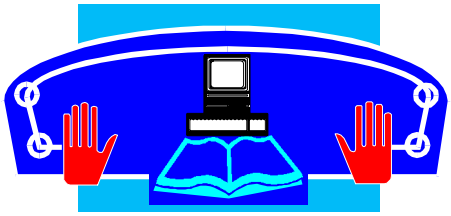

Strategy For The Inuit Sealing Economy - Consolidated Report And Recommendations For The Inuit Regions Of The Northwest Territories

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Author: Robert Higgins (I.t.c.)

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STRATEGY FOR THE INUIT SEALING ECONOMY

Consolidated Report and Recommendations

for the Inuit Regions

of the

Northwest Territories

prepared by
Robert Higgins
National Coordinator
Inuit Sealing Project
INUIT TAPIRISAT OF CANADA

submitted to the EDA Secretariat, Yellowknife, N.W.T.
FEBRUARY 1989

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Territories Renewable Resources

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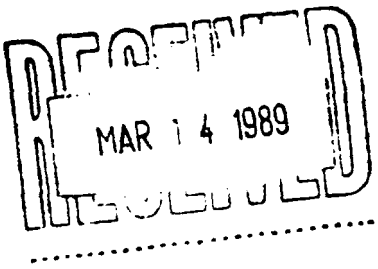
March 2, 1989



Altaf Lakhani,
Manager, EDA,
P.O. Box 1030,
Yellowknife, N.W. T.
X1A 2N7

Dear Altaf:

EDA Project No. 561-508- "Seal Project" - Inuit Tapirisat of Canada

Enclosed, for your review, is the consolidated report of the regional implementation planning process received from Mr. Higgins, Project Coordinator for I.T.C. If you require more detail, the regional reports are available and will be provided to you upon request.

Yours sincerely,

Len Colosimo,
Supervisor,
Resource Development.

Enclosure

INUIT TAPIRISAT OF CANADA

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February 24, 1989

Mr. Doug Stewart,
Director,
Conservation Education &
Resource Development,
Dept. of Renewable Resources,
Government of the Northwest
Territories,
YELLOWKNIFE, N, W.T.,
X1A 2L9

Dear Mr. Stewart,

Enclosed please find the consolidated report of the regional implementation planning process for the revitalization of sealing industry undertaken in accordance with the Terms and Conditions of E.D.A. Project No. 561-508. I regret the delay in getting these reports to you, and would like to express my appreciation for your cooperation in granting us an extension.

In addition to the consolidated report, I have also included the regional reports from the Baffin and Kitikmeot regions. I have arranged to have the " Keewatin report sent directly to your office since the consultant, Mike Stilwell is also located in Yellowknife. Although I have a draft report from the Inuvialuit region, which has been used in formulating strategies and recommendations, the final edited version is not yet available. I will forward copies of that to you at the earliest opportunity.

I have enclosed sufficient copies for the entire Steering Committee. I look forward to meeting w ith the committee at the earliest opportunity to review our findings and recommendations.

Sincerely,

Robert Higgins,
National Coordinator
Inuit Sealing Project

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PREFACE

Inuit Tapirisat of Canada is involved in a range of activities in support of Inuit harvesting rights in general, and in particular there-vitalization of the sealing industry in the north, This report flows from the recommendations of the report of a working group establish by ITC to outline a strategy of economic development based on the utilization of seals as a renewable resource.

Foremost among the recommendations of the Working Group was that detailed planning take place at the regional level, with the direct involvement of Inuit at the community level. This report is a consolidation of the results of this consultation process for the Inuit region of the Northwest Territories. As such it does not contain the level of detail that is included in each of the regional strategy documents, It is suggested that readers who want additional detail refer to the respective regional report. Strategy documents for the Inuit regions of Nunavik (Northern Quebec) and Labrador are also being prepared,

EXECUTIVE SUMMARY

The Inuit sealing economy in the Northwest Territories was devastated after markets for sealskins collapsed in 1982-t 983, following the imposition of a trade ban by the European Economic Community (EEC). Although this action was in response to anti-sealing protests that were primarily concerned with the commercial 'whitecoat' hunt off the Atlantic coast of Newfoundland, the economy of Inuit communities was also devastated by these International political actions. Prior to the collapse of the markets, the revenue generated by the sale of seal skins was the main source of cash for Inuit hunters. It is cash that is the scarcest resource in the hunting economy, Without the ability to sell their products for a reasonable price in the marketplace, hunters are unable to maintain an adequate level of activity on the land, and full-time hunters are reduced to a state of dependency.

The Royal Commission on Seals and sealing in Canada, established by the Government of Canada in 1984, concluded that sealing in Canada is a valid economic enterprise, and that it should be allowed to continue as a renewable resource industry managed by government, according to the principles of sustainable development. Responding to the hardships suffered by both East Coast and Arctic sealing communities, the Commission recommended that financial resources be made available to allow sealing communities to mitigate the consequences of anti-sealing activities. The Merriment of Canada, while not accepting the level of compensation recommended by the Commission, did however respond by committing $5 million from existing government programmed over a three year period, to allow sealing communities to identify and implement opportunities related to 'either sealing or alternative economic activities.

Inuit Tapirisat of Canada(ITC) was asked to develop an implementation strategy on behalf of Inuit sealers and the Canadian Sealers Association(CSA) was asked to undertake similar activities on behalf of Atlantic sealing communities. ITC responded to this request to develop a strategy by establishing a Working Group with representation by all Inuit regions in Canada. The strategy document prepared by this group was submitted to ITC, and subsequently the federal government in June 1987. The major element of the implementation process outlined in the document was a proms of regional planning, coordinated at the national level, that allowed for direct community input. This report outlines the consolidated findings from the regional consultation process that took place in the Baffin, Keewatin, Kitikmeot and I nuvialuit regions within the Northwest Territories. This work was made possible by funding received by the EDA Secretariat in

Yellowknife, and overseen by a project steering committee that included representives from the Dept. of Renewable Resources, and the Dept. of Economic Development and Tourism, GNWT as well as Dept. of Fisheries and Oceans, and the Department of Indian and Northern Affairs. The Director of the EDA Secretariat and the ITC National Coordinator for the sealing project also were represented on this committee.

To undertake this work consultants were selected and hired by the Baffin Regional Council, Keewatin Wildlife Federation, Kitikmeot Inuit association and the Inuvialuit Regional Corporation. The consultation process sought to determine the status of seal stocks in each region, and the capacity of communities to develop new economic opportunities. Efforts were made to determine community views on a range of issues relating to the sealing industry, including acceptable options related to product development, prices and business ownership. This information was then compiled and used to determine the feasibility of a range of economic opportunities and the best strategic arrangement for implementation within each region.

The recommendations put forward in this report were formulated on the basis of several fundamental principles, First, opportunities related to renewable resource development must be planned and implementated according to the principles of sustainable development. These principles, as recently defined through the World Conservation Strategy, have always formed the basis of Inuit customary law and practices regarding the utilization of wildlife. A fundamental consideration under this kind of approach is that harvest levels do not exceed the ability of the species to maintain population levels, and that efforts should be made to avoid wasting any part of the harvest. As a result the ITC strategy outlines options for using every part of the seal carcass, including meat, blubber, and skins.

As well the strategy was oriented towards providing maximum benefits directly to the resource harvester. It is towards the hunter and his family that we want to direct our efforts. In the view of the ITC Working group this meant that a re-vitalized sealing industry must also be a re-structured industry. Prior to the collapse of seal skin markets in 1983, Inuit were essentially selling 'raw' furs, All the 'value-added' economic benefits accrued once the skins had been processed into finished products elsewhere. To target the harvesters as the recipients of greater economic benefits, particularly in an era of unstable export markets, means that this value-added processing must take place at the community level,

Given that Inuit are renowned for skills in fur sewing and clothing design, the strategy focused on eliminating the factors which block the effective marketing of seal skin products. These include

gaining access to tanned skins at a reasonable price, introduction of new production techniques tailored to the demands of the contemporary marketplace, product development, and improved marketing structures.

This report calls for immediate action to put the productive capacity in place through the strategic installation of small-scale tanneries and the delivery of intensive training programs to develop tanning skills and an increased understanding of manufacturing techniques. The findings of the consultation process indicate that this rather modest level of expenditure is justified solely on the basis of current demands for tanned skins by the existing domestic market and crafts industry.

At the same time, the report identifies the need for sufficient resources to undertaken a comprehensive, product development process, and needs assessment with respect to improved marketing structures for community produced products. It is envisioned that these two parallel activities; production capacity and market development, should occur simultaneously, and that the rate of increasing market demand would determine the rate of expansion of the tannery 8nd manufacturing system, subject to the constraints of conservation requirements.

Other recommendations call for resources to improve information on biological aspects of the resource, increased support to deal with restrictive trade measures, and the development and marketing of seal meat, and future development of a technology to use seal oil as an alternative fuel source.

All the recommendations included in this report are reproduced below;

1. The Department of Fisheries and Oceans allocate the resources necessary to continue to intensify the rate of data collection with respect to the status of seal populations in the arctic regions. Population surveys and biological data are a critical element in the development planning process, and should keep pace with the identification of new economic opportunities. Mechanisms should be established, where they do not currently exist, between DFO and community HTA's to ensure that research findings are readily available, and effectively used in renewable resource economic development planning.

2. Given the potential impact of toxic contaminants on marine resources, human health, and the potential development of the renewable resource economy, government should implement a broadly based, on-Wing system of sampling to monitor contaminant levels. Community Hunters and Trappers Associations should be fully involved in sample collection and be kept informed of test results.

3. As an initial step, small-scale tanneries should be placed in the communities of Broughton Island, Coral Harbour and Holman Island. Planning should anticipate the requirement for additional tanneries as market demand increases to absorb an increased productive capacity.

4. Accompanying the installation of these tanneries should be the delivery of intensive eight week training course in tanning technology end fur sewing and crafts production by Techno-Tan Inc.

5. The initial tannery installation and training program should occur in Broughton Island. These training course should be delivered through ATII, a recognized Inuit controlled training coordinating group in the N.W.T. that has an established working relationship with Arctic College. The Environmental Technology Department of Arctic College, Iqaluit should be contracted to develop training curriculum materials in Inuktitut to be used in subsequent training sessions. Arctic college and ATII should identify 2 or 3 Inuit to be trained as trainers, and these individuals would play an increasing role in the delivery of tanning and crafts training programs. The goal should be total technology transfer at the earliest possible date.

6. Fleshing machines at an estimated cost of $1,500 each should be placed in all communities with significant seal harvests in order to facilitate the proper preparation of skins either for shipment to community tanneries or for sale to Amiq Leathers.

7. Accompanying the development of a capacity to produce tanned skins at the community level significant resources should be directed towards product development and a needs assessment related to the production and marketing of community produced products ITC should seek the resources to undertake the necessary work in both of these areas in consultation with regional groups and Inuit business interests.

8. The imposition of restrictive trade barriers continues to have a detrimental effect on the ability to market Inuit seal and fur products Inuit Tapirisat of Canada and the Inuit Circumpolar Conference should continue to receive financial support from government to eliminate these threats. Specifically efforts should be directed at the elimination of the EEC seal ban, and regulatory changes to the Marine Mammal Protection Act in the U.S. which would allow the importation of Inuit products. The Inuit Sealing Strategy and the Inuit Region Conservation Strategy, both of which are based on the principles of wise use and sustainable development can be used to assist these efforts.

9. Resources should be made available to allow a test marketing of a selected range of seal meat products. Amarok Country Food Store in Iqaluit is in the best position to act as the proponent in this exercise, from a supply and production perspective. The products should be selected on the basis of potential local appeal, and be distributed throughout the region.

10. The capacity to produce and test-market seal meat products should also be developed within the Keewatin region. Resources should be made available to the Keewatin Wildlife Federation to pursue additional feasibility work, and the up-grading of existing community food processing facilities

11. Resources should be made available to Arctic Co-operatives Ltd to allow them to allow for long term burning tests of seal oil, the further refinement of the rendering equipment, the resolution of remaining technical difficulties. This intiative should continue as a pilot project until sufficient information has been generated to determine its commercial viability.

SECTION I

THE STRATEGY FOR THE INUIT SEALING ECONOMY: A PROCESS FOR DEVELOPMENT

(t) Background on the development of the Inuit Sealing Strategy

In 1986, the Inuit Tapirisat of Canada (ITC) was asked to coordinate the development of a strategy document on behalf of Inuit sealers in Canada. This strategy was to outline a plan of action designed to ensure that the financial resources allocated for the re-vitalization of the Canadian sealing industry, be used to the best possible effect in addressing the economic hardships faced by Canadian sealers as a result of the seal products ban implemented by the European Economic community in 1983, These resources, $5 million over three years, from existing government programs were part of the federal government's response (see appendix) to the recommendations of the Royal Commission on Seals and Sealing in Canada. [1] The Canadian Sealers Association was asked to initiate a similar process on behalf of Atlantic sealers.

The working group formed by ITC to develop the strategy included a representative from each of the six I nuit regions, ITC, and representatives from Nunasi Corporation and Arctic Cooperatives Ltd (ACL).

The strategy was developed with several basic principles in mind.

- Planning should be focused on providing opportunities for those who were most affected by the collapse of the industry; Inuit hunters and their families. Consequently attention was focused on identifying opportunities that would provide direct economic benefit to the resource harvesters.

- the Working Group felt that planning should proceed on the basis of identifying feasible business opportunities that could succeed in a market environment, To achieve this end it was agreed, required new approaches to the northern sealing industry. The anti-seal hunt campaign and the

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[1] Seals and sealing in Canada, Report of the Royal Commission, volumes 1-3, Chairman Albert H. Malouf, Supply and Services Canada, 1986

resulting import ban within the EEC, clearly illustrates the precarious nature of fur and skin markets in an era of aggresive public campaigns by anti-harvesting groups.

-lo successfully revitalize the northern sealing economy it would be necessary to focus on value-added production of finished products at the community level, market development at all levels, and maximum utilization of the harvested resource. Planning should address not only opportunities related to the use of skins, but also possibilities related to all other parts of the carcass.

Underlying all these principles was the recognition that this was an important renewable resource that must be managed wisely, and that economic development must be sustainable. This requirement reinforced the concern that detailed planning should take place only with meaningful consultat ion with community interests. In the view of the work ing group, Inuit hunters are the most important group of experts with respect to this resource, and their views should be central to the planning process.

Beyond identifying initiatives that were underway and waranted further development, the strategy focused on outlining a process that would promote direct community involvement and on-going communication and coordination between the range of Inuit groups and government agencies that had a role to play in this endeaver. With these considerations in mind the strategy document outlined a number of recommendations. Some of these recommendations called for the immediate implementation of existing initiatives, and others calling for an implementation planning process . that would involve Inuit at the local and regional levels. A brief summary of these recommendations are outlined below;

- The engineers' report tabled by Arctic cooperatives Ltd,(ACL) that outlined a technique for using seal oil as a supplemental fuel in conventional furnaces should receive funding to undertake a demonstration project.

- Amiq Fine Leathers, a subsidiary of Nunasi Corporation that had developed a line of exclusive seal leather products should receive funding to enable them to increase their production and implement a marketing program. It was further recommended that Nunasi Corporation, which only represents the Inuit of Baffin, Keewatin and Kitikmeot regions, should broaden the share structure of Amiq Leathers to include Inuit from Labrador, Nunavik (Northern Quebec), and Inuvialuit regions through a system of 'Special Founder Shares' and profit sharing. In return these regions would sell their skins to Amiq Leathers thereby assisting with potential supply problems.

- Additional planning should be done through a process of 'regional implementation planning that would allow for direct community involvement in the planning process that would be

coordinated through the appropriate regional organizations.

- A National Coordinator position should be created by ITC to manage the implementation of Strategy. The Coordinator would be responsible for securing program funding to carry out the work plan, maintain communication and information exchange between the regions, and between Inuit and government agencies.[2]

This report represents a consolidated plan for the Inuit regions in the Northwest Territories, (Baffin, Keewatin, Kitikmeot and Inuvialuit) as formulated through an extensive process of consultation with their respective communities and relevant organizations at the regional level. The resources to carry out this work were provided by the EDA Secreatariat in Yellowknife. A similar process, funded by the Department of Fisheries and Oceans, is also underway in Nunavik, and Labrador.

(if) The Regional Consultation Process

In accordance with the Terms and Conditions of the contribution agreement with EDA[3], each regional organization engaged the services of a consultant who would be responsible for carrying out a detailed assessment of sealing activity for each community within their respective regions. Upon the recommendation of the project Steering Committee, Terms of Reference,[4] were formulated for this project. These Terms of Reference then provided the regions with a common framework within which to undertake the consultation excercise while still allowing for sufficient flexibility to accommodate regional differences.

In addition a series of survey questionaires[5] were generated and agreed upon by the regional consultants to provide for compatibility between the information collected within the respective regions. These questionnaires were used in discussions with Hamlet councils, Hunters and Trappers Associations and community entrepeuneurs. From the outset these questionnaires were not designed or intended to be a mechanism for the collection of statistically reliable data, but rather to provide a general framework for the type of information that was required and to get some sense of the level of community interest and expiations. As well, a general assessment was done of the

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2 "Strategy for the Inuit sealing Economy", Final report of the Working Group on the Inuit sealing Economy: submitted to Inuit Tapirisat of Canada, July 9,1987
3 see Appendix I for Terms and Conditions of EDA Contribution Agreement for this project
4 see Appendix 1 for project Terms of reference
5 see regional reports for detailed survey responses

level of infrastructure within each community, its current level of use, and expansion potential. It was also important to assess current skill levels within the communities with regard to product processing, and business management.

As already mentioned, ITC and the regions were interested not only in collecting objective information upon which to assess the feasibility of economic opportunities within the regions, but also to get a sense of what people at the community level wanted to see, and the kind of approach to development that they felt would work within their community. The history of economic development in the north has clearly shown that regardless of how good an opportunity looks on paper, it will not succeed unless it implemented in a manner that is consistant with community expectations and capacities In other words social and cultural considerations are an integral part of economic planning. Thus any plan to develop a northern sealing industry must as its starting point begin by considering the Importance of this resource within the smelled 'informal' or 'domestic' economy, and strive to find ways to develop opportunities which complement rather than put at risk these important social and cultural aspects of community life.

(iii) The Socio-Cultural Context for Development

We do not intend to engage in an exhaustive analysis of the importance of sealing to the informal or subsistence economy within Inuit immunities, but since this represents a critical element underlying all our recommendations it is important to undertake a general discussion of the issue.

Prior to the collapse of the seal skin markets in 1983 due to the impositions of bans on the importation of seal products by countries with the European Economic Community, cash income from the sale of seal skins represented a significant portion of a hunters income. Research undertaken in the community of Clyde River, for instance indicates that in the early 1970's the cash income generated through sealing provided the hunter with 44% of the monies generated by harvesting activities, as well as nearly 25% of the overall capital and operating costs needed annually [6]. Sealing represented an important part of the annual cycle of harvesting activities that taken collectively provided a sufficient supply of country food for the hunter's extended

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[6] Usher, P.& Wenzel, G. "Socio-Economic Aspects of Harvesting" in Keeping on the Land: A Study of the Feasibility of a Comprehensive Wildlife Harvest Support Programme in the Northwest Territories, CARC, (unpublished version), April 1988

family, and at the same time generated sufficient cash income to allow the hunter to purchase, maintain and operate his equipment,

The collapse of the markets for sealskins meant that hunters were faced with a sudden shortfall in their cash income, greatly Increasing the difficulty associated with maintaining a satisfactory 1 iving as a full-time hunter. Unreliable market conditions within the fur industry in general, in combination with unrelenting increases in the cost of equipment meant that many hunters were unable to maintain their previous level of harvesting activity unless they, or other members of their extended family, had jobs in the wage economy 8nd were therefore able to subsidize hunting activities. Given the high rate of unemployment in the smaller settlements, many hunters remained confined to their communities unable to get out on the land without assistance from others. As a hunter interviewed by ITC as part of the development of public education materials put it,

> " The hunters used to buy skidoos, outboard motors, canoes, pay their rent and electricity and at the same time teach their Children how to hunt and survive. Since the sealskin market was destroyed hunters have been doing nothing, and their bills have kept piling up, while other people with goat jobs are hunting. This is because they can afford to buy the equipment they need to hunt as well as pay their bills. "[7]

Table 1, again taken from Wenzel's research in Clyde River, provides an indication of the 'harvester outfit costs' for three yearly periods, as well as the average price paid for sealskins during these years. Also included in the table are calculations of the number of sealskins,(sealskin units SSU) that would have to be sold to finance equipment and operating expenditures for each of these periods,

The importance of hunting to Inuit society goes well beyond the role it plays 8s a means of providing cash income. In fact the figures discussed above show that even at the best of times the cash revenue from resource harvesting is pretty well a 'break- even' proposition when operating expenditures are taken into amount. The principle benefit of resource harvesting is the significant contribution of high quality food that it provides to the community at large. Distributed through the informal economy, according to traditions that reflect the essence of Inuit culture, the value of 'country food' to the Inuit economy goes well beyond any imputed value,

For this reason some have suggested that the commercial development of renewable resources in the north represents a threat to the socio-cultural characteristics of Inuit society, unless

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[7] Inuit Tapirisat of Canada. Building a Future from our Past. Ottawa, 1988

subsistence needs are given priority over commercial use of renewable resources. This is a concern that is shared by those involved in this project, and serves to reinforce the need for an approach to planning that gives a leading role to views and opinions of people at the community level.

