Possible Effects of the Arctic Islands Pipeline on Living Resource Use

Preliminary Report 1977

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Interdisciplinary
Systems Ltd.

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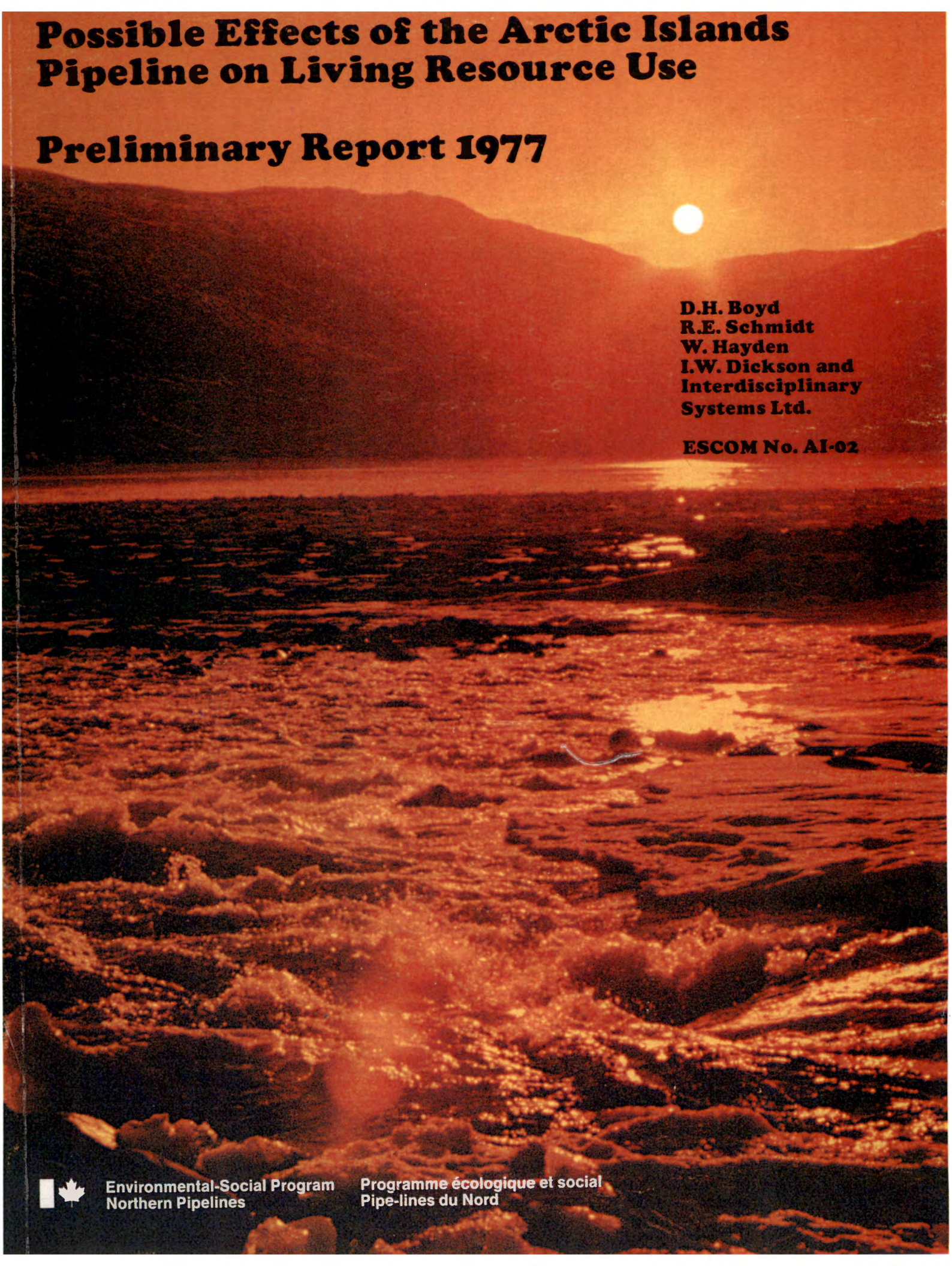

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AIPP PRELIMINARY REPORT 1977

Possible Effects of the Proposed Polar Gas Pipeline Project on Living Resource Use in the Eastern Arctic

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This report presents preliminary data and results obtained by Fisheries and Environment Canada for use by the Arctic Islands Pipeline Program. These investigations were carried out under the Environmental-Social Program, Northern Pipelines of the Government of Canada. While the studies and investigations were initiated to provide information necessary for the assessment of hydrocarbon transportation proposals, the knowledge gained is equally useful in planning and assessing other development projects.

Any opinions or conclusions expressed in this report are those of the authors and are not necessarily shared by the Government of Canada.

RÉSUMÉ

La présente étude examine l'utilisation des ressources vivantes par douze communautés inuit des Territoires du Nord-Ouest et les effets possibles du projet du pipeline "Polar Gas" sur le régime communautaire d'utilisation des ressources. Elle fait partie intégrante du Programme du pipeline des îles de l'Arctique et est parrainée par le ministère fédéral de l'Environnement.

Les douze communautés étudiées ont été choisies à cause de la proximité de leurs ressources par rapport aux tracés du pipeline ou aux chantiers. Nous décrivons les zones de prise d'animaux à fourrure, de mammifères terrestres et marins, de sauvagine et de poissons de chacune de ces communautés, ainsi que le régime d'exploitation et les statistiques des prises. Nous discutons de l'importance relative de ces ressources des points de vue nourriture, revenu et loisirs.

Les incidences néfastes probables du pipeline sur les ressources vivantes utilisées par les communautés et leurs implications sont identifiées selon l'espèce animale et les régions caractéristiques.

Le principal tracé proposé, à l'ouest du lac Baker, a été étudié de façon prioritaire. Toutefois, nous avons porté une égale attention aux deux autres tracés proposés: les tracés côtier et québécois.

Les ressources vivantes tiennent une place importante dans le gagne-pain des communautés inuit; c'est ce qui ressort d'un examen d'ensemble des statistiques des prises, de l'étendue des zones d'utilisation des ressources et de l'importance commerciale et domestique des ressources vivantes pour ces communautés. Le caribou et le phoque sont d'une importance primordiale pour la plupart des communautés. Ils sont suivis, à un degré moindre, par le poisson, l'ours blanc, les baleines, le morse, la sauvagine et le renard. Les boeufs musqués ne sont pas exploités à l'heure actuelle, mais ils pourraient devenir assez nombreux pour l'être.

Resolute, Spence Bay et Baker Lake seront les communautés les plus touchées par le pipeline à cause de la proximité du principal tracé proposé. Celles d'Eskimo Point, Gjoa Haven, Chesterfield Inlet, Rankin Inlet, Whale Cove et Arctic Bay seront touchées à un degré moindre, alors que celles de Coral Harbour, Repulse Bay et Pelly Bay ne seraient touchées que si l'on choisissait le tracé québécois.

Des priorités pour la protection des ressources vivantes utilisées par les communautés ont été accordées à des zones de prises et à des habitats précis situés le long du tracé proposé. Les régions qui ont une importance primordiale à cause de la diversité de leurs ressources vivantes et de l'intensité de leur exploitation sont le détroit de Barrow, la côte nord de l'île Somerset, le bassin Stanwell-Fletcher et la baie Creswell, le détroit de Bellot, l'inlet Chesterfield, la baie Repulse, la région de l'anse Bear de l'île Southampton et l'île Coats.

Parmi les stratégies possibles de protection des ressources, on compte la possibilité de modifier le tracé, l'ordonnancement des travaux de construction, la sélection de l'emplacement des chantiers et la formulation et la mise en vigueur d'un code de protection de l'environnement.

Aucun des principaux tracés de rechange ne nous a semblé préférable au tracé principal pour ce qui est de protéger les ressources vivantes. Nous fournissons des dates précises pour les régions où les travaux devraient être limités pendant des périodes importantes pour la faune. Nous identifions les emplacements précis où l'on devrait éviter à tout prix toute construction reliée au pipeline. Nous donnons finalement une liste des sujets qui devraient être inclus dans le code conçu pour protéger les ressources vivantes importantes pour les communautés.

SUMMARY

This study examines the use of living resources by twelve Inuit communities in the Northwest Territories and the potential effects of the proposed Polar Gas Pipeline on community resource-use patterns. It was conducted as part of the Arctic Islands Pipeline Program and sponsored by the Canada Department of Fisheries and Environment.

The twelve communities examined were chosen because of the proximity of pipeline routes or project facilities to their resource-use zones. Harvest areas, harvest patterns, and harvest statistics are described for the use of furbearers, land mammals, wildfowl, marine mammals, and fish by each of these communities. The relative importance of these resources to communities for food, income, and recreation is discussed.

Possible adverse impacts of the proposed pipeline project on living resources harvested by communities are identified by species and by site-specific areas. The implications to communities resulting from impacts on living resources are described.

The proposed pipeline route west of Baker Lake was considered the prime route for the purpose of this study. However, the coastal and Quebec route alternatives were given equal consideration.

Living resources constitute an important aspect of the livelihood of the communities, based on an overview examination of harvest statistics, the extent of community resource-use zones, and the commercial and domestic importance of living resources to communities. Caribou and seal are of primary importance to most communities while fish, polar bear, whales, walrus, wildfowl, and fox are of lesser importance. Muskoxen are not presently used but they may become numerous enough to be harvested.

Resolute, Spence Bay, and Baker Lake will be the communities most significantly affected by the proposed pipeline project because of their proximity to the proposed prime route. Eskimo Point, Gjoa Haven, Chesterfield Inlet, Rankin Inlet, Whale Cove, and Arctic Bay would be affected to a lesser degree. Coral Harbour, Repulse Bay, and Pelly Bay would only be affected by construction of the Quebec route alternative.

Priorities for protection of living resources used by communities were assigned to specific resource harvest and habitat areas along the proposed pipeline routes. Several areas which are of primary importance because of diversity of living resources and intensity of resource harvest are Barrow Strait, the north coast of Somerset Island, Stanwell Fletcher Basin and Creswell Bay, Bellot Strait, Chesterfield Inlet, Repulse Bay, the Bear Cove area of Southampton Island, and Coats Island.

Strategies for protecting living resources include consideration of alternate routes, scheduling of construction activities, siting of project facilities, and the formulation and enforcement of an environmental code.

None of the major alternate routes examined appeared to be preferable to the prime route in terms of protecting living resources. Specific dates are provided for areas where construction activities should be restricted during important periods for wildlife. Specific sites are identified where every effort should be made to avoid location of pipeline facilities. Specific items which should be included in an environmental code designed to protect living resources important to communities are listed.

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The study is based primarily on information obtained from literature reviews, reports and files of government and other agencies, borrowed unpublished material, and personal interviews and is dependent to a large extent on the cooperation and contribution of others independent of the study team.

We are indebted to staff of the Fisheries and Marine Service in Winnipeg, Yellowknife, and Ste.-Anne-de-Bellevue and the Canadian Wildlife Service, Edmonton and Ottawa, Department of Fisheries and the Environment, Canada. In particular, R. Peet, Fisheries and Marine Service, Winnipeg and D. Dowler, Fisheries and Marine Service, Yellowknife supplied valuable information on fishing. Dr. T.G. Smith, Arctic Biological Station, Ste.-Anne-de-Bellevue, generously provided information describing marine mammal, fox, and polar bear harvests. P. Smith, Canadian Wildlife Service, Ottawa and I. Stirling, R. Russell, J. Edmonds, and F. Miller, Canadian Wildlife Service, Edmonton provided helpful information on wildlife harvest and wildlife distribution.

A number of employees of the Northwest Territories government were most helpful in providing harvest data.

Polar Gas officials were responsive to our requests for project information.

Mr. R.J. Paterson, Fisheries and Marine Service, Winnipeg, provided welcome advice and direction as Scientific Authority for this study.

To the numerous people who assisted in this work, we are indeed grateful.

1. INTRODUCTION

1.1 Nature of Study

A number of studies are currently in progress to determine the feasibility and implications of constructing a pipeline to transport natural gas from the Arctic Islands to southern markets. An Arctic Islands Pipeline Program (AIPP) Study Board, established by the Canadian government, is responsible for overseeing the Canada Department of Fisheries and the Environment component of the Government's pipeline study program. Other studies are being done by the Polar Gas Project consortium.

To further the work of the AIPP Study Board, Interdisciplinary Systems Ltd., on behalf of the Canada Department of Fisheries and the Environment, has completed a study of living-resource use in the eastern Arctic as related to the proposed Polar Gas pipeline development. The primary focus of attention in this report is to determine key issues related to use of resources by communities potentially implicated by the pipeline; to identify anticipated problem areas related to resource-use; to indicate means by which to prevent or minimize resource-use impacts; and, to highlight areas deserving of further attention. The study is not to be considered as a substitute for a comprehensive environmental impact assessment; nor is it a comprehensive analysis of the socio-economic profile of eastern Arctic communities or a detailed inventory of regional resources. Rather, it is primarily intended to assist the AIPP Study Board in better understanding the community resource-use implications of the proposed pipeline and to identify areas and priorities for future work.

1.2 Terms of Reference

The terms of reference, as specified by our contract, are as follows:

1. By review of available literature and records, both published and unpublished, determine:

   a) those living resources in the area affected by the proposed Polar Gas pipeline development utilized by residents and communities, with emphasis on fish, wildlife, furbearers, birds and marine mammals;

   b) the magnitude and form of utilization of each of the living resources identified, i.e. volume of harvest and type of use: commercial sale, local food, recreation, craft production, etc.;

c) the seasonal pattern of living resource use for each identified resource and the significance of this seasonal pattern, i.e. choice of resident vs. availability of resource; and

d) the "importance" of each of the resources identified to the social and economic life of each community.

2. Identify critical gaps in the available information on resource use and fill these gaps by means of:

a) discussions and interviews with government officials who will generally be employees of the Departments of Indian and Northern Affairs, Fisheries and the Environment, or the Government of the Northwest Territories located in district, regional, and headquarters offices and in the communities;

b) discussions and interviews with key individuals in the communities.

3. By discussion with staff responsible for resource impact studies associated with the pipeline development to determine the most probable adverse impacts on resources utilized by local residents.

4. Correlate estimates of adverse impacts on resources with information on resource utilization to establish a prediction of possible social and economic impacts on the respective communities.

5. Establish priorities for resource protection based upon the relative "importance" of the resources to the communities and identify appropriate methods for protection based on advice from impact study personnel. Alternative methods should be outlined where possible.

6. Prepare a comprehensive report on natural resource utilization in eastern Arctic communities potentially affected by the Polar Gas pipeline development utilizing all available data from this and previous studies and from records.

1.3 Definitions and Clarification of Terms

A number of points were identified from the terms of reference, literature review, and staff interview process that suggested the need for further definition and clarification of the nature and scope of this study. These points are briefly noted as follows:

1. The terms of reference state: "....the area affected by the proposed Polar Gas pipeline development..."

   We have determined the communities and "area affected" by the proposed pipeline development on the basis of the proximity of the proposed route alternatives to community land-use areas. This approach was deemed preferable to the arbitrary designation of a regional corridor of project influence because of the resource-use emphasis in the terms of reference.

   Communities and resource-use areas could be affected if:

   a) pipeline routes cross or encroach on areas that are presently used, or were used recently by communities in the harvest of living resources,

   b) major ancillary activities such as materials staging or marine transportation occur in or near resource harvest areas or

   c) pipeline project activities occurring outside of harvest areas affect animal populations harvested by communities.

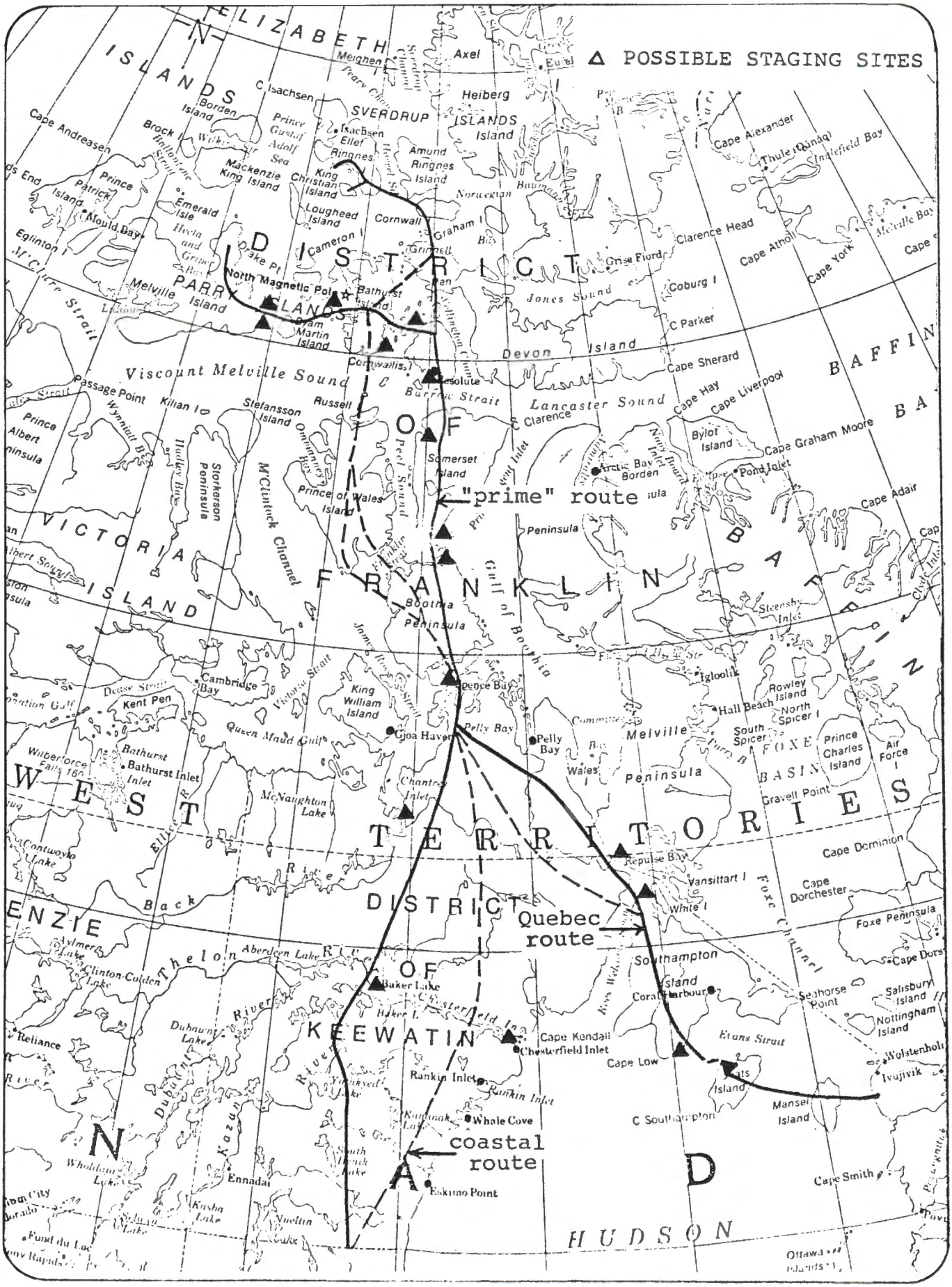
   Based on the above criteria, the resource-use patterns of the following communities were identified as being potentially affected by the project: Resolute, Spence Bay, Arctic Bay, Baker Lake, Gjoa Haven, Chesterfield Inlet, Rankin Inlet, Whale Cove, Eskimo Point, Pelly Bay, Repulse Bay, and Coral Harbour.

2. First attention has been given to the resource-use implications associated with the preferred or "prime" route (Map 1). However, the Quebec and coastal routes have received comparable attention in this report to that given to the preferred route, even though it would appear that Polar Gas is likely to be applying for a licence to develop the prime route in their upcoming application to the Government of Canada.

3. We used the following "importance" criteria to establish priorities for resource protection:

   a) relative importance of the resource for providing food, income, and recreation to the community;

   b) relative importance of the specific harvest area to the community;



1. Pipeline Routes and Possible Staging Sites

c) relative importance of the affected habitat for animal populations harvested by the community; and

d) expected severity of impact to animal populations harvested by the community.

4. The importance and values assigned to uses of resources by residents of northern communities has been done so with the full knowledge that such judgements are made from a non-resident's perspective and may not accurately reflect the true cultural value of resources to residents of northern communities.

5. Other communities, (e.g. Cambridge Bay and Pond Inlet) while not directly affected in terms of resource-use implications, could, however, be affected by the pipeline project because they are located close to major routes which may be used for shipping materials and supplies to the project area. Although these communities were not included in our resource-use study, they have been considered in the recommendations concerning the formulation of an environmental code.

2. METHODS AND SOURCES OF DATA

Our study of resource use in the eastern Arctic as related to the proposed Polar Gas pipeline is based on information available from existing sources, primarily federal government reports, Northwest Territories (NWT) Government data, Polar Gas Environmental Program reports, and Inuit Tapirisat of Canada (ITC) reports. This is supplemented by personal communications with federal government, NWT Government, and Polar Gas staff.

A description of information sources and methods used in analysis of information for the major sections of the report follows.

2.1 Community Data

Data on the history, population, and economy of a community are provided to give a background sketch, important to an understanding of resource harvest patterns of the community.

Knowledge of the historic origins of people in communities is important in understanding resource use characteristics of individual communities. For instance, if the historic origin of people in coastal communities, such as Whale Cove or Eskimo Point, is primarily inland, then inland activities such as caribou hunting or fishing may be more important than marine mammal hunting, even though marine mammal populations are more accessible than caribou populations.

Information on wage employment opportunities is essential in understanding the significance of animal resources in providing community income. Trapping, polar bear hunting, and commercial fishing are likely to be less important to a community where wage employment opportunities are abundant, whereas caribou and seal hunting may not be significantly affected because almost all communities rely to a large extent on country food.

The number of General Hunting Licences issued in a given year provides an adequate approximation of the numbers who hunted or trapped to some extent during the year, as all Inuit hunters and trappers are required to hold a licence. These data do not discriminate between full time, seasonal part time, or occasional hunters or trappers, but we encountered no reliable data source that did. Moreover, it would be safe to assume that at least one member of most families hunted to an extent sufficient to supply most of the family's food requirements.

Data on commercial fishing licences issued in 1975 and, where possible, 1976 are provided. No licences are issued for domestic fishing but most domestic fishermen would likely hold General Hunting Licences, as domestic fishing is often done in conjunction with caribou, wildfowl, or seal hunting. Data presented do not account for the numbers of women in communities who fish nearby lakes or jig for cod in nearby coastal areas. In many communities, a substantial number of women may engage in domestic fishing.

2.2 Resource-Use Areas

All information on community resource-use areas is drawn from Freeman (1976). This information was more comprehensive and supersedes information from previous reports, such as the Department of Indian Affairs and Northern Development Area Economic Survey Reports (Villiers 1969; Bissett 1968).

Maps 2 through 13 are essentially consolidations of the maps in Volume Three of the Inuit Land Use and Occupancy Project Freeman (1976). The maps in Volume Three are presented in three time periods. However, for this report we used the maps depicting the latest time period which ranges from a 7-year span (1967-1974) for Pelly Bay to a 20-year span (1954-1974) for Chesterfield Inlet (Table 2-1).

Table 2-1. Time span of maps from Inuit Land Use and Occupancy Project, used in defining community resource-use areas.

Community	Time Span
Arctic Bay	1959-1974
Baker Lake	1956-1974
Chesterfield Inlet	1954-1974
Coral Harbour	1962-1974
Eskimo Point	1959-1974
Gjoa Haven	1963-1974
Pelly Bay	1967-1974
Rankin Inlet	1956-1974
Repulse Bay	1963-1974
Resolute	1960-1974
Spence Bay	1963-1974
Whale Cove	1959-1974

In our opinion, these maps are a reasonably accurate representation of resource use and resource-use potential for the communities. While it is true that the extent of land used by most communities has declined since the late 1950's and early 1960's, there are indications now that with rising fur prices, the widespread use of power toboggans, and a rising "back to the land" sentiment, resource-use zones are expanding and areas that have not been used for a decade have recently been used again.

The maps in Volume Three (Freeman, 1976) were based on information collected by interviews with hunters, trappers, and fishermen, consolidated through a computerized data system, plotted on maps, and verified by subsequent public meetings in the communities. The study team attempted to interview every Inuit male who had independently hunted, trapped, or fished, whatever his age, experience, or place of origin. The resulting coverage ranged from 71% to 96% complete in the communities surveyed.

Information recall was a key factor in the accuracy of the maps contained in Volume Three of the Inuit Land Use and Occupancy Projects. These maps are judged to be highly reliable as evidence shows that "members of preliterate societies are taught at an early age to remember accurately the small details of everyday life, and especially in the case of a male in a hunting society - details

associated with hunting and the environment" (Freeman 1976: Vol. Two). Freeman, in describing the community surveys reports: "Many persons took a real interest .... and were eager to ensure that data were both comprehensive and accurate. Maps were drawn in enthusiastic detail, and ecological and cultural data, which were accumulated over time, were repeatedly checked, revised, and improved" (Freeman 1976: Vol. Two).

Up to 33 land-use categories are depicted on maps in Volume Three. For Maps 2 to 13 in our report we have consolidated these 33 land-use categories into five major categories: trapping (primarily fox); land mammal hunting (caribou and wolf); wildfowl hunting (ducks, geese, ptarmigan, seabirds, and egg collecting); marine mammal hunting (polar bears, seals, whales, and walrus); and fishing (domestic and commercial fishing for char, lake trout, whitefish, and cisco).

At the risk of losing some precision by consolidating land use categories, we concluded this was justified in terms of ease of presentation and interpretation, considering the primary purpose of our report was to identify resource-use conflicts associated with the proposed Polar Gas pipeline. In addition, we have added the proposed Polar Gas routes and alternates and the locations of possible materials staging sites to our community resource-use area maps. Detailed information on resource-use areas, not shown on Maps 2 to 13, is provided in the text of this report.

Data sources to describe resource-use areas were Volume One of the Inuit Land Use and Occupancy Project (Brice-Bennett 1976; Brody 1976; Riewe 1976; Welland 1976) and the maps from Volume Three. Where possible, the text (in Sections 4 to 15 of this report) describes the resource-use area by species and provides a breakdown into primary and secondary use areas. Used in conjunction with Maps 2 to 13, the text provides a reasonably complete description of the community use area for harvest of a particular species.

2.3 Harvest Patterns

Information on harvest patterns (seasonality of harvest and harvest methods) was drawn primarily from Volume One of the Inuit Land Use and Occupancy Project. The Area Economic Survey Reports were secondary sources of information. Where there was no information on harvest patterns for a specific species for a particular community, we deduced the pattern for that community by assuming that the harvest pattern for that species for one or more of the closer communities in the study area would be similar. Given the degree of similarity of harvest patterns in the study area from community to community, results obtained by this process should be reasonably reliable.

2.4 Harvest Data

We relied primarily on Usher (1976) for harvest data. Other major sources included the NWT Game Management Division for more recent data, Smith and Taylor (1977) for summaries of marine mammal harvests from RCMP Game Records, Environment Canada (1976a, b) for the Northwest Territories Fishery Regulations and Variation Order for Commercial Fisheries for commercial fish quotas, and R. Peet (personal communication) and the files of the Fisheries and Marine Service for commercial fish harvest data.

Harvest data are presented for each community by species, by year, for the years 1963-1964 to 1974-75, where possible. This period was chosen because 1963-64 represents the date by which almost all Inuit had moved into communities; thus, data collected after this date are likely to be more reliable and more representative of current harvest. Data are recorded by harvest season which begins on July 1 and ends June 30. Averages for harvest statistics are calculated for the entire period from 1963-64 to 1974-75 and from 1969-70 to 1974-75. The latter average is used to represent current harvest in subsequent calculations. Gaps in harvest data tables should not be interpreted as representing no harvest; rather, they indicate that data were either absent or unreliable.

Harvest data are recorded on the basis of districts. Usually, these districts contain only one community. However, in our study area, data for Rankin Inlet and Whale Cove are recorded for the same district, as are data for Spence Bay and Pelly Bay.

2.4.1 Trapping

Usher (1975) and the NWT Game Management division are the only sources of information used for arctic and coloured fox harvest. The data base is the Fur Export Tax Returns compiled from permits required for any fur exported from the NWT. Usher (1975) reports that there are no significant sources of error in these returns. However, they do underestimate harvest in that they do not account for loss due to damage in traps (which Usher reports is high in some years), the small percentage of pelts that are judged unsalable, or the limited domestic use of fox pelts. Usher (1975:11) attributes a 10 to 15% underestimation of the harvest to these factors.

2.4.2 Land Mammal Hunting

Usher (1975) and the NWT Game Management division are the only major sources of information used for caribou and wolf harvest. The data base for caribou harvest is the General Hunting Licence Returns, compiled from licences returned in June when hunters and trappers

apply for new licences. Usher (1975) reports significant sources of error in these returns: not all licences are returned, the usual rate of return rarely being more than 50%; declarations of the previous year's kill are made from memory when the licences are renewed; and licence holders may deliberately underestimate their take for fear of restrictive actions or regulation of harvest. Further, they do not account for caribou shot and not retrieved, or wounded caribou that escape and later die, which Usher estimates is 5 to 25% of the total harvest. The combined effect of the inaccuracy of data from General Hunting Licence Returns and retrieval losses may be a 50% or greater underestimation of the caribou harvest.

The data base for wolf harvest is the Fur Export Tax Returns. These returns are a considerable underestimation of harvest because of a high level of domestic use of wolf pelts (Usher 1975).

2.4.3 Wildfowl Hunting

Major data sources for goose, duck, and ptarmigan harvest are Usher (1975) and the NWT Game Management Division. The data base is the General Hunting Licence Returns. The combined effect of the inaccuracy of these returns and retrieval losses is a substantial underestimation of harvest (probably more than 50%).

2.4.4 Marine Mammal Hunting

Polar Bears

Major data sources for polar bear harvest are Usher (1975) and the NWT Game Management Division. The data base was the Fur Export Tax Returns (before 1969) and NWT Game Management Division's Polar Bear Harvest Records (since 1969 - the year polar bear quotas were introduced). The latter records are considered very reliable as tags are issued to each community that has a quota and a tag must be affixed to every polar bear skin before it is sold. Usher (1975) reports that retrieval losses are insignificant.

Seals

Major data sources for ringed seals are Usher (1975) and the NWT Game Management Division. The data base for ringed seals is the Traders Fur Record Books prior to 1971 and the Fur Export Tax Returns since then. Data sources for bearded and harp seals are Smith and Taylor (1977), who summarize RCMP Game Records for the period 1962 to 1971, and Friesen (1975), who summarizes a 1973 survey. Although data for bearded and harp seal harvest are largely incomplete, they may be more accurate than ringed seal harvest data. Ringed seal harvest data record only the number of

seal skins exported; they do not include seal skins used domestically or seal skins not exported because of low fur quality or low fur prices. This might be a major factor at times when seals are harvested more for the food they provide than for the income the skins provide. Usher (1975) reports that these factors may result in a 50 to 70% underestimation of harvest for ringed seals. Bearded and harp seal data primarily reflect harvest for food, as few bearded and harp seal skins are exported.

Usher (1975) and Smith and Taylor (1977) also report a significant loss during certain seasons (particularly from break-up to early August) due to seals sinking after they are killed. This loss can be as high as 25 to 50% for ringed seals and even greater for bearded and harp seals.

Whales

Data sources for beluga and narwhal harvests are Smith and Taylor (1977) and Friesen (1975). Harvest statistics from these sources are significant underestimates of harvest as they are largely incomplete and based only on data reported verbally. Smith and Taylor (1977) report that retrieval losses due to sinking are insignificant where belugas are hunted in shallow waters but may be as high as 50% where they are hunted in deep waters or waters with low salinity or high silt content. Smith and Taylor (1977) estimate that 15% of narwhals shot in open water are lost by sinking but that up to 50% of narwhals shot along the floe-edge may be lost when they dive under the ice.

Walrus

Data sources for walrus harvest are from Smith and Taylor (1977) and Friesen (1975). Harvest statistics from these sources are also significant underestimates of harvest as they are largely incomplete and based only on data reported verbally. Smith and Taylor (1977) report that losses of walrus due to sinking can be higher than 50% during open water hunting.

2.4.5 Fishing

Quotas for water bodies that were commercially licenced in 1976 are from the Northwest Territories Fishery Regulations (Environment Canada, 1976a) and the Variation Order for Commercial Fisheries, Northwest Territories, 1976/77-1 (Environment Canada, 1976b). These quotas are based on a 0.5 lb/acre (0.09 kg/hectare) production for lake trout and whitefish and a 2 lb/acre (0.37 kg/hectare) production for land-locked char in lakes. Quotas for sea-run char are based on past harvests (R. Peet, personal communication).

Commercial harvest statistics before 1976 are from Fisheries and Marine Service files. These data are collected by the NWT Government and forwarded to the Fisheries and Marine Service. Harvest statistics for 1976 were provided by R. Peet and D. Dowler (personal communication). Data from Fisheries and Marine Service files are likely to be significant underestimates of commercial harvest as these records are incomplete.

Data are unavailable for domestic or sports harvest. No permits or licences are required for domestic fishing and no system has been established to collect domestic harvest data. The sports harvest is not likely to be significant.

2.5 Commercial Importance

Furbearers and fish are important sources of income in the eastern Arctic. Fur is regaining its importance for providing income as fur prices, particularly for polar bear, have made a good recovery in the last decade (Table 2-2).

Table 2-2. Average NWT fur prices.

Year	Arctic (white) Fox	Coloured (red) Fox	Wolf	Polar Bear	Ringed Seal
1963-64	$ 14.98	$ 5.00	$ 12.16	$ 68.91	$ 14.78
1964-65	9.23	3.87	18.55	99.47	11.08
1965-66	15.55	8.00	29.43	128.98	5.97
1966-67	15.65	7.66	16.34	126.86	6.82
1967-68	9.99	4.92	21.31	135.30	3.80
1968-69	12.21	11.78	28.68	157.25	7.68
1969-70	14.03	12.43	35.03	222.11	8.64
1970-71	12.30	10.28	34.18	214.13	9.22
1971-72	11.32	13.75	44.50	339.76	9.81
1972-73	18.32	22.02	61.37	599.38	15.10
1973-74	30.21	42.16	58.76	1073.68	17.36
1974-75	17.59	28.61	62.72	640.16	17.10
1975-76				840[1]	

Source: Fur Traders Record Book - NWT Government

1 P. Smith (personal communication) estimates that polar bear skin prices for 1975-76 were on average $200 higher than 1974-75 prices.

For each community, the expected annual income for major furbearers was estimated on the basis of 1974-75 fur prices and a six-year average harvest for the period 1969-70 to 1974-75. The resultant expected income for each species is divided by the 1974 population to give an expected per capita income. This statistic is useful in comparing the relative income importance of a species from community to community.

A six-year harvest period was used because, with wide fluctuations in harvest for some furbearers (especially fox), one year of data would not have provided a reliable indication of expected harvest. In all cases, the polar bear quota was used instead of the six-year average harvest. With currently high polar bear skin prices, communities almost always harvest their full quota.

Average NWT fur prices (Table 2-2) were used for all species but polar bear; polar bear skins can be sold in a variety of ways and prices vary widely from community to community in a single year. Smith and Stirling (1976) show that the lowest prices were received by hunters who sold directly to the local store or co-operative while the highest prices were received by hunters who sold directly to fur auction houses or indirectly through the NWT Fur Marketing Service. Some sales are also made to private individuals in communities who may not be fully aware of current market prices or variation in fur quality. Variation in fur quality also plays an important role in fur prices; variables are the care taken in skinning and preparing the hides and the condition of the hide when the bear is killed. As a result of the variation in marketing methods and fur quality, average community prices in 1974-75 varied by $759 throughout the study area, ranging from $200 at Pelly Bay to $959 at Arctic Bay (Smith and Stirling 1976).

Fish are an important source of income to many communities. Two commercial fisheries operate in the study area, one at Rankin Inlet and the other at Pelly Bay. Income from the Pelly Bay char fishery can be considered as income to Pelly Bay, whereas income from the Rankin Inlet cannery is distributed among the southern Keewatin communities (Rankin Inlet, Baker Lake, Whale Cove, Eskimo Point, Chesterfield Inlet) as not only Rankin Inlet fishermen fish for the cannery. Fishermen who are outfitted by the Rankin cannery receive $0.50/lb for fish they sell to the cannery while fishermen operating independently of the cannery receive $0.55/lb. Prices paid to fishermen by the Pelly Bay Fishery are probably of the same order.

In many communities, the co-ops buy fish from commercial fishermen of that community and sell it locally. All communities in the study area are self-sufficient in meeting their domestic requirements for fish. No attempt has been made to estimate income from local sale of fish due to a lack of data on both price and quantities sold.

2.6 Domestic Importance

Harvest data were used in conjunction with Brice-Bennett (1976), Brody (1976), Riewe (1976), Welland (1976), Villiers (1969), Bissett (1968), and other studies to describe the domestic importance of each species to the communities in the study area.

To estimate the relative importance of various species as food sources, the average community harvest from 1969-70 to 1974-75 (where available) was multiplied by the estimated edible weight (lbs) per animal to obtain the total estimated edible food provided by that species. This was multiplied by the imputed value per pound to obtain the total estimated imputed value for that species. This value was divided by the 1974 population of the community to obtain the estimated imputed per-capita value of each species. This statistic provides a basis for comparing the relative importance of various species from community to community.

Data on edible pounds per animal were taken from Bissett (1974) and Usher (1976) for caribou, geese, ducks, and ptarmigan and from Thompson (1976) and Lu (1972) for ringed seal. We assumed that 60% of the reported fish harvest (in round weight) is edible. It was also assumed that all edible meat is eaten although there may be considerable variation in eating habits from community to community. For instance, communities that are primarily oriented to coastal hunting (e.g. Resolute) would probably tend to a greater portion of a seal for food than communities that are oriented to inland hunting (e.g. Eskimo Point) and view seal only as a secondary food source. This assumption was made because we had no complete, reliable data on the use of each species by community.

Data on imputed values of animal food are adapted from Usher (1976). Usher bases imputed values on substitution costs - what it would cost a man to feed his family by buying an equivalent amount of food at the store if he could no longer procure country food by hunting and fishing. He reports that realistic substitution prices in the western Arctic as of 1976, were: $2.50 to $3.00/lb for red meat; $1.80/lb for birds; and $2.00/lb for fish. He argues that on a protein-equivalent basis, these prices would be $4.00 to $4.50/lb for red meat, $2.50/lb for birds, and $2.00/lb for fish. We chose values of $2.50/lb for caribou and seal meat and $2.00/lb for wildfowl and fish. These are conservative estimates as prices in the eastern Arctic are likely to be higher than prices in the western Arctic and the values we have chosen do not account for protein equivalency. Nevertheless, they provide a realistic minimum substitution price.

We caution that the imputed incomes provided for each community should not be considered as attempts to estimate the economic importance of a species to that community. Rather, they are presented to

indicate the relative importance of various species to a community and the relative importance of one species to various communities. To accurately estimate the economic importance of a species to a community, much more reliable data describing harvest and use would be required.

Bearded seal, harp seal, beluga, narwhal, and walrus are not included in the estimated imputed income tables; the expected annual harvest for these species cannot be calculated as harvest data are too incomplete and unreliable. The tables also do not account for domestic uses such as bedding, clothing, shelter, and heat. Usher (1976) estimates that the value for these uses is less than 10% of the value for food.

2.7 Pipeline Implications

Following a discussion of resource-use areas, harvest patterns, harvest data, and commercial and domestic importance for each community, we have provided a brief overview of the implications of the Polar Gas project (including the prime route and alternate routes) to each community. The overview describes the relation of the prime and alternate routes to the resource-use zone of the community and lists key areas along the route where conflicts between the pipeline project and animal populations important to community harvest may occur. Detailed descriptions of potential impacts are presented in Section 16.

2.8 Resource Impacts

Data sources used in determining species distribution, seasonal movements, and critical habitats for animal populations important to communities in the study area were: Polar Gas Environmental Program Reports; Arctic Islands Pipeline Program; Fisheries and Environment Canada (AIPP) reports; Canadian Wildlife Service (CWS) reports; and, to a very limited extent, other scientific publications. We relied to a large extent on staff experience with pipeline impact assessments in determining potential impacts of the pipeline project on animal populations. Key data gaps which should be filled in order to determine the likely impact of the pipeline project on animal populations harvested by communities are listed.

The expected severity of impact, the relative importance of the area for resource harvest, and the relative importance of the species harvested to the community were parameters used in assigning protection priorities to animal populations along the route.

3. PROJECT DESCRIPTION

Although the Polar Gas Project organization was formed in 1972 to determine the feasibility of natural gas transmission from the Arctic Islands to southern markets, detailed engineering plans

describing construction, scheduling, the land transportation system for moving supplies and equipment, and the location of materials staging sites, work camps, compressor stations, airports, wharves, maintenance depots, etc. were largely unavailable for this study. Only preliminary plans concerning pipeline route alternatives and possible materials staging sites have been identified (Map 1). This information, combined with staff familiarity with the engineering aspects of gas pipeline construction (e.g. requirements for work camps, staging areas, compressor stations, access routes, etc.) and assumptions concerning access from the south to the remote northern project site, have provided the basis for the project description employed in this study to assess resource-use implications.

The proposed Polar Gas pipeline system is likely to be developed in two phases. The first development would bring gas from Melville Island; the second system would be developed at a later date to carry gas from the area of King Christian and Ellef Ringnes Islands. Depending on the selected route, the system may constitute 2200 - 3000 mi (3500 - 4800 km) of up to 48-in (122 c) diameter pipe to deliver in the order of 2 to 4.5 billion ft^3 (54-120 million m^3) of gas per day.

This study has been limited to that portion of the proposed pipeline route alternatives situated north of latitude 60° (Map 1). Because of the early stage of project planning and the absence of a detailed project description, we have made the following assumptions concerning the proposed project.

1. We have assumed that Spence Bay and Chantrey Inlet could be used as staging areas if the prime route is chosen and that Repulse Bay, north Southampton Island, Bear Cove on south Southampton Island, and Coats Island could be staging areas if the Quebec route is chosen. All of these possible staging areas are identified in Map 1. Possible materials staging sites identified by Polar Gas are Rae or King Point on Melville Island, Schomberg Point (Graham Moore Bay) on Bathurst Island, Labrador Bay on Little Cornwallis Island, Resolute Bay on Cornwallis Island, Aston Bay on Somerset Island, north Bellot Strait on Somerset Island, Brentford Bay on Boothia Peninsula, and the Chesterfield Inlet-Baker Lake area.

2. We have assumed that the pipeline will be chilled and buried throughout our study area and that it will be buried at all river crossings.

4. RESOLUTE

4.1 The Community

A joint Canada-U.S. program to establish weather stations in the north resulted in the establishment of a weather station, along

with a supporting airstrip, at Resolute in 1947. The station was established at Resolute as it offered the best possibility for airstrip construction and weather observations, it was in a central location in the Arctic Islands, and it was believed to be accessible by cargo ships even in a difficult ice year. In 1949 the RCAF established a base at Resolute and operated the airstrip until 1964, at which time the management of the airstrip and all facilities was taken over by the Department of Transport (Bissett 1968).

Before the Inuit community was established at Resolute in 1953, there were no permanent Inuit settlements on Cornwallis Island. In 1953, four Inuit families, comprising 23 people, were moved to Resolute from Port Harrison in northern Quebec. The move was made because economic conditions were poor in the Port Harrison area and because the Federal government and the RCMP felt that the wildlife resources were sufficient to support an Inuit settlement in the Resolute area. One Pond Inlet family was moved to Resolute with the Port Harrison families in 1953.

Since 1953, Inuit have been moved, under government auspices, from Pond Inlet, Arctic Bay, Spence Bay, and Grise Fiord to Resolute. Some people who were living in the Creswell Bay area also moved to Resolute. The airstrip/weather station/RCAF base are about 5½ km from the Inuit settlement (Bissett 1968).

The estimated population of the Inuit settlement at Resolute in 1976 was 218; it has been slowly growing over the last decade. In 1974, it was 200; in 1971, 181; and in 1969, 138. In 1971, about 89% of the population was Inuit. Between 250 and 600 whites live and work at the airbase, depending on the season (Riewe 1976).

Resolute has served as a shipping, air transport, and transfer base for scientific expeditions, and more recently for petroleum exploration. It is currently served by five flights a week from Edmonton, Montreal, and Winnipeg and by Ministry of Transport (M.O.T.) ships from Montreal. The shipping season begins in late July or early August and closes in late September or early October (Canada North Almanac 1976; Bissett 1968).

4.2 The Economy

Since 1953, the economy has changed from a full-time traditional economy to a wage-based economy with a resulting change to part-time hunting and trapping. Most men in Resolute now work in regular wage occupations. Wage employment is available through the Ministry of Transport (MOT) airbase and weather station, petroleum exploration, scientific expeditions that operate out of Resolute, Department of Indian and Northern Affairs (DIANA) in the settlement, and the Resolute Co-op (Riewe 1976; Canada North Almanac 1976).

There were 38 holders of General Hunting Licences in 1974-75. The number of licences issued has been slowly increasing over the past decade (Table 4-1). No commercial fishing licences were issued

Table 4-1. Number of General Hunting Licences issued - Resolute.

1974-75	38	1970-71	22	1966-67	24
1973-74	33	1969-70	31	1965-66	25
1972-73	16	1968-69	28	1964-65	23
1971-72	38	1967-68	28	1963-64	17

Source: NWT Government

in 1975 but an estimated 6 licences were issued in 1976 (D. Dowler, personal communication). The need for fresh, local country food remains high because no acceptable fresh-food alternatives are available, local prices for non-fresh foods are high, and non-fresh foods have low acceptability for most people in the community (Freeman 1974).

4.3 Resource-Use Areas

4.3.1 General Area

The resource-harvest zone of the Resolute Inuit is one of the more extensive of the Inuit settlements' resource-use zones. The limits of the Resolute resource-harvest zone are defined by seal and polar bear hunting which extends about 240 km north to the Grinnell Peninsula on Devon Island; 160 km east into Lancaster Sound; 250 km south-east into Prince Regent Inlet; 300 km south on Somerset Island; 240 km southwest on Prince of Wales Island; and 150 km west into Viscount Melville Sound (see Map 2). Riewe (1976) reports that the change to part-time hunting which has occurred has not resulted in a reduction in the area used by the community.

About 25 to 30 people camped in the Creswell Bay area in the summer of 1976 and 12 to 15 people planned to overwinter there during the winter of 1976-77.

4.3.2 Trapping

Trapping occurs along coastlines; no attempt is made to trap inland areas (Riewe 1976; Bissett 1968). The majority of

traplines are along the southern coast of Cornwallis Island; on the sea ice and around Griffith, Browne, and Somerville Islands (just south of Cornwallis Island); and along the east, north, and south coasts of Somerset Island. One trapline runs from Cornwallis Island to the southeast tip of Bathurst Island and another is on Russell Island.

4.3.3 Land Mammal Hunting

The southern part of Bathurst Island has been the major caribou hunting area for the Resolute Inuit since 1953. Lately though, this area has been declining in importance because of the severe depletion of caribou populations and the Resolute Inuit have agreed to stop hunting on Bathurst Island until populations recover (F. Miller personal communication). The Resolute Inuit blame the depletion of caribou on Bathurst Island on seismic exploration activities on the island. They are concerned because they feel that the southern part of Bathurst Island provides the only suitable winter range in the area (Freeman 1974, 1975). However, this depletion is more likely due to recent severe winters and is part of a general decline in caribou populations on the Queen Elizabeth Islands (F. Miller personal communication).

Little Cornwallis and Cornwallis Islands have been recently hunted for caribou in autumn but are not hunted intensively because of the poor condition of the caribou. Important spring hunting areas are northwest Somerset Island and to a lesser extent, northern Prince of Wales and Russell Islands. These spring-hunting areas are now becoming more important because winter-hunting areas, particularly the southern part of Bathurst Island, are becoming less important (Riewe 1976). Stanwell Fletcher Basin is an important year-round hunting area for Inuit using the Creswell Bay camp.

4.3.4 Wildfowl Hunting

Important goose-hunting areas are Assistance Bay on Cornwallis Island; Bedford Bay on Bathurst Island; from Aston Bay to Cape Court, Creswell Bay and Stanwell Fletcher Lake, and Cape Clara on Somerset Island; and Browne Bay on Prince of Wales Island (Riewe 1976).

Important duck-hunting areas are along the northwest and southwest coasts and near Eleanor Lake on Cornwallis Island; along the southeast coast of Bathurst Island; on Lowther Island; Creswell Bay on Somerset Island; and Browne Bay on Prince of Wales Island (Riewe 1976).

