmon spawn primarily in runoff streams in the lower 500 miles of the drainage and have an earlier run timing (early June to early July). The fall chum salmon enter the mouth of the river from mid-July to late August and spawn in the upper portion of the drainage, passing through the Dawson area from early September until late October. As with the king salmon, the intensity of the run builds gradually. Major spawning areas for fall chum salmon have been identified in the mainstem Yukon (Fort Selkirk-Yukon Crossing) Kluane, Teslin, and Fishing Branch Rivers in the upper Yukon drainage in Canada

and the Tanana and Sheenjek Rivers in Alaska. Fall chum salmon destined for spawning grounds in Canada are distinguished from Tanana fall chum salmon by their earlier run timing and their orientation along the north bank of the Yukon River near Galena.¹⁰ Chum salmon entering the Porcupine River travel past the Native community of Old Crow, Yukon Territory where a major subsistence fishery occurs. Coho salmon are also taken as an incidental catch to the chum harvest in this fishery. Chum salmon continuing up the main stem of the Yukon River enter the Yukon Territory some 1,400 miles from the mouth of the river and migrate past Dawson and the Indian community of Carmacks. Indian people from Pelly Crossing fish for chums at Minto on the Yukon River.

Sexually maturing king salmon are very red-skinned along the sides and in males the snout or kype is greatly enlarged and hooked. Once started on the spawning migration, salmon do not feed but rather convert stored body fats and oils into energy. This metabolic process, as well as sexual development in females, gradually breaks down the body of the salmon and after spawning the adults die. Despite inevitable deterioration, a significant proportion of king and chum salmon that have migrated up the Yukon River into the Yukon Territory retain their flesh colour and remain firm. During the early part of the run the fish are in very good condition

although by the end of the run the proportion of soft and damaged fish increases greatly. Unusually high oil content and distant spawning destinations are related to the slow deterioration of upper Yukon River salmon populations.

Fishing Locations

Chum salmon usually travel near the surface of the river and often use slack water areas and eddies. The larger king salmon probably travel deeper in the water. Commercial fishing techniques prevalent in the Yukon Territory exploit this characteristic through the use of surface gill-nets set in eddies. Eddies used by Dawson area fishermen are located along 130 miles of the Yukon River and the number of eddies is limited to approximately 60 locations. In addition to their scattered locations and limited number, some eddies are relatively more productive for fishing than others. Shallow, narrow eddies generally contain fewer fish than deep eddies and because migrating salmon travel in greater densities in certain parts of the river, the location of the eddy relative to the main migration route influences the availability of fish. The water level of the river at the time of the salmon runs also affects the character of an eddy. Heavy rains or periods of dry weather may create new eddies or eliminate old ones and

because the river gradually drops over the summer, eddies formed or enhanced during high water are most productive during the earlier king salmon run while low water eddies are most productive during the fall chum salmon migration.

The Availability of Resources

The factors determining the total resources available to Yukon fishermen and their variability from year to year can be distinguished by two aspects: i) biological production ii) harvests of Yukon River salmon down river in Alaska and on the high seas. The former is a natural condition while the latter is a question of resource allocation and is therefore essentially a political issue. The biological variations in salmon abundance on the Yukon River are not fully understood. Population estimates of salmon entering the mouth of the Yukon River are based on tag recovery studies, documented harvests and observed escapements. Observed escapement estimates are **minimum** figures since documentation of total escapement has not been possible due to the vast size of the drainage and turbid water conditions.¹¹ Tag recovery studies estimated annual run magnitudes as between 161,000 and 600,000 king salmon during the period 1966 to 1970. Minimum annual population estimates of fall chum salmon have ranged from 349,000 to 922,000 since 1974.¹² Tagging programs have conservatively estimated the magnitude of the king salmon

population entering the Dawson area as 29,000 in 1973 and 20,000 in 1974 and for chum salmon as 40,000 and 30,000.¹³ Studies indicate that a four year cyclic pattern exists among chum salmon on the Porcupine River and if a similar cycle affects the portion of the chum salmon run continuing up the Yukon River, abundance at Dawson would be much higher every four years.¹⁴ Catch data from the salmon fishery in the Yukon Territory (see Table 1) has been collected since 1903^o but due to inconsistencies in the data¹⁵ and significant fluctuations in fishing effort, the catch does not provide an accurate index of natural abundance.

TABLE 1

Commercial salmon catch in the Yukon Territory (in pieces).

YEAR	KING	CHUM
1982	8,640	11,312
1981	8,593	15,260
1980	9,500	9,000
1979	6,175	9,084
1978	3,356	2,975
5 year average	7,253	9,526

Source: Department of Fisheries and Oceans,
Annual Narrative: Yukon Arctic Sub-District,
 1982.

At the present time, the precise proportion of each species destined for spawning grounds in Canada is unknown. Estimates range between 50 per cent and 75 per cent. Considering that one-third of the Yukon River drainage occurs within Canada and that major spawning grounds for both species have been identified in Canadian streams, it is reasonable to assume that a significant portion of the run entering the mouth of the Yukon River is bound for the Yukon Territory.

Yukon River salmon are distributed along the course of the river and as young fish are dispersed over a wide area in the Bering Sea and the north Pacific Ocean. As a result, the population is subject to exploitation in many areas and at varying stages in the life cycle of the fish. It is evident from a comparison of catches by Yukon fishermen with catches that occur in Alaska on the Yukon River, that salmon spawned in the Yukon River are intercepted in large numbers by downstream fisheries with first access to the migrating fish (see Figure 1). These catches have a significant impact on the total resources available to Yukon Territory fishermen. The king salmon run to the Yukon Territory in 1982 was very poor mainly because of an above average catch in the commercial fishery at the mouth of the Yukon River in Alaska

Figure 1. ALASKAN AND YUKON COMMERCIAL
KING SALMON HARVEST FOR YUKON RIVER

Source: R. Regnart and M. Geiger, Status of Salmon Stocks, Fisheries and Management Programs in the Yukon River (Anchorage, 1982).

and a record high seas catch of immature fish in 1980. (An estimated 150,000 Yukon River king salmon were harvested in 1980 by the combined Japanese mothership gill-net fishery and the trawl fishery off the coast of Alaska.¹⁶ These were largely immature four year old fish which would normally have returned to the Yukon River two years later as much larger six year olds.) Yukon River chum salmon are known to migrate between the mainland and the Aleutian Islands and the chum salmon catch in this region in 1982 was twice its normal level.¹⁷ The fall chum salmon catch at the mouth of the Yukon River in 1982 was also above average but the run to the **upper** Yukon River (interior Alaska and the Yukon Territory) was below average.¹⁸

In short, the salmon fishery in the Yukon Territory is not a closed system responding solely to local biological conditions and harvests. Yukon fishermen are exploiting a population of fish heavily harvested by Alaskan and high seas fisheries--and they are last in line. As a result, catches in these regions affect the total resources available to Yukon fishermen even more than the cyclical variations in the size of the runs. Canada and the United States are currently negotiating an agreement regarding the allocation of Yukon River salmon between users in each country.

Fundamental to the fishery are the consequences of overfishing, dams, and the destruction of habitat on the maintenance of Yukon River stocks. Commercial fishing effort on the Yukon River in Alaska increased substantially after 1960 as did catches of Yukon River salmon by the Japanese high seas fishery. Alaskan catches of king salmon increased to an average of 104,371 for the period 1961 to 1970 but declined, despite increasing effort, to an average of 88,169 fish during the early part of the 1970's. This decline is partially attributed to overfishing in Alaskan and high seas fisheries. Restrictions placed on the Alaskan fishery, reduced high seas interception, and favourable environmental conditions during the 1970's reversed the decline and resulted in improved runs in recent years.¹⁹

Until recently, government regulation of the salmon fishery in the Yukon Territory was rudimentary. Fishing was permitted seven days per week and entries were unlimited. In 1980, a one day closure was introduced and new entries into the commercial and domestic salmon fisheries were suspended "in the interests of conservation." This action was also related to the uncertainty surrounding salmon negotiations between Canada and the United States.

Other aspects of fishing effort affect the reproduction of salmon stocks. Upstream stocks such as those entering the

Yukon Territory are subject to intensive fishing effort due to the distance they must travel through the "gauntlet" of fisheries and therefore are particularly vulnerable to overharvesting. Also, the commercial fishery in the lower Yukon (which accounts for 95% of the Alaskan catch) is a "Cape fishery", meaning that it harvests mixed stocks "usually several weeks and hundreds of miles from their spawning grounds. As a result some tributary populations may be under or overharvested in relation to their actual abundance."²⁰ Finally, the techniques themselves interfere with the normal biological process. Large mesh gill-nets, the most common type of gear, are selective to the older age groups (age 6 - 7). Since there is a higher percentage of females in the older age group, fishing contributes to a sex ratio imbalance in favour of males on the spawning grounds.²¹

Industrial development in Alaska and Canada also affect spawning salmon stocks. Escapement through the fishway at the Whitehorse Dam has been affected by the facility and substantial numbers of salmon fry and smolt are killed in the turbines.²² An additional turbine is currently being constructed, although a new hatchery may compensate for the loss of fry and smolt. Two other existing dams, one on the lower Mayo River and the other on the north fork of the Klondike River, may prohibit king salmon access to upstream

spawning areas.²³ The Yukon Government and the Federal Government are currently studying plans to construct a large hydroelectric project on the Yukon River near Carmacks. Should this project go through, its impact on the Yukon River salmon stocks would be significant.

Mining activities in some areas of Alaska and Canada have also affected the total population due to the destruction of habitat and the effects of increased sediment loads in the water.²⁴ Placer gold mining on the Klondike River and its tributaries (continuous since the turn of the century) has occurred in waters that at one time supported abundant salmon populations although these declines cannot be measured due to an inadequate base data. Other placer mining operations near spawning grounds occur in the Mayo area and on the Big Salmon and White Rivers in Canada and the Forty Mile River in Alaska. Fortunately, industrial and domestic pollution in the Yukon River itself is very minimal.

In summation, the salmon fishery in the Yukon Territory is characterized by a very short fishing season and significant fluctuations in the supply of resources due to natural cycles and large downriver fisheries. Consequently, fishermen cannot rely on fishing alone as a livelihood and must also engage in other economic activities at different times of the year. Reliance on eddies for access to salmon

also has important implications for fishermen. First, they must locate along the course of the river to find suitable eddies and approximately half reside in camps as far as 90 miles from Dawson (see Map II). Second, the total number of fishermen in the Dawson area is restricted by the limited number of eddies. Third, differences in the productivity of eddies result in disparities in catch among fishermen. (These latter limitations can be overcome through the use of technology that does not rely on eddies (drift netting) but, as will be explained in chapter four, this did not occur until 1982.)

In addition to these significant environmental limitations, access to salmon resources is regulated through Yukon Territory Fishery Regulations which require that all persons fishing in the waters of the Yukon Territory hold a licence or certificate for one of four categories: the Commercial fishery, the Indian food fishery, the Domestic fishery, and the Sport fishery. The commercial fishing licence, issued annually at a fee of \$25.00 authorizes individuals to fish both freshwater and anadromous species for commercial purposes as well as for food. Natives are issued certificates for food fishing without charge and Whites are issued domestic fishing licences for food fishing at a fee of \$10.00.

Map 2. Distribution of fish camps, 1981

In 1981, 46 commercial fishing licences were issued by the Department of Fisheries and Oceans (DFO) for use in the Yukon Arctic Sub-District. Most of these licences were concentrated in the salmon fishery at Dawson where the main markets are located but the sub-district also includes Old Crow, Carmacks, Mayo, and a number of other small communities. Although 46 commercial licences were issued, not all were used for commercial purposes. As the cost difference between commercial and domestic licences is minor (\$25.00 and \$10.00), Whites often purchase commercial licences even though they are primarily concerned with fishing for their own food. This enables them to sell, barter or give away fish if they choose as the sale of one salmon covers the additional cost. DFO statistics for 1981 indicate that approximately 35 commercial licences were issued for use in the Dawson area. However, it has been determined from field data that only 21 of the commercial licences were actively used for commercial purposes. Also, the 21 commercial licences were used by only 17 different fishing crews. Most crews were composed of two men although some women participated as crew members in addition to doing onshore processing work and marketing. Only three commercial licences were held by Indians. Of Dawson's 1,345 residents, 50 to 60 people including crew members and adult family members (four per cent of the local population) were engaged in commercial fishing.

Although small, this group is a considerable increase over the number of commercial fishermen only a few years ago; 15 licences in 1972 and 46 in 1981 (see Table 2). This increase was due to greater participation in food fishing by Whites (using commercial licences) and to growth in local demand for fish as a result of development in the tourism and mining industries in Dawson. Participation in the fishery may have continued to increase except that new entries into the commercial and domestic fisheries were limited by the government in 1980.

TABLE 2

Commercial fishing licences, Yukon Arctic Sub-District.

YEAR	LICENCES
1981	46
1980	42
1979	43
1978	37
1977	36
1976	47
1975	28
1974	13
1973	25
1972	15

Source: Department of Fisheries and Oceans, Annual Narrative: Yukon Arctic Sub-District, 1982.

Environmental and regulatory factors play a key role in determining the conditions of production and limit the total

number of people participating in the fishery. Technological and organizational adaptations to these conditions will now be considered.

Technology and Work Organization

The labour process refers to the "actual activity involved when labour comes together with the instruments of production to transform the product."²⁵ In the case of fishing, labour employs specific tools, skills, techniques, locations, and forms of work organization to catch fish, clean and process the product, and transport it to market.

The instruments of production used in the Dawson fishery include small open boats, outboard motors, gill-nets, fish wheels and hand tools for cleaning fish. Flat bottom river boats (14 to 22 feet) are ~~most~~ common although round-nosed boats and freighter canoes are also used. Most boats are of wood construction and therefore require regular maintenance. Some were built by fishermen themselves. Outboard motors between twenty and fifty horsepower are used and most fishermen do their own maintenance. New water pumps must be purchased annually because of heavy silting in the water but to a large degree used parts from old motors are used for repairs because new parts must be ordered from "outside" at great cost in time and money. Fishermen have numerous old

motors which are used for this purpose although there may be only one outboard motor operating at a time. These fishermen must be resourceful mechanics and "haywiring" is a highly developed art.