TABLE 1

Harvester Outfit Costs. Clyde River. N.W.T.

	Year		
	1971-1972	1975-1976	1984-1985
Sealskin Units (SSU)	$13.83	$16.40	$4.50
Capital Equipment			
snowmobile*	1400(101)	2300(140)	2800(621)
canoe (6.7m)	1200(87)	1800(110)	3000(667)
outboard motor	1300 (94)	1800(110)	3300 (733)
.222 cal. rifle	145 (11)	250 (15)	660(1 47)
.303cal rifle	99(7)	150 (9)	350(78)
canvas tent	n.d.	n.d.	230(5 1)
sleeping bag	65 (5)	99 (6)	290 (65)
camp stove	28 (2)	45 (3)	70 (16)
subtotal	4237 (307)	6444 (393)	10700 (2378)
REPLACEMENT ITEMS			
track assembly	n.d.	@200 (13)	390 (87)
ski and frame	@20 (2)	n.d.	70 (16)
slider rail	n.d.	n.d.	20 (5)
piston	@30 (3)	@42 (3)	80(18)
crankshaft	n.d.	n.d.	500 (111)
spark plug	n.d.	2(1)	4 (1)
subtotal			1064(238)
EXPENDIBLES			
gasoline (50 gal)	113 (9)	125(8)	128(29)
avg. yearly use= 750 gal.	1695 (135)	1875 (120)	1920 (435)
ammunition:			
1 box ,222 cal	5 (.36)	8.5 (.5)	11.5 (2.5)
av. yearly use= 50 boxes	250 (15)	127.5 (7.5)	172.5(37.5)
yearly use subtotal	1945 (150)	2002.5(128)	172.5(37.)
combined total	6182 (462) [partial]	8690 (S38) [partial]	13856(3089)

*items included are those most commonly in use(lowest priced items only)
source: Wenzel& Usher, op. cit., 1988

The recommendations contained in this report reflect a sensitivity to this issue, and throughout our analysis we have taken into account current practice and the needs inherent in the informal or domestic economy. At the same time, however, we feel that the subsistence/ commercial dicotomy if defined in a rigid manner does not reflect real practice. As we have seen subsistence harvesting must involve an element of 'commercial' exchange to be viable. Conversely the development of commercial opportunities do not necessarily threaten the practices and traditions associated with subsistent? activity.

For these reasons we reject the subsistence/mmmercial terminology as useful tools in approaching northern renewable resource development, Just as so-called subsistence economies have always involved trade, even before the arrival of European traders, so to must commercial enterprises reflect a sensitivity to Inuit traditions if they are to successfully address community needs. Rather we prefer to think in terms of mak ing maximum use of the products of a harvestthat is utilized within the framework of sustainable development, If people at the community level are responsible for determining the pace and direction of this development then in our view the benefits will be multi-faceted, and within their reach.

Our objective, simply put is to find ways to maximize the benefits to a hunter and his family from seal hunting. Given that we have no control over external market conditions, we must begin by looking at different ways to generate the cash income that the 'raw' skin market provided before the ban. As such, a re-vitalizedInuit sealing economy will, by necessity, look very different to what it was in the past. Our work has focused on identifying a range of opportunities that will make use of all the by-products of the harvest. To be successful it must foster the development of skills to manage businesses that will result in greater economic benefits to Inuit rather than to business interests outside the north as was previously the case.

While we must seek to identify opportunities that are capable of sustaining themselvesin the contemporary marketplace, we must not lose sight of other equally important considerations. The underlying foundation of any re-vitalized northern sealing economy are the hunters themselves. Only by ensuring that Inuit can continue to make a reasonable living by harvesting the various renewable resources of the arctic can we expect to successfully bui ld a stronger northern economy. If young Inuit are no longer able to continue to support themselves and their families by hunting (and the destruction of the seal markets illustrates how fragile this undertaking can be)then the extensive knowledge, skills, and expertise that is essential if one is to survive and prosper in the arctic environment will also be in jeopardy, as will any hope of building a strong renewable resource based economy.

Although the sealing strategy is primarily concerned with Identifying new economic opportunities for I nuit communities, the current state of the Inuit hunting economy creates considerable concern over whether additional measures, beyond market driven development should contemplated, The Tungavik Federation of Nunavut has tabled a proposal for the establishment of a hunter support program as part of their claims negotiation, which 1s designed to provide a safety net to hunters while at the same time encouraging them to strive for greater self-sufficiency. Considering that the major blow to the Inuit hunting economy has come from 'atypical' market forces (ie. anti-sealing protests) it maybe unrealistic to expect the renewable resource economy to grow without some form of additional support system.

SECTION II

(i) SEALS AS A SUSTAINABLE RESOURCE

Biological Data: The Limitations of Existing Information

During the development of the initial strategy document by the members of the working Group concerns were raised over the difficulty in determining the current status of seal stocks in the arctic. Although informal 'feedback' from communities in all regions indicated that seal populations were increasing, as a result of severely reduced harvests in recent years, it was not possible to quantify this information at the time, For example the Amiq Leather business plan prepared by Nunasi Corporation had relied exclusively upon records for the sale of skins per community for the decade prior to the collapse of the markets. This information, while giving some indication of the level of harvest over time, still provided only a very limited picture.

One objective of the regional planning process was to attempt to improve our level of understanding of the current status ofseal stocks throughout the north, and to make apreliminary estimation of the level of sustainable yield for this resource, It isinteresting tonotethat the two groups who were most concerned that the plannning process take a close look at this issue were community Hunters and Trappers Associations (HTA's) and officials from the Department of Fisheries and Oceans (DFO). We hope that the information prepared through the regional planning process can provide a useful starting point for anon-going collaborative process between DFO and community HTAs to improve upon the information presented in this report and that will result in a inoperative management regime that is satisfactory both to government regulatory agencies and community interests.

The information used to assess current seal populations has been drawn from a number of sources, including records of skin sales, regional harvesting study data, RCMP reports of harvest levels, and research conducted by government biologists. The quality and range of information available varied considerably from region to region, much 1 ike the status of the resourceitself. There is considerable variation between, and within regions in the size of seal populations. Below we will review our findings for each region.

Current Status of Seal populations by Region

Baffin Region

Within the N. W. T., Baffin region Inuit have historically harvested the largest number of seals, both for domestic use and for trade. Species harvested in Baffin region include Ringed , Bearded , Harp, Harbour and Hooded seals.

Ringed Seals

The first attempt to determine the population of ringed seals in Baffin region was undertaken by I.A. McLaren, of the Fisheries Research Board in 1958. These estimates were arrived at by counting ringed seals from shipboard, calculating the densities of seals hauled out on land-fast ice, and then arriving at a projected population by measuring the total area of land-fast ice.[1]

Using this method McLaren arrived at a ringed seal population within the region of approximately 665,700 seals,[2] with the largest concentrations being along the east Baffin coast. McLaren's methodology was based on the assumption that stable ice was essential to successful breeding for ringed seals, and that the amount of land-fast ice was a limiting factor in population size.

Aerial surveys conducted by Thomas Smith of the Fisheries Research Board in Home Bay, Hoare Bay, and Cumberland Sound, followed the same methodology and arrived at populations estimates similar to McLaren's for these locations. 3

Although debate continues wer whether a seperate, offshore population of between 417,000 and 787,000 ringed seals exists in the pack-ice between east Baffin and Greenland, as suggested by LGL researchers, the concensus amongst the scientific community continues to be that the work by

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1 Weihs, F.H., "Strategy for the Inuit sealing Economy: Baffin Region Report", p.18
2 ibid. p. 19
3 ibid p. 22

McLaren and Smith provide the most reliable estimates [1] However, as Weihs points out in his report these estimates should be viewed as extremely conservative with respect to the total ringed seal population within the region. The problem of estimating the number of seals under the ice during surveys, and the problems associated with extrapolating from small areas mean these numbers are estimates, and in the view of the scientists involved, very conservative estimates.[2]

Bearded Seals

The Information currently available for Bearded seals is even more limited than for ringed seals. Once again, however it is McLaren who has provided a rough estimates of numbers within the region. His research from 1958 puts their numbers at approximately 89,600 within Baffin Region. Efforts to confirm these estimates have proven unreliable, and more reliable estimates are urgently needed, since the bearded seal is an important part of the Inuit harvest.[3]

Harp Seals

The harp seals harvested in Baffin region are part of the Atlantic population that breeds off Newfoundland and the Gulf of St. Lawrence. Population estimates from 1985 put the total population at approximately 2 million seals. There are no estimates concerning the number of seals from this herd that migrate to the Baffin region, however hunters in Iqaluit, and other south-east Baffin communities are reporting increasing numbers of harp seals in their areas. This would seem to be consistent with the view that the Atlantic population is increasing since the end of commercial harvest off Newfoundland.

Hooded and Harbour Seals

Little information concerning either of these seals is currently available. However since they are only rarely hunted by Inuit, and there numbers are relatively small in the arctic, they are not considered as part of this project.

SUSTAINABLE YIELD

Based on the scientific literature, Weihs used estimates of sustainable yield at 7.2% utilization of the total population for ringed seals and 5% utilization of the total population for bearded seals. Because population estimates for harp seals in Baffin are not available it is not possible to a

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[1] ibid. p. 25 The Baffin report provides a more detailed explanation of study results and the debate within the scientific community over the liklihood of a seperate offshore population .

[2] ibid. p 25

[3] ibid. p 28

sustainable yield level for that specks. However given the reduction in harvesting levels off Newfoundland, and Greenland, the average annual harp seal harvest of 4,511 for Baffin Region is considered to be well within acceptable levels. At these harvesting levels the sustainable yield for ringed seals in Baffin is estimated at 47,500, and for bearded seals at 4,480. [1] A more precise geographical breakdown of these estimates is provided in the Baffin report.

HARVESTING DATA

As expected the harvest data for Baffin region shows a marked decline throughout the early 1980's. Regional harvests declined 40% between 1980 and 1981, and a further 12% between 1981 and 1983, Ringed seals made up 86% of the total seal harvest for the region, and declined by 50% between 1980 and 1982, after which harvests remained fairly constant, Although seals are harvested in all Baffin communities, Pangnirtung and Broughton Island collectively account for 40% of the regional harvest on average.[2]

The average annual harvest of ringed seals for the region between 1980 and 1985 was 36,005, of which just over one third were harvested in Pangnirtung and Broughton Island, followed by Iqaluit, Pond Inlet and Clyde River. The average annual harvest of Bearded seals for the same time period in the region was 1 1 61, just under 3% of the total seal harvest, Bearded seals are particularly abundant in the regions near Cape Dorset, Lake Harbour, Iqaluit, Pangnirtung, and Sanikiluaq.[3]

Approximately 80% of the annual average harvest of harp seals for the same period came from Pangnirtung. The average regional harvest for this peiod was 4511, or almost 11% of the total seal harvest. The harvest of harp seals declined by more than 50% between 1980 and 1984.[4]

It is also important to note that while ringed and bearded seals are harvested throughout the entire year in Baffin region, that the majority of the harvest recurs between June and October during the open water season. (Ringed seals: 63.9%, Bearded seals: 77.9%) Harp seals are almost exclusively harvested during this season (90%).5

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[1] ibid. p.31-42
[2] ibid. p. 46
[3] ibid. p. 46-49
[4] ibid. p 49
[5] ibid. p69

TABLE 2
Meat Available for Commercial Utilization: Baffin Region
(No. of seals)

	Sustainable Yield	Allowance for sinking	Net Yield	Domestic Allowance	Available Surplus
RINGED SEALS					
Arctic Bay	3,161	316	2,845	2,844	1
Brougton Is.	5,089	509	4,580	3,044	1,536
Cape Dorset	5,846	585	5,261	1,564	3,697
Clyde River	2,801	280	2,521	1,970	551
Grise Fiord			868	462	406
Hall B./Igloolik	6,343	634	5,709	1,950	3,759
Iqaluit	4,385	439	3,947	8,165	(4,219)
Lake Harbour	1,634	163	1,471	1,495	(24)
Pangnirtung	6,851	685	6,166	3,554	2,612
Pond Inlet	4,774	477	4,297	2,941	1,356
Resolute Bay			351	406	(55)
Sanukiluaq	3,794	379	3,415	3,086	329
Baffin Total			41,429	31,481	9,948
BEARDED SEALS					
Arctic Bay	90	23	68	30	38
Broughton is.	125	31	94	49	45
Cape Dorset	395	99	296	162	134
Clyde River	80	20	60	23	37
Grise Fiord			25	19	6
Hall Beach/Igloolik	1.630	408	1,223	172	1,051
Iqaluit	"415	104	311	342	(31)
Lake Harbour	150	38	113	82	31
Pangnirtung	285	71	214	94	120
Pond inlet	135	34	101	39	62
Resolute Bay			13	2	11
Sanikiluaq	795	199	596	139	457
Baffin Total			3,113	1,153	1,960
HARP SEALS					
Arctic Bay			119	74	
Broughton Is.			243	75	1x
Cape Dorset			8	13	-5
Clyde River			34	1	33
Grise Fiord			175	176	-1
Hall Beach/Igloolik			11	9	2
Iqaluit			188	635	-447
Lake Harbour			21		-7
Pangnirtung			3,733	2,2::	1,445
Pond inlet			51	67	(16)
Resolute Bay			2	0	2
Sanikiluaq			1	0	1
Baff in Total			4,586	3,366	1,220

TABLE 3
SKINS AVAILABLE FOR COMMERCIAL UTILIZATION: BAFFIN REGION

RINGED SEALS

	Sustainable Yield	Allowance for sinking	Net Yield	Domestic Allowance	Available Surplus
Arctic Bay	3,161	316	2,845	2,258	587
Broughton Is.	5,089	509	4,580	3,019	1,561
Cape Dorset	5,846	585	5,261	1,456	3,804
Clyde River	2,801	280	2,521	1,800	721
Grise Fiord			868	775	93
Hall B./Igloolik	6,343	634	5,709	2,205	3,504
Iqaluit	4,385	439	3,947	1,996	1,951
Lake Harbour	1,634	163	1,471	917	554
Pangnirtung	6,851	685	6,166	1,224	4,942
Pond Inlet	4,774	477	4,297	2,606	1,691
Resolute Bay			351	351	0
Sanikiluaq	3,794	379	3,415	3,202	213
Baffin Total			41,429	21,810	19,619

HARP SEALS

Arctic Bay	119	72	
Broughton Is.	243	44	1:;
Cape Dorset	8	6	2
Clyde River	34		22
Grise Fiord	175	1;:	55
Hall beach/Igloolik	11	9	2
Iqaluit	188	74	114
Lake Harbour	21	15	
Pangnirtung	3,733	247	3,48:
Pond inlet	51	46	5
Resolute Bay	2	2	0
Sanikiluaq	1	0	1
Baffin Total	4,586	647	3,939

source: Table 2 & 3, Weihs, Baffin Region Report

DOMESTIC UTILIZATION AND COMMERCIAL AVAILABILITY

In the Baffin report, Weihs went on to com pare the range of data available, Including survey responses to determine what percentage of the potential sustainableyield would be required by the domestic or Informal economy and what would be available for commercial utilization for both seal meat and skins.[1]

Based on the estimates of sustainable yeilds and accounting for sinking losses, and domestic utilization, the findings indicate that approximately 13,000 seals are available for meat production and 23,500 skins are potentially available for commercial use. it is interesting to note however that even when seal skin prices were high that almost 22,000 skins were retained within the region, and that this would raise the total number of skins available for local tanning and production to over 40,000.7 Once again we want to emphasize that these calculations are based on conservative estimates of seal population size.

KEEWATIN REGION

The information relating to seal populations in the Keewatin is much more limited, and the regional report has relied extensively upon data collected through the Keewatin region harvest • Study. The Harvest Study in the Keewatin was begun in 1981, but reliable data for most communities was not available until 1982.

Ringed seals

The harvest levels in the Keewatin region for October 1981 to September 1982 are outlined below. As can be seen Coral Harbour and Repulse Bay harvested the largest number of seals during this period, but rankin inlet and Eskimo Point also figured as significant seal harvesting communities. The total ringed seal harvest for this period was 2,757.8

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[1] for a detailed explanation of the methodology used to arrive at estimates of domestic utilization refer to Baffin report p. 54-75

[7] ibid. p. 74-75

8 Gamble op. cit.

As In the case of Baffin region the majority of seals are harvested in the period between June and October during the open water season.

Figures from Hudson Bay skin sales and RCMP harvest figures further substantiate that the harvest figure data reflects depressed catch levels. The regional mean annual ringed seal harvests recorded by the RCMP for the period from 1962 to 1972 was 4397. Hudson Bay records for the number of skins traded from 1940 to 1972 gave a regional annual mean of 2588.[9]

TABLE 4

Ringed Seal Harvests: Keewatin region
by Community
October 1981- September 1982

community	# harvested
Chesterfield Inlet	137
Coral Harbour	821
Eskimo Point	411
Rankin Inlet	452
Repulse Bay	812
Whale Cove	124

TABLE 5

Highest Harvest Levels for **Ringed Seal: Keewatin region**
by Community, 1982-1986

community	# harvested
Chesterfield Inlet	104
Coral Harbour	756
Eskimo Point	503
Rankin Inlet	565
Repulse Bay	800
Whale Cove	200

source: table 2 &3: Keewatin harvesting Study: preliminary report

9 Smith, T.G. & Taylor, D.," Notes on marine mammal, fox, and polar bear harvests in the Northwest Territories 1940 to 1972" Dept. of Fisheries and the Environment, fisheries and Marine Environment Technical Report No.694, 1977

Although it is difficult to assess what the sustainable yield might without better information concerning ringed seal populations within the region, it is reasonable to assume that current harvest levels do not exceed the sustainable capacity of the resource, and that harvests levels could be increased. The survey results indicate that hunters feel that the number of seals in the region are increasing, and that more seals are not being taken because low skin prices which do not allow hunters to increase their activity beyond that necessary to meet basic domestic needs for meat.

Bearded Seals

Harvest levels for bearded seals are quite low within the Keewatin region. The largest reported harvest for the period from 1981- 1986 was 193, with Coral Harbour harvesting 66, Eskimo Point 49, and Repulse Bay,24.[10] According to RCMP harvesting reports the mean annual harvests of bearded seals for Keewatin communities from 1962 to 1971 totalled only 270.[11] Given the importance of Bearded seal skins for traditional clothing and the low harvest levels within the region, bearded seals should be excluded from any consideration of commercial opportunities.