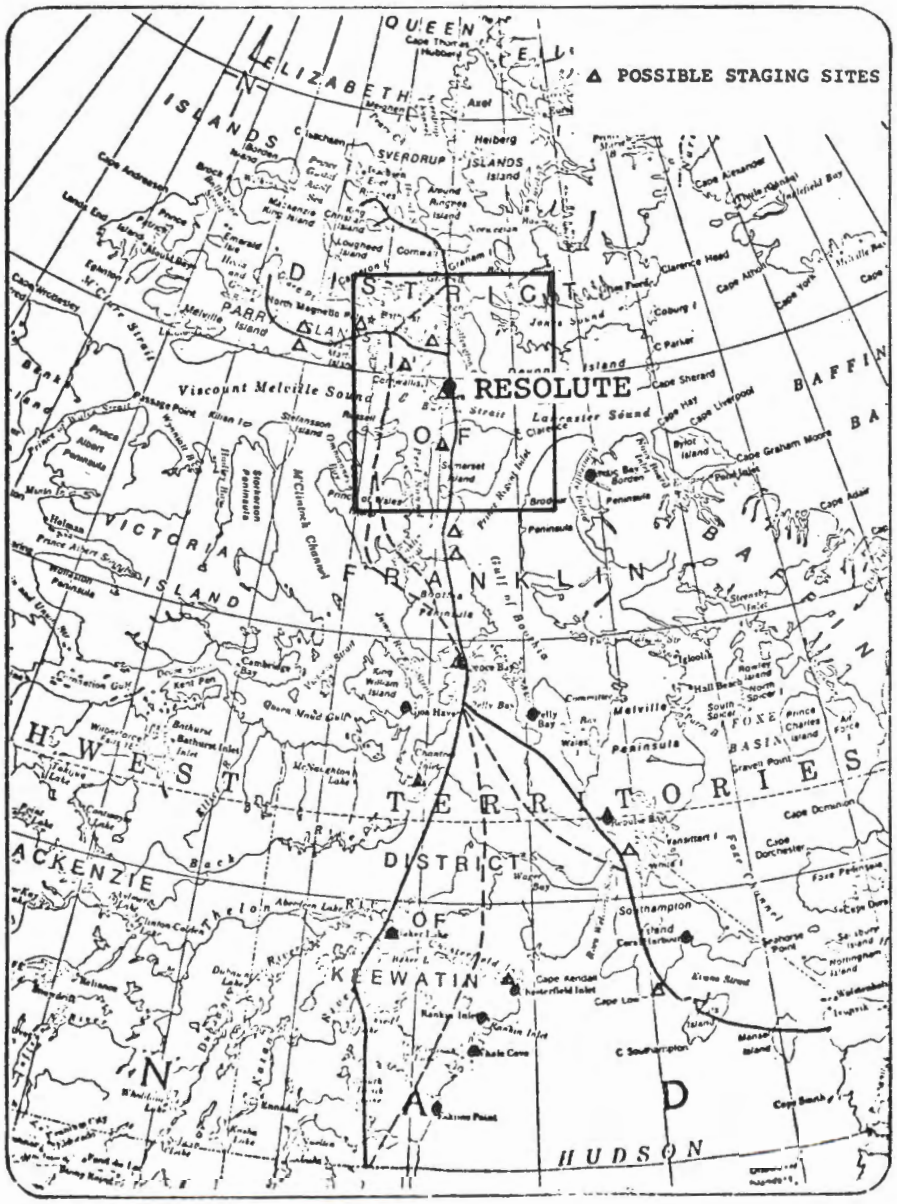
Ptarmigan are hunted from Allen Bay to Assistance Bay and at Pioneer Bay, Midshipman Bay, and Read Bay on Cornwallis Island; along the southeast coast of Bathurst Island; and from Birmingham

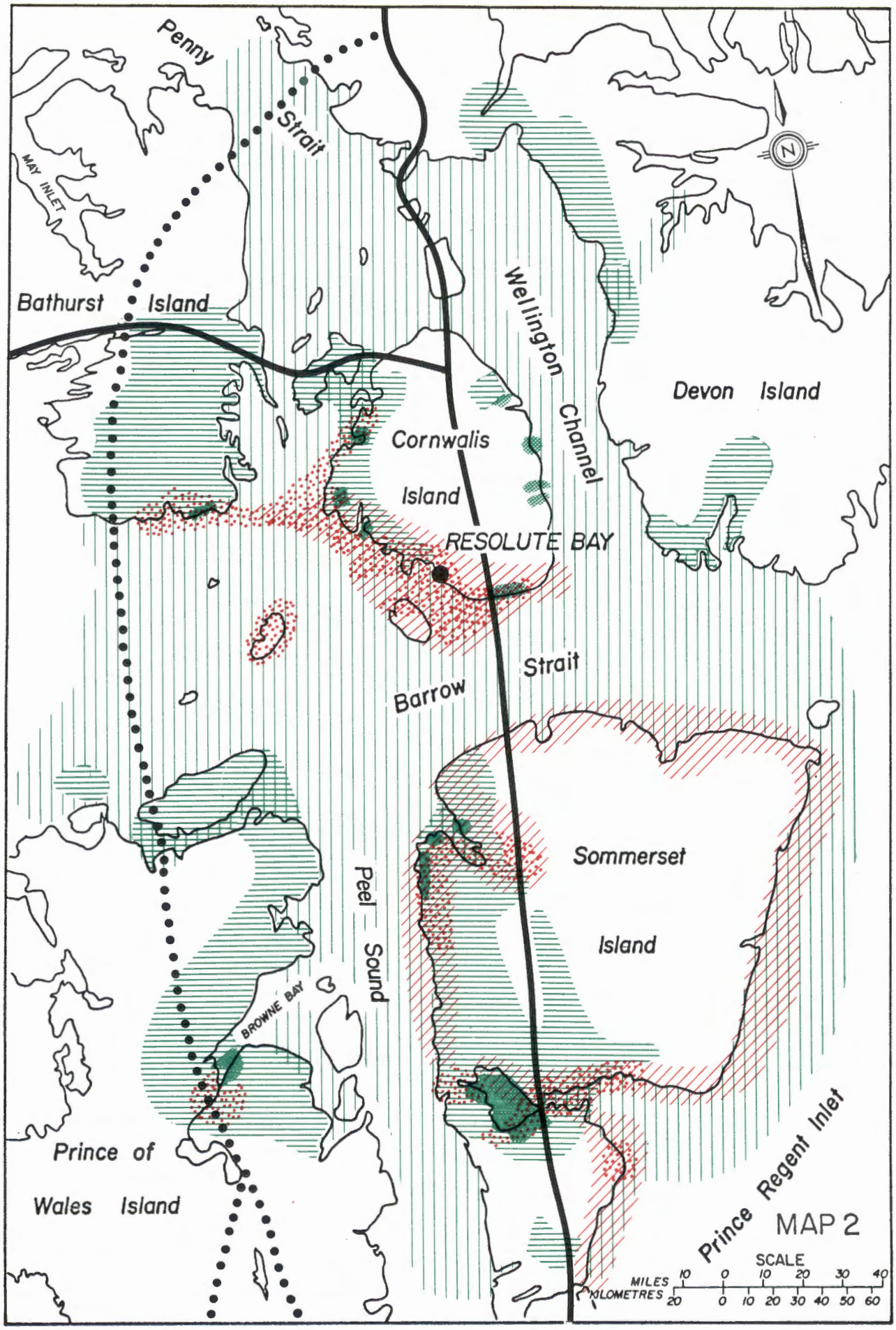
— LEGEND —

- Marine mammal hunting
  - seal
  - whale
  - walrus
  - polar bear
- Land mammal hunting
  - caribou
  - muskox
  - wolf
- Trapping
  - wolverine
- Wildfowl
- Fishing
- Trapline boundaries
  - almost exclusively fox

Proposed pipeline alignment
- Prime route
- Alternate route

- Community location




Penny
Strait
MAY INLET
Bathurst Island
Wellington Channel
Devon Island
Cornwalis
Island
RESOLUTE BAY
Barrow
Strait
Sommerset
Island
Peel Sound
BROWNE BAY
Prince of
Wales Island
Prince Regent Inlet
MAP 2
SCALE
MILES 10 0 10 20 30 40
KILOMETRES 20 0 10 20 30 40 50 60

2. Resolute

Bay to Aston Bay, around Creswell Bay, and west of Stanwell Fletcher Lake on Somerset Island (Riewe 1976).

4.3.5 Marine Mammal Hunting

Polar Bears

Polar bears are hunted in all parts of the marine-mammal hunting zone (see Map 2). Important areas are Barrow Strait and the northwest part of Lancaster Sound (Riewe 1976).

Seals

Seals also are hunted in all areas outlined in the marine-mammal hunting zone, only they are not hunted quite as far west into Viscount Melville Sound, quite as far northeast into Lancaster Sound, or quite as far east off the shore of Somerset Island. Important areas for ringed seals are Barrow Strait, the western fringe of Lancaster Sound, and north up the Wellington Channel. The main areas for bearded-seal hunting are McDougall Sound and around Allen Bay on Cornwallis Island. In winter, seal-hunting is confined to the immediate area south of the community, primarily along the ice cracks between Griffith and Cornwallis Islands. Harp seals are hunted in McDougall Sound and Wellington Channel but are taken primarily around the bays and inlets close to the community (Riewe 1976; Bissett 1968).

Whales

White whales (beluga) are hunted around all coasts of Cornwallis Island and along the northwest coast and at Cape Clarence, Batty Bay, Creswell Bay, and the small bay north of Brentford Bay on Somerset Island. Narwhals are not as abundant in the area and are hunted primarily around Batty and Creswell Bays on the east coast of Somerset Island (Riewe 1976).

Walrus

Walrus are hunted in McDougall Sound; along the south and west coasts of Cornwallis Island; along the southeast coast of Bathurst Island; along the north coast and around the Cape Clarence area of Somerset Island. Just outside Resolute Bay is an important walrus-hunting area. Walrus used to migrate through Resolute Passage; they now migrate around Griffith Island into McDougall Sound. This change in migratory behavior has been attributed to human disturbances and pollution from ships at Resolute (Riewe 1976).

4.3.6 Fishing

Eleanor, Sophia, Kate Austin, and Trafalger Lakes and the small lake north of Becher Bay on Cornwallis Island are fished in

spring and fall. The Bedford Bay area of Bathurst Island is fished for char in spring and a small lake behind Resolute is fished for char in September. Other remote fishing areas are Stanwell Fletcher Lake and the Union River, from Aston Bay to Cape Court on Somerset Island, and Browne Bay on Prince of Wales Island. The latter two are not primary fishing areas; they are fished in conjunction with caribou or seal hunting (Riewe 1976; Bissett 1968).

No lakes in the area have commercial quotas with the exception of Stanwell Fletcher Lake which had an experimental quota of 15,000 lbs. of char in 1976.

4.4 Harvest Patterns

Spring is an important season for caribou, wildfowl, polar bear, and seal hunting and fishing and is the beginning of the whale and walrus hunting season. Summer is important for wildfowl, seal, whale, and walrus hunting, and fishing. Fall is important for trapping, caribou, polar bear, whale, and some seal and walrus hunting, and fishing. Winter is important for trapping, polar bear hunting, and some caribou hunting. (See Table 4-2).

4.5 Harvest Data

(See Table 4-3).

4.6 Commercial and Domestic Importance

4.6.1 Commercial Importance

Polar bear skins and, to a lesser extent, fox pelts and seal skins are important for providing income for the Resolute Inuit (Table 4-4).

A 1973 survey indicated that of the seals harvested, 80% of ringed seal skins and 33% of bearded seal skins were traded; 2% of ringed seal skins and 16% of bearded seal skins were used for handicrafts (Friesen 1975). Data are not sufficient to estimate average annual harvest for bearded seals.

Table 4-2. Harvest patterns - Resolute.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug.)	Fall (Sept. to Nov.)
Trapping[1] Arctic Fox	Good in Dec, Jan. Best in Feb, Mar, Apr.	Stops in May	No trapping	Starts in Nov.
Land Hunting[1] Caribou	Some in Dec, Jan, Feb. Good in Mar.	Good in Apr. Some in Jun. Season now prolonging into Jun with use of skidoos.	No hunting	Good in Sept, Oct, Nov.
Wildfowl Hunting[1,2,3,4]: Ducks & Geese	No hunting	Starts in Jun as nesting is beginning. Often shot in leads in ice.	Best in July, Good in Aug. Shot in open water.	Hunting good in Sept. as migration in progress.
Ptarmigan[1,3,5]		Hunted in all seasons, best hunting in Spring.		
Eggs[1]		Some gathered in Jun & July.		
Marine Hunting[1,3]: Polar Bear	Starts about end of Feb. Good in March.	Good in Apr, May. Ends by Jun as pelts become yellow and less valuable.	No hunting	Starts again in Oct. Stops by Dec. due to cold & dark.

Table 4-2. Harvest patterns - Resolute.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug.)	Fall (Sept. to Nov.)
Ringed Seal[1,3]	Some hunting at breathing holes close to community.	Very good in Spring Shot while basking on ice or swimming in open leads, good in late spring- hunted by boat or canoe from floe edge.	Shot from boats in open water, not a good season.	Early fall, shot in open water, not a good season, late fall, breathing hole hunting.
Bearded Seal[3]	No hunting.	Best hunting in May, Jun, shot while basking on ice.	Some hunted from boats or canoes in open water.	Some open water hunting in Sept. No hunting after Sept.
Harp Seal[1,3]	No hunting.	None until Jun. & scarce in Jun.	Some hunted during open water season.	Some open water hunting in Sept. No hunting after Sept.
Beluga & Narwhal[1,3]	No hunting.	No hunting until Jun. Starts in Jun. or Jul.		Best hunting in Sept., Oct.
Walrus[1,3]	No hunting.	Starts in Jun.	Open water hunting in Jul, Aug. After ice breakup.	Stops in Sept.

Table 4-2. Harvest patterns - Resolute.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug.)	Fall (Sept. to Nov.)
Fishing[1]	No fishing.	Starts in May. Best in Jun, July Aug.		Good when ice forming in Sept. Sometimes good in Oct.

[1] Bissett 1968

[2] Bissett 1968

[3] Riewe 1976

[4] Ducks and geese are taken incidental to other hunting expeditions like seal hunting (Riewe 1976, 1974).

[5] Ptarmigans are killed wherever and whenever they are seen (Riewe 1976, 1973).

Table 4-3. Harvest data - Resolute[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR[3]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES
63-64	329			67	2		56	42	60	657		17	26		16	
64-65	405			108		11	65	100	92	670		24	3		16	
65-66	200			108	2	21	259	55	70	300		15	3		10	
66-67	172								124			14	16			
67-68	33			103		4	93	64	52							
68-69	112			53	1	5	49	36	47							
69-70	25			89	1		42	127	24							
70-71	59			54	4		11	140	33							
71-72	415			86[2]	2	7	17	21	33	376[4]	26[4]		28[4]	4[4]	10[4]	
72-73	245			150[2]	1				34							
73-74	667			139[2]					34							
74-75	224[2]								34[2]							(7)
75-76													6[6]	9[6]		
Total All Years	2886			957	13	48	592	585	637	3384[4]	234[4]	70	224[4]	17[5]	90[5]	
Avg. All Years	241			96	2	10	74	73	53	376[4]	26[4]	18	28[4]	6[5]	10[5]	

Table 4-3. Harvest data - Resolute[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR[3]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES
Total 69-70 to 74-75	1805			518	8		70	288	192							
Avg.	301			104	2		23	96	32							
High Year	667			150	4		42	140	34							

1 All data from Usher 1975, unless otherwise indicated.

2 NWT Game Management Division.

3 Polar Bear quota for Resolute is 34.

4 Mean from 9 years of records for ringed and bearded seal and Walrus, 8 years for beluga, and 2 years for narwhal, from RCMP Game Records for 1962-1971 (Smith and Taylor 1976).

5 RCMP data plus deMarch data from Creswell Bay.

6 These are for Creswell Bay only and were reported by L. deMarch (personal communication).

7 Estimate for annual domestic harvest for Stanwell Fletcher Lake is 6000-10,000 lbs; the 15,000 lb. commercial quota introduced in 1976 cannot entirely be added to this figure (L. deMarch, personal communication).

Table 4-4. Expected annual income from sales of fur - Resolute.

	Arctic Fox	Polar Bear	Ringed Seal	Total
Average Annual Harvest[1] (69-70 to 74-75)	301	34	376	
Average NWT Pelt Price[2] (74-75)	$ 17.59	$ 573.00	$ 17.10	
Expected Income	$5295.00	$19482.00	$6430.00	$30,907.
Per Capita Income[3]	$ 26.00	$ 97.00	$ 32.00	$ 155.

[1] from Table 4-3, except for polar bear which is based on allotted quota of 34.

[2] from Fur Traders Record Book - NWT Govt., except for polar bear from Smith and Stirling (1976).

[3] based on a 1974 population of 200.

4.6.2 Domestic Importance

Seal meat is the most important part of the diet and provides the bulk of the protein requirements (Riewe 1976). Caribou, wildfowl, and fish are also important foods and whale meat and some polar bear meat are eaten. Statistics presented do not reflect the true importance of seal in the diet as seal harvest statistics are collected on the basis of seal skins traded rather than on the basis of domestic use of seal meat (Table 4-5).

A 1973 survey found that 75% of edible ringed and bearded seal meat and 70% of edible beluga and narwhal meat are used for family food (Friesen 1975). Only a few choice portions of the polar bear are now used for family food (Bissett 1968).

Meat from seals, whales, fish, and polar bears is used for dog food although this use is becoming less important with the decline in the use of dog teams in recent years. The 1973 survey found that 25% of ringed seal meat, 83% of bearded seal meat, and 47% of beluga meat suitable for dogs was used for dog food (Friesen 1975).

Sealskins are still used for clothing, and narwhal and walrus tusks are used for handicrafts (Riewe 1976, Friesen 1975).

Table 4-5. Estimated annual imputed income from major food sources - Resolute.

	Caribou	Ducks	Ptar-migan	Ringed Seal	Fish	Total
Average Annual Harvest[1] (69-70 to 74-75)	105	23	96	376	8,000 lbs[5]	
Edible lbs/ animal[2]	100	2.6	0.9	45	60%[6]	
Edible Meat (lbs)	10,400	60	8.6	16,920	4,800	32,189
Imputed value/ lb[3]	$3.00	$2.00	$2.00	$3.00	$2.00	
Imputed Value	$31,200	$120	$132	$50,760	$9,600	$91,812
Per Capita Value[4]	$156	$0.60	$0.66	$254	$48	$459

[1] from Table 4-3.

[2] from Usher 1976, Bissett 1974, Thompson 1976.

[3] adapted from Usher 1976.

[4] based on a 1974 population of 200.

[5] Only a partial value - for Stanwell Fletcher Lake only. Based on estimated annual domestic harvest of 6000 to 10,000 lbs.

[6] assumed 60% is usable food.

4.7 Pipeline Implications

The proposed prime route passes through the core of the Resolute resource-use area in Bathurst Island, Crozier and Pullen Straits in McDougall Sound, Cornwallis Island, Barrow Strait, and Somerset Island to Stanwell Fletcher Basin. The western alternate avoids the most important use area, passing through the western fringes of caribou-hunting areas on Bathurst and Prince of Wales Island and the marine-mammal hunting zone in western Barrow Inlet. It may, however, cause impact on populations harvested in the core of the Resolute resource-use zone, particularly caribou on Prince of Wales Island.

Specifically, the prime route may conflict with resource harvest in the following key areas:

1. Bathurst Island. Southern Bathurst Island has been the most important caribou-hunting area for the Resolute Inuit but its importance has declined in recent years because of reduced caribou populations. The Resolute Inuit have agreed not to hunt caribou on Bathurst Island until populations increase. The southeast coast of Bathurst Island is an important duck and ptarmigan hunting area; the location of a major staging area for pipeline activities in Freemans Cove could disturb wildfowl populations or degrade wildfowl habitat.

2. Crozier Strait. This is part of a primary area for walrus and bearded-seal hunting. Summer construction and the location of a major staging area on Little Cornwallis Island could disturb or degrade the habitat of walrus and bearded seal populations.

3. Cornwallis Island-South Coast. Important for winter hunting of ringed seals; summer and fall hunting of bearded seals, harp seals, belugas, and walrus; and spring and summer hunting of ducks and ptarmigan. Large-scale staging activities at Resolute could disturb marine mammal and wildfowl populations or degrade their habitat.

4. Barrow Strait. Important area for polar bear and ringed seal hunting. Summer or early fall construction of the crossing and marine traffic could disturb or result in direct mortality of ringed seals and polar bears.

5. Somerset Island-North Coast. Beluga and some walrus are hunted here. Any activity in Cunningham Inlet (a key beluga calving area) in summer, construction in summer or early fall, and marine traffic could disturb beluga or walrus populations.

6. Aston Bay-Somerset Island. Important for ringed-seal hunting, also for geese and ptarmigan hunting and some fishing. The location of a major staging here could disturb or degrade the habitat of ringed seals or wildfowl.

7. Creswell Bay-Stanwell Fletcher Basin. This is a remote but important hunting area for beluga, narwhal, seal, caribou, ducks, geese, and ptarmigan; char are fished

in Stanwell Fletcher Lake and the Union River. Any activity in Creswell Bay in summer (the most important beluga-calving area in the entire region) could severely disturb beluga populations or degrade this important calving habitat. It could also disturb or degrade the habitats of other marine mammals and wildfowl. Late fall and winter construction through the area could disturb caribou populations. Crossing of the Union River in late spring and late summer could interfere with char migrations.

5. SPENCE BAY

5.1 The Community

In 1949, the Hudson's Bay Company moved its trading post from Fort Ross in Bellot Strait to the present location of Spence Bay. Over the years, Inuit have gradually moved into Spence Bay from camps in the Creswell Bay, Fort Ross, Agnew Rivers, and Thom Bay areas (Villiers 1969; Brice-Bennett 1976).

The estimated population of Spence Bay in 1976 was 433; it has increased substantially over the last decade. In 1974, it was 406; in 1971, 350; in 1969, 334; and in 1966, 247. In 1971, about 94% of the population was Inuit.

Spence Bay is currently served by four flights a week from Cambridge Bay. Air connections at Cambridge Bay are to Yellowknife and Edmonton. Marine transportation is supplied by the Northern Transportation Company Limited operating out of Hay River. Supplies are trucked from Edmonton to Hay River, barged down the Mackenzie River, and loaded on ships for Spence Bay. The shipping season is limited to August and September (Villiers 1969; Canada North Almanac 1976).

5.2 The Economy

The economy of Spence Bay is primarily land based. Crafts, such as weaving and the making of dresses and other garments, and carving are important activities. Handicrafts are marketed through the Spence Bay Handicraft Cooperative.

There were 69 holders of General Hunting Licences in 1974-75. The number has increased and then decreased again over the last decade, peaking in 1969-70 (Table 5-1). No commercial fishing licences were issued in 1975, but an estimated 30 licences were issued in 1976 (D. Dowler personal communication).

Table 5-1. Number of General Hunting Licences issued - Spence Bay.

1974-75	69	1970-71	94	1966-67	86
1973-74	71	1969-70	98	1965-66	81
1972-73	47	1968-69	90	1964-65	75
1971-72	95	1967-68	86	1963-64	75

Source: NWT Government

5.3 Resource-Use Areas

5.3.1 General Area

The resource-harvest zone of the Spence Bay Inuit is fairly extensive although it has decreased in area in recent years. Seal and polar bear hunting define the marine boundary of this zone while caribou hunting defines the inland boundary. The zone extends about 480 km north along the western coast of Somerset Island, 250 km northeast into the Gulf of Boothia, 210 km south onto the mainland, 180 km southwest into the Rasmussen Basin and about 210 km northwest into Larsen Sound (see Map 3). The mainland south of Spence Bay and the southern part of Boothia Peninsula are now the most intensively hunted areas.

There is no indication of any permanent camps in the area although hunters who used to maintain winter camps along the coasts of the Boothia Peninsula and Prince of Wales Island at Brentford, Abernethy, Illaunnalik, Pasley, and Young Bays still hunt in these areas and presumably use their old camps or camping areas (Brice-Bennett 1976).

5.3.2 Trapping

The most important trapping areas are close to the community, including the Spence Bay, Balfour Bay, Willersted Inlet, Netsilik Lake, Lord Mayor Bay, Middle Lake, Krusenstern Lake, Jekyll Lake, Hansteen Lake, and Josephine Bay areas. The coasts of Boothia Peninsula as far north as Weld Harbour on the west and Cape Heytesbury on the east are trapped. Other trapping areas are around Brentford Bay and around Young Bay and Pandora Island. The Young Bay-Pandora Island area is trapped by hunters wintering on Prince of Wales Island (Brice-Bennett 1976).

5.3.3 Land Mammal Hunting

Caribou are hunted both north and south of Spence Bay. The most intensively hunted area is north of the community and west of Thom Bay and forms part of the northern caribou hunting area which extends up the Boothia Peninsula to Somerset Island west of Stanwell Fletcher Lake and across to the southeastern part of Prince of Wales Island. Caribou are hunted on the ice in Peel Sound in spring and fall as they migrate between Prince of Wales and Somerset Islands.

Several Spence Bay hunters hunt caribou on the mainland south of the community. This hunting zone extends almost as far south as the Hayes River; the most intensively hunted areas are around the Inglis and Murchison Rivers (Brice-Bennett 1976, Villiers 1969).

Wolves are hunted along the eastern part of the Boothia Peninsula from Thom Bay to south of Brentford Bay, and south of Young Bay on Prince of Wales Island.

5.3.4 Wildfowl Hunting

Wildfowl are hunted near the community south along the western coast of the mainland to Inglis Bay, north along the east coast of Boothia Peninsula to Brentford Bay, north along the west coast of Boothia Peninsula to Pasley Bay, along the eastern coast of Prince of Wales Island, and on Gibson Peninsula and west towards the interior of King William Island.

5.3.5 Marine Mammal Hunting

Polar Bears

Polar bears are hunted in all areas of the marine mammal hunting zone except for St. Roch and Rasmussen Basins (see Map 3). The most intensively hunted areas are along the west coast of Boothia Peninsula in James Ross Strait north to the Pasley Bay area or around the Astronomical Society Islands in Lord Mayor Bay (Brice-Bennett 1976).

Seals

Seals are hunted in all areas of the marine mammal hunting zone but are not hunted as far offshore along the east and west coasts of the Boothia Peninsula as are polar bears (see Map 3).

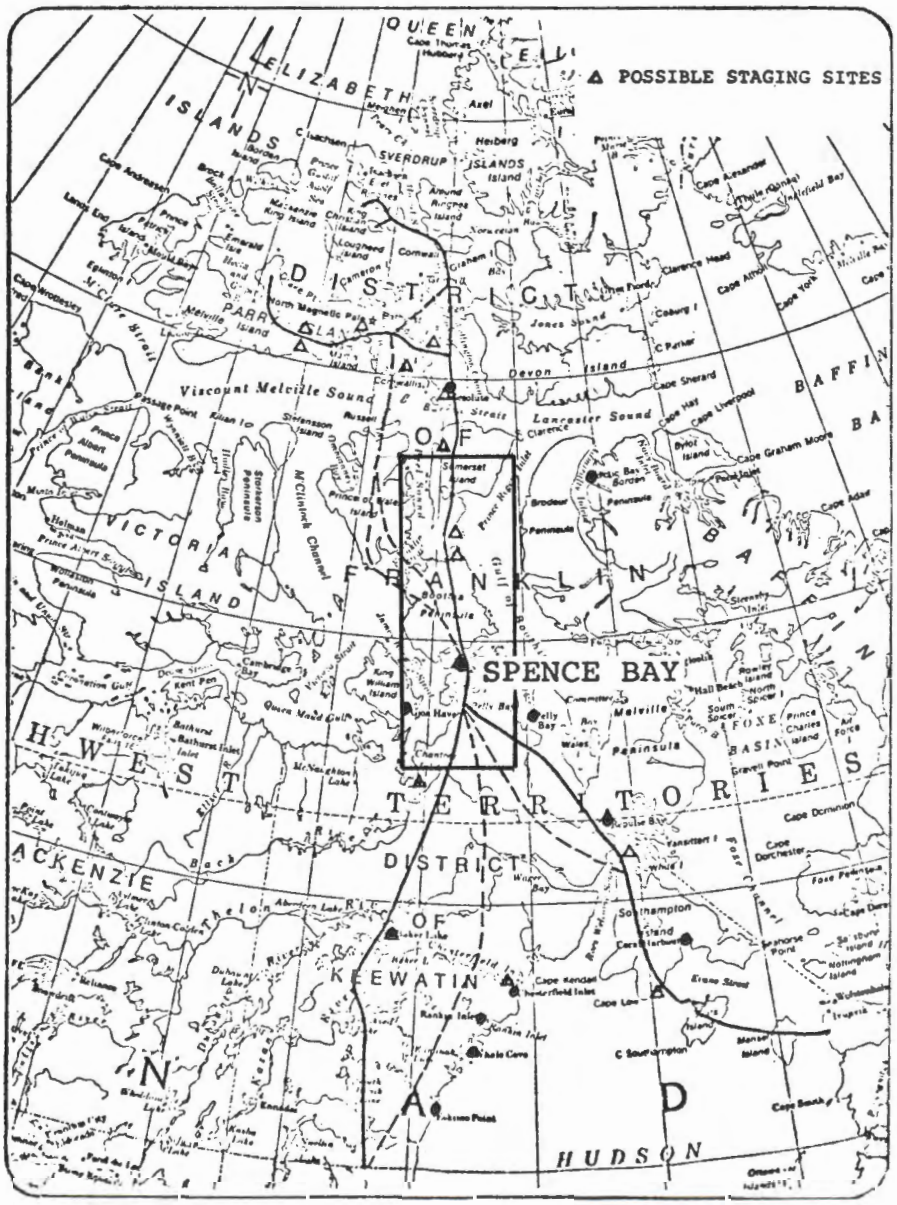
The most intensive hunting areas are the Lord Mayor and Thom Bay areas on the east coast of the Boothia Peninsula and off the west coast into James Ross Strait (Brice-Bennett 1976).

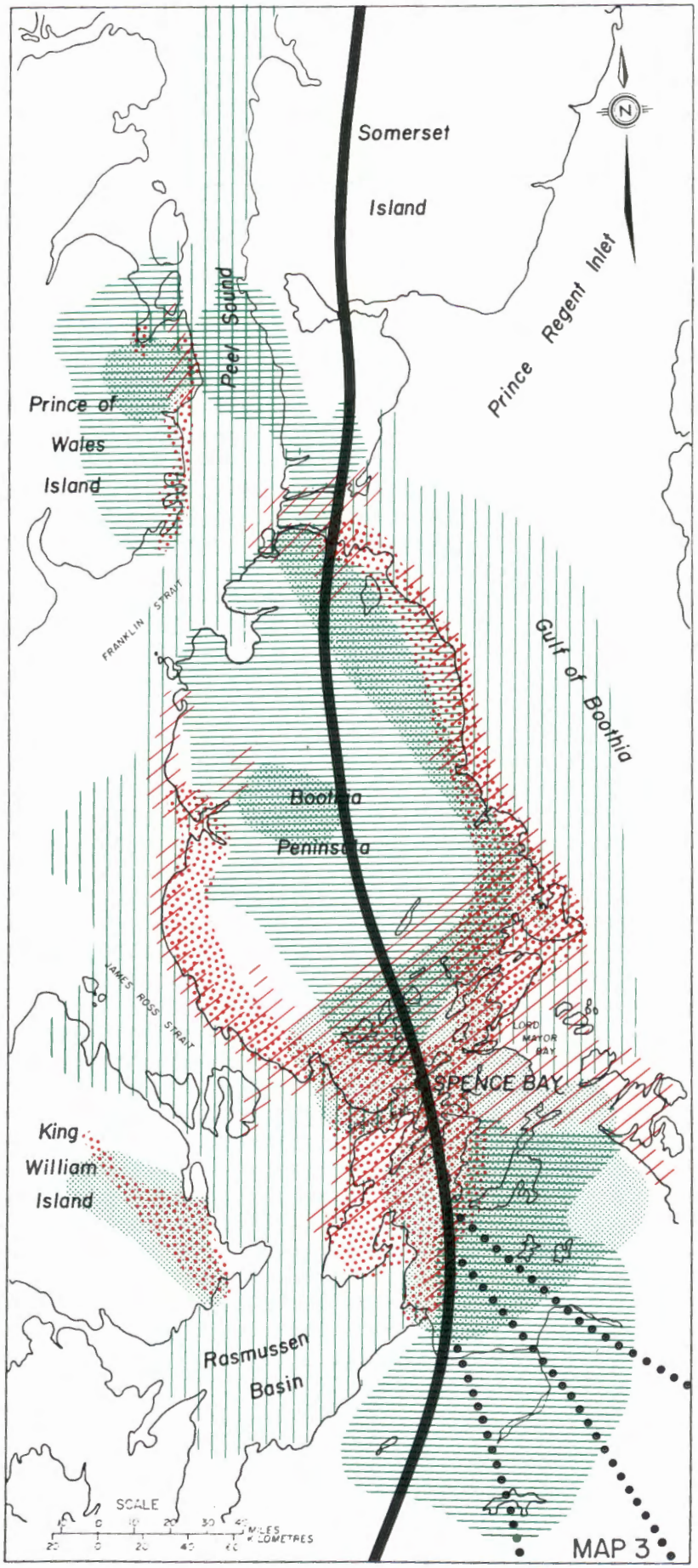
— LEGEND —

- Marine mammal hunting
  - seal
  - whale
  - walrus
  - polar bear
- Land mammal hunting
  - caribou
  - muskox
  - wolf
- Trapping
  - wolverine
- Wildfowl
- Fishing
- Trapline boundaries
  - almost exclusively fox

Proposed pipeline alignment

- Prime route
- Alternate route
- Community location




Somerset
Island
Prince Regent Inlet
Peel Sound
Prince of
Wales
Island
FRANKLIN STRAIT
Gulf of Boothia
Boothia
Peninsula
JAMES ROSS STRAIT
LORD MAYOR BAY
SPENCE BAY
King
William
Island
Rasmussen
Basin
SCALE
MILES
KILOMETRES
MAP 3

3. Spence Bay

Whales

Whales are hunted around Pasley Bay, Spence Bay, Lord Mayor Bay, Thom Bay, Abernethy Bay, and Brentford Bay on the Boothia Peninsula and just south of Savage Point along the east coast of Prince of Wales Island. Only narwhals are taken in Pasley Bay (Brice-Bennett 1976).

Walrus

Walrus are hunted in Abernethy Bay and Brentford Bay on the Boothia Peninsula and just south of Savage Point along the east coast of Prince of Wales Island.

5.3.6 Fishing

Major fishing areas extend throughout the maze of lakes and streams extending about 60 km north and about 110 km south of the community. Remote fishing areas are the lakes and streams along the eastern part of the Boothia Peninsula from Thom Bay to Brentford Bay, the streams south of Young Bay on Prince of Wales Island, the streams inland from Pasley Bay on the Boothia Peninsula, and the lakes and streams north of Gjoa Haven on King William Island. Cod are jigged in Willersted Inlet and in Spence and Josephine Bays (Brice-Bennett 1976).

Waterbodies in the area that had commercial quotas in 1976 are Lord Lindsay Lake - 6500 lbs (landlocked char);and the Murchison River - 20,000 lbs (sea-run char). Only the Murchison River has been commercially fished recently, although it was probably fished by Pelly Bay rather than Spence Bay commercial fishermen.

5.4 Harvest Patterns

Spring is an important season for caribou, wildfowl, polar bear, and seal hunting and fishing. Late spring is also the start of whale and walrus hunting. Summer is important for wildfowl, seal, whale, and walrus hunting and fishing. Fall is important for trapping; caribou, polar bear, and whale hunting;and fishing. Winter is important for trapping and polar bear hunting. (see Table 5-2).

5.5 Harvest Data

(see Table 5-3).

5.6 Commercial and Domestic Importance

5.6.1 Commercial Importance

Seal skins, fox pelts, and polar bear skins are important for

Table 5-2. Harvest patterns - Spence Bay.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov)
Trapping[1] Arctic & Colored Fox	Intensive in Dec. Ends in Mid-Mar.	No trapping.	No trapping.	Starts in Nov. Intensive in Nov.
Land Hunting: Caribou[1]	Hunting Mar to May.		No hunting.	Hunting Oct. & Nov.
Wildfowl Hunting: Ducks & Geese[3]	No hunting.	Starts in Jun.	Hunting in July, Aug.	Hunting in Sept.
Ptarmigan[3]	Hunted in all seasons.			
Marine Hunting: Polar Bear[3]	Hunting more intensive in late winter.	Ends by Jun as pelts becoming less valuable.	No hunting.	Hunting more intensive in late fall.
Ringed Seal[1,2]	No hunting.	Hunted on ice from Mid-May to end of Jun - nets set in leads in mid-Jun.	Hunted along leads from end of Jul - hunted with boats in open water & nets set along coast.	Open-water hunting until freeze up in early Oct.

Table 5-2. Harvest patterns - Spence Bay.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov)
Bearded Seal[2]	No hunting.	Hunting Usually shot from a canoe as they are resting on moving ice.	hunting	No hunting.
Beluga & Narwhal[3]	No hunting.	No hunting until Jun, starts in Jun or Jul.		Best in Sept., Oct.
Walrus[3]	No hunting.	Starts in Jun.	Hunting	Stops in Sept.
Fishing[1,3]	No fishing.	Starts in Jun on inland lakes. Fishing spring char-run.	Fishing along coast after breakup in conjunction with seal hunting.	Continues into fall.

[1] Treude 1975.

[2] Villiers 1969.

[3] Inferred from analysis of pattern in Resolute (see Table 4-2).

Table 5-3. Harvest data - Spence Bay (and Pelly Bay).[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR[6]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES
63-64	1548	1		134	12	54	588	511	9[4]	1500[4]						
64-65	1789				29				40[4]	2207[4]	3[4]			6[5]		
65-66	624	1							43[4]	2042[4]				5[5]		
66-67	2299	6			1				19[4]	1672[4]				25[5]		
67-68	1498			510					27	2558				2[5]		
68-69	897	4		328		12	575	279	23[2]							
69-70	166	2		250/450[3]			550[3]	300[3]	25[2]	1069/1425[3]						
70-71	1271	3		27					21[2]							
71-72	1232	18		127					25[3]		22[7]		7[7]			
72-73	248			11[2]					24[3]	1551[2]						
73-74	1652	5							23[2]	329/829[2]						
74-75	666[2]								22[2]	602[2]						
75-76										679[2]						
Total All Year	13890	40		1387			1713	1090	301	14209				38		
Avg. All Year	1158	5		198			571	363	25	1421	22		7	9.5		

Table 5-3. Harvest data - Spence Bay (and Pelly Bay).[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR[6]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES
Total 69-70 to 74-75	5235	28		415					140	4230						
Avg.	873/914	7		104					23	846/1268						
High Year	1652	18		250					25	1551						

1 All data from Usher 1975, unless otherwise indicated and is for Spence Bay plus Pelly Bay where two numbers are given, the lower one is for Spence Bay only.

2 NWT Game Management Division for Spence Bay only.

3 Palmer 1973 for Spence Bay only.

4 Villiers 1969 for Spence Bay only.

5 Mansfield et al. 1975 for Spence Bay only.

6 Polar bear quota for Spence Bay is 22.

7 Mean from 6 years of record for bearded seal and 3 for beluga from RCMP Game Records for 1962-1971 (Smith and Taylor 1977).

providing income for the Spence Bay Inuit (see Table 5-4 which includes data for Spence Bay plus Pelly Bay).

A 1973 survey indicated that of the seals harvested, 95% of the ringed seal skins were traded and 5% were used for handicrafts (Friesen 1975). Villiers (1969) reports that only a very small portion of bearded seal skins are traded.

Table 5-4. Expected annual income from sales of fur - Spence Bay plus Pelly Bay.

	Arctic Fox	Coloured Fox	Polar Bear	Ringed Seal	Total
Average Annual Harvest [1] (69-70 to 74-75)	914	7	22/10	1268	
Average NWT Pelt Price [2] (74-75)	$17.59	$28.61	$620/$200 [4]	$17.10	
Expected Income	$16,077	$200	$15,640	$21,693	$53,600
Per Capita Income [3]	$25	$0.30	$24	$33	$82

[1] from Table 5-3 (adjusted to eliminate Spence Bay only data), except for polar bear which is based on allotted quote of 22 for Spence plus 10 for Pelly Bay.

[2] from Fur Traders Record Book - NWT Govt.

[3] based on a population of 406 for Spence Bay plus 245 for Pelly Bay in 1974.

[4] Community polar bear skin prices for 74-75 from Smith and Stirling (1976).

5.6.2 Domestic Importance

Seal meat forms the most important part of the diet; caribou, fish, and wildfowl are also important. Table 5-5 gives the estimated imputed income for major species where sufficient data are available for Spence Bay plus Pelly Bay.

A 1973 survey found that 50% of the edible ringed seal meat was used for family food and 50% of the meat suitable for dogs was fed to dogs (Friesen 1975).

Table 5-5. Estimated annual imputed income from major food sources - Spence Bay plus Pelly Bay.

	Caribou	Ducks	Ptar-migan	Ringed Seal	Fish	Total
Average Annual Harvest (69-70 to 74-75)[1]	450[5]	550[5]	300[5]	1268	ND	
Edible lbs/ animal[2]	100	2.6	0.9	45		
Edible Meat lbs.	45,000	1430	270	57,060		103,760
Imputed value/ lb[3]	$3.00	$2.00	$2.00	$3.00		
Imputed Value	$135,000	$2860	$540	$171,180		$309,580
Per Capita Value[4]	$207	$4.40	$0.80	$263		$476

[1] from Table 5-3, adjusted to eliminate Spence Bay only data.

[2] from Usher 1976, Bissett 1974, Thompson 1976.

[3] adapted from Usher 1976.

[4] based on a 1974 population of 406 for Spence Bay plus 245 for Pelly Bay.

[5] based on 1969-70 data only due to lack of reliable data for other years.

ND No data.

5.7 Pipeline Implications

The proposed prime route passes through the core of the Spence Bay resource-use zone on southern Somerset Island, Boothia

Peninsula, the Boothia Isthmus, and the Murchison to Hayes River area of the mainland. The western alternate on the Arctic Islands also passes through most of this zone, avoiding only southern Somerset Island and northern Boothia Peninsula. However, as with Resolute, the western alternate on Prince of Wales Island may cause impacts to caribou populations harvested in the core of the Spence Bay resource-use zone on Boothia Peninsula.

Specifically, the prime route may conflict with resource harvest in the following key areas:

1. Brentford Bay-Bellot Strait. This is a remote but important hunting area for ringed and bearded seals, narwhals, and belugas. Some polar bear and walrus are also hunted here. Staging of materials, marine traffic, and construction of the crossing of Bellot Strait in summer or early fall could disturb mammals or degrade their habitat.

2. Northern Boothia Peninsula. This is an important caribou-hunting area; construction in spring and summer may interfere with caribou migrations and movements.

3. Boothia Isthmus. Lord Mayor and Spence Bays are important for ringed-seal hunting; belugas, narwhals, and polar bears are **also** hunted there. Fishing occurs throughout Boothia Isthmus and cod are jigged in Spence and Josephine Bays and Willersted Inlet. With the possible location of a materials staging area at Spence Bay, or possibly at Lord Mayor Bay, marine traffic, and construction through the Isthmus could disturb marine mammals or degrade their habitat. It may also interfere with fishing or degrade fish habitat.

4. Murchison to Hayes River. This is an important caribou-hunting area for Spence Bay; construction in winter could disturb caribou on their winter range.

6. ARCTIC BAY

6.1 The Community

Arctic Bay was established as a Hudson's Bay Company post in 1936. A Department of Transport weather station operated there from 1942 to 1952 (Brody 1976; Canada North Almanac 1976).

In 1976, the estimated population of Arctic Bay was 353; it has grown rapidly, almost tripling over the last decade. In 1974, the population was 311; in 1971, 257; in 1969, 231; and 1966, 123. In 1971, 90% of the population was Inuit.

Arctic Bay is served by two flights a week from Resolute. Resolute has air connections with Montreal, Edmonton, and Winnipeg. Marine transportation is provided by MOT ships from Montreal; the shipping season is limited to August and September (Canada North Almanac 1976).

6.2 The Economy

The economy of Arctic Bay has changed to a wage-based economy with an emphasis on part-time rather than full-time trapping, hunting, and fishing. Wage employment is provided by Panarctic Oils Ltd. and by Nanisivik Mines who have recently established a mine at Strathcona Sound, just north of Arctic Bay. The handicrafts industry is very important and soapstone, which is quarried locally, is an important resource (Canada North Almanac 1976).

There were 63 holders of General Hunting Licences in 1974-75. The number of licences issued has slowly increased over the last decade (Table 6-1).

Table 6-1. Number of General Hunting Licences issued - Arctic Bay.

1974-75	63	1970-71	50	1966-67	50
1973-74	50	1969-70	48	1965-66	ND
1972-73	53	1968-69	50	1964-65	ND
1971-72	55	1967-68	50	1963-64	ND

Source: NWT Government ND: No Data.

6.3 Resource-Use Areas

6.3.1 General Area

The resource-harvest zone of the Arctic Bay Inuit is extensive, reaching as far west as the eastern coast of Prince of Wales Island. Seal, polar bear, and caribou hunting define the outer limits of this zone which extends about 420 km west to the eastern shore of Prince of Wales Island, 400 km northwest into Barrow Strait, 210 km north to the southern coast of Devon Island, 100 to 150 km east towards the resource zone of the Pond Inlet Inuit,

450 km south towards Simpson Peninsula, and 520 km southwest into Larsen Sound (see Map 4). The most intensively used area is the Admiralty Inlet-Lancaster Sound area. In the eastern part of the Arctic Bay resource-harvest zone, it is difficult to distinguish between areas used by Arctic Bay and Pond Inlet hunters.

6.3.2 Trapping

Trapping occurs mainly along coasts with only a few traplines running inland or onto sea ice. Primary trapping areas are around the Steensby Peninsula, around the islands in Admiralty Inlet, along the western shore of Admiralty Inlet and into Berlinguet Inlet and Bell Bay. Other trapping areas are Bernier Bay, the Aqu Bay area, the west coast of the Brodeur Peninsula from Fitzgerald Bay to north of McBean Bay, the east coast of Boothia Peninsula from Cape Palmerston to Brentford Bay, the Brentford Bay area, the east coast of Somerset Island from Bellot Strait to Creswell Bay, Stanwell Fletcher Lake, and the western coast of Somerset Island from Four Rivers Bay to Howe Harbour. Many traplines follow routes to good caribou hunting areas (Brody 1976).

6.3.3 Land Mammal Hunting

Major caribou hunting areas include the interior of Baffin Island south of Arctic Bay and Pond Inlet and a small area east of Arctic Bay and west of Navy Board Inlet. Other areas are the southwest part of Somerset Island from McClure Bay to Bellot Strait, the northern part of Boothia Peninsula from Bellot Strait to Pasley Bay on the western coast, and the eastern coast of Prince of Wales Island from Browne Bay to Transition Bay including Prescott and Pandora Islands.

Brody (1976) reports a recent shift in hunting to the northern portion of the hunting area on Baffin Island. He notes that caribou populations of northern Baffin Island have increased in recent years. As a result, caribou hunters from Arctic Bay do not travel as far from the community as they used to.

6.3.4 Wildfowl Hunting

The most important duck and goose hunting area is at the southern end of Admiralty Inlet, a very productive waterfowl area. Other areas are around Strathcona Sound, Bernier Bay, Brentford Bay on Boothia Peninsula, and Creswell Bay on Somerset Island.

Eggs are collected inland during caribou hunting trips (Brody 1976). Egg-gathering locations are not included in the mapping of wildfowl hunting areas for Arctic Bay because they are so widespread.

Ptarmigan are hunted in virtually all areas of northern Baffin Island (Brody 1976); ptarmigan-hunting locations are also not included in the mapping of wildfowl hunting areas for Arctic Bay.

6.3.5 Marine Mammal Hunting

Polar Bear

Polar bears are hunted throughout the Arctic Bay marine-mammal harvest zone (see Map 4). Brody (1976) claims that the importance of polar bears has helped to maintain the overall hunting range of Pond Inlet and Arctic Bay hunters.

The most important hunting areas for Arctic Bay Inuit are in Admiralty Inlet and Lancaster Sound and across the Brodeur Peninsula. Brody (1976) notes that in recent times Arctic Bay hunters have hunted along the eastern coast of Prince of Wales Island, despite the general reduction in the polar bear hunting range which resulted from the introduction of the quota system.

Seals

Seals are not hunted over as extensive an area as polar bears. Major areas for seal hunting are Admiralty Inlet, along the north shores of Brodeur and Borden Peninsulas, in Lancaster Sound north of Admiralty Inlet, along the south coast of Devon Island, in Prince Regent Inlet south to Creswell and Brentford Bays, along the northeast coast of Somerset Island and across Barrow Strait to Maxwell Bay on Devon Island, from Griffith and Lowther Islands south into Peel Sound and Franklin Strait, in Bernier Bay on Baffin Island, and into the Gulf of Boothia towards Pelly Bay.

Admiralty Inlet is the major hunting area for bearded seals; some harp seals are taken there as well (Brody 1976).