"Fish wheels" for catching fish were at one time used extensively on the Yukon River but have declined in importance in recent years. A fish wheel consists of two large rectangular buckets set on a solid axle supported between two connected rafts. The force of the river current on the buckets rotates the axle and as they dip through the water the buckets scoop out fish swimming upstream to meet them.²⁶ Fish wheels require a lot of work to build, set in location and remove from the water at the end of the season. As a result, fishermen have recently switched to the more convenient gill-nets.

A gill-net set in the upstream end of an eddy is now the most common fishing technique used in the Dawson area. The salmon is "trapped" in a fixed net as it swims upstream as opposed to being "hunted" on the high seas by mobile techniques such as drift netting, seining and trolling²⁷ commonly used in coastal fisheries in British Columbia and Alaska. Gill-nets set in eddies are usually 60 to 100 feet long by 20 feet deep and consist of a mesh hung like a 'curtain' between a floatline and a lead-line. The openings

in the mesh are large enough for the head of the fish to enter but too small to swim through. For king salmon the mesh used is eight to nine inches and for the smaller chum salmon six to seven inches. Fishing regulations limit commercial fishermen to 300 feet of net in up to four pieces.

Gill-nets are "set" in eddies where salmon gather by anchoring one end to the shore and the other to the bottom of the river by means of a line and weight. The efficiency of the net is determined by the manner in which it is set, its tension, angle from the shore and position in the eddy. The set is adjusted as a means of regulating and limiting the catch when required because of market fluctuations and processing capability. The anchors used to set the net are heavy and because of the swift current, must be dropped into the river at precisely the right moment in order to make the desired set. The net is also quite heavy when it is loaded with fish and no powered reels or net rollers of any type are used. The mesh of the net is pulled into the boat "hand over hand" by both fishermen working together and fish are worked free. Fishing is a physically demanding task as nets are heavy and cumbersome and fish are often tightly lodged in the mesh. This work can be done by one person but it is most effectively carried out by a two person crew.

Setting up a Fish Wheel

checking net

During the one day per week closure, nets must be pulled from the water (more often if repairs are required). Pulling a net involves tying the float-line, mesh and lead-line together at a number of points along the net, pulling the anchor and coiling the net. Repairing nets generally involves stitching the holes together as few fishermen in the Dawson area know how to properly mend them. The mesh is simply replaced when it becomes heavily "repaired" by tying new mesh to existing float-line and lead-line. This latter job requires experience and proper technique.

As well as the work involved in maintaining and repairing equipment etc., the amount of time involved in checking nets depends on the number of checks per day, the distance to and between net locations, the amount of fish caught and other factors. Checking nets eight miles from town requires approximately two hours and nets are normally checked once or twice a day although more frequent checks may be made during the peak of the run. Sticks, twigs and other debris are removed from the net as it is checked and "when the sticks are running", as in high water, cleaning nets is very time consuming.

Catches are regulated by the natural productivity of individual eddies but can be increased by more frequent checks. Once a net has caught a number of fish, movement and

struggle alerts other fish to the barrier and causes them to swim under or around the net. Frequent mending of nets also results in higher catches for the obvious reason that fish swim through unrepaired holes. It was previously indicated that adjusting the set of the net is intentionally used to limit catches. Worn nets may also be used for this purpose by fishermen who cannot sell or process all the fish they can potentially catch. They may start out the season with new nets but then switch to "old rags" as the run picks up. Cheaper, less efficient nets are used because there is no pressing need to increase catches.

Once fish are caught they are processed as quickly as possible. They are normally gutted and washed along the river bank at the mouth of a creek and head, guts, and roe are collected for dog food or discarded in the river. (Roe is very valuable in most fisheries but at this time there was no market in the Dawson area.)

Fish that are not sold immediately can be preserved by freezing or drying. Commercial fishermen located in camps distant from Dawson dry their fish mainly because of difficulties marketing fresh fish while fishermen located in the vicinity of Dawson sell fresh fish and freeze the excess. Unfortunately, the chest freezers and small walk-in freezers used do not freeze quickly enough and result in a lower quality product.

The output of dried fish is limited by the extensive amount of labour involved in processing, rather than the supply of resources. This is reflected in differences in catches between fishermen who produce fresh/frozen or dried fish. Producers of dried fish average considerably lower catches per season than fishermen producing fresh or frozen fish (see Table 3). Dried fish or "salmon jerky" is produced in a smoke-house usually made of corrugated tin. Before smoking, fillets are cut into quarter inch strips and brined in salt water. The strips are then hung in the smoke-house for three days. Afterwards they are hung in a sheltered area and dried for an additional ten days. Smoking prevents flies from laying eggs in the flesh of the fish as it dries and imparts a distinctive smokey flavour. Fish dried in this manner will keep for over a year. Two people can produce 12 to 20 pounds of dried product over a three day period and additional time is required to cut wood. The amount of fish needed to fill a smoke-house can normally be caught in six to eight hours hence the catch must be limited by pulling or tying the net for part of the day, "maladjusting" the set or using worn nets. In the smoking process the backbone, fins and belly meat is trimmed away and fed to dogs and a considerable amount of weight is lost in drying. Fishermen commercially produce salmon jerky instead of fresh fish mainly because of their geographic isolation and resulting

limits on access to markets. Three pounds of salmon jerky is obtained from a 24 pound fish which has a market value of \$32.00 fresh or frozen and only \$36.00 as salmon jerky.²⁸

TABLE 3

Differences in catch per season between producers of fresh fish and salmon jerky

Product	Average Catch*
fresh fish	645 pieces
salmon jerky	252 pieces

*Average catch has been estimated on the basis of six samples per category.

Several commercial fishermen produce smoked fillets for sale in Dawson and Whitehorse but there are very few developed markets. The process is not as labour intensive as the production of salmon jerky and less weight is lost through drying but smoked fillets must be refrigerated or frozen. A 24 pound fish produces ten pounds of product with a market value of approximately \$50.00.

Fresh/frozen fish, salmon jerky and smoked fillets are normally produced from king salmon. Chum salmon is rarely caught commercially but is very important to many commercial fishermen as a source of food for their sled dogs.²⁹ To process chum salmon for dog food, the round fish is split through the head and along one side of the backbone, leaving

the two parts attached at the tail. The fish is spread open skin down and chopped in horizontal cuts along the length of the fish. It is then hung over a pole and allowed to dry in the open air which, in good weather, takes about two weeks. When the weather gets cold towards the latter part of the chum salmon run, whole fish are simply spread on the ground and allowed to freeze, flipping them over once or twice a day. They can then be stacked like cord wood. Although whole chum "ripen" somewhat, dogs seem to relish them even more. The importance of this product in the overall household economy of fishermen will be examined in the following chapter.

Conclusion

Prior to the introduction of industrial fish processing into the Dawson area, fishermen planned, directed, and executed all aspects of production. The work process was started, regulated and controlled by fishermen within the limits imposed by environmental conditions. Fishing was based on individual/family labour and the division of labour within the fishing unit was minimal. Technology and work organization was similar for all units and each operated independently. Fishing technology was simple but experience and specific skills were required to maintain and repair

equipment and to operate nets effectively. Often equipment was underutilized and the total amount of product was limited partly because of the labour intensive character of processing techniques. This was particularly true for fishermen producing salmon jerky. The **rate** of production was determined, however, mainly by biological conditions and the fisherman's perceptions of market conditions. The location of eddies along the river resulted in the dispersion of production and a division of labour based on the production of either fresh fish in the vicinity of Dawson or salmon jerky at more distant locations.

CHAPTER TWO

THE SOCIAL RELATIONS OF PRODUCTION

Work is a collective, social activity in which people produce "by co-operating and mutually exchanging their activities and products. In order to produce, they enter into definite relations with one another and only within these social relations does production take place."¹ Thus, when creating products or "use-values," individuals "not only involve themselves in a relationship with nature, i.e. material production, but they also enter into relationships with each other. These relationships are the social relations of production."²

This chapter examines the "pre-plant" social relations of production in the commercial fishery including access to resources and instruments of production and the market relations that integrate family fishing operations into the wider capitalist economy. These are directly expressed in the fisherman's rights "with regard to his own labour, to the means of production with which he works, and to what he produces."³ The objective is to provide the groundwork for

an analysis of the implications of the development of industrial fish processing.

Access to Means of Production

The necessary resources and instruments must be available before fishermen can set in motion the process of production. To be ready and willing to work is of little use if one cannot also gain access to fish and obtain money for the purchase and maintenance of fishing equipment. Consequently, the specific social relations which determine **access** to the occupation are essential to an understanding of production in the commercial fishery.

Under the Fisheries Act the federal government has full legislative jurisdiction over the fisheries of the Yukon Territory and regulates access to fish mainly through a system of licencing and fishery closures. Prior to 1980, any Canadian citizen or landed immigrant could purchase a commercial fishing licence for \$25.00 and fishing was permitted seven days per week. The resource was 'common property' and access was unlimited. In 1980 regulations were introduced requiring a special Yukon River salmon licence and limiting the total number of licences. No new entries into the commercial or domestic fishery are currently permitted. Licences are issued "on the man" (as opposed to "on the boat"

or to corporations), cannot be transferred or used by another person, and are valid for one year only. No person can fish for salmon (including crew members) unless in the presence and under the supervision of a person holding a valid commercial fishing licence.

The implications of such a licencing scheme are far reaching. First, persons without current licences are **excluded** from the use of the resource. As will be discussed in chapter four, ~~this~~ is a first step in transforming 'common property' into 'private property'. Second, because the licence is non-transferable it has no market value thus preventing the licence from assuming a high monetary value as has occurred in fisheries in British Columbia.⁴ Third, because licences expire every year fishermen have very little security of access to resources. Instead, the licencing agency (the government) maintains discretionary power in the allocation of rights to fish; rights that are subject to the requirements of conservation and the **politically defined** needs of government. (The emergence of competing groups within the fishery and the response of government in the allocation of resources is examined in chapter four.) Fourth, because owners of commercial fishing licences must also be operators of the fishing gear (owners/operators), "absentee fishing" is precluded and the use of licences by companies or other non-fishermen is restricted.

Given existing technology, access to salmon resources depends upon the use of eddies. Some eddies are better than others for fishing and there are more fishermen in the area than ideal eddies. In addition, the location of eddies and the resulting isolation of some fishermen affects access to markets and is an important factor in the division of labour into fresh or smoked fish production. Consequently, the stage is set for competition over opportunities to exploit fish resources and the rules governing access to eddies become the locus of important social relations of production.

In many fisheries, riparian rights (rights of access to or use of the shore, bed, and water) have been developed either by fishermen or by the government on behalf of fishermen to manage competition over opportunities to exploit fish resources.⁵ In one Norwegian fishing community the "right to fish salmon is tied to the ownership of land bordering the salmon ground, since the nets are fixed to the beach. Salmon rights, then, are dependent upon how many shares of land a fisherman owns."⁶ In the Yukon, the shore along the river is Crown Land and is currently unavailable for private purchase. Fishing regulations do not directly control the use of eddies or recognize specific claims to eddies but the number of eddies used at any one time is indirectly limited to four by regulations controlling the amount of fishing gear permitted per licence.

The use of eddies in the Yukon is primarily controlled by informal rules designating that the **first** person to use a particular eddy and to **continue** to use the eddy year after year has a locally recognized claim. A fisherman's eddies are those he fishes on a regular basis. This local norm lacks legal definition but is enforced by fishermen and effectively allocates rights of access to eddies (and therefore resources) and balances the number of fishermen against fishing opportunities. Generally, it is the ability of individual fishermen to assert control that effectively manages competition over eddies as very seldom do fishermen coordinate resistance to violators. In extreme cases the destruction of fishing gear has been threatened.

Considerable variation in access management occurs within the Dawson fishery. For example, a high density of fishermen has developed near Dawson because eddies are in high demand and in short supply. Usually claims are made to specific eddies but to no other aspects of the shore, river, or surrounding area. By contrast, access to eddies farther from Dawson are based on control over larger territories and include access to other resources such as fur, game, creeks, etc. (trapping areas are legally designated). The existence and maintenance of these "areas" (five to ten miles in each direction along the river) is related to several factors.⁷

First, distance between residents is necessary to provide access to a variety of local resources. Second, privacy and "elbow room" between neighbours is a highly valued aspect of living along the river. Third, because there is less competition for these more distant resources, larger areas are easier to enforce.

Following are several illustrations of the ways Yukon fishermen manage competition over eddies:

- 1) A confrontation occurred between two fishermen who claimed they each had the right to the use of a productive eddy close to Dawson. The one fisherman argued that he and his father (both Indian) had traditionally used the eddy and had only abandoned it temporarily. The other insisted that the claim had elapsed as he had been using the eddy uncontested for several years. The confrontation ended with the most recent user maintaining control of the eddy by threatening to destroy the other fisherman's nets should he try to use the eddy.
- 2) An eddy may be claimed by one fisherman and used occasionally by another. For example, two fishermen have used very productive eddies claimed by another fisherman after the "owner" had stopped fishing for the season. In another case, a fisherman used (with

permission) the "secondary" eddies of two other fishermen whose needs could normally be met by their "main" eddies. But in years when the salmon run was poor, the secondary eddies were reclaimed and the fisherman without eddies of his own was forced out of the fishery.

- 3) Early one morning two fishermen remote from Dawson were checking a net in one of their eddies when they noticed the boat of fishermen who had recently arrived in the vicinity and located a summer camp nearby. They went to investigate and discovered that the fishermen had set a net about three hundred yards down river from their own net. They immediately confronted the other crew and told them to remove the net and move further down or up river. After some debate, the "newcomers" agreed that they would not set nets in an area claimed by the other fishermen approximately one and a half miles long. They also agreed that in the following season they would locate their camp further away. Although their net had not been set directly in a claimed eddy, it may have affected the catch in the net further up river and from the point of view of the "established" fishermen it was simply "too close for comfort".

Rights of access to salmon resources are regulated by licencing regulations and closures and also by informal rules developed by the fishermen themselves to control access to eddies. In addition to access to resources, fishermen must be able to obtain other critical means of production such as boats, motors, nets, etc. The cost of this basic fishing equipment ranges between \$2,000 and \$6,000 depending upon the skills of individual fishermen as boat builders and mechanics. Operating costs, mainly gasoline and outboard maintenance, vary a great deal (\$500 to \$6000) depending upon the distance between the base of operation and the fisherman's eddies plus the frequency of trips. Operating costs for fishermen producing salmon jerky are considerably lower as they live close to their eddies and make infrequent trips to markets in town. Entry costs are also lower because they do not require freezers or electrical power.