KITIKMEOT REGION

The most important seal within the Kitikmeot region is the ringed seal. They are found in the greatest numbers in the eastern part of Amundsen Gulf, where stable land-fast ice provide consistent breeding habitat. However researchers have been unable to estimate the population of ringed seals inhabiting the region due to the migratory nature of the seals in this region. Aswell fluctuation in the rates of predation by foxes result in considerable variation in seal populations from one year to the next. [12]

Harvest levels within the region can be determined by considering a variety of sources. Table 4, below provides a comparison of the numbers of seal skins traded within the Kitikmeot region from a number of sources including two studies by Usher [13], Smith and Taylors research (op.cit.) and statistics from the Government of the Northwest Territories.

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10 Gamble, ., op.cit.

11 Smith, T.G.& Taylor,D. 1977, op cit.

12 Dickie, C. "Strategy for the Inuit Sealing Economy: Kitikmeot Region" p.1

13 Usher, P.J. 1970. The Bankslanders: Economy and Ecology of a Frontier Community. Vol.2- Economy and Ecology. (Information canada, Ottawa) 1975. Historical Statistics Approximating Fur, Fish, and Game Harvests

TABLE 6

COMPARISON OF FIGURES OF SKINS TRADED: KITIKMEOT REGION
BY COMMUNITY

	Usher 1962-86	Usher 1971-74	S&T 1940-72	GNWT 1980-84
Bathurst Inlet			150	28
Cambridge Bay	328	167	515	183
Coppermine	2411	1740	2434	1028
Gjoa Haven	344	260	216	60
Holman Island	2499	1096	1258	2716
Pelly Bay				42
Spence Bay	1676	754	683	287
TOTAL	7258	4017	5256	4344

source: Kitikmeot Regional Plan

As we can sw from Table 4, Coppermine and Holman Island have by far the largest number of skins traded within the region, with numbers in the order of 2000 for each community at various times. As discussed earlier, the figures do show more flucation than for harvests in other regions. Gjoa Haven, Cambridge Bay, and Bathurst Inlet each have low numbers of skins traded for these periods, Pelly Bay and Spence Bay collectively averages over 1600 in the 1960's but show dramatic reductions for the 1980's.

Given the lack of reliable information concerning ringed seal populations, and the large annual variation in abundance within the region, it is not possible to determine sustainable yields for the region. The existing information does not point to longer-term decline in numbers. However the

Within Inuit Lands of the N.W.T. and Yukon 1915-1974 ,(Renewable Resources Studies: Inuit tapirisat of Canada, Ottawa.)

historical data on the number of skins traded does give us a rough estimate of the number of skins currently available for commercial utilization for each community given suitable prices and markets. [14]

INUVIALUIT REGION

The seal population in the Inuvialuit region is the same as that found in Amundsen Gulf, and thus reflect the same wide fluctuations in population size from one year to the next. The harvest information for the Inuvialuit region is collected from the regional harvest study and a variety of historical data. Excluding Holman Island which is an overlap community covered under the Inuvialuit Final Agreement, as well as being part of the Kitikmeot region, the next largest sealing community is Sachs Harbour.

The number of sealskins traded in Sachs Harbour ranged from 100-2600 during the period from 1955-1972 (Usher). Smith and Taylor have estimated the mean annual seal harvest at 1000 with the highest annual total being 2186.

Tuktoyatuk traded between 3-183 sealskins between 1960-1973. (Usher) For the period between 1962-72, Smith and Taylor report a mean annual seal harvest of 286 with a highest annual harvest of 850, Between 1970-1980, GNWT statistics report that less than 50 seal skins were exported from Tuktoyatuk in any given year.

Usher reports that between 1-1225 sealskins were traded in Paulatuk between 1960-1973. Smith and Taylor report records showing that between 1940-72 ,that the mean seal harvest was 710, and the maximum yearly total 1266. For the period between 1970-1980, GNWT records show that between 60-180 skins were traded. [15]

In the Inuvialuit region seals are primarily harvested as a source of dog food. Consequently they are often butchered with the skin on, unless skin prices justify the effort of preparing them for sale. This no doubt accounts in large part for the sharp reduction in the number of skins traded during the post ban period.

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[14] Dickie, C. op.tit, p.9-10

[15] Staples, L. Invialuit Regional Report

Other Biological Considerations: Environmental Pollutants

Throughout the course of the regional implementation planning process we have had cause to become increasingly concerned about the real and potential impact of environmental pollutants on both the seals themselves and Inuit who rely heavily upon seal meat as a food source. Unacceptable pollutant levels will also have an immediate impact on any plans to commercialize the sale of seal meat products. Throughout the course of our research we have discussed this issue with scientists engaged in looking at this problem, as well as government officials responsible for monitoring the results of on-going studies in this area,

Once again work on this problem is limited due to lack of resources, and as a result it is difficult to draw reliable conclusions as to the health effect on humans of pollutants present in the arctic ecosystem. One thing is clear however, and that is significant levels of Organochlorine contaminants are present in the arctic marine feed chain, in the central and eastern arctic. 6 in the ring seals samples analyized in this study, these residues consist of almost equal portions of chlordane, PCB, and DDT isomers, although there was variation between age classes and sex of the seals within the sample.7

These pollutants collect in blubber and in specific organs such as the liver and kidneys. As a result they represent critical factors in messing the feasibility of proceeding with any initiatives designed to utilize these by-products of the harvest. Discussions with one of the authors of the study cited above would suggest that food products containing only meat that had blubber removed would fall within acceptable levels for contaminant levels. It is also unclear at this point what the relationship is between pollutants in a food source and potential health risks, and whether or not other characteristics of a 'country food' diet may serve to al leviate the potential effects of the contain inants.

Again this is an area that requires much more research before reliable conclusions can be arrived at. We would strongly urge the respective federal agencies to provide these resources and more importantly, to make the findings readily accessible to Inuit. If, as recent press reports indicate, this threat is primarily linked to air-borne transmission from sources in Europe ands the

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6 D.G. Muir, R.J. Norstrom, M.Simon; Environmental Science & Technology, Vol.22, pg. 1071, September 1988

7 ibid. p. 1078

U.S.S.R. ,then we would expect the Canadian government to urgently engage in action at the international level to address this threat.

Recommendations:

1. The Department of Fisheries and Oceans allocate the resources necessary to continue to intensify the rate of data collection with respect to the status of seal populations in the arctic regions. Population surveys and biological data are a critical element in the development planning process, and should keep pace with the identification of new economic opportunities. Mechanisms should be established, where they@ not currently exist, between DFO and commun- it HTA's to ensure that research findings are readily available, and effectively used in renewable resource economic development planning.

2. Given the potential impact of toxic contaminants on marine resources, human health, and the potential development of the renewable resource economy, government should implement abroadly based, on-going system of sampling to monitor contaminant levels. Community Hunters and Trappers Associations should be fully involved in sample collection and be kept informed of test results.

SECTION III
COMMERCIAL OPPORTUNITIES RELATING TO SEALING

SEAL SKINS

Our surveys of Inuit communities, and discussions with sewing groups and retailers such as ACL have highlighted several critical factors that must be addressed if ways are to be found to revitalize markets for seal skin products. As we pointed out in the previous section the sale of seal skins had, prior to the collapse of the market had been the major source of cash necessary to finance the activities of full time hunters, As the survey results have documented, the decline of the markets for seal skins has resulted in a situation where it is primarily individuals who are employed in the wage economy who have been able to maintain the equipment and purchase the supplies necessary to hunt. Ironically these people also have the least time available to engage in hunting. To effectively meet the needs of Inuit hunters this strategy must generate enough revenue to enable individuals to once again finance their hunting activity.

The second critical factor that must be considered is the labour required to prepare the skin for tanning. Women have repeatedly commented on the labour intensive, time consuming nature of skin preparation. At prices much below $15-20 per skin, women are essentially performing this work without any monetary compensation. This is clearly an unacceptable situation. Any attempt to remedy the present situation must also address the need to adequately compensate women for their labour and build efficiencies into the process of preparing skins for tanning.

Given that prices for seal skins ($ 5-7.00 in past years) in the traditional fur markets is not even sufficient to offset the costs associated with harvesting seals. This section discusses the relative merits of two alternatives; Amiq Leathers and Community based small-scale tanneries.

AMIQ FINE LEATHERS: NUNASI CORPORATION

Nunasi Corporation was represented on the Working Group that developed the strategy for the Inuit sealing economy. At that time they outlined their plans for Amiq Fine leathers, a business subsidiary devoted to the marketing of fine leather products made from seal leather. Seal skins can

be tanned into a very attractive 8nd durable leather that is able to compete within the 'exotic' leather market. The Amiq bather business plan called for the purchase of seal skins, and pre-processing of seal skins in the north, followed by shipping them south for tanning and manufacturing. The tanning would be done by Canada Blue Tanners in Cobourg Ont., and the manufacturing of finished products by E. H. Ferree Ltd. in Niagara Falls Ont. These products would then be jointly marketed by Feree and a sales team established by Amiq Fine leathers.

The business plan submitted to the working group projected sales of $2.5 million in the first year of production building to $9 million in sales by the third year of production, A major concern of Amiq Leather was the quality of pre-preparation of skins in the north. To date skins have been fleshed and cleaned by hand. As a result there is a high proportion of skins that have thin spots, nicks and holes either from the knives used during flenching or the ulus during scraping. These defects are further emphasized by the chemicals used during the leather tanning process.

To address this problem Amiq Lathers has proposed that an initial preprocessing be built in Pangnirtung., followed by addtional plants as the business develops and supply requirements increase. These plants would mst in the order of $671,000 each, and would be owned and managed by Amiq Leathers.

The fleshing machines proposed by Amiq Leathers would mst approximately $35,000 each (Amiq Leathers Business plan) and would be capable of high volume capacity. According to the business plan submitted by Amiq Leathers the total skin requirements at the end of the third year of operation, if production projections were met would be in the order of 30,000 skins. For the first year of production approximately 8,000 skins would be required,

Amiq Leathers is proposing to pay approximately $15.00 per skin if properly prepared. Although Nunasi Corporation informed the working group that a video would be available in the near future outlining the preparation requirements and pricing system, it has yet to be made available.

For the initial production run Amiq leathers has purchased its skins from the North West Sealers Co-op in Fleurs-de-les, Newfoundland. This inventory consists entirely of harp seal skins which have been preprocessed using commercial fleshing equipment, and shipped after being brined and salted. During the summer of 1988 Amiq Leathers received funding totalling $468,000 from the Native Economic Development Program and are currently producing and marketing their products, To date, however they have not met the sales projections forcast in their business plan.

The problems associated with northern procurement have not yet been adequately addressed. As the surveys indicate most hunters do not consider a price of $15.00 sufficient to warrant increased harvesting levels, particularly with the additional care and attention that will be required to produce a product satisfactory to Amiq. The solution put forward by Amiq to remedy this situation is extremely capital intensive and it is far from proven at this point whether sales will justify this degree of investment. In addition the Amiq proposal that these facilities be owned and operated by the company, is inconsistent with the views expressed in the portion of community surveys dealing with ownership structures.

The proposal outlined in the strategy document that Amiq leathers broaden its ownership structure by Issuing 'special founder shares' has not come about. At that point it was envisioned that Amiq Leathers could function as a marketing agency for all Inuit harvested skins throughout Canada. Concerns with respect to the Amiq Leathers business plan by the other regions has however prevented this type of collaboration.

A general concern wer the price being offered for skins, the problems of quality control, and the lack of a strategy by Amiq Leathers to address these problems have combined to generally reduce the appeal of this option to Inuit at the community level. As the Baffin implementation report suggests;"1 n the short term there would appear to be little benefit in this project for the hunters in the region or to their immunities". (Weihs p. 111)

Although Amiq Leathers has succeeded in producing a range of products which demonstrate the potential appeal of seal leather products, they have been unable to adequately address the range of problems related to northern procurement. Nor have they been able to adequately respond to suggestions that Inuit harvesters are not adequately compensated for their efforts relative to Am iq's southern based business partners.

Consequently this report can only conclude that while Amiq Leathers remains an option for seal skin sales, it does not adequately address the objectives identified in the strategy document; namely the priority of providing benefits to Inuit hunters and their families. Concerns raised by regional organizations, and the ITC Board of Directors, has led us to identify other opportunities in addition to Amiq Leathers.

COMMUNITY BASED SMALL-SCALE TANNERIES

In response to concerns that the Amiq leathers business plan was unable to address the objectives outlined in the strategy document, the national Coordinator in consultation with the regions began to look for alternatives. Foremost among the options considered was the possibility of locating small-scale tanneries in the north, thereby ensuring that maximum benefits were derived by community members in the tanning and sale of skins.

The concept of locating tanneries in the north is certainly not new. However a legitimate concern, and one repeatedly raised through the community consultations, is that of environmental pollution. After some investigation, a consultant was identified who appeared to have a solution to this problem. Mr. Antione Cano, of Techno-Tan Inc. has had extensive experience in the installation of and training for small scale community based tanneries, In particular Mr. Cano has played a major role in the establishment of artisanal tanneries and handicraft production using seal skins in the Magdelaine Islands and in various communities along the Lower North Shore of Quebec and in Newfoundland.

The principle advantage of Techno-Tan's system from a northern perspective is that it relies on aluminum sulfate solutions which do not pose undue environmental risks. In addition these tanneries can be operated in such a manner that the solutions are constantly re-cycled thus essentially eliminating any potential environmental problems. In fact Mr. Cano has suggested that the range of household cleansers and detergents that are commonly flushed down household sinks . represent a greater environmental threat than a properly run tannery using his techniques. (personal comm: A. Cane)

Techno-Tan's expertise lies not only with the tanning process, and the installation of tannery equipment, but also with training related to both tanning techniques and handicraft production. This approach is based upon the principle that community based tanneries must be viewed in the context of their role in facilitating the production of finished products at the community level. As can be seen from the budget projections in Table 7, small scale tanneries begin to be competitive from a purely cost point of view at an annual production level of approximately 2000 seal skins, given that it is costing approximately $40-$45 to have skins tanned commercially in the south and to pay for the return trip cost of shipping. (Baffin report p. 1 18) At volumes greater than 2000 skins, small scale tanneries represent a more cost effective alternative to southern based

tanning. We project that at volumes approaching 5,000 skins annually the per skin tanning cost would be in the order of $2S-$30,

TABLE 7

Operating Budgets for Small-Scale Tannery at Various Levels of Production Seal Skins Only

Production/day	5	10	20
Production/year	1,000	2,000	4,000
Employment			
Tanner/Mgr. $15/hr.	24,000	24,000	24,000
Flesher(s) $ 10./hr.	16,000	16,000	32,000
General $8 /hr.		12,000	12,000
Part-time $6/hr.			4,800
Benefits	4,800	6,336	8,832
Equipment:			
Fleshing Machine (1 or 2)	1,500	1,500	3,000
Tanning Drum	4,000	4,000	4,000
Stretcher	1,200	1,200	1,200
Buffer	1,200	1,200	1,200
Cage			4,000
Tubs, etc.	600	600	600
Transportation	2,000	2,000	2,000
Total equipment	9,000	9,000	16,500
Operating Expenses			
Supplies	3,000	5,000	10,000
Utilities	5,000	8,000	12,000
Insurance	300	300	400
ACCounting/Audit	5,000	5,000	5,000
Salaries and Benefits	44,800	59,136	82,432
Equipment Depreciation	900	900	1,650
Building rent	4,800	4,800	4,800
Total Expenses	63,800	83,136	116,282
Cost/skin	$63.80	$41.57	$29.07

TABLE 8
PREFEASIBILITY ANALYSIS SMALL SCALE TANNERY
SEAL SKINS ONLY
REVENUE AND PROFIT PROJECTIONS

Year	1	2	3	4
Production/year	1,000	2,000	4,000	4,000
Price	$42/ skin	$42/ skin	$35/ skin	$32/ skin
Revenue	42,000	84,000	140,000	128,000
Operating Expenses				
supplies	3,000	5,000	10,000	10,000
Utilities	6,000	0,000	12,000	12,000
Insurance	300	300	400	400
Accounting/ Audit	5,000	5,000	5,000	5,000
Salaries and Benefits	44,800	59,136	82,432	82,432
Equipment Depreciation	900	900	1,650	1,650
Building rent	4,800	4,800	4,800	4,800
Total Expenses	63,800	83, [36	116.282	116.282
Profit/ (Ms)	(21,800)	864	23,718	11,718
Accumulated profit/ (Loss)	(21,/300)	(20,936]	2,782	14,s00

There are several factors that must also be considered beyond just the production costs of community based versus southern based tanning. Even at low volumes where the per unit tanning costs exceeds southern commercial tanning options, the local alternative will have a significant impact in terms of wages that will flow to local people. Even at the level of a 1000 skins per year a community based tannery would generate approximately $42,000.00 in salaries and benefits per year. At volumes approaching 5000 skins per year salaries and benefits would be in the order of $89,500,00 annually.

In addition small scale tanneries would eliminate problems that currently exist with sending skins south. In interviews with groups at the community level, the difficulties associated with identifying reliable tanneries, and the logistical problems associated with making arrangements appear to have proven insurmountable in many instances, These problems are compounded by language barriers in making arrangements and the excessive delays in getting the tanned skins back in the community. As well women have commented that skins tanned commercially in the south are less than satisfactory due to the excessive chemical residue left in the skin by the tanning process. Women from Kuujjuac, who are currently operating a small scale tannery report that the skins they tan locally do not share this problem and better suit their needs.

We wish to stress that our operating projections are based solely on the tanning of seal skins. However these tanneries will be capable of producing high quality tanned fox, wolf, caribou, and polar bear skins as well. As a result their potential economic benefit can be reasonably be expected to exceed the revenues projected based on seal skins alone. The establishment of these tanneries should therefore be seen as a foundation that will support a wide range of community based value-added activities.

Finally, Mr. Cano also informs us that he has recently refined a dry tanning technique that will make leather tanning feasible in the north (personal comm. A. Cane), The problem with leather tanning using conventional techniques is the problem associated with the disposal of chromium based chemicals in solution, Although we do not have precise details concerning the chemicals to be used in this process, the elimination of water from the process means thatexcess chemicals can be

easily retreived and reused thereby eliminating the need for waste disposal. This should be viewed as a supplemental benefit that can be integrated into northern community based tanning operations in the foreseeable future.

There Is widespread community support for the development of community based tanneries. As the regional planning process has shown, the critical determining factor for support of tanneries is whether any environmental risk is involved. Given Mr. Cane's assurances concerning the processes to be used and his practice of involving Environment Canada in all stages of the planning and implementation of a northern tannery, we feel confident that this concern has been adequately addressed.

Proposed Implementation Process

The regional reports have recommended the initial installation of community based tanneries in the Baffin Keewatin and Kitikmeot regions. The communities recommended from the regional studies are Broughton Island and in Baffin Region , Coral Harbour in the Keewatin, and Holman Island in the Kitikmeot region. The selection of these communities has been based upon the access to the resource, their geographical placement vis a vis other sealing communities and the existence of other community based initiatives that will facilitate the production of value added products.

Although these communities have been recommended for the initial installation of tanneries, planning has assumed that each tannery would process skins from within their own community as " well as skins from adjacent communities. For example the tannery in Broughton Island would also be able to tan skins from Clyde River and Pangnirtung, the Coral Harbour Tannery would process skins from Repulse Bay and perhaps some of the eastern Kitikmeot communities Plans indicate that transportation costs would be well within reason for this type of system. For example, shipping costs per skin, one way from either Clyde River or Pangnirtung are estimated at approximately $,31 or $.38 per skin. To facilitate this system we would also recommend the placement of fleshing machines in the principle supply communities to ensure good quality pre-processing, at a per unit cost of approximately $1500.00. the skins would then be shipped after being fleshed and dried in their home community. Locating these fleshing machines in important sealing communities would also offer a cost effective solution to Amiq Leathers northern procurement problems, particularly if they were accompanied by the public education information relating to skin preparation and pricing that has been promised by Amiq.

The initial placement of a single tannery per region is seen as an initial step in what could potentially be a much more broadly based initiative. A concerted effort to establish and develop new markets for seal skin and fur products would provide incentive to expand the system of community tanneries. Current demand to tanned skins within associated with thedomestic economy and existing arts and crafts enterprises make the recommended tanneries feasible. However expansion of productive capacity should go hand in hand with market expansion.