Whales

Narwhals are taken mostly along shorelines or in favoured inlets. The northern end of Admiralty Inlet is among the most favoured narwhal hunting areas in the region. Brody (1976) reports that some hunters believed increased shipping and human activity in Admiralty Inlet was causing narwhals to avoid Admiralty Inlet and move into Prince Regent Inlet. Other narwhal hunting areas are small areas in Prince Regent Inlet, and around Creswell and Brentford Bays.

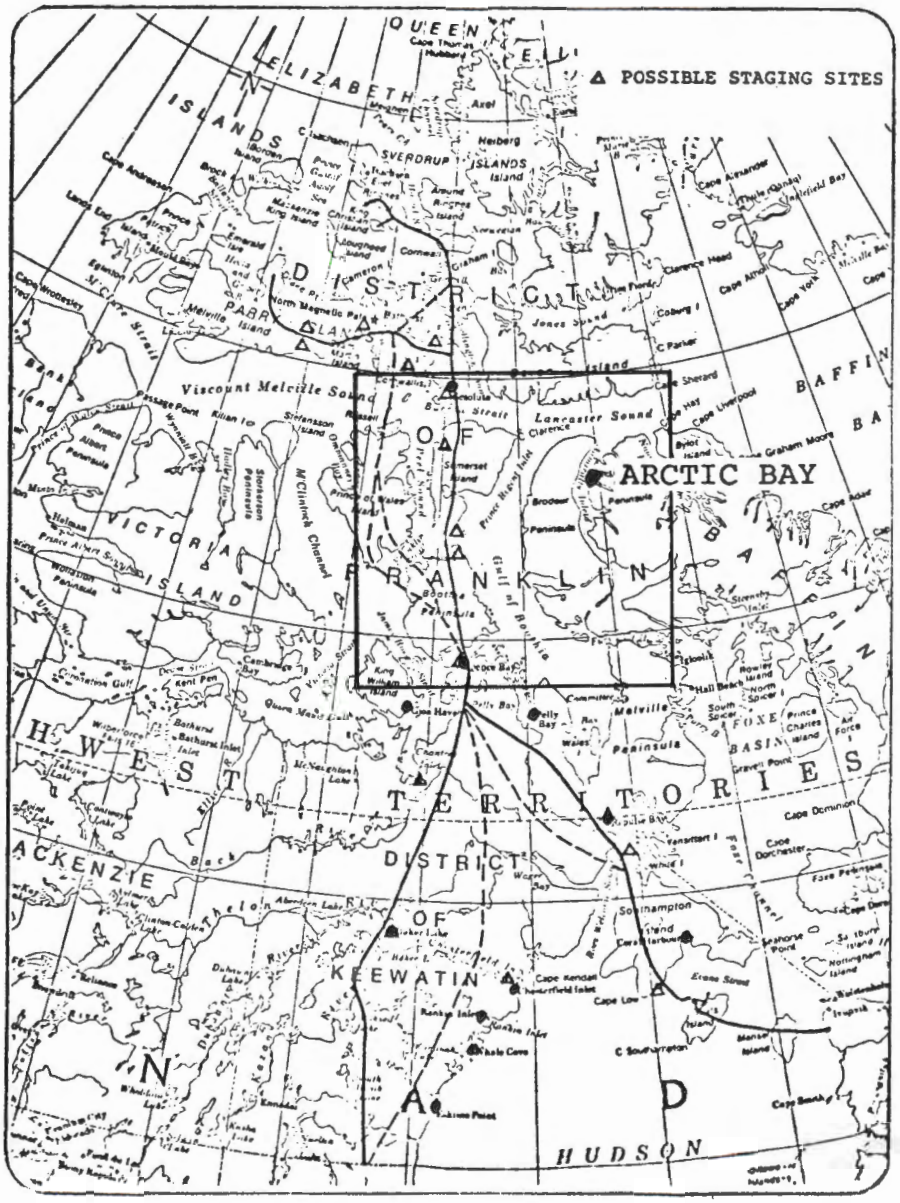
Belugas are not common in the area although they are occasionally taken by narwhal hunters in narwhal hunting areas (Brody 1976:165).

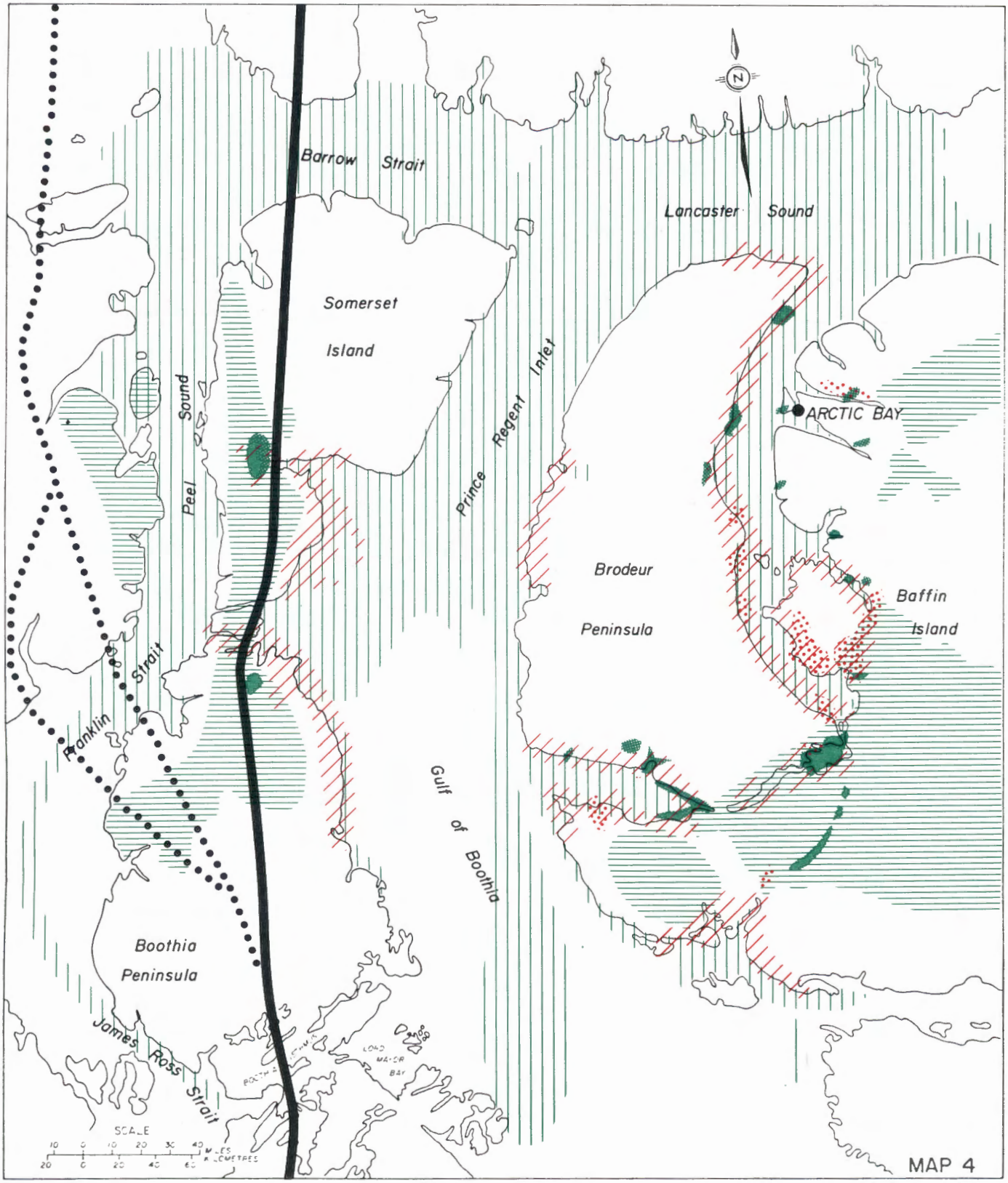
— LEGEND —

- Marine mammal hunting
  - seal
  - whale
  - walrus
  - polar bear
- Land mammal hunting
  - caribou
  - muskox
  - wolf
- Trapping
  - wolverine
- Wildfowl
- Fishing
- Trapline boundaries
  - almost exclusively fox

Proposed pipeline alignment
- Prime route
- Alternate route

- Community location




Barrow Strait
Lancaster Sound
Somerset Island
Prince Regent Inlet
Peel Sound
ARCTIC BAY
Brodeur Peninsula
Baffin Island
Franklin Strait
Gulf of Boothia
Boothia Peninsula
James Ross Strait
LORD MAYOR BAY
SCALE
MAP 4

4. Arctic Bay

Walrus

Important walrus hunting areas are around the head of Admiralty Inlet, around Strathcona Sound, around Peter Richards Islands (in Admiralty Inlet), south of Steensby Peninsula, along the south coast of Devon Island, and around Prince Leopold Island off the northeast tip of Somerset Island.

6.3.6 Fishing

The western part of the Borden Peninsula is dotted by small streams and lakes fished by the Arctic Bay Inuit. Other areas fished are Bell Bay, Berlinguet Inlet and Saputing Lake, around Bernier Bay, Stanwell Fletcher Lake and Creswell Bay, and the Brentford Bay area. Brody (1976) notes that in the spring of 1974, Baffin Island fishermen made journeys to lakes that had not been fished for a generation and concludes "it seems that the freshwater fishing range may well be on the verge of expansion". Marine fish such as sculpin and cod are of some importance and are caught along the west side of Admiralty Inlet (Brody 1976). No waterbodies in the area had commercial fishing quotas in 1976.

6.4 Harvest Patterns

Spring is an important season for caribou, goose, seal, and walrus hunting and fishing. Summer is important for caribou, wildfowl, seal, narwhal, beluga, and walrus hunting and fishing. Fall is important for trapping; some caribou, beluga, narwhal, and walrus hunting; and fishing. Winter is important for trapping; caribou, polar bear, and some seal and walrus hunting; and fishing (see Table 6-2).

6.5 Harvest Data

(see Table 6-3).

6.6 Commercial and Domestic Importance

6.6.1 Commercial Importance

Seal skins, polar bear skins, and fox pelts are important for providing income for the Arctic Bay Inuit (Table 6-4).

A 1973 survey indicated that 75% of ringed seal, 50% of bearded seal, and 40% of harp seal skins are traded (Friesen 1975).

Brody (1976) claims that " ... the significance of a family's trap lines can hardly be overemphasized. A trapping year that is bad, either because of poor prices or few furs, usually leads to some hardship. A succession of bad years could threaten disaster". Brody (1976) also notes that "The hunting

Table 6-2. Harvest patterns - Arctic Bay.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov.)
Trapping[1] Arctic & Coloured Fox	Trapping.	Stops in Apr.	No trapping.	Starts in late Spring.
Land Hunting:[1] Caribou	Important season. Shift in recent years towards more winter and early spring hunting.	Early Spring an important season.	Hunted for their skins which are in best condition in Summer - importance of summer hunting for skins now declining.	Some hunting.
Land Hunting: Wolf[1]	Hunted any time - most intensive from winter to early Spring - usually taken in conjunction with caribou hunting.			
Wildfowl Hunting: Ducks & Geese[1]	Eiders killed at floe-edge in late spring or summer. No hunting.	Geese hunted in nesting grounds.	Old squaw hunted on lakes and shorelines during open-water period. Geese hunted in nesting grounds or along shores in late summer.	Hunting only in early fall.

Table 6-2. Harvest patterns - Arctic Bay.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov.)
Ptarmigan[1]	Hunted.	Best in spring when they are conspicuous.	Hunted.	Hunted.
Marine Hunting: Polar Bear[1]	Almost all hunting between Jan. & Mar. since introduction of quota system.	Very little hunting.	No hunting.	No hunting.
Ringed Seal[1]	Hunted at breathing holes along ice-cracks.	Hunted while basking on ice.	Hunted in open water in fiords & inlets.	Some hunting.
Bearded Seal[1]	Occasionally taken at breathing holes in conjunction with ringed-seal hunting.	Important season-hunted at floe-edge.	Important season-hunted in open water with harpoons.	Very little hunting.
Harp Seal[1]	No hunting.	No hunting.	Hunted only in open water.	No hunting.
Narwhal[1]	Narwhals rarely taken in winter when they are trapped by sea ice.	Some narwhal hunting at the floe-edge.	Main narwhal hunting season as they migrate into area-taken along coastlines & in favoured inlets.	Some hunting in fall as narwhals migrate out of area.

Table 6-2. Harvest patterns - Arctic Bay.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov.)
Beluga[1]		Belugas occasionally taken at floe-edge.	Some Belugas hunted as they migrate into area.	Some Belugas hunted as they migrate out of area.
Walrus[1]	Hunted at floe-edge.	Hunted at floe-edge late Spring is primary hunting season.	Hunted in open water or at hauling out or breeding sites on land.	Hunted close to shore in early Fall taken at floe-edge after freeze-up.
Fishing[1]	Nets set under ice to catch char.	Jigging for char & lake trout through holes in the ice & at edge of fast ice in Spring. Marine fish jigging through cracks in sea-ice.	Most of year's catch taken by nets set in river mouths and along coasts.	Jigging through holes in lake ice.

[1] Brody 1976.

Table 6-3. Harvest data - Arctic Bay.[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF[3]	GEESE	DUCK	PTARMIGAN	POLAR BEAR[6]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES
63-64	396								6	1247						
64-65	1164								3	2099						
65-66	261								22	2816						
66-67	785			44		45	95	98	29	1255						
67-68	389								13							
68-69	75								7							
69-70				109			34	100	12	602[4]						
70-71	296			93		19	39	144	12							
71-72	1511	12		114[2]		17	17	123	12	1235						
72-73	276			118				72[2]	12	735	20[5]	25[5]	3[5]	101[5]	4[5]	
73-74	381	59							13	1614						
74-75	257[2]								12[2]	1288[2]						
75-76																
Total All years	5791			478		81	185	537	153	12891						
Avg. All years	526			96		27	46	107	13	1432						

Table 6-3. Harvest data - Arctic Bay.(1)

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF (3)	GEESE	DUCK	PTARMIGAN	POLAR BEAR (6)	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES
Total 69-70 to 74-75	2721			434			90	439	73	5474						
Avg.	544			109			30	110	12	1095						
High Year	1511			118			39	144	13	1614						

1 All data from Usher 1975, unless otherwise indicated.

2 NWT Game Management Division.

3 Recent trend is towards more, rather than less, wolf hunting.

4 Palmer 1973.

5 Friesen 1975.

6 Polar Bear quota for Arctic Bay is 12.

of polar bears now has an importance probably greater than at any time within living memory". He adds that the polar bear quota is quickly filled and the restrictions imposed by the quota " ... is a source of frustration and complaint".

The 1973 survey found that 100% of the walrus tusks and some narwhal tusks are used in the handicrafts industry (Friesen 1975).

Table 6-4. Expected annual income from sales of fur - Arctic Bay.

	ARCTIC FOX	POLAR BEAR	RINGED SEAL	TOTAL
Average Annual Harvest[1] (69-70 to 74-75)	544	12	1095	
Average NWT Pelt Price[2] (74-75)	$17.59	$959[4]	$17.10	
Expected Income	$9569	$11,508	$18,725	$39,802
Per Capita Income[3]	$31	$37	$60	$128

[1] from Table 6-3, except for polar bear which is based on allotted quota of 12.

[2] from Fur Traders Record Book - NWT Govt.

[3] based on a 1974 population of 311.

[4] Community polar bear skin prices for 1974-75 from Smith and Stirling (1976).

6.6.2 Domestic Importance

Seal meat and caribou meat are the two most important foods, seal meat being the more important of the two. Fish, walrus, narwhal, and wildfowl are also important food sources (Table 6-5).

A 1973 survey found that 45% of edible ringed seal, 100% of edible bearded seal, and 10% of edible harp seal meat was used for family food. It also found that 25% of edible walrus meat was used for family food (Friesen 1975). The skin of the narwhal,

Table 6-5. Estimated annual imputed income from major food sources - Arctic Bay.

	Caribou	Ducks	Ptar-migan	Ringed Seal	Fish	Total
Average Annual Harvest[1] (69-70 to 74-75)	109	30	110	1095	ND	
Edible lbs/ Animal[2]	100	2.6	0.9	45		
Edible Meat (lbs)	10,900	78	99	49,275		60,352
Imputed Value/ Lb[3]	$3.00	$2.00	$2.00	$3.00		
Imputed Value	$32,700	$156	$198	$147,825		$181,149
Per Capita Value[4]	$105	$0.50	$0.64	$475		$582

[1] from Table 6-3.

[2] from Usher 1976, Bissett 1974, Thompson 1976.

[3] adapted from Usher 1976.

[4] based on a 1974 population of 311.

ND No Data.

both fresh and deliberately rotted, has always been a favourite delicacy, but the meat is eaten only if other meats are unavailable (Brody 1976). Eider ducks are well liked as food, as are ptarmigan, but old squaw ducks are not a preferred food and are eaten less often. Char is an important food and lake trout makes for an interesting change in diet. Marine fish, such as sculpin and cod, have been important foods in times of scarcity (Brody 1976). Whale, walrus, some seal, and some fish are used as dog food.

The skins of caribou, ringed and bearded seal, and some eider ducks are used to make clothing although the importance of this use has declined in recent years. Brody (1976) reports that bearded seal skin is still preferred for boot soles.

Some animals are considered as "high prestige game" and have an importance to the Inuit that is not apparent in harvest and use statistics. Narwhals, walrus, and polar bears are considered to have this "high prestige" status. Brody (1976) reports "it is difficult to convey in words the enthusiasm that narwhal hunting inspires in the people of Pond Inlet and Arctic Bay".

6.7 Pipeline Implications

The proposed prime route passes through the remote western fringe of the Arctic Bay resource-use area. The two areas where conflicts may occur are the Creswell Bay-Stanwell Fletcher Basin area and the Brentford Bay-Bellot Strait area, which are occasionally used by some Arctic Bay people for whale, seal, caribou, and wildfowl hunting and some fishing.

7. GJOA HAVEN

7.1 The Community

Gjoa Haven owes its presence to a Hudson's Bay Company post built there in 1927. Its location was chosen to provide for easy access from the sea. Over the years people have moved into Gjoa Haven from the Chantrey Inlet, Sherman Inlet, Perry River, and Back River areas.

The estimated population of Gjoa Haven in 1976 was 402; it has more than doubled over the last decade. In 1974, it was 370; in 1971, 284; in 1969, 237; and in 1966, 162. In 1971, about 92% of the population was Inuit.

Gjoa Haven is served by four flights a week from Cambridge Bay. Air connections at Cambridge Bay are to Yellowknife and Edmonton. Marine transportation is supplied by the Northern Transportation Company Limited operating out of Hay River. Supplies are trucked from Edmonton to Hay River, barged down the Mackenzie River, and then loaded on a ship for Gjoa Haven. The shipping season is limited to August and September (Villiers 1969; Canada North Almanac 1976).

7.2 The Economy

The economy of Gjoa Haven is still primarily land-based, although some wage employment is available. Carving is an important activity and handicrafts are marketed through the Kekertak Cooperative.

There were 84 holders of General Hunting Licences in 1974-75; this number has increased steadily over the last decade (Table 7-1). No commercial fishing licences were issued in 1975,

but an estimated 10 licences were issued in 1976 (D. Dowler personal communication).

Table 7-1. Number of General Hunting Licences issued - Gjoa Haven.

1974-75	84	1970-71	61	1966-67	47
1973-74	75	1967-70	59	1965-66	49
1972-73	76	1968-69	61	1964-65	47
1971-72	66	1967-68	61	1963-64	49

Source: NWT Government

7.3 Resource-Use Areas

7.3.1 General Area

The resource-harvest zone of the Gjoa Haven Inuit is fairly extensive although it has decreased in area in recent years, particularly in areas to the south and southeast on the mainland. Seal and polar bear hunting define the northern extremes of this zone while caribou hunting defines the southern extremes. The zone extends about 330 km east to Melbourne Island in Queen Maud Gulf, 250 km north in Larsen Sound, 130 km northeast into Spence Bay, 160 km east in the Murchison River area, 280 km south into the Back River area, and 460 km southwest towards Bathurst Inlet (see Map 5). There is no indication of any permanent camps in the area.

7.3.2 Trapping

Important trapping areas are the coasts of King William Island, Adelaide Peninsula, Sherman Basin, Chantrey Inlet, and Shepherd Bay and Arrowsmith Bay on the mainland.

7.3.3 Land Mammal Hunting

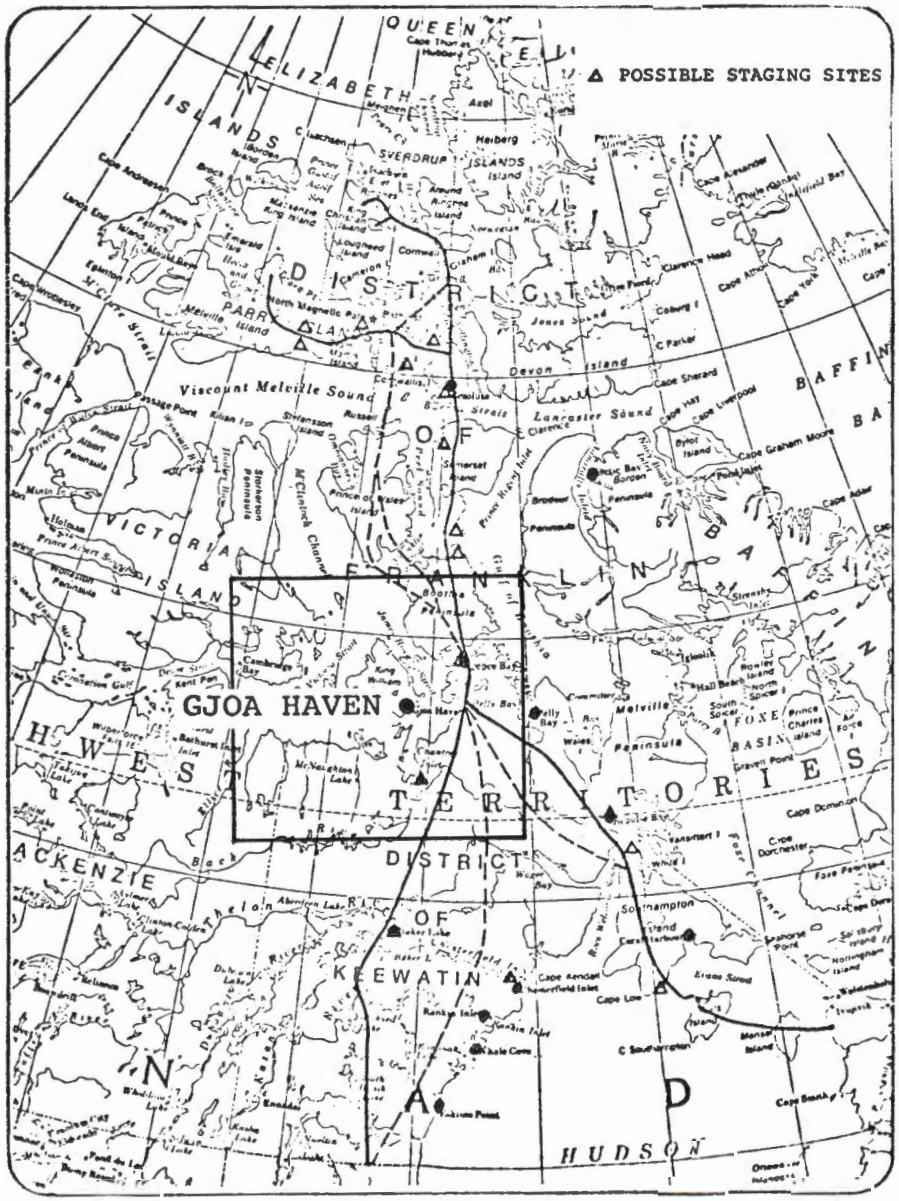
The most important caribou hunting areas are the Adelaide Peninsula, from the west shore of Chantrey Inlet to Sherman Basin, south along the west shore of Chantrey Inlet to Franklin Lake, and along the east shore of Chantrey Inlet and inland in the area from the Back River to Hayes River (Brice-Bennett 1976). Secondary caribou-hunting areas are along the south shore of Queen Maud Gulf and inland and between the Hayes and Murchison Rivers. All caribou hunting is done south of Gjoa Haven.

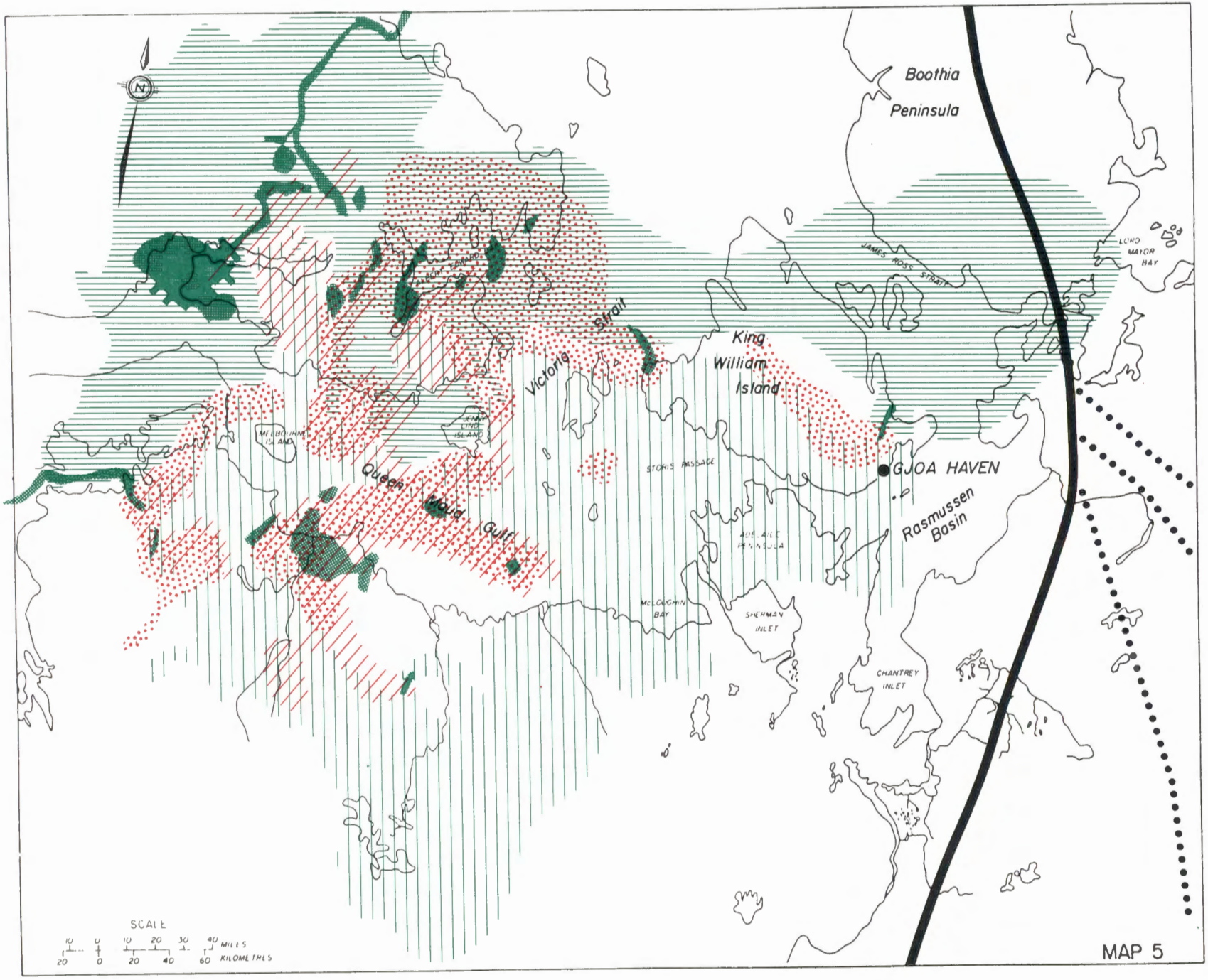
LEGEND

- Marine mammal hunting
  - seal
  - whale
  - walrus
  - polar bear
- Land mammal hunting
  - caribou
  - muskox
  - wolf
- Trapping
  - wolverine
- Wildfowl
- Fishing
- Trapline boundaries
  - almost exclusively fox

Proposed pipeline alignment
- Prime route
- Alternate route

- Community location




Boothia
Peninsula
King
William
Island
Victoria
Strait
Queen
Maud
Gulf
GJOA HAVEN
Rasmussen
Basin
JAMES ROSS STRAIT
LORD MAYOR BAY
STORIS PASSAGE
MELBOURNE ISLAND
KING CHRISTIAN ISLAND
ADELAIDE PENINSULA
McCLINTOCK BAY
SHERMAN INLET
CHANTREY INLET
SCALE
10 0 10 20 30 40 MILES
20 0 20 40 60 KILOMETRES
MAP 5

5. Gjoa Haven

The important wolf-hunting areas are the Back River and Hayes River areas. Other wolf-hunting areas are along the northern shore of Simpson Strait along the south coast of King William Island, a small area just south of Sherman Basin, and around the mouth of the Ellice River along Queen Maud Gulf. An important wolverine-hunting area is along the Hayes River (Brice-Bennett 1976).

7.3.4 Wildfowl Hunting

Important wildfowl hunting areas are along the south and east coasts of King William Island, along the north coast of Adelaide Peninsula, along the west and south shores of Chantrey Inlet and south to Franklin Lake, along the east shore of Rasmussen Basin from Cape Brittania to Balfour Bay, along the southern shore of Queen Maud Gulf and for a considerable distance inland from the mouth of the Simpson River to Sherman Basin, Hat Island, and along the southern shore of Queen Maud Gulf from the Ellice River to Perry River.

7.3.5 Marine Mammal Hunting

Polar Bears

The main polar bear hunting area extends north along the eastern side of Victoria Strait from the Adelaide Peninsula and from Matty Island in James Ross Strait into Larsen Sound. The most important area is around their denning sites on the Royal Geographical Society Islands and around Cape Felix on the northern tip of King William Island (Brice-Bennett 1976).

Seal

Seals are hunted throughout the marine-mammal hunting zone except for northern Larsen Sound (see Map 5). The most intensive hunting areas are Rasmussen Basin, Simpson Strait, and the eastern part of Queen Maud Gulf (Brice-Bennett 1976).

Whales and Walrus

Whale and walrus hunting are not major activities in Gjoa Haven.

7.3.6 Fishing

Char, trout, and whitefish are taken from major rivers and lakes close to the mainland coast and near the community. Important fishing areas are Back River and Franklin Lake, Hayes River and adjacent lakes, Murchison River, and river draining into Elliot Bay (Chantrey Inlet), Kaleet River, Simpson River, Perry

River, Ellice River, and the lakes and streams along the southeast coast of King William Island. Important cod fishing areas are Simpson Strait and Barrow Inlet (Brice-Bennett 1976).

Water bodies in the area that had commercial fishing quotas in 1976 are the Murchison River - 20,000 lbs (char); and the Port Perry area on King William Island - 5,000 lbs (char). Of these, only the Murchison River has a record of recent commercial harvest, and was probably fished by Pelly Bay fishermen for the Pelly Bay Co-op.

7.4 Harvest Patterns

Spring is an important season for caribou, wildfowl, and seal hunting and fishing. Summer is important for wildfowl and seal hunting and fishing. Fall is important for trapping; caribou and polar bear hunting; and fishing. Winter is important for trapping and polar bear hunting (Table 7-2).

7.5 Harvest Data

(See Table 7-3).

7.6 Commercial and Domestic Importance

7.6.1 Commercial Importance

Fox pelts and, to a lesser extent, seal skins and polar bear skins are important for providing income for the Gjoa Haven Inuit (Table 7-4).

A 1973 survey indicated that of the seals harvested, 90% of the skins were traded and 10% were used for handicrafts (Friesen 1975).

7.6.2 Domestic Importance

Caribou, followed by ringed seal and fish, are the important food sources. Table 7-5 gives the estimated imputed income for major species where sufficient data are available.

Friesen (1975) reported that, in 1973, 90% of the edible seal meat was used for family food and 10% of the seal meat suitable for dogs was fed to dogs.

Table 7-2. Harvest patterns - Gjoa Haven.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov.)
Trapping[1] Arctic & Coloured Fox	Intensive in Dec. Ends in mid-Mar.	No trapping.	No trapping.	Starts in Nov. intensive in Nov.
Land Hunting: Caribou[1]	Hunting in Mar.	Hunting in Apr. May.	No hunting.	Hunting in Oct. Nov.
Wildfowl Hunting; Ducks & Geese[2,4]	No hunting.	Starts in Jun.	Hunting in Jul, Aug.	Stops in Sept.
Ptarmigan[4]	Hunted in all seasons.			
Marine Hunting: Polar Bear[4]	Hunting more important in late winter.	Ends by Jun as pelts becoming less valuable.	No hunting.	Hunting more important in late fall.
Ringed Seal[1]	Breathing hole hunting recorded in 1971.	Hunted on ice from mid-May to end of Jun.- nets set in leads in mid-Jun.	Hunted along leads Hunted from boats & nets set along coast in open-water season.	Ends with freeze-up in Sept. or Oct.
Bearded Seal[1,3]	No hunting.	Usually shot from canoes as they are resting on moving ice.		No hunting.

Table 7-2. Harvest patterns - Gjoa Haven.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov.)
Fishing[1,4]	No fishing.	Starts in Jun on inland lakes.	Fishing on coast after break-up in conjunction with seal or caribou hunting.	Continues into fall.

[1] Treude 1975.

[2] Brice-Bennett 1976.

[3] Villiers 1969.

[4] inferred from analysis of pattern in Resolute (see Table 4-2).

Table 7-3. Harvest data - Gjoa Haven.[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR[4]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES
63-64	1643	3		84			73	146	21	420						
64-65	697								12	500	3[5]					
65-66	497								20	490	7[5]					
66-67	1456								10	288	1[5]					
67-68	587			568					7	575						
68-69	497	1		46		33	83	50	5							
69-70				250[3]					8[3]	400[3]						
70-71	1806	1							6							
71-72	1755	1		84					8	249						
72-73	3258								8	219	20/25[6]					
73-74	3256	5							9[2]	312						
74-75	1558[2]								9[2]	393[2]						
Total All Years	16480	11		1032					123	3846						
Avg. All Years	1498	2.2		206					10	385						

Table 7-3. Harvest data - Gjoa Haven.[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR[4]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES
Total 69-70 to 74-75	11633								48	1573						
Avg.	2327								8	315						
High Year	3258								9	400						

1 All data from Usher 1975, unless otherwise indicated.

2 NWT Game Management Service.

3 Palmer 1973.

4 Polar Bear quota for Gjoa Haven is 9.

5 Villiers 1969.

6 Friesen 1975.

Table 7-4. Expected annual income from sales of fur - Gjoa Haven.

	Arctic Fox	Polar Bear	Ringed Seal	Total
Average Annual Harvest[1] (69-70 to 74-75)	2327	9	315	
Average NWT Pelt Price[2] (74-75)	$17.59	$333	$17.10	
Expected Income	$40,932	$2997	$5387	$49,316
Per Capita Income[3]	$111	$8	$15	$133

[1] from Table 7-3, except for polar bear which is based on allotted quota of 9.

[2] Fur Traders Record Book - NWT Govt.

[3] based on a population of 370 in 1974.

[4] Community polar bear skin prices in 1974-75 from Smith and Stirling (1976).

7.7 Pipeline Implications

The proposed prime route passes through the eastern part of the Gjoa Haven resource-use zone from the Murchison River south. The possible use of Chantrey Inlet-Lower Back River as a staging area and marine traffic through Simpson Strait could conflict with resource harvest in the core of the Gjoa Haven resource-use zone.

Specifically, the prime route may conflict with resource harvest in the following key areas:

1. Murchison River-Inglis Bay. This is an important seal and waterfowl hunting area; the Murchison River is an important fishing area. Construction in this area may interfere with char migrations or degrade fish, seal, or waterfowl habitat.

Table 7-5. Estimated annual imputed income from major food sources - Gjoa Haven.

	Caribou	Geese	Ducks	Ptar-migan	Ringed Seal	Fish	Total
Average Annual Harvest[1] (69-70 to 74-75)	250[5]	ND	ND	ND	315	ND	
Edible lbs/ Animal[2]	100	3.5	2.6	0.9	45		
Edible Meat (lbs)	25,000				14,175		39,175
Imputed Value/ lb[3]	$3.00	$2.00	$2.00	$2.00	$3.00		
Imputed Value	$75,000				$42,525		$117,525
Per Capita Value[4]	$203				$115		$318

[1] from Table 7-3.

[2] from Usher 1976, Bissett 1974, Thompson 1976.

[3] adapted from Usher 1976.

[4] based on a 1974 population of 370.

[5] based on 1969-70 data only due to a lack of reliable data for other years.

ND No Data.

2. Hayes River South. This is part of the primary caribou hunting area for Gjoa Haven. Construction in winter and spring could disturb caribou populations on their winter range or interfere with caribou movements. The Hayes River and its tributaries are important fishing areas. Construction across the Hayes may interfere with char migrations (if they ascend that far upstream) or degrade fish habitat.

3. Chantrey Inlet-Lower Back River. This is an important waterfowl hunting and fishing area. Location of a staging area here and marine traffic could degrade fish and waterfowl habitat or interfere with fishing activities.

4. Simpson Strait. This is part of the primary seal-hunting area and is also important for cod fishing. Marine traffic could disturb seal populations or interfere with fishing activities.

8. BAKER LAKE

8.1 The Community

Baker Lake is the only inland settlement of Inuit in Canada. Its history as a settlement dates back to 1924 when Revillon Freres opened a trading post there and the Hudson's Bay Company opened a post nearby the following year. Over the years, Inuit have moved into Baker Lake from camps in the Garry Lakes area, Back River area, Kunwak-Kazan Rivers systems to Yathkyed Lake and Ferguson Lake, and the Thelon River system west to Beverley Lake (Welland 1976).

The estimated population of Baker Lake in 1976 was 900; it has increased substantially over the last decade. In 1974, it was 860; in 1971, 765; in 1969, 495; and in 1966, 596. In 1971, about 91% of the population was Inuit.

Baker Lake is currently served by three flights a week from Churchill with connections to Winnipeg. Marine transportation is supplied by the Northern Transportation Company Limited operating out of Churchill; the shipping season is limited to August and September (Canada North Almanac 1976).

8.2 The Economy

The economy of Baker Lake is still primarily land-based, although many wage employment opportunities are available. The Ministry of Transport maintains a large establishment with a meteorological station and an airstrip and is an important employer. Arts and crafts (including parkas, sewn goods, footwear, soapstone carvings, and prints), marketed through the Sanavik Cooperative, are an important activity and Baker Lake is said to have a world-wide reputation for the tapestries produced there. Baker Lake also supports a tourist facility, the Baker Lake Lodge (Canada North Almanac 1976).

There were 169 holders of General Hunting Licences in 1974-75; this number has decreased and then increased again over the past decade (Table 8-1). Six commercial fishing licences were issued to Baker Lake fishermen in 1975 (D. Dowler personal communication).

Table 8-1. Number of General Hunting Licences issued - Baker Lake

1974-75	169	1970-71	116	1966-67	133
1973-74	155	1969-70	104	1965-66	126
1972-73	135	1968-69	96	1964-65	128
1971-72	100	1967-68	121	1963-64	121

Source: NWT Government

8.3 Resource-Use Areas

8.3.1 General Area

The resource-harvest zone of the Baker Lake Inuit is the largest of any of the Keewatin communities' zones. Caribou hunting defines the outer boundaries of this zone which extends about 250 km north to the Garry Lakes area and up the Back River, 280 km southeast down Chesterfield Inlet to Hudson Bay, 360 km south along the coast of Hudson Bay towards Eskimo Point, and 220 km southwest to Yathyked Lake. The coastal area is rarely used by Baker Lake hunters (see Map 6).

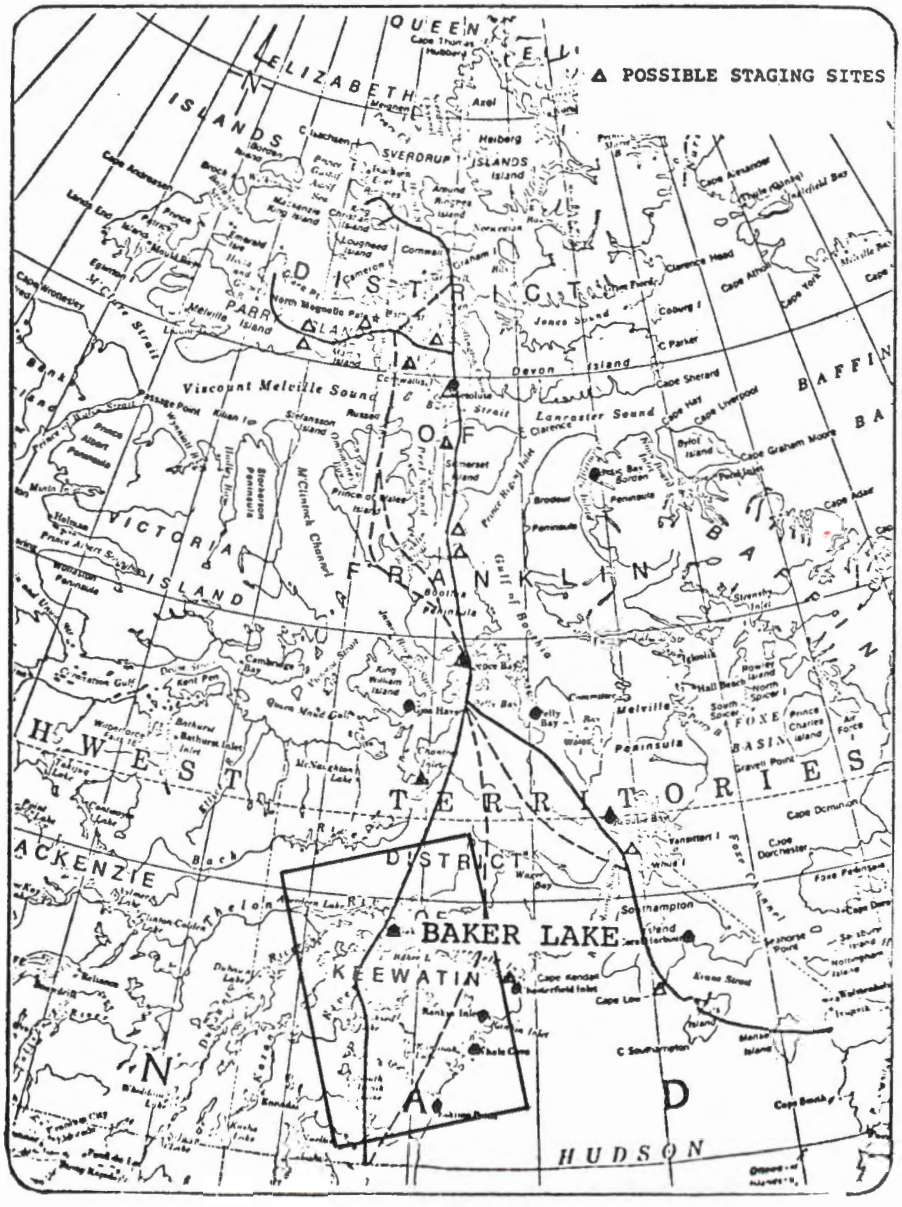
Baker Lake hunters set up spring and summer camps at fishing sites, caribou crossings, or goose and duck hunting areas. The main camping areas are along the Kazan River; in Chesterfield Inlet, along the Thelon River; at Beverly, Aberdeen, and Schultz Lakes; and the Whitehills Lake area. There is also camping along the shores of Baker Lake (Welland 1976). There is no indication of any permanent camps in the area.

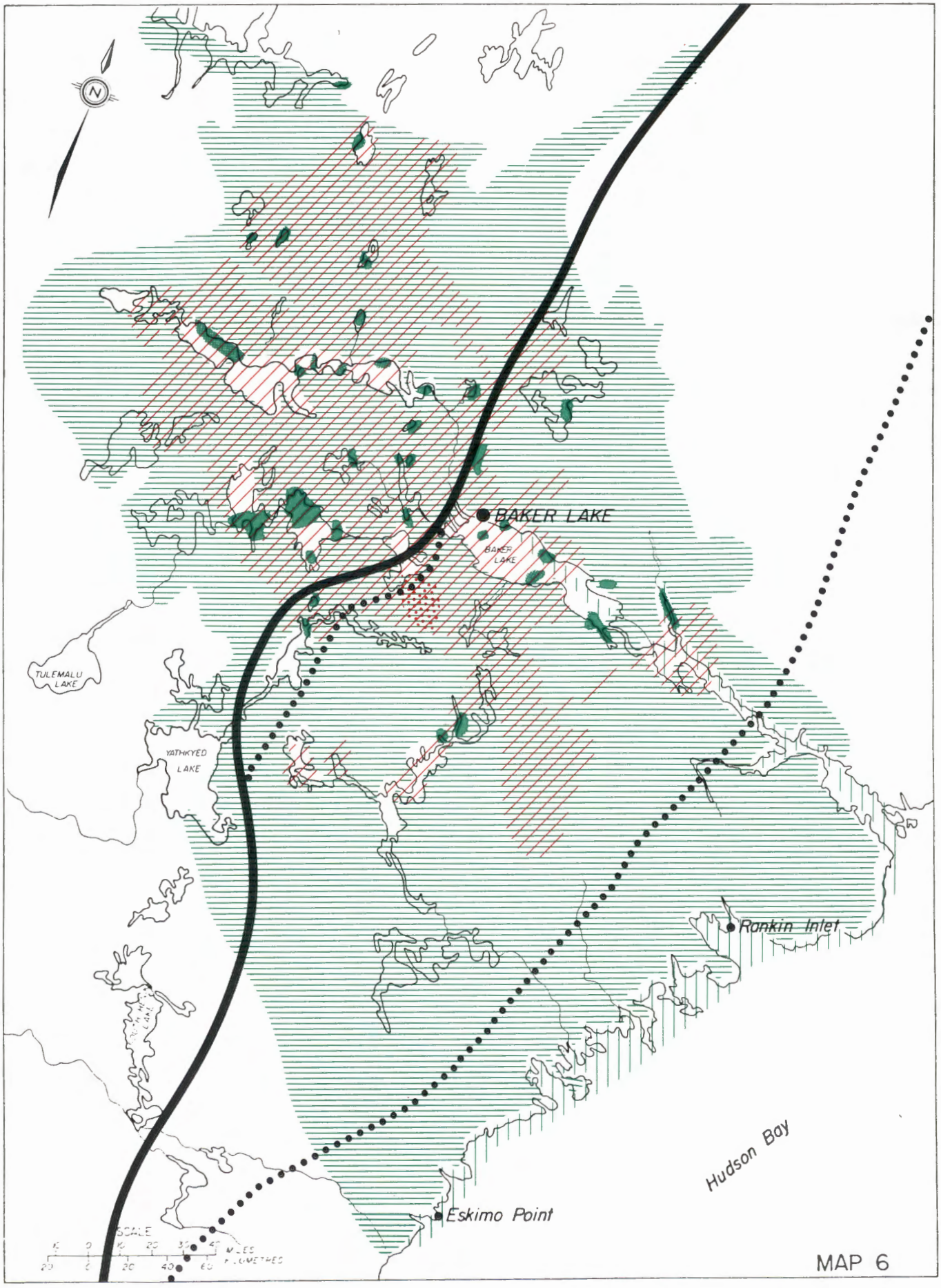
8.3.2 Trapping

The most intensively trapped areas are: along the Thelon River to Schultz Lake on the west; towards Whitehills Lake on the north; towards Parker and Thirty Mile Lakes to the south; and towards Princess Mary and Mallery Lakes to the southwest. Remote trapping areas extend to Sand Lake and Garry Lake and the

— LEGEND —

- Marine mammal hunting
  - seal
  - whale
  - walrus
  - polar bear
- Land mammal hunting
  - caribou
  - muskox
  - wolf
- Trapping
  - wolverine
- Wildfowl
- Fishing
- Trapline boundaries
  - almost exclusively fox
- Proposed pipeline alignment
  - Prime route
  - Alternate route
- Community location

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BAKER LAKE
BAKER LAKE
TULEMALU LAKE
YATHKYED LAKE
Rankin Inlet
Hudson Bay
Eskimo Point
SCALE
MILES
KILOMETRES
MAP 6

6. Baker Lake

Back River to the north; the Quoich River and Cross Bay on the east; Banks and Kaminuriak Lakes to the south; and Forde, Mallery, Wharton, and Beverly Lakes on the west and southwest.

8.3.3 Land Mammal Hunting

The most intensively hunted area for caribou is within 160 km of the community. In summer and fall, narrows along the Thelon River between Beverly and Baker Lakes, along the Kazan River between Forde and Baker Lakes, and just east of Baker Lake are good hunting areas. In summer, caribou are hunted by boat along the shores of Baker Lake and Chesterfield Inlet and along the Kazan and Thelon Rivers (Welland 1976).

Caribou are hunted throughout the land-mammal hunting zone (see Map 6), although the most probable southern limit is defined by Yathkyed Lake, Ferguson Lake, Kaminuriak Lake, Banks Lake, and Chesterfield Inlet. The lower Thelon River between Schultz and Baker Lakes is the best area for wolf hunting (Welland 1976).