Gasoline and oil can be purchased from several local suppliers but new boats, outboard motors, and parts must be ordered from retail businesses in Whitehorse or "outside". Gill-nets are normally purchased by mail order from a manufacturer/supplier in Anchorage, Alaska. They are preferred over nets available from Vancouver because of lower costs and durability, even though they are less effective

than light, filament nets. Due to the remoteness of Dawson, most of these transactions are paid with cash in advance of delivery.

Fishermen must purchase these essential factors of production at prices determined by monopoly capital in retailing, manufacturing, and transportation. Most notably, the White Pass and Yukon Corporation has a monopoly position in transportation in the Yukon through its control of the railroad and largest trucking fleet in the Yukon as well as being a major local supplier of gasoline and oil.⁸ The hardware and food stores also enjoy virtual monopolies in the local market. This monopoly power permits the overpricing of imported goods and, through this relation of unequal exchange, contributes to the transfer of surpluses from fishermen to capital.

Access to credit from banking institutions is restricted by the seasonal unpredictability of catches and incomes, and the low value and non-liquid nature of assets such as fishing gear, boats, etc. Few fishermen own land, houses, trucks and other assets that can readily be used as collateral and in the absence of established fish merchants or industrial processors securing financing through guarantees of sales (contracts) is not possible. Fishermen are self-financing and the use of acquired savings from wage-labour is the

principal means by which money becomes capital, that is, when wealth "is not consumed individually but productively through investment in means of production."⁹ Consequently, entry into the occupation depends directly upon wage-labour opportunities.

The Distribution of Factors of Production

The social relations which determine access to the occupation have resulted in some differences in the distribution of factors of production among fishermen. Government licencing policy distinguishes between "fishermen" who own the commercial fishing licence and "assistant fishermen" who legally must work under the supervision of a licence holder. All fishermen are able to obtain the use of some eddies but because first-use and habitual-use are the main criteria of access, some fishermen control more productive and better situated eddies than others depending mainly upon their time of entry into the fishery. Two fishermen who entered the fishery more than ten years ago when there were many unclaimed eddies now control the most productive eddies close to Dawson. By contrast, two fishermen who entered the fishery recently (in 1979) were forced to base their joint enterprise some 80 miles from town in order to locate productive unclaimed eddies. Geographic

labour-power and equipment of a third person (an additional boat and outboard motor).

- 3) The licence holder is minimally engaged in fishing and does not own the instruments of production. A partner fishes with his own equipment and the licence holder receives a nominal share in exchange for the rights associated with the licence.
- 4) One fisherman owns the instruments of production and controls access to resources through his licence and claim to eddies. He employs the labour power of two other people on a share basis to assist him with checking nets and cleaning fish.

In summary, rights of access to salmon resources are regulated by licencing policy and closures and also by informal rules regarding the use of eddies developed by the fishermen themselves to control access to resources. Fishermen are self-financing and therefore own the instruments of production but limited opportunity to save money or obtain credit has restricted purchases of equipment and additional labour-power. There is some disparity in the distribution of factors of production among fishermen and as a result partnerships have formed (mainly between commercial licence holders and other workers) but real economic

six very productive eddies close to Dawson and two commercial fishing licences which therefore entitle them to twice the amount of net used by crews with only one licence. (The second licence is held by a family member.) In addition, they each own several boats, good quality outboard motors and a large number of gill-nets.

Differences in the distribution of factors of production has led to the formation of partnerships between households and the following cases illustrate the various ways fishermen can "pool" their resources:

- 1) Two men contribute equal amounts of money towards the purchase of equipment and supplies, work together through all stages of production and share equally in the profits. Both entered the fishery at the same time although only one partner purchased a commercial licence before limited entry was introduced. This latter 'disparity' is problematic because should the licence holder decide to withdraw from the fishery he would not be able to transfer the licence to his partner.
- 2) The licence holder does not control access to eddies or own instruments of production. Rather, he rents a complete outfit, including eddies, from another fisherman and employs on an equal share basis the

labour-power and equipment of a third person (an additional boat and outboard motor).

- 3) The licence holder is minimally engaged in fishing and does not own the instruments of production. A partner fishes with his own equipment and the licence holder receives a nominal share in exchange for the rights associated with the licence.
- 4) One fisherman owns the instruments of production and controls access to resources through his licence and claim to eddies. He employs the labour power of two other people on a share basis to assist him with checking nets and cleaning fish.

In summary, rights of access to salmon resources are regulated by licencing policy and closures and also by informal rules regarding the use of eddies developed by the fishermen themselves to control access to resources. Fishermen are self-financing and therefore own the instruments of production but limited opportunity to save money or obtain credit has restricted purchases of equipment and additional labour-power. There is some disparity in the distribution of factors of production among fishermen and as a result partnerships have formed (mainly between commercial licence holders and other workers) but real economic

differences are minimal and in only two cases do fishermen control significantly more factors of production.

Markets

The market for salmon caught in the Dawson area is largely limited to local demand for fresh and smoked fish. Although the permanent population of Dawson is small (1,345) demand is significantly bolstered by over 100,000 Canadian and American tourists and summer workers in mining and government who pass through the region every summer.¹⁰ In recent years, however, production in the fishery has reached the limit of the local market as fishermen are now obliged to curtail their catches and output of finished product.

The fresh fish market consists of local businesses, residents, tourists and summer workers who buy fish directly from fishermen. Ten fishermen living in Dawson supply the markets either from their homes, door to door, or from street stands. Fresh fish must be sold quickly or frozen until a market is found, hence fishermen supplying this market provide a daily service. This "face to face" contact with buyers is an important feature of markets for fish in Dawson as sales depend to a large degree on providing a quality product, establishing a good reputation and developing new markets. Fishermen rely on "regular customers" for some of

their sales but much of their market consists of local businesses, tourists, and transient workers. Local restaurants and food stores as well as mining camps and a few restaurants in Whitehorse account for roughly 35 per cent of fresh fish sales and there is considerable competition for these "contracts" because of the volume of fish involved.

Access to markets for fresh fish is restricted for fishermen living in the more distant camps down river. It is not feasible to travel 40 miles or more to Dawson every day with a load of fish, operate a 'retail' outlet, and return to camp in the same day. In addition, the extra costs involved transporting fresh fish to town reduce the competitiveness of their product in what is already a very limited market. Consequently, these fishermen have specialized in the production of salmon jerky as the dried fish does not need to be marketed daily and does not directly compete with fresh fish. Marketing fresh fish in Dawson is only "worthwhile" for down-river fishermen when it can be combined with other activities such as a supply trip to town, bringing in a quantity of smoked fish, etc. This practise has important implications for the price of fish as it occasionally "floods" the market with fresh fish that have to be sold quickly.

Trucks on a shortway's home

The marketing of salmon jerky is quite different from fresh fish sales. First, the majority of sales are made during a very short period of time after fishing has stopped at the end of the king salmon run. Peak sales are made during "Discovery Days", a holiday weekend in mid-August celebrating the Klondike Gold Rush, when hundreds of people descend on Dawson for a long weekend of revelry. Sales of salmon jerky by seven fishermen over a one to two week period vary between \$1,000 and \$3,000 per fisherman. Second, local and visiting Indians purchase approximately half of the salmon jerky produced by the White fishermen. Salmon jerky is a traditional Indian food but only a few families in Dawson continue to produce it, the remainder preferring to buy the product from commercial fishermen.

The market price of fish in Dawson is very low, mainly due to local competition. In 1981, fresh king salmon sold by fishermen directly to consumers ranged between \$1.50 and \$1.75 a pound. Salmon jerky sold for \$8.00 to \$12.00 a pound and smoked fillets for \$4.00 to \$5.00. "Wholesale" prices to restaurants and food stores were much lower and as the supply increased towards the peak of the salmon run and the requirements of the local markets were met, the price of fresh fish dropped to as little as \$1.00 a pound. Prices for salmon jerky tended to be more stable because the product was

preserved and could therefore be held off the market for better prices or used for domestic consumption.

These prices are determined by local conditions of production and local supply-demand factors as the high costs of importing goods to the isolated market precludes direct competition from similar fish products produced elsewhere. (cf. Table 4). This is not to suggest, however, that individual fishermen have control over the price of fish. On the contrary, intense competition for limited local markets forces all fishermen to match prices which are determined by the best local conditions of production; the most productive eddies, best fishing equipment and holding capacity, and easiest access to markets. Fishermen must come close to matching the lowest price, set by fishermen with the highest levels of productivity. Consequently, fish produced in average or below average conditions sell at prices below their value.¹¹

To sum up, the local markets for fresh fish and salmon jerky are seasonal and very limited. Markets are dependent upon tourism and mining activities and consequently are unpredictable. Although fishermen often deal directly with consumers, control over market price is restricted by the need to compete with other fishermen for limited markets at prices determined by the best local conditions of production.

TABLE 4

The market price of fish (\$ per pound)*

Product	Dawson	Fairbanks	Vancouver
fresh kings	\$1.75	\$4.69	\$ 5.00
smoked fillets	5.00	9.80	16.00
salmon jerky	12.00	n/a	36.00

*This table is provided only as a rough comparison as differences in levels of productivity and costs of production in each fishery are considerable.

The main commercial fish species in the Dawson market is the king salmon although at one time large numbers of chum salmon were dried for commercial dog food to feed the many dog teams used in the area by the R.C.M.P., trappers and other winter travelers. The R.C.M.P. alone bought 6,000 to 7,000 dried chum salmon every year and freighted them by sternwheeler to Fort Selkirk, Sixty-Mile and Old Crow as well as to their Dawson detachment. In the 1920's and 1930's, a local White fisherman (Jim Hewes) boarded dogs across the river from Dawson and on Dog Island downstream from the town.¹² Most of his clients were trappers who went "outside" or worked away from their traplines in the summer. He often had 50 to 60 dogs boarded at a time and cooked and fed them

large quantities of dried chum salmon. Several Indian commercial fishermen fished for dog food as recently as 1965 but a decline in the number of trappers and R.C.M.P. detachments, the more extensive use of air transport, and the replacement of dog teams by snow machines inevitably eliminated this commercial activity.

Recently, chum salmon have become an important source of dog food for teams used by fishermen/trappers in the Dawson area. Higher fur prices encouraged new entries into trapping occupations during the 1970's and many trappers are now running dogs as a cheap and enjoyable means of transportation. In 1981, a total of 15,260 chum salmon were taken in the commercial fishery but more than 75 per cent of the catch was processed into dog food for feeding teams used by fishermen. Chums have little value commercially, however, and fishermen without dog teams stop fishing at the end of the king salmon run.

Fishing, Trapping and Wage Work

The short fishing season, limited markets and the low prices received restrict incomes from fishing. Consequently, Yukon fishermen and their families engage in a variety of economic activities at different times of the year such as trapping, wage work, hunting, gardening, etc. Decisions

regarding these activities are taken with reference to the needs of the household economy and therefore vary considerably with household size, employment alternatives and personal preferences. It is beyond the scope of this thesis to develop a detailed account of each of these activities as the objective is simply to outline the patterns of employment most common amongst commercial fishermen. These include:

- 1) fishing/trapping .
- 2) fishing/trapping/wage work
- 3) fishing/wage work

Four of the 18 households surveyed were able to support themselves solely through fishing and trapping. Eight others needed to supplement their lower incomes from fishing and trapping through wage work in the spring and fall. The remaining six were full-time fishermen during the king salmon run and wage earners at other times. Many households reduce their cash requirements through domestic food production such as keeping part of their fish production for their own use, hunting moose, bear, and wild fowl, growing vegetables, and collecting wild berries. Women play an important role in the household economy through involvement in productive activities such as processing, marketing, and in some cases, as crew members in addition to domestic labour, gardening, etc. Many households build their own homes (usually log

cabins) although very few of the families living along the river legally own land. In some cases, placer mining claims provide nominal rights to occupy the land. Only half of the households own vehicles but other assets include snowmobiles, dog teams, tools, chain saws, rifles, traps, etc., as well as fishing equipment. The cash income and standard of living of each household depends upon the economic alternatives available to them and personal preferences. Table 5 provides a general indication of household budgets.

TABLE 5

Yearly income and costs by fishermen (1981)*

Fisherman	Income			Costs			Net Income
	Fishing	Trapping	Wage Labour	Gross Income	Fishing	Trapping**	
A	17,000	10,000	0	27,000	6,000	4,000	17,000
B	14,000	14,145	0	28,145	5,800	4,000	18,345
C	4,000	2,100	0	6,100	1,800	1,200	3,100
D	3,150	1,050	9,450	13,650	2,000	1,200	10,450
E	2,000	2,530	7,000	11,530	500	1,200	9,830
F	800	2,400	1,120	4,320	560	1,200	2,560
G	786	0	40,000	40,786	n/a	0	n/a

* Fishermen C,D,E,F, produced salmon jerky while fisherman A,B,G, produced fresh/frozen fish.

**Trapping costs have been estimated on the basis of two-case-studies in which one used a snow machine and the other a dog team.

The Government of Yukon regulates trapping rights and severely limits access. In 1981-82 there were no trapping areas available near Dawson or along the river, thus limiting the number of families able to supplement their fishing incomes through trapping.

The major areas of wage employment in the Dawson area are government, mining, and tourism. Although wages are high, most jobs are seasonal and the cost of living in Dawson is 50 per cent higher than in Edmonton.¹³ Also, unemployment during the winter is over 30 per cent. Sometimes, relatively large sums of money can be earned in a short period of time and converted into capital assets. On one occasion two men earned a total of \$5,300 in three weeks cutting line and staking claims for a mining company and with this money financed their entry into the fishery. In another case, a couple earned \$6,000 in two months as a carpenter and a barmaid and purchased a new boat. The current economic crisis in the Yukon, has resulted in fewer such employment opportunities and may restrict the ability of fishermen to sustain their households through multiple-income, multiple-occupation strategies and increase their reliance on fishing for cash and food.