Harvest levels in the Inuvialuit region, excluding Holman Island do not justify the placement of a tannery in the region solely for the purpose of processing seal skins. The potential revenue generated by the tanning of other species such as Muskox and caribou, however would make a tannery within the region feasibile. The Inuvialuit regional plan recommends the establishment of a larger scale facility in Inuvik, which would also be able to tan seal skins, and provide an incentive to put sealskins within the region to better use. Placing fleshing machines in communities with significant seal harvests would provide alternatives in the short-term, while being consistent with the regions longer term plans.

The Training process

Techno- Tan Inc. offers eight week intensive training courses focusing on the skills associated with taining as well as skills related to fur manufacturing. These course are structured so that two groups are trained simultaneously for four week periods at which point the groups switch and concentrate on the alternative set of skills. Typically these groups range in size from 15-20 individuals divided into the two groups. Experience in other settings has shown that it is best to train more people than is necessary for the operation at any given time to account for fluctuations in participation rates over the first year of operation. This also allows for greater flexibility in terms of personnel in the hope that there will be a reserve of trained individuals within the community to ensure the operation will not be adversely affected by individual plans.

The tanning aspect of the training focuses on all aspects of skin pre-processing and tanning. The artisanal training includes skills related to standard sizing and the use of fur machines which can greatly increase productivity wer hand sewing. At the end of the eight week course the trainees have a thorough working knowledge of the tanneries operation and fur garment manufacturing.

At the end of the course the community will have a fully operational tannery, fully supplied for a years worth of production, a fur machine, blocks and patterns for garment production. the need for better understanding of standard garment manufacturing techniques and the need to increase production wer what is possible through hand sewing has repeatedly been raised as an urgent requirement in the northern crafts sector. [1]

The cost of an eight week training course as decribed above has been quoted by techno-Tan to be approximately $81,000.00, including travel, accommodation and professional fees for three trainers. (see appendix for Techno-tan proposal). The cost of equipment and supplies to establish *tannery would be approximately $30-35,000.00. Upon completion of the training program all equipment and supplies would become the property of the community proponent.

In light of the desire and feasibility of establishing tanneries in each region, and the potential long term expansion of a local tannery system, it was felt that work should begin with the first training project to transfer training skills to the region thus keeping the need for outside consultants to a minimum. As a result discussions were begun with the environmental technology program of Arctic college in Iqaluit to investigate options for transferring a training capicity to the college at the earliest practical opportunity.

As a result we recommend that the initial tannery training project also include personnel from Arctic college that would immediately develop a curriculum and training materials in Inuktitut. Furthermore we recommend that Arctic college identify potential trainers who would attend the first training course and play an increasing role in the delivery of subsequent training course until such time as it has been determined that they are capable of delivering the program without the assistance of Techno-Tan Inc. It is worth noting that this concept is one that has been strongly recommended by Techno-Tan, and is consistent with their objective of total technology transfer. Thr budget for the Inuktitut curriculum development process has been estimated by Arctic college at approximately $50,000.00. (see appendix for Arctic Collge draft budget)

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[1] The craft element of the training is considered essential to the long term success of the sealing strategy, We were made aware of communities where equipment such as fur machines have been purchsed but because training on them was not provided they sit idle. Other factors that have been raised through interviews as been critical to the failure of previous manufacturing enterprises has been the problems associated with standard sizing, and basic production techniques.The development of these skills are seen as complimentary to traditional skin sewing skills and will be critical to the long term development of additional products and markets .

We further recommend that the delivery of these training programs be coordinated through AT I 1, an incorporated training coordinating group for Inuit that is closely affiliated with Arctic College, and an accepted recipient of CEIC indirect purchase training funds for the N.W.T. AT I I has developed a successful record in the delivery of management training in the N.W.T, and has expressed serious interest in taking on this program. Representatives of Arctic College have also indicate their support for this option. Under the federal announcement that launched the sealing strategy process CEIC was committed to spending $1.5 million on training related to this initiative. To date no funds have been accessed from CEIC as part by Inuit for this purpose, We would recommend that NWT indirect purchase allocations be supplemented, if necessary, to address the training demands related to sealing strategy.

Tannery Ownership Considerations

The community surveys focused considerable attention on the issue of ownership with respect to potential business opportunities relating to the sealing industry. Although there was some variation in the adaptability of outside ownership from community to community, the general concensus was that local ownership, whenever feasible was the preferred option,

An important consideration in the range of local ownership options is the advisability of ensuring that the tanneries are linked in some way to an existing local Institution that can insure that adequate financial and organizational management is possible. Considering the nature of the business and potential for extensive transactions with groups in other communities this is all the more important. Importing managerial expertise however, would not only adversely affect the financial viability of the operations, but also defer a solution to this critical factor in community economic development.

Another consideration is that the ownership structure should, if possible reflect the inter-dependence between the resource harvesters and the local production of finished products. Ownership decision however should be determined according to the specific realities of each individual community.

Markets for Seal Skins

Obviously if we are developing a capacity to produce tanned seal skins we must also address the need to develop additional markets. As the regional reports point out there is an existing demand

for tanned skins to justify the prudent development of northern tanneries. By operating as custom tanneries for both the communities in which their located and neighboring immunities, we expect regional domestic, and arts and crafts needs could easily absorb the output for these facilities over the first couple of years without a significant increase in new market or sales. There is a residual demand within the communities for tanned skins, at a reasonable price, by women seeking to manufacture clothing for their families and to produce crafts for sale to the Co-ops etc. In addition many communities report a small but steady sale of skins to tourists, even without them being commercially tanned.

Given that production from the tanneries over the first year is likely to reflect the need to gain experience with the process, we do not expect a rapid increase in productivity. As with most enterprises of this nature it will take time to develop consistent quality, and work out administrative and personnel factors. During this time, however we strongly recommend that significant resources should be allocated to the development of new products, and the identification of new markets and more efficient systems for marketing community products. ITC has initiated an modest product development project using seal skins and seal leather, with the goal of promoting community based value added production. Efforts in this area should becontinued and broadened in scope, to include an analysis of the existing crafts industry, the development of a wider range of products, and recommendations concerning the development of a more effective and professional marketing system. This should be given immediate priority in order to match, and further facilitate increasing productive capacity by community based tanneries. The product development and market analysis work should be coordinated to include all Inuit regions.

We feel srongly that improvements in the range of products, improved manufacturing techniques, and better marketing will result in a tremedous increase in the demand for seal skin and fur products. Applying the principle of product substitution to clothing and apparel items would serve to somewhat reduce, if not eliminate the dependence on southern and export markets. Examples from Greenland such as Kalaallit Nunaata Ammerivia (see appendix) provide some interesting ideas in this regard.

ACCESS TO RESTRICTED MARKETS

Although all indications suggest there is considerable room for the market expansion of seal products in the north, in Canada as a whole, and in markets elsewhere in the world, it is an unfortunate reality that existing trade restrictions continue to have a negative impact on seal products. Although the EEC import ban applies only to 'whitecoat' skins, activities leading up to

the renewal of the ban has negatively affected seal skin sales just as they were beginning to recover slightly.

The Marine Mammal Protection Act in the United States has an even more direct impact on the I nuit seal ing economy since tourists are prevented from taking products derived from marine mammals home with them. As part of the on-going struggle to protect Inuit harvesting rights we recommend that resources be made available to Inuit Tapirisat of Canada and the Inuit Circumpolar Conference to continue to work to ensure that Free trade benefits accrue to Inuit. Both organizations have a long history of committment to issues of this kind, and have been mandated to represent Inuit on these issues.

OPPORTUNITIES RELATED TO THE COMMERCIAL SALE OF SEAL MEAT PRODUCTS

in September 1988, EDA received a report from Science Systems Ltd. reporting the results of their project to develop value added productsbased on seal meat. In all 29 products were produced, and test tested in presentations organized by the department of ecomonic development and Tourism in Yellowknife and Iqaluit. Although the products were well received, there was some concern expressed by the regions relating to the ability to produce many of them in the north with the level of infrastructure and training in meat cutting and preparation that currently exists. this said however their is a clear interest, particularly in Baffin and Keewatin regions to proceed with the commercial development of seal meat products.

Thr surveys make it clear that the first priority for any such development is to meet the demands of a local and regional market, both for the retail trade and for the local hotel, restaurant and institutional trade. The restaurants and hotels generally agree that if supply problems were resolved and products of consistent quality were available they would certainly consider adding seal products to their country food menu. Surveys at the community level also generally favoured the development of seal meat products for retail sale in their community, if they provided attractive alternatives to imported foods from both a cost and taste appeal perspective.

The surveys also generally expressed the view that businesses developed to produce seal meat products should be locally owned, or at the very minimum joint venture operations with significant local ownership and control,

The further west you move in the Territories, the less interest there is in the development of seal meat products. This reflects a differences in traditional diet from region to region ,as well as the

relative importance of seals as a resource relative to other species. As a result there was little interest in the commercial development of seal meat products In the Kitikmeot, and virtually no Interest in this option In the Inuvialuit region. In the Kitikmeot people indicated that all seal meat harvested was being utilized either through the informal economy, or to feed local dog teams, and that it was not likely there would be surplus meat in the foreseeable future, [1]

Given that disruption of the Informal economy in country food would be counter-productive , we are concerned with the commercial utilization of seal meat that is available over and above that required for domestic consumption. On this basis Baffin and Keewatin regions are likely the only two regions in the N.W.T. that have the potential now or in the future to ensure an on-going supply of meat for production.

Table2 and 3, in Section II from the Baffin regional report lists the surplus available for commercial use after accounting for domestic utilization. Given that the sustainable yeild estimates are assumed to be conservative, it is clear that a reliable source of supply is available.

Results from the Keewatin surveys indicate that it is unlikely that suficient surplus of seal meat would be available without a significant increase in harvets levels to provide sufficient supply to justify the development of products for export. There was however considerable interest in the production of seal meat products for local and regional consumption, The Keewatin report further recommended that this process could be begun by up-grading existing facilities that are currently under-utilized, and developing further production capacity as markets develop.

[1] In fact it was reported that the Cambridge Bay, HTA meat processing plant had, during its developmental stages produced seal meat jerky, but difficulties in ensuring reliable supply forced them to abandon this product line. They would however consider producing seal jerky again if seal harvests increased to a level where the supply issue could be satisfactorial resolved. (personal comm: J. Maksagak)

TABLE 9

PREFEASIBILITY ANALYSIS

POTENTIAL SEAL MEAT PRODUCTION

OPERATING BUDGETS

No. Of Seals	338	500	1000
REVENUE	38,439	56,863	113,726
COST OF GOODS SOLD			
Purchase cost	13,182	19,500	39,000
Butchering	4,218	6,240	12,480
Production Supplies	1,889	2,795	5,590
Packaging Materials	1,352	2,001	4,001
Production Labour	2,643	3,910	7,820
Storage/Equipment Rental	4,960	7,338	14,675
TOTAL CGS	28,245	41,783	83,566
GROSS PROFiT	10,194	15,080	30,160
EXPENSES			
Administration (Supervision, Communication Advertising)	7,688	11,373	22,745
Professional Fees	2,500	2,500	2,500
TOTAL EXPENSES	10,188	13,873	25,245
NET PROFIT	6	1,207	4,915

source: Weihs ,Baffin Region Report

SEAL OIL RENDERING

Following from the recommendations of the report of the strategy Working group, Arctic Cooperatives Ltd. received funding from the Department of Indian and Northern Affairs to proceed with a pilot project based on an engineering report prepared bt G.K. Yuill and Associates ltd. [1] to test a rendering process which would convert seal blubber into a oil suitable for burning in conventional oil furnaces.

The pilot project was carried out in Pelly Bay from August to September 1987, during which time 249 seals were harvested. As well as providing the blubber with which to test the rendering equipment, the project provided us with detailed information on the proportional quantities of various components of the ring seal carcass, The meat from this harvest was subsequently packaged and sold through the Koomiut Co-operative, both for human consumption and for dog food. H should be pointed out that the cuts of meat for human consumption, were simply cut, wrapped . and frozen, and therefore do not give us any indication of consumer acceptance with respect to value-died seal meat products.

As explained in detail in the report (attached as background document), a number of problems were encountered throughout the project. To begin with, the project started late and the optimum sealing dates were missed. Consequently hunters were not able to harvest the 1000 seals projected in the proposal. This however may have been a blessing in disguise given the problems that were subsequently encountered with the rendering equipment.

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[1] G.K. Yuill and Associates Ltd. " Project to Investigate the feasibility of using Seal Oil as an Alternative Fuel" Report for Arctic Cooperatives Ltd. May 1987

The process proposed by Yuill and Associates, called for a rendering process that could be undertaken without supplemental heat to assist the process. The rendering apparatus they designed consisted of a metal drum, with a fine screen suspended half way down. The theory being that the blubber could be laid in the drum, at room temperature, and that the oil would pass through the screen, being filtered in the process. In short the process did not work, and a number of attempts to alter the process to make it work in Pelly Bay, were also unsuccessful. [1]

At this point the equipment, and a supply of seal blubber was shipped to ACL's offices in Winnepeg, and work began to redesign the rendering apparatus. With the assistant of various companies and individuals in the commercial and academic sector in Winnepeg, ACL completely redesigned the rendering and filtering apparatus,

Design problems related to both stages of oil extraction were solved aftersome experimentation, and the oil was then subjected to a series of burning tests. Tests were conducted at a range of mixture ratios, and it was subsequently determined that a 50/50 mixture of heating fuel and seal oil was recommended. Two problems remain to be overcome however. The mixture would not ignite reliably in a cold furnace, and the mixture separated at temperatures below 0 C. For the moment this necessitates that a two tank system be used, One tank would be pure heating oil, and the second tank, stored in a heated area would contain the mixture. A simple electronic switching device was tested, which ignites the furnace with heating oil and switches to the mixed fuel once an adequate burner temperature has been retched.

The report discussed the feasibility of establishing a rendering facility, in combination with 8 meat processing facility. Based on the operating budgets generated for the report, such an operation would be feasible on the basis of processing 1000 seals annually.(see report in appendix)

However we feel some of the assumptions made for this projection merit closer-scrutiny. The budget proposes paying hunters $15,00 for a whole seal. The surveys we have conducted for this report however clearly show that this figure is too low, Secondly, we question the feasibility of sailing large quantities of sealmeat in frozen form at $3,00 lb. when the informal economy generally ensures th8t meat is shared at no cost. Increased harvest levels would serve to make even more meat available throughout a community. A more viable option would be to transform

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[1] for a detailed description of the testing process see: Arctic Cooperatives Ltd., " A Report on a seal oil Rendering project conducted in Pelly Bay, N.W.T. July 4/87 to Oct. 31/88. p.9-19

any meat surplus to the requirements of domestic utilization into value-added products, that could be sold at a higher price per pound and which would provide an element of uniqueness to consumers at the community level.

The original concept of utilizing seal oil as a fuel however is one which has considerable merit. Hunters have repeatedly mentioned that blubber is currently being wasted, and restated their support for the seal oil project. Solutions to the outstanding problems need to be addressed, and longer term burning tests carried out before its commercial feasibility can be reliably assessed. Even given the likelihood that this technology will have limited commercial applications (where indoor fuel storage is a practical option), more information is required prior to moving from the demonstration project stage.

Other Considerations: Local Business Management Expertise

A critical factor with respect to any of the range of business opportunities that exist within Inuit communities, is the need for the development of local business management skills, Although this need is widely acknowledged, its importance to the success of these and other economic development opportunities justifies re-stating the point. Too often local business initiatives are dependent on imported expertise that cannot be relied on over the long term esit is often available only as long as economic development funding is available. Although there are no easy or quick solutions to this human resource development issue, we encourage AT I I, in collaboration with Arctic College to initiate training programs particularly tailored to the needs of small business managers.

Recommendations:

3. As an initial step, small-scale tanneries should be placed in the communities of Broughton island, Coral Harbour and Holman island. Planning should anticipate the requirement for additional tanneries as market demand increases to absorb an Increased productive capacity,

4. Accompanying the installation of these tanneries should be the delivery of intensive eight week training course in tanning technology and fur sewing and crafts production by Techno-Tan inc.

curriculum materials in Inuktitut to be used in subsequent training sessions. Arctic college and AT I I should identify 2 or 3 Inuit to be trained as trainers, and these individuals would play an increasing role in the delivery of tanning and crafts training programs. The goal should be total technology transfer at the earliest possible date.

6. Fleshing machines at an estimated mst of $1,500 each should be placed in all communities with significant seal harvests in order to facilitate the proper preparation of skins either for shipment to community tanneries or for sale to Amiq Leathers.

7. Accompanying the development of a capacity to produce tanned skins at the community level significant resources should be directed towards product development and a needs assessment related to the production and marketing of community produced products. ITC should seek the resources to undertake the necessary work in both of these areas in consultation with regional groups and I nuit business interests.

8. The imposition of restrictive trade barriers continues to have a detrimental effect on the ability to market Inuit seal and fur products. Inuit Tapirisat of Canada and the Inuit Circumpolar Conference should continue to receive financial support from government to eliminate these threats. Specifically efforts should be directed at the elimination of the EEC seal b8n, and regulatory changes to the Marine Mammal Protection Act in the U.S. which would allow the importation of Inuit products. The Inuit Sealing Stratedy and the Inuit Region Conservation Strategy, both of which are basal on the principles of wise use and sustainable development can be used to assist these efforts.

9. Resources should be math available to allow a test marketing of a selected range of seal meat products, Amarok Country Feat Store in Iqaluit is in the best position to act as the proponent in this exercise, from a supply and production perspective. The products should be selected on the basis of potential local appeal, and be distributed throughout the region.

10. The capacity to produce and test-market seal meat products should also be developed within the Keewatin region. Resources should be made available to the Keewatin Wildlife Federation to pursue additional feasibility work, and the up-grading of existing community food processing facilities

11. Resources should be made available to Arctic Co-operatives Ltd to allow them to allow for long term burning tests of seal oil, the further refinement of the rendering equipment, the resolution of remaining technical difficulties. This intiative should continue as a pilot project until sufficient information has been generated to determine its commercial viability.

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APPENDIX 1

Fisheries and Oceans | Peches et Oceans

News Release
Communique

NR-HQ-86-96E

FOR IMMEDIATE RELEASE
Wednesday December 17, 1986

SEALS AND SEALING IN CANADA: THE MINISTER OF FISHERIES AND OCEANS ANNOUNCES THE GOVERNMENT'S RESPONSE TO THE MAJOR RECOMMENDATIONS THE ROYAL COMMISSION

OTTAWA-The Minister of Fisheries and Oceans, the Honorable Tom Siddon, announced today the Government's response to the major recommendations of the Royal Commission on Seals and the Sealing Industry in Canada.

In discussing the Commission's recommendation for 'very substantialfinancial assistance for Inuit hunters and commercial sealers, the Minister said: "Helping the sealing community to chart its own future, with the aid of the Report's analysis and recommendations, must be the government's first priority.

"I am therefore announcing a contribution of $150,000 from my department's budget to the Canadian Sealers' Association (CSA) and a contribution of $100,000 from the Department of Indian Affairs and Northern Development to the Inuit Tapirisat of Canada, for the development of a strategy for the east coast sealing industry and the northern native seal-hunting communities respectively. Part of the associations' reports should include their recommendations to the government on how federal programs, as well as such measures as federal procurement, could be deployed to serve the needs and aspirations of the native and non-native sealing communities.

"I am also announcing a specific allocation of federal funding to address the special needs of sealers and to increase the opportunities available to them in sealing and non-sealing activity.

government include the Industrial and Regional Development Program (IRDP), the Special Agriculture and Rural Development Program (SARDA), the Program for Export Market Development (PEMD) and the Canadian Jobs Strategy." Of this total, $1 million will be provided by the Department of Fisheries and Oceans; this latter amount includes the $150,000 contribution to the CSA.

"Upon receipt of the CSA's report, I will be consulting my Parliamentary colleagues from Atlantic Canada as to the use to which these funds will be put."