8.3.4 Wildfowl Hunting

Wildfowl hunting is not a widespread activity in the Baker Lake resource-harvest zone; it is limited to the shores and islands in the vicinity of Aberdeen, Beverly, and Pitz Lakes.

8.3.5 Marine Mammal Hunting

Marine mammal hunting is not an important activity for Baker Lake hunters. Some seals are hunted in Baker Lake, Chesterfield Inlet, and south along the coast of Hudson Bay. Seals are taken mostly by residents who originally came from coastal areas such as Chantrey Inlet, Queen Maud Gulf, or Wager Bay (Welland 1976).

8.3.6 Fishing

Important domestic fishing areas are the mouths of the rivers draining into Baker Lake, the lower Thelon and Kazan Rivers, and Pitz Lake. Other fishing areas are Beverly, Aberdeen, and Schultz Lakes and several small lakes farther north; Princess Margaret and Mallery Lakes; several small lakes north and west of Baker Lake; Whitehills and Tehek Lakes; Bissett and Parker Lakes; and the lower Quoich River.

The Baker Lake area is fished primarily for lake trout and whitefish; there is also a small cisco fishery on Baker Lake. Lakes in the area that had 1976 commercial quotas are: Baker Lake (50,000 lbs); Garry Lake (100,000 lbs), Mallery Lake (35,700 lbs);

Parker Lake A (25,000 lbs), Parker Lake B (20,000 lbs); Pitz Lake (30,000 lbs); Princess Mary Lake (50,000 lbs); Schultz Lake (40,000 lbs); Tehek Lake (50,000 lbs), and Whitehills Lake (18,000 lbs). All of these quotas were for lake trout and whitefish. Of these lakes, only Baker Lake, Garry Lake, Parker Lake, Pitz Lake, and Schultz Lake have a record of recent commercial harvest. These lakes, and possibly other large lakes closer to Rankin Inlet such as Kaminuriak and Banks Lake, are probably fished by Baker Lake commercial fishermen for the Rankin Inlet cannery.

Some Baker Lake commercial fishermen also fish for the Rankin Inlet cannery from Barbour Bay to the mouth of Chesterfield Inlet. See Section 10.3.6 for a list of commercially-licenced waterbodies along Chesterfield Inlet.

Sport fishing occurs in Baker Lake, through the Baker Lake Lodge. The Lodge also has an outpost at the mouth of the Back River in Chantrey Inlet, which operates from July 15 to September 8.

8.4 Harvest Patterns

Spring and summer are important seasons for caribou and wildfowl hunting and fishing. Fall is important for trapping, caribou hunting, and fishing while winter is important for trapping and caribou hunting (Table 8-2).

8.5 Harvest Data

(See Table 8-3).

8.6 Commercial and Domestic Importance

8.6.1 Commercial Importance

Furbearers are not an important source of income for the Baker Lake Inuit, although fox pelts provide some income (Table 8-4).

Sale of lake trout, whitefish, cisco, and char to the Rankin cannery or to the local co-op is an important source of income. Using an average annual commercial harvest of 32,451 lbs (Table 8-3), and assuming that Baker Lake commercial fishermen sell fish for $0.50/lb, then the expected annual income from sale of fish would be $16,226 and the per-capita income $19.

Table 8-2. Harvest patterns - Baker Lake.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov.)
Trapping[2,3]	Primary season.	No trapping.	No trapping.	Starts in Nov.
Land Hunting:				
Caribou[1]	Hunting.	Hunting.	Important season, hunted at river crossings & from boats.	Important season Hunted at river crossings.
Wolf[4]	Hunted inland in association with caribou hunting.			Hunted inland.
Wildfowl Hunting:				
Ducks & Geese[1,2]	No hunting.	Starts in Jun.	Hunting in Jul, Aug.	Stops in Sept.
Ptarmigan[2]	Hunted in all seasons.			
Marine Hunting:				
Ringed Seal[1]	No hunting.	No hunting.	Hunted in summer.	No hunting.
Fishing[1]	Little fishing.	Ice fishing on lakes.	Open-water fishing.	Ice fishing on lakes important commercial season.

1 Welland 1976.
2 inferred from analysis of pattern in Gjoa Haven (see Table 7-2).
3 inferred from analysis of pattern in Rankin Inlet (see Table 10-2).
4 inferred from analysis of pattern in Chesterfield Inlet (see Table 9-2).

Table 8-3. Harvest data - Baker Lake.[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES[3]
63-64	1252	2		2351	2			234								
64-65	747	1		2325	3											
65-66	518			1452	6											
66-67	891	1		2149	1	127	28	5206								
67-68	396	5		826	3	35		1976								
68-69	292	5		1009	7	70										
69-70	281	4		2030	1	23		499								35,000 lbs
70-71	1194	7		1763	10	41		792								43,715 lbs
71-72	703	9		1586[2]	9	28	46	984								20,400 lbs
72-73	389	3		2388[2]	8											115 lbs
73-74	2402[2]			2392[2]												575 lbs
74-75	361															
75-76																30,690 lbs
Total All Years	9426	37		20271	50	324		9691								
Avg. All Years	786	4.1		1843	5	54		1615								

Table 8-3. Harvest data - Baker Lake.[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES[3]
Total 69-70 to 74-75	5330	23		10159	28	92		2275								129,805[4] lbs
Avg.	888	5.8		2032	7	31		758								32,451[4] lbs
High Year	2042	9		2392	10	41		984								43,715 lbs

1 All data from Usher 1975, unless otherwise indicated.

2 NWT Game Management Division.

3 Commercial records: primarily lake trout & whitefish (R. Peet, personal communication) Low harvest statistics for 1972-73 to 1974-75 reflect either a change in commercial marketing strategy or unreliability of data.

4 Total and average do not include the 1972-73 to 1974-75 period.

Table 8-4. Expected annual income from sales of fur - Baker Lake.

	Arctic Fox	Coloured Fox	Wolf	Total
Average Annual Harvest (69-70 to 74-75)[1]	888	5.8	7	
Average NWT Pelt Price (74-75)[2]	$17.59	$28.61	$62.72	
Expected Income	**$15,620**	$166	**$439**	$16,225
Per Capita Income[3]	$18	$0.20	$0.50	$19

[1] from Table 8-3.

[2] Fur Traders Record Book - NWT Govt.

[3] based on a 1974 population of 860.

8.6.2 Domestic Importance

Caribou provide most of the food for the Baker Lake Inuit; fish are the second major food source (Table 8-5).

8.7 Pipeline Implications

The proposed prime route passes through the core of the Baker Lake resource-use zone from the Meadowbank River south to Yathkyed Lake. The coastal alternate traverses the eastern fringe of this zone but could interfere with migrations and movements of the Kaminuriak caribou herd, which is important to the people of Baker Lake.

Specifically, the prime route may conflict with resource harvest in the following key areas:

1. Thelon River-West End of Baker Lake. The mouths of Thelon River and other tributaries to the west side of Baker Lake are important areas for domestic fishing. Construction activities may block char migrations in the Thelon River or degrade fish habitat there or

Table 8-5. Estimated annual imputed income from major food sources - Baker Lake.

	Caribou	Geese	Ptar-migan	Fish	Total
Average Annual Harvest (69-70 to 74-75)[1]	2032	31	758	ND	
Edible lbs/Animal[2]	100	3.5	0.9		
Edible Meat (lbs)	203,200	108.5	682		203,991
Imputed Value/lb[3]	$3.00	$2.00	$2.00		
Imputed Value	$609,600	$217	$1364		$611,181
Per Capita Value	$709	$0.25	$1.60		$711

[1] from Table 8-3.
[2] from Usher 1976, Bissett 1974, Thompson 1976.
[3] adapted from Usher 1976.
[4] based on a 1974 population of 860.
ND No Data.

in the other tributaries to Baker Lake and materials staging activities near the community could degrade fish habitats or interfere with fishing activities.

2. Baker-Lake-Chesterfield Inlet. Char are fished domestically and commercially in bays, inlets, and river mouths and caribou are hunted along shores, particularly at favourite crossings. There is also sport fishing in Baker Lake. Water traffic to a major staging area near the community could interfere with fishing activities or caribou crossings or degrade fish habitat.

3. Pitz Lake. It is important for domestic and possibly commercial fishing and is crossed by the prime route. This could cause direct mortality of fish, degrade fish habitat, and interfere with fishing activities.

The eastern alternate in the south-of-Baker Lake area would avoid the crossing.

4. Kazan-Kunwak Rivers. The mouth of the Kazan River is important for domestic fishing. The route crosses the Kunwak upstream of Thirty Mile Lake and the Kazan downstream of Yathkyed Lake; the eastern alternate avoids crossing the Kunwak but crosses the Kazan farther downstream at Thirty Mile Lake. Neither of the crossings are at fishing areas but construction activities at the crossings could degrade fish habitat downstream.

5. Yathkyed Lake South. Spring, summer, and early fall construction in this area could interfere with migrations and post-calving movements of the Kaminuriak caribou which are hunted farther north.

6. Chantrey Inlet-Back River. The sport fishery in this area may be affected by aesthetic conflicts, harvest conflicts, or degradation of fish habitat if a major materials staging area is located in Chantrey Inlet or on the Lower Back River.

9. CHESTERFIELD INLET

9.1 The Community

Chesterfield Inlet is one of the oldest settlements in the study area. It was established when the Hudson's Bay Company built a trading post there in 1911. Over the years, Inuit have moved into Chesterfield Inlet from inland and coastal camps in the Barbour Bay - McManaman Lake, Quoich River, Bowell Islands, and Wager Bay areas. There have also been movements to and from Rankin Inlet when the mine opened in 1956 and when it closed in 1962.

The estimated population of Chesterfield Inlet in 1974 was 294; it has climbed slowly over the last decade. In 1971, it was 276; in 1969, 216; and in 1966, 199. In 1971, 89% of the population was Inuit.

Chesterfield Inlet is currently served by two flights a week from Churchill, with connections to Winnipeg. Marine transportation is supplied by the Northern Transportation Company Limited operating out of Churchill. The shipping season extends from July to September (Canada North Almanac 1976).

9.2 The Economy

The economy of Chesterfield Inlet is primarily landbased. Carvings and handicrafts (including parkas, sewn goods, footwear, and soapstone carvings) are marketed through the Pitsilak Cooperative.

There were 20 holders of General Hunting Licences in 1974-75; the number has fluctuated widely over the past decade (Table 9-1). Six commercial fishing licences were issued to Chesterfield Inlet fishermen in 1975 (D. Dowler, personal communication).

Table 9-1. Number of General Hunting Licences issued - Chesterfield Inlet.

1974-75	20	1970-71	23	1966-67	32
1973-74	42	1969-70	29	1965-66	36
1972-73	38	1968-69	29	1964-65	38
1971-72	16	1967-68	37	1963-64	19

Source: NWT Govt.

9.3 Resource-Use Areas

9.3.1 General Area

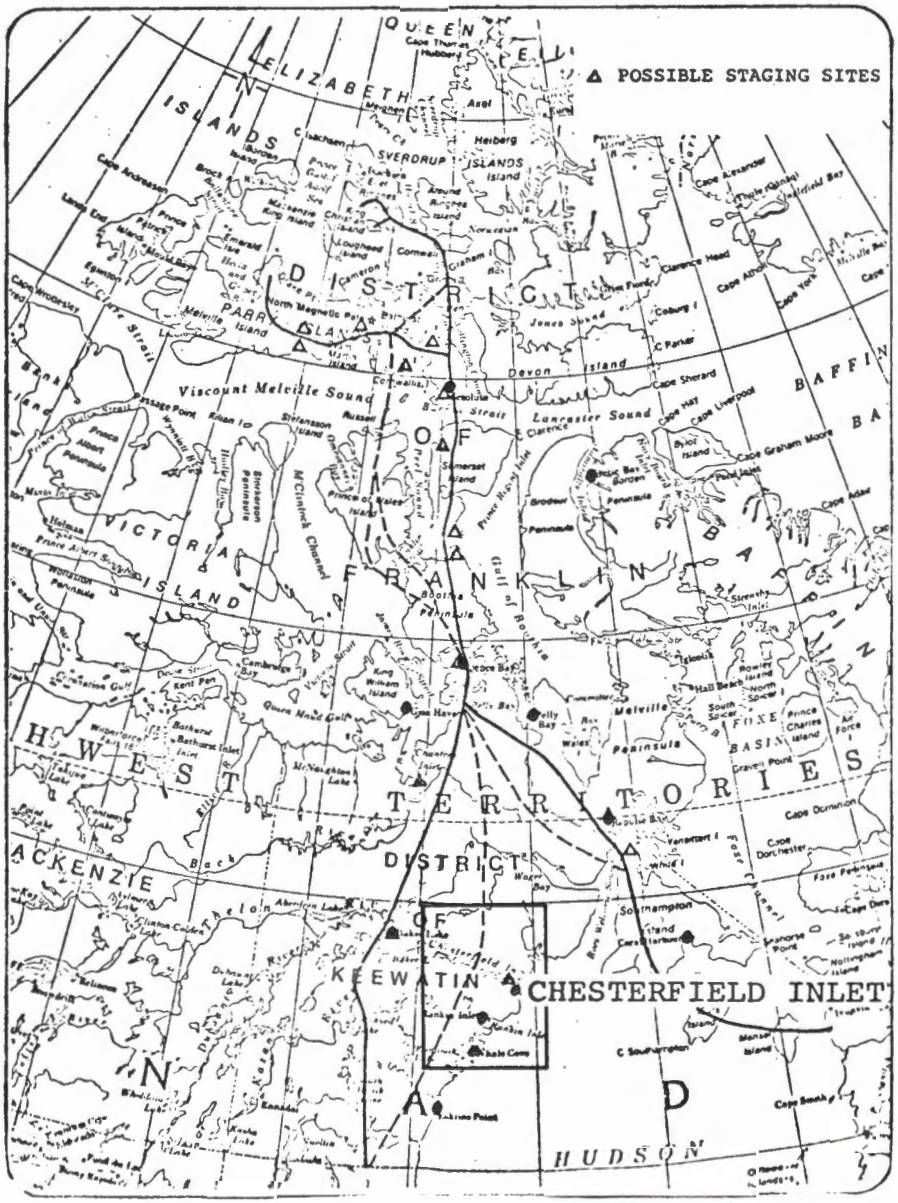
Animal resources are plentiful close to the community; hence the area used by Chesterfield Inlet hunters is smaller than the resource-harvest zones of other Keewatin communities (Welland 1976). Caribou hunting defines the inland boundary of the Chesterfield Inlet resource-harvest zone while seal hunting defines the marine boundary. The harvest zone extends 180 km north towards Wager Bay, 230 km northeast along the coast into Roes Welcome Sound, 160 km south along the coast to Whale Cove, 130 km west to Gibson Lake, and 120 km northwest to Fehet Lake (see Map 7).

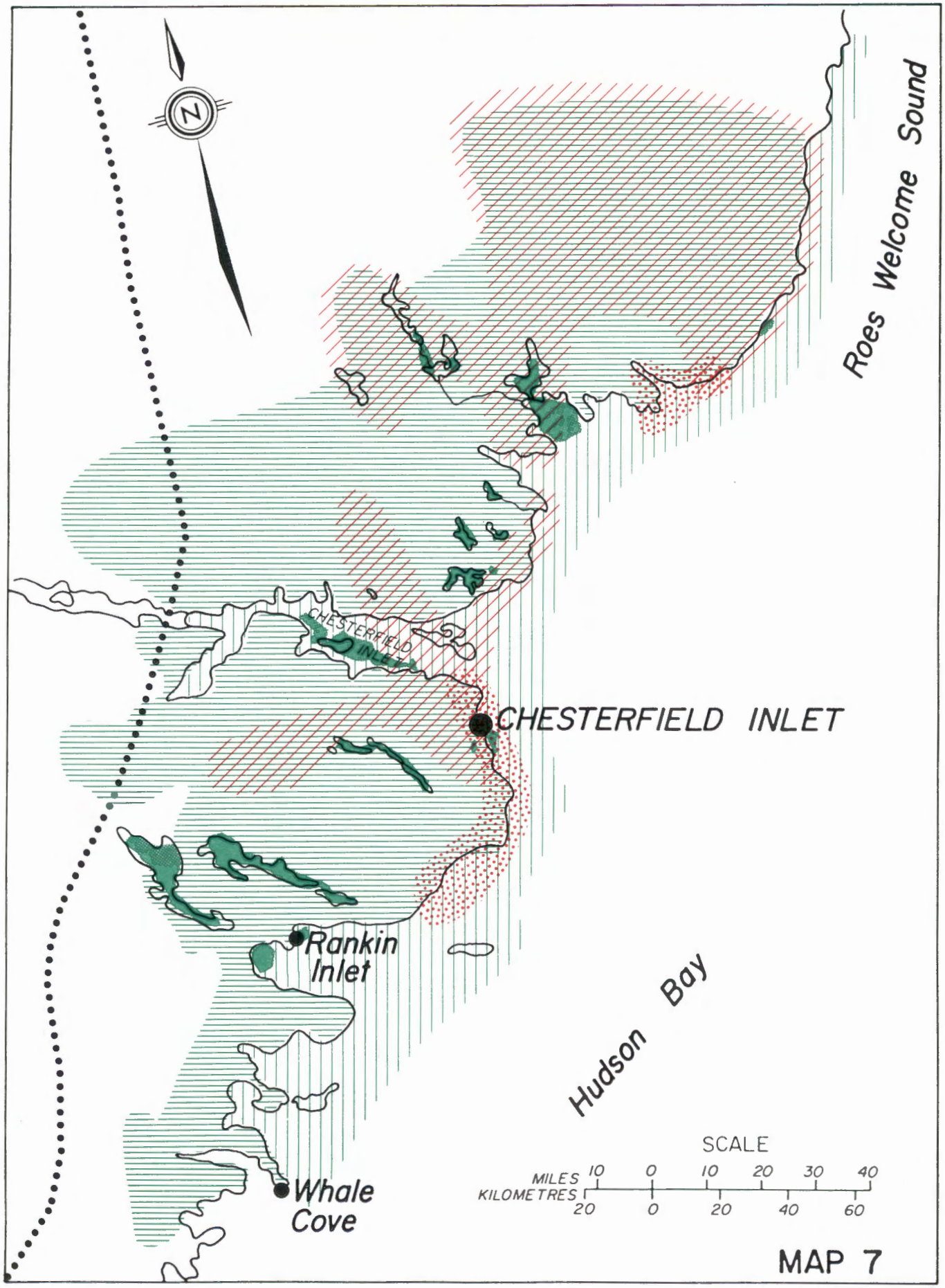
Chesterfield Inlet hunters use camps along the coast, on small islands, at river mouths and sometimes inland. Most of these are spring and summer camps for fishing, seal hunting, wildfowl hunting, and egg collecting. The most popular camping area is along the coast from Baker Foreland to Cape Fullerton and along Chesterfield Inlet to Barbour Bay (Welland 1976).

— LEGEND —

- Marine mammal hunting
  - seal
  - whale
  - walrus
  - polar bear
- Land mammal hunting
  - caribou
  - muskox
  - wolf
- Trapping
  - wolverine
- Wildfowl
- Fishing
- Trapline boundaries
  - almost exclusively fox

Proposed pipeline alignment
- Prime route
- Alternate route
- Community location





7. Chesterfield Inlet

There is a camp in Daly Bay operated by two families from Chesterfield Inlet and one family from Rankin Inlet.

9.3.2 Trapping

The most intensive trapping area is within 30 to 50 km of the community. Traplines also extend west to McManaman Lake, northwest to Richards Lake, north to Winchester Inlet, around Daly Bay and inland, and along the coast from Bernheimer Bay north to Roes Welcome Sound and inland.

9.3.3 Land Mammal Hunting

Important caribou hunting areas are west along Chesterfield Inlet, the Barbour Bay-McManaman Lake area, the Josephine Lake area, and along the coast from Cape Silumiut north to Daly Bay (Welland 1976). Caribou are hunted in all areas of the land mammal hunting zone (see Map 7).

Wolves are hunted inland, often in conjunction with caribou hunting. Important areas are south of Chesterfield Inlet towards Josephine Lake, north of Chesterfield Inlet towards Fehet Lake, and around Daly Bay.

9.3.4 Wildfowl Hunting

Ducks and geese are hunted along the floe-edge or along the coast from Baker Foreland to Chesterfield Inlet and around Bernheimer Bay. Eggs are collected along the coast as far as Daly Bay (Welland 1976).

9.3.5 Marine Mammal Hunting

Polar Bears

Polar bear are hunted between Cape Silumiut and Daly Bay and in the mouth of Chesterfield Inlet.

Seals

Seals are hunted throughout the marine-mammal hunting zone (Map 7). Most spring hunting of ringed and bearded seals is done along the coast from Baker Foreland to Cape Fullerton and in the mouth of Chesterfield Inlet. Cape Silumiut is an important area for weekend hunting trips. The coast from Rankin Inlet to Cape Fullerton and towards Farther Hope Point in Chesterfield Inlet is an important area for harp seal hunting in summer. Important areas for harbour seal hunting in summer are Cape Silumiut, from Daly to Bernheimer Bay and around Severin Harbour, Ranger Seal Bay, and Barbour Bay in Chesterfield Inlet (Welland 1976).

Whales

Whales are hunted throughout the marine-mammal hunting zone from Corbett Inlet to Daly Bay and to Farther Hope Point and Barbour Bay in Chesterfield Inlet.

Walrus

Walrus are hunted along the coast from Marble Island and Baker Foreland north to Bernheimer Bay; however, walrus are not abundant in this area. The main hunting area in this zone is around Daly Bay. Occasionally Chesterfield Inlet hunters go to Walrus Island off Southampton Island to hunt walrus where they are much more abundant (Welland 1976).

9.3.6 Fishing

Important spring and fall fishing areas are the inland lakes around Cape Silumiut, Chesterfield Inlet, Winchester Inlet, and Daly Bay. Josephine Lake, McManaman Lake, and Diana, Peter, and Meliadine Lakes near Rankin Inlet are also fished (Welland 1976).

Important areas for fishing the spring char runs are the streams and rivers along the coast and along Chesterfield Inlet including the Connery and Lorillard Rivers to the north. Important areas for summer fishing with sea nets are along the coast from Baker Foreland to Winchester Inlet and Daly Bay, and in Chesterfield Inlet west to Big Island (Welland 1976). Other areas fished are in Bernheimer Bay and Rankin Inlet.

Char is the most important fish with some lake trout and whitefish caught in inland lakes. Water bodies with commercial quotas for char in 1976 were: Big River (Barbour Bay) - 20,000 lbs; Chesterfield Inlet (Fish Bay) - 5000 lbs; East Point (Chesterfield Inlet) - 10,000 lbs; Hanaway River (Barbour Bay) - 10,000 lbs; Merle Harbour (Chesterfield Inlet) - 5,000 lbs; Ranger Seal Bay (Chesterfield Inlet) - 25,000 lbs; Robin Hood Bay (Chesterfield Inlet) - 15,000 lbs; Steep Bank Bay (Chesterfield Inlet) - 10,000 lbs; and the Stony Point Area (Chesterfield Inlet) - 15,000 lbs. Of these, Big River, Chesterfield Inlet (Fish Bay), Hanaway River, Ranger Seal Bay, Robin Hood Bay, and the Stony Point area have records of recent commercial harvest. However, most of the water bodies along Chesterfield Inlet are fished by commercial fishermen from Baker Lake and Rankin Inlet, except for the areas that are very close to the community of Chesterfield Inlet.

9.4 Harvest Patterns

Spring is an important season for the harvest of caribou, wildfowl and polar bear, and for seal hunting and fishing. Summer is important for caribou, wildfowl, seal, whale and walrus hunting and fishing. Fall is important for trapping; caribou, polar bear, and ringed seal hunting; and fishing. Winter is important for trapping and caribou, eider duck, polar bear, and ringed seal hunting (Table 9-2).

9.5 Harvest Data

(See Table 9-3).

9.6 Commercial and Domestic Importance

9.6.1 Commercial Importance

Fox pelts, seal skins, and polar bear skins provide some income for the Chesterfield Inlet Inuit although they are not major sources of income (Table 9-4).

Sales of fish to the local co-op and perhaps some to the Rankin cannery provide income for Chesterfield Inlet commercial fishermen. Using an average annual commercial harvest of 17,778 lbs (Table 9-3), and assuming that fishermen sell fish for $0.50/lb, then the expected annual income from the sale of fish would be $8,889 and the per-capita income would be $30.

9.6.2 Domestic Importance

Caribou meat is the principal food of all Chesterfield Inlet people. Seal meat is also very important, as are fish, and to a lesser extent, wildfowl (Table 9-5).

9.7 Pipeline Implications

The prime route avoids the Chesterfield Inlet resource-use zone and the coastal alternate traverses the western fringe of the caribou hunting zone.

The location of an offloading-transfer facility near the community and water traffic in Chesterfield Inlet could conflict with resource harvest in the area. The mouth of the Inlet is a prime area for polar bears, ringed seal, and bearded seal hunting; it is also important for whale and harp seal hunting. Domestic and commercial char fishing, seal hunting, and caribou hunting occur up Chesterfield Inlet as far as Barbour Bay. Water traffic and staging activities in the Inlet could interfere with

Table 9-2. Harvest patterns - Chesterfield Inlet.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov)
Trapping[2,4] Arctic & Colored Fox	Primary season ends in Mar.	No trapping.	No trapping.	Starts in Nov.
Land Hunting: Caribou[1]	Hunting inland.	Hunting inland.	Hunting by boat along coast.	Hunting inland.
Wolf[1]	Often hunted inland in association with caribou hunting.			Hunting inland.
Wildfowl Hunting: Ducks & Geese[1]	Eider ducks hunted along floe-edge.	Hunted at floe-edge.	Hunted along shore.	Stops in Sept.
Egg Collecting[1]		Collected along coast & on islands.		
Ptarmigans[1]	Hunted in all seasons usually in conjunction with hunting or trapping.			
Marine Hunting: Polar Bear[3]	Floe-edge hunting.	Floe-edge hunting.	No hunting.	Hunted as they migrate along coast.
Ringed & Bearded[1] Seals	Hunted year-round.	Most important season hunted on ice & in birth lairs.		

Table 9-2. Harvest patterns - Chesterfield Inlet.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov)
Harbour Seal[1]			Hunted as they haul out on rocks in bays & rivers.	
Harp Seal[1]			Hunted as they migrate into area.	
Marine Hunting: Beluga & Narwhal[1]			Hunted as they migrate through area.	
Walrus[1]		Hunted at floe-edge or on ice.	Hunted in open-water from Peterhead boats.	Hunted at floe-edge or on ice.
Fishing[1]		Net fishing & Jigging on inland lakes fishing in streams & along coast for char.	Net set in sea-some fishing in inland lakes.	Fishing on inland lakes most important commercial season.

[1] Welland 1976.

[2] inferred from analysis of the pattern in Gjoa Haven (see Table 7-2).

[3] inferred from analysis of the pattern in Whale Cove (see Table 11-2).

[4] inferred from analysis of the pattern in Rankin Inlet (see Table 10-2).

Table 9-3. Harvest data - Chesterfield Inlet.[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR[3]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES[3]
63-64	328			100		23	62	69	8	134						
64-65	766			213		23	94	157	1	648						
65-66	87	2		301	1	27	24	212	6	357						
66-67	61	2		197	1	59	97	329	3	206						
67-68	155	1		107	2	30	116	295	4							
68-69	73			58		11	85	85	5							
69-70				216		38	101	161	6	249[4]						
70-71				118		61	151	241	2							22,000 lbs
71-72	384	1		84	1	30	88	132	5	82						1,720 lbs
72-73					5				5	417						
73-74	409				7				5	211						
74-75	381[2]								8[2]	413[2]						18,112 lbs
75-76																12,581 lbs
76-77																18,418 lbs
Total All Years	2644	6		1394	17	302	818	1681	58	2717						
Avg. All Years	294	1.5		155	2.8	34	91	187	4.8	302						

Table 9-3. Harvest data - Chesterfield Inlet.[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR[3]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES[3]
Total 69-70 to 74-75	1174			418	13	129	340	534	31	1372						71,111[6] lbs
Avg.	391			139	4.3	43	113	178	5.2	274						17,778[6] lbs
High Year	409			216	7	61	151	241	8	417						22,000 lbs

1 All data from Usher 1975, unless otherwise indicated.

2 NWT Game Management Division.

3 Polar Bear quota for Chesterfield Inlet is 8.

4 Palmer 1973.

5 Commercial records: **all char** (R. Peet, personal communication).

6 Total and average do not include the 1971072 to 1973-74 period.

Table 9-4. Expected annual income from sales of fur - Chesterfield Inlet.

	Arctic Fox	Polar Bear	Ringed Seal	Total
Average Annual Harvest (69-70 to 74-75)[1]	391	8	274	
Average NT Pelt Price (74-75)[2]	$17.59	$325[4]	17.10	
Expected Income	$6878	$2600	$4685	$14,163
Per Capita Income	$23	$9	$16	$48

[1] from Table 9-3, except for polar bear which is based on allotted quota of 8.

[2] from Fur Traders Record Book - NWT Govt.

[3] based on a population of 294 in 1974.

[4] community polar bear skin price for 1974-75 from Smith and Stirling (1976).

harvesting activities or degrade the fish and marine mammal habitat.

Any interference with migrations or movements of the Kaminuriak caribou herd caused by construction along either the prime route or the coastal alternate in southern Keewatin could conflict with caribou harvest in the Chesterfield Inlet caribou-hunting zone.

Table 9-5. Estimated annual inputed income from major food sources - Chesterfield Inlet.

	Caribou	Geese	Ducks	Ptarmigan	Ringed Seal	Fish	Total
Average Annual Harvest (69-70 to 74-75)[1]	139	43	113	178	274	ND	
Edible lbs/Animal[2]	100	3.5	2.6	0.9	45		
Edible Meat (lbs)	13,900	151	294	160	12,330		26,835
Imputed Value/lb[3]	$3.00	$2.00	$2.00	$2.00	$3.00		
Imputed Value	$41,700	$301	$588	$320	$36,990		$79,899
Per Capita alue[4]	$142	$1.00	$2.00	$1.10	$126		$272

[1] from Table 9-3.

[2] from Usher 1976, Bissett 1974, Thompson 1976.

[3] adapted from Usher 1976.

[4] based on a 1974 population of 294.

ND No Data.

10. RANKIN INLET

10.1 The Community

Rankin Inlet was established in 1955 when North Rankin Inlet Mines decided to mine nickel-copper ore there. The mine opened in 1957 and closed in 1962 after the ore body was exhausted.

The opening of the mine drew people to Rankin Inlet from camps and other communities in Keewatin. When the mine closed, many moved back to their old communities or settled in newly established communities such as Whale Cove. The estimated population in 1976 was 840; it has increased substantially in the last decade, primarily due to the territorial government's designation of Rankin Inlet as an administrative centre for the District of Keewatin. In 1974, the population was 645; in 1971, 537; in 1969, 460; and in 1966, 429. In 1971, 94% of the population was Inuit.

Rankin Inlet is currently served by five flights a week from Churchill. Air connections from Churchill are to Winnipeg. Marine transportation is supplied by the Northern Transportation Company Limited operating out of Churchill. The shipping season extends from July to September (Canada North Almanac 1976).

10.2 The Economy

The economy of Rankin Inlet is the most wage-oriented of any community in Keewatin. It has a commercial fishery and cannery, a crafts industry (including parkas, sewn goods, boots, soapstone carvings, and ceramics), and a tourist lodge. It is also the NWT Government administrative centre for the District of Keewatin. The cannery buys fish from 40 or 50 fishermen and employs 15 to 20 people for 10 months of the year. The crafts industry is managed by the Kissarvik Cooperative. The tourist lodge and outcamps at Daly Bay, Ferguson Lake, and Parker Lake are managed by Siniktarvik Ltd (Welland 1976; Friesen 1975; Siniktarvik 1976?).

There were 90 holders of General Hunting Licences in 1974-75; the number has fluctuated over the last decade (Table 10-1). Thirty-four commercial fishing licences were issued to Rankin Inlet fishermen in 1975 (D. Dowler, personal communication).

Welland (1976) reports that recently some people have started to hunt or trap on a full-time basis and a few others hunt or trap full-time in the winter.

Table 10-1. Number of General Hunting Licences issued - Rankin Inlet.

1974-75	90	1970-71	62	1966-67	84
1973-74	99	1969-70	66	1965-66	76
1972-73	91	1968-69	61	1964-65	71
1971-72	69	1967-68	64	1963-64	137

Source: NWT Govt.

10.3 Resource-Use Areas

10.3.1 General Areas

Generally, the extent of caribou hunting defines the inland boundary of the Rankin Inlet resource-harvest zone while the extent of seal and whale hunting defines the marine boundary. The zone extends 230 km northeast and 330 km south along the coast, 280 km southwest towards the Tha-anne River, 250 km west to Ferguson Lake, and 220 km northwest past Chesterfield Inlet (see Map 8).

Because of the wage employment at Rankin Inlet, spring and summer camping holidays and weekend hunting trips are very important to most families (Welland 1976). Popular camping areas are around Baker Foreland and Scarab Point, the Meliadine and Diana Rivers, Barbour Bay, and the Mirage Islands, Cape Jones, and Corbett Inlet. A camp at Daly Bay is operated year-round by one family from Rankin Inlet and two families from Chesterfield Inlet.

10.3.2 Trapping

The most important trapping areas are: along the coast from Cape Jones to Baker Foreland; up the Meliadine and Diana Rivers and towards Machum Lake, McManaman Lake, Gibson Lake, and Barbour Bay; and north of Chesterfield Inlet south of Armit and Fehet Lakes. Secondary trapping areas are: along the coast from Cape Jones to Dawson Inlet and from Baker Foreland to the south shore of Chesterfield Inlet; up the Quoich River; and towards Banks, Kaminuriak, and Kaminak Lakes. Remote trapping, based from camps, occurs in the Daly Bay, Ferguson Lake, and Eskimo Point area (Welland 1976).

— LEGEND —

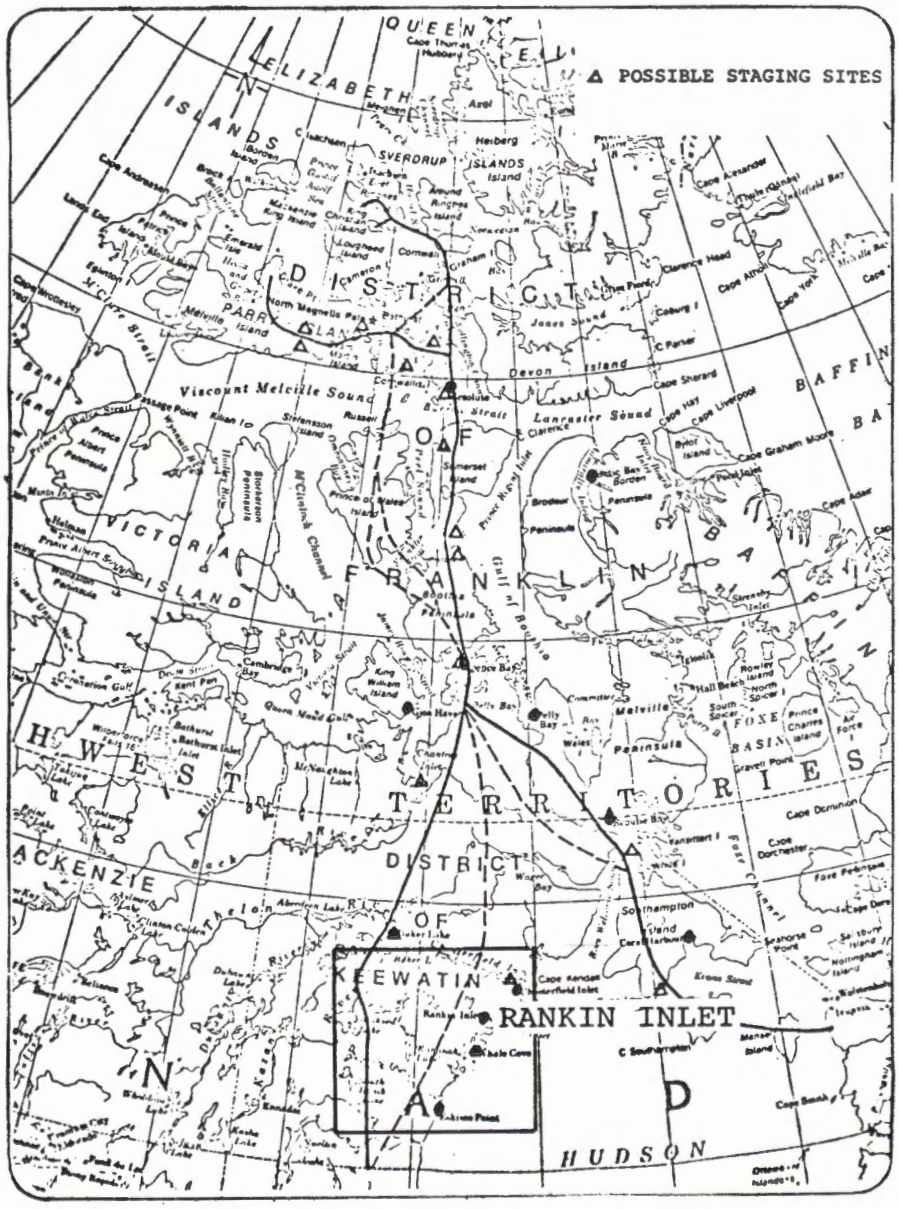
- Marine mammal hunting
  - seal
  - whale
  - walrus
  - polar bear
- Land mammal hunting
  - caribou
  - muskox
  - wolf
- ✖ Trapping
  - wolverine
  - arctic hare
- Wildfowl
- Fishing
- Trapline boundaries
  - almost exclusively fox

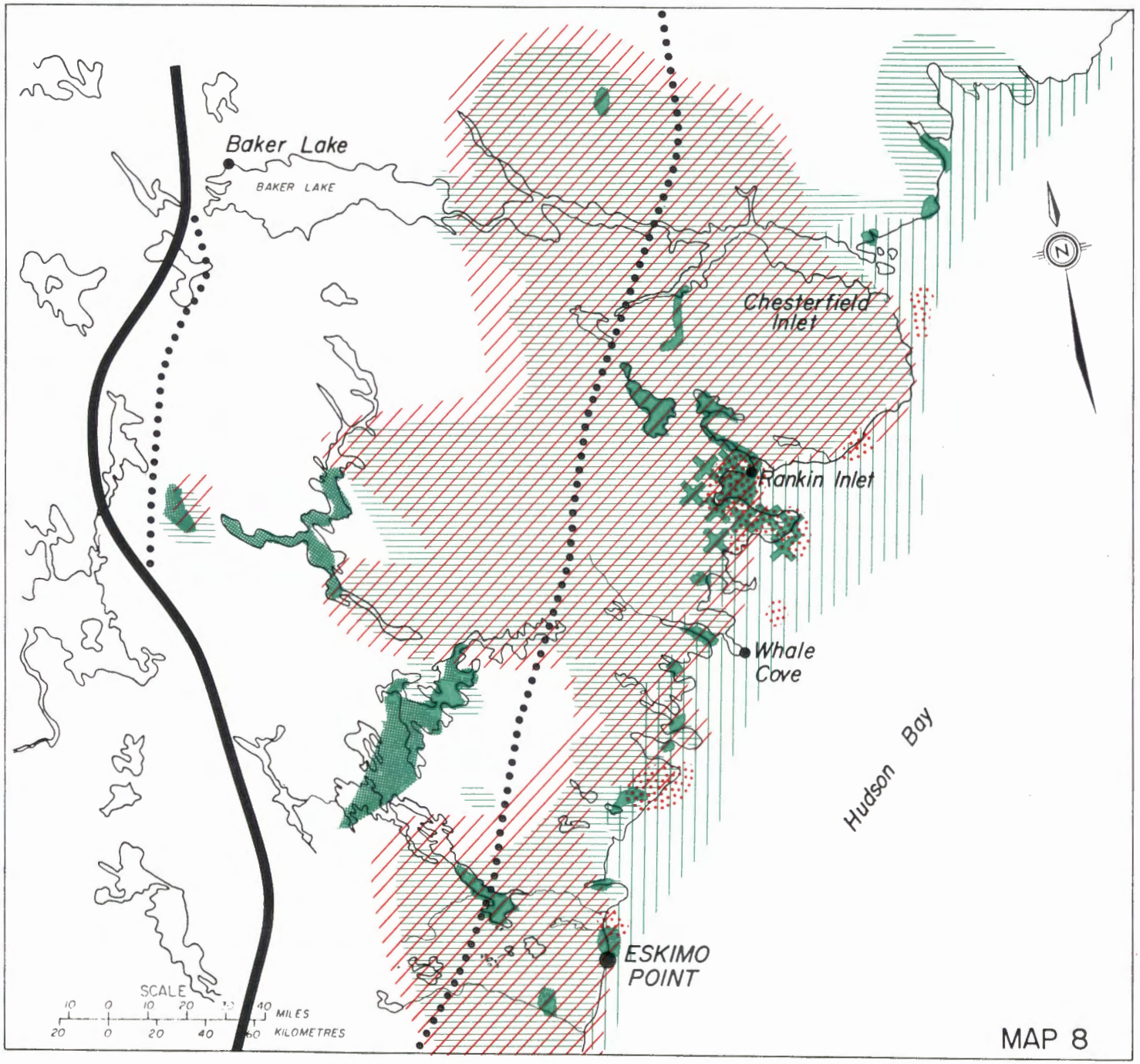
Proposed pipeline alignment

——— Prime route

●●●●● Alternate route

● Community location





8. Rankin Inlet

10.3.3 Land Mammal Hunting

The most intensive caribou hunting occurs north of Chesterfield Inlet and Barbour Bay to the north and northwest, to the Gibson Lake - upper Diana River area on the west, to the upper Wilson River and Mistake Bay on the southwest and south, and along the coast to Baker Foreland. The best winter-hunting area is the Gibson Lake-Peter Lake area. The outer limits of the caribou hunting area are the Armit Lake area to the north, the Quoich River to the northwest, Kaminuriak and Ferguson Lakes to the west, Kaminak Lake to the southwest, the Tha-anne and Thlewiaza Rivers to the south, and the Daly Bay area to the northeast (Welland 1976).

Wolves are hunted in the caribou-hunting areas to the west, northwest, and north of the community. The major wolf-hunting area is the Gibson-Peter Lakes area (Welland 1976).

10.3.4 Wildfowl Hunting

The major wildfowl hunting areas are around Scarab Point, Rankin Inlet, and the Pengertot Peninsula. Remote areas are Daly Bay, the mouth of Chesterfield Inlet, Bibby Island and Dawson Inlet, and around Eskimo Point. Eggs are collected along the coast and on islands from Dunne Foxe Island and Pistol Bay north to Baker Foreland. Ptarmigan are hunted near the coast on trips inland (Welland 1976).

10.3.5 Marine Mammal Hunting

Polar Bears

Polar bear hunting is limited to the area along the coast from Wilson Bay north to Baker Foreland and a remote area south of Eskimo Point.

Seals

Seals are hunted throughout the marine-mammal hunting zone (Map 8). The most intensively hunted area for ringed and bearded seals is from Whale Cove north to Baker Foreland, extending 15 to 50 km offshore. Harbour seals are hunted in freshwater areas at the heads of bays from Bibby Island north to Baker Foreland (Welland 1976).

Whales

Whales are hunted throughout the marine-mammal hunting zone from south of Eskimo Point to north of Daly Bay.

Walrus

Walrus are hunted along the coast and offshore from Bibby Island to Baker Foreland although they are not abundant in this area. People occasionally hunt walrus in Roes Welcome Sound and at Walrus Island near Southampton Island (Welland 1976).

10.3.6 Fishing

Fishing is a widespread activity in the Rankin Inlet resource-harvest zone. Char, lake trout, and whitefish are important domestic and commercial species. Popular inland domestic fishing areas are McManaman, Twin, Meliadine, Peter, and Diana Lakes, lakes at the heads of Corbett Inlet and Pistol Bay, and lakes on the Pangertot Peninsula. There is also some domestic inland fishing in Fehet Lake north of Chesterfield Inlet. Important domestic char fishing areas are rivers and bays in the Rankin Inlet-Meliadine River-Diana River area, the Pistol Bay-Corbett Inlet area, and around Nevill Bay and Dawson Inlet. Remote areas (Winchester Inlet and near Eskimo Point) are fished less often (Welland 1976).

Water bodies in the area that had commercial quotas in 1976 are listed in Table 10-2.

Many of the commercial water bodies, especially those close to other communities, may be fished by residents of these communities, who may in turn sell their catch to the Rankin cannery. For example, the cannery receives fish from Baker Lake Inuit who fish along Chesterfield Inlet and on some of the larger inland lakes close to Baker Lake.

The Diana River near Rankin Inlet is sport fished for char and the Meladian River (south of Peter Lake) is sport fished for lake trout and grayling. The Rankin Inlet Lodge runs fishing excursions in these areas. There is sport fishing for char at the Daly Bay outcamp and for lake trout, whitefish, and grayling at the Ferguson Lake and Parker-Kaminuriak Lakes outcamps (Siniktarvik 1976?)

10.4 Harvest Patterns

Spring is an important season for hunting caribou, wildfowl, polar bear, and seal and for fishing. Summer is important for hunting caribou, wildfowl, seal, whale, and walrus and for fishing. Fall is important for trapping; caribou, polar bear, and seal hunting; and fishing while winter is important for trapping and caribou, polar bear, and seal hunting (Table 10-3).

10.5 Harvest Data

(See Table 10-4).

Table 10-2. Water bodies in the Rankin Inlet area with 1976 commercial quotas.

Water body	Char Quota (lbs)	Lake Trout & Whitefish Quota (lbs)	Recent Commercial Harvest Records
Banks Lake		18,000	
Big River (Barbour Bay)	20,000		1974
Blakely Lake		5,000	
Carr Lake		13,000	
Copperneedle River	10,000		1973,74,75
Corbett Inlet	10,000		1973,74,75,76
East Point (Ch. Inlet)	10,000		
Ferguson River	40,000		1972,73,74,75,76
Hanaway River	10,000		1974
Kaminak Lake		50,000	1970,71,73,74,75,76
Kaminuriak Lake		100,000	1972,73,74
Machum Lake		10,000	
MacQuoid Lake		13,000	
Mistake Bay	5,000		1973-74
O'Neil Lake		7,000	1973
Peter Lake		100,000	1976
Pistol Bay	5,000		
Quartzite Lake		12,000	
Ranger Seal Bay (Ch. Inlet)	15,000		1974
Rankin Inlet Area	30,000		1970,71,74,75,76
Robin Head Bay (Ch. Inlet)	15,000		1974
Savage Lake		3,500	
Steep Bank Bay (Ch. Inlet)	10,000		
Stony Point Area (Ch. Inlet)	15,000		1974,75,76
Wallace River	5,000		1974
Wilson Bay	20,000		

Table 10-3. Harvest patterns - Rankin Inlet.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov)
Trapping[1,2]	Primary season.	No trapping.	No trapping.	Starts in Nov.
Land Hunting: Caribou[1]	Hunted inland.	Hunted inland.	Hunted by boat along coast.	Hunted inland.
Wolf[3]	Often hunted inland in association with caribou hunting.			
Wildfowl Hunting: Duck & Geese[1]	Eider ducks hunted along floe-edge.	Hunted at floe-edge & along coast.	Hunted along coast.	Stops in Sept.
Egg Collecting[1]		Collected along coast & on islands.		
Ptarmigan[3]	Hunted in all seasons.			
Marine Hunting: Polar Bear[4]	Floe-edge hunting.	Floe-edge hunting.	No hunting.	Hunted as they migrate along coast.
Ringed & Bearded[1] Seals	Some hunting at floe-edge.	Hunted at floe-edge or at birth lairs.	Hunted by boat.	Some hunting at floe-edge.

Table 10-3. Harvest patterns - Rankin Inlet.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov.)
Harp Seal[1]			Hunted as they migrate through area.	
Beluga[1]			" " "	
Walrus[1]			Some hunted from Peterhead boats.	
Fishing[1]	No fishing.	Inland fishing jigging & net fishing char run fished.	Nets set in sea some inland fishing.	Inland fishing jigging & net fishing - most important commercial season char run fished early-inland lakes fished later.

[1] Welland 1976.

[2] inferred from analysis of the pattern in Gjoa Haven (see Table 7-2).

[3] inferred from analysis of the pattern in Chesterfield Inlet (see Table 9-2).

[4] inferred from analysis of the pattern in Whale Cove (see Table 11-2).