Indian Participation in the Commercial Fishery

As noted previously, the majority of commercial fishermen in the Dawson area are White, with only three out of 21 licences being held by Indians. The reasons for this are beyond a systematic analysis at the present time but the system of unequal access to means of production and more attractive alternatives to fishing are the major areas that would need to be considered. The limited entry policy restricting new entries into the commercial fishery is a recent factor and acquiring fishing equipment may be a problem for some Indian families although in recent years a boat, motor, and nets owned by the Dawson Indian Band have been available to its members. A more important problem at the present time is the limited access to fishing eddies. In 1977 the Dawson Indian Band attempted to secure access to eddies for its members by passing a Band Council Resolution to the Ministry of the Environment, Fisheries Branch, calling for the designation of a specific section of the Yukon River for exclusive Indian subsistence and commercial fishing.¹⁴ The Ministry would not comply with this request claiming that it did not have the power to legislate use of the shore, even though a precedent was set in that same year by closing two miles of shoreline at the mouth of the Klondike River in front of Dawson. (To permit greater escapement of salmon

stocks depleted by extensive mining operations on the Klondike.)

The nature of the local market may also create obstacles to Indian participation in the commercial fishery. The competitiveness of the market relies on social skills largely absent from the Indian experience in Dawson. An additional reason why so few Indians are currently engaged in commercial fishing is the existence of more attractive alternatives to fishing. Casual wage employment, Unemployment Insurance and Welfare compete successfully with the low fishery earnings of most commercial fishermen in Dawson. The emergence of an Indian-owned fish processing company may facilitate Indian entry into the commercial fishery by extending the markets for fish and, as will be seen in chapter four, the regional Native political organization has recently been making advances in the protection of Indian fishing rights.

Barriers to Export Markets

Commercial fishing in the Dawson area has remained a small and undeveloped sector of the local economy. By the late 1970's, the limits of the local market had been reached and many fishermen were "underemployed" in terms of the potential of their labour, equipment and available resources. Large capital was uninterested in developing the fishery

primarily because of technical barriers preventing expansion into national markets outlined as follows.

Competition from established fisheries on the British Columbia coast greatly reduces the economic viability of the Dawson fishery. Large, highly productive fishing and processing enterprises close to Vancouver and other large markets dominate the industry and set prices that other enterprises must follow.

Handling and processing salmon for export markets requires large amounts of capital. Expensive blast-freezers and storage freezers are needed to produce frozen fish of the quality expected by the national market; state health regulations require that fish destined for market outside of the Yukon be processed in registered fish plants; and transportation costs are high. Some form of co-operation is necessary to create "economies of scale", that is, to reduce the costs of production per unit of output by increasing the scale of production or the quantity of items produced. The catch of individual/family producers is limited and their boats cannot haul large quantities of fish. In addition, the reefer units used to haul frozen products into and out of the Yukon require a minimum of 40,000 pounds and because small operations cannot ensure a regular supply, most fish buyers do not want to deal with them.

Another important problem is that Yukon salmon are restricted to specialty markets for smoked fish. Because of the red skin colour of Yukon king salmon, it is excluded from the fresh/frozen markets in the south and neither species of salmon is ideal for canning. Overall, the fish business is very risky as the supply of resources is unpredictable and prices fluctuate dramatically on the world market. The returns to capital are very uncertain and consequently fish companies operate in the best available conditions of production. When combined, these factors present significant barriers to capital penetration and technological development in the Dawson fishery.

Conclusion

Commercial fishing in Dawson prior to the introduction of industrial fish processing was structured by specific social relations of ownership and control over means of production. Fishing regulations limited entry with a temporary licence issued to individuals and in effect "rented" rights to catch fish on a yearly basis. The government thereby retained control over access to resources and discretionary powers in the allocation of rights to fish; rights that are subject to the politically defined needs of government. This factor becomes increasingly important

following the introduction of industrial fish processing and greater competition for resources between different groups (e.g. Yukon and Alaskan fishermen) with conflicting economic interests and unequal access to means of influencing government on their behalf.

Access to resources was also structured by informal rules developed by fishermen to manage competition over rights to eddies. Eddies were claimed on the basis of first use and habitual use from year to year. Consequently, time of entry into the fishery was an important factor determining the use of the more productive eddies closest to town.

Fishermen supervised their own labour and owned boats and other instruments of production but incomes from fishing and trapping were so low that most fishermen were forced to subsidize their family operations through seasonal wage employment. The household income was also supplemented by subsistence production and intensive domestic labour by women. These multiple-income "strategies" permitted households to replace the factors of production used up during the fishing season and sustain themselves over time. The dependence of fishermen on equipment and supplies produced at prices determined by monopoly capital and on highly competitive markets for fish permitted the appropriation of some surpluses by capital but the overall level of accumulation was very limited.

Market conditions limited the quantity of fish produced and there was little reason for fishermen to increase the productivity of their fishing operations through technological development. Commercial fishing had remained a very small and undeveloped sector of the local economy primarily because of barriers preventing expansion into national markets. The following chapter reviews several efforts made to overcome these barriers and describes how Han Fisheries Limited, an Indian-owned and government financed fish processing company, came into being.

CHAPTER THREE

INDUSTRIAL DEVELOPMENT

The establishment of a fish processing plant in Dawson City in 1982 changed commercial fishing from a small-scale fisherman-organized enterprise into an industrial activity. This chapter reviews the emergence of the plant and its first year of operation and provides the basis for a more detailed examination of the nature and impact of its development. In the preceeding chapter it was indicated that production in the commercial salmon fishery had reached the limits of the local market and that significant economic barriers restricted expansion into national markets. During the late 1970's a number of attempts were made to overcome these limitations but failed mainly because of inadequate financing and the limited potential returns from commercial fishing in the Yukon. The eventual emergence of a plant in 1982 was made possible only through large government grants provided at the behest of the regional Indian political organization.

In 1978 a small plant was built by several fishermen on an island near Dawson and fish were produced and exported to Vancouver and other markets. These small shipments were made by plane and truck but after one season the operation failed

because transportation was unreliable and the product was frequently of poor quality due to inadequate freezing facilities.

A year later, two other fishermen built a small processing facility at their camp along the river which was equipped with gravity-fed running water, electrical power supplied by a small generator and two chest freezers. They produced five hundred pounds of smoked fillets and tried to market them in Montreal. They were unsuccessful mainly because potential buyers (Montreal restaurants) were unwilling to risk purchasing an unfamiliar product from unknown sources. As an alternative, the fishermen sold the fillets by setting up their own food stand at "Rendevous", a winter carnival in Whitehorse.

Fishermen were not the only people interested in the potential of the Dawson fishery. Also in 1979, a small Japanese roe processing company in Vancouver arranged for a number of fishermen to produce chum salmon roe for shipment by air. Poor fall weather disrupted the flights and because the roe was not brined it spoiled quickly. The volume produced by such a small number of fishermen did not warrant hiring a roe technician and the company was not prepared to risk further investment to expand production. That same year, B.C. Packers sent several high level executives to

Dawson and Old Crow to consider the potential of the fisheries. Samples were taken which produced quality results but difficulties with isolated operations in northern British Columbia and several closures there warned the company off the Yukon venture.

The first concerted effort to develop large scale fish processing was undertaken in 1980 by Moosehide II River Transportation Incorporated. This company was formed in May 1980 to transport fresh whole salmon from camps along the river to Dawson where another new company, Klondike Fisheries, would transport the fish to Whitehorse for processing and export. Klondike Fisheries was owned by a Whitehorse entrepreneur prominent in the construction industry and Moosehide II was jointly owned by Dawson's Anglican pastor (in trust for the Anglican Church, Diocese of the Yukon), the Chief of the Dawson Indian Band, his son and nephew and a nominal share held by a Dawson businessman. Moosehide II was funded by a \$60,000 grant from the H.R. MacMillan Foundation, a private philanthropic agency set up by the forestry magnate specifically for Indian business enterprises.

Moosehide II contracted a small Whitehorse firm to design and build a 24-foot river barge and renovations were begun on a building in Whitehorse to house the processing

plant. The construction of the plant was halted in June due to conflicts with the Whitehorse City Council over zoning regulations and, unwilling to finance relocation to an appropriate industrial zone, Klondike Fisheries pulled out of the venture and subsequently folded. Moosehide II would also have floundered but for the determination of the pastor. Committed to the idea of "helping" Indians in Dawson through the development of a fishing industry, the pastor decided to expand the small transportation company "over night" into a fish processing operation. Predictably, the ensuing events were disastrous. The barge picked up fifty-two thousand pounds of fish from camps as far as ninety miles from Dawson, but cleaning facilities were inadequate and the company suffered from a chronic shortage of expertise and manpower. Freezing equipment was limited to a reefer unit designed to hold frozen fish (not to freeze them) and "borrowed" space in chest freezers in homes throughout town. Fish often took several days to freeze with this equipment. The company was underfinanced and its credit quickly became overextended. Fishermen were not paid in full for their fish, the boat and cleaning crews often went without pay and the company ran up substantial debts with suppliers in Dawson and Whitehorse. Because of the poor quality of the product, the price received for fish from southern buyers was low. At least 5,000 pounds of fish was stored in Vancouver for nearly a

year before it was sold as dog food for \$.75 per pound, less than even the fishermen had been paid. Mercifully, the boat broke down prior to the peak of the run and the operation ceased.

Moosehide II was one of several proposals to establish fish processing facilities in the region that emerged in 1980. A well organized and more modest plan was developed by an entrepreneur from Alberta. He spent a summer in the Dawson region (1979) and became interested in the fishery as a potentially profitable venture. He developed plans for a small portable plant that would be set up at Clinton Creek where fishermen would deliver, clean and freeze their own fish using the company's facilities. The company would then haul the fish to Whitehorse in a reefer unit once a sufficient quantity had been produced. The plan involved a four year escalating price; seventy cents per pound (dressed) the first year (1980) and an additional ten cents per pound each year until 1983. The proposal did not go beyond the planning stages, however, because it could not compete with Moosehide II's offer to fishermen of \$1.20 per pound picked up at the camps. The plan was reconsidered in 1981 after Moosehide II folded but was dropped again when it became clear that large government grants would be made to a new Indian company.

The two principal actors in Moosehide II, the pastor and the Dawson Chief, sought support from the regional level of Indian government, the Council for Yukon Indians (CYI) and a loan from this organization enabled the formation of a new company in July of 1981, Han Fisheries Limited (HAN). The company has a legal structure very different from its predecessor; ownership is divided between the Dawson Indian Band (55%), the Old Crow Band (40%) and the Yukon Indian Development Corporation (YIDC), the economic development arm of the CYI. This structure developed for a variety of reasons. The involvement of the Dawson Band was initiated by the Chief and supported by the Band Council. The Old Crow Band became associated with the new company on the prospect that a small plant would be built in Old Crow to process Porcupine River chum salmon and roe. The involvement of Band members from Old Crow was and remains a formal connection only, as the initial thrusts of the company have been in the Dawson area. The YIDC and CYI played a central role in the development of the company through administrative support and political influence on various levels of government.

The importance of the YIDC is reflected in its overrepresentation on the Board of Directors of the new company. Despite minimal legal ownership (5 per cent of shares), the corporation controls three seats out of seven,

two other seats being held by each of the Bands. The YIDC considers its prominent position on the Board necessary to reassure skeptical funding agencies and for the smooth functioning of Board meetings and decision making. Apparently, the YIDC intends to give up its shares and phase out its board members as HAN establishes itself and board members from the Bands gain experience.

The company plan was to conduct an interim operation in 1981 involving limited processing and marketing of fresh fish and construct a fish processing plant in Dawson over the following winter. Planning proceeded in two areas: -i) the problem of technical expertise in fish processing and marketing and ii) financial backing. An experienced fish plant manager from the Vancouver area was hired and applications for grants and loans were made to the Department of Indian Affairs (IA), the Department of Regional Economic Expansion (DREE), the Local Employment Assistance Program (LEAP) within the Employment and Immigration Commission, and the R.H. MacMillan Foundation.

The interaction between the company and the funding agencies is a complex story which extends beyond the preliminary outline here. Because of the high cost and complexity of the proposed project, applications had to be made to many different agencies, each with different

guidelines, personalities and schedules. For example, both LEAP and DREE found the project to be sound and worthy of support but economic analyses conducted by IA predicted that the company would lose money every year of its operation for the lifetime of the project. Ultimately, however, and after many delays and considerable effort, HAN received a total of \$606,704 for the development of the company, the construction of a fish processing plant and training and wages for its employees during its first year of operation. Of this amount, roughly \$437,985 was used to purchase capital equipment. Table 6 gives a breakdown of the amounts received from each source.

TABLE 6

Funding to December 1982, Han Fisheries Limited

Source	Capital Costs	Labour Costs	Total
DREE (special ARDA)	117,600		117,600
LEAP	57,485	149,519	207,004
IA	204,900		204,900
IA (loan)	50,000		50,000
H.R. MacMillan	8,000	19,200	27,200
Total	437,985	168,719	606,704
			(50,000 loan)

Source: Han Fisheries Limited, Dawson City.

The new company has faced considerable local resistance. Banks would not provide credit until government funds were committed, contractors demanded advance payment in full, and the City of Dawson initially refused to approve the project. In addition, funding was delayed many times and in some cases reduced from previous commitments. Consequently, the "interim production" of 1981 was **undermined** and the company closed for the season. This resistance may be related to the "failure image" of the company's predecessor, Moosehide II, and the large debts that company had accumulated. It may also be related to a pervasive racism in the community. In the words of one participant, "most Whites do not want to see a change in native people's lives, if it means native people are no longer the poorest and most broken down people of the Yukon." An Indian-owned company can be seen as a threat to the established economic interests and political power of the local White business community.

By the fall of 1981 things began to turn around. Funding came through in earnest and plans were made to renovate the existing Dawson Indian Band Hall. The building was raised and moved a block so that connections could be made to Dawson's water and sewage system. Renovations were begun on the interior by a Metis carpenter and a crew of young Indian men. A mechanic and a bookkeeper, both local

Whites, were hired and assisted by Indian "trainees". Companies from Whitehorse were contracted to install the plumbing and electrical systems and fibreglass the interior of the building and an engineer from Vancouver was contracted to install the freezing equipment. In short, during the winter and spring of 1982 the modest Band Hall was transformed into a modern fish processing plant.