"A senior governmental official, Dr. Duncan Campbell, has been appointed within DFO to coordinate the implementation of the government's response to the Malouf Commission. As one of his first responsibilities, Dr. Campbell will help the associations develop their strategies; once these strategies have been received, he will work on the allocation of the earmarked funds with the associations and the responsible departments."

"I should note that current government programs are already working to support job creation and economic development in these communities. The federal government is also providing assistance, especially to native people, to develop new markets and products from older seals, consistent with the Royal Commission's recommendations. For example, joint support is being provided by the Department of Indian Affairs and Northern Development and the Government of the Northwest Territories to Nunasi Corporation in 1986-87 for the development of seal product markets. Of course, sealers and the sealing communities remain eligible for these and all other federal programs of general application."

The Minister also noted the Royal Commission's finding that sealing is a legitimate activity which should proceed with appropriate management controls. In particular, the Minister cited the Commission's conclusion that Sealing in Canada has generally satisfied the following important conditions: a harvesting system more humane

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than many other harvesting systems for domestic and wild animals; no significant risks to any seal stocks under recent regulatory frameworks; income from sealing of considerable importance to peoples living in conditions of limited economic opportunities; little or no waste of any usable seal product.

Mr. Siddon said that these findings of the Commission should offer reassurance to members of the public who have been concerned about the hunt. The Minister also highlighted the Commission's finding that sealing provides major social, cultural and nutritional benefits to many communities, especially northern native communities.

In commenting on the Royal Commission's recommendation that the commercial hunting of whitecoat and blueback seal pups not be permitted, the Minister noted that market conditions over the past several years have already ended this hunt. "There has been virtually no commercial hunt for whitecoats (harp seal pups) and bluebacks (hooded seal pups) for the last three years," Mr. Siddon stated. "There appears to be no need at this time for the government to end formally the commercial hunt of these pups, since the-market has resolved the situation. Consistent with the Report's findings, however, the government's assistance to the sealing industry will not support a revival of the whitecoat and blueback seal pup hunt."

The Royal Commission also found that the population of grey seals, a species not part of the traditional seal hunt, is increasing rapidly and is causing damage to the fishing industry of between $60 million and S115 million annually. The Commission recommended that substantial advantages would be gained by a cull of grey seals and indicated that a decision on the cull needs to be taken as soon as possible -- taking into account the views of interested parties. Mr. Siddon stated that the government will follow this recommendation and begin its consultations with interested parties.

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The Minister concluded that, because the report and its recommendations are complex, further analysis and consultations are required in order to develop a long-term overall Canadian policy on seals. "I have asked my officials, considering the report and its recommendations, to take into account the views provided by provincial governments, the Government of the Northwest Territories, interested parties and advisory bodies," the Minister said.

Copies of the report of the Royal Commission on Seals and the Sealing industry in Canada can be purchased at the Canadian Government Publishing Centre, Department of Supply and Services, 45 Sacré-Coeur Blvd., Hull, Quebec, KIA 0S9 (613) 997-2560 or at any bookstore selling government publications. Total price of the full three-volume report is $58.25 (but can be bought separately: volume I: $4.50; volume II: $25.50 and volume III: $28.25)..

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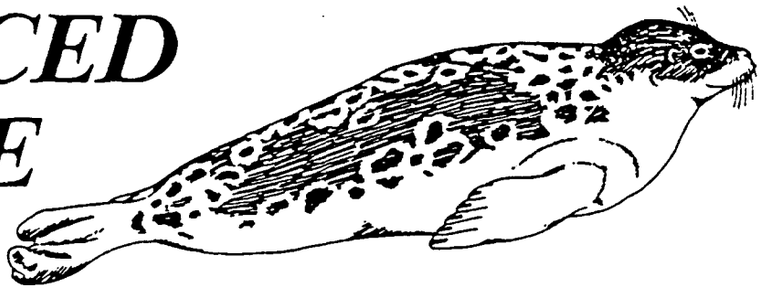
A BALANCED RESPONSE



Report of the
Royal Commission on Seals and the Sealing Industry in Canada

Information from The Royal Commission on
Seals and the Sealing Industry in Canada
Palais de Justice, Rm. 17.23,
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November 1986

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Aid urged for seal hunt victims

Public funds should be paid to help compensate scalers for the loss of markets for their products.

The seal hunt is not inhumane but it is unrealistic to resume the hum for harp and hooded seal pups for commercial purposes.

There is a need for a long-term overall Canadian management policy on seals.

These are three basic conclusions of the Royal Commission whose report has been released.

The Royal Commission recommends that:

a fund of about $50 million be paid to Atlantic sealers to help compensate for the social. cultural. and economic losses associated with the disappearance of [he markets for seal products;

a fund of about $4 million he paid annually to Inuit scalers for at least five years to support subsistence hunting and 10 provide a cash income equivalent to that existing before the market collapse.

a further fund of about $50 million be established for training and development in Atlantic Canada. This fund would be made available 10 sealing communities in Newfoundland. Nova Scotia and Quebec for general economic development.

In 1982/83 the markets for seal products collapsed as a result of an international lobby against the seal hum.

In its report the Royal Commission conclude> that [here are ninny persons formerly m the sealing industry who have been victimized and that all Canadians should combine to help them.

.. Through no fault of their own. sealers have had their traditional markets and income sources destroyed," Mr. Justice Albert Malouf. chairman of the Royal Commission, said. "We believe that money alone is inadequate compensation for such great economic. social and cultural losses. but it is a token recognition. We recognize the hardships endured by many former sealing families. and have therefore recommended two courses of action: training and development. and compensation.".

The Royal Commission recommends that the Government of Canada should intervene to help those who are the victims of the most unusual circumstances that resulted in the demise of commercial sealing. The Royal Commission does not consider that the industry as it existed should be propped up in any sustained way. nor does it see the proposed action either as tied to past approaches or as setting new precedents. .-scaling has had a unique history. A unique response is in order," the report states.

In examining the question of whether the harvesting of seals should continue the Commission found that sealing in Canada has generally satisfied the following important conditions.

- In most recent Canadian sealing there has been little cruelty or unnecessary suffering. In fact. there has probably been less than that inflicted in hunting deer or other wild animals. or in many forms of rearing and slaughtering domestic animals.
- Sealing operations posed no significant risks to any seal stocks under recent regulatory frameworks.
- The income generated from sealing has been of considerable importance to peoples living in conditions of limited economic opportunities.
- In most sealing operations there has berm little or no waste of any, usable seal product.

The Commission recommends. therefore. that the killing of seals (other than seal pups) should be permitted only when subject to appropriate controls on the numbers killed. the methods of killing. and the purposes for which they are killed.

Recognizing. however. [hat there is strong public opposition to the clubbing of seal pups. the Commission concludes that it is unrealistic to consider any resumption of the killing of harp seal pups (whitecoats) and hooded seal pups (bluebacks) for commercial purposes and recommends that it should not be permitted.

The Commission believes there is a need for an overall long-term Canadian policy on seals. It recommends that an advisory group be established to assist the Department of Fisheries and Oceans with drawing up a Canadian policy on seals which would include scientifically based long-term management plans for each seal species. The Commission recommends that the advisory group should be broadly based 10 ensure meaningful inputs from a wide body of informed public opinion.

A crucial management question to be examined is the relation between seals and fisheries. Seals cause financial losses to the fishing industry through competition for fish, damage to gear and catches, and contamination of fish with nematode parasites.

Further study is necessary to establish more precisely the impact of seals on fisheries. Guidelines should be set to determine which seal

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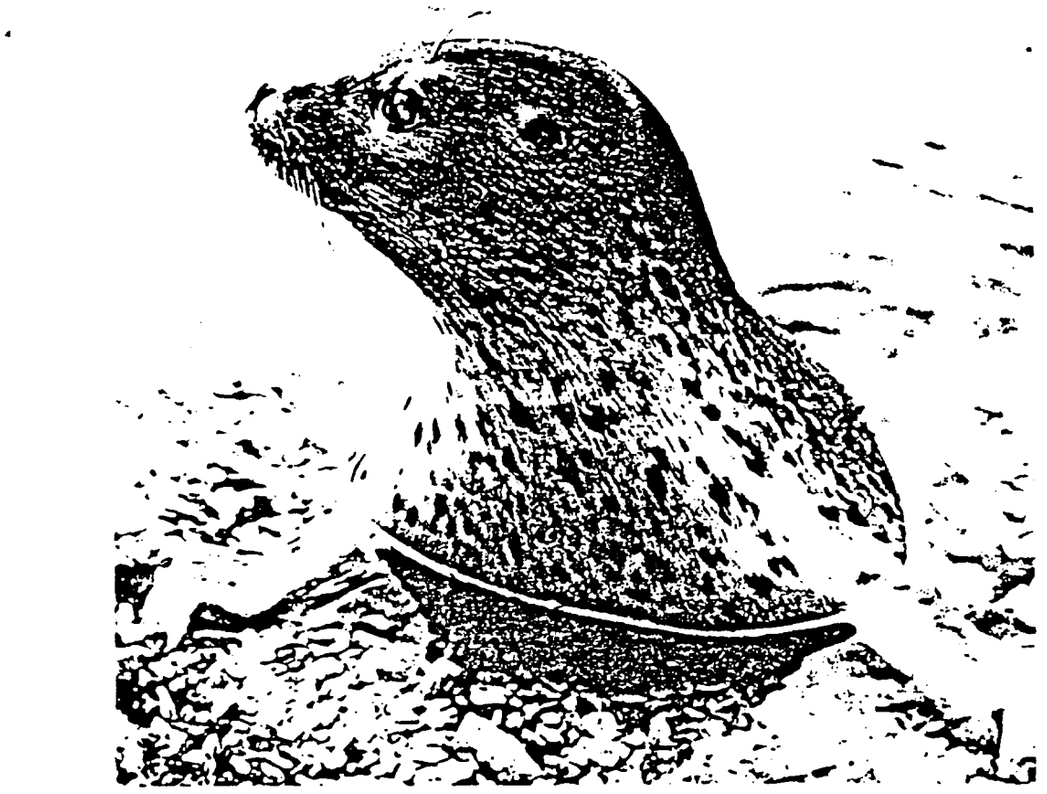


Ringed Seal

Cull should be considered

Continued from previous page

activities should be undertaken unless clearly favoured by the balance of social and economic benefits, and then only under a carefully monitored long-term program of evaluation. Any population control operations should be done under government supervision.

Further study is recommended to establish more precisely the impact of seals on fisheries through competition, damage to gear, and transmission of parasites.

There should not be a cull of harp seals in 1987, but the impact of harp seals on fisheries will increase, and the possibility of a cull in later years must be seriously considered.

The Royal Commission believes that biological and economic considerations indicate that substantial advantages would be gained by a cull of grey seals. Nevertheless, before deciding whether to implement such a cull, the Canadian government should take account of public opinion and should make use of a representative advisory group. Because grey seals are increasing rapidly, a decision needs to be made as soon as practicable.

Protecting the environment

The Canadian government should work domestically and internationally to reduce the amount of netting and other plastic material being discarded at sea. Lost or discarded fishing nets and other plastic debris cause the deaths of many seals. It is likely that they are the principle cause of the decline in the northern fur seal population since the 1960s.

Serious adverse effects on seals, particularly ringed seals, in the Arctic could result from Arctic development activities such as surface mining for minerals, petroleum exploration and exploitation and particularly large-scale sea transport through the ice in association with these activities.

The Royal Commission recommends that the Canadian government should not permit development in any part of the Arctic without a thorough investigation and disclosure of the potential environmental impacts on seals and sealing communities, and the consent of any aboriginal community whose legal rights are affected. In addition, any significant increase in icebreaker traffic in the Arctic may affect the ringed seals as well as the mobility of hunters. Any additional traffic therefore should be conditional on (a) consultation with communities that use the sea ice, (b) routing designed to minimize the effects on seals and hunters, and (c) compensation to hunters for any unavoidable effects.

Emotional campaign waged against sealing

In 1982/83 the markets for seal products collapsed as ● result of an international lobby against the seal hum. The Royal Commission has studied the campaign against scaling and offers the following conclusions.

The campaign against Canadian scaling. principally the hum of harp seal pups. has run for more than 20 years. Organization opposed to commercial sealing have mounted a "skilled political lobbying" campaign based on emotional appeal. The anti-scaling campaign has been highly successful in generating public concern and in raising money for the anti-sealing groups.

This campaign owes part of its success to the fact that it has had as its target a small group of rural people whose way of life is far removed from the understanding of the urban people at whom the anti-scaling appeal has been aimed. Another major factor has been the failure of the pro-sealing forces to grasp the significance. the nature ● nd the tactics of the anti-scaling movement, and to respond with an effective counter-offensive. Scalers in isolated communities and with limited resources were not organized to stand up to the anti-scaling campaign.

Keeping the public informed

The public attitude to seals and scaling has sometimes been based on incomplete and inaccurate information. including matters such as the trends in population numbers and the importance of scaling to local communities. The public obtains nearly all its information from the media. rather than directly from protest groups or the government. but expects the government to be the primary source of this information.

The Canadian government should ensure that the public is much more fully and regularly informed about the reasons for. and background to. its policies regarding seals.

The Canadian government should facilitate greater balance in the public presentation of the views of the sealing communities and other groups and it should make more effective usc of the media in disseminating information about scaling.

Regular studies should be undertaken to examine public knowledge and views regarding seals. both to assist the government in taking account of these views in formulating Canadian seal management policies. and to enable it to ensure that its activities aimed at keeping the public fully informed are effective.

Ban on imports crippled industry

In 1983, the Council of the European Communities issued a Directive banning the import of raw, tanned or dressed skirts of pups of harp seals (whitecoats) and hooded Seals (bluebacks). A second Directive in 1985 extended this ban to October 1. 1989. Most markets for seal products had already collapsed prior to issuance of the European Council's initial Directive.

Although the European Councils Directives have explicitly not been aimed at the Inuit traditional hunt. the collapse of the rrsarkcr for seal products which are surplus to the Inuit domestic requirements has been a traumatic experience and many Inuit have viewed the European Council's Directives as the cause. The European Commission has increasingly recognized this problem.

Western Europe has traditionally been the largest market for sealskins, accounting for about 80% of the world trade. In order, the five major seal product consumers in Europe have been West Germany, Denmark, Italy. France and Greece. In 1981. the European Community imported some 460,000 sealskins of all species; by 1984 it was down to 120.000 and 1985 estimates arc of the same order. Prices have been sharply depressed; a backlog of pelts appears to be still in stock and them seems no likelihood of any significant market recovery over the next fcw years in Western Europe.

The market for sealskins in Canada in 1985 was about 20,000, mostly in the footwear industry. but also in the garment and souvenir industries. Currently .rhcmppcar stobct'lbca nadiirnarkct for fashion garments using sealskins. Atlantic Canada has been estimated to have a marker for the meat of atleast 40.000 seals per year provided the prices arc competitive and the quality good. There is considerable sympathy for the plight of the scaling communities in Atlantic Canada and resistance to seal products is probably less strong in this region.

The Canadian government should assist in the development of potential markets within Canada for products from seals other than whitecoats and bluebacks.

The government of Canada. recognizing that the European Councils Directives were explicitly not aimed at Inuit seal products, should assist Inuit organizations in exploring opportunities for marketing their products in the European Community and elsewhere and should encourage co-operation among the Inuit of Canada and Greenland, and between Inuit and European authorities.

Development of community and co-operative enterprises in Inuit communities for processing and marketing clothing and other products should be encouraged by the government of Canada. It should also encourage establishment of a recognizable trademark to identify products directly derived from traditional Inuit activities and to promote its widest possible public recognition in Canada and elsewhere.

Recommendations

Northern Communities

To be constructive to the Inuit, a relief package must be designed that will permit. if not encourage. continued hunting of seals and other wildlife. in the traditional Inuit manner.

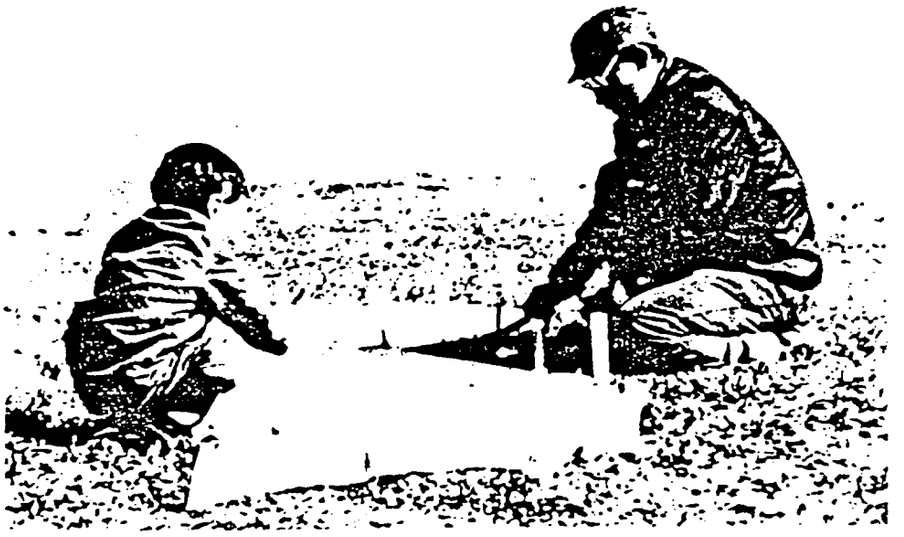
Prior to 1983 gross returns from sealskins taken by Inuit were about S 1 million annually. Revenue from commercial scaling contributed significantly to the financing of Inuit hunting enterprises. in which annual operating costs appear to be roughly S2.000 per hunter — that is. assuming approximately 2.000 hunters. $4 million annually. Reduced hunting activity since the 1983 collapse of sealskin markets has resulted in deterioration of equipment, which now requires replacement if hunting is to be renewed .

Even with effective marketing it would be some time before conditions relating to Inuit sealskin products would be restored to the level of those occurring before the market collapse. In the intervening period considerable economic and social distress is likely to continue in many communities.

The Royal Commission proposes that there should he a fund of up m $4 million annually for at least five years. to support Inuit engaged in subsistence hunting. and to provide them w ith a cash income approximately equivalent to their income before the market collapse. Prior to the elapse of the five years the need for financial support should be rev iewed.

The Commissioners suggest that the annual adjustment payment be distributed through contracts with Inuit community organizations. This would leave to each community the determination of eligibility for assistance. and the forms of assistance.

Human communities cannot realistically survive in the Arctic without hunting or importing far more costly southern substitutes. If Canada is committed to maintaining an Arctic presence. it must accept the possibility of underwriting the costs of continued hunting as an alternative to subsidizing permanently costlier food imports. Depending on the future of seal-product markets. Arctic communities may require some level of aid indefinitely.



Stretching sealskins (Northwest Territories)

Atlantic Canada

The situation on the Atlantic coast is quite different. There could he a limited future for some types of hunting of older seals. However. as in the Arctic it is not expected that restoration of modest seal product markets would resolve most of the economic and social problems.

The Royal Commission is therefore proposing direct financial support of the order of S 100 million hy the federal government. This should take two forms. A training and development fund of the order of S50 million should be made available to sealing communities for development and retraining within the framework of Economic and Regional Development Agreements (ERDA). The Newfoundland. Nova Scotian and Quebec governments should be brought into the planning process from the outset.

The Royal Commission does not think it is appropriate at this stage to make specific recommendations on the activities that should be supported by this fund. It does suggest, however. that a portion of the fund might be used to support feasibility studies regarding the processing and marketing of the products from older seals. It also states that development opportunities could be identified in any sector of the economy and not just tied to fisheries.

Another fund of the order of S.50 million should be used to compensate sealers for lost income and other losses associated directly and exclu - sively with the disappearance of the markets for seal products.

Financial compensation is viewed as a token recognition that heavy social and cultural losses have been sustained by scalers. In the Commissioners' view, mere money is inadequate compensation for the victims of such losses. Those losses were externally imposed. without consultation with [he sealers. by the groups which destroyed their tradition market and income sourc s.

The Royal Commission recommends that this fund be administered by committees along the lines of those established under the Manpower Assessment Incentive Agreement. in response to the Atlantic coast whaling ban.

The compensation should be given in the form of a single grant payment to individuals judged to have been aggrieved.