Table 10-4. Harvest data - Rankin Inlet and Whale Cove.[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING	
																ALL SPECIES	
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR[3]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	(lbs) RANKIN INLET[6] AREA	(lbs) INLAND LAKES[7] AREA
63-64	3877	4		1123	3	217	204	889	10	1875			176				
64-65	1911	2		691	1	92	209	1178	8	1445							
65-66	351			783	5	103	205	948	5	405						16,645	6,185
66-67	2049			879		129	130	825	5	155						35,000	1,116
67-68	1209			279	1	76	148	761	8	62						7,471	6,963
68-69	415			498	14	66	90	492	7							5,733	7,701
69-70	369			933	2	162	205	916	11	190[4]						25,244	20,000
70-71	1941			866		270	228	848	10							11,214	101,055
71-72	900			787	1	225	118	1003	4	271	9[5]		103[5]		127[5]	25,453	40,238
72-73	386				1				16	452							51,388
73-74	2277[2]				3				15[2]	211[2]						76,062	56,874
74-75	2344[2]								17[2]	321[2]						19,218	
75-76																17,391	2,001
76-77																16,685	45,362
Total All Years	18029			6839	31	1340	1537	7860	116	5387						256,116	336,882
Avg. All Years	1502			760	34	149	171	873	9.7	539	9		103		127	23,283	33,688

Table 10-4. Harvest data - Rankin Inlet and Whale Cove.[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING	
																ALL SPECIES	
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR[3]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	(lbs) RANKIN INLET AREA[6]	(lbs) INLAND LAKES AREA[7]
Total 69-70 to 74-75	8217			2586	7	657	626	2767	73	1445						191,267	314,917[8]
Avg.	1370			862	1.8	219	209	922	12	289						27,324	52,486[8]
High Year	2344			933	3	270	228	1003	17	452						76,062	101,055

1 All data from Usher 1975, unless otherwise indicated and is for Rankin Inlet plus Whale Cove.

2 NWT Game Management Division for Rankin Inlet plus Whale Cove.

3 Polar Bear quota for Rankin Inlet is 8.

4 Palmer 1973 for Rankin Inlet plus Whale Cove.

5 Mean from 2 years of records for bearded seal and 3 years for walrus and belugas from RCMP Game Records for 1962-1971 (Smith and Taylor 1977).

6 Commercial records for Rankin Inlet area: char and some lake trout (R. Peet, personal communication).

7 Commercial records for inland lakes (Kaminuriak, Kaminak, O'Neil, Savage, etc): mostly lake trout and whitefish and some char (R. Peet, personal communication).

8 Total and average do not include 1974-75 or 1975-76.

10.6 Commercial and Domestic Importance

10.6.1 Commercial Importance

Sales of fish and to a lesser extent, fox pelts, polar bear skins, and seal skins provide some income for the Rankin Inlet Inuit although, because of the wage employment available, they are not the most important sources of income. Table 10-5 gives a summary of expected annual income from sales of fur for Rankin Inlet plus Whale Cove.

Table 10-5. Expected annual income from sales of fur - Rankin Inlet plus Whale Cove.

	Arctic Fox	Polar Bear	Ringed Seal	Total
Average Annual Harvest (69-70 to 74-75)	1370	20	289	
Average Pelt Price - NWT (74-75)[2]	17.59	$475[4]	$17.10	
Expected Income	$24,098	$9500	$4,942	$38,540
Per Capita Income[3]	$27	$11	$5.60	$43

[1] From Table 10-3, except for polar bear which is based on an allotted quota of 8 for Rankin Inlet and 12 for Whale Cove.

[2] From Fur Traders Record Book - NWT Government.

[3] Based on a 1974 population of 645 for Rankin Inlet and 243 for Whale Cove.

[4] Community polar bear skin price for Rankin Inlet for 1974-75 from Smith and Stirling (1976).

Welland (1976) notes that trapping is the primary winter occupation for only a few people.

Based on an average annual harvest for the Rankin Inlet and inland lakes areas of 79,810 pounds (Table 10-4) and assuming fishermen receive $0.50/lb for the fish they sell, the expected annual income would be $39,905. Assuming that Rankin

Inlet commercial fishermen fished all these water bodies, the per capita income for Rankin Inlet would be $62.

According to Friesen (1975), the Rankin Inlet commercial fishery is the oldest, largest, and least successful in the Arctic. It is owned and managed by the NWT Government and was started as an economic development project after the mine closed. The plant currently handles up to 250,000 lbs of fish per year and the operators have requested a quota of 300,000 or 350,000 lbs per year. The plant's gross sales in 1974-75 were $120,000 and its operating costs were about $250,000. About $125,000 was paid out to 40 or 50 commercial fishermen in 1974-75. The plant employs 15 to 20 people for 10 months per year. The fishermen paid are not only from Rankin Inlet; fishermen from Baker Lake, Whale Cove, Chesterfield Inlet, and Eskimo Point also sell part of their catch to the cannery.

10.6.2 Domestic Importance

According to Welland (1976), caribou is the most important food; seals and fish are also important. Belugas are hunted mainly for their skin (muktuk) which is a favourite food. Table 10-6 provides an estimate of the relative importance of food sources for Rankin Inlet plus Whale Cove.

10.7 Pipeline Implications

The prime route avoids the Rankin Inlet resource-use zone while the coastal alternate traverses the core of the inland part of this zone. Both routes, though, could interfere with harvest activities or degrade fish and marine mammal habitats as a result of water traffic in Chesterfield Inlet. The Inlet is an important commercial char fishing area and a remote marine mammal hunting area for Rankin Inlet.

Specifically, the coastal alternate may conflict with resource harvest in the following key areas:

1. South of Chesterfield Inlet. This area is important for caribou hunting as well as spring and fall migrations and post calving movements of the Kaminuriak herd. Construction in spring, summer, and fall could interfere with caribou movements and migrations.

Table 10-6. Estimated annual inputed income from major food sources - Rankin Inlet plus Whale Cove.

	Caribou	Geese	Ducks	Ptarmigan	Ringed Seal	Fish	TOTAL
Average Annual Harvest (69-70 to 74-75)	$862	219	209	922	289	ND	
Edible lbs/ animal[2]	100	3.5	2.6	0.9	45		
Edible Meat (lbs)	86,200	767	543	830	13,005		101,344
Imputed Value/ lb[3]	3.00	$2.00	$2.00	$2.00	$3.00		
Imputed Value	$285,600	$1533	$1087	$1660	$39,015		$301,894
Per Capita Value[4]	$291	$1.70	$1.20	$1.90	$44		$340

[1] From Table 10-3.

[2] From Usher 1976, Bissett 1974, Thompson 1976.

[3] Adapted from Usher 1976.

[4] Based on a 1974 population of 645 for Rankin Inlet and 243 for Whale Cove.

ND No Data.

2. Barbour Bay. The coastal alternate crosses a major tributary to Barbour Bay, an important commercial char fishing area. Construction may interfere with char migrations in this tributary, may degrade fish habitat, and may interfere with fishing activities.

3. Peter Lake. The coastal alternate crosses tributaries of Peter Lake, which is important for domestic fishing. Construction activities may degrade fish habitat in Peter Lake and pipeline employee/local fishermen conflicts may occur here.

11. WHALE COVE

11.1 The Community

Whale Cove was established in 1959 for workers no longer required at the Rankin Inlet mine and for survivors of inland hunting camps in a region with plentiful animal resources. The main purpose of this program was to assist the inland people in adapting their technology to the use of coastal resources. A commercial whale fishery was started in 1961 but was forced to close in 1970 when excessive mercury levels were found in white whale meat (Welland 1976; Canada North Almanac 1976; Sergeant and Brodie 1975).

The estimated population in 1974 was 243; it has slowly increased over the last decade. In 1971, it was 238; in 1969, 179; and in 1966, 181. In 1971, 96% of the population was Inuit.

Whale Cove is currently served by two flights a week from Churchill; air connections at Churchill are to Winnipeg. Marine transportation is supplied by the Northern Canada Transportation Limited operating out of Churchill. Shipping access is possible only in September (Canada North Almanac 1976).

11.2 The Economy

Almost all families in Whale Cove depend on the land and sea for their living and everyone depends on country food for the main part of their diet (Welland 1976). Some wage employment is available through the Issatik Cooperative trading post and the NWT Government.

There were 32 holders of General Hunting Licences in 1974-75; the number has stayed about the same for the last decade (Table 11-1). Eight commercial fishing licences were issued to Whale Cove commercial fishermen in 1975 (D. Dowler, personal communication).

Table 11-1. Number of General Hunting Licences issued - Whale Cove.

1974-75	32	1970-71	32	1966-67	32
1973-74	28	1969-70	31	1965-66	39
1972-73	23	1968-69	35	1964-65	40
1971-72	31	1967-68	24	1963-64	--

Source: NWT Government

11.3 Resource-Use Areas

11.3.1 General Area

Generally, caribou hunting defines the inland boundary of the Whale Cove resource-harvest zone while seal hunting defines the marine boundary. The zone extends about 160 km northeast along the coast to Chesterfield Inlet, 250 km south along the coast past Eskimo Point, 220 km southwest to the Maguse Lake area, 200 km west to Kaminuriak Lake, and 200 km north past Chesterfield Inlet (see Map 9). Welland (1976) reports that inland areas extending 95 to 110 km from the community are intensively hunted while areas 160 to 200 km from the community are used less intensively.

Camping is an important activity for Whale Cove hunters. During winter, men often camp inland to trap fox or hunt caribou. Spring and summer are the most important seasons for camping and most families camp out for a month or more to fish, collect eggs and berries, and to hunt seals, whales, caribou, and geese. Popular camping areas are along the coast at Pistol Bay, Dunne Foxe Island, Wilson Bay, Nevill Bay, Dawson Inlet, and Sandy Point and inland around Whiterock Lake, the lower Ferguson River, Kaminak Lake, Kaminuriak Lake, the old location of Padlei, and South Henik Lake (Welland 1976). There is no indication of any permanent camps in the area.

11.3.2 Trapping

The most intensively trapped area extends about 120 km to the west and about 160 km northwest towards Banks Lake (Welland 1976). Remote trapping areas lie southwest towards Maguse and Turquetil Lakes, west past Kaminak Lake, northwest towards Parker and MacQuoid Lakes, and north beyond Rankin Inlet.

11.3.3 Land Mammal Hunting

The most intensively hunted area for caribou lies within 80 to 110 km from Whale Cove. Remote areas (South Henik Lake and the old Padlei location to the southwest, Kaminuriak Lake to the west, MacQuoid Lake to the northwest, and north of Chesterfield Inlet) receive less use (Welland 1976).

The wolf hunting area extends south beyond Eskimo Point southwest to Kaminak Lake, northwest to Derby Lake, and north to Rankin Inlet. Some wolves are taken within a few miles of Whale Cove (Welland 1976).

11.3.4 Wildfowl Hunting

Ducks and geese are hunted and eggs are collected along the coast and on islands between the Pork Peninsula and Sandy Point. More distant areas (in Rankin Inlet and around Eskimo Point) are hunted less often. Ptarmigan are hunted wherever they are seen (Welland 1976).

11.3.5 Marine Mammal Hunting

Polar Bears

Polar bears are hunted along the coast and along the floe-edge from the Pork Peninsula south past Eskimo Point. The main area is from Pork Peninsula to Bibby Island.

Seals

Seals are hunted throughout the marine-mammal hunting zone (Map 9). The most intensively hunted area is from the Pork Peninsula south to Sandy Point.

Whales

Belugas are hunted along the coast from Rankin Inlet to Bibby Island.

Walrus

There is a small walrus hunting area just east of Bibby Island but walrus are not common in the area.

11.3.6 Fishing

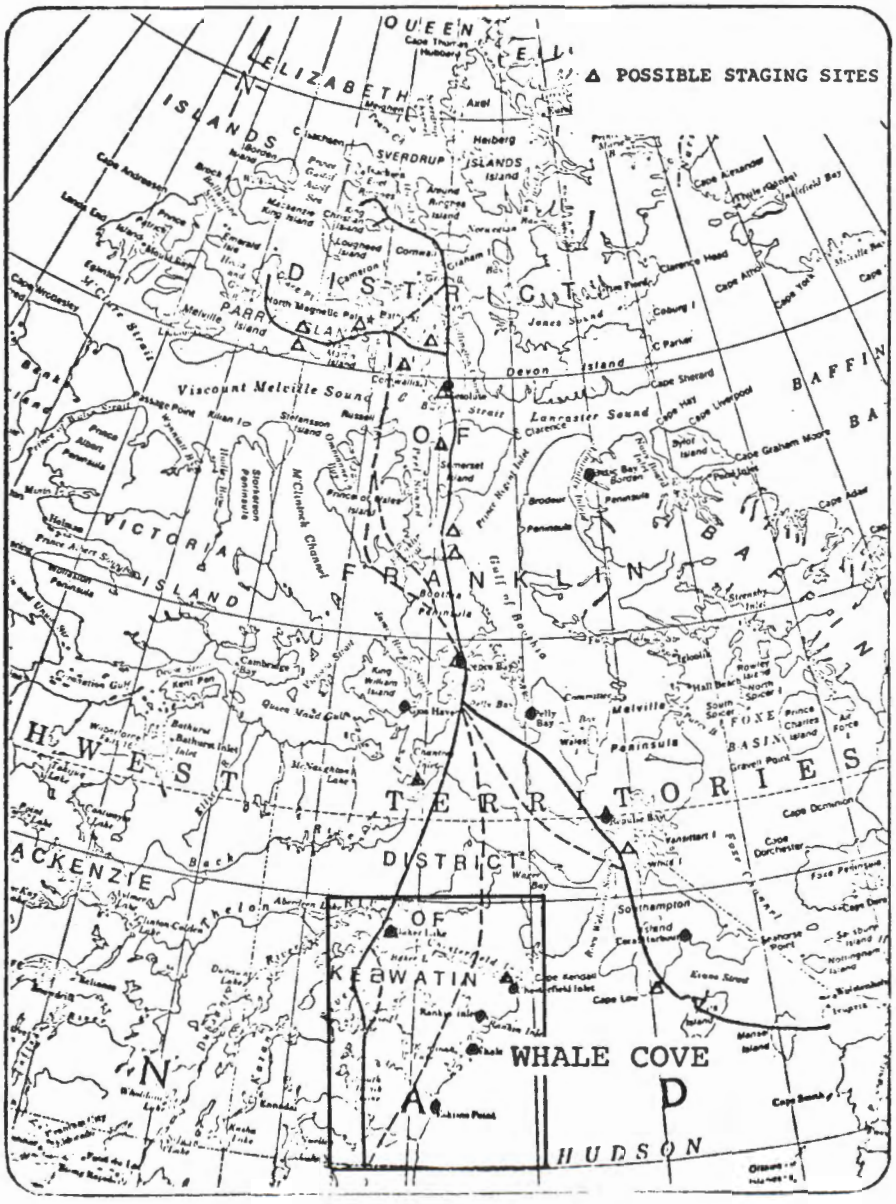
Important areas for domestic fishing are Derby, Maze, and Whiterock Lakes; the lower Wilson River; Kaminuriak, Kaminak, Quartzite, and Munro Lakes; and the lower Ferguson River. There is some ice fishing in spring off the coast near the community (Welland 1976).

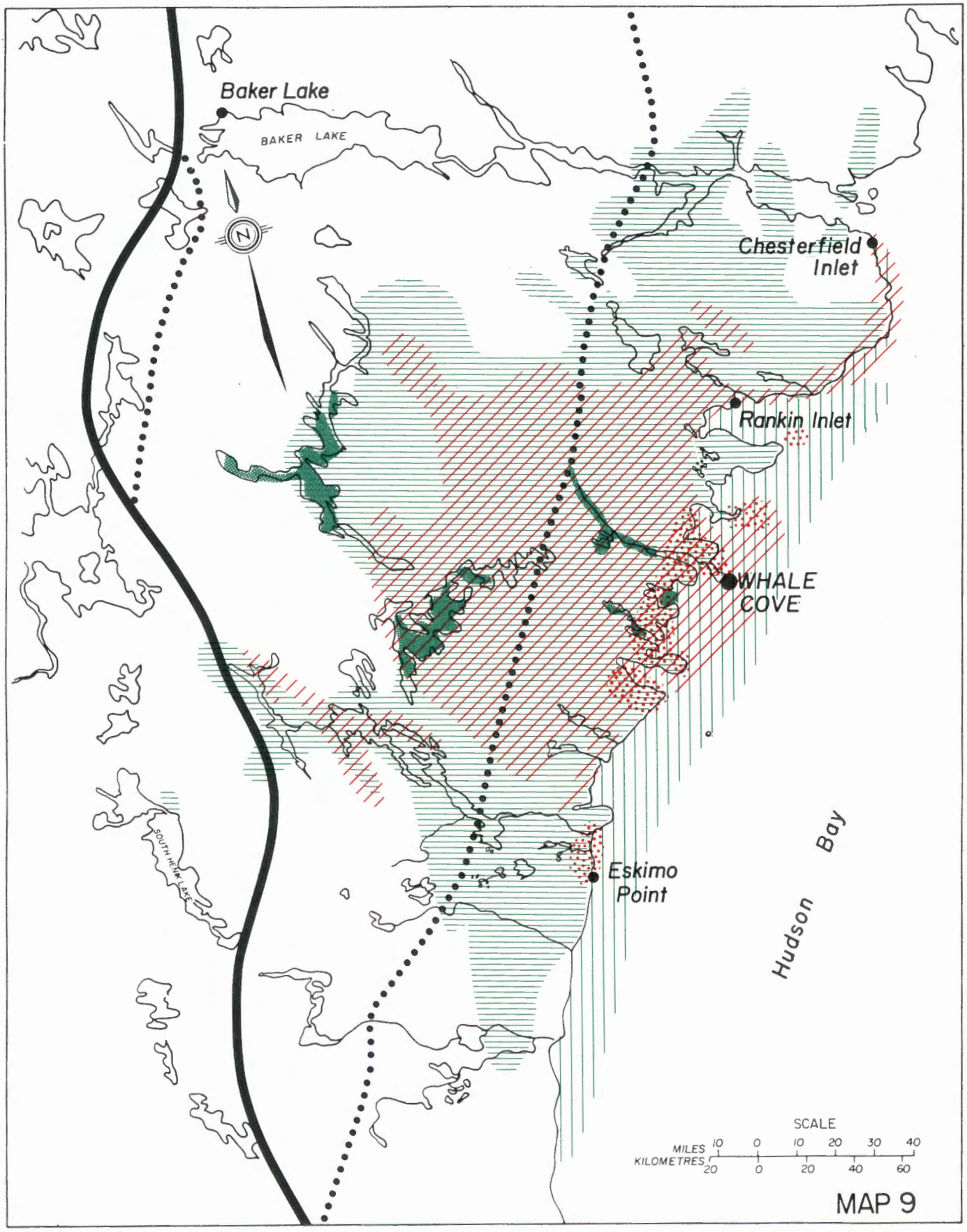
— LEGEND —

- Marine mammal hunting
  - seal
  - whale
  - walrus
  - polar bear
- Land mammal hunting
  - caribou
  - muskox
  - wolf
- Trapping
  - wolverine
- Wildfowl
- Fishing
- Trapline boundaries
  - almost exclusively fox

Proposed pipeline alignment
- Prime route
- Alternate route

- Community location




Baker Lake
BAKER LAKE
N
Chesterfield Inlet
Rankin Inlet
WHALE COVE
Eskimo Point
Hudson Bay
SOUTH HENIK LAKE
SCALE
MILES 10 0 10 20 30 40
KILOMETRES 20 0 20 40 60
MAP 9

9. Whale Cove

Water bodies in the Whale Cove area that had commercial quotas in 1976 are the same as those listed for the Rankin Inlet area (Section 10.3.6) with the exception of the bays, rivers, and inlets along Chesterfield Inlet, which are probably not fished by Whale Cove fishermen. In addition, the Sandy Point area has a 1000 lb char quota, the Whale Cove area has a 5000 lb char quota, and an unnamed river around Nevill Bay has a 5000 lb char quota. The Sandy Point and the Whale Cove areas have recent commercial harvest records. Probably most of the commercially fished water bodies in the area are fished by commercial fishermen from Rankin Inlet, although Whale Cove commercial fishermen use water bodies close to the community and may sell some of their catch through the co-op to the cannery in Rankin Inlet.

11.4 Harvest Patterns

Spring is an important season for hunting caribou, wildfowl, polar bears, and seals and for fishing. Summer is important for hunting caribou, wildfowl, seals, and whales and for fishing. Fall is important for trapping; caribou, polar bear, and seal hunting; and fishing. Winter is important for trapping and hunting caribou, eiders, polar bears, and seals (Table 11-2).

11.5 Harvest Data

Harvest data are not recorded separately for Whale Cove; they are combined with data from Rankin Inlet (Table 10-4). The polar bear quota for Whale Cove is 12, but Welland (1976) reports there are not many bears in the area and that harvesting them is not a major activity. The quota of 12, however, was filled in 1974-75 (P. Smith, personal communication).

Smith and Taylor (1977) report a mean harvest of 828 ringed seals (based on 4 years of records), 70 bearded seals (based on 2 years of records), 202 belugas (based on 7 years of records), and 802 arctic fox (based on 5 years of records). These data are from RCMP Game Records for 1962-1971. Walrus are scarce and are no longer an important resource in the area (Welland 1976).

Commercial char harvests in the Whale Cove area were: 9000 lbs for 1970, 5090 lbs for 1971, 8644 lbs for 1972, 20,832 lbs for 1973, 40,374 lbs for 1974, 31,502 lbs for 1975, and 34,089 lbs for 1976 (R. Peet, personal communication). The average annual harvest for 1970 to 1976 was 21,362 lbs.

11.6 Commercial and Domestic Importance

11.6.1 Commercial Importance

Welland (1976) reports that for most families fox pelts are the major source of earned income throughout most of the year.

Table 11-2. Harvest patterns - Whale Cove.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov)
Trapping[2]	Primary season.	No trapping.	No trapping.	Starts in Nov.
Land Hunting: Caribou[1]	Hunted inland.	Hunted inland.	Hunted along coast & along navigable rivers.	Hunted inland.
Wolf[1]	Hunted anywhere.	Hunted in known denning areas.		Hunted anywhere.
Wildfowl Hunting: Ducks & Geese[1]	Eiders hunted at floe-edge.	Floe-edge hunting & hunting along shores.	Hunting along shores.	Stops in **Sept.**
Egg Collecting[1]		Collecting	Collecting	
Ptarmigan[1]	Hunting.	Hunting.		Hunting.
Marine Hunting: Polar bear[1]	Floe-edge hunting.	Floe-edge hunting.	No hunting.	Hunted as they migrate along coast.
Ringed & Bearded[1,2] Seals	Some floe-edge hunting.	Birth lair & floe-edge hunting.	Open-water hunting from boats.	Some floe-edge hunting.

Table 11-2. Harvest patterns - Whale Cove.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov)
Beluga[1]			Shot from boats as they migrate along coast.	
Fishing[1]	No fishing.	Ice fishing with nets spring char run fished.	Open-water fishing with nets in bays & near mouths of rivers.	Ice fishing with nets fall char run fished.

[1] Welland 1976.

[2] inferred from analysis of the patterns in Rankin Inlet (see Table 10-3).

Wolf pelts, seal skins, and polar bear skins are also important sources of income. A 1973 survey indicated that 95% of seal skins harvested are traded and 5% are used for handicrafts (Friesen 1975). Table 10-5 gives a summary of expected annual income from fur sales for Rankin Inlet plus Whale Cove.

Based on an average annual char harvest of 21,363 lbs and assuming that Whale Cove fishermen receive $0.50/lb for the fish they sell, the expected annual income from sales of fish would be $10,681. The per capita income, based on a 1974 population of 243, would be $44.

11.6.2 Domestic Importance

Caribou are the mainstay of the diet; because many Whale Cove people previously lived inland, they prefer caribou meat to seal meat (Welland 1976). A 1973 survey revealed that 12% of edible seal meat and 100% of edible whale meat was used for family food while 5% of seal meat and 100% of whale meat suitable for dogs was fed to dogs (Friesen 1975). Fishing is important for both food and recreation (Welland 1976). Table 10-6 provides estimates of the annual imputed income from major food sources for Rankin Inlet plus Whale Cove.

11.7 Pipeline Implications

The prime route avoids the Whale Cove resource-use zone except for a remote caribou hunting and trapping area along the Kogtok and Upper Maguse Rivers near Kinga Lake. The coastal alternate traverses the core of the inland part of this zone.

Specifically, the pipeline project may conflict with resource harvest in the following key areas:

1. South of Chesterfield Inlet. Construction in this area in spring, summer, or fall could interfere with migrations and movements of the Kaminuriak caribou herd which is important to Whale Cove hunters.

2. Wilson River. The coastal alternate crosses this important domestic char fishing river downstream of Derby Lake and may interfere with fish movement and degrade fish habitat.

3. Ferguson River. The coastal alternate crosses this important domestic and commercial char fishing river downstream of Helika Lake and may interfere with fish movement and degrade fish habitat.

12. ESKIMO POINT

12.1 The Community

Eskimo Point was used for decades as a summer camp for inland people. The Hudson's Bay Company opened a trading post there in 1921. People moved to Eskimo Point from inland and coastal areas following the closing of the Hudson's Bay Company coastal post at Tavani in 1951 and their inland post at Padlei in 1960 (Welland 1976; Canada North Almanac 1976).

The estimated population of Eskimo Point in 1976 was 875; it has almost doubled over the last decade. In 1974, it was 681; in 1971, 700; in 1969, 502; and in 1966, 464. In 1971, 96% of the population was Inuit.

Eskimo Point is currently served by four flights a week from Churchill with connections to Winnipeg. Marine transportation is supplied by the Northern Canada Transportation Limited. The shipping season extends from August to October (Canada North Almanac 1976),

12.2 The Economy

Welland (1976) reports that a large number of people rely on trapping and hunting for most of their earned income and everyone depends on game for food. Wage employment is available through a handicrafts project (parkas, sewn goods, footwear, fur garments, and soapstone carvings) and with the NWT Government. Crafts are marketed through the Padlei Cooperative.

In 1974-75, there were 150 holders of General Hunting Licences; this number has increased, decreased, and then increased again over the last decade (Table 12-1). Twenty-three commercial fishing licences were issued to Eskimo Point fishermen in 1975 (D. Dowler, personal communication).

Table 12-1. Number of General Hunting Licences issued - Eskimo Point.

1974-75	150	1970-71	103	1966-67	116
1973-74	117	1969-70	98	1965-66	107
1972-73	121	1968-69	100	1964-65	100
1971-72	87	1967-68	117	1963-64	88

Source: NWT Government.

12.3 Resource-Use Areas

12.3.1 General Area

Generally, caribou hunting defines the inland boundary of the Eskimo Point resource-harvest zone while seal and whale hunting define the marine boundary. The zone extends about 380 km northeast along the coast to Daly Bay, 120 km south along the coast into Manitoba, 190 km west past the Henik Lakes, 280 km northwest to Parker Lake, and 260 km north around Gibson Lake (see Map 10).

Important spring and summer camping areas are the lower Tha-anne, Thlewiaza, McConnell, and Maguse Rivers, Maguse Point, and Sandy Point. Less important areas are Diane Lake, Napajut (Camp) Lake, Thaolintoa Lake, Hyde Lake, the upper Maguse River from Kinga Lake down past Maguse Lake, the Dawson Inlet area, Kaminak Lake, and around the old location of Nunalla along the coast south of the Manitoba border. Winter camping areas are around the Henik Lakes, Imikula Lake, Yathkyed Lake (Welland 1976). There is no indication of any permanent camps in the area.

12.3.2 Trapping

The most heavily trapped areas are along the coast towards Sandy Point, between Sandy Point and Kaminak Lake, up the Maguse River from the coast to Kaminak Lake, up the McConnell River, and up the Tha-anne River to Thaolintoa Lake. Remote trapping areas are north around Carr and Kaminuriak Lakes, northwest around Forde, Nutarawit, Yathkyed, and Imikula Lakes, west around the Henik Lakes and Hawk Hill and Edehon Lakes, and south towards the Manitoba border (Welland 1976).

12.3.3 Land Mammal Hunting

All land within 160 km of Eskimo Point is generally considered to be important for caribou hunting (Welland 1976). The Maguse, McConnell, and Tha-anne Rivers and the lakes along these rivers are heavily used areas. Caribou are hunted in all areas of the land-mammal hunting zone.

Wolf hunting areas are between Kaminak Lake and Sandy Point, up the Maguse River to Kaminak Lake, and up the McConnell and Tha-anne Rivers. Wolves are also hunted in association with caribou hunting south from Kaminak Lake to the Manitoba border (Welland 1976).

12.3.4 Wildfowl Hunting

Geese and ducks are hunted and eggs are collected along the coast and on offshore islands. Important goose hunting areas are around Maguse River-Austin Island-Maguse Point, Eskimo Point, and the coastal tundra north of McConnell River. Ptarmigan are hunted throughout the resource-use zone (Welland 1976).

12.3.5 Marine Mammal Hunting

Polar Bears

Polar bears are hunted along the coast near the Manitoba border.

Seals

Seals are hunted along the coast and along the floe-edge from Daly Bay south to the Manitoba border. Favourite areas are around Sandy, Maguse, and Eskimo Points, and from the mouth of the Tha-anne-Thlewiaza Rivers south to the Manitoba border (Welland 1976).

Whales

Whales are hunted from Daly Bay to the Manitoba border as they migrate along the coast.

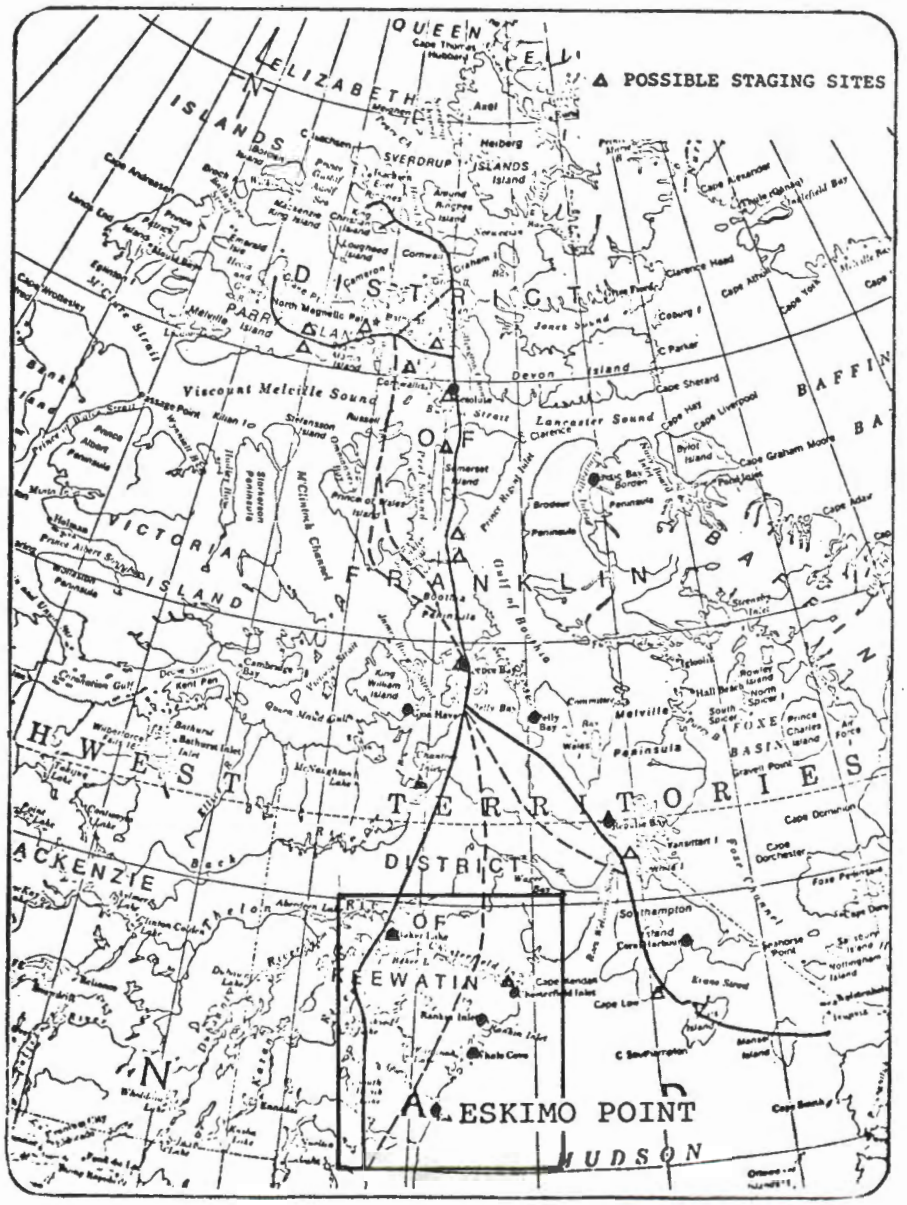
12.3.6 Fishing

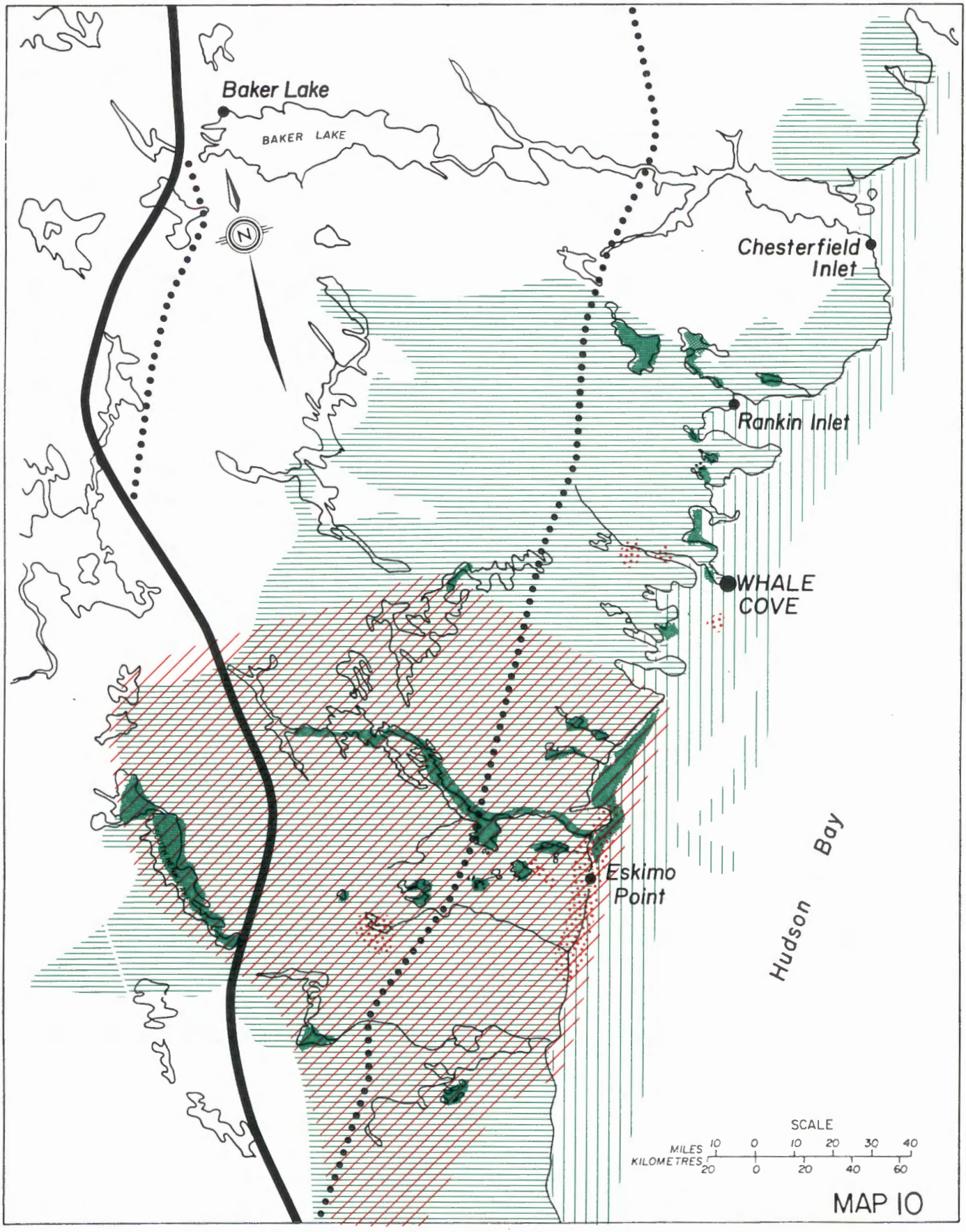
Important inland fishing areas are up the Maguse River to Kinga Lake (including Maguse and Turgutil Lakes) and up the Diane River to Diane Lake. Other inland fishing areas are Napajut (Camp) Lake, small lakes west of Sandy Point, Kaminak Lake, the Henik Lakes, and Thaolintoa Lake. Important coastal areas for char fishing are from Eskimo Point to Sandy Point and around the mouth of the Tha-anne-Thlewiaza Rivers (Welland 1976).

Water bodies in the area that had commercial quotas in 1976 are: Carr Lake - 130,000 lbs (lake trout and whitefish); the Eskimo Point area - 10,000 lbs (char); Kaminak Lake - 50,000 lbs (lake trout and whitefish); Maguse River - 10,000 lbs (char); Sandy Point - 1,000 lbs (char); Wallace River - 5,000 lbs (char); and an unnamed river north of Austin Island - 5,000 lbs (char). Of these, Kaminak Lake, Sandy Point, and the Wallace River have recent records of commercial harvest. Kaminak Lake is probably fished by Rankin Inlet or Whale Cove fishermen who may sell their catch to the Rankin cannery.

— LEGEND —

- Marine mammal hunting
  - seal
  - whale
  - walrus
  - polar bear
- Land mammal hunting
  - caribou
  - muskox
  - wolf
- Trapping
  - wolverine
- Wildfowl
- Fishing
- Trapline boundaries
  - almost exclusively fox
- Proposed pipeline alignment
  - Prime route
  - Alternate route
- Community location





10. Eskimo Point

12.4 Harvest Patterns

Spring is an important season for hunting caribou, wildfowl, and seal and for fishing. Summer is important for hunting caribou, wildfowl, seal, and whale and for fishing. Fall is important for trapping; caribou, polar bear, seal hunting; and fishing while winter is important for trapping and caribou, eider duck, and seal hunting (Table 12-2).

12.5 Harvest Data

(See Table 12-3).

12.6 Commercial and Domestic Importance

12.6.1 Commercial Importance

Fox pelts, polar bear skins, seal skins, wolf skins, and some wolverine skins provide income for the Eskimo Point Inuit (Table 12-4).

Friesen (1975) reported that in 1973, 100% of seal skins harvested were traded; of these, 9% were used locally to make handicrafts (Friesen 1975). Some income is also provided by sale of fish, either locally or to the Rankin Inlet cannery.

Based on an annual average harvest of 7726 lbs of char (Table 12-3) and assuming that Eskimo Point fishermen sell char for $0.50/lb, the expected annual income would be $3863. The per capita income would be $6.

12.6.2 Domestic Importance

Caribou meat is a primary food for the Eskimo Point Inuit. Seal meat, fish, whale meat, and wildfowl are also important. Geese, ducks, and eggs are eaten seasonally (Table 12-5).

A 1973 survey indicated that 17% of edible seal meat and 100% of edible whale meat was used for family food; 24% of seal meat and 22% of whale meat suitable for dogs was fed to dogs (Friesen 1975). Seal meat and whale meat are important foods for people who have traditionally lived on the coast.

12.7 Pipeline Implications

The prime route traverses the western fringe of the Eskimo Point inland resource-use area while the coastal alternate passes through the core of this area. Spring, summer, and fall construction on both routes would interfere with caribou migrations and movements and thus affect caribou hunting.

Table 12-2. Harvest patterns - Eskimo Point.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov)
Trapping[2]	Primary season.	No trapping.	No trapping.	Starts in Nov.
Land Hunting[2,3] Caribou	Hunted inland.	Hunted inland.	Hunted along coast & along navigable rivers.	Hunted inland.
Wolf[1]	Usually hunted in conjunction with caribou hunting.			
Wildfowl Hunting: Duck & Geese[1,3]	Eiders hunted at floe-edge during seal hunting.	Hunting along floe-edge & along shores.	Hunting along shores and on islands - late summer is major season.	Stops in Sept.
Egg Collecting[1]			Collecting.	
Ptarmigan	Primary season.	Hunting.	Hunting.	Hunting.
Marine Hunting: Polar bear[1]				Hunted along coast before the ice forms.
Ringed & Bearded[2,3] Seals	Some floe-edge hunting.	Floe-edge hunting.	Open-water hunting from boats.	Some floe-edge hunting.
Harbour Seal[1]			Hunted along coast in hauling out areas on rocks near river mouths.	

Table 12-2. Harvest patterns - Eskimo Point.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov)
Beluga[1,3]			Shot from boats as they migrate along coast.	
Fishing[1]	No fishing.	Ice fishing in lakes Char fishing in rivers after break-up.	Char netting in estuaries and along coast Some inland fishing.	Char netted as they migrate upstream. Ice fishing on lakes after freeze-up.

[1] Welland 1976.

[2] inferred from analysis of the pattern in Rankin Inlet (see Table 10-2).

[3] inferred from analysis of the pattern in Whale Cove (see Table 11-2).

Table 12-3. Harvest data - Eskimo Point.[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR[3]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES[6]
63-64	3079	4	1	2351	15			234	5	607						
64-65	2422	4	5	1544	15	177	66	357	10	858						
65-66	649		2	1367	28	193	84	243	11	519						
66-67	2340			1670	9	304	53	479	10	222						
67-68	1415	3	1	1203	23	201	81	460	13	221						
68-69	983	1		1096	56	121	38	202	4							
69-70	1134	2		982	19	97	84	155	2	413[4]						
70-71	1697	2	2	1185	54	291		539	7							
71-72	1550	9	1	1265	123	295	69	261	3	142	96[5]		67[5]		4[5]	
72-73	1054	2			67				10	550						13,668 lbs
73-74	4896								14	358						5,246 lbs
74-75									8[2]							7,762 lbs
75-76																4,229 lbs
Total All Years	21219	27	12	12663	409	1679	475	2930	97	3890						
Avg. All Years	1929	34	2	1407	41	210	68	326	8.1	432	96		67		4	

Table 12-3. Harvest data - Eskimo Point.[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR[3]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES
Total 69-70 to 74-75	10331	15		3432	263	683	153	955	44	1463						30,905 lbs
Avg.	2066	3.8		1144	66	228	77	318	7.3	366						7,726 lbs
High Year	4896	9		1265	123	295	84	539	14	550						13,668 lbs

1 All data from Usher 1975, unless otherwise indicated.

2 NWT Game Management Division.

3 Polar Bear quota for Eskimo Point is 10.

4 Palmer 1973.

5 Mean from 3 years of harvest for bearded seal, 4 years for walrus, 7 years for beluga from RCMP Game Records from 1962 to 1971 (Smith and Taylor 1977).

6 Commercial Records: all char. Data from R. Peet (personal communication).

Table 12-4. Expected annual income from sales of fur - Eskimo Point.

	Arctic Fox	Coloured Fox	Wolf	Polar Bear	Ringed Seal	TOTAL
Average Annual Harvest (69-70 to 74-75)[1]	2066	3.8	66	10	366	
Average Pelt Price NWT (74-75)[2]	$17.59	$28.61	$62.72	$953[4]	$17.10	
Expected Income	$36,341	$109	$4,140	$9,530	$6,259	$56,378
Per Capita Income[3]	$53	$0.20	$6	$14	$9	$83

[1] From Table 12-3, except for polar bear which is based on the allotted quota of 10.

[2] From Fur Traders Record Book - NWT Government.

[3] Based on a 1974 population of 681.

[4] Community polar bear skin price of 1974-75 from Smith and Stirling (1976).

Table 12-5. Estimated annual imputed income from major food sources - Eskimo Point.

	Caribou	Geese	Ducks	Ptarmigan	Ringed Seal	Fish	TOTAL
Average Annual Harvest (69-70 to 74-75)[1]	1144	228	77	318	366	ND	
Edible lbs/animal[2]	100	3.5	2.6	0.9	45		
Edible meat (lbs)	114,400	798	200	286	16,470		132,154
Imputed Value/lb[3]	$300	$2.00	$2.00	$2.00	$3.00		
Imputed Value	$343,200	$1596	$400	$572	$49,410		$395,179
Per Capita Value[4]	$504	$2	$0.60	$0.80	$73		$580

[1] From Table 12-3.

[2] From Usher 1976, Bissett 1974, Thompson 1976.

[3] Adapted from Usher 1976.

[4] Based on a 1974 population of 681.

ND No Data.

Other key areas where conflicts with resource harvest may occur are:

1. Roseblade Lake. The prime route passes near this lake which is a remote, but important, domestic fishing area. Harvest conflicts and habitat degradation may occur.

2. Maguse River. The coastal alternate crosses the river, which is a primary domestic char fishing area, at Maguse Lake. Interference with fish movements and habitat degradation may occur.

3. McConnell River. The coastal route crosses this river near Camp Lake. The lake and the river are important for domestic fishing; the river is also important for goose hunting and is a key snow goose breeding and staging area. Harvest conflict, degradation of fish and waterfowl habitat, and disturbance of snow geese may occur.

13. PELLY BAY

13.1 The Community

Pelly Bay was originally the site of a Roman Catholic mission established in 1935. It is the only settlement in the area without marine transportation (Brice-Bennett 1976; Canada North Almanac 1976).

The estimated population of Pelly Bay in 1976 was 255; it has risen slowly over the last decade. In 1974, it was 245; in 1971, 203; in 1969, 189; and in 1966, 171. In 1970, 93% of the population was Inuit.

Pelly Bay is currently served by one flight a week from Cambridge Bay with connections to Yellowknife and Edmonton (Canada North Almanac 1976).

13.2 The Economy

The economic base of Pelly Bay is hunting, trapping, and fishing. A successful commercial fishery is operated by the Koomiut Cooperative and fish are exported on a regular basis to Edmonton. Carving of soapstone, ivory, and caribou antlers has also become a major industry and crafts are marketed through the Koomiut Cooperative. Wage employment is available at the fish freezing plant. Pelly Bay also has a tourist facility, the Pelly Bay Lodge (Friesen 1975; Canada North Almanac 1976).

In 1972-73, there were 48 holders of General Hunting Licences; this represents a slight increase during the past decade (Table 13-1). Twenty-one commercial fishing licences were issued to Pelly Bay fishermen in 1975 and an estimated 30 were issued in 1976 (D. Dowler, personal communication).

Table 13-1. Number of General Hunting Licences issued - Pelly Bay.

1974-75	ND	1970-71	45	1966-67	39
1973-74	ND	1969-70	48	1965-66	36
1972-73	48	1968-69	45	1964-65	33
1971-72	49	1967-68	45	1963-64	39

Source: NWT Government ND: No Data

13.3 Resource-Use Areas

13.3.1 General Resource-Use Area

Generally, caribou hunting defines the southern inland boundary of the Pelly Bay resource-use zone while polar bear hunting defines the northern marine boundary. The zone extends about 160 km northwest to Lord Mayor Bay, 100 km north around the tip of Simpson Peninsula, and 230 km south and 220 km southwest inland (see Map 11). There is no indication of any permanent camps in the area.

13.3.2 Trapping

Important trapping areas are the Kuugariuk River system and towards Keith Bay, the Kellett River, the north shores of Pelly Bay, and some of the offshore islands (Brice-Bennett 1976).