The plant is equipped with the most advanced technology. A Vancouver engineering firm designed a system that includes a small blast freezer (10,000 pound capacity in twelve hours), a 100,000 pound storage freezer, an ice plant capable of producing 3,000 pounds of slush-ice per day and appropriate compressors and evaporators. Plant capacity is estimated at 200,000 pounds of king and chum salmon per season, an amount equal to the existing level of production for the local market. Other company assets include a 24-foot barge, a 22 foot aluminum boat with dual fifty horsepower outboard motors, a 20-foot tractor trailer and reefer unit, a small boat and several outboard motors, a half-ton truck, wood-working tools, etc.

Beginning shortly after the start of the king salmon run, HAN operated a collector boat between Dawson and Cliff Creek, a camp some sixty miles down river (see Map 3). The boat left Dawson at four A.M. and arrived back around noon,

Map 3. Distribution of fish camps, 1982

fish logo on per... 100%

Collector Boat At Fish Camp

22

OF / DE

picking up fish on its way up river. Indian plant workers cleaned fish and loaded the blast freezer during the afternoon and did other related work during the rest of the day. After its first successful week of operation, the boat hit a submerged log which severely damaged the propellers and steering mechanism and when more serious mechanical problems developed shortly afterwards the boat went out of service for the remainder of the season. Few fishing days were lost, however, as fishermen transported their fish up the 40 Mile River to Clinton Creek and the company hauled the fish to town by truck. During the chum salmon run, several pickups were made by a small "back-up" boat but fish were primarily hauled by the fishermen themselves directly to Dawson.

Although the supply of fish to the plant was partly disrupted by transportation problems, the major difficulty was the poor king salmon run. As noted previously, above average commercial catches in Alaska and on the high seas greatly reduced the escapement of fish to the Yukon Territory in 1982. For many Yukon fishermen this resulted in poor catches; eddies that in previous years had produced 100 pounds of fish a day yielded 20 to 25 pounds a day in 1982 and the total commercial catch was only slightly greater than in 1981, despite increased fishing effort.

During its first season of operation (1982), the fish plant operated at less than 50 per cent capacity, mainly due to the poor salmon runs. The company purchased king salmon between mid-July and early August and produced approximately 58,000 pounds of dressed, frozen product. Purchases of chum salmon were made during September and approximately 30,000 pounds of dressed product was produced. Some chum salmon roe was frozen for samples and heads, guts and roe were frozen for dog food.

Sales to the fish processing company accounted for roughly half of the total commercial salmon catch in 1982. Of 19 commercial fish camps in the Dawson area (an increase of two camps over 1981), nine regularly supplied the fish plant during the king salmon run and occasional sales were made by five others. All of the regular suppliers were fishermen based in camps along the river, most of whom had previously produced salmon jerky for sale on the local market. During the chum salmon run the company was supplied by different fishermen. Five fishermen based in town regularly supplied the plant and a few sales were made by three others.

The price of fish was low in comparison to prices for fish produced under similar conditions in Alaska or in more developed fisheries on the British Columbia coast (see Table

7). The company paid \$.85 a pound for whole King salmon, half at the end of each week and the other half once the company had sold the fish. For whole chum salmon the company paid \$.30 a pound at the end of each week.

TABLE 7

Prices paid per pound to fishermen in 1982 for gillnet caught fish (round weight)

Species	Yukon	Alaska (Yukon River)	British Columbia
king salmon	\$.85	\$1.25	\$1.55
chum salmon	\$.30	\$.50	\$.71

Sources: Alaska; Alaska Department of Fish and Game. British Columbia; Western Fisheries, December 1982, Vol. 105, no. 3, p. 18.

Even at these low prices, HAN's 1982 operations had an immediate and positive impact on the cash income of many fishermen. The development of large-scale production and the link to new markets eliminated the restrictions imposed on production by individual processing capacity and limited local demand. Also, the commercial fishing season was extended to include the chum salmon. Fishermen who had earned under \$3,000 on the local market in previous seasons earned over \$8,000 from the company in 1982. Costs of production were

also higher but overall, income from fishing increased for fishermen regularly supplying the plant. While some fishermen sold more fish to HAN than others, purchases from 15 camps totalled \$86,488.00, indicating an average income of \$5,766 per camp.

Indian Employment

The Dawson Band, numbering 484 people, comprises more than one third of the total community yet the Indian share in the Dawson economy is extremely low. Whittle, in his 1977 report on the Indian people of Dawson, found that the major source of employment for Indians was jobs related to the Band's operation. "Even in the government sponsored employment projects, where skilled labour was not necessary, the Native participation rate was disproportionately low, except in the Young Canada Works project. Even here, it appears that Indian students were being paid less to do similar jobs."¹

With the development of an Indian-owned company, the situation has improved. Roughly 30 Indians participated in the construction of the fish plant during the winter of 1981-82 and some \$109,300 in wages were paid out. Because construction occurred in three stages (fall, winter, and spring) with breaks in between, different crews were hired

for each period with approximately ten young Indian men working at any one time. The change-over in personnel was not problematic to the company as most of the jobs were for unskilled labour and it had the positive effect of spreading employment throughout the community during the winter when unemployment is particularly high. Although the skilled work of installing utilities, freezing equipment, etc. was done by contractors from Whitehorse and Vancouver, the physical structure itself was renovated by the Indian crew, under the direction of the company manager and a local, Metis carpenter. Successful completion of this project was a source of pride for those who participated in its construction. Young local Indians gained valuable experience during the construction of the plant but unfortunately there was minimal training.

During the fishing season, some 25 Indians were employed by the company, although again not all at the same time. During the peak two weeks of the king salmon run (July 22 - August 4), 16 people plus the "core" staff (manager and bookkeeper) worked in the plant and on the collector boat for an average of 85 hours each. Plant workers (and deck hands) earned \$8.00 per hour and those who worked the eight week season earned approximately \$2,300 while the plant foreman, boat pilot, and mechanic earned considerably more (over

\$3,800). Three of HAN's most highly skilled employees (the manager, bookkeeper, and mechanic) were non-Indian but the others were young, local Indians; roughly half women as opposed to the all male construction crew. Although capable individuals, because of the few employment opportunities for Indians many of these women had only been able to find seasonal work as chambermaids and laundresses in the tourist industry. The fish plant offered better wages and a change from the drudgery of unskilled service work.

HAN has had considerable difficulty marketing its fish. International markets for salmon products have been very unstable in recent years due to a botulism death in Europe from a can of Alaskan salmon and also the general economic slowdown in most world economies. According to one analyst, in 1982 processors had to "contend with soft markets both domestically and in Europe, the fear of botulism in Europe, New Zealand and Australia, weak foreign currencies in relation to the Canadian dollar, stronger Alaskan competition which tend to depress prices, and increased competition from the Norwegian fish ranchers."² Because of the red skin colour of Yukon king salmon, HAN's fresh-frozen product is restricted to the relatively limited smoked fish market. The market for Yukon chum salmon is good but only at a price competitive with Hokkaido, Japan, major producers of chum

salmon. Chum is usually processed into fish paste for sale on the Japanese market.

Early in the 1982 season HAN proposed to sell its fish to a processing company in Vancouver. This proved to be difficult, however, because of a pervasive skepticism on the Vancouver market about late run salmon. When a strike by the United Fishermen and Allied Workers Union temporarily closed down the fishing industry in British Columbia at a time when HAN needed to empty its storage freezer, the company sought out an alternative buyer; a fish broker in Seattle was contacted and samples were sent for appraisal. The broker was familiar with late run Yukon River king salmon harvested on the Tanana River in Alaska and after examining HAN's product made a tentative arrangement with the company. For \$.10 per pound the broker would locate buyers for the fish, probably smoke-house companies in New York State.

Shipments were made to Seattle and the chum salmon was sold within a month of the end of the season for the targeted price of \$1.00 per pound. However, as of February, 1983, the broker had still not sold the king salmon. According to HAN's manager, the main problem has been the depressed price for kings due to a surge of Alaskan fish on world markets. The company is holding back in the hope that the price will improve when Alaskan inventories run out. The up-shot of

this delay is that fishermen have not been paid the second 50 per cent installment on their king salmon and the cash reserves of the company have been depleted.

Conclusion

The establishment of an industrial fish processing plant in Dawson is a development mechanism introduced on behalf of the local Indians by a pastor and a regional Indian political organization. The objective is less to gain returns on government capital than to create jobs for local Indian workers. It is an "artificial economy" as the capital was not generated internally nor did private capital penetrate the fishing sector. The **political** nature of the project is revealed in a statement by a regional Indian leader: "for Dawson the fishery is like an early realization of a land claim dream."³

The economic viability of the processing company is, at best, only marginal and its dependence upon government support will likely continue for sometime. The company must compete with market prices determined by large processing companies operating in the best conditions of production on the British Columbia coast. Its ability to do so is highly restricted by a very short fishing season, a product limited to specialty markets, and high costs of production. The

company must also anticipate problems with the supply of resources due to the cyclical nature of salmon runs, interceptions in Alaskan fisheries and the small number of area fishermen. The commodity produced is a raw material for further processing into a smoked product hence a large portion of the total value of the finished product is added elsewhere. These below average conditions of production are likely to absorb all of the company's revenues. Although the company has the advantage of being "debt free" in terms of initial capital investment, a lack of working capital hampers operations and further development and has already caused tension between the company and fishermen who have not been paid in full for their fish. The continuing dependence of the company on government support removes its ability to define its own problems and solutions. For example, the company wants to expand into a smoke-house operation to improve its viability but government agencies are not willing to fund the expansion.

Myers, in a study of Eskimo Cooperatives, argued that: "There is inherent contradiction in any institution purporting to uphold tradition while promoting modernity. The co-ops were committed to making decisions in "the Eskimo Way" but, at the same time, they had to link Inuit into an external market which dictated its own terms."⁴ The

contradictions within HAN are similar. The stated goals of the company are "to develop the fishing industry in a means that is compatible with native values and to develop the capacity of native people to organize and manage the industries they create."⁵ However, the link with the international salmon market imposes many requirements in terms of scale, capital intensity and levels of productivity that imply a reliance upon non-Indian technical and administrative expertise. Local Indians have no control over the form and direction of the development and to date very little emphasis has been placed on special training or developing local support beyond a few members of the Dawson Band Council.

Despite these severe limitations, the processing plant may provide a stable market for White fishermen and seasonal jobs for local Indians in a community where alternative employment is limited. Unlike so many other companies operating in the Yukon, what surpluses are generated will go to the local Dawson Indian Band. But what kind of industrial jobs are being created? What are the implications of industrial fish processing for fisherman-control over the labour process? What are the implications for relations among fishermen and plant workers, between fishermen and management and between Indians and Whites? In the long run,

how will the increased wealth be distributed? Does industrial fish processing mean for Dawson fishermen, as it has proven for so many fishermen on both coasts, a situation of increasing disadvantage and a diminishing share of the total value of production? The final chapter explores these and other issues.

CHAPTER FOUR

The establishment of industrial fish processing is transforming the nature of work in the Dawson fishery. The labour process is being re-organized to accommodate currently available levels of technology and thereby increase the scale of production and the productivity of labour. Fish processing and marketing which was previously controlled by fishermen is now predominantly controlled and operated by non-fishermen and the resulting concentration of production in the plant permits a detailed division of tasks and the use of unskilled wage labour. In addition, prices for fish are no longer determined locally but internationally by the best conditions of production controlled by large companies. The result of these changes is the further integration of commercial fishing into the wider economy on terms where fishermen are subordinate. This chapter examines these issues.

The division of labour among commercial fishermen was altered in 1982 with the emergence of alternative markets for fish. Some fishermen continued to produce fish products for the local market and domestic use while others shifted their emphasis towards the production of whole fish for the

processing plant. Two different groups of fishermen (town and river residents) supplied the plant during each of the salmon runs:

- i) during the king salmon run,
 - River residents who had previously produced **salmon jerky** now produced **whole fish** for sale to HAN.
 - Town residents continued to process and retail their own fresh fish.
- ii) during the chum salmon run the situation was reversed,
 - Town residents produced **whole fish** for sale to HAN.
 - River residents continued to produce dried chum salmon as food for their dogs.

These changes in fishing practices are related to the technical conditions of production and specific relations of exchange, i.e. the price of fish. Within the constraints imposed by the geographic situation, fishermen chose between several strategies of production.

Many river residents are too far from Dawson to compete effectively on the local market for fresh fish and consequently had traditionally specialized in the production of salmon jerky. Their total catch and output of finished product was restricted by market conditions but also by the processing capability of individual units. The development of HAN overcame these disadvantages; the company picked up **whole fish** at camps along the river and purchased in volume.

Consequently, the extra labour required to process and retail fish was avoided and catch was increased significantly by checking nets more often (see Table 8). Under these conditions, even at \$.85 per pound most river residents found it more profitable to sell whole king salmon than to produce salmon jerky. The production of salmon jerky for the local market declined dramatically.

TABLE 8

Increase in catch from 1981 to 1982 corresponding to a shift
from salmon jerky to whole fish production,
(king salmon only)

Fisherman	A 1981 (pieces)	B 1982 (pieces)	B-A Increase
A	288	520	+232
B	80	182	+102
C	309	760	+451
D	327	756	+429
E	430	480	+ 50
F	221	245	+ 24
average	276	491	+215

For town residents the emergence of a new branch of production had a different impact. Most used eddies close to town and developed the capacity to market relatively large

quantities of fresh or frozen fish (freezers, market contacts, etc.). The collector boat offered no real advantage and \$.85 per pound did not compare favourably to the \$1.75 to \$2.00 per pound fishermen received by processing and retailing their own fish on the local market. Nevertheless, catch in **excess** of local demand, as occurs at the peak and towards the end of the run, could be profitably sold to the fish processing company.

During the chum salmon run a different group of fishermen supplied the processing plant. Previously there was very little local demand for chum salmon and consequently fishermen either stopped fishing at the end of the king salmon run or fished the chum run for food for their dogs. With the emergence of HAN the commercial fishing season was extended to include the chum salmon and even at \$.30 per pound some fishermen (mainly town residents) found it profitable to fish for the processing plant. But for other fishermen (river residents with dog teams), the value of the chum salmon could best be realized by retaining them as means of production, i.e. for feeding dog teams for trapping operations. Whereas an eight pound fish (an average weight) sold whole to HAN is worth \$2.40, the same fish produces two servings of high quality dog food. The equivalent amount of commercial dog food (a lesser quality food) costs \$2.00. By

selling to HAN fishermen only earn an extra \$.40 per fish less the added effort and expense of picking up dog food in Dawson. Consequently, in 1982 most river residents refused to sell their chums to the processing plant.