Social, cultural, and economic benefits of sealing

Background

Atlantic Canada

The direct economic benefits from commercial sealing are extremely small compared with the Canadian gross national product (GNP) or even with the total economic output of the Atlantic provinces. But because there are practically no alternative employment opportunities in or near sealing communities during the sealing season, the benefits to sealers of the seal hunt are much more significant than a narrow assessment might indicate.

In addition to providing cash income, sealing also provides high quality food, and plays an important role in the social and cultural life 01' the communities. It occurs m the late winter and ● prmg. when there are few, if any, alternative sources of earned income.

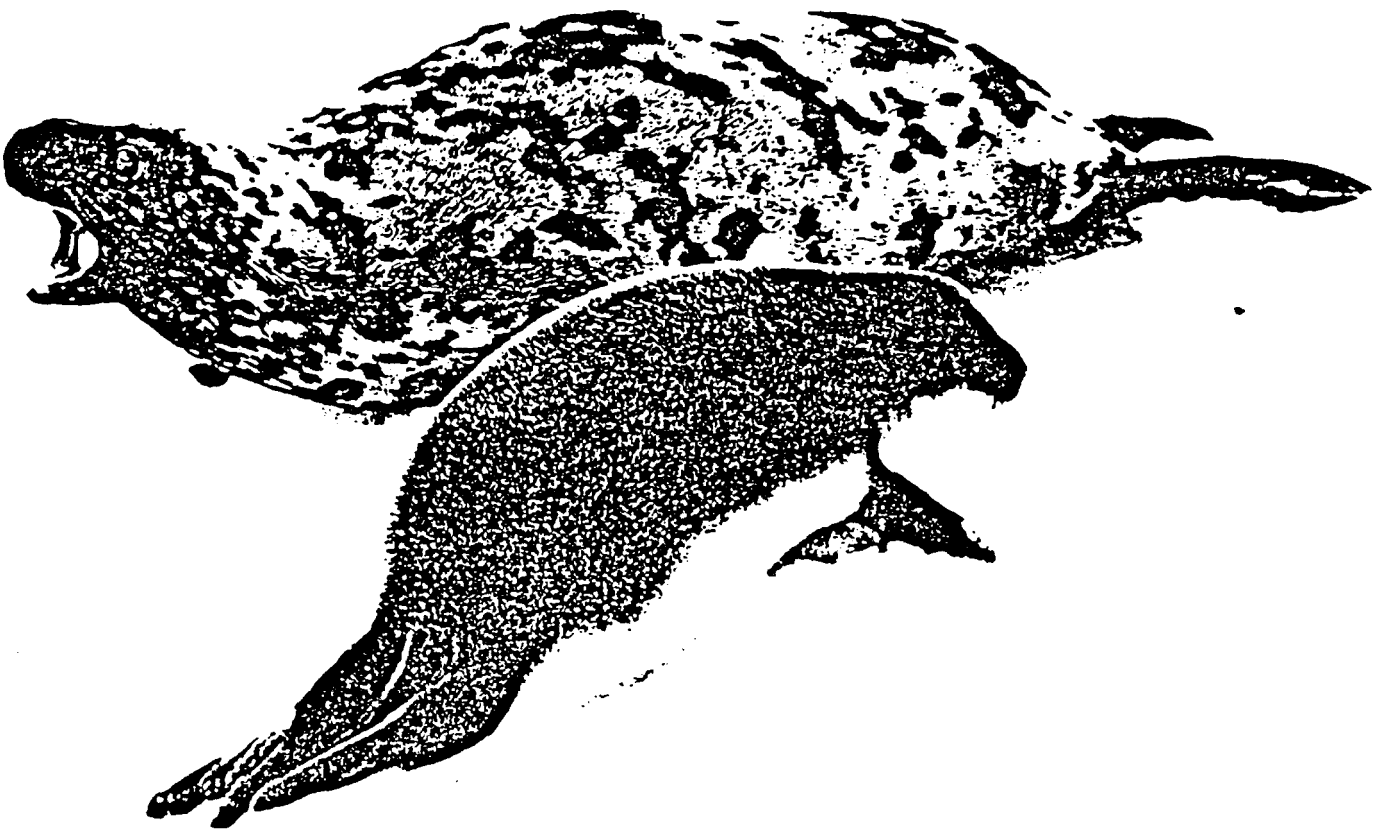
In Atlantic Canada, the income from sealing provides, in addition to day-to-day expenses, the money for preparing the boats and gear for summer fishing. The success of all types of fishing and sealing is highly variable from year to year, and a variety of activities is needed to provide security m years when one or another activity fails. The loss of income from scaling weakens the whole annual cycle of activities and thus th reatens the survival of some communities.

Northern Communities

Scaling is even more important for the people of the North. No crops will grow in the North, and inhabitants must rdy on harvesting wildlife. There are many areas where for months seals, principally ringed seals, are virtually the only food resource or where, taking the year as a whole, seals supply the most important single source of food. Even when they are able to cam standard wages, Inuit cannot afford to eat as nutritious or as healthy a diet based on relatively expensive fond imports from the south, as that obtained from hunting.

In the Arctic the importance of sealskin sales has increased with changes in hunting practices. Hunters now rel y more on rifles and snowmobiles, and hence need cash for ammunition and fuel. The collapse of sealskin markets has reduced the cash income of Inuit hunters by as much as two-thirds, resulting in decreased hunting which has lead to poor nutrition.

The main income from scaling has come from the sale of skins. The collapse of the markets for seal products in 1982-1983 has been very serious for many communities in the Arctic and in Atlantic Canada. in the minds of many sealers, the loss of this market is clearly linked to the Directives of the European Communities banning the import of skins of pups of harp seals (whitecoats) and hooded seals (bluebacks).



Hooded seal and blueback pup

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Although the European Council's Directives have explicitly not been aimed at the Inuit traditional hunt, the collapse of the market for seal products which arc surplus to the Inuit domestic requirements has been a traumatic experience and many Inuit have viewed the European Council's Directives as the cause. The European Commission has increasingly recognized this problem.

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The market for sealskins in Canada in 1985 was about 20.000, mostly in the footwear industry. but also in the garment and souvenir industries. Currently, there appears to be no Canadian markct for fashion garments using sealskins. Atlantic Canada has been estimated to have a market for the meat of at least 40.000 seals per year provided the prices arc competitive and the quality good. There is considerable sympathy for the plight of the staking communities in Atlantic Canada and resistance to seal products is probably less strong in this region.

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Managing the seal population

Canadians' attitudes towards seals and sealing are changing. A growing number believe seals should be considered as more than just another potential resource to be harvested. As a result, the formulation and implementation of Canada's sealing policy needs to be modified.

The Royal Commission recommends that an advisory group be established to assist the Department of Fisheries and Oceans with drawing up a Canadian policy on seals. This policy should include scientifically based long-term management plans for each seal species. h should take it-ins account the interests of those provinces and communities that particularly depend on scaling. as well a.. the views of major conservation and animal-welfare groups. and the probable impact of seals on commercial fisheries. In the Arctic. policy planning should be a co-ordinated process between the aboriginal peoples and the Governments of Canada. and the Northwest Territories. These governments should encourage and formalize self- regulation of harvesting by the aboriginal peoples.

At present. the crucial management question arises from the relation between seals and fisheries. Seals cause financial losses to the fishing industry through competition for fish. damage to gear and catches, and contamination of fish with nematode parasites.

The total loss caused by seals to Canadian fisheries is difficult to calculate and is not accurately known. But it is almost certainly appreciable and is likely to increase as the number of seals grow. For instance on the Atlantic coast, present losses due to the cost of removing nematode parasites and reduced prices for infected fish are probably at least S30 million annually. Losses on the Pacific Coast appear to be much smaller.

The species of seals differ considerably in their impacts. At issue is the question of whether to implement some form of population control for the increasing populations of grey and harp seals. The method that shows the most promise of being effective is some furm of cull.

The choice of whether or not to cull should take into account the intimated scale of cull required to have any substantive impact, and the costs of such a cull. It should also take account of the uncertainties that surround such estimates, the degree to which these uncertainties could be reduced by further research. and the likely public reaction to a cull.

For harp seals the balance between these factors is such that no government-operated cull would be justified at present. in particular, the extent of the impacts on fisheries is known much less accurately than it is for grey seals. Further research should enable more precise estimates to be available in a few years' time, when the matter should be carefully re-examined.

For grey seals, which have the greatest per capita impact on fisheries, the arguments are more evenly bku-teed. The long-term benefits m fisheries from all causes, for each grey seal killed. would greatly exceed the costs of carrying out a cull. h is not clear, however, whether a large annual cull of several them.md grey seals, which would be required to stabilize the population, would be generally acceptable [o the Canadian public.

The Royal Commission recommends that guidelines be set to determine which seal populations should, in principle, be allowed [u increase, or be reduced or stabilized. No population control

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Family of grey seals

Should harvesting be continued?

Although there is no agreement on whether it is ethical or moral m kill seals. [he great majority of those polled in Canada and a number of other countries accept the killing of animals provided that it satisfies the following conditions:

- the existence 01' the species should not be threatened:
- no unnecessary pain or cruelty should be inflicted:
- the killing should serve an important use:
- the killing should involve a minimum of waste.

Most recent Canadian sealing has satisfied all four conditions. Recent sealing operations have posed no significant risks to any stocks. There has been little cruelty or unnecessary suffering inflicted in most scaling operations. In fact, the cruelty involved in present-day scaling is probably less than that inflicted in hunting deer or other wild animals, or in many forms of rearing and slaughtering domestic animals.

Some people have attacked the triviality of the ultimate uses of seal products (e. g., in fashion furs). but an equally critical issue is the importance of the income generated m those hunting seals. This income is of considerable importance to sealers living in conditions of limited economic opportunities. In most scaling operations there is little or no waste of any usable seal product

There is considerable sympathy with the traditional hunting of seals for food and clothing by both aboriginal and non-aboriginal peoples.

The Royal Commission recommends. therefore. that the killing of seals should be permitted only when subject to the appropriate controls on the numbers killed. the methods of killing, and the purposes for which they arc killed.

The Royal Commission recognizes, however. that there is very strong opposition to the clubbing of seal pups and that it is unrealistic to consider any resumption of the whitecoat harvest. Consequently, the Royid Commission recommends that the killing of pups of harp seals (whitecoats) and hooded seals (bluebacks) for commercial purposes should not be permitted.

Non-commercial hunting of pups of harp seals and hooded seals, should be carefully regulated and strictly limited.

Grey seal population growing

Recent scaling operations have posed no significant risks to any Canadian seal populations.

Following the collapse of the ma'>:: for sealskins. Canadian harvests, with the possible exception of some small local groups of ringed seals, arc much less than the sustained yields. The populations of most species of seals are therefore increasing. in fact, it is likely that the abundance of harp seals has been increasing ever since the application of effective quota regulations in the 1970s.

Populations of some species are increasing rapidly — grey seals on Sable Island are increasing by some 13% per year.

Northern fur seals of the Pribilof Islands of the North pacific are not hunted when they visit Canadian waters. Their numbers are declining. possibly because of entanglement with pieces of old fishing net and other waste material.

For all species of seals m Canadian waters there are some uncertainties m the estimates of numbers and population trends. Regular monitoring is necessary to provide reliable information on the current status. This information is needed both for rhc management of those stocks, which are still exploited, and for development of policy in respect of those stocks which are seen to be. actually or potentially, a threat [o commercial fisheries.

Improved hunting methods used

Judged by the criteria of rapidity of unconsciousness and particularly the absence of preslaughter stress. the clubbing of seal pups is. when properly performed. at least as humane as. and often more humane than. the killing methods used in commercial slaughterhouses. which are accepted by a majority of the public.

Catching seals in nets unavoidably muses slow and probably painful death.

Shooting seals in Canada for subsistence or commercial purposes is generally more humane than the shooting of animals for sport. except that

(a) the practice of deliberately wounding seals in order to facilitate retrieval must lead to considerable suffering. and

(b) the use of small-calibre low-power ammunition can cause a high incidence of wounding unless shooting is very accurate.

The government should take action with a view to phasing out. as rapidly as possible. the netting of seals in those areas which now rely largely on this method of taking harp seals both for subsistence and to provide a substantial part of their incomes. Netting of seals in other areas should be prohibited immediately.

Discussions should he held with sealing communities to make clear that the practice of deliberately wounding seals to facilitate retrieval is nor condoned, and to find ways of reducing it as far as possible.

Discussions should also aim at ensuring the usc of rifle ammunition that produces a high proportion of instantaneous kills under the conditions normally encountered in hunting each species of seal.

No new methods of killing seals for purposes of either harvesting or population control should be used in Canada unless they are clearly demonstrated to be Acceptably humane.

Commissioners' biographies

Chairman

The Honorable Albert H. Malouf (Montreal. Canada)

Justice. Court of Appeal of the Province of Quebec. Montreal. Canada. From November 197210 June 1973 he presided over and granted the request for the issue of injunction presented by the Indians and Inuit against the James Bay Energy Corporation et al. in revendication of heir territorial and other rights in the Province of Quebec. From July 1977 to May 1980 he presided over the inquiry into the cost of the Olympic installations and games held in Montreal in 1976.

Commissioners

Dr. K. Radway Allen (Sydney. Australia)

Formerly Chief of the Division of Fisheries and Oceanography. CSIRO. Cronulla. He has been involved for many years in research of the Population dynamics and management of marine mammals. particularly in association with the International Whaling Commission. the Food and Agriculture Organization (FAO) and the United Nations Enivronment Programme (UNEP).

Mr. Russel L. Barsh (Seattle. United States)

Mr. Barsh taught law and public policy at the University of Washington until 1984. when he returned to the practice of public international law and environmental management with indigenous communities in the United States and Canada. He has published works on Indian history. government. law and economic development.

Dr. John A. Gulland (Cambridge. England)

Senior Research Fellow. Centre for Environmental Technology. Imperial College. London. Until 1984 he was with the Department of Fisheries. FAO. Rome. His particular concern has been with the population dynamics and management of marine living resources. including fish and marine mammals.

Professor Ian McAllister (Halifax, Canada)

Professor of Economics. Dalhousie University. since 1971. and Chairman. Lester Pearson Institute for Inter-nu[l(md Development. He has advised a number of governments on economic development policies and published books and articles on regional development. foreign aid. energy and industrial policy issues. especially relating to Canada. Africa and the European Community.

Dr. Wilfred Templeman (St. John's, Canada)

Formerly Director of the Biological Station, Department of Fisheries and Oceans. St. John's. His scientific papers include a review of the living marine resources of Newfoundland. including seals and whales. a study of the infection of cod and other fish of the Canadian area by the seal nematode, and a study of the life history of the capelin, probably the principal food of the harp seal.

Commission given broad mandate

Tbc Royal Commission was created by an order-in-council on June 22. 1984 to inquire into and make recommendations on all aspects of seals and scaling in Canada, including the social, cultural. ethical. scientific, economic. resource management. and international implications.

In broad terms the issues contained in the mandate can be summarized as follows:

Under what conditions. if at all. is it acceptable for mankind to utilize or manipulate the seal populations for human benefits: how far have recent and present Canadian seal hunts satisfied these conditions: and what steps should be taken to ensure the acceptability of any future Canadian operations involving the killing of seals? In addition, how significant has scaling been to Atlantic and Arctic Communities: what effect has there been on these communities from the decline in the markets for seal products: and what need. if any. is there to provide compensatory assistance?

The Royal Commission addressed these questions by grouping the items into four main categories:

- public concern about scaling;
- economic. social and cultural issues:
- biological issues; and .
- management issues.

During 1985 the Royal Commission held public hearings and sessions in Montreal, Toronto. Vancouver, London (England). Washington. St. John's, Kangiqsujuaq (northern Quebec). Pangnirtung (eastern Arctic, N. W. T.) and Holman (on Victoria Island in the western Arctic, N. W.T.). A total of 156 witnesses gave oral testimony and a further 137 written briefs were received by the Roy al Commission.

Further study needed

Continual from page I

populations should be allowed to increase. or be reduced or stabilized. No population control activities should be undertaken unless clearly favoured by the balance of social and economic benefits, and then only under a carefully monitored long-term program of evaluation. Any population control operation should be done under government supervision.

How to get a copy of the report

To obtain a copy of the report in English or French write to:

Canadian Government Publishing Centre
Supply and Services Canada
Ottawa, Ontario
K1A 0S9

Copies arc also available at any bookstore selling government publications.

Prices in Canada:	
Volume Onc	s4.50
Volume Two	S25.50
Volume Three	S28.25
Prices outside Canada:	
Volume Onc	s 5.40
Volume Two	$30.60
Volume Three	S33.90

(Prices subject to change without notice)

Volume Onc is available *in* Inuktitut free of charge. To obtain a copy write to:

Fisheries and Oceans Canada
Department of Communications
Ottawa, Ontario
K1A 0E6

P.O. Box 1030
Yellowknife, N.W.T. X1A 2N7
(403) 920-8743

February 25, 1988

Mr. Robert Higgins
c/0 Inuit Tapirisat of Canada
176 Gloucester Street, 3rd Floor
Ottawa, Ontario
K2P OA6

Dear Mr. Higgins:

At the February 19, 1988 meeting the Management Group of the Renewable Resource Development Subsidiary Agreement considered your application for assistance for the hiring of four (4) consultants to study and establish strategic methods for harvesting. processing and marketing seal products for the 13a ffin, Keewatin, Kitikmeot, and Western Arctic regions of the Northwest Territories. It was agreed to approve up to a lesser of $200,000 or 89.0 percent of the estimated project costs.

The Department of Renewable Resources will be sending you a contribution agreement stipulating the terms and conditions of the approval, specifically:

(1) A Steering Committee composed of the following is to be appointed for guidance, direction and monitoring of the proposed project:

(a) Department of Indian and Northern Affairs, Canada
(b) Department of Fisheries and Oceans, Canada
(c) Department of Renewable Resources, GNWT
(d) Department of Economic Development & Tourism, GNWT
(e) National Co-ordinator, Inuit Tapirisat of Canada

(2 The applicant to schedule meeting of the Steering Committee to define the information requirements of the proposed project (terms of reference) prior to its commencement.

(3) Results of the proposed undertaking be integrated with the overall Renewable Resources Development Strategy presently being prepared by the Government of the Northwest Territories.

Canada

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Northwest Territories

(4) The consultants, in consultation with the Regional Superintendents of the Department of Economic Development & Tourism, GNWT, and the Department of Renewable Resources, GNWT, discuss and prepare tne strategy workplan.

(5) A copy of the progress report prepared by the consultant for each region is to be submitted to:

(a) Department of Indian and Northern Affairs, Canada
(b) Department of Renewable Resources. GNWT
(c) EDA Secretariat

(6) A copy of the final report is to be submitted to:

(a) Department of Indian and Northern Affairs, Canada
(b) Department of Renewable Resources, GNWT
(c) ED-A Secretariat

(7) The Department of Fisheries and Oceans, Canada, is to provide harvesting quotas for each region.

If you have any questions concerning this approval, please do not hesitate to contact me.

Wishing you success with this project, I am

Yours very truly,

Altaf Lakhani
Director

Inuit Sealing Project

Regional 1 mple mentation Planning Consultants

Terms of Reference

Overview:

The 'Strategy for the Inuit sealing Economy ' prepared for Inuit Tapirisatof Canada by a Working group composed of representatives of the six Inuit regions in Canada recognized that large variations existed between regions, and communities in terms of the importance of seals as a renewable resource, and the business climate within which this strategy must be im ple mented. It was recommended therefore that detailed planning should take place at the regional level in order to allow for practical action plans that would be responsive to, and compatible with, regional-and community conditions.

The consultants engaged through this project will be responsible for working with the designated regional organizations, and community groups to identify local needs with respect to sealing activities, and to develop detailed plans to address these needs. This work, while focusing on the corn m unity and regional conditions, is to be approached with an understanding of the need to integrate these plans into a comprehensive inter-regional plan of action .