13.3.3 Land Mammal Hunting

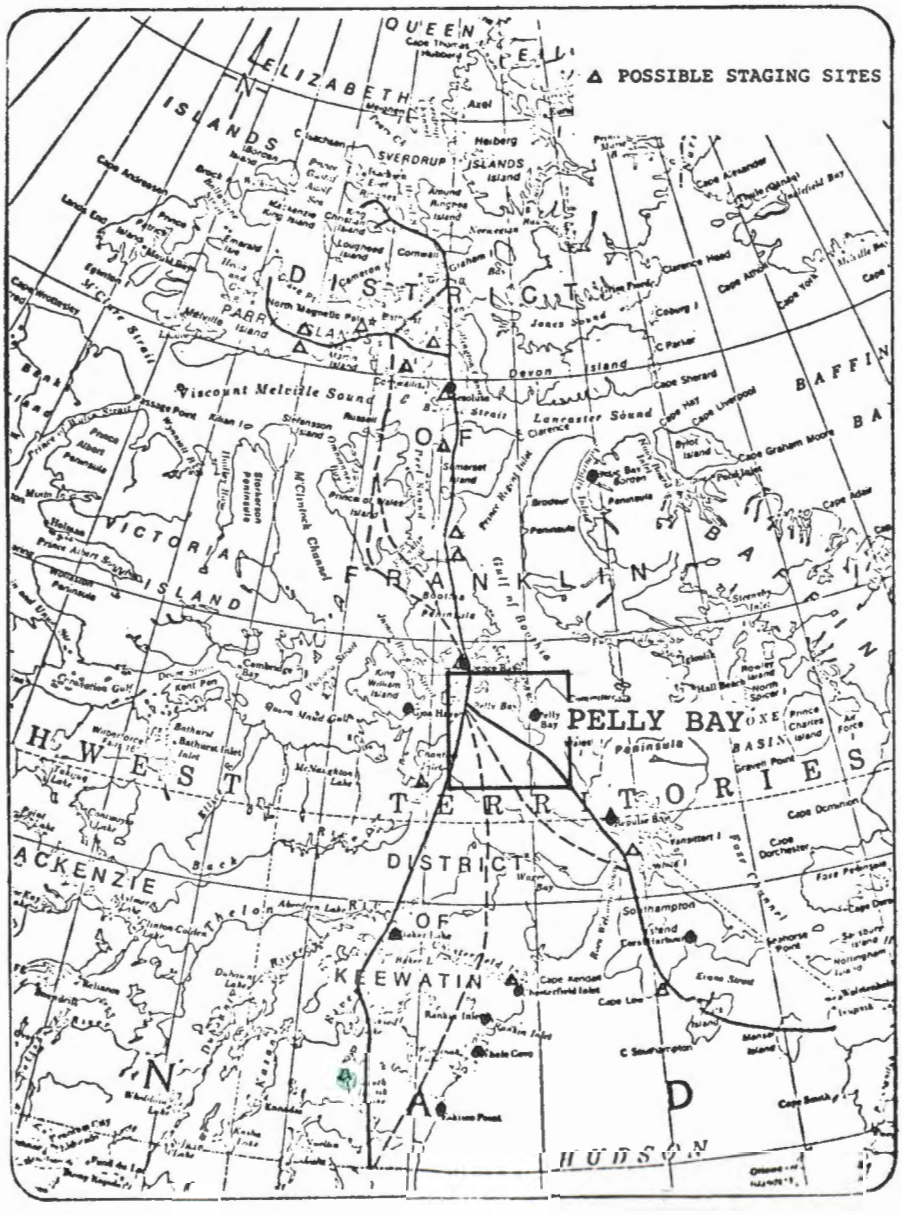
Caribou are hunted south of the community throughout the land-mammal hunting zone (Map 11). Caribou have become more abundant south of the headwaters of the Kellett and Arrowsmith Rivers and are hunted as far south as Walker, Pierce, and Steward Lakes (Brice-Bennett 1976). Wolf hunting is confined to small areas along the upper Kellett River and south and east of the head of Pelly Bay.

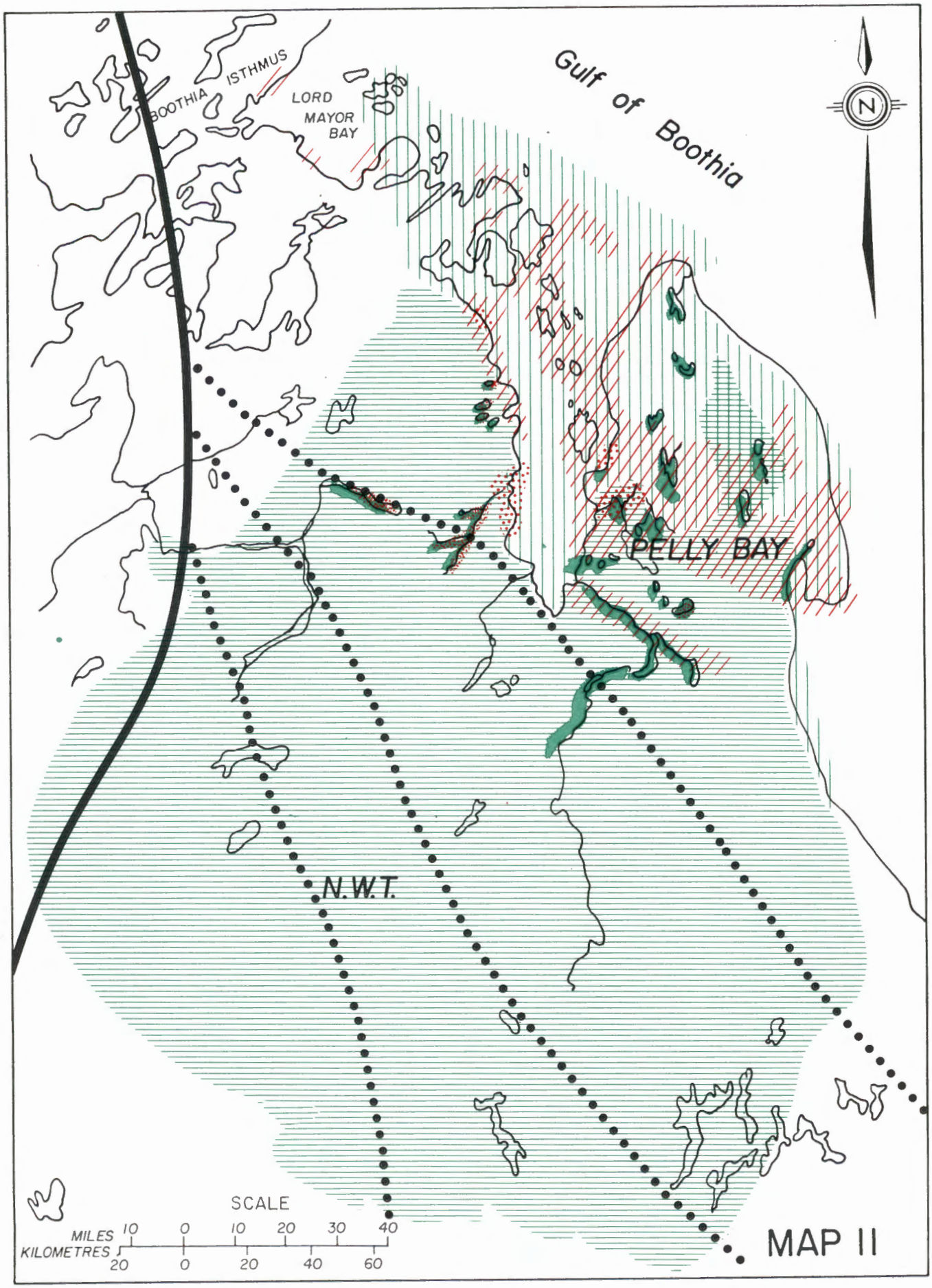
— LEGEND —

- Marine mammal hunting
  - seal
  - whale
  - walrus
  - polar bear
- Land mammal hunting
  - caribou
  - muskox
  - wolf
- Trapping
  - wolverine
- Wildfowl
- Fishing
- Trapline boundaries
  - almost exclusively fox

Proposed pipeline alignment
- Prime route
- Alternate route

- Community location




Gulf of Boothia
BOOTHIA ISTHMUS
LORD MAYOR BAY
PELLY BAY
N.W.T.
N
SCALE
MILES 10 0 10 20 30 40
KILOMETRES 20 0 20 40 60
MAP II

11. Pelly Bay

13.3.4 Wildfowl Hunting

Wildfowl are hunted around the mouth of the Kuugariuk River, Logan Bay, the mouth of the Becher River, and the west shore of Pelly Bay around Cape Berens.

13.3.5 Marine Mammal Hunting

Polar Bears

Polar bears are hunted in the northern part of the marine-mammal hunting zone (Map 11); they are not hunted in Pelly Bay. Important polar bear hunting areas are along the northeast coast of the Simpson Peninsula from Keith Bay, around some of the northern islands in the mouth of Pelly Bay, and towards Lord Mayor Bay and the Astronomical Society Islands (Brice-Bennett 1976).

Seals

Seals are hunted mainly in Pelly Bay; there is also a small hunting area on the northwestern shore of Committee Bay. The area around the mouth of Kuugariuk River is an important hunting area.

Whales

Whales are hunted on the west side of Pelly Bay near the mouth of Becher River.

Walrus

Walrus are not abundant in the area; Brice-Bennett (1976) reports that one walrus was recently taken at the mouth of the Kellett River and another at the southern end of St. Peter Bay.

13.3.6 Fishing

Kellett and Kuugariuk are major char rivers and are very important for domestic fishing. A few of the interior lakes in the Simpson Peninsula are used for trout fishing and Becher and Arrowsmith Rivers are also fished for char. Simpson Lake is a remote, but important, area for trout and whitefish fishing.

Water bodies in the area that had commercial quotas for char in 1976 are: the Arrowsmith River - 30,000 lbs; Becher River - 10,000 lbs; Keith Bay (Committee Bay) - 10,000 lbs; and Kellett River - 35,000 lbs. All these water bodies have recent records of commercial harvest. The Pelly Bay Lodge provides sport fishing for char in local rivers.

13.4 Harvest Patterns

Spring is an important season for hunting wildfowl, seal, and polar bear and for fishing. Summer is important for hunting wildfowl, seal, whale, and walrus and for fishing. Fall is important for trapping; caribou, polar bear, and seal hunting; and fishing. Winter is important for trapping and caribou and polar bear hunting (Table 13-2).

13.5 Harvest Data

(See Table 13-3).

13.6 Commercial and Domestic Importance

13.6.1 Commercial Importance

Fish, fox pelts, polar bear skins, and seal skins are important sources of income for the Pelly Bay Inuit. Table 5-4 gives a summary of expected income from sales of fur for Spence Bay plus Pelly Bay. Assuming fishermen receive $0.50/lb for char, an average annual commercial harvest of 50,000 - 60,000 lbs would provide Pelly Bay fishermen with an expected annual income of $24,000 to $30,000. The community per-capita income would be $102 to $122 (based on a 1974 population of 245).

Friesen (1975) reports that the Pelly Bay freezing plant is operated by a cooperative with government assistance. The fishery returns a good profit, but if the cooperative had to pay all capital and operating costs for the freezing plant, the operation would only be marginal.

In 1973, 95% of ringed seal skins and no bearded seal skins were traded; 5% of ringed seal skins and all bearded seal skins were used for handicrafts (Friesen 1975).

13.6.2 Domestic Importance

Caribou, seal, and fish are important food sources for the Pelly Bay Inuit. In 1973, 50% of edible ringed seal and 10% of edible bearded seal meat was used for family food. About 10% of the ringed and bearded seal meat suitable for dogs was fed to dogs (Friesen 1975).

Brice-Bennett (1976) reports that caribou-skin clothing is still used by hunters in winter, but that large numbers of clothing skins are no longer required by each family.

Table 13-2. Harvest patterns - Pelly Bay.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov)
Trapping[1] Arctic Fox	Intensive in Dec. Stops around mid-Mar.	No trapping.	No trapping.	Starts in Nov. intensive in Nov.
Land Hunting: Caribou[2]	Early and late winter now most important season.	Stops in May.	No hunting.	Starts in Oct.
Wolf[4]	Hunting inland in association with caribou hunting.			Hunting inland.
Wildfowl Hunting: Ducks & Geese[5]	No hunting.	Starts in Jun.	Hunting in Jul, Aug.	Stops in Sept.
Ptarmigan[4,5]	Hunting in all seasons.			
Marine Hunting: Polar Bear[4]	Floe-edge hunting.	Floe-edge hunting.	No hunting.	Hunting along coast.
Ringed Seal[1]	Some breathing hole hunting.	Hunted on ice from mid-May to end of Jun.	Nets set in leads. Hunting along leads. Hunted from boats & nets are set along coast in open-water period.	Ends in Oct.

Table 13-2. Harvest patterns - Pelly Bay.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov)
Bearded Seal[3]		Shot from boats in late spring when seals are resting on ice.	Shot from boats.	
Beluga & Narwhal[2]			Hunting.	
Walrus[2]			Hunting.	
Fishing[1]		Ice fishing on inland lakes - char fishing in rivers.	Fishing along coast.	Char fishing in rivers. Most important commercial season: fish taken by boat from river mouth to processing & freezing plant.

[1] Treude 1975.

[2] Brice-Bennett 1976.

[3] Villiers 1969.

[4] inferred from analysis of pattern in Chesterfield Inlet (see Table 9-2).

[5] inferred from analysis of pattern in Resolute (see Table 4-2).

Table 13-3. Harvest data - Pelly Bay.[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX[2]	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR[2,4]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA[6]	NARWHAL[6]	WALRUS[6]	ALL SPECIES
63-64	134								7							
64-65	223								8	1073[1,2]						
65-66	28								13	60[1,2]						
66-67	55								11	96[2]						
67-68																
68-69																
69-71				200[3]					6[3]	356[3]						
70-71																
71-72											20/50[5]					
72-73										500[5]						(50,000-
73-74									10[8]							(60,000 lbs
74-75																(char
75-76																
Total All Years																
Avg. All Years																

Table 13-3. Harvest data - Pelly Bay.[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX[2]	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR[2,4]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA[6]	NARWHAL[6]	WALRUS[6]	ALL SPECIES
Total 69-70 to 74-75																
Avg.																
High Year																

1 Usher 1975 - most data for Pelly Bay aggregated with data for Spence Bay (see Table 5-3).

2 Villiers 1969.

3 Palmer 1973.

4 Polar Bear quota for Pelly Bay is 10.

5 Friesen 1975.

6 Beluga and Narwhal are uncommon and walrus are rarely taken (Brice-Bennett 1976).

7 Quota of 50,000 to 60,000 lbs of char is generally taken (Friesen 1975).

8 NWT Game Management Division.

13.7 Pipeline Implications

The prime route avoids the Pelly Bay resource-use zone except for the crossing of the Murchison River which is commercially fished by Pelly Bay fishermen. The Quebec route crosses the core of the Pelly Bay inland resource-use zone.

Specifically, the Quebec route may conflict with resource harvest in the following key areas:

1. Simpson Lake. The route closely parallels this lake which is fished domestically. Degradation of fish habitat or pipeline employee/domestic fishermen conflicts may occur.

2. Becher and Arrowsmith Rivers. The route crosses these important commercial char fishing rivers, within 25 km of their mouths. Pipeline activities may interfere with fish movement and may degrade fish habitat.

3. Kellett River. The route crosses this important commercial and domestic char fishing river about 70 km from its mouth. Fish migrations may be impeded (if the char ascend that far upstream) and fish habitat may be degraded.

4. Kellett River to Ellice Hills. This is part of an important caribou hunting area. Winter construction could degrade winter range or displace caribou from critical winter habitats.

14. REPULSE BAY

14.1 The Community

Repulse Bay was established as a Hudson's Bay post in 1916. For years, it was the centre of trading for the nomadic people of the area. People started to settle in the community after a government housing project began in the early 1960's (Brice-Bennett 1976; Canada North Almanac 1976).

In 1974, the estimated population of Repulse Bay was 276; it has risen slowly over the last decade. In 1971, it was 220; in 1969, 199; and in 1966, 146. In 1971, 95% of the population was Inuit.

Repulse Bay is currently served by one flight a week from Churchill; air connections from Churchill are to Winnipeg.

Marine transportation is supplied by M.O.T. ships from Montreal. The shipping season is limited to late August and September (Canada North Almanac 1976).

14.2 The Economy

Repulse Bay is a sealing, fishing, and hunting community and is also a noted soapstone and ivory carving centre. Handicrafts are marketed through the Naujat Cooperative (Brice-Bennett 1976; Canada North Almanac 1976).

There were 54 holders of General Hunting Licences in 1974-75; the number has increased substantially over the last decade (Table 14-1). No commercial fishing licences were issued in 1975, but some have been issued in 1976 (D. Dowler, personal communication).

Table 14-1. Number of General Hunting Licences issued - Repulse Bay.

1974-75	54	1970-71	73	1966-67	25
1973-74	53	1969-70	37	1965-66	18
1972-73	56	1968-69	41	1964-65	34
1971-72	51	1967-68	41	1963-64	30

Source: NWT Government

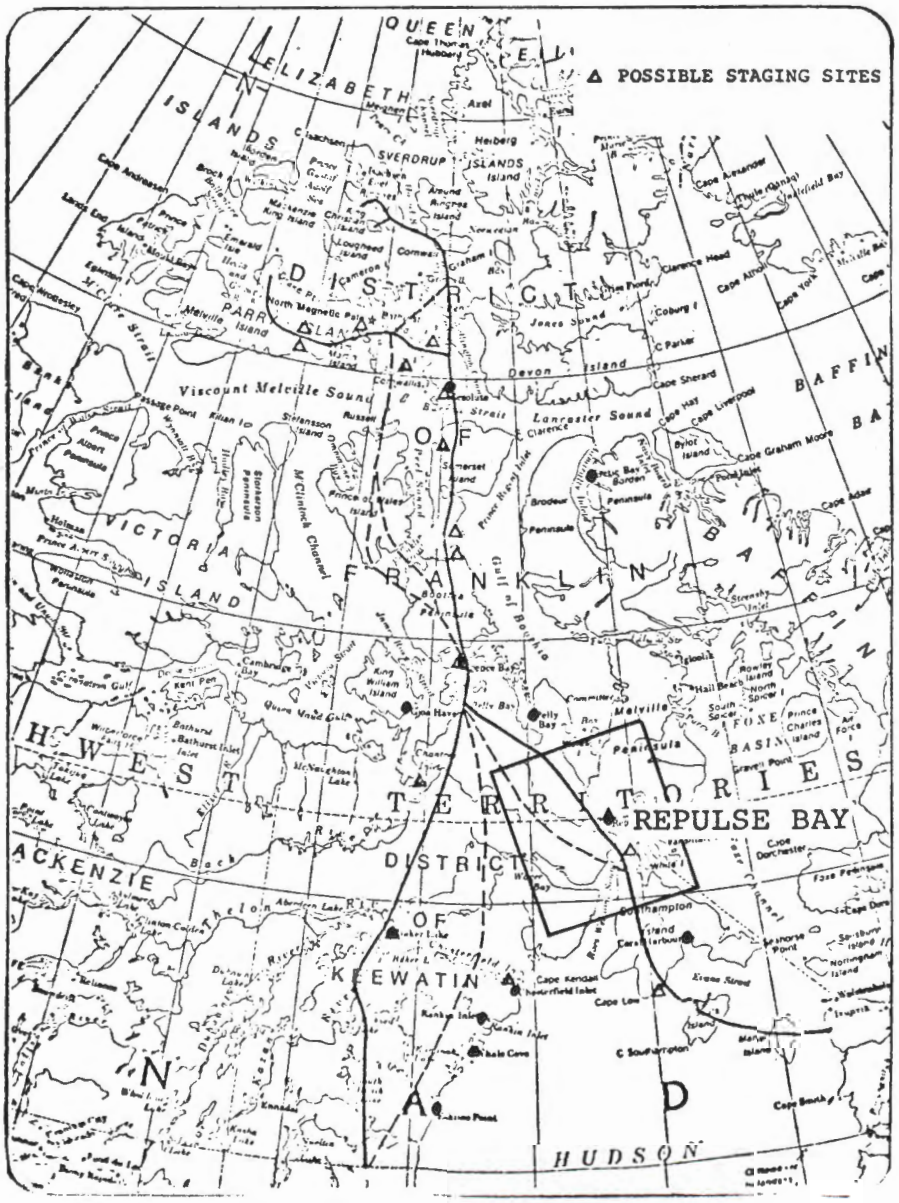
14.3 Resource-Use Areas

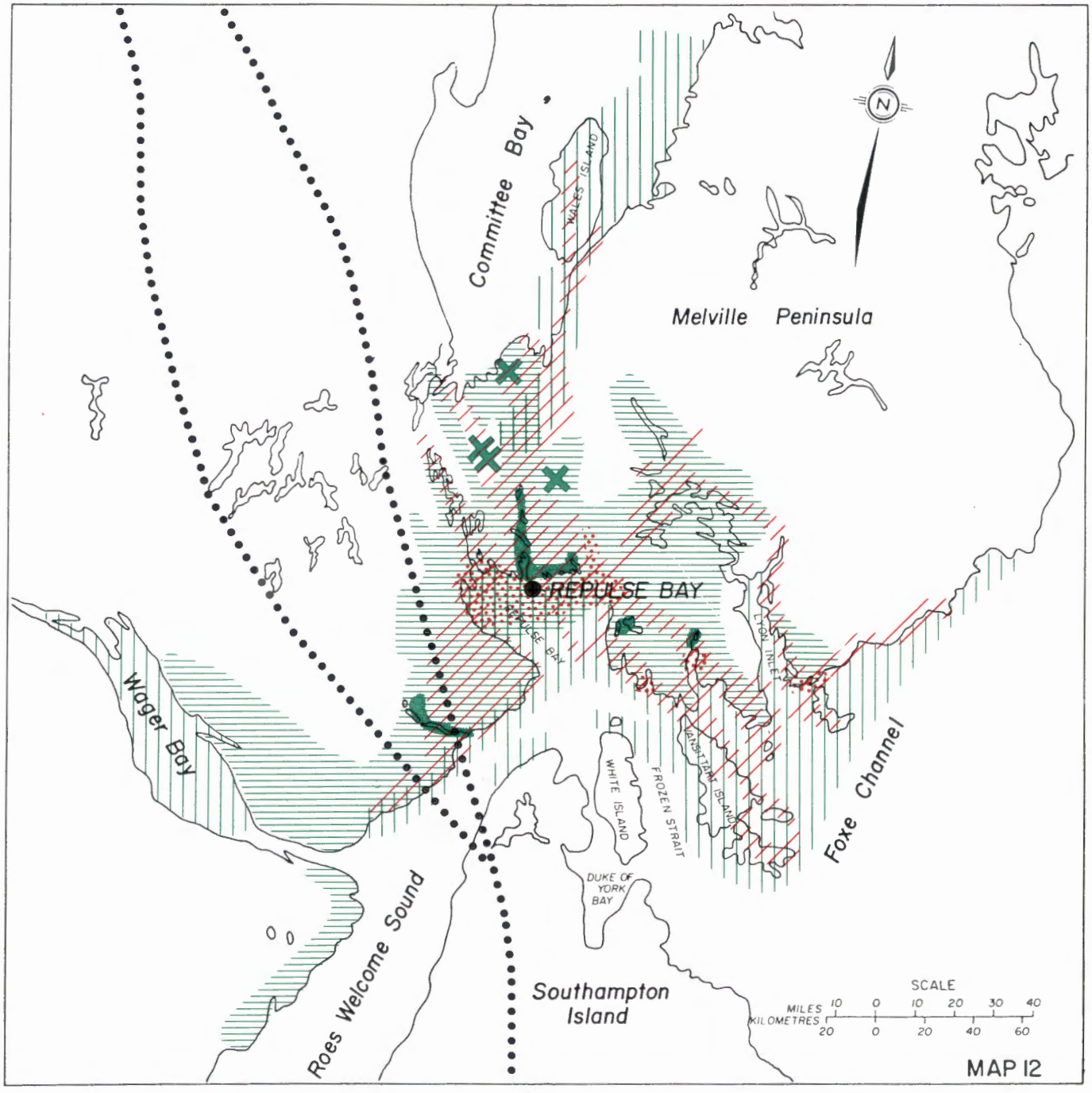
14.3.1 General Area

Caribou hunting defines the inland boundary of the Repulse Bay resource-harvest zone. Polar bear hunting defines the marine boundary to the north and east and seal hunting defines the marine boundary to the south. The zone extends about 240 km to the north along the eastern shore of Committee Bay, 210 km to the northeast along the eastern coast of Melville Peninsula, 180 km to the southeast along Vansittart Island, 230 km to the south along the western shore or Roes Welcome Sound, and 160 km southwest inland to Wager Bay (see Map 12).

— LEGEND —

- Marine mammal hunting
  - seal
  - whale
  - walrus
  - polar bear
- Land mammal hunting
  - caribou
  - muskox
  - wolf
- Trapping
  - wolverine
- Wildfowl
- Fishing
- Trapline boundaries
  - almost exclusively fox
- Proposed pipeline alignment
  - Prime route
  - Alternate route
- Community location





12. Repulse Bay

Brice-Bennett (1976) reports that most hunting occurs close to Repulse Bay and that the Committee Bay and Wager Bay areas are commonly hunted. Families often travel to spring and summer camps to fish. There is no indication of any permanent camps in the area.

14.3.2 Trapping

The most important trapping areas are north to Lefroy Bay and along the east shore of Committee Bay, north to North Pole and Christie Lakes, northeast to Ross Bay, south along the western shore of Repulse Bay and Roes Welcome Sound past the Snowbank River, and east along the northeast coast of Vansittart Island. Remote areas are Wales Island and the southeast coast of Melville Peninsula (Brice-Bennett 1976).

14.3.3 Land Mammal Hunting

Brice-Bennett (1976) reports that most caribou hunts now occur within a few miles of the settlement. Major hunting areas are northeast to Ross Bay, east towards Lyon Inlet, and south to Wager Bay. Remote areas are south of Wager Bay and north towards Committee Bay.

Wolves are usually sighted where caribou are abundant and are hunted on the ice and along the coast near the community and around Ross Bay. Wolverine are usually hunted near traplines south of Committee Bay.

14.3.4 Wildfowl Hunting

The most important areas for hunting ducks and geese and collecting eggs are along the coast and on offshore islands in Repulse Bay, around Gore and Moyle Bays, around Winter Island, and off Beach Point (Brice-Bennett 1976).

14.3.5 Marine Mammal Hunting

Polar Bears

Important polar bear hunting areas are Wales Island, along the eastern shore of Committee Bay, and the Vansittart Island - Gore Bay and Sturges Islands - Winter Island area. Wales Island has been identified as an important denning and feeding area. Some polar bears have also been killed close to the community (Brice-Bennett 1976).

Seals

Important seal hunting areas are in Repulse Bay, south along the western shore of Roes Welcome Sound past the Snowbank

River, and southeast along the northern shore of Frozen Strait and along the southwest coast of Vansittart Island. Other important areas are Gore Bay, Lyon Inlet, Ross Bay, and Wager Bay. Harbour seals are hunted occasionally around the community and in Hurd Channel (Brice-Bennett 1976).

Whales

Repulse Bay is the main hunting area for whales; primarily belugas. Other areas are around Beach Point and across Roes Welcome Sound to the northern tip of Southampton Island, and in Lyon Inlet (Brice-Bennett 1976).

Walrus

The main walrus hunting area is in Repulse Bay. Secondary areas are the northern part of Frozen Strait, the southwest coast of Vansittart Island, around Beach Point, along the western shore of Roes Welcome Sound south of the Snowbank River,aand around Sturges Island (Brice-Bennett 1976).

14.3.6 Fishing

Important fishing areas are the small lakes and rivers north of the community, North Pole and Christie Lakes, lakes and rivers east and south of Ross Inlet on Committee Bay, the Snowbank River, and north of Ross and Gore Bays (Brice-Bennett 1976).

Water bodies in the area which had commercial quotas in 1976 are: Alden Lake and River (Wager Bay) - 2,000 lbs (char); Bennett Bay (Wager Bay) - 5,000 lbs (char); Brown River (Wager Bay) - 15,000 lbs (char); Christie Lake - 2,000 lbs (lake trout and whitefish); Gore Bay area - 8,000 lbs (char); Haviland Bay Area (Repulse Bay) - 15,000 lbs (char); North Pole River - 5,000 lbs (char); North Pole Lake - 1,000 lbs (lake trout and whitefish); Piksimak River, Douglas Harbour (Wager Bay) - 5,000 lbs (char); Snowbank River - 5,000 lbs (char); and two unnamed lakes in the Repulse Bay area - 3,000 and 2,500 lbs (lake trout and whitefish). Of these, only the North Pole River has a recent record of commercial harvest.

14.4 Harvest Patterns

Spring is an important season for trapping; hunting caribou, wildfowl, polar bear, seal, and walrus; and fishing. Summer is important for hunting wildfowl, seal, whale, and walrus and for fishing. Fall is important for trapping, hunting caribou, polar bear, seal, and walrus and fishing, while winter is important for trapping and caribou, polar bear, and seal hunting (Table 14-2).

14.5 Harvest Data

(See Table 14-3).

14.6 Commercial and Domestic Importance

14.6.1 Commercial Importance

Seal skins, fox pelts, and polar bear skins are important sources of income for Repulse Bay Inuit (Table 14-4). A 1973 study survey reported that 66% of ringed seal skins and 81% of bearded seal skins were traded. Only 1% of all seal skins were used for handicrafts. Some walrus tusks were also used for handicrafts (Friesen 1975).

14.6.2 Domestic Importance

Seal meat is the primary food for the Repulse Bay Inuit; caribou, fish, ducks, belugas, and walrus are also eaten (Table 14-5). In 1973, 2% of edible ringed seal, 20% of edible bearded seal, 10% of edible beluga, 75% of edible narwhal, and 33% of edible walrus meat was used for family food; 14% of ringed seal, 41% of bearded seal, 90% of beluga, 25% of narwhal, and 66% of walrus meat which is suitable for dogs was fed to dogs (Friesen 1975).

14.7 Pipeline Implications

The Quebec route crosses the southern fringe of the Repulse Bay resource-use zone. Location of a staging area and increased marine traffic in Repulse Bay would probably have adverse effects on the community harvest of marine mammals because Repulse Bay is the primary seal, whale, walrus, and wildfowl hunting area and a secondary polar bear hunting area for the community. Tributaries to Repulse Bay, close to the community, are important for domestic char fishing.

Specifically, the Quebec route may conflict with resource harvest in the following key areas:

1. Snowbank River. This river is domestically fished for char and has a commercial quota. The route crosses it about 20 km from its mouth. Pipeline activities could degrade fish habitat interfere with char migrations, and conflict with fishing activities.

Table 14-2. Harvest patterns - Repulse Bay.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept to Nov)
Trapping[1,2] Arctic & Colored Fox	Trapping.	Now the major season.	No trapping.	Starts in Nov.
Land Hunting: Caribou[2,3]	Hunting inland.	Hunting inland.		Hunting inland.
Wolf[3]	Hunting inland in association with caribou hunting.			Hunting inland.
Wildfowl Hunting: Ducks & Geese[3,4]		Hunted at floe-edge.	Hunted along shore.	Stops in Sept.
Egg Collecting[4]		Eggs collected.		
Ptarmigan[3]		Hunted in all seasons.		
Marine Hunting: Polar Bear[3,4]	Floe-edge hunting.	Floe-edge hunting.	No hunting.	Hunting.
Ringed & Bearded[3,4] Seals		Hunted year-round.		
Harbour Seal[3]			Hunting.	
Beluga & Narwhal[2,3]			Hunting.	

Table 14-2. Harvest patterns - Repulse Bay.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept to Nov)
Walrus[2,3,4]		Hunting.	Hunting.	Hunting.
Fishing[2,3,4]	No fishing	Ice fishing on inland lakes, char fishing in rivers.	Fishing along coast.	Char fishing in rivers, fishing on inland lakes.

[1] Brice-Bennett 1976.

[2] inferred from analysis of the pattern in Pelly Bay (see Table 13-2).

[3] inferred from analysis of the pattern in Chesterfield Inlet (see Table 9-2).

[4] inferred from analysis of the pattern in Coral Harbour (see Table 15-2).

Table 14-3. Harvest data - Repulse Bay.[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR[2]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES
63-64	217	33		232	6	504	47	398	7	1761						
64-65	1121	48		284		14	61	345	9	1446				23[5]		
65-66	179	6		282		6	350	199	4	1398						
66-67	123	7		254	4	13	36	240	8	1550						
67-68	246	13		302	3	11	89	216	9	587						
68-69	99	3		273		1	22	87	10							
69-70				281	3		36	145	11	1475[3]						
70-71	350	8		554	7	12	419	53	10							
71-72	768	22		450	28	9	225	47	11	1346		9[7]	58[7]	20[7]	22[7]	
72-73	119	5			11				16	1258	69[4]					
73-74	1341	14			27				16	1084						
74-75									14[6]							
75-76																
Total All Years	4563	159		2912	89	570	1285	1730	125	11905						
Avg. All Years	456	16		324	11	71	143	192	10	1323		9	58	20	22	

Table 14-3. Harvest data - Repulse Bay.[1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR[2]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES
Total 69-70 to 74-75	2578	49		1285	76		680	245	78	5163						
Avg.	645	12		428	15		227	82	13	1291						
High Year	1341	22		554	28		419	145	16	1475						

1 All data from Usher 1975, unless otherwise indicated.

2 Polar Bear quota for Repulse Bay is 16.

3 Palmer 1973.

4 Friesen 1975.

5 Mansfield et al, 1975.

6 NWT Game Management Division.

7 Mean from two years of records from RCMP Game Records for 1962-1971 (Smith and Taylor 1977).

Table 14-4. Expected annual income from sales of fur - Repulse Bay.

	Arctic Fox	Coloured Fox	Wolf	Polar Bear	Ringed Seal	TOTAL
Average Annual Harvest (1970 to 74-75)[1]	645	12	15	16	1,291	
Average Pelt Price - NWT (74-75)[2]	$17.59	$28.61	$62.72	$388	$17.10	
Expected Income	$11,346	$343	$941	$6208	$22,076	$40,913
Per Capita Income[3]	$41	$1.20	$3.40	$22	$80	$148

[1] from Table 14-3, except for polar bear which is based on allotted quota of 16.

[2] from Fur Traders Record Book - NWT Government.

[3] based on a 1974 population of 276.

[4] Community polar bear skin price for 1974-75 from Smith and Stirling (1976).

Table 14-5. Estimated annual imputed income from major food sources - Repulse Bay.

	Caribou	Ducks	Ptarmigan	Ringed Seal	Fish	TOTAL
Average Annual Harvest (69-70 to 74-75)[1]	428	227	82	1291	ND	
Edible lbs/ Animal[2]	100	2.6	0.9	45		
Edible Meat (lbs)	42,800	590	74	58,095		72,438
Imputed Value/lb[3]	$3.00	$2.00	$2.00	$3.00		
Imputed Value	$128,400	$1180	$148	$174,285		$304,014
Per Capita Value[4]	$465	$4.30	$0.50	$631		$1101

[1] from Table 14-3.

[2] from Usher 1976, Bissett 1974, Thompson 1976.

[3] adapted from Usher 1976-8.

[4] based on a 1974 population of 276.

ND No Data.

2. Roes Welcome Sound is a critical migration route for belugas that are hunted in Repulse Bay. Seal and walrus are hunted along its western shore. Staging activities, marine traffic, and the construction of the crossing in summer could displace marine mammals, disrupt their movements, or make feeding/resting areas unsuitable because of disturbance or pollution.

15. CORAL HARBOUR

15.1 The Community

Coral Harbour was founded as a Hudson's Bay Company post in 1924. In 1942, the United States Airforce built an air strip 9 mi (14 km) from the present community. In 1948, the airstrip was taken over by the Canadian Dept. of Transport and in 1950, the federal government built a school at the community. Over the years, Inuit have moved into Coral Harbour from camps on Southampton and Coats Islands (Welland 1976; Canada North Almanac 1976).

In 1976, the estimated population of Coral Harbour was 425; it has increased steadily over the last decade. In 1974, it was 404; in 1971, 360; in 1969, 306; and in 1966, 298. In 1971, 92% of the population was Inuit.

Coral Harbour is currently served by one flight a week from Churchill with connections to Winnipeg. Marine transportation is supplied by the Northern Canada Transportation Limited operating out of Churchill. The shipping season is limited to August and September (Canada North Almanac 1976).

15.2 The Economy

Welland (1976) reports that many people still depend on trapping to earn income during winter and all of the people rely heavily on local food for daily use. Wage employment is available through the MOT airstrip and the weather station. Handicrafts (including soapstone, ivory, and whale bone carvings) are marketed through the Katudgevik Cooperative. Coral Harbour also has a tourist facility, the Issungaag Motel, which is owned and operated by the cooperative.

There were 69 holders of General Hunting Licences in 1974-75; the number has increased over the last decade (see Table 15-1). No commercial fishing licences were issued in 1975 (D. Dowler, personal communication).

Table 15-1. Number of General Hunting Licences Issued - Coral Harbour.

1974-75	69	1970-71	73	1966-67	54
1973-74	80	1969-70	80	1965-66	64
1972-73	79	1968-69	37	1964-65	65
1971-72	76	1967-68	56	1963-64	62

Source: NWT Government.

15.3 Resource-Use Areas

15.3.1 General Area

Caribou hunting and trapping define the inland boundary of the Coral Harbour resource-harvest zone while seal hunting defines the marine boundary. The zone extends 230 km west to the west shore of Roes Welcome Sound, south of Wager Bay; 230 km north to the north tip of Southampton Island; 110 km east to the southeast tip of Southampton Island; and 220 km south to the south end of Coats Island (see Map 13).

Camping in spring and summer is an important activity. Every June, most families, including those whose members have full-time jobs, camp for several weeks at various places to hunt seals and geese and to collect eggs. Most camps are at places where people have lived in the past (Welland 1976).

Important spring and summer camping areas are located in South Bay, Prairie Point, Native Bay and Native Point, East Bay, Bear Cove and Bear Cove Point, and Ruin Point. Important summer fishing camp areas are along the Kirchoffer River, Rocky Brook, and Sixteen Mile Brook. Duke of York Bay is a remote camping area but it is still used in most years.

There are no permanent winter camps now on Southampton Island but during the winters of 1970-71 and 1971-72, groups of more than 20 lived on Coats Island (Welland 1976).

15.3.2 Trapping

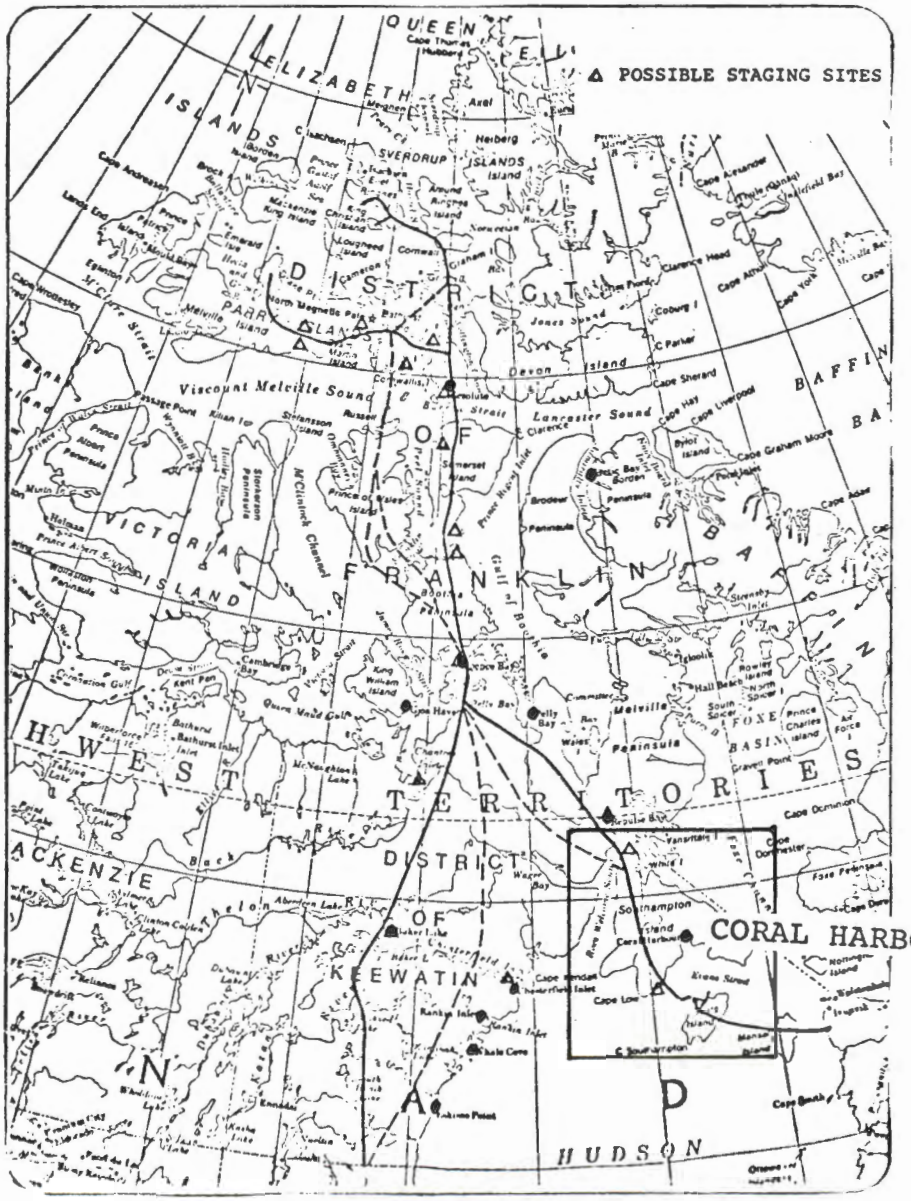
Important trapping areas are: shorelines in Native Bay, South Bay, and southwest to Cape Low; inland towards Salmon Pond

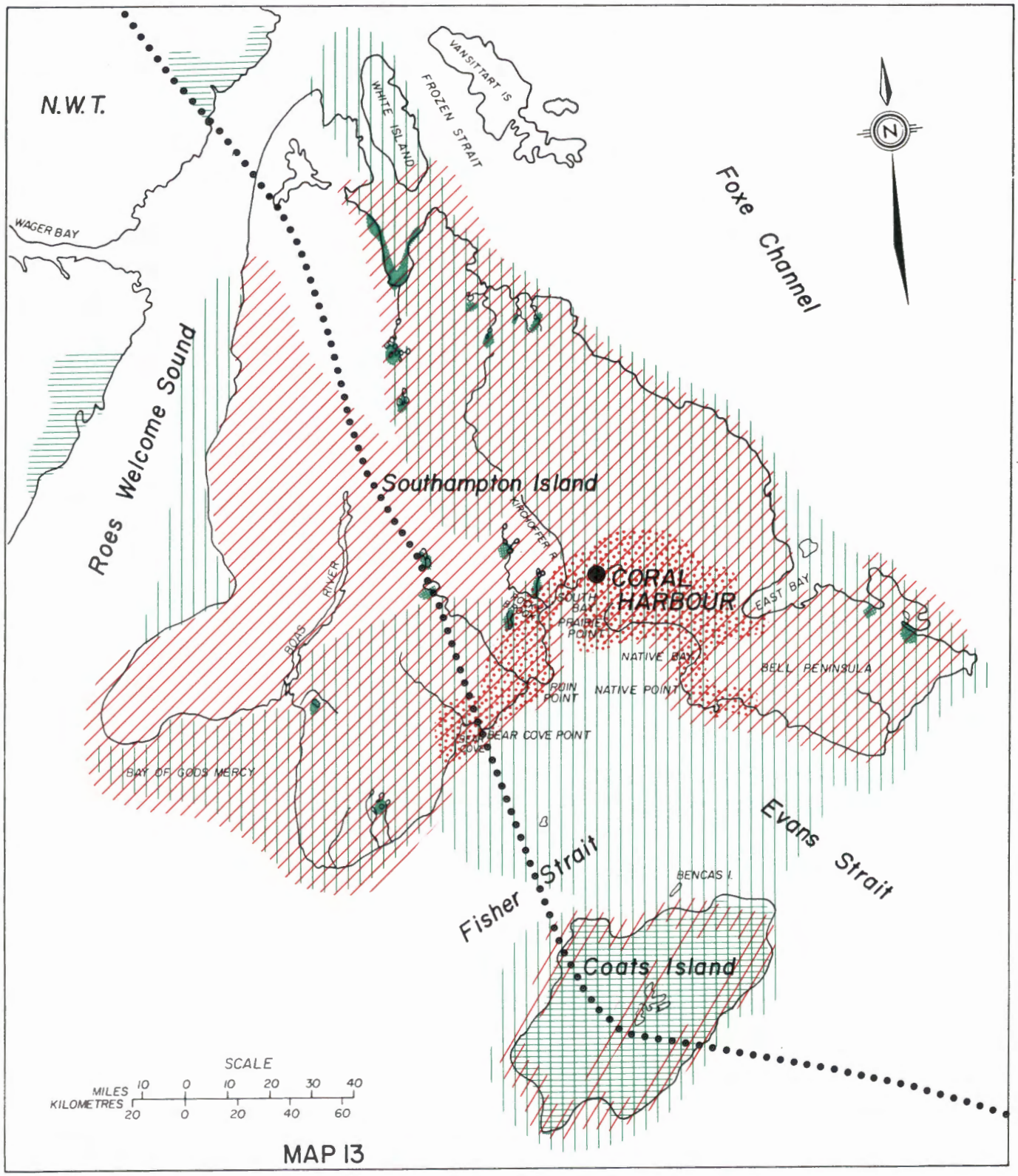
— LEGEND —

- Marine mammal hunting
  - seal
  - whale
  - walrus
  - polar bear
- Land mammal hunting
  - caribou
  - muskox
  - wolf
- Trapping
  - wolverine
- Wildfowl
- Fishing
- Trapline boundaries
  - almost exclusively fox

Proposed pipeline alignment

- Prime route
- Alternate route
- Community location





13. Coral Harbour

and north up the Cleveland River to Duke of York Bay; inland towards East Bay and all around the coast of the Bell Peninsula; north from Cape Low to the Bay of God's Mercy and inland from there to Coral Harbour; along the northwest coast from Ell Bay to Battery Bay; north up the Kirchoffer River and down the Canyon River to the coast; and inland towards Duke of York Bay. Remote areas are Cape Kendall, the Ascension Islands and Stanley Harbour, and Coats Island. Coats Island has been trapped in recent years, particularly by the seven trappers who lived there in the winter of 1971-72 (Welland 1976).

Short traplines running from Coral Harbour are used by weekend trappers who generally have full-time wage employment (Welland 1976).

15.3.3 Land Mammal Hunting

Major caribou-hunting areas are Coats and Bencas Islands; remote hunting areas are two areas on the western shore of Roes Welcome Sound, one south of Wager Bay and one south of Beach Point. These two areas are occasionally used in winter when people cross Roes Welcome Sound on the ice bridge. Caribou were depleted on Southampton Island and have not yet recovered to the point where hunting is permitted (Welland 1976).

15.3.4 Wildfowl Hunting

Ducks and geese are hunted along the coast and floe edge. The Bear Cove, Native Point, and East Bay areas are important for spring goose hunting and egg collecting. The coast from Bear Cove to Native Point, the mouth of the Boas River in Bay of God's Mercy, and Capes Prefontaine and Pembroke on Coats Island are important goose hunting areas in summer. Ptarmigan are hunted throughout the area, especially around Big Corner Cliff east of Coral Harbour (Welland 1976).

15.3.5 Marine Mammal Hunting

Polar Bears

Polar bears are intensively hunted from South Bay to Cape Low and all around the Bell Peninsula. Important remote areas are inland from Coral Harbour to the Bay of God's Mercy, Cape Kendall, Duke of York Bay, and Coats Island. There is some spring hunting in the mountainous areas on the east side of Southampton Island (Welland 1976). Coral Harbour has a unique polar bear hunting pattern; it is the only community in the study area where polar bear hunting ranges a considerable distance inland.

Seals

Ringed and bearded seals are hunted at the floe-edge in winter in South Bay and Native Bay. In late winter and early spring the hunting area expands into East Bay, Kokumiak Harbour, and Duke of York Bay. In June, hunting from spring camps at Bear Island and on adjacent coasts of South Bay is important. Summer hunting occurs along the coast, the important areas being all along the south coast of Southampton Island and around Duke of York Bay. In late summer and early fall, the important ringed and bearded seal hunting areas are between Southampton and Coats Island and along all coasts of Coats Island (Welland 1976).

Harp seals are hunted around South and Native Bays when they migrate into the area in summer. Harbour seals are hunted around Cape Low and Bay of God's Mercy where they haul out on rocks in late summer-early fall or at the floe-edge in winter (Welland 1976).

Whales

Whales are hunted in South Bay, around Native Point, in Duke of York Bay, and on the northeastern coast of Coats Island.

Walrus

Walrus are hunted at the floe edge in winter around Native Point and from Cape Low to Hut Point. Spring floe-edge hunting areas are in Native Bay, South Bay, and Duke of York Bay. The main summer hunting areas are in Native and South Bays, around Walrus Island, along the south and southeast coasts of Coats Island, and around Bencas Island. Secondary areas are around the western and northern coasts of Coats Island and around the Bell Peninsula (Welland 1976).

15.3.6 Fishing

Favourite spring fishing areas are lakes and rivers around Stanley Harbour and the Canyon and Cleveland Rivers. Important summer char fishing spots are close to the community at Rocky Brook, Sixteen Mile Brook, and Kirchoffer River. The Thomsen and Cleveland Rivers and the coast around Duke of York Bay are important spring and summer fishing areas for people camping in the Duke of York Bay area. Salmon Pond is an important fishing area in fall.

Water bodies in the area that had commercial quotas for char in 1976 are: Cleveland River (20,000 lbs); Gordon River, north of Stanley Harbour (2,500 lbs); and Thomsen River (5,000 lbs). None of these water bodies have recent commercial harvest records.

15.4 Harvest Patterns

Spring is an important season for hunting wildfowl, polar bear, seal, and walrus and for fishing. Summer is important for hunting caribou, wildfowl, polar bear, seal, whale, and walrus and for fishing. Fall is important for trapping; hunting caribou, polar bear, seal, and whale; and fishing. Winter is important for trapping and hunting caribou, eider duck, polar bear, seal and walrus (Table 15-2).

15.5 Harvest Data

(See Table 15-3).

15.6 Commercial and Domestic Importance

15.6.1 Commercial Importance

Polar bear skins, fox pelts, and seal skins are important sources of income for the Coral Harbour Inuit (Table 15-4). Welland (1976) reports that many people, including some in their early twenties, consider trapping to be their profession and hope to continue in it. Because Southampton and Coats Islands are productive areas and because fur prices are high, they regard trapping and hunting as an enduring and worthwhile profession.