For some fishermen, sales to HAN are restricted during both salmon runs. The company designates specific camps where fish will be picked up based on the quantity of fish required and the capacity of the collector boat. Consequently, access to the whole fish market is restricted for fishermen located up or down stream from these camps (see Map 3). Although the poor king salmon run in 1982 precluded having to limit HAN's total purchases, the collector boat did not go beyond Cliff Creek (some 60 miles down river) because of limitations on how much fish it could haul at a time, how long it could extend the trip without reducing the quality of the fish (the plant had no ice making capacity until the end of the king salmon run) and the amount of gas it could carry. As a result, fishermen down river from Cliff Creek continued to produce salmon jerky and smoked fillets as previously and occasionally hauled their own fish up river to the Cliff Creek camp. The boat did not go up river from Dawson because there were fewer prospective suppliers in the area.

The poor king salmon run in 1982 and the low price offered for chum salmon precluded problems of oversupply to

the fish plant. In coming years, however, the 10,000 pound a day capacity of the fish plant will be problematic as this amount of fish can be supplied by ten or fewer fishermen. While competition for local markets is abating as formerly surplus fish are purchased by the fish plant, at the same time a new structure of competition among fishermen for the whole fish market is emerging and is likely to be a divisive force in the future.

The development of commercial fishing in Dawson has been uneven as environmental factors, the fisherman's perceptions of market conditions, and the needs of the new company interact in the redistribution of labour among different workers and branches of production. For some fishermen, the alternative market for their fish offers greater returns from fishing than previous forms of production but it also reduces their autonomy and control over the labour process. As the limitations of local markets are lifted, new demands are made on the organization of production and the level of technology. Fishermen producing whole fish no longer add value to their fish through processing and marketing. Consequently, the profitability of their operations depend upon volume and require that fishermen specialize in fishing per se, increase the scale of production and purchase more efficient equipment.

In 1982, the number of net-checks increased from one or two per day to three or four and more extensive use was made of existing equipment and eddies. More time was required to maintain and repair fishing equipment and the level of capitalization increased in some fishing units. Larger boats, additional outboard motors and new nets were purchased and experiments were made with different fishing technologies. A few fishermen purchased a light filament mesh called "tangle web" that produced twice as many fish as an equivalent length of hemp mesh. The more costly mesh paid for itself in productivity even though twice as much time was needed to "pick" fish from the net and the mesh had to be discarded after a few weeks of use.

In addition to the more efficient use of set-nets, in 1982 an entirely different technique was introduced to the Dawson fishery---drift gill-netting (drifting).¹ This technique is commonly used in fisheries in British Columbia and on the Yukon River in Alaska. Several Yukon fishermen learned the technique on the Taku River in northern British Columbia and after some experimentation adapted it to the Yukon River. In drifting, a gill-net attached at one end to a boat is allowed to drift with the current. The boat idles in reverse to position the net so that a "bag" or "hook" is created. Approximately 125 feet of net is ideal as longer

nets are difficult to control. Once the drift has been made, the net is pulled into the boat and fish are removed as it comes in. After "racking" the net on the bow, the drift can be repeated in the same or another location. Typical locations for drifting are along sand bars and close to banks depending on the depth of the water, current, absence of snags and the availability of fish. An average drift on the Yukon River lasts about 15 to 20 minutes.

The main advantage of drifting is its greater **mobility**. The technique can be used in a far greater number of locations in the river than is provided by the use of gill-nets set in eddies and if drifts are unsuccessful in one location another can easily be tried. Potentially, once a "pulse" of fish are located, fishermen can follow it as it moves up river. This is done on the Fraser River and, to some degree, at the mouth of the Yukon River in Alaska. On the Taku River crews line-up to drift particularly good locations over and over again. In general, the technique is more "efficient" than set netting because it is not limited by environmental factors such as the location, number and productivity of eddies.

According to one drift-netter, disadvantages of the technique include a high probability of net loss and damage due to snags on the river bottom and a certain amount of

danger to the fisherman in removing a snagged net. Larger boats and more reliable outboard motors are needed for safe and efficient operation and a different type of gill-net is used (the lead line on drift gill-nets is designed to break easily when it snags). Operating **costs are higher** due to greater outboard motor wear, gas consumption and damage to nets. In addition, **longer hours are spent fishing**. Instead of using the characteristics of salmon and eddies to "trap" fish, in drifting "if you're not out there fishing you don't catch fish."

The potential impact of drift gill-netting has not yet fully materialized. The fishermen who introduced the technique to the area made catches comparable to fishermen with very productive eddies although far more time was spent fishing. Several other fishermen experimented with the technique but, as will be seen later, there was also considerable local resistance to its use because the mobility of the technique undermines the existing system of local control over access to resources. Whereas previously the reliance on eddies to catch fish and informal rules to regulate the use of eddies were important relations of production limiting access to resources, drift netting obviates these control mechanisms. Despite higher costs, drift netting potentially permits new entries into a fishery

already burdened by intense competition for local markets, limited opportunities in the new market, and an uncertain supply of resources. In addition, the greater efficiency of the drift netting technique indicates that **fewer** fishermen could supply all of these markets. Fishing effort could concentrate closer to Dawson (i.e. closer to the fish plant) and reduce the costs of transportation but this would exclude the more distant fishermen currently dependent upon the transportation link.

The transformation of work is most extensive in fish processing. Whereas previously processing was a single stage in the labour process of individual/family producers, its concentration into a plant makes possible a systematic division of labour into separate operations performed by different workers (a detailed division of labour). This form of collective labour depends upon large scale production as without sufficient quantities of fish it is impractical. It represents a saving in labour time because separating processing from other work and assigning each operation to a different worker organizes labour into simple, repetitious movements that can thereby be performed more efficiently. In short, fish processing work is **factory work** as can be seen from the following outline of the labour process.

Fish processing is divided into five distinct operations performed by nine or ten workers on a "disassembly" line along a work table. The entire process is continuous and geared to the flow of the line. One worker heads the fish while two others remove the guts and slit the blood sack along each side of the backbone. Heads, guts and roe are dropped into separate tubs and the fish are slid along the work table to the next operation. Two workers scrape the congealed blood and tissue from the blood sack and slide the fish into a large tub filled with cold, circulating water. Around the tub stand four or five workers, each equipped with a spoon for scrapping slim off the skin of the fish and blood and tissue from the body cavity. Once cleaned, the fish is lifted out of the tub and placed in smaller tubs nearby where another worker rinses each fish with cold water and places it on a metal rack. When the rack is filled it is rolled into the blast freezer, thus completing the cycle of operations.

In addition to separating work into simplified operations, a hierarchic gradation of workers emerges. Work is supervised by a foreman who directs and coordinates the cleaning process and signals when to start, stop, and rest. Within the crew itself there is a hierarchic gradation of workers along sexual lines. Of the ten or so plant workers, roughly half are men. They do the more skilled work such as

heading, gutting and grading fish; they move from one operation to another and work a full shift plus overtime glazing and boxing the fish. Women, on the other hand, do the tedious job of washing fish at one station, hands continually submerged in cold water. They rarely do other work and are the first to be let go when production slows down. Knight in a study of Indian labour in British Columbia, observed: "Those who picture Indian women plant workers as continuing their traditional roles in fish preservation in somewhat novel surroundings either do not understand the nature of canneries or are hopelessly ensnared in dogmas of cultural conservatism."²

The use of collective labour and the detailed division of labour in the fish processing plant increases productivity, the scale of production and the quantity of fish produced. But the kind of jobs created for local Indians are devoid of any form of skill, requiring only a dexterity in performing a few repetitive movements. Braverman, in an analysis of the division of labour in capitalist society, argued that:

Every step in the labor process is divorced, so far as possible, from special knowledge and training and reduced to simple labor. Meanwhile, the relatively few persons for whom special knowledge and training are reserved are freed so far as possible from the obligations of simple labor. In this way, a structure is given to all labor

processes that at its extremes polarizes those whose time is infinitely valuable and those whose time is worth almost nothing.³

The operation of the Dawson plant relies on one person, the company manager, whose skills and special knowledge make him indispensable. Most other jobs in the plant, on the other hand, can be learned by anyone within a short period of time. Even if a local Indian is trained as manager, the structure of the labour process provides few opportunities for Indians "to organize and manage the industries they create." Instead, technical skills, training and knowledge of the labour process are "distributed" on a strict "need to know" basis to a few individuals.⁴

The increasing division of labour corresponds to important changes in the relations of exchange between fishermen and markets. Prior to the fish plant, fishermen sold a finished product directly to many different consumers and small businesses on the local market. The development of an industrial fish processing plant owned and operated by non-fishermen removes the fisherman's control of a finished product and, although new markets are established, fishermen are placed in a dependent relationship with a company with conflicting economic interests. In addition, fishermen cannot effectively hold fish off the market for better prices

and limited local demand leaves few alternatives but to sell fish to the plant.

The shift from local to international markets also places fishermen in a disadvantaged position. International market forces now determine the nature, quantity and price of what they produce and sell. Prices for fish are no longer determined locally but internationally by the best conditions of production controlled by large companies. To be competitive with these companies, HAN must maintain low prices for fish purchased from local fishermen. These savings enable the processing company to sustain itself at lower than average levels of productivity and accumulate profits but only at the expense of the fishermen.

In its first year of operation HAN assumed a dominant position in the local market with purchases of approximately half of the total commercial salmon catch. The price of fish was not negotiated between fishermen and the plant but rather was simply "offered" without consultation. As noted, prices were very low in comparison to other regions. The rationale of the plant manager was obviously consistent with the needs of the company as a private enterprise: "The buyers are always interested in salmon, if the price is right. I have to start low to the fishermen because I don't really know what the selling price will be. If I buy high and have to

sell low, I'm not going to be in the fish business very long."

There are definite limits on the ability of the company to accumulate profits stemming from its relationship with international markets. The difficulty that HAN has had selling its king salmon is a problem that reveals a great deal about its relationship to these markets, but also to fishermen. HAN has no control over international prices but can and does use its dominant position in the local market to determine local prices. The company is also able to store its frozen product (in Seattle or elsewhere) until prices improve. In 1982 the company transferred much of the carrying costs to the fishermen by not paying them the second installment on king salmon until a buyer was found. The weak position of fishermen contrasts with other creditors who were quickly paid-off, even before the company sold its fish.

Many fishermen initially considered the price of fish to be unacceptable. A week prior to the start of the season, a meeting was organized to discuss ways to negotiate with HAN but attendance was poor and without the collective support of all fishermen, no significant action could be taken. Resistance to the low prices was more affective during the chum salmon run as many fishermen simply refused to sell their fish and instead produced dog food for use as means of

production for trapping operations. Although competition for local markets has traditionally divided fishermen, under conditions of declining control over the process of production the negotiation of prices is becoming a common concern that unites fishermen in opposition to the processing company.

In summation, the division of labour among fishermen, between fishing and fish processing activities and within the fish plant has had a profound effect on the forces and relations of production. Previously, commercial fishing was planned and executed by similar, independent units working scattered means of production. With the establishment of an industrial fish plant the labour process became a social process involving interdependence between dissimilar units. The concentration of production in the plant permitted a detailed division of tasks and the use of unskilled wage labour. Transportation, fish processing and marketing, which were previously controlled by fishermen, is now predominantly controlled and operated by non-fishermen with distinct and conflicting economic interests.

Fishermen still chose between several strategies of production including the production of whole fish for the plant or salmon jerky and fresh fish for the local market. They still controlled the technology they were using and

employed skills such as knowledge of fishing techniques, mechanics, etc. But fishermen supplying the plant were compelled by the centralization of processing and marketing to specialize and take advantage of more productive technologies. Fishing became more continuous and intensive and increased in scale and volume of equipment invested. Although productivity increases, there is a reduction in the autonomy of fishermen and the control they have over the development of the labour process. Denis has pointed out that "increases in productivity do not automatically provide higher [fishermen] revenue. Increased productivity simply means that a greater surplus is generated in this sector for extraction by capital. Extraction of surplus forces [fishermen] to continually modernize their operations to increase productivity and maintain their incomes, but constant modernization further integrates them into the circuits of capital."⁵ In the Dawson fishery the situation may become one of escalating costs and declining revenues, the reduction of the possibility of self-financing and rising indebtedness.

Competition and Fishing Rights

Formerly, the growth of the Yukon fishery was limited by the nature of individual/family production and local demand. Now, because of the extension of markets and the intensification of production, the availability of resources has become the limiting factor. This has resulted in conflict between user groups; commercial and subsistence, Indians and non-Indians, Yukon and Alaskan fisheries, etc. Long considered to be one of the strongest wild stocks of king and chum salmon on the Pacific coast, the Yukon River salmon population is, nevertheless, exhaustible and to assure the maintenance of fish stocks, restrictions must be placed on the use of the resource. Restrictions, however, imply the establishment of preferences among users and are therefore essentially political in nature. As noted by Clement:

The state is often regarded as the 'umpire' of these various claims....[and] has as its principal task the legitimation and enforcement of the rights of property. ... In fishing it determines the jurisdictions; that is, makes into private property certain territories [or quantities of fish] for the exclusive benefit of those it deems to use it.⁶

The fact that downstream fishermen always have first access to fish sets the stage for competition and conflict and

defines the groups involved. This concluding section examines specific issues of resource use that arose during the 1982 fishing season.

The following petition forwarded to the Department of Fisheries and Oceans by a majority of fishermen illustrates the conflicts over scarce resources between resident and non-resident fishermen and between competing technologies:

"We, the undersigned, feel that [Paul Brown] and [George Grey] and their assistants should be told to stop fishing on the Yukon River. The reasons for this are that they are not Yukon residents and their method of fishing (drift netting) is very efficient and the results of this are being felt by other resident fishermen. Their licences should become available to full-time Yukon residents."