Objectives:

- a **detailed** workplan for the implementation of the strategy in the region identifying proposed business activities relating to;
  - -collection and pre-processing of skins for sale to Amiq Leathers
  - -local opportunities for product develop using tanned skins and/or seal leather
  - - mechanisms for the regional and inter-regional distribution and sale of seal meat and 'value-added' seal meat products
  - - opportunities for use of all by-products to ensure maximum utilization of the harvested resource (ie. dog food for local market, seal oil rendering, etc)

-the plan will include comprehensive information for all opportunities

related to seals identified within the region including detailed costs, schedules, infrastructural requirements, transportation costs, and will identify the proponent for each initiative.

-efforts should be made to integrate plans with other renewable resource initiatives within the region so as to maximize cost efficiencies, particularly where opportunities related to sealing are marginal, and not sustainable in isolation from other renewable resource activities.

-the plans should be developed within the framework of sustainable development, and a strong emphasis should be placed on ensuring that sound management principles are a central feature of all recommended initiatives.

-opportunities should be priorized in order to facilitate the development of the comprehensive territorial action plan.

-As well as working closely with the groups at the regional level, the consultants will maintain on-going contact communication with the National Coordinator in order to ensure effective communication between regions, and to facilitate research support with respect to market conditions, access to funding sources, etc. thereby ensuring that the plans remain consistent with the overall strategy development objectives.

Timeframes:

The work will begin as soon after April 30/88 as the consultants have been hired, and the regional plans are to be-completed by Oct. 1/88. The proposed . target dates for the completion of tasks is a follows;

April 30- 15	- interviewing and selection of consultants by regional organization in collaboration with project Steering Corn mittee. The project Steering Committee will review and approve the qualifications of all the candidates being considered by the regions.
May 15-30	-consultants will finalize workplan in consultation with the respective regional organization, Regional Superintendents of the Dept. of Economic Development and Tourism, GNWT, the Dept. of Renewable Resources, GNWT, the Dept. of Fisheries and Oceans, Area Managers, and the

National Coordinator

May 20 - July 30	- orientation of consultant by regional organizations - initial meeting of all consultants and National Coordinator - Community consultations (precise timeframe for tasks to be specified in above mentioned workplan)
Aug 1 - Sept. 30	-analysis of information collected through consultation process, and initial plan development -meeting between all consultants and National Coordinator to review findings and discuss general direction of work to date -plan development and priorization at regional level -approval of plan at regional level

Reporting:

The consultants will sub mit a progress report to the National Coordinator by July 15/88 in order that an overall project progress report can be submitted to the appropriate agencies by July 30/88.

The consultants will have completed and submitted their respective regional plans to the national Coordinator by Oct. 1 /88.

Basic Qualifications **fo&-Consultants:**

-effective communication skills and the ability to interact effectively with a wide range of individuals and groups is essential. Ability to speak both English and Inuktitut would be an obvious asset.

-demonstrated experience conducting research in the renewable resource sector is required. Previous experience with studies involving northern native harvesters would be an asset.

-the ability to collect, synthesize and analyse a complex range of information is necessary

-solid understanding of the economic, social and cultural factors affecting the northern economy and specifically the renewable resource sector are required. Demonstrated experience will be a definite asset.

APPENDIX 2

(613) 746-010s

Techno-Tan Inc.

CONSULTANT
SCIENTIFIQUE ET TECHNIQUE
EN TANNERIE

TANNING AND CRAFTS PROJECT

presented to
Mr. Robert Higgins
National Coordinator
Inuit Tapirisat of Canada
176 Gloucester, 3rd Floor
Ottawa, Ontario K2P 0A6

by Antoine Cano
President, Techno Tan Inc.
Tanning Consultant

347451A RUE DONALD. OTTAWA_ ONTARIO, CANADA K1 K 1 M4

Introduction:

Considering the customs and culture inherent in the Community of Broughton Island, North West Territories, this project involves two phases:

- 1st: tanning of seal and fur animals
- 2nd: crafting of finished fur products

A rotation system would be organized to allow each member to spend an equal amount of time on each subject.

While giving individuals access to mastery of tanning and craft skills, this project would be carried out in the traditional spirit of the community it is designed for. The "project should ultimately bring numerous benefits to the community and will help to eliminate needles physical exertion in tanning procedures.

This type of project has become essential for the development of Inuit communities. Endeavors of this sort would bring much needed income, derived directly from renewable resources already in the community's possession. The tanning program will include the dressing of fur pelts which are indigenous to the particular geographical area.

The possibility of producing professionally tanned skins which comply with commercial standards would have the effect of stemming the export of raw pelts towards tanneries in the south, since once the project is fully implemented it will be possible to do this type of work on location.

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If the economic aspects of such a project are considered, it is reasonable to conclude that jobs and additional income would be generated in communities where unemployment and financial insecurity are the norm presently. In this manner, the Inuit could move away from economic dependence on outsiders who presently control local natural resources, and who are instrumental in draining these resources away from the community, to have them processed elsewhere.

With the creation of an exclusive trademark identifying the Inuit tradition of artistic craftsmanship, the results should speak for themselves.

Your region receives a large number of tourists each year. There is no doubt that the demand for Inuit crafted goods will increase greatly with the introduction of tanning and confection of animal pelts. This expertise will increase the importance of the crafts industry within your regional economy.

If the proposed project is made accessible through services already operational in your territory, it should act as a stimulus of local potential, increased awareness, and should thus incite the Inuit people to take charge of their own development in the North West Territories.

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TANNING **PROGRAM**: PHASE ONE

duration 4 weeks, 35 hours a week = 140 hours

Objective: to render the student able to prepare sealskin and other furs in accordance with market and craft industry standards

Content: the content will be adapted to suit the needs of the enrolled clientele

Theory 20%
Supervise work 15%
Practical work 65%

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Theory:

preparation of skins
methods and techniques of preservation of skins
initiation to tanning
- observation of Inuit methods

Supervise work:

manipulation of products
- storage
preparation of tanning procedures

Practical work:

adapting methods after observation
initiation to a tanning technique
- gradual initiation to equipment
tanning and finishing of skins
security, safety

../5

CRAFTS **PROJECT:** PHASE TWO

for 4 weeks x 35 hours = 140 hours

Objective: **to render** the student capable of fabricating quality fur products from patterns or established models. Training on fur machine.

Content: **Theory** 30%
Practice 70%

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Theoretical Course:

- Study of patterns and models
  exploring potential of the fur machine
- drawing patterns
- cutting from the pattern
  use of the pattern
  observations
  safety measures

Practical work:

- tracing the pattern
- cutting
- blocking
- trim ming
  machine assembly and initiation
- finishing
- putting in linings
- inspection
  observations

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PROJECT SUPPLIES AND MATERIALS

Materials:

one industrial drum

one industrial type flesher

one stretcher

ten circular knives

one fur machine

teaching materials such as pattern block, etc.

- one BUFFER
- wash TUBS.

Tannery products:

tanning oil

sawdust

aluminum sulphate

sodium carbonate

oxalic acid

cleaner

soap

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Some notes and additional information on the project:

- All equipment and products used in the course will be shipped to the location of the program by available means of transport.

- All equipment and tanning products used in the project will remain the property of the sponsoring organization afterwards.

Furs: A sum of $2000 will be set aside for this purpose, which will belong to the sponsoring organization, but in the impossibility for the students or the organization to supply the furs, they will be provided by us, and will remain our property.

- It must be realized that 50% of the budget included in this offer of service will cover costs of equipment, supplies and transport. The remaining supplies will stay in your community after the project is completed.

- The sponsoring organization will be responsible for fire and theft insurance.

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PROJECT - BROUGHTON ISLAND

TANNING PROJECT -

4 weeks-35 hours = 140 hours

CRAFTS PROJECT -

4 weeks - 35 hours = 140 hours

8 weeks Total 280 hours

. ../10

PROJECT BUDGET

Equipment	$ 10,000
Tannery products	5,000
Workshop supplies	2,000
Raw pelts	2,000
1 fur machine and teaching materials	3,000
Transport of supplies and equipment	10,000
Translator	6,150
Room and Board for Personnel during project	15,750
Transportationof personnel	4,500
Secretarial services	1,000
Miscellaneous	1,000
PROFESSIONAL FEES	
Senior Supervisor	21,250
Associate	17,500
Junior Associate	14,000
TOTAL	$ 113,150

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DOUBLE PROJECT

In Igaluit (Frobisher Bay)

Tanning Project

3 weeks x 35 hours	105 hours

Crafts Project

3 weeks x 35 hours	105 hours

In Broughton Island (Article Cercle)

Tanning Project

2 weeks x 35 hours	**70 hours**

Crafts Project

2 weeks x 35 hours	70 hours
10 weeks TOTAL	350 hours

The double project requires one additional week for each project.

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BUDGET FOR DOUBLE PROJECT

Additional expenses:	
Equipment	$ 2,000
Workshop supplies	1,000
Raw pelts	1,000
Transport	1,000
Translator	3,000
Secretarial services	300
Living expenses of personnel in Igaluit	8,800
Professional Fees:	
Senior supervisor	6,200
Associate	5,000
Junior Associate	3,800
TOTAL of additional expenses	$ 32,100
PREVIOUS TOTAL	113,150
GRAND TOTAL	$ 145,250

Techno-Tan Inc.

TECHNOLOGY TRAINING EQUIPMEN

A PROGRESSIVE CONSULTING FIRM IN TANNING

- Technology
- Applied Research
  &
- Professional Training

Laboratory and Office:

347-351A DONALD STREET, OTTAWA,
ONTARIO CANADA K1K 1M4
TEL.: (613) 748-0105

SERVICES PROVIDED IN TANNING:

- Advanced technology transfer on contract basis
- Scientific and technical consulting services
- Professional training on location or in the Firm laboratory in Ottawa
- Market prospects analysis
- Feasibility studies (projects, productivity enhancement, etc.)
- Research on contract basis (Problem solving, methods, processes, chemicals)
- Technical assistance

ADVANCED TECHNOLOGY DEVELOPMENT APPLIES TO:

- Leather made from
  - Cod skin and other marine species
  - Beaver tails
  - Moose, cariboo and deer hides
  - Cattle hides
  - Sheep, goat and kid skins
  - Reptiles and pig
- Preparation of furs and pelts
- Fur and leather dyeing
- Equipment

INFORMATION REQUES

(Print clearly)

Please arrange to send more informatio
the following services provided by
Techno-Tan Inc.

Name

Address

Postal Code:

Tel. no:

EFFICIENT INDUSTRIAL

AND

REGIONAL

DEVELOPMENT

INCLUDES

NECESSARI .Y THE

ESTABLISHMENT OF TANNERIES

AND

THE PROMOTION OF THE WHOLE

TANNING SECTOR

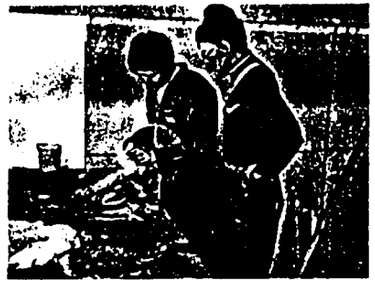
Inquire to Techno-Tan Inc.
for feasibility studies

.TANNERIES CREATE
DIRECT AND SECONDARY
EMPLOYMENT IN

- THE CLOTHING TRADE
- THE SHOE INDUSTRY
- THE GLOVE TRADE

&

- THE ARTS AND CRAFTS SECTORS



Write to Techno-Tan Inc.
for details on available
technical assistance and
market prospects analysis

TANNERIES CON 'RIBUTE
EFFICIENTLY TO:

- REGIONAL DEVELOPMENT
- DIRECT AND SECONDARY JOB CREATION
- INCOME AND REVENUE INCREASE IN THE COMMUNITY
- SMALL OR INDIVIDUAL BUSINESS DIVERSIFICATION

Ask for more information on professional
training and courses in tanning on location
or in the Firm laboratory in Ottawa

COMMERCIAL OR PRIVATE
TANNERIES PROMOTE THE
EFFICIENT NON POLLUTING
TRANSFORMATION OF OUR
NATURAL RESOURCES INTO
USEFUL OR BEAUTIFUL FINISH
PRODUCTS.

Inquire on how to benefit from advanc
technology transfer and research condu
towards problem solving

ARCTIC COLLE(

75-000-065 NUNATTA XXXXXX CAM

December 2, 1988

BOB LONG
BAFFIN REGIONAL COUNCIL

Draft Budget - Seal Skin Tannery

Attached **for** your reference please **find** a breakdown **of the** budget related to the Seal **Skin Tannery Project.**

These costs have been developed through the Environmental **Technology Program** of **Nunatta** Campus **and** represent **those** cost which **we** believe are involved in **a** project **of** these types.

If you have any questions **in** rel**ation to** this **matter, I will be** pleased to **discus this** matter **with you.**

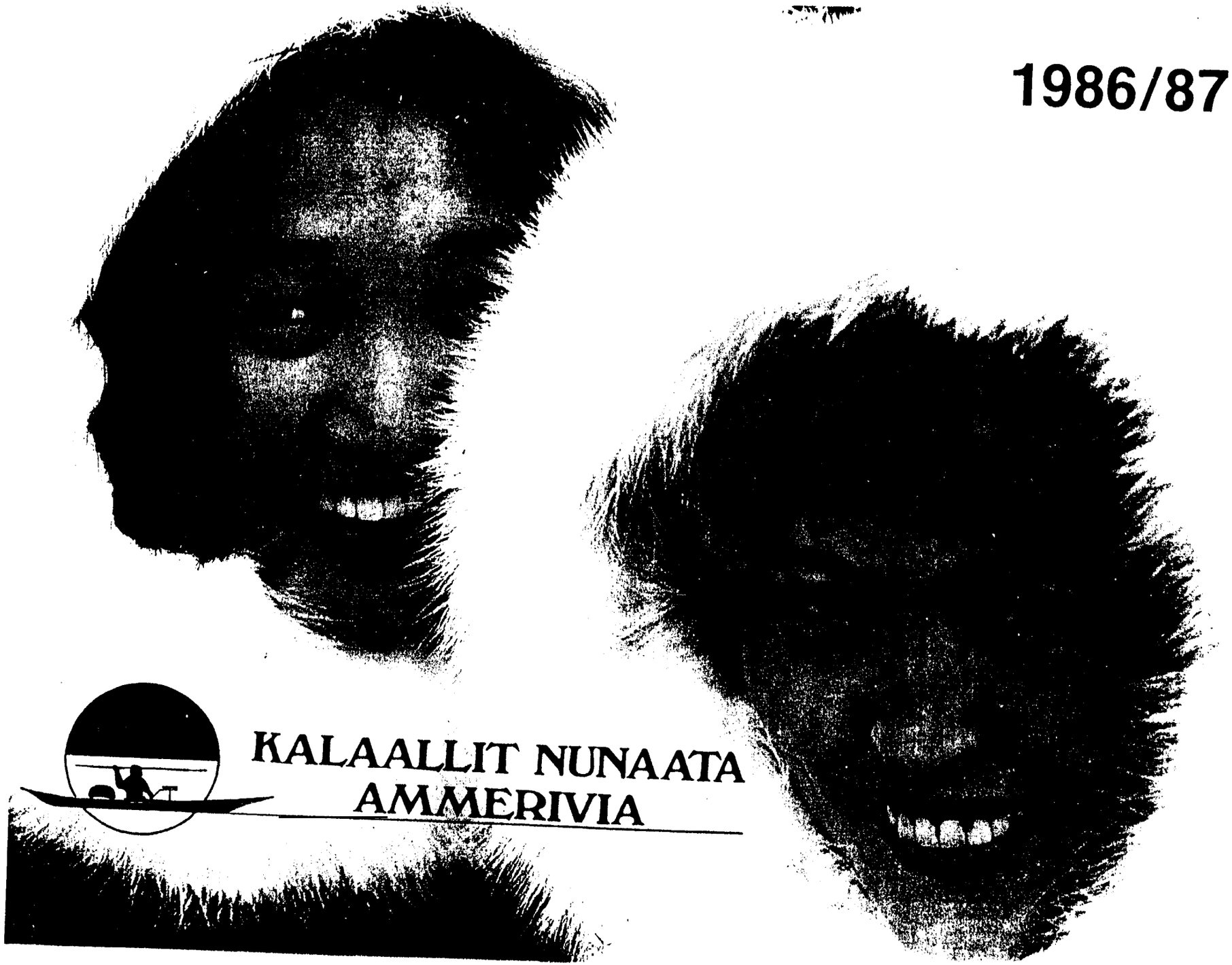
Bruce **Rigby**
Chair, Environmental
Technology

attach.

SEAL SKIN TANNERY
DRAFT BUDGET OUTLINE

1.	Curriculum Level (1) Senior staff 50 days (2) Assistant	25,000.00
2.	Word Processing 5 @ 200 and reproduction	1,000.00 200.00
3.	Translation 3 x 100 x $25 @ page	7,500.00
4.	Travel - consultant	
	1) Ottawa - Broughton Island	772.00
	2) Ottawa - Iqaluit	600.00
	3) Accommodation - Iqaluit	840.00
	4) Iqaluit - Broughton Island	450.00
5a/	Video taping - Broughton Island - 14 days @ $500.00 - 2 crew	7,000.00
	- extra lighting	750.00
b.	Editing of product (estimate only - based on content - 7 days @ 500	3,500.00
6.	Travel 2 x Iqaluit 2 @ 450.00	900.00
	Subtotal	$48,S12.00
7.	6.5% Administration fee for Arctic College	3,153.28 $51,665.28

1986/87



KALAALLIT NUNAATA AMMERIVIA

FRITIDS ANORAK

Arnanut angutinullu annoraaq pingasunik kaasarfilik allattuup amia, angiss. 36/38 - 52/54

Anorak i grønlandssæl m/tre lommer str. 36/38 - 52/54

BOLETTE

Arnat qaatiguuat naat qasertoq nasaa peers soq, angiss. 36-42

Kort damejakke i grå silkesæl m/aftagelig str. 36-42

SIMON

Angutit qaatiguuat takissusia akunnattoq natsiup ernia, tungujortorlo, angiss. 48-56

Herrejakke i metside, blåfarvet silkesæl str. 48-56

EMMA

Arnat qaatiguuat akunnattumik takissusilik natsiup amia, angiss. 36-44

Trekvartlang damejakke i netside str. 36-44

LARS

Angutinut aaqanngitsoq takisooq natsiup amia, kajortoq qernertorlu, angiss. 48-56

Lang herrevest i netside, brun- og sortfarvet silkesæl str. 48-56

APPENDIX 3

SUGGESTED LAYOUT FOR A SEAL PROCESSING PLANT

Page 4 of this appendix provides a simple drawing of a layout for a seal processing plant. It should be noted that this drawing only attempts to provide an overview of how to lay out the various functions which must be performed in the plant in an efficient manner based on the experience at Pelly Bay. Health regulations will have to be consulted as food for human consumption is being processed and packaged in the plant. Also, an extremely poisonous additive is being used in the same plant. Fire regulations on this building have not been consulted. However, it can be expected that the regulations will be stringent as one of the products will be a flammable oil. Also, animal oils, as opposed to fossil fuels, can generate heat under the right conditions. If oily rags are stored, if wood becomes permeated with oil, such materials can begin to generate heat and cause spontaneous combustion.

A seal processing plant should be built adjacent to an existing community freezer. The high cost of such a freezer facility prohibits the idea of building a second freezer in a community. However, where no suitable freezer exists in a community a freezer will have to be incorporated into the plant.

This plant layout assumes that hunters will deliver seals to the plant. This would require the plant to be constructed near the shore where the hunters could easily land their boats. However, the need to locate the plant adjacent to an existing freezer may make this impossible. In this case transportation may have to be provided to move the seals from the shore to the plant.

There is some discussion at the time of writing of the possible establishment of small tanneries in some NWT communities. This plant layout provides for such a facility to be incorporated into the same building.

Receiving and handling seals:

Seals would enter the plant at the main door, location #1 on the plan on page 4. Here plant workers would receive the seals. The seals would be attached to an overhead track (location #2 on the plan) with a small block and tackle and lifted above the floor. The seal can then be moved through the plant by rolling it along the track. If it will not be possible to process the seal in a reasonable amount of time the seal can be rolled along the track into the freezer (Point #3 on the plan) where it will be left hanging until it can be processed, at which time it will be moved back along the track into the processing plant.