Friesen (1975) reported 90% of ringed seal, 40% of bearded seal, and 60% of harp seal skins were traded; 1% of ringed and bearded seal skins were used for handicrafts. Walrus were important for their ivory tusks which are used for carving; 109 lbs of ivory were harvested in 1973.

15.6.2 Domestic Importance

Seal meat is the primary food of the Coral Harbour Inuit; caribou, fish, wildfowl, beluga whales, and walrus are also important (Table 15-5). In 1973, an estimated 25% of edible ringed seal, 50% of edible bearded seal, 75% of edible harp seal, 80% of edible beluga, and 41% of edible walrus meat was used for family food; 14% of ringed seal, 31% of bearded seal, 88% of harp seal, 20% of beluga, and 32% of walrus meat suitable for dogs was fed to dogs (Friesen 1975). Welland (1976) reports that walrus hunting has become a more wasteful practice as the use of ivory predominates and the meat is not used much with the decline in use of dog teams. Only preferred meats are now used for human consumption. Seal skins are still used domestically to make boots, mitts, and ropes (Welland 1976).

Table 15-2. Harvest patterns - Coral Harbour.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov.)
Trapping[1,2]	Primary season.	No trapping.	No trapping.	Starts in Nov.
Land Hunting: Caribou[1]	Some hunting.		Starts in late summer.	Continues to early fall.
Wildfowl Hunting: Ducks & Geese[1]	Eiders hunted at floe-edge.	Starts in Jun from spring camps.	Important season.	
Egg Collecting[1]		Collecting.		
Ptarmigan[1]	Hunted anytime.			
Marine Hunting: Polar Bear[1,3]	Hunting.	Some hunting.	No hunting.	Starts in Oct.
Ringed & Bearded Seals[1]	Floe-edge hunting.	Floe-edge hunting from spring camps.	Hunting along coast & between islands after break-up.	Summer pattern continues to freeze-up.
Harp Seal[1]			Hunted as they migrate through area.	

Table 15-2. Harvest patterns - Coral Harbour.

Activity	Winter (Dec to Mar)	Spring (Apr to Jun)	Summer (July, Aug)	Fall (Sept. to Nov.)
Beluga & Narwhal[1]			Hunting in Aug.	Hunting in Sept.
Walrus[1]	Floe-edge hunting.	Hunted from canoes along floe-edge.	Hunted in open water from Peterhead boats.	
Fishing[1]		Ice fishing on lakes.	Char caught with nets & rods after break-up.	Ice fishing with nets for char.

[1] Welland 1976.
[2] inferred from analysis of the pattern in Pelly Bay (see Table 13-2).
[3] inferred from analysis of the pattern in Chesterfield Inlet (see Table 9-2).

Table 15-3. Harvest data - Coral Harbour [1]

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR [3]	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES
63-64	2039	1		11		312	179	463	99	1754						
64-65	4014			115		322	286	1144	101	2039						
65-66	832					667	402	434	45	3791						
66-67	727			27		905	258	1553	116	1839						
67-68	1602			11		275	142	334	74	1408						
68-69	806	6		25		169	75	260	39							
69-70	689			43		613	757	338	71	1251 [4]						
70-71	4156					803	1602	513	66							
71-72	2098			30		639	1711	294	64	691			33 [5]		132 [5]	
72-73	424								40	2946	44 [8]	31 [8]				
73-74	1859								65	856					132 [6]	
74-75				(2)					65 [7]							
75-76																
Total All Years	19246			262		4705	5412	5333	845	16575						
Avg. All Years	1750			37		523	601	593	70	1842			33		132	

Table 15-3. Harvest data - Coral Harbour (1)

	TRAPPING			LAND MAMMAL HUNTING		WILDFOWL HUNTING			MARINE MAMMAL HUNTING							FISHING
	ARCTIC FOX	COLOURED FOX	WOLVERINE	CARIBOU	WOLF	GEESE	DUCK	PTARMIGAN	POLAR BEAR (3)	RINGED SEAL	BEARDED SEAL	HARP SEAL	BELUGA	NARWHAL	WALRUS	ALL SPECIES
Total 69-70 to 74-75	9226			73		2055	4070	1145	371	5744						
Avg.	1845			37		685	1357	382	62	1436						
High Year	2098			43		803	1711	513	71	2946						

1 All data from Usher 1975, unless otherwise indicated.

2 In 1974, the quota for Coats and Bencas Islands was raised from 120 to 300, but during the winter of 1974-75, local hunters could not fill this quota. (Dialogue North 3-75).

3 Polar Bear quota for Coral Harbour is 65.

4 Palmer 1973.

5 Mean from 3 years of records for walrus and 4 years for beluga from RCMP Game Reports for 1962 to 1971 (Smith and Taylor 1977).

6 Welland 1976 reports fewer walrus taken in recent years due to decline in importance of dog teams.

7 NWT Game Management Division.

8 Friesen 1975.

Table 15-4. Expected annual income from sales of fur - Coral Harbour.

	Arctic Fox	Polar Bear	Ringed Seal	Total
Average Annual Harvest (69-70 to 74-75)[1]	1845	65	1436	
Average Pelt Price - NWT (74-75)[2]	$17.59	$809[4]	$17.10	
Expected Income	$32,454	$52,585	$24,556	$109,595
Per Capita Income[3]	$80	$130	$61	$271

[1] from Table 15-3, except for polar bear which is based on allotted quota of 65.

[2] from Fur Traders Record Book - NWT Government.

[3] based on a 1974 population of 404.

[4] Community polar bear skin price for 1974-75 from Smith and Stirling (1976).

Table 15-5. Estimated imputed income from major Food sources - Coral Harbour.

	Caribou	Geese	Ducks	Ptarmigan	Ringed Seal	Fish	Total
Average Annual Harvest (69-70 to 74-75)[1]	120	685	1357	382	1436	ND	
Edible lbs/Animal[2]	100	3.5	2.6	0.9	45		
Edible Meat (lbs)	12,000	2398	3528	344	64,620		82,890
Imputed Value/lb[3]	$3.00	$2.00	$2.00	$2.00	$3.00		
Imputed Value	$36,000	**$4795**	$7056	$688	**$193,860**		$242,399
Per Capita Value[4]	$89	$12	$17	$1.70	$480		$600

[1] from Table 15-3, except for caribou which was based on a yearly quota of 120, which has since been increased.

[2] from Usher 1976, Bissett 1974, Thompson 1976.

[3] adapted from Usher 1976.

[4] based on a 1974 population of 404.

ND No Data.

15.7 Pipeline Implications

The Quebec route crosses the core of the Coral Harbour resource-use zone on Southampton and Coats Island and in Fisher Strait. Specifically, the Quebec route may conflict with resource harvest in the following key areas:

1. Upper Boas River Drainage, Southampton Island. This is a secondary polar bear hunting area. Construction in this area may interfere with polar bear migrations, destroy den sites, and promote man-bear conflicts.

2. Bear Cove, Southampton Island. Important for ringed and bearded seal hunting, polar bear hunting, and spring and summer goose hunting. There is also some whale hunting in this area. Staging activities, marine traffic, and spring and summer construction could displace marine mammals and breeding geese and degrade their habitats.

3. Fisher Strait. This is a primary area for walrus hunting in summer and ringed and bearded seal hunting in late summer and early fall. Marine traffic and construction of the crossing in late spring, summer, and early fall could displace marine mammals or interfere with their movements.

4. Coats Island. This is the prime caribou hunting area; construction in spring and summer could disturb caribou populations in critical areas or interfere with their movements. The coasts of Coats Island are important for polar bear, walrus, and seal hunting; staging activities and marine traffic could disturb marine mammals or degrade their habitat.

16. RESOURCE IMPACTS

16.1 Format

Potential impacts are identified on a species-by-species basis according to the following format:

1. Nature of impacts on animal populations important to community harvest.

2. Descriptions of specific areas along the prime and alternate routes where these impacts may occur.

3. Evaluation of these impacts in relation to harvest and use patterns of communities.

4. Identification of major data gaps.

5. Recommendation of mitigative measures and protection strategies.

Impacts on species such as wolf and wolverine are not discussed because they are not considered critical to community survival and well-being, and because little is known on their abundance and distribution.

16.2 Arctic Fox

16.2.1 Disturbance of Denning

Arctic fox normally dig dens in well-drained soils of eskers, hillsides or streambanks (Banfield 1974), areas also suitable for pipeline construction, excavation and buildings. Potential impacts on fox populations include destruction of dens or disturbance leading to the abandonment of dens. The magnitude of impact is likely to be minor because fox are widespread and abundant in most areas along routes. In addition, impact effects would tend to be masked by natural population cycles.

Areas where denning is most likely to be affected are:

1. North side of Bellot Strait. This is a denning site (Peterson 1976) and a remote trapping area for Spence Bay.

2. Boothia Isthmus. The area from Pagnikto Lake north to Kangikjuko Lake (just north of Jekyll Lake) has been identified as an important fox denning area (Peterson 1976) and lies within the primary trapping area for Spence Bay.

3. Central Keewatin. Denning areas are reported to be abundant throughout central Keewatin (Peterson 1976). The prime route passes through the primary trapping area of Baker Lake and the western edge of the Eskimo Point trapping area. The coastal alternate passes close to primary trapping areas of all coastal communities except Chesterfield Inlet.

4. Southampton Island. Important fox habitat occurs throughout Southampton Island. The Quebec route passes through important Coral Harbour trapping areas on the island.

16.2.2 Communities Affected

Communities that would be affected most by reduction in availability of fox through increased mortality or displacement are Spence Bay and Baker Lake. Coral Harbour would be similarly affected if the Quebec route were chosen. The coastal communities, except for Chesterfield Inlet, could be affected to a minor degree by the coastal alternate. (Trapping is an important source of income for Coral Harbour and Eskimo Point and, to a lesser extent, for Rankin Inlet, Whale Cove, Spence Bay and Baker Lake).

16.2.3 Data Gaps

Fox denning areas are not well known except in a few locations. However, this is not a significant data gap from the point of view of resource protection during pipeline construction.

16.2.4 Resource Protection Strategies

No recommendations for route revisions or project scheduling at specific sites can be made at this time. The denning season extends from about the end of March to July (Banfield 1974). Attempts should be made during route location surveys to check sandy or gravelly terrain for dens. Active denning areas that are found should be marked and construction activities should not occur in these areas during the denning season.

16.3 Caribou

16.3.1 Interference with Caribou Migrations

Caribou are a basic necessity of life and well-being for almost all Inuit communities along the proposed routes. Sources of potential impacts which may be caused by the pipeline project are: construction activities (operation of equipment, presence of equipment and workers, and loud noise); low-flying aircraft; traffic; and barriers (roads, tracks, berms). All of these could deflect caribou from normal migration routes, destroy critical habitat and possibly result in abandonment of traditional range.

The primary implication of such impacts to resource-use is that caribou may no longer be present in traditional hunting areas. This is significant because hunters depend on the return of caribou herds to traditional areas at predictable times of year (in some cases key hunting areas are located at

specific river crossings or other particular land features). It is not known whether deflection of caribou from their normal migration route one year would result in long-term or permanent changes in migration patterns or locations of calving, post-calving, wintering, or other critical areas.

A secondary resource-use implication would be the reduction of caribou populations resulting from delayed arrival of herds on calving grounds or wintering areas, or from the general stress incurred through forced changes in migration patterns. Such changes, coupled with severe environmental conditions (e.g. bad winter and heavy snow conditions) could cause mortality. Miller (1972) claims that if the Kaminuriak herd is forced to calve south of their traditional calving ground, they could suffer a much greater loss of calves to wolves.

We assume that the pipeline will, in almost all areas, be buried, thus posing little interference to caribou migrations. If the pipeline is not buried in migration areas and if the pipeline or the berm were to create a physical or visual barrier to migrations, the impact on caribou populations would be much more severe than if obstruction occurred during just one season.

Areas where caribou migrations may be affected along the route are:

1. Polar Bear Pass Area (Bracebridge Inlet to Goodsir Inlet), Bathurst Island. Caribou migrate along the east coast, moving north in April and May to calving and summering grounds in northern Bathurst Island and returning south in September and October to wintering grounds on southeast Bathurst Island (Fischer and Duncan 1976). Southeast Bathurst has been a major winter caribou hunting area for the Resolute Inuit since 1953, but its importance has declined recently due to low caribou populations.

2. Somerset and Prince of Wales Islands. Caribou migrate north from their wintering area in Stanwell Fletcher Basin along the western coast of Somerset Island and across Peel Sound to Prince of Wales Island (Boreal Institute for Northern Studies 1975). They probably migrate north from March to May and return in fall, although precise migration dates are not known. The proposed prime route may avoid this migration if caribou movements are confined primarily to the coast and across Peel Sound; the western alternate route on Prince of Wales Island may conflict with migrations to calving areas in the

Arrowsmith Plains, in the northwest part of the Island, and on Russell Island. The northwest part of Somerset Island and the northeast part of Prince of Wales Island are important spring hunting areas for the Resolute Inuit; the importance of these areas is reported to be increasing in recent years. Southwest Somerset Island from McClure Bay to Bellot Strait is a remote caribou hunting area for the Arctic Bay Inuit and is probably no longer used by them.

3. Boothia Peninsula. Caribou on northern Boothia Peninsula probably migrate in early spring from wintering grounds in the northeast around Cape Airy to calving and summering areas in the northwest and north-central parts of the Peninsula, returning in fall (Fischer and Duncan 1976). The prime route would cross this migration route.

4. Baker Lake-Thelon River area. A small caribou crossing area on the Thelon River just upstream of Baker Lake (Canadian Wildlife Service 1972) conflicts with the crossing of the Thelon by the proposed prime route. This crossing is an important hunting site for the Baker Lake Inuit.

5. Yathkyed Lake to Manitoba border. This entire area is important for migrations and movements of the Kaminuriak herd from about mid-May to early November (Parker 1972, Miller 1972). From mid-May to early June they move across this area enroute to calving grounds east of Kaminuriak Lake in the McQuoid-Banks-Duffy-Kaminak Lakes area. The most common route is along North and South Henik Lakes, but depending on climatic conditions, some animals may migrate across the prime route anywhere from South Henik Lake, south to the Manitoba border. Mid-summer (mid to late July) and early fall (mid-Sept. to early Oct.) movements cross this area from the post-calving aggregation area to summering areas and from summering areas to a common rutting area near South Henik Lake (Parker 1972, Miller 1972). In late fall (late Oct. to early Nov.), the Kaminuriak herd migrates out of this area to their wintering area in northern Manitoba and Saskatchewan (Parker 1972, Miller 1972).

The coastal route would cross migration routes of the population that winters in the Rankin Inlet-to-Eskimo Point area enroute to the calving area east

of Kaminuriak Lake. It would also cross late summer and early fall migration routes, as well as the route used by these animals in late fall to return to their wintering area. The Kaminuriak herd is of prime importance to the people of Eskimo Point and Whale Cove, of less importance to the people of Rankin Inlet and Chesterfield Inlet, and of secondary importance to the people of Baker Lake.

16.3.2 Interference with Calving

Disturbance of caribou during calving may result from pipeline construction (operation of equipment, blasting, low-flying aircraft, traffic, etc.) and operation (compressor stations, surveillance flights, maintenance activities, etc.). This, coupled with the vulnerability of calves, could lead to animal losses by increasing stress on the population or by causing herds to abandon calving areas prematurely.

Disturbance on calving areas could affect resource harvest by reducing the number of animals available for harvest, either through direct mortality or through changes in movement patterns.

Areas where calving areas may be affected along the route are:

1. Aston Bay, Somerset Island has been identified as a calving area for the Somerset Island-Prince of Wales Island caribou population (Bissett 1968) although this has not been confirmed by recent surveys. Aston Bay is part of an important spring hunting area for the Resolute Inuit. The prime route passes close to Aston Bay and it has been identified as a possible staging site for pipeline construction.

2. Stanwell Fletcher Basin, Somerset Island. The southwest coast of Somerset Island south of Stanwell Fletcher Lake has been identified as a possible calving area, based on observations of cow-calf concentrations (Fischer and Duncan 1976). The prime route probably will avoid the core of this area, although some calving may take place near the proposed route.

3. Prince of Wales Island. Cow-calf concentrations have been observed in the Arrowsmith Plains area, the northwest part of the Island, and to a limited degree on Russell Island and the southeast shore of Baring Channel (Fischer and Duncan 1976). The western alternate would avoid the Arrowsmith Plains area but would probably cross calving areas on the northern part of the Island.

4. Boothia Peninsula. Cow-calf concentrations have been observed north, east, and south of Wrottesley Inlet, suggesting that calving occurs in this area (Fischer and Duncan 1976). The prime route avoids this area; the western alternate would cross it.

16.3.3 Disturbance of Caribou Concentrations

Important areas for caribou concentration, other than calving areas, are post-calving and wintering areas. Disturbance by pipeline construction or operation activities in these areas may displace caribou from critical ranges or destroy productive habitats, thereby placing caribou populations under added stress at times when they are likely to be vulnerable. Again, potential impacts on harvest would be abandonment by caribou of traditional hunting areas and reduction of caribou populations.

Areas where impacts may occur on caribou concentrations along the route are:

1. Southeast Bathurst Island. The Bathurst population (recently estimated at 300) winters in this area (Fischer and Duncan 1976) which used to be an important winter-hunting area for the Resolute Inuit. Caribou may be driven out of this area if Freemans Cove is used as a major pipeline staging area during winter.

2. Cornwallis Island supports a year-round population (now estimated at 30) which resides primarily in the Cape Austin area and along the west coast (Fischer and Duncan 1976). This is a secondary fall-hunting area for the Resolute Inuit.

3. Stanwell Fletcher Basin. Recent surveys have confirmed the importance of this area as the primary fall and winter concentration area for the Prince of Wales-Somerset Island population (R. Russell, personal communication). It is a remote but important hunting area for the Resolute Inuit, and a remote, and probably no longer important hunting area for the Arctic Bay Inuit.

4. Prince of Wales Island. The Island is important summer range for about 2,000 caribou. Main concentrations are in the southwest and northern parts of the Island, with the northern part supporting large concentrations in late July (Fischer and Duncan 1976). The western alternate would traverse this area.

5. Murchison-Hayes River area. This is a major wintering area for about 500 barren-ground caribou (Canadian Wildlife Service 1972) and is an important hunting area for Spence Bay and Gjoa Haven Inuit. The prime route skirts the edge of the winter range.

6. The South Henik Lake area is the major rutting and late fall staging area for the Kaminuriak herd (Parker 1972). From mid-May to mid-June, migrating herds cross between South and North Henik lakes (Canadian Wildlife Service 1972). The prime route passes along the eastern edge of this area.

7. Ellice Hills and Kellett River area. Several hundred caribou winter in these areas (Canadian Wildlife Service 1972), which are important hunting areas for the Pelly Bay Inuit. The Quebec route passes through both areas and could interfere with caribou movements from one area to the other.

8. Coats Island. The Island is critical year-round range for an isolated population of about 1500 - 2000 caribou (Canadian Wildlife Service 1972) and is the primary caribou hunting area for the Coral Harbour Inuit. The Quebec route crosses the center of the island.

16.3.4 Communities Affected

Communities that could be affected most by impacts on caribou are Eskimo Point, Whale Cove, Baker Lake, and Resolute. Spence Bay, Rankin Inlet, Chesterfield Inlet, and Gjoa Haven could be affected to a lesser extent and Arctic Bay to a minor extent. Coral Harbour and, to a lesser extent, Pelly Bay could be affected if the Quebec route is chosen.

The caribou is the mainstay of the Baker Lake Inuit and provides their only major source of meat. Caribou meat is also the most important food source for people at Eskimo Point, Rankin Inlet, Whale Cove, and Gjoa Haven. It is a secondary, but still very important food source for Resolute, Chesterfield Inlet, Spence Bay, Pelly Bay, Coral Harbour, and Arctic Bay.

16.3.5 Data Gaps

Major data gaps concerning impacts on caribou are related to:

1. Size, timing, and location of caribou migrations on and between Somerset and Prince of Wales Islands.

2. Size, timing, and location of migrations on northern Boothia Peninsula.

3. Status of populations and information on distribution and movement in the southern Boothia Peninsula and Hayes-to-Murchison Rivers area.

4. Winter movements of caribou in the Kellett River-Ellice Hills area.

5. Locations of prime seasonal caribou ranges on Coats Island.

16.3.6 Resource Protection Strategies

Based on the expected severity of impacts and the importance of the resource to communities, resource protection priorities concerning impacts on caribou populations should be:

1. Protection of the Kaminuriak herd in Southern Keewatin (prime and coastal routes).

2. Protection of the Prince of Wales-Somerset Islands-northern Boothia Peninsula population (all routes).

3. Protection of the Bathurst Island-Cornwallis Island population (all routes).

4. Protection of the Murchison-Hayes River population (prime route only).

5. Protection of the Coats Island population (Quebec route only).

6. Protection of the Kellett River-Ellice Hills population (Quebec route only).

Strategies to protect caribou populations include:

a) Consideration of alternate routes. None of the existing alternates appears superior to the prime route with regard to minimizing impacts on caribou migrations or populations. The coastal alternate conflicts with the Kaminuriak herd in southern Keewatin and the western alternate in the Arctic Islands conflicts with caribou populations on Prince of Wales Island. The Quebec route conflicts with the isolated Coats Island herd.

b) Scheduling of construction. In general, construction should be scheduled to avoid disturbance of caribou migration patterns and calving, or post-calving, wintering, and rutting concentrations. Specifically, there should be no construction during migration periods (April, May, September, and October) in Polar Bear Pass. Construction in the Stanwell Fletcher Basin should be scheduled to avoid concentrations of caribou in early fall and winter and disturbance of calving in June. Construction on the northern Boothia Peninsula should be scheduled to avoid caribou migrations there in early spring and fall. In southern Keewatin, no construction should be scheduled between mid-May and early November, important times for calving, post-calving, and rutting concentrations and migrations. If the Quebec route were chosen, construction in the Kellett River and Ellice Hills areas should not take place in winter.

c) Siting provisions. In general, permanent facilities such as compressor stations and maintenance depots should not be located in critical caribou concentration areas such as Stanwell Fletcher Basin and the North and South Henik Lakes area.

d) General code requirements. Regional and site-specific code provisions should be formulated to prevent disturbance of caribou populations (e.g. provisions prohibiting pipeline employees from hunting caribou and harassing wildlife; or provisions to ensure that pipelines and other structures do not obstruct migrations).

16.4 Muskox

16.4.1 Disturbance

The presence of people, construction equipment and aircraft have the greatest potential for disturbing muskox. These activities could cause herds to stampede or cause females to abandon calves (Lent 1971). Behavioural disturbance combined with habitat degradation during construction could also force muskox to desert critical wintering areas (Hubert, cited in Kucera 1974), resulting in a reduction in muskox populations. Any reduction in muskox populations is particularly significant as muskox are very slow to recover because of their low productivity.

Areas where disturbance of muskox may occur along the route are:

1. Bathurst Island. According to Fischer and Duncan (1976) the current estimated muskox population on Bathurst Island is 280; this population has declined greatly over the past few years, probably because of a series of severe winters. Main concentrations are in the Bracebridge-Goodsir Valley (Polar Bear Pass) and south of Bracebridge Inlet. There may be a movement from southern Bathurst Island to northwest of Bracebridge Inlet prior to calving in late April and early May (Fischer and Duncan 1976).

2. Cornwallis Island. About 40 muskox inhabit Cornwallis Island, concentrating in the western and northwestern part of the Island and around Eleanor Lake (Fischer and Duncan 1976).

3. Stanwell Fletcher Basin. Muskox were observed in this area for the first time in a century in 1975 (Russell and Edmonds 1976), suggesting recolonization (15 adults and 3 calves were observed there in 1976). It has been estimated that this area could support several hundred muskox (R. Russell and J. Edmonds, personal communication).

4. Prince of Wales Island. The current estimated muskox population on Prince of Wales Island is 600; they concentrate in the extreme south between Cape Haughton and Guillemard Bay, in the area south of Young Bay and east of Fisher Lake, and the area immediately south of Browne Bay (Fischer and Duncan 1976). Pipeline route alternates on Prince of Wales Island would cross these areas.

5. Murchison-Hayes-Back River Area. Muskox have been sighted in the Back River area between the Murchison and Hayes Rivers, and around the Meadowbank River (Boreal Institute for Northern Studies 1975). Construction of the pipeline and the possible use of Chantrey Inlet as a staging area may affect muskox populations and movements.

6. Ellice Hills Area. Sightings of muskox have been reported in this area (Canadian Wildlife Service 1972).

16.4.2 Communities Affected

Because muskox have been completely protected from hunting since 1917 harvest patterns throughout the study area would not be affected. However, muskox are now recovering to the point where hunting may soon be allowed in certain areas; therefore they represent an important potential resource. Communities whose future harvests of muskox may be affected by pipeline project impacts are Resolute, Gjoa Haven, to a lesser extent Spence Bay, and to a minor extent Baker Lake. Pelly Bay could be affected to a minor extent if the Quebec route is chosen.

16.4.3 Data Gaps

Major data gaps concerning impacts on muskox are related to:

1. Specific dates and locations of major movements on Bathurst and Prince of Wales Island and specific locations of critical habitats on Prince of Wales Island and in Stanwell Fletcher Basin.

2. Numbers and distribution of muskox in the Hayes to Murchison, Back, and Meadowbank Rivers area.

3. Status and movements of muskox in the Ellice Hills area.

16.4.4 Resource Protection Strategies

Based on the expected severity of impacts and the potential importance of the resource to communities, resource protection priorities concerning impacts on muskox populations should be:

1. Protection of the Stanwell Fletcher Basin population (all routes).

2. Protection of the Bathurst Island and Cornwallis Island populations (all routes).

3. Protection of the Prince of Wales Island population. (Arctic Islands western alternate only).

4. Protection of the Murchison to Hayes Rivers, Back River, and Meadowbank River populations (prime route only).

5. Protection of the Ellice Hills population (Quebec route only).

Strategies to protect muskox populations include:

a) Consideration of alternate routes. None of the alternate routes seem to be any better than the prime route for minimizing potential problems. However, the coastal alternate would avoid the Back and Meadowbank Rivers populations and, if the Quebec route is chosen, the southern alternate would avoid the Ellice Hills population.

b) Scheduling of construction. In general, construction should be scheduled to avoid disturbance of muskox movements or disturbance of muskox in important concentration areas such as calving and wintering areas. More must be known on specific timing and location of movements and location of critical habitats before site-specific recommendations can be made. Areas where scheduling restrictions may be critical are Polar Bear Pass, northwest Cornwallis Island, Stanwell Fletcher Basin, and Prince of Wales Island.

c) Siting provisions. In general, permanent facilities such as compressor stations and maintenance depots should not be located in critical concentration areas such as calving and wintering areas. Specifically, they should not be located in Polar Bear Pass, northwest Cornwallis Island, Stanwell Fletcher Basin, or any of the key concentration areas identified on Prince of Wales Island.

d) General code requirements. Code provisions should be enforced to prevent disturbance of muskox populations. Examples are prohibition of hunting and harassment of muskox. Minimum aircraft overflight restrictions should be established and enforced.

16.5 Wildfowl

16.5.1 Disturbance

Disturbance of wildfowl by low-flying aircraft, water traffic, operation and movement of equipment, and human activity could have major impacts on wildfowl populations. Disturbance can cause waterfowl and seabirds to abandon nests, leaving eggs or young vulnerable to predators or cold. Colonial-nesting birds are especially susceptible to disturbance, which if severe or persistent enough could result in desertion of colonies. Harassment of molting or staging waterfowl by aircraft and human activity could force birds out of prime feeding/resting areas

which could lead to depletion of energy reserves through stress during the critical pre-migration period. Permanent facilities such as compressor stations and maintenance depots may cause birds to avoid traditionally used areas for as long as the pipeline remains in use.

Potential impacts of disturbance on wildfowl harvest would be total absence or large-scale reductions of wildfowl populations in traditional hunting areas.

Areas where disturbance of wildfowl populations may occur along the pipeline route are:

1. Polar Bear Pass, Bathurst Island. Eiders are numerous and breed throughout the area and brant and lesser snow geese nest in small numbers in Bracebridge Inlet (Peterson 1976, Canadian Wildlife Service 1972). This is not a hunting area but disturbance of populations here may affect the availability of wildfowl in hunting areas farther south.

2. Cornwallis Island. The southwest coast is the important duck and ptarmigan hunting area for the Resolute Inuit. According to Alliston et al. (1976) important "seabird" breeding colonies are as follows: Arctic tern (mouth of Rookery River; northwest shore of Little Cornwallis Island); black guillemot (Griffen Island); glaucous gull (Cape Dungeness); and thick-billed murre (floe edge between Griffen and Cornwallis Islands). Marine traffic and materials staging in the above areas could disturb wildfowl and breeding seabirds.

3. Aston Bay, Somerset Island. This is an important area for goose and ptarmigan hunting for the Resolute Inuit and is used for brood rearing for snow geese and eiders (Alliston et al. 1976).

4. Cunningham Inlet-Limestone Island area is important for black guillemots in spring and for eiders during spring and brood-rearing periods (Alliston et al. 1976).

5. Stanwell Fletcher Lake-Creswell Bay. About 800 snow geese breed, moult, and raise broods along the north shore of Creswell Bay (Boreal Institute for Northern Studies 1975; Alliston et al. 1976). Large numbers of eiders use the area during the past-moult period and for brood rearing; oldsquaws moult along shores throughout Creswell Bay (Alliston et al. 1976). This is an important goose, duck, and ptarmigan hunting area for the Resolute Inuit.

6. Bellot Strait. This is an important area for seabirds (gulls, eiders, northern fulmar), a secondary hunting area for Spence Bay, and a remote hunting area for Arctic Bay.

7. Boothia Peninsula. This area is the main wildfowl hunting area for the Spence Bay Inuit.

8. Inglis Bay-Shepherd Bay. This is an important spring-staging area for snow and white-fronted geese (Canadian Wildlife Service 1972) and an important hunting area for the people of Gjoa Haven. Whistling swans breed in the area (McLaren et al. 1976).

9. Hayes River. Canada geese are plentiful in lakes and ponds along the lower Hayes River (Canadian Wildlife Service 1972). This is not an important hunting area but disturbance of populations here may affect the availability of geese in nearby Gjoa Haven hunting areas.

10. Storis Passage-Simpson Strait. This is the primary wildfowl hunting area for Gjoa Haven. Marine traffic here could disturb wildfowl.

11. Chantrey Inlet. The head of Chantrey Inlet in the vicinity of lower Hayes River and the lower Back River is important for Canada geese. It is also an important hunting area for Gjoa Haven. Marine traffic and materials staging in Chantrey Inlet or the lower Back River could disturb wildfowl.

12. Baker Lake Area. Canada geese nest west of Sugarloaf Mountain north and east of Pitz Lake (Canadian Wildlife Service 1972). The Pitz Lake area is important for breeding ducks, snow geese and Canada geese (McLaren et al. 1976). This is not a hunting area but disturbance here could affect the availability of geese and ducks in nearby Baker Lake hunting areas.

13. Upper Maguse River. There is a small breeding population of Canada geese along the river near Kinga Lake, an area identified as important breeding range in Keewatin (Canadian Wildlife Service 1972).

14. Chesterfield Inlet. The area around the community at the mouth of the Inlet is an important molting area for waterfowl (Alliston et al. 1976) and is the primary wildfowl hunting area for Chesterfield Inlet.

15. Thlewiaza to Maguse River. Most of this area extending up to 50 mi (80 km) inland is an important feeding area for thousands of post-moult snow geese in late summer (McLaren et al. 1976). Large colonies of nesting snow geese and, later, large brood aggregations and flocks of moulting geese concentrate within 25 kilometers of the coast, principally around the mouths of McConnell and Maguse Rivers (McLaren et al. 1976). The coastal alternate route passes through the middle of the late summer habitats but bypasses nesting/moulting grounds.

16. Repulse Bay. Repulse Bay and the area in Roes Welcome Sound off Beach Point are the primary wildfowl hunting areas for the Repulse Bay Inuit. Marine transportation and materials staging here could displace wildfowl.

17. Southampton Island. Snow and Canada geese nest in low-land areas of the upper Boas River (Canadian Wildlife Service 1972). A large area about 25 km east of South Bay and extending almost to the west coast is used intermittently by 50,000 geese during the molt and post-hatch periods; some Canada Geese nest in this area (Canadian Wildlife Service 1972).

18. Southampton to Coats Island. About 5,000 snow geese and 400 brant geese plus a colony of Sabine's gulls nest at Bear Cove (Canadian Wildlife Service 1972). Bear Cove is also a primary goose-hunting area in spring and summer for Coral Harbour. Construction in spring or summer, the use of Bear Cove as a material staging area, and marine traffic could degrade wildfowl habitats and force birds to seek undisturbed areas.

16.5.2 Pollution

Pollution by petroleum products or other toxic materials could lead to destruction or degradation of habitat as well as direct mortality. While this problem may occur anywhere along the routes, the most critical areas are at major pipeline staging areas and along major shipping routes.

Specific areas where pollution could have major impacts on wildfowl populations and harvest are:

1. Cornwallis Island - southern coast (major pipeline staging area).

2. Aston Bay, Somerset Island (possible major pipeline staging area).

3. Bellot Strait (possible major pipeline staging area and shipping route).

4. Boothia Peninsula-Spence Bay area (possible major pipeline staging area).

5. Storis Passage-Simpson Strait (possible shipping route).

6. Chantrey Inlet (possible pipeline staging area).

7. Chesterfield Inlet (possible major pipeline staging area and shipping route).

8. Repulse Bay (possible major pipeline staging area and shipping route).

9. Southampton Island-Bear Cove (possible major pipeline staging area).

16.5.3 Communities Affected

Communities that could be most significantly affected by impacts on wildfowl populations are Spence Bay, Chesterfield Inlet, Gjoa Haven, and Resolute. Potential impacts on Baker Lake would be less significant and minor impacts are predicted for Arctic Bay. Coral Harbour and Repulse Bay could be significantly affected if the Quebec route were chosen.

Wildfowl are not a major food resource for any community in terms of total nutritional requirements. However, they are a favourite food, offer an important change in the diet, and provide an important recreational activity. The eiderdown industry is also quite important to some communities. Of the communities identified that could be affected, Coral Harbour has the highest wildfowl harvest, whereas Spence Bay, Repulse Bay, and Chesterfield Inlet have relatively low harvest. The Gjoa Haven harvest is not known.

16.5.4 Data Gaps

Major data gaps concerning impacts on wildfowl populations are related to:

1. Status of Aston Bay and the Boothia Peninsula as wildfowl habitat.

2. Numbers and locations of eider and goose colonies in the Polar Bear Pass area.

3. Estimates of waterfowl populations and identification of principal breeding areas on Coats Island.

4. Estimates of Canada goose nesting densities and identification of prime snow and Canada goose habitats in the Boas River lowlands.

5. Status of Repulse Bay as wildfowl habitat.

16.5.5 Resource Protection Strategies

Based on the expected severity of impacts and the importance of the resource to communities, protection priorities to prevent or reduce impacts on wildfowl are:

1. Protection of populations in the Boothia Peninsula, Chesterfield Inlet, Cornwallis Island, Aston Bay, Storis Passage-Simpson Strait, and Chantrey Inlet areas (all routes).

2. Protection of populations in the Stanwell Fletcher Basin-Creswell Bay, Thlewiaza to Maguse River, Hayes River, Upper Maguse River, Bellot Strait, Baker Lake, Polar Bear Pass, Cunningham Inlet, and Inglis Bay areas (all routes).

3. Protection of populations in the Southampton-Coats Islands and Repulse Bay areas (Quebec route only).

Strategies to protect wildfowl populations include:

a) Scheduling and construction. In general, construction activities should be scheduled to avoid critical areas at critical times. Nesting areas should be avoided from mid-May to mid-July, molting areas from mid-July to mid-August, spring staging areas from mid-May to mid-June, and fall staging areas from mid-August to October. Specifically, there should be no construction activities from mid-May to August in nesting areas at Polar Bear Pass, Griffen Island, Stanwell Fletcher Lake-Creswell Bay, Chantrey Inlet, the Baker Lake area, the Upper Maguse River, Upper Boas River and Bear Cove. There should be no construction from mid-May to mid-June near Inglis Bay which is a spring staging area.

b) Siting provisions. In general, permanent facilities such as compressor stations and maintenance depots should not be located in critical habitats (nesting, molting, and staging areas).

c) General code requirements. Code provisions should be formulated to protect wildfowl populations (e.g. establishment of flight corridors and minimum altitudes for aircraft; specification of fuel handling and storage measures; prohibition of hunting and harassment of wildfowl by pipeline employees).

16.6 Polar Bear

16.6.1 Disturbance of Denning

Disturbance during the polar bear denning period (from about November to March) from construction activities, traffic, or human presence could result in direct mortality, abandonment of dens and of cubs, or in the case of severe and persistent disturbance, permanent abandonment of denning areas. Location of permanent facilities such as compressor stations or maintenance depots in denning areas may also lead to abandonment of denning areas. This is not likely to be a major problem in the study area because denning areas are widespread and good alternate den sites are likely to be available if a denning area is abandoned (I. Stirling, personal communication).

Areas where denning has been reported along the route are:

1. Northwest Somerset Island. Females with cubs use sea ice offshore from Cape Anne (Canadian Wildlife Service 1972) indicating that Cape Anne is a possible denning area. This area is part of the most intensive polar bear hunting area of the Resolute Inuit.

2. Bellot Strait is a suspected denning area and a secondary polar bear hunting area for Spence Bay.

3. Murchison River. There is a denning area about 25-50 km east of the prime route (Canadian Wildlife Service 1972), much closer to the coastal alternate, and right along the southern alternate to the Quebec route. No polar bear hunting occurs in this area.

4. Southampton Island. Likely denning areas are the north coast, the Upper Boas River-Mount Saorre area, and "The Points" formation, inland from Hut Point (Canadian Wildlife Service 1972). This is a secondary hunting area for Coral Harbour.

5. Coats Island. The north coast is a denning area (Canadian Wildlife Service 1972) and a secondary hunting area.

16.6.2 Man-Bear Conflicts and Impacts on Major Food Sources

Man-bear conflicts are inevitable if construction occurs in areas where bears are concentrated or migrating. Camps and other facilities where people are present and garbage accumulates are likely to attract bears. Consequently, some bears that become a nuisance may have to be destroyed. Areas where bears concentrate are also likely to be important feeding areas; disturbance or pollution in these areas could affect seals (the major food of polar bears) and thus force bears to seek alternate areas.

Areas which are important concentration areas for polar bears along the route are:

1. Polar Bear Pass, Bathurst Island. Polar bears have been reported in this area in summer (Freeman 1974). Polar bears are not harvested here but animals from this area may be hunted elsewhere in the Resolute harvest zone.

2. Crozier Strait, McDougall Sound. Concentrations of bears have been observed in spring near polynias (holes in the ice) in Crozier Strait (Finley 1976). Females with cubs have been observed in the Crozier Strait-Queen's Channel region (Freeman 1974). This area lies within the Resolute polar bear hunting zone.

3. Barrow Strait. Polar bears migrate west through the Strait in early spring from denning and spring feeding to summering areas and return along the same route later in the year (Canadian Wildlife Service 1972). Barrow Strait is the primary polar bear hunting area for the Resolute Inuit.

4. Creswell Bay. Polar bears concentrate here in late summer (Finley 1976); this is a secondary hunting area for Resolute and a remote hunting area for Arctic Bay.

5. Bellot Strait. Polar bears are common in the area, which is a secondary hunting area for Spence Bay and a remote hunting area for Arctic Bay.

6. Boothia Peninsula. Lord Mayor Bay is an important hunting area for the Spence Bay Inuit.

7. Chesterfield Inlet. The mouth of the Inlet is the primary hunting area for the Chesterfield Inlet Inuit.

8. Repulse Bay. Polar bear are plentiful in the bay during summer (Canadian Wildlife Service 1972); Repulse Bay is a secondary polar bear hunting area.

9. Southampton Island, Interior. Hundreds of bears migrate across the proposed route in summer and interior areas have been identified as a summer sanctuary (Canadian Wildlife Service 1972); this is a secondary hunting area for Coral Harbour.

10. Southampton Island to Coats Island. Polar bear move between Coats and Southampton via Walrus Island in June and October (Canadian Wildlife Service 1972). They are hunted throughout the area although the primary area is along the south coast of Southampton Island from Cape Low to South Bay.

11. Coats Island is a critical summer sanctuary from June to October (Canadian Wildlife Service 1972).

16.6.3 Communities Affected

Impacts on polar bear would have greatest effects on Resolute and Spence Bay and, to a lesser extent, Chesterfield Inlet. Effects on Gjoa Haven and Arctic Bay would be minor. Coral Harbour, and to a much lesser extent, Repulse Bay, would be affected if the Quebec route were chosen.

Polar bears provide an important source of income for many communities; the polar bear is a "high status" species, and hunting them is an important cultural activity. Polar bear are a very important source of income for both Coral Harbour and Resolute. They are also important for Repulse Bay, Spence Bay and Arctic Bay, but are of less importance to Chesterfield Inlet and Gjoa Haven.

16.6.4 Data Gaps

Major data gaps concerning impacts on polar bear populations are related to:

1. Status of denning in the Cape Anne area of Somerset Island.

2. Timing and extent of migrations through Barrow Strait.

3. Status of denning and information on movement and feeding in the Bellot Strait area.

4. Seasonal use of the Creswell Bay area.

5. Information on activity patterns and key use areas on Coats Island.

6. Status of denning in the upper Boas River area of Southampton Island.

7. Numbers and seasonal use in the Repulse Bay area.

16.6.5 Resource Protection Strategies

Based on the expected severity of impacts and the importance of the resource to communities, resource-protection priorities concerning impacts on polar bear populations should be:

1. Protection of populations in Barrow Strait, including Cape Anne on Somerset Island (all routes).

2. Protection of populations in Crozier Strait, Creswell Bay, and the Bellot Strait area (all routes).

3. Protection of populations in the Boothia Peninsula and Chesterfield Inlet areas (all routes).

4. Protection of populations in the Murchison River area (all routes).

5. Protection of populations in the Southampton-Coats Islands area (Quebec route only).

6. Protection of populations in the Repulse Bay area (Quebec route only).

Strategies to protect polar bear populations include:

a) Consideration of alternatives. The western alternate through the Arctic Islands would avoid Crozier Strait, Cape Anne, Bellot Strait, and Creswell Bay, and would cross Barrow Strait at a location where there are likely to be fewer polar bears.

b) Scheduling of construction. Construction should not occur in areas where polar bears are concentrated.

Specifically, there should be no construction in May and June in Crozier Strait and from June to October in the interior of Southampton Island and on Coats Island.

c) Siting provisions. Permanent facilities such as compressor stations and maintenance depots should not be located in denning areas such as Cape Anne, Bellot Strait, Upper Boas River, and the north coast of Southampton and Coats Islands.

d) General code requirements. Code provisions should be formulated to protect polar bear populations (e.g. provisions prohibiting shooting or harassment by pipeline employees; and provisions for proper disposal of garbage and other refuse).

16.7 Seals

16.7.1 Disturbance and Pollution

Water or airborne noise (blasting, boat/ship traffic, aircraft, construction activity) and presence of people and equipment may cause ringed and bearded seals to leave hauling-out sites or abandon feeding grounds. Pollution of pupping areas with fuel or toxic materials could foul birth lairs and result in pup mortality through exposure to the toxicant or abandonment by the female. Fuel spills in protected feeding areas such as bays could contaminate food sources, causing seals to abandon these areas. The project could affect harvest by reducing local populations or by displacing seals from traditional harvest areas.

Areas where disturbance or pollution could affect important concentrations of seals along the route are:

1. Baillie-Hamilton Island. Seals inhabit Couch Passage and Maury Channel (Canadian Wildlife Service 1972); this is a secondary hunting area of the Resolute Inuit.

2. Bracebridge Inlet. Concentrations of bearded seals were observed here in August; some were present in July. A major pipeline staging area may be located at Schomberg Point.

3. McDougall Sound is an important hunting area for bearded and harp seals. Concentrations of bearded seals have been observed here in June, July, and August and some may overwinter here (Finley 1976). The location of a staging area on Little Cornwallis Island and construction of the crossing from Bathurst to Cornwallis Islands could displace seals or degrade their habitat.

4. Barrow Strait. Primary ringed seal hunting area for Resolute. Harp seals also migrate into Barrow Strait in July and return in August, although they are not frequently hunted there (Finley 1976). Marine traffic, staging at Resolute, and construction of the crossing could displace seals or degrade their habitat.

5. Somerset Island-North Coast. Bearded seals concentrate here in July; Cunningham Inlet is an important area for a small concentration of seals (Finley 1976).

6. Aston Bay. A late spring-early summer survey revealed a higher density of ringed seals here than elsewhere in the area (Finley 1976). This is a secondary hunting area for Resolute. Location of a staging area here could displace seals or degrade their habitat.

7. Prince of Wales-Russell Islands. High densities of ringed seals were observed off the coasts of northeast Prince of Wales and eastern Russell Island; bearded seal concentrations were observed off the northwest coast of Russell Island and in Baring Channel in late summer (Finley 1976). The western alternate avoids the main part of the ringed seal concentration area but would cross the area used by bearded seals.

8. Creswell Bay. Ringed and bearded seals concentrate here (Canadian Wildlife Service 1972, Read and Stephansson 1976); it is a secondary hunting area for Resolute and a remote area for Arctic Bay.

9. Brentford Bay-Bellot Strait. This is a major summering area for ringed and bearded seals (Read and Stephansson 1976) and a remote hunting area for Spence Bay and Arctic Bay.

10. Spence Bay-Rasmussen Basin. This is an important seal-hunting area for Spence Bay and Gjoa Haven.

11. Simpson Strait is a primary seal-hunting area for Gjoa Haven. Marine shipping through here could displace seals.

12. Chesterfield Inlet. The mouth of Chesterfield Inlet and up the Inlet to Big Island is the primary seal-hunting area for the Chesterfield Inlet Inuit.

13. Repulse Bay. This is an important summer area for seals (Canadian Wildlife Service 1972) and a primary seal-hunting area for Repulse Bay.

14. Roes Welcome Sound. This is an important concentration area for ringed seals and an important hunting area for Repulse Bay. Marine traffic, materials staging, and construction of the crossing could displace seals or degrade their habitat.

15. Southampton-Coats Island. The southern coastal area of Southampton Island is an important concentration area for ringed seals and is the primary ringed and bearded seal hunting area for the Coral Harbour Inuit. Fisher and Evans Straits and all coasts of Coats Island are important seal-hunting areas in late summer and early fall. Marine traffic, materials staging, and construction of the crossing could displace seals or degrade their habitat.

16.7.2 Communities Affected

Communities that could be affected by impacts on seal populations are Resolute and, to a lesser degree, Spence Bay, Chesterfield Inlet, and Gjoa Haven. Effects on Arctic Bay would be minor. Coral Harbour and Repulse Bay could be affected if the Quebec route were chosen.

Seal meat makes up the most important part of the diet in Resolute, Spence Bay, Coral Harbour, Repulse Bay, and Arctic Bay. It is a secondary, but still important food in Chesterfield Inlet and Gjoa Haven. Seal skins are an important source of income for Spence Bay, Resolute, Coral Harbour, Repulse Bay, and Arctic Bay and a less important income source for Chesterfield Inlet and Gjoa Haven.

16.7.3 Data Gaps

Major data gaps concerning impacts on seal populations are:

1. Numbers, species, and nature of use in Brentford Bay, Bellot Strait, Creswell Bay, Spence Bay, Rasmussen Basin, and Simpson Strait.

2. Numbers and nature of use in Repulse Bay and Roes Welcome Sound.

16.7.4 Resource Protection Strategies

Based on the potential severity of impacts and the importance of seals to communities, resource-protection priorities concerning impacts on seal populations should be:

1. Protection of populations in Barrow Strait, including the north coast of Somerset Island (all routes).

2. Protection of populations in the Spence Bay-Rasmussen Basin, McDougall Sound, Aston Bay, Creswell Bay, Brentford Bay-Bellot Strait, Simpson Strait, and Chesterfield Inlet areas (all routes).

3. Protection of populations in the Bracebridge Inlet, Prince of Wales-Russell Islands, and Baillie-Hamilton Island areas (all routes).

4. Protection of populations in the Repulse Bay and Southampton-Coats Islands areas (Quebec route only).

5. Protection of populations in Roes Welcome Sound (Quebec route only).

Strategies to protect seal populations include:

a) Consideration of alternatives. The western alternate through the Arctic Islands is preferred because it appears to cross a less-densely inhabited part of Barrow Strait and avoids the McDougall Sound, Aston Bay, Brentford Bay-Bellot Strait, Creswell Bay, and Baillie-Hamilton Island areas. However, it does cross the bearded seal concentration area on northwestern Russell Island.

b) Scheduling of construction. In general, construction activities (including staging) should be scheduled so that seal concentrations are not disturbed. Specifically, pipeline construction from Bathurst to Cornwallis Islands, across Barrow Strait, across Bellot Strait, and across Roes Welcome Sound should not occur in summer.

c) Siting provisions. Staging areas should not be located in bays where there are important concentrations of seals in summer or birth lairs in winter. Specifically, staging areas should not be located in Bracebridge Inlet, Cunningham Inlet, Aston Bay, Creswell Bay, Brentford Bay, Bellot Strait, or Repulse Bay.

d) General code requirements. Code provisions should be enforced to prevent fuel spills and to protect seal populations. Examples are provisions requiring fuel-spill contingency plans, adequate dyking of fuel-storage facilities, and prevention of seal harassment in hauling-out areas.