The two partners against whom the petition was directed are "newcomers" to the Dawson fishery who located down-river near HAN's furthestmost pick-up point. Although they had previously resided in the Yukon and had fished commercially in other parts of the territory for a number of years, they were unknown to the Dawson area fishermen and had relocated to the Dawson fishery in response to the emergence of the new market. In 1982 they successfully employed drift netting techniques and supplied the processing company with king salmon. For local fishermen, the impact of the industrial fish plant, "newcomers" to the fishery and new technology was

aggravated by the fact that the catches of fishermen supplying local markets were lower than in previous years while down-river fishermen supplying the plant generally had good catches. The increased catch resulting from the development of HAN may have affected the number of fish available to fishermen up-river, but the total catch was so small that the difference would only be minimal. The petition illustrates that the interests of commercial fishermen are not necessarily common interest but rather divide along inherent cleavages; resident vs. non-resident, and set netting vs. drift netting.

The Department of Fisheries and Oceans responded to the petition by holding a local meeting. Debate revolved around limiting entry into the commercial fishery by enforcing newly adopted regulations. The regulations state that,

"No person shall apply for ... a commercial fishing licence or a domestic fishing licence unless ... he has resided in the Yukon Territory for the previous 12 months."

If enforced, this regulation could prohibit the entry of the two fishermen when they apply for a 1983 licence. However, clearly defining a Yukon resident is difficult and the questionable constitutionality of the regulation may prove problematic for the department. No conclusions were reached regarding the use of drift netting techniques.

In addition to the conflicts between commercial fishermen, significant events in 1982 focused on the rights of Indian subsistence fishermen. Because of the poor salmon runs, the 1982 catch of king salmon in the Indian food fishery was well below that of previous years. Most Indian fishermen are located up-river from the Dawson commercial fishery and apparently the Carmacks Band asked that the commercial fishery at Dawson be restricted. New closures were placed on the commercial fishery to allow additional fish to escape past the commercial fishery at Dawson both for spawning purposes and for use in the Indian food fisheries up-river (see Map 4). King salmon fishing was reduced from six to five days per week and chum salmon fishing was reduced from seven to four days, later extended to five days, and then reduced to three days per week. After October 12, when fishing in the Dawson area had ceased but continued up-river, fishing was again permitted on a seven day basis.

Rights for Indian fishermen may soon assume a more explicit form---rights of property in law. The federal government and representatives of Yukon Indians have been negotiating Indian rights in the territory for nearly ten years. "Land claim talks" may be completed this year (1983) and an overall agreement signed by the Council for Yukon Indians, the Federal Government, and the Government of the

Map 4. Location of commercial and Indian food fisheries.

Yukon. Although the issues involved in these negotiations are very complex and the final outcome is by no means certain, a number of subagreements have been released to the public, including one regarding the use of renewable resources—fish, fur, and game. The agreement is intended to protect Indian fishing rights by setting quotas and assuring Indian participation in fisheries management. The following areas are covered:

- i) Food fishing by Indians and non-Indians will have priority over commercial fishing.
- ii) Indians will have first access to any new commercial fishing licences that are available.⁷

The implications of these regulations are far-reaching. Fishing for food is established as a priority use by both Indians and non-Indians fishermen and therefore any regulation of the commercial fishery at Dawson will become a highly contentious issue. The fact that the fish processing plant is owned and operated by the Dawson Indian Band, and may be restricted, sets Indians from different communities against each other. Legislation providing Indians with first access to new commercial fishing licences is also a potentially bitter source of conflict over access to the occupation between Indians and non-Indians.

Increased competition for salmon resources in the Yukon Territory was triggered by the poor king salmon run of 1982 as well as the new restrictions which were placed on the chum salmon fishery. The existing divisions between groups were further compounded by increased fishing effort in the commercial fishery at Dawson. As noted previously, the poor runs were directly related to above average catches on the high seas and at the mouth of the Yukon River where the Alaskan commercial fishery is concentrated. Salmon populations entering the Yukon Territory are heavily harvested by these "downstream" fisheries and because of this "gauntlet", are particularly vulnerable to overfishing. In 1982 new fishing closures were introduced by the Department of Fisheries and Oceans. These closures regulated the Yukon fishery to compensate for overfishing in Alaska and indicate that expansion of Yukon fisheries is not feasible without an attendant reduction in the Alaskan catch.

International negotiations between Canada and the United States regarding salmon stocks of the Yukon River are presently underway and will eventually result in quotas for the fisheries of each country. The essential basis for quotas is that the government owning and controlling spawning grounds has a primary right to the fish stocks from these grounds. At the present time the catch imbalance is so great

that some increase in the allocation to Yukon fishermen seems likely but effective enforcement of quotas will depend upon the priority and support provided by the Canadian government. The United States is in a much stronger negotiating position for two reasons: first, because of their geographic location Alaskan fishermen have first access to the migrating salmon, and second, because of the political influence of the highly developed Alaskan fishing industry. The Yukon River portion of this industry is valued at 26 million dollars and is controlled by several large fish processing companies which employ many hundreds of fishermen and plant workers. This organized and formidable industry is opposed by a fledgling and greatly divided Yukon fishery.

CONCLUSIONS

Until recently, commercial fishing in the Dawson City area was organized by independent family units. The division of labour within these fishing units was minimal as individual/family members planned, directed and executed all fishing activities as well as processing, transportation and marketing. Small scale, simple technology was used and most individuals were able to purchase the required equipment. The central relations of production controlling access to resources were informal rules regulating the use of eddies. The location of individual eddies in relation to markets resulted in a territorial division of labour into several branches of production. Fresh salmon was produced by fishermen in the vicinity of Dawson and salmon jerky was produced by fishermen in camps along the river. Government regulations limited entry into the occupation but did not significantly restrict the labour process. Instead, the short fishing season, the location of eddies and local market forces determined the nature, quantity and price of the product.

Fishermen owned some means of production but were subordinated to capital for equipment and supplies and

dependent upon uncertain markets provided by the tourism and mining industries. Although some profits resulted from these relations, the overall level of capital accumulation was very limited. Local demand and barriers to expansion into national markets were the main factors which prevented further development of the fishery. In addition, the quantity of fish produced was so limited, and the prices received so low, that most fishermen were compelled to engage in intensive subsistence production and wage labour.

Commercial fishing in the Dawson City area is being fundamentally reshaped by the establishment of the industrial fish processing plant and the resultant division of labour between fishermen, plant workers and management. The labour process is thus becoming a social process involving interdependent relations between dissimilar units and the use of collective labour. This permits an increase in the scale of production and the application of advanced technology. Commercial fishing is becoming more continuous and intensive and increasingly integrated into the capitalist economy. The expanding surplus provides the potential for higher fisherman revenue and benefits local Indians through the creation of industrial jobs in a community where employment alternatives are limited.

The increasing division of labour also corresponds to important changes in the relations of ownership and control over the means of production. Fishermen own their boats, motors, nets, etc. and hence are able to supervise their own labour and conduct fishing activities. The fish processing company controls the transportation of fish, the supervision of labour in the plant and the marketing of the fish. International market forces, however, determine the nature, quantity and price of the products. The link with international markets for salmon generalized the conditions of production and compelled both fishermen and the processing company to specialize and utilize more productive technologies. This has particularly important implications for relations between fishermen and the processing company. Despite the disadvantages resulting from isolation, high labour costs and restricted specialty markets for Yukon salmon, to be internationally competitive, the fish processing company must match international prices. To do so, they are obliged to use their dominant position to maintain low fish prices in the local market. This situation is very divisive in that it pits fishermen (White or Indian) against the processing plant.

The reorganization of commercial fishing has not destroyed the previous form of production altogether.

Fishermen can still choose between several marketing strategies such as the production of salmon jerky and fresh salmon for the local market or whole fish for sale to the company. Individual/family labour is still the basis of the fishing crew, fishermen still own some of the means of production, control the technology used and employ craft skills such as fishing techniques, motor repairs, etc. Capital interests are benefited by the continuance of self-employed producers in that "capital is able to ensure its source of [cheap] produce yet is absolved from (i) the natural risks of [stock depletion] (ii) the need to invest capital in the first stages of production; and (iii) ... the need to supervise labour. The final point is significant ... in terms of the cost of supervision, the need to recruit a labour force, the skills and experience of fishermen and the willingness of simple commodity producers [self-employed workers] to exploit themselves and their families by long working hours and engaging in intensified labour."¹ In addition, the reorganization of the labour process 'locks' producers into circuits of capital that require constant modernization and creates new markets for goods produced by capitalist firms.

Government regulation of the fishery is playing an increasingly important role in the development of the

fishery. The government has clearly established its ownership of salmon resources through a system of licencing and closures. Fishermen "rent" limited rights to fish from the government on an annual basis. Assuming no overall increase in the availability of resources, as catches in the commercial fishery increase more frequent closures are likely to protect the existing spawning population and the rights of up-river Indian food fisheries. For commercial fishermen the situation may become one of escalating costs and efforts; fishermen will likely purchase more equipment to increase their productivity during a shorter period of time, and because of the resulting higher costs of production, increase their catches to maintain their incomes. Higher levels of capitalization compound problems of over-fishing and reduce the effectiveness of existing controls over access to resources.²

There are numerous substantive questions and theoretical considerations of relevance to the development of the fishery that have not been examined or fully developed within the limits of this thesis. For instance, the relationships between the groups of people competing for resources and the unfolding pattern of fishing regulations would be a rewarding area for further study. Also of interest is the changing role of subsistence production and family labour in the

maintenance of households and the economic rationality expressed by the individual adaptive strategies of fishermen. Indian political development in the Yukon and its relationship to state support for "Indian economic development" would also be of considerable interest and importance in an expanded study of the Dawson fishery. In addition, the more extensive use of theories of capitalist development and underdevelopment and race relations in Canada would contribute to a greater understanding of the links between the Dawson fishery and changes in the wider society. This thesis has presented a descriptive analysis of commercial salmon fishing in the Yukon as one step towards the further study of these issues.

The major benefits resulting from Indian ownership of the processing company are that jobs are created specifically for Indian people and some of the profits are kept in the community. These profits, however, are earned at the expense of local fishermen because as previously mentioned, maintaining low prices for fish is the principal means of reducing costs and remaining competitive on the international market. To overcome the inevitable conflicts resulting from this situation positive steps must be taken to do away with the local division of ownership and control over the means of production. I believe that a co-operative commercial fishing

industry could be a viable and progressive force in the Dawson community. This would require that fishermen, plant workers, and management submerge their self-interests and recognize the urgent need for cooperation and collective participation in the decisions regarding their mutual livelihood.

LIST OF ILLUSTRATIONS

	<u>Page</u>
Table 1 - Commercial salmon catch in the Yukon Territory.....	15
Table 2 - Commercial fishing licences, Yukon Arctic Sub-District.....	25
Table 3 - Differences in catch per season between producers of fresh fish and salmon jerky.....	32
Table 4 - The market price of fish.....	52
Table 5 - Yearly income and costs by fishermen.....	55
Table 6 - Funding to December 1982, Han Fisheries Limited.....	70
Table 7 - Prices paid per pound to fishermen in 1982 for gillnet caught fish.....	76
Table 8 - Increase in catch from 1981 to 1982 corresponding to a shift from salmon jerky to whole fish production, (king salmon only).....	87
Figure 1 - Alaskan and Yukon Commercial king salmon harvest for Yukon River.....	17
Map 1 - The Yukon River drainage, 330,000 square miles.....	9
Map 2 - Distribution of fish camps, 1981.....	23
Map 3 - Distribution of fish camps, 1982.....	73
Map 4 - Location of commercial and Indian food fisheries.....	106

LIST OF PHOTOGRAPHS

All photographs, except where noted, were made by the author.

1. The Yukon River
2. Indian Encampment, mouth of Klondike, 1896; Yukon Archives-Coutts Collection, #83/358
3. Indian Encampment, Moosehide, circa 1900; Yukon Archives-Tappan Adney Collection, #81/9
4. Dawson Fisherman, circa 1900; Yukon Archives-Tappan Adney Collection, #81/9
5. Dawson Fisherman
6. Fisherman
7. Setting up a Fish Wheel
8. Gill-net Set in an Eddy
9. Checking Nets
10. Cleaning Fish
11. Storage Pond
12. Dried Backbones for Dog Food
13. Fisherman with Rack of Salmon Jerky
14. Fisherman's Home
15. Family Homestead
16. Fish Camp
17. Fish Plant Under Construction
18. Collector Boat at Fish Camp
19. Cleaning Fish
20. Clean-up
21. Coffee Break at Cassiar Creek

NOTES

PREFACE

¹The term "Indian" is used in this thesis to designate persons of Indian ancestry, regardless of legal status under the Indian Act. The term "White" is used to designate persons other than Indians.

²K. Marx, "The Poverty of Philosophy," in: Z. Jordan, Karl Marx. (London, 1971), 186.

CHAPTER ONE

¹K. Marx, Capital, Vol. I (New York: Vintage Books), 1977.

²G. Kay, Development and Underdevelopment: A Marxist Analysis, (London, 1975), 14.

³F. Flewelling, (Diary, 1896-8) in: Yukon Archives Ms. Collection (21).

⁴C. Walker, Studies in the Freshwater and Anadromous Fishes of the Yukon River Within Canada, (Ottawa, 1976).

⁵J. Hart, Pacific Fishes of Canada, (Ottawa, 1973), 124.

⁶M. Geiger, (Personal Communication).

⁷R. Regnart and M. Geiger, Status of Salmon Stocks, Fisheries and Management Programs in the Yukon River, (Anchorage, 1982), 3.

⁸M. Geiger, (Personal Communication).

⁹L. Buklis, Yukon and Tanana River Fall Chum Salmon Tagging Study, (Juneau, 1981), 1.

¹⁰Ibid., 8.

- ¹¹Regnart and Geiger, Status of Salmon Stocks, 2.
- ¹²Ibid., 7.
- ¹³C. Walker, Studies of the Freshwater and Anadromous Fishes of the Yukon River, 6, 10.
- ¹⁴Ibid., 10.
- ¹⁵See P. Usher, Status Report on Fur, Fish and Game Harvest Data in the Yukon Territory, (Ottawa, 1979).
- ¹⁶Regnart and Geiger, Status of Salmon Stocks, 24.
- ¹⁷M. Geiger, (Personal Communication).
- ¹⁸See Alaska Department of Fish and Game, Emergency Orders Bulletin, (August 25, 1982); Department of Fisheries and Oceans, Annual Narrative: Yukon Arctic Sub-District, 1982.
- ¹⁹Alaska Department of Fish and Game, 1981 Yukon Area Salmon Management Plan, (Anchorage), 4.
- ²⁰Regnart and Geiger, Status of Salmon Stocks, 17-18.
- ²¹C. Walker, Studies of the Freshwater and Anadromous Fishes of the Yukon River, 91.
- ²²Ibid.
- ²³Regnart and Geiger, Status of Salmon Stocks, 25.
- ²⁴See "Yukon Water Management," Bulletin of the Westwater Research Centre, No. 2 (January, 1982).
- ²⁵W. Clement, Hard Rock Mining, (Toronto, 1980), 21.
- ²⁶A. Tanner, Trappers, Hunters and Fishermen: Wildlife Utilization in the Yukon, (Ottawa, 1966), 69.
- ²⁷R. Andersen and C. Wadel, "Comparative Problems in Fishing Adaptations," North Atlantic Fishermen, (St. John's, 1972), 153.
- ²⁸I thank Eve and Sylvain for this information.
- ²⁹Dog teams are often used in the Dawson area as a means of transportation on traplines. Seven out of 17 fishermen surveyed used dog teams.

CHAPTER TWO

¹2. Jordan, Karl Marx, (London, 1971), 11.

²Kay, Development and Underdevelopment, 21.

³Ibid., 21.

⁴See G. Fraser, "Limited Entry: Experience of the British Columbia Salmon Fishery," Journal of the Fisheries Research Board of Canada, 36:7.

⁵See J. Acheson, "Variations in Traditional Inshore Fishing Rights in Maine Lobstering Communities," North Atlantic Maritime Cultures, (The Hague: 1979). R. Andersen, "Public and Private Access Management in Newfoundland Fishing," North Atlantic Cultures.

⁶R. Andersen and C. Wadel, "Comparative Problems in Fishing Adaptation," North Atlantic Fishermen, (St. John's, 1972), 149.

⁷cf. R. Caulfield, Subsistence Use in and Around the Proposed Yukon-Charley National Rivers, (Fairbanks, 1979), 56 for a comparison with Yukon River residents in Alaska near Eagle; also R. Nelson, Hunters of the Northern Forest: Designs for Survival Among the Alaskan Kutchin, (Chicago, 1973).

⁸D. Carr et al., The Yukon Economy - Its Potential for Growth and Continuity, (Ottawa, 1968), 7-15.

⁹H. Bernstein, "Concepts for the Analysis of Contemporary Peasantries," The Political Economy of Rural Development, (Albany, 1981), 16.

¹⁰See Government of Yukon, "Yukon Tourism 1981 Industry Highlights," (Whitehorse, 1981).

¹¹See W. Denis, "Capital and Agriculture: A Review of Marxian Problematics," Studies in Political Economy, No 7. (Winter, 1982) for a discussion of the theoretical basis for this argument.

¹²My thanks to Weldon Farr for this information.

¹³G. Dacks, A Choice of Futures: Politics in the Canadian North, (Agincourt, 1981), 15.

¹⁴G. Whittle, "A Report of the Socio-Economic Aspiration of the Indian People of Dawson City, Yukon," Yukon Indian Futures Planning, (Whitehorse, 1977).

CHAPTER THREE

¹Whittle, "A Report of the Socio-Economic Aspirations of the Indian People of Dawson City, Yukon," Yukon Indian Futures Planning, 45.

²R. Albert, "Processors Awash in a Sea of Uncertainty," Western Fisheries, (July, 1982), 12.

³"Allen Challenges Government on Economy," Whitehorse Star, August 6, 1982.

⁴M Myers, "Beyond the Fur Trade: The Rise and Fall of the Eskimo Cooperative," (unpublished MSS), 32.

⁵Dawson Indian Band, "A Proposal for Funding Assistance to R.H. Macmillan," (September, 1981), 1.

C"

CHAPTER FOUR

¹My thanks to Mike Elson and Hal MacDonald for their useful descriptions of drift netting techniques.

²R. Knight, Indians at Work: An Informal History of Native Indian Labour in British Columbia, 1858-1930. (Vancouver, 1978), 88.

³H. Braverman, Labor and Monopoly Capital. (New York, 1974), 82-83.

⁴Ibid., 82.

⁵W. Denis, "Capital and Agriculture: A Review of Marxian Problematics," Studies in Political Economy. (Winter, 1982), 139.

⁶W. Clement, "Class and Property Relations," Structural Analysis Programme, (University of Toronto, 1980), 355-356.

⁷Kwandur, Newsletter of the Council for Yukon Indians, Vol. 1, No. 2, (December, 1982), 3-4.

CONCLUSIONS

¹W. Clement, "Property and Proletarianization," Departmental Working Papers, 81-3 (Carleton, 1981), 10.

⁸See G. Fraser, "Limited Entry: Experience of the British Columbia Salmon Fishery," Journal of Fisheries Research Board of Canada, 36:7 (1979).

BIBLIOGRAPHY

- Acheson, J. "Variations in Traditional Inshore Fishing Rights in Maine Lobstering Communities," R. Andersen (ed.), North Atlantic Maritime Cultures. The Hague: Mouton Publishers, 1979.
- Adasiak, A. "Alaska's Experience with Limited Entry," Journal of the Fisheries Research Board of Canada, Vol. 36, No. 7 (1979).
- Alaska, Alaska Department of Fish and Game. Annual Management Report 1981 Yukon Area.
- Albert, R. "Processors Awash in a Sea of Uncertainty," Western Fisheries, Vol. 104, No. 4 (July, 1982), 12-3.
- Alexander, D. "The Political Economy of Fishing in Newfoundland," Journal of Canadian Studies, Vol. 11, No. 1 (February, 1976).
- "Allen Challenges Government on Economy," Whitehorse Star, (August 6, 1982).
- Andersen, Raoul and C. Wadel (ed.) North Atlantic Fishermen: Anthropological Essays on Modern Fishing. St. John's: Institute of Social and Economic Research, Memorial University, 1972.
- Andersen, Raoul (ed.) North Atlantic Maritime Cultures. The Hague: Mouton Publishers, 1979.
- Barratt Brown, Michael. What Economics is About. Londo: Weidenfeld Nicolson, 1979.
- Bernstein, H. "Concepts for the Analysis of Contemporary Peasantries," R. Gali (ed.), The Political Economy of Rural Development. Albany: State University of New York Press, 1981.
- Boland, J. The Yukon Fishery Resource: Its Existing Role and its Future Potential. Vancouver: Department of Environment, 1973.

- Braverman, Harry. Labor and Monopoly Capital. New York: Monthly Review Press, 1974.
- Brox, Ottar. Newfoundland Fishermen in the Age of Industry. St. John's: Institute of Social and Economic Research, Memorial University, 1972.
- Canada, Yukon Territory Fishery Regulations. C.R.C., 1978, 854. (Amendment List December 5, 1980).
- Canada, Department of Fisheries and Oceans. Annual Narrative Yukon Arctic Sub-District 1982.
- Canada, Department of Fisheries and Oceans. Yukon 1982 Salmon Fishery Dawson Area.
- Canada, Department of Fisheries and Oceans. "Minutes of Meetings with Dawson Fishermen," (December, 1980 and May, 1981).
- Canada, Department of Regional Economic Expansion. "Han Fisheries Limited; Project Evaluation and Recommendation," (August, 1981).
- Carr, D. et al. The Yukon Economy - Its Potential for Growth and Continuity. Ottawa: D. Carr and Associates Limited, 1968.
- Caulfield, R. "Subsistence Use In and Around the Proposed Yukon-Charley National Rivers," Occasional Paper No. 20. Fairbanks: University of Alaska, 1979.
- Chevalier, Jacques. "There is Nothing Simple About Simple Commodity Production," Studies in Political Economy, (Ottawa), No. 7 (Winter, 1982), 89-124.
- _____. Civilization and the Stolen Give: Capital, Kin and Cult in Estern Peru. Toronto: University of Toronto Press, 1982.
- Clement, Wallace. "Class and Property Relations: An Exploration of the Rights of Property and the Obligations of Labour," Working Papers Series No. 10, Structural Analysis Programme, University of Toronto, (March), 1980.

- _____. "Property and Proletarianization: Transformation of Simple Commodity Production in Canadian Farming and Fishing," Departmental Working Paper 81-3. Sociology and Anthropology, Carleton University, (April), 1981a.
- _____. Hardrock Mining: Industrial Relations and Technological Changes at Inco. Toronto: McClelland and Stewart Limited, 1981b.
- Cleugh, T. and L. Russell. Fisheries and Fish Related Publications in the Yukon Territory. Canadian Technical Report of Fisheries and Aquatic Services, No. 938. Ottawa: Department of Fisheries and Oceans, 1980.
- Connelly, P. and Marth MacDonald. "Women's Work: Domestic and Wage Labour in a Nova Scotia Community," Studies in Political Economy, (Ottawa), No. 10 (Winter, 1983).
- Cove, John. "Hunters, Trappers, and Gatherers of the Sea," Journal of Fisheries Research Board of Canada, 30, 1973.
- Dacks, G. A Choice of Futures; Politics in the Canadian North. Agincourt: Methuen Publications, 1981.
- Dawson Indian Band. "A Proposal For Funding Assistance to H.R. Macmillan," (September, 1981).
- Denis, W. "Capital and Agriculture: A Review of Marxian Problematics," Studies in Political Economy, (Ottawa), No. 7 (Winter, 1982), 127-154.
- Eby, P. et al. A Feasibility Evaluation of a Commercial Salmon Fishery and Processing Plant at Old Crow, Yukon. Whitehorse: Council for Yukon Indians, 1980.
- Farris, James. Cat Harbour: A Newfoundland Fishing Settlement. St. John's: Institute of Social and Economic Research, Memorial University, 1972.
- Flewelling, Frederick (Diary, 1896-8) in: Yukon Archives MSS Collection.
- Foster-Carter, Aidan. "The Modes of Production Controversy," New Left Review, 107 (January-February, 1978), 47-77.
- Fraser, G. "Limited Entry: Experience of the British Columbia Salmon Fishery," Journal of Fisheries Research Board of Canada, 30:7, 1979.

Freeman, Milton (ed.) Renewable Resources and the Economy of the North. Ottawa: Association of Canadian Universities for Northern Studies, 1982.

Han Fisheries Limited. "A Summary of Organization and Financing," (April, 1981).

_____. "Final Report Project Officer," (1981).

"Han Fisheries Brings New Industry to Dawson City," Yukon News, August 11, 1982.

Hart, J. Pacific Fishes of Canada. Ottawa: Fisheries Research Board of Canada, 1973.

Innis, Harold. The Cod Fisheries. Toronto: University of Toronto Press, 1940.

Jordan, Z.A. Karl Marx: Economy, Class and Social Revolution. London: Nelson, 1971.

Kay, G. Development and Underdevelopment: A Marxist Analysis. London: Macmillan Press Limited, 1975.

Knight, R. Indians at Work: An Informal History of Native Labour in British Columbia 1858-1930. Vancouver: New Star Books, 1978.

Kwandur, Newsletter of the Council for Yukon Indians, Vol. 1, No. 2, (December, 1982).

"Les Societes de Pecheurs," Anthropologie et Societe, Vol. 5, No. 1, (January, 1981).

"Maritime Anthropology," Anthropological Quarterly, Vol. 53, No. 1, (1980).

Marx, K. Capital, Vol. I. New York: Vintage Books, 1977.

McCay, Bonnie. "Systems Ecology, People Ecology, and the Anthropology of Fishing Communities," Human Ecology, Vol. 6, No. 4, (1978).

McPhail, J. and C. Lindsey. Freshwater Fishes of Northwestern Canada and Alaska. Ottawa: Fisheries Research Board of Canada, 1970.

Moosehide II River Transportation Incorporated. "Dawson City Fish Processing," (September, 1980).

- Myers, M. "Beyond the Fur Trade: The Rise and Fall of the Eskimo Cooperative," Unpublished MSS, 1981.
- Nelson, R. Hunters of the Northern Forest: Designs for Survival Among the Alaskan Kutchin. Chicago: The University of Chicago Press, 1973.
- "New Processing Plant: A Dream Realized," The Dawson Packet, July 27, 1982.
- Osgood, C. The Han Indians, (Publications in Anthropology, No. 74.) New Haven: Yale University, 1971.
- Pearse, P. Turning the Tide: A New Policy for Canada's Pacific Fisheries - Commission on Pacific Fisheries Policy, Final Report. Ottawa: Deptmt of Fisheries and Oceans, 1982.
- Pope, D. The Upper Yukon and Other Freshwater Salmon Fisheries. (11th Alaska Legislature), Anchorage, 1980.
- Rea, K. The Political Economy of the Canadian North. Toronto: University of Toronto Press, 1968.
- Regnart, R. and M. Geiger. Status of Salmon Stocks, Fisheries and Management Programs in the Yukon River. Anchorage: Alaska Department of Fish and Game, 1982.
- "Salmon Fishing Cuts Hurt Plant," Whitehorse Star, September 14, 1982.
- Smith, E. (ed.) Those Who Live From the Sea. St. Paul: West Publishing, 1977.
- Tanner, A. Trappers, Hunters and Fishermen - Wildlife Utilization in the Yukon Territory. Ottawa: Department of Northern Affairs and National Resources, 1966.
- Taylor, J. From Modernization to Modes of Production. New Jersey: Humanities Press, 1979.
- "The Year That Was," Western Fisheries, Vol. 105, No. 3 (December, 1982), 18-20.
- "Three-quarters of Yukon-spawned Chinook Caught in U.S.," Whitehorse Star, July 18, 1982.
- Usher, P. "Renewable Resource Development in Northern Canada," Northern Transitions. Ottawa: Canadian Arctic Resources Committee, 1978.

_____. Status Report on Fur, Fish and Game Harvest Data
in the Yukon Territory. Ottawa: Department of Indian
and Northern Affairs, 1979.

_____. "The Canadian North," Unpublished MSS, 1981.

Walker, C. Studies on the Freshwater and Anadromous Fishes
of the Yukon River Within Canada. PAC T/76-7. Ottawa:
Environment Canada, 1976.

Whittle, G. "A Report of the Socio-Economic Aspirations of
the Indian People of Dawson City, Yukon," Yukon Indian
Futures Planning. Whitehorse: Council for Yukon
Indians, 1977.

"Yukon Tourism 1981 Industry Highlights." Whitehorse:
Government of Yukon, 1982.

"Yukon Water Management," Bulletin of the Westwater Research
Centre, II (January, 1982).

END

1 2 0 9 8 4

FIN