16.8 Whales

16.8.1 Disturbance

Noise and activity from marine traffic, staging, aircraft, or blasting in key calving and feeding areas and migration routes may cause whales to abandon productive habitats for less suitable areas or jeopardize calf survival by forcing them into cold waters. Narwhal are noted as being more sensitive although less susceptible to disturbance than belugas. Narwhal are more sensitive than beluga to a particular disturbance. However, beluga calving in shallow waters are more likely to be in the proximity of such disturbances than narwhal which calve in deeper waters and would thereby avoid many potential sources of disturbance. Effects on whale harvest would result from abandonment by whales of traditional harvest areas or from reduction of whale populations.

Areas where disturbance of whales may occur are:

1. Barrow Strait. According to Read and Stephansson (1976), beluga and narwhal move into Barrow Strait after break-up in late June. From there, many move into Prince Regent Inlet, Peel Sound, and Wellington Channel. In late August and September they migrate out of the area. Barrow Strait is a primary whale hunting area for the Resolute Inuit. Marine traffic in the Strait could disturb beluga and narwhal, although the likelihood of impact is reduced by the fact that beluga and narwhal concentrate in deep offshore waters in Barrow Strait.

2. Cunningham Inlet. Up to 2500 belugas concentrate in Cunningham Inlet in most summers during calving or post-calving periods (late July to late August) (Finley 1976). This area is part of the primary whale-hunting area of Resolute.

3. Prince Regent Inlet. The eastern coast of Somerset Island from Cape Clarence to north of Bellot Strait is important for beluga movements and concentrations

in summer (Read and Stephansson 1976). The eastern coast of Somerset is also important for narwhal movements and concentrations, particularly the area from Creswell Bay to Bellot Strait (Finley 1976). Marine traffic in Prince Regent Inlet could disturb beluga or narwhal.

4. Creswell Bay. Up to 4000 belugas concentrate in this area during calving and post-calving periods (Finley 1976). It is the most important and consistently used calving area for the entire Lancaster Sound beluga population. Narwhal also concentrate and may calve here in late summer and it has been cited as a prime area for recovery of bowhead populations (Finley 1976). It is an important whale hunting area for the Resolute Inuit and a remote area for the Arctic Bay Inuit. Marine traffic or any staging activities here would disturb whales, possibly leading to direct mortality or abandonment of the area.

5. Brentford Bay-Bellot Strait. Narwhal concentrate here in late summer (Finley 1976). There are movements through Bellot Strait into Peel Sound. This is a secondary hunting area for Spence Bay and a remote area for Arctic Bay.

6. Repulse Bay. Beluga, narwhal, and a few bowheads summer here (Canadian Wildlife Service 1972). It is the primary hunting area for the Repulse Bay Inuit.

7. Southampton Island - northern tip. Hundreds of narwhal summer in this area (Canadian Wildlife Service 1972); they are hunted here by the Repulse Bay and Coral Harbour people.

8. Roes Welcome Sound. This is the major migration route for up to 10,000 belugas who inhabit the western part of Hudson Bay (Canadian Wildlife Service 1972). Interference with this migration by marine traffic or by construction of the pipeline across Roes Welcome Sound could affect the harvests of not only Repulse Bay and Coral Harbour but also the coastal communities of Chesterfield Inlet, Rankin Inlet, Whale Cove, and Eskimo Point.

16.8.2 Pollution

Pollution of water by petroleum products could lead to mortality of whales or abandonment of important feeding or calving areas. Fuel spills could occur anywhere where marine traffic routes or staging areas are located near concentrations of whales. The impact of these spills would be most severe in bays where there is little possibility of dispersion of toxic materials.

Specific areas where pollution could have impacts on whale populations are:

1. Barrow Strait, particularly the coasts of Somerset and Cornwallis Islands.

2. Prince Regent Inlet, particularly around Creswell Bay, and Brentford Bay, and Bellot Strait.

3. Peel Sound, particularly around Bellot Strait.

4. Spence Bay. Primary whale hunting area for the Spence Bay Inuit.

5. Chesterfield Inlet. The mouth of the Inlet and up the Inlet as far as Barbour Bay are primary whale hunting areas for the Chesterfield Inlet Inuit.

6. Repulse Bay.

7. Roes Welcome Sound.

8. Southampton Island - north tip.

9. Southampton Island - south shore. Some whale hunting occurs around the Bear Cove area by Coral Harbour Inuit.

16.8.3 Communities Affected

Communities that could be affected by impacts on whale populations are Resolute, to a lesser extent Spence Bay and Chesterfield Inlet, and to a minor degree Arctic Bay. Repulse Bay, Coral Harbour, and possibly the coastal communities of Chesterfield Inlet, Rankin Inlet, Whale Cove, and Eskimo Point, could be affected if the Quebec route is chosen.

Whales are not a major resource in any of the communities, in terms of total nutritional requirements. Only a few favoured parts of these animals are eaten and some meat is used for dog food.

However, beluga and narwhal are "high-status" species and hunting them is a favourite activity. Narwhal tusks also provide some income. Of the potentially affected communities, whale harvest is likely to be most important to Resolute, Repulse Bay, Coral Harbour, and Arctic Bay and somewhat less important to Spence Bay, Chesterfield Inlet, Rankin Inlet, Whale Cove, and Eskimo Point.

16.8.4 Data Gaps

Major data gaps concerning impacts on whales are related to:

1. Numbers and movements of whales in the Brentford Bay-Bellot Strait-Peel Sound area.

2. Numbers, activities, and seasonal use by whales of the Spence Bay, Chesterfield Inlet, and Repulse Bay-Roes Welcome Sound areas.

16.8.5 Resource Protection Strategies

Based on the expected severity of impacts and the importance of the resource to communities, priorities for protecting whale populations should be as follows:

1. Protection of populations in Prince Regent Inlet, including Creswell Bay and Brentford Bay-Bellot Strait (all routes).

2. Protection of populations in Barrow Strait, including Cunningham Inlet (all routes).

3. Protection of populations in Peel Sound (all routes).

4. Protection of populations in Chesterfield Inlet (all routes).

5. Protection of populations in Spence Bay (all routes).

6. Protection of populations in the Repulse Bay-Roes Welcome Sound-north tip of Southampton Island areas (Quebec route only).

7. Protection of populations in the Southampton-Coats Islands area (Quebec route only).

Strategies to protect whale populations include:

a) Consideration of alternatives. The western alternate on the Arctic Islands seems to cross Barrow Strait in a less critical area as it avoids the major migration

routes, It also avoids Prince Regent Inlet, Creswell and Brentford Bays, Bellot Strait, and Cunningham Inlet.

b) Scheduling of construction. In general, construction activities (particularly marine traffic, staging, aircraft overflights, and crossings) should not proceed at times when there are concentration of whales in the area or major movements of whales through the area. Specifically, there should be no summer construction across Barrow Strait, Bellot Strait, or Roes Welcome Sound.

c) Siting provisions. In general, staging areas should not be located where there are important concentrations of whales in summer. Specifically, staging areas should not be located in Cunningham Inlet, Creswell Bay, Brentford Bay, Bellot Strait, and Repulse Bay. Bellot Strait should not be used as a shipping route.

d) General code requirements. Code provisions should be enforced to prevent fuel spills and to protect whale populations. Examples are provisions requiring fuel-spill contingency plans and adequate dyking of fuel-storage facilities, establishing miminum aircraft overflight elevations in specific areas at specific times, and preventing harassment of whales by pipeline employees.

16.9 Walrus

16.9.1 Disturbance

Disturbance of walrus by marine traffic, staging, aircraft overflights, harassment, or blasting in key areas such as hauling-out or feeding areas and migration routes may cause direct mortality or may cause walrus to abandon favoured habitats for less suitable areas. Effects on walrus harvest would result from reduced availability of walrus in traditional harvest areas or reduced walrus populations.

Areas where disturbance may occur are:

1. Crozier Strait. This is a key area for walrus in late June, July, and August. A major haul-out site, where 194 walrus were observed in late summer of 1975, is located on the shore of Bathurst Island just south of the proposed pipeline crossing (Finley 1976). Construction activity at the crossing or marine traffic in July and August could cause walrus to abandon the area.

2. McDougall Sound. This is an important area for about 250 walrus in summer (Finley 1976) and a primary hunting area for the Resolute Inuit. Marine traffic, staging activities, or construction of the crossing in July and August may disturb walrus.

3. Barrow Strait. Walrus migrate into Barrow Strait in summer from Lancaster Sound; from there they go into McDougall Sound, Wellington Channel, and Prince Regent Inlet (Read and Stephansson 1976). They migrate around the north and south coasts of Cornwallis Island to the Crozier Strait-McDougall Sound area in July and return in early fall (Finley 1976). The south coast of Cornwallis Island is a primary hunting area for Resolute. Marine traffic, staging activities, or construction of the crossing could interfere with walrus migrations.

4. Creswell Bay and Bellot Strait. Walrus move into these areas, which are secondary walrus hunting areas for Resolute and Spence Bay in summer.

5. Repulse Bay. Walrus are plentiful here in summer (Canadian Wildlife Service 1972); it is the primary walrus-hunting area for the Repulse Bay Inuit.

6. Roes Welcome Sound. Beach Point and the western shore of Roes Welcome Sound, south past the Snowbank River, is a secondary walrus hunting area for Repulse Bay. Marine traffic, staging, and construction of the crossing could disturb walrus.

7. Southampton-to-Coats Islands. About 3000 walrus inhabit this area (Boreal Institute for Northern Studies 1975); important hauling-out areas are Walrus, Bencas, and Coats Islands. Walrus move from Walrus Island to Bencas Island and Cape Pembroke (Coats Island) in August and September, and from there to Seahorse Point and Gordan Bay on Southampton Island (Canadian Wildlife Service 1972). Some move west again in late fall. The main summer hunting area for the Coral Harbour Inuit is around Walrus Island and along the south and southeast coasts of Coats Island. The west and northwest coasts of Coats Island are secondary hunting areas. The southern coast of Southampton Island from Cape Low to Hut Point is a winter walrus hunting area. Marine traffic, staging, and construction of the crossing may affect walrus populations and movements in this area.

16.9.2 Pollution

Pollution of water by petroleum products could lead to direct mortality, contamination of food, degradation of habitat, or avoidance of an important area. Impacts caused by pollution could occur anywhere where marine traffic routes or staging areas are located near concentrations of walrus but would be most severe in bays where dispersal of toxic materials would be limited. Specifically, areas where pollution could affect walrus populations are:

1. McDougall Sound and Crozier Strait.

2. Southeast Coast of Bathurst Island. This is an important walrus hunting area for the Resolute Inuit. The location of a staging area at Freemans Cove could degrade walrus habitat.

3. Barrow Strait, particularly near the south coast of Cornwallis Island.

4. Prince Regent Inlet, including Creswell Bay and Bellot Strait.

5. Repulse Bay.

6. Roes Welcome Sound.

7. Southampton to Coats Island.

16.9.3 Communities Affected

Communities that could be affected by impacts on walrus populations are Resolute and, to a lesser extent, Spence Bay. Coral Harbour and Repulse Bay could be affected if the Quebec route were chosen.

As with whales, walrus are not a major resource in any of the communities, in terms of total nutritional requirements. Only a few favoured parts are eaten and some meat is used for dog food. However, walrus is also a "high-status" species and hunting walrus is a favourite activity. Walrus tusks also provide some income. Of the potentially affected communities, walrus harvest is likely to be most important to Coral Harbour and Resolute and less important to Repulse Bay and Spence Bay.

16.9.4 Data Gaps

Major data gaps concerning impacts on walrus are related to:

1. Numbers, movements, and locations of haul-out and feeding areas in Prince Regent Inlet (including Creswell Bay and Bellot Strait).

2. Locations of walrus feeding areas in Fisher and Evans Straits.

3. Seasonal use by walrus of Repulse Bay and Roes Welcome Sound.

16.9.5 Resource Protection Strategies

Based on the expected severity of impact and the importance of the resource to communities, priorities for protecting walrus populations should be as follows:

1. Protection of the Crozier Strait-McDougall Sound population (all routes).

2. Protection of migration routes off the south and north coasts of Cornwallis Island (all routes).

3. Protection of the southeast Bathurst Island and Prince Regent Inlet (including Creswell Bay and Bellot Strait) populations (all routes).

4. Protection of the Southampton-Coats Islands population (Quebec route only).

5. Protection of the Repulse Bay-Roes Welcome Sound population (Quebec route only).

Strategies to protect walrus populations include:

a) Consideration of alternates. The western alternate on the Arctic Islands seems to cross Barrow Strait in a less critical area as it avoids the major migration routes. It also avoids Crozier Strait, McDougall Sound, Prince Regent Inlet, Creswell Bay, and Bellot Strait.

b) Scheduling of construction. In general, construction activities (particularly marine traffic, staging, aircraft overflights, and crossings) should not proceed at times when there are concentrations of walrus in the area or major movements of walrus through the area. Specifically, there should be no summer construction across Barrow Strait, Crozier and Pullen Straits, Bellot Strait, and Fisher Strait.

c) Siting provisions. In general, staging areas should not be located where there are important concentrations of walrus in summer. Specifically, staging areas should not be located in Crozier Strait, Creswell Bay, Bellot Strait, and Repulse Bay.

d) General code requirements. Code provisions should be enforced to prevent fuel spills and to protect walrus populations. Examples are provisions requiring fuel-spill contingency plans and adequate dyking of fuel-storage facilities and preventing harassment of walrus by pipeline employees at important areas such as haul-out areas.

16.10 Fish

16.10.1 Toxic Spills and Siltation

Spills of toxic materials (fuels, lubricants, methanol) or siltation can cause direct mortality to fish or degrade sensitive habitats such as spawning areas. Toxic spills may occur anywhere along the right-of-way, but critical areas are at staging areas, fuel-storage areas, fuelling areas, construction camps, and major marine and land transportation routes. Siltation would most likely occur during construction of river crossings, but it could also occur from right-of-way erosion during operation of the pipeline. The effect on fish harvest would be one of reduced populations in areas downstream of where the spill or siltation occurred.

Specifically, areas where fish populations may be affected by toxic spills and siltation are:

(All Routes)

1. Eleanor Lake (Cornwallis Island). The route crosses some of its tributaries. Eleanor Lake is a secondary domestic fishing area for Resolute.

2. Lakes and rivers north of Assistance Bay (Cornwallis Island). The route passes through this area which is an important domestic fishing area for Resolute.

3. Aston Bay. The route crosses tributaries of Aston Bay and a major materials staging area may be located there. This is a secondary domestic fishing area for Resolute).

4. Stanwell Fletcher Lake-Union River. The route crosses Union River. This is a remote, but important, domestic fishing area and the only commercial fishing area for Resolute. It is also a remote fishing area for Arctic Bay.

5. Brentford Bay and inland lakes. The route passes through this area and a major staging area could be located at Brentford Bay. This is a secondary domestic fishing area for Spence Bay and a remote area for Arctic Bay.

6. Boothia Peninsula. The route passes through this widespread domestic fishing area which is the primary domestic fishing area for Spence Bay.

7. Spence Bay-Willersted Inlet-Josephine Lake. This is a cod-jigging area for the Spence Bay Inuit. A major staging area could be located at Spence Bay.

8. Simpson Strait-Barrow Inlet. This is a cod-jigging area for Gjoa Haven and could be a major marine shipping route if Spence Bay were used as a staging area.

(Prime Route Only)

1. Murchison River. The route crosses it fairly close to the coast. It is an important domestic fishing area for Gjoa Haven and is fished commercially by Pelly Bay.

2. Hayes River. The route crosses it about 80 km upstream. It is an important domestic fishing area for Gjoa Haven.

3. Chantrey Inlet-Back River. Marine transportation and a major staging area here could degrade fish habitat. It is an important domestic fishing area for Gjoa Haven. Chantrey Inlet is the location of a char fishing outcamp of the Baker Lake Lodge.

4. Thelon River-Baker Lake. The route crosses Thelon River and two other tributaries to Baker Lake close to the west end of Baker Lake. The lower Thelon River is an important feeding area for lake ciscoes and some char and serves as a spawning and rearing area for several species (McLeod et al. 1976). The mouths of the other tributaries are important domestic fishing areas.

5. Pitz Lake. The route crosses through the middle of the lake which is an important domestic fishing area for Baker Lake. It has a commercial quota and has been commercially fished recently. The eastern alternate to the prime route in this area avoids Pitz Lake.

6. Kunwak-Kazan Rivers. The route crosses the Kunwak River upstream of Thirty Mile Lake and the Kazan River just downstream of Yathkyed Lake. The lower Kazan River is an important domestic fishing area for Baker Lake. The eastern alternate in this area crosses Thirty Mile Lake on the Kazan River.

7. Maguse River. The route crosses the upper Maguse River, just upstream of Heninga Lake. The lower Maguse is a primary domestic fishing area for Eskimo Point.

8. Roseblade Lake. The route passes very close to the lake which is a remote domestic fishing area for Eskimo Point.

(Coastal Alternate)

1. Chesterfield Inlet. The route crosses Chesterfield Inlet just upstream of Barbour Bay. It is an important commercial char fishing area for residents of Baker Lake and Rankin Inlet and an important domestic fishing area for Chesterfield Inlet. Marine traffic along the Inlet could cause degradation of fish habitat.

2. Barbour Bay. The route crosses a major tributary of Barbour Bay, an important commercial fishing area along Chesterfield Inlet.

3. Peter Lake. The route passes close to the west side of Peter Lake which is an important domestic fishing area for Rankin Inlet.

4. Wilson River. The route crosses it just downstream of Derby Lake. The Wilson River is an important domestic fishing area for Whale Cove.

5. Ferguson River. The route crosses it just downstream of Helika Lake. The lower Ferguson, near the coast, is an important domestic fishing area for Whale Cove. It also has a recent record of commercial fishing. Ferguson River is the route for a sports canoe trip which starts at the Parker Lake camp (an outcamp of Rankin Inlet Lodge) and continues to the coast.

6. Copperneedle River. The route crosses this river just downstream of Southern Lake. Copperneedle River has a recent commercial fishing record.

7. Maguse River. The route crosses Maguse Lake. The lake and river are important domestic fishing areas for Eskimo Point.

8. McConnell River. The route crosses this river near Camp Lake. Camp Lake and McConnell River (near its mouth) are domestically fished by Eskimo Point Inuit.

9. Tha-anne River and Thlewiaza River. These rivers are crossed about 90 km and 140 km upstream; Eskimo Point people fish domestically for char in their estuaries after break-up.

(Quebec Route)

1. Simpson Lake. The route closely parallels Simpson Lake which is fished domestically by Gjoa Haven and Pelly Bay.

2. Becher and Arrowsmith Rivers. The route crosses within 25 km of their mouths. They are both fished by Pelly Bay and have recent commercial records.

3. Kellett River. The route crosses it about 70 km from the mouth. It is an important domestic fishing area for Pelly Bay and has a recent commercial record.

4. Snowbank River. The route crosses it about 20 km from the mouth. It is fished domestically by Repulse Bay and has a commercial quota.

5. Salmon Pond. The route passes close to Salmon Pond which is fished domestically by Coral Harbour Inuit in the fall.

16.10.2 Interference with Fish Migrations

In-stream construction activities during char migration periods or ice damming caused by frost-bulb formation during pipeline operation may obstruct spring and fall migrations of anadramous char. Blockage caused by construction activities could eliminate a single year-class. However, routine blockage of a river by ice damming could eventually eliminate char from that river.

Interference with fish migrations is possible in these areas:

1. Stanwell Fletcher Lake - Union River (all routes).
2. Murchison River (prime route and coastal alternate).
3. Hayes River (prime route).
4. Thelon River (prime route).
5. Tributary to Barbour Bay (coastal alternate).
6. Wilson River (coastal alternate).
7. Ferguson River (coastal alternate).
8. Copperneedle River (coastal alternate).
9. Maguse River (coastal alternate).
10. McConnell River (coastal alternate).
11. Tha-anne and Thlewiaza Rivers (coastal alternate).
12. Becher and Arrowsmith Rivers (Quebec route).
13. Kellett River (Quebec route).
14. Snowbank River (Quebec route).

16.10.3 Interference to Fishing

Interference to fishing could occur primarily as a result of marine transportation and staging activities in bays and inlets. Damage to nets and general interference with fishing activities may occur. A secondary consideration is fishing by pipeline employees in lakes and streams along the route. This would likely only occur, to any significant extent, where a construction camp is located by a major lake or stream during open-water periods.

Areas where interference with fishing is possible along the route are:

1. Lakes and rivers north of Assistance Bay, Cornwallis Island (all routes).
2. Aston Bay (all routes).

3. Stanwell Fletcher Lake and the Union River (all routes).

4. Brentford Bay and interior lakes (all routes).

5. Boothia Peninsula lakes (all routes).

6. Spence Bay-Willersted Inlet-Josephine Bay (all routes).

7. Simpson Strait-Barrow Inlet (all routes).

8. Chantrey Inlet-Back River (prime route).

9. Baker Lake (prime route).

10. Pitz Lake (prime route).

11. Roseblade Lake (prime route).

12. Chesterfield Inlet (prime and coastal routes).

13. Peter Lake, Derby Lake (Wilson River), Maguse Lake, and Camp Lake (coastal alternate).

14. Simpson Lake (Quebec route).

15. Salmon Pond (Southampton Island).

16.10.4 Communities Affected

Communities that could be affected by impacts on fish populations and interference with fishing activities are Baker Lake; to a lesser extent Resolute, Gjoa Haven, and Spence Bay; to an even lesser extent Eskimo Point, Chesterfield Inlet, and Rankin Inlet; and to a very minor degree Arctic Bay. Rankin Inlet, Eskimo Point, Whale Cove and, to a lesser extent, Chesterfield Inlet and Baker Lake could be affected if the coastal alternate is chosen. Pelly Bay and, to a much lesser extent, Repulse Bay and Coral Harbour, could be affected if the Quebec route is chosen.

Of these communities, fish is most important (for food and income) to Baker Lake, Pelly Bay, and Rankin Inlet. It also provides food and income for Chesterfield Inlet, Whale Cove, and Eskimo Point. It is an important food source for Spence Bay and less important for Resolute, Gjoa Haven, Repulse Bay, Coral Harbour, and Arctic Bay.

16.10.5 Data Gaps

Major data gaps concerning impacts on fish are related to:

1. Specific periods of char migrations in rivers to be crossed by the pipeline that are important for domestic or commercial fishing.

2. Determining whether char migrations ascend as far upstream as pipeline crossings in the Hayes, Wilson, Ferguson, Copperneedle, McConnell, Tha-anne, Thlewiaza, and Kellett Rivers.

3. Specific information on seasons, locations, and size of domestic harvest on water bodies identified above as being potentially affected by pipeline activities.

4. Status of Yathkyed Lake concerning use or potential use for domestic or commercial fishing.

16.10.6 Resource Protection Strategies

Based on the expected severity of impacts and the importance of the resource to the communities, priorities for protecting fish and fishing should be as follows:

1. Protection of char and char-fishing in Chesterfield Inlet (prime route and coastal alternate).

2. Protection of fish and fishing in Baker Lake and the Thelon River (prime route only).

3. Protection of fish in Pitz Lake (prime route only).

4. Protection of fish and fishing in the Boothia Peninsula lakes and inlets, Stanwell Fletcher Lake and Union River, Chantrey Inlet and the Back River, Murchison River, Kazan and Kunwak Rivers, and the Upper Maguse River (all routes).

5. Protection of fish and fishing in the Assistance Bay lakes area, Brentford Bay and inland lakes area, Spence Bay-Willersted Inlet-Josephine Bay area, and Hayes River (all routes).

6. Protection of fish and fishing in Aston Bay, Simpson Strait, and Roseblade Lake (all routes).

7. Protection of fish in the Eleanor Lake (tributaries and Yathkyed Lake area (all routes).

8. Protection of fish at the crossings of the Maguse, Wilson, and Ferguson Rivers and in Peter Lake (coastal alternate).

9. Protection of fish at the crossings of the Copperneedle, McConnell, Tha-anne, and Thlewiaza Rivers (coastal alternate).

10. Protection of fish at the crossings of the Kellett, Becher, and Arrowsmith Rivers (Quebec route).

11. Protection of fish in Simpson Lake and the Snowbank River (Quebec route).

12. Protection of fish in Salmon Pond (Quebec route).

Strategies to protect fish populations include:

a) Consideration of alternates. The eastern alternate near Baker Lake would avoid crossing Pitz Lake but would cross the Kazan River at Thirty Mile Lake, closer to the fishing area on the lower Kazan River. The western alternate on the Arctic Islands would avoid crossing the Union River and would avoid the Assistance Bay, Aston Bay, and Brentford Bay areas. If the Quebec route is chosen, the southern alternate would avoid crossings of the Kellett, Arrowsmith, and Snowbank Rivers and would cross the Becher River farther upstream.

b) Scheduling of construction. Construction should be scheduled to avoid spring and fall migrations of char in rivers identified as being important for char fishing where char migrations ascend as far upstream as the site of pipeline crossings. Construction across rivers and lakes should not occur during the fishing season so that conflicts with fishing activities can be avoided.

c) Siting Provisions. The pipeline or any access roads should be located to avoid damaging fish spawning beds in water bodies fished by communities. Pipeline crossings should avoid river mouths and lake outlets. All pipeline crossings should be no closer than 500 km from the river mouth or lake outlet. Construction camps should not be located

near important fishing areas in order to prevent conflicts with fishing activities and to limit fishing by pipeline employees. Stockpile sites, wharves, and maintenance areas should not be located near fishing waters.

d) General code requirements. Code provisions should be enforced to protect fish populations. River crossings should be designed (by using proper burial depths or insulating the pipeline) so that the chilled pipeline does not restrict winter flows in the stream. Other examples include regulations concerning the locations of camps, staging areas, fuel-storage and fuelling areas, and borrow pits; the disposal of sewage and other toxic wastes; and the restriction of fishing by pipeline employees.

17. CONCLUSIONS

17.1 Resource Use

Country food constitutes the bulk of the diet for almost all families in the study area communities. Store-bought meat, when available, is expensive and is not as well liked by most Inuit.

Caribou or seal are the major food sources for all communities. Fish and wildfowl are of secondary importance. Whales and walrus are of minor importance for food but often have important cultural or recreational values.

Fox, polar bear, seal, and fish are important sources of income, although their relative importance varies greatly from community to community. Generally, in communities where wage employment opportunities are abundant, most Inuit do not depend on living resources as a major source of income.

In addition to their importance for providing food and income, hunting and fishing are important recreational and cultural activities. Inuit who have full-time wage employment usually hunt and fish on weekends and during annual vacations. Many families leave their communities for a month or more every year in late spring or early summer to camp at favourite hunting or fishing locations.

There is no indication that the importance of living resources to communities is currently declining. While the extent of land used by communities did decline in the 1960's, this trend now appears to be reversing due to the advent of snowmobiles, an

increasing "back to the land" sentiment, and rising fur prices. The number of General Hunting Licences issued has increased in most communities over the last decade and commercial fishing has recently expanded in most communities, clearly in excess of that which could be attributed to population increases.

17.2 Resource-Use Impacts

The primary effect of construction and operation of the proposed Polar Gas pipeline project on living resources important to communities is likely to be the displacement of animal populations from areas where they are usually harvested or a reduction in animal populations. Effects on the use of living resources by communities will depend on the proximity of the pipeline route or major ancillary facilities such as materials staging areas or compressor stations to resource harvest areas.

(Prime Route)

The prime route would affect the following communities:

1. Resolute, Spence Bay, and Baker Lake would be significantly affected as the route passes through the core of their resource-use zones.

2. Eskimo Point, Gjoa Haven, and Chesterfield Inlet would be affected to a lesser extent. The route passes through remote parts of the resource use zones of Eskimo Point and Gjoa Haven. Materials staging and increased marine transportation could occur in Chesterfield Inlet, which is the community of Chesterfield Inlet's primary marine mammal hunting area and an important domestic fishing area.

3. Rankin Inlet and Whale Cove are less likely to be affected as the route avoids these communities' resource use zones. However, marine traffic could affect fish and marine mammal harvest in Chesterfield Inlet and this route could affect caribou populations harvested by these communities.

4. Arctic Bay is likely to be affected to a very minor degree as the route passes through an area that is very remote and only occasionally used by Arctic Bay hunters.

(Coastal Alternate)

The coastal alternate would affect the following communities:

1. Chesterfield Inlet, Rankin Inlet, Whale Cove, and Eskimo Point would be significantly affected as the route passes through the core of the inland part of these communities' resource-use zones.

2. Baker Lake would be affected to a lesser extent by effects on caribou populations important to the community.

(Quebec Route)

1. Coral Harbour would be significantly affected as the route passes through the core of the resource-use zone.

2. Pelly Bay and Repulse Bay would be affected to a lesser extent as the route passes through less important parts of their resource-use zones.

17.3 Priorities for Protecting Resources

Priorities for protecting living resources that may be affected by the Polar Gas project are based on the relative importance of living resources to communities and the expected severity of project impacts on these resources. They are described in order of decreasing importance as follows:

1. Protection of caribou and seal populations. Caribou or seal are the mainstay of the diet for all communities and seal skins are an important source of income to some communities. Project activities could cause major impacts to caribou or seal populations through degradation of habitat or disturbance.

2. Protection of polar bear and fish populations. Polar bear skins provide income to many communities. Fish are an important food source for most communities and provide income to some. Project activities could cause major impacts to fish populations by interfering with their movements and degrading habitat. Polar bears could be affected to a lesser degree through degradation of habitat or disturbance.

3. Protection of whale and walrus populations. These animals are not very important for food or income, but they have a significant cultural importance. Project activities could cause major impacts to whales or walrus through degradation of habitat or disturbance.

4. Protection of fox and wildfowl populations. Fox pelts provide income to most communities and are an important source of income for some communities. Wildfowl are of low importance as a food source but provide a welcome change of diet. Foxes will not be significantly affected by project activities because of their widespread abundance. Wildfowl could be affected to a moderate degree through degradation of habitat or disturbance.

5. Protection of muskox populations. Although muskoxen are not harvested presently by any of the communities in the study area, they have potential importance because muskox hunting may soon be permitted in some areas. Project activities could cause major impacts to muskoxen, primarily through disturbance.

17.4 Priority Areas Along Pipeline Routes

Based on the relative importance of living resources to communities, the expected severity of project impacts on these living resources, the importance of areas along pipeline routes as habitats for living resources, and the relative importance of areas along pipeline routes for resource harvest, resource protection priorities are assigned to areas along the prime and Quebec routes as follows:

(Prime Route)

Priorities are assigned to areas along the prime route in order of decreasing importance as follows:

1. Those areas, which are important habitats and harvest areas for four to six animal groups are:

   a) Barrow Strait (polar bear, seal, whale, walrus)

   b) North Coast, Somerset Island (polar bear, seal, whale, wildfowl)

   c) Stanwell Fletcher Basin, including Union River (caribou, muskox, wildfowl, fish)

   d) Creswell Bay (whale, seal, walrus, polar bear, wildfowl)

e) Bellot Strait (seal, whale, walrus, polar bear, wildfowl, fox)

f) Chesterfield Inlet (fish, seal, wildfowl, whale, polar bear).

2. Those areas, which are important habitats and harvest areas for three to four animal groups are:

a) Aston Bay (seal, wildfowl, fish)

b) Brentford Bay (seal, fish, whale)

c) Spence Bay (seal, fish, whale)

d) Rasmussen Basin (seal, wildfowl, polar bear)

e) Simpson Strait (seal, fish, wildfowl)

f) Yathkyed to Henik Lakes (Caribou, wildfowl, fish, fox)

g) Maguse to Thlewiaza Rivers (caribou, wildfowl, fish, fox).

3. Those areas, which are important habitats for two to four animal groups but are not necessarily important harvest areas, are:

a) Polar Bear Pass (caribou, muskox, wildfowl)

b) South coast, Cornwallis Island (wildfowl, walrus, fish)

c) McDougall Sound and Crozier Strait (seal, walrus)

d) Northern Prince of Wales and Russell Islands (caribou, seal)

e) Boothia Peninsula (fish, wildfowl)

f) Chantrey Inlet-lower Back River (wildfowl, fish)

g) Murchison River (polar bear, fish)

h) Pitz Lake area (wildfowl, fish, fox)

i) Henik Lakes to 60th parallel (caribou, fox)

j) Ferguson to Maguse Rivers (caribou, fish, fox).

4. Those areas, which are important habitats and harvest areas for a single animal group are:

    a) Prince Regent Inlet (whale)

    b) Northern Boothia Peninsula (caribou)

    c) Thelon River area (fish)

    d) Baker Lake (fish)

(Quebec Route)

Priorities are assigned to areas along the Quebec route in order of decreasing importance as follows:

1. Those areas, which are important habitats and harvest areas for four to six animal groups are:

    a) Repulse Bay (whale, walrus, seal, wildfowl, polar bear, fish)

    b) Bear Cove area, Southampton Island (wildfowl, polar bear, seal, walrus)

    c) Coats Island (caribou, polar bear, seal, walrus).

2. Those areas, which are important habitats and harvest areas for three or four animal groups are:

    a) Roes Welcome Sound (whale, walrus, seal)

    b) Interior of Southampton Island (polar bear, wildfowl, fox, fish)

    c) Fisher Strait (walrus, seal, whale).

3. Those areas, which are important habitats and harvest areas for one or two animal groups are:

    a) Simpson Lake (fish)

    b) Becher and Arrowsmith Rivers (fish)

    c) Kellett River (fish, caribou)

    d) Ellice Hills area (caribou, muskox)

    e) Snowbank River (fish)

    f) Northwest Coast-Southampton Island (polar bear, whales).

17.5 Resource Protection Strategies

Four strategies to protect living resources important to communities have been identified. They are (1) consideration of alternate routes, (2) scheduling of construction, (3) siting provisions, and (4) the formulation and enforcement of environmental code items.

(Alternate Routes)

The major alternate routes we considered are the western alternate in the Arctic Islands, the coastal alternate in eastern Keewatin, and the southern alternate along the Quebec route. Based on resource and resource-use information currently available, there is not sufficient evidence to recommend a preference for any alternate route, except for the small eastern alternate in the Baker Lake area.

The western alternate in the Arctic Islands crosses Barrow Strait in a less important area for seals, whales, walrus, and polar bears than does the prime route. It also avoids important areas for marine mammals, caribou, and fish in Crozier Strait and McDougall Sound and on Cornwallis and Somerset Islands. However, the western alternate could cause increased conflicts with caribou populations as it traverses Prince of Wales and Russell Islands and northwestern Boothia Peninsula.

The coastal alternate and prime route both cross important caribou areas in southern Keewatin and could disturb caribou or disrupt migrations or movements. However, the prime route would be less detrimental to fish and fishing than the coastal alternate, because the prime route avoids the important char streams along the coast.

The small eastern alternate along the prime route in the Baker Lake area appears to be preferable as it avoids crossing Pitz Lake.

On the Quebec route, the southern alternate would avoid crossing the Kellett, Arrowsmith, and Snowbank Rivers and would avoid important caribou and muskox areas in the vicinity of Ellice Hills and the Kellett River. However, not enough is known about caribou distribution and movements in this area to determine whether the southern alternate would be preferable.

(Scheduling of Construction)

Construction activities should be scheduled to avoid critical areas at times when animal concentrations are present. Scheduling construction activities could effectively protect living resources important to communities in the following areas.

1. Polar Bear Pass. Avoiding construction from April to October would minimize disturbance of caribou migrations, muskox movements, and wildfowl nesting.

2. Crozier Strait. Avoiding construction from May to August would minimize disturbance of polar bear, seal, and walrus populations.

3. Barrow Strait. Avoiding construction from June to August would minimize disturbance of seal, whale, and walrus populations and movements.

4. Stanwell Fletcher Basin. Because of the diversity of animal populations, this area is important habitat for one or more animal populations throughout the year. Therefore, it will be difficult to determine a construction schedule which would minimize disturbance of living resources in this area. It is important in fall and winter for caribou wintering concentrations; there is some caribou calving in the area in June; it supports a small year-round muskox herd; it is an important nesting area for wildfowl from mid-May to August; and there are spring and fall migrations of char in the Union River. Providing construction activities do not impede the fall char migrations on the Union River, mid-summer to early fall would probably be the preferred season for construction. However, further studies are required to substantiate this.

5. Bellot Strait. Avoiding construction from June to August would minimize disturbance of seal, whale, and walrus populations.

6. Northern Boothia Peninsula. Avoiding construction from April to October would minimize disturbance of caribou calving and migrations.

7. Baker Lake area. Avoiding construction from May to September would minimize disturbance of wildfowl nesting and fish movements in the Thelon River.

8. Southern Keewatin (south of Yathkyed Lake for the prime route and south of Peter Lake for the coastal alternate). Avoiding construction from mid-May to mid-November would avoid disturbance of caribou migrations, movements, and rutting concentrations; wildfowl nesting; and char migrations in coastal streams.

9. Prince of Wales and Russell Islands (western alternate in the Arctic Islands). Avoiding construction from April to October would minimize interference with caribou calving and migrations.

10. Roes Welcome Sound (Quebec route). Avoiding construction from mid-June to August would minimize disturbance of whale populations and migrations and seal populations.

11. Upper Boas River area, Southampton Island (Quebec route). Avoiding construction from mid-May to October would minimize disturbance of wildfowl nesting and polar bear movements and populations.

12. Fisher Strait (Quebec route). Avoiding construction from mid-May to September would avoid disturbance of walrus populations and movements and wildfowl nesting.

13. Coats Island (Quebec route). Avoiding construction from June to October would minimize disturbance of polar bear populations.

(Siting Provisions)

Generally, major project facilities such as materials staging areas, wharves, airstrips, compressor stations, and maintenance depots should not be located in important harvest areas or areas that are important habitats for living resources important to communities.

More specifically, efforts should be taken to avoid locating project facilities in Polar Bear Pass, Crozier Strait, the Cape Anne area and Cunningham Inlet (north coast of Somerset Island), Aston Bay (Somerset Island), Creswell Bay and the Stanwell Fletcher Basin, northern Prince of Wales and Russell Islands, Bellot Strait, Spence Bay, Chantrey Inlet, the mouth of Chesterfield Inlet, the Pitz Lake area, and the Henik Lakes area. For the Quebec route, efforts should be taken to avoid locating project facilities in Repulse Bay, and the Upper Boas River and Bear Cove areas (Southampton Island).

In cases where project facilities, particularly materials staging sites and compressor stations, must by necessity be located in these important habitats or harvest areas, extreme care should be taken to keep the level of project activities at a minimum during periods which are important for living resources.

(Environmental Code)

An environmental code should be formulated and enforced. This code would serve to protect living resources important to communities. Code items should deal with fuel spills; waste disposal; hunting, fishing, and harassment of animals; aircraft overflights; obstruction of caribou migrations; pipeline burial at river crossings; and location of facilities such as construction camps and borrow pits.

17.6 Data Gaps

We have identified a number of data gaps concerning the impact of the proposed pipeline on living resources important to communities. Priorities for filling these data gaps are based on the relative importance of living resources to communities and are assigned as follows:

1. Major data gaps concerning impacts on caribou and seal populations related to:

    a) Size, timing, and extent of caribou migrations on and between Somerset Island, Prince of Wales Island, and the northern Boothia Peninsula.

    b) Status of caribou populations and patterns of use in the southern Boothia Peninsula and the Hayes to Murchison Rivers area.

    c) Extent and patterns of use by seals of Brentford Bay, Bellot Strait, Creswell Bay, Spence Bay, and Simpson Strait.

2. Major data gaps concerning impacts on polar bear and fish populations related to:

    a) Extent and timing of polar bear migrations through Barrow Strait.

    b) Extent and nature of use by polar bears of northwest Somerset Island, Bellot Strait, and Creswell Bay.

    c) Identification of specific dates for char migrations in important fishing streams where construction or operation of the pipeline could impede migrations.

d) Determining whether char migrations extend as far upstream as pipeline crossing sites for streams which are important for char fishing.

e) Extent and pattern of seasonal use by domestic fishermen of water bodies important for domestic fishing which are likely to be affected by the pipeline project.

3. Major data gaps concerning impacts on whale and walrus populations related to:

a) Extent and patterns of use by whales of Brentford Bay, Bellot Strait, Peel Sound, Spence Bay, and Chesterfield Inlet.

b) Locations of important walrus haul out and feeding areas in Prince Regent Inlet, including Creswell Bay and Bellot Strait and the extent and patterns of use by walrus of these areas.

4. Data gaps concerning impacts on fox, wildfowl, and muskox populations were not considered significant in terms of protecting living resources important to communities.

Priorities for filling data gaps along the Quebec route are assigned as follows:

1. Major data gaps concerning impacts on caribou and seal populations related to:

a) Locations of important caribou ranges on Coats Island.

b) Timing, extent, and use by caribou of the Ellice Hills and Kellett River areas.

c) Extent and patterns of use by seals of Repulse Bay and Roes Welcome Sound.

2. Major data gaps concerning impacts on polar bear and fish populations related to:

a) Extent and patterns of use by polar bear of Coats Island, the upper Boas River area (Southampton Island), and Repulse Bay.

b) Timing and extent of char migrations and the nature of domestic fishing on water bodies which are likely to be affected by the project.

3. Major data gaps concerning impacts on whale and walrus populations related to:

a) Extent and patterns of use by whales and walrus of Repulse Bay and Roes Welcome Sound.

b) Locations of walrus feeding areas in Fisher and Evans Straits.

A major data gap for the purposes of this study, was the absence of any site-specific, detailed engineering plans describing construction scheduling, land transportation, and the location of materials staging sites,work camps, compressor stations, airports, wharves, maintenance depots, etc. Such detailed project information is necessary in determining site-specific impacts on living resources important to communities and formulating specific resource protection strategies.

18. RECOMMENDATIONS

18.1 Communities and Priorities for Studies

It is recommended that the communities of Resolute, Spence Bay and Baker Lake be given priority for further studies related to resource-use.

Because of their close proximity to the prime route of the proposed Polar Gas pipeline and the probability of these communities serving as focal points for transshipment of supplies and equipment, resource-use implications to these communities are likely to be particularly significant.

18.2 Project Description Requirements

It is recommended that further resource-use studies be held in abeyance until more detailed information by which to better describe the project and indicate the feasibility of alternate pipeline routes is available.

While the route west of Baker Lake has received primary attention in this study, the coastal and Quebec route alternatives have also been explored in detail. To continue to study these alternatives in depth when construction of a pipeline along one or more of these routes may no longer be considered by the project proponent as technically or economically feasible would be an inefficient allocation of resources.

18.3 Priorities for Protection of Living Resources

It is recommended that priorities for protection of living resources and resource use areas are as follows:

1. By species - in order of importance to communities, protection strategies should provide for protection of caribou and seal; polar bear and fish; whale and walrus; fox and wildfowl; and muskox.

2. In order of importance to communities and living resources, key resource-use areas recommended for protection are:

   a) Barrow Strait, north coast of Somerset Island, Stanwell Fletcher Basin and Creswell Bay, Bellot Strait, Chesterfield Inlet, Coats Island, Bear Cove area (Southampton Island), and Repulse Bay.

   b) Aston Bay (Somerset Island), Brentford Bay, Spence Bay, Rasmussen Basin, Simpson Strait, the Yathkyed Lake to Henik Lakes area, the Maguse River to Thlewiaza River area, Fisher Strait, the interior of Southampton Island, and Roes Welcome Sound.

   c) Polar Bear Pass (Bathurst Island), south coast of Cornwallis Island, McDougall Sound and Crozier Strait, northern Prince of Wales Island and Russell Island, Boothia Peninsula, Chantrey Inlet and the lower Back River, Murchison River, Pitz Lake area, the Henik Lakes to 60th parallel area, the Ferguson River to Maguse River area, Kellett River, northwest coast of Southampton Island, and Ellice Hills.

   d) Prince Regent Inlet, northern Boothia Peninsula, Thelon River, Baker Lake, Simpson Lake and the Becher, Arrowsmith, and Snowbank Rivers.

18.4 Route Alternates

It is recommended that more detailed comparisons be made between alternate routes in specific areas.

The western alternate route in the Arctic Islands should be further investigated as it would probably have a less detrimental impact on marine mammals. However, careful consideration must also be given to the effect of the western alternate route on caribou populations on Prince of Wales Island, Russell Island, and northern Boothia Peninsula, and on muskox populations on Prince of Wales Island.

The short eastern alternate route designated in the Baker Lake area avoids crossing Pitz Lake and should be examined further.

The southern alternate on the Quebec route should be examined further as it avoids important caribou and muskox areas and a number of major river crossings.

18.5 Scheduling of Construction Activities

It is recommended that construction activities be scheduled to avoid those critical periods when animals are concentrated in areas to be affected by pipeline construction. Specifically, every effort should be made during construction to avoid the following areas during the periods indicated:

1. Polar Bear Pass (April to October).
2. Crozier Strait (May to August).
3. Barrow Strait (June to August).
4. Bellot Strait (June to August).
5. Northern Boothia Peninsula (April to October).
6. Baker Lake area (May to September).
7. Southern Keewatin - south of Yathkyed Lake and Peter Lake (mid-May to mid-November).
8. Prince of Wales Island and Russell Island (April to October).
9. Roes Welcome Sound (mid-June to August).
10. Upper Boas River area - Southampton Island (mid-May to October).
11. Fisher Strait (mid-May to September).
12. Coats Island (June to October).

18.6 Stanwell Fletcher Basin

Because of the diversity of animal populations in this area and the importance of the area for resource harvest, Stanwell Fletcher Basin, particularly that portion of the basin in the vicinity of Stanwell Fletcher Lake and the Union River, should receive special attention in the scheduling of construction activities.

18.7 Location of Major Pipeline Project Facilities

It is recommended that major project facilities such as staging areas for equipment and supplies, compressor stations, wharves, docks, airstrips, maintenance depots, etc. be located to avoid the following areas which are important habitats for living resources used by communities.

1. Polar Bear Pass.
2. Crozier Strait.
3. Cape Anne and Cunningham Inlet (north coast of Somerset Island).
4. Aston Bay (Somerset Island).
5. Creswell Bay and Stanwell Fletcher Basin.
6. Northern Prince of Wales Island and Russell Island.
7. Bellot Strait.
8. Spence Bay.
9. Chantrey Inlet.
10. Mouth of Chesterfield Inlet.
11. Pitz Lake area.
12. Henik Lakes area.
13. Repulse Bay.
14. Upper Boas River area (Southampton Island).
15. Bear Cove (Southampton Island).

Where these important areas cannot be avoided, care should be taken to minimize construction activities during critical periods for wildlife and to avoid unnecessary disturbance of animals and degradation of habitat.

18.8 Environmental Code

It is recommended that an environmental code be formulated and enforced to protect living resources important to communities. The code should include, in part, guidelines concerning the prevention of fuel spills; waste disposal; hunting, fishing and

harassment of animals; obstruction of caribou migrations; pipeline burial at river crossings; and location of project facilities such as construction camps and borrow pits should be developed.

18.9 Data Gaps

Additional information to better understand the impacts of the proposed Polar Gas pipeline on living resources important to the Arctic communities is required. Future studies should be determined on the basis of priorities established for the protection of living resources. In decreasing order of importance, further studies are recommended to better understand:

1. Caribou migrations, movements, and patterns of use on and between Somerset Island, Prince of Wales Island, and northern Boothia Peninsula; in southern Boothia Peninsula; and in the Hayes to Murchison River area.

2. Seal distribution and patterns of use in Brentford Bay, Bellot Strait, Creswell Bay, Spence Bay, and Simpson Strait.

3. Caribou movements, distribution, and patterns of use on Coats Island and in the Ellice Hills and Kellett River areas, and seal distribution and patterns of use in Repulse Bay and Roes Welcome Sound.

4. Polar bear movements and patterns of use in Barrow Strait, northwest Somerset Island, Bellot Strait and Creswell Bay.

5. Timing and extent of upstream char migrations in streams fished by communities and likely to be crossed by the pipeline.

6. The extent and seasonal pattern of domestic fisheries characteristic of water bodies which may be affected by the pipeline project.

7. Polar bear movements and patterns of use on Coats Island, in the upper Boas River area (Southampton Island), and in the Repulse Bay area.

8. The extent and patterns of use by whales of Brentford Bay, Bellot Strait, Spence Bay, and Chesterfield Inlet, and the use made by walrus of Prince Regent Inlet (including Creswell Bay and Bellot Strait).

9. The extent and patterns of use by whales and walrus of Repulse Bay and Roes Welcome Sound, and the distribution and use of walrus feeding areas in Fisher and Evans Straits.

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