When plant workers are ready to process a seal it will be moved along the track and positioned over one of three butchering basins (point 4 on the plan).

These basins would be permanent fixtures on the plant floor, with walls about one foot high. They would be connected to the plant sewage system. Water would be provided from a hose attached to the ceiling. This will allow the seals to be washed, any liquids to be drained away, and generally facilitate plant cleanliness.

Skinning and defleshing:

Plant workers should remove the skin with the blubber attached. They would place it in a tub and put the tub on the metal rollers (#5 on the plan) where it will be moved to the defleshing machine (#6 on the plan). Then the blubber will be removed from the skin and placed on the blubber table (#7 on the plan).

The blubber table should be made of stainless steel with a ridge around the outside edge. The table top should have a slow slope toward the centre where a drain hole will allow any oil which escapes from the blubber to drain into a container. This oil can later be filtered and processed. At the blubber table the blubber will be cut into the proper size, to be entered into the oil extraction machine. The blubber will then be placed in a tub and moved to the oil extraction area (#9 on the plan).

After the blubber has been removed the skin will be moved to the skin washing area (#8 on the plan) where it will be cleaned and prepared for drying. If a skin tanning facility were to be set up in the same community it could be incorporated into the same building. In this event the skins would then pass through the door (#10 on the plan) into the tanning area.

Butchering:

Once the skin and blubber have been removed the butchering of the seal would take place with the carcass hung over the butchering basin at location #4 on the plan. Using three separate tubs the plant staff butchers the seals, dividing the entire carcass into meat for human consumption, meat for animal consumption, and bones. Special color coded tubs should be used for the meat for human consumption and care must be taken that these tubs are not used for any other purpose.

The meat for human consumption is taken to a separate room for cutting, packaging, weighing, and pricing (location #11 on the plan). This room will have to contain stainless steel tables, walls and special flooring in conformity with health regulations. The room will have to be equipped with a double stainless steel commercial type sink which will be required to wash knives, cutting boards, tubs and maintain the general cleanliness of the room.

The meat which is to be used for animal consumption will be placed in a separate tub and taken from the butchering area to a separate room (location #12 on the plan) for cutting, packaging, weighing and pricing. This room will have to be equipped with stainless steel counters, sinks, walls, etc. to facilitate cleanliness.

Bone Crushing:

Once all the meat has been removed from the bones they should be placed in a separate tub, the tub placed on the metal rollers (location #5 on the plan) and moved to the other end of the plant. The bones will then be taken from the rollers to the bone crushing machine (location #13 on the plan). After the bones have been crushed the bone meal will be taken to the room for preparing animal food (location #12), where it will be added to the lesser quality meat and offal to be added to the animal food mixture.

Oil extraction and filtration:

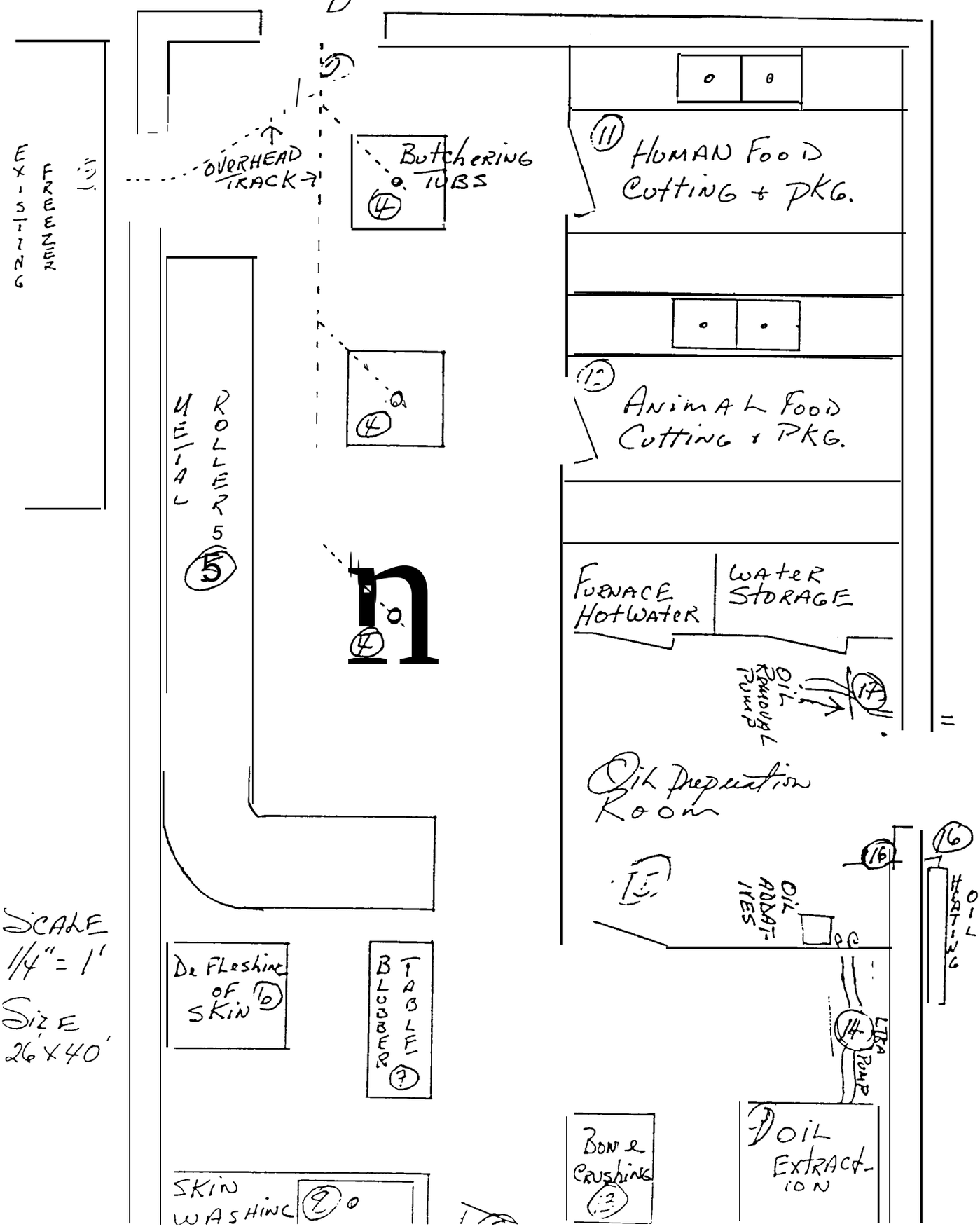
Once the blubber has been cut to the proper size at the blubber table (location #7 on the plan), and moved to the oil extraction area (location #9 on the plan), the oil extraction process can begin. The blubber is placed in the machine and the oil extracted. The oil will accumulate in a tank under the machine along with some small pieces of blubber residue. This residue can be removed from the oil with a ladle and placed in a separate tub. Also the blubber residue must be removed from the extraction machine manually before the next piece of blubber can be entered. This residue will also be placed in the tub mentioned above. When this tub is full the blubber residue will be taken to the room for processing animal food, where it will be added to the animal food mixture.

The oil which accumulates in the tank underneath the oil extraction machine will be removed by a pump (location #14 on the plan). This same pump will force the oil through filters and deliver it through pipes directly into the oil preparation room (location #15 on the plan) where it will be deposited into a tank. Where the pipe enters the oil preparation room it should be fitted with a flexible hose to facilitate the filling of different tanks located in the oil preparation room. As the tanks are filled the oil additives can be mixed with the seal oil.

The oil preparation room should be fitted with two pumps, one to pump in regular heater oil from an outside storage tank (location #16 on the plan). This will provide regular heater oil for mixing with the seal oil. This pump should be fitted with a flexible hose in the oil preparation room to facilitate the filling of different tanks.

A second pump (located at #17 on the plan) will allow the prepared oil to be removed from the preparation room where it can be placed in tanks, to be taken to a storage site or directly to a fuel tank for consumption. This pump should have a flexible hose both inside the oil preparation room and outside the building.

SEAL PROCESSING PLANT



Appendix II

Proposed Seal Oil Extraction Machine

It has been noted that the seal oil **extraction machine used in the project** in Pelly Bay was not considered to be the ultimate answer to the problem.

Some problems associated with the machine are as follows;

1. The blubber has to be cut into relatively small pieces to be used in the machine. This is time consuming in terms of excessive cutting, resulting in higher wage costs.

2. The blubber has to be fed into the machine by hand, the blubber pressed, the press retracted, and the residue removed by hand. This is another time consuming process, adding additional operating expense.

3. It is evident that after the press is retracted some oil is absorbed back into the residue.

The resulting loss of oil is an additional cost in terms of waste. It is not possible to quantify the waste; however, the residue is oil soaked and drips oil when being lifted from the press.

Page 3 shows a conceptual drawing of a seal oil extraction machine which is thought to be a more efficient approach to the problem.

The basic concept could be compared to an old fashioned wringer washing machine. The blubber is put through the wringer and the oil drips into the tank below.

In the case of this machine the blubber would pass through two sets of rollers. The first set of rollers would be large, say 10" in diameter. The rollers would have to be equipped with spikes which would grab the blubber and pull it between the rollers. The rollers would have to contain indentations or offsetting holes to accommodate the spikes in the other roller. The first set of rollers would compress the blubber to a thickness of ¼" to ½". The distance between the rollers would have to be adjustable to allow the operator to find the optimum setting.

A second set of rollers, much smaller in size, say 2" in diameter, would be located directly below the first set of rollers. These rollers would also have to be spiked so they will grab the blubber and force it through the rollers. These rollers would have to be very close together, say 1/32". They should also be adjustable to allow the operator to find the optimum setting.

Between the two rollers there would be two retainers which would force the blubber to be directed into the second set of rollers. They would also act as scrapers to remove any blubber which might adhere to the rollers..

Below the small rollers there would be a conveyor belt. This belt would consist of at least 6 chains. The chains would be equipped with needle-like spikes which would grab the blubber residue and carry it along the conveyor. At the end of the conveyor the blubber residue would be dumped into a tank.

The oil extracted by the rollers would pass through the belt into an oil collection tank below.

The drawing on the second half of page 3 shows an overhead view of the conveyor.

The diagonal lines on the drawing represent a scrubbing board. As the blubber residue is drawn across the scrubber any oil which adheres to the blubber will be wiped off. This oil will drain on to a splash guard below which will lead the oil back to the oil tank.

The scrubber position of the conveyor would contain a cover portion (not shown in drawing) which would serve as a scrubber for the top of the blubber residue as it passes along the conveyor.

The distance between the top scrubber and the bottom scrubber would have to be adjustable to allow the operator to prevent jamming or clogging. It would also have to be removable to facilitate cleaning.

The roller portion of the machine would have to be surrounded with a splash guard to direct any squirting oil towards the tank below. The splashguard will have to be removable to facilitate cleaning.

This machine will be driven by an electric motor. It will be difficult to design and construct.

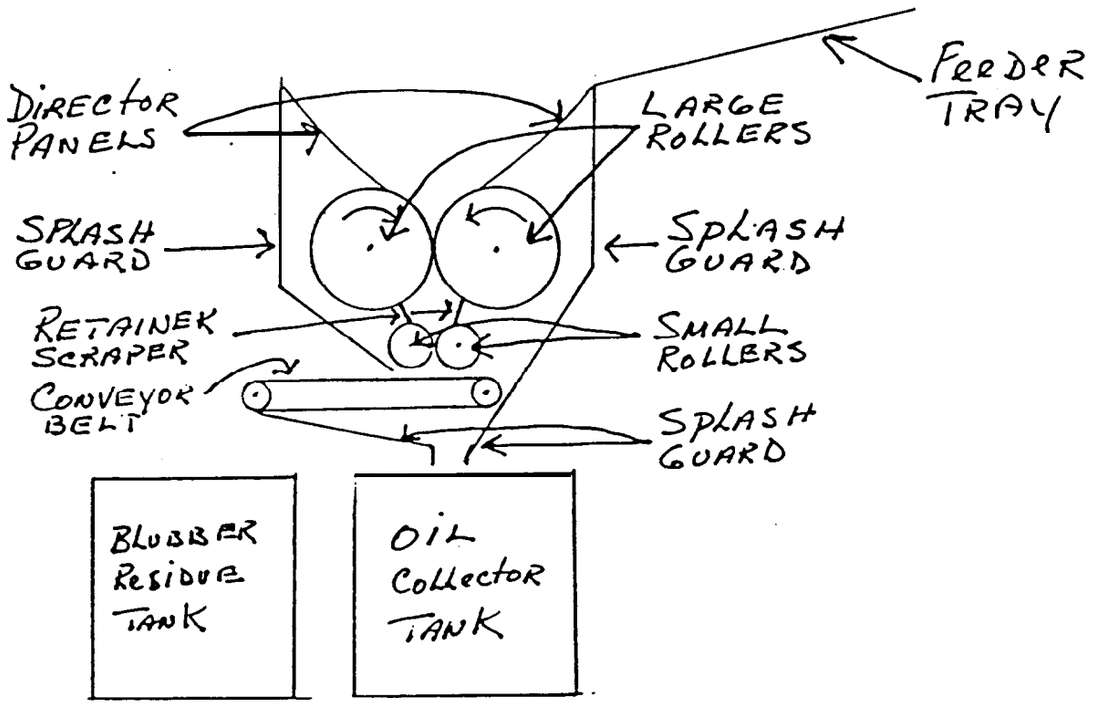
The rollers and the conveyor belt will require a complicated series of gears to permit the blubber residue to flow smoothly through the machine. The gearing ratio will also have to take into account the fact that the length of the blubber increases as it is pressed thinner by each set of rollers.

It may also require clutch assemblies to allow the operator to stop one set of rollers to prevent jamming or clogging.

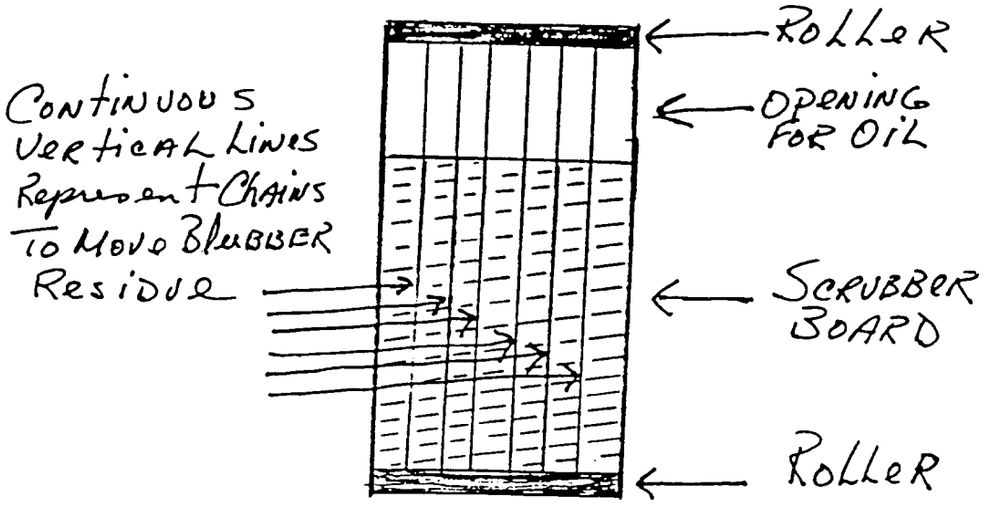
Using this machine the blubber would be cut into long strips, six inches wide and the full length of the blubber. The blubber would be placed on a feeder tray on top of the machine. Director panels would lead the blubber toward the centre of the top rollers. Once the blubber begins to enter the machine the operator will be able to attend to other work, say oil filtration. The rollers will have to be geared to turn the rollers very slowly as it should take about 5 minutes for a 6' strip of blubber to pass through the machine. The greater the time the blubber is compressed the more oil is likely to be obtained.

Seal Oil Extraction Machine

Conceptual Drawing



Conveyor Belt Vertical View



Appendix III

In testing the burning of seal oil in a conventional furnace it was discovered that when the furnace fire box, gun and heat exchanger were cold the furnace would not fire consistently.

It has been noted that this could present a potential fire hazard.

To prevent this hazard from developing it has been recommended that a device be used to permit the furnace to fire on regular heater oil. After ignition has been proven the furnace would automatically convert to the seal/heater oil mixture.

This appendix provides information on a recommended solenoid valve (page 2), a wiring diagram (page 3), an oil line connection diagram (page 4) and an oil flow diagram (page 5).

Bulletin
8314

MIDGET

3 WAY SOLENOID VALVES

Brass Body — ⅛" and ¼" N.P.T.

General Description

These midget brass body 3 way solenoid valves are ideally suited for controlling single acting cylinders.

Important: No minimum operating pressure required!

Specifications

Operation: Three types available:

(a) Normally Closed — applies pressure when solenoid is energized; exhausts pressure when solenoid is de-energized.

(b) Normally Open — applies pressure when solenoid is de-energized: exhausts pressure when solenoid is energized.

(c) Universal — for normally closed or normally open operation. Also suitable for selection (pressure applied to Ports 2 and 3) or diversion (pressure applied to Port 1) of pressure.

Valve **Parts in Contact with** Fluid:

Body — Brass.

Seals and Discs — Buns "N" and Nylon.

Core Tube — 305 s.s.

Core and Plugnut — 430F s.s.

Core Springs — 302 s.s. ● nd 17-7PH s.s.

Shading Coil — Copper.

Core Guide — Acetal — all AC valves and ⅛" orifice *normally* open DC valves.

Solenoid Enclosures: Two types available:

(a) Type 1 — General Purpose.

(b) Types 4 ● nd 7 (C ● nd D) – Combination Watertight and Explosion-Proof. Also meets Types 3 and 9 (E, F, and G). Refer to Engineering Section for definitions and details. Consult your local ASCO office for Types 3S and 4X.

Electrical: Standard Voltages:

24,120, 240,480 volts, AC, 60 Hz (or 110, 220 volts, AC, 50 Hz).

6,12,24,120,240 volts, DC.

Other voltages available when required.

Coil: Continuous Duty Molded Class A.

Temperature:

Fluid: 32°F. 10 200°F., as listed.

Ambient: Nominal Range, 32°F. to 77°F. (104°F. occasionally — refer to Engineering Section.)

Installation:

Dimensions: Refer to Dimensions Table for envelope size and mounting.

Attitude: Valves may be mounted in any position.

SPECIFICATIONS

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Minimum Operating Pressure Differential (psi) Air AC	Air DC	Water AC	Water D.C.	Light Oil@ 4S AC	Light Oil@ 4S DC	Maximum Fluid Temp. SSU °F. AC	Maximum Fluid Temp. SSU °F. DC	Type 1 General Purpose Solenoid Enclosure Catalog Number	Types 4 and 7 (C and D) Watertight and Explosion-Proof Solenoid Enclosure Catalog Number	Waft Rating/ Class of Coil Insulation AC	D	C
UNIVERSAL OPERATION															
⅛	3/64	.04	160	70	160	65	160	65	200	104	8314C41	8314C10	11/A	11.2/A	
	3/32	.15	80	35	40	35	40	15	200	104	8314C43	8314C11	n/A	11.2/A	
	⅛	.25	45	20	25	15	25	15	200	104	8314245	8314C12	n/A	11.2/A	
¼	3/64	.04	6160	70	160	65	160	65	20200	104	8314C6	8314C13	n/A	11.2/A	
	3/32	.15	80	35	40	35	40	15	200	104	8314C7	8314C14	n/A	11.2/A	
	⅛	.25	45	20	25	15	25	15	200	104	8314C8	8314C15	n/A	11.2/A	
NORMALLY CLOSED OPERATION															
⅛	3/64	.04	230	120	230	140	230	135	200	104	8314C31	8314C25	n/A	11.2/A	
	3/32	.15	125	60	100	70	100	30	200	104	8314C32	8314C26	n/A	11.2/A	
	⅛	.25	75	30	60	40	60	25	200	104	8314C33	831%?7	n/A	112/A	
¼	3/64	.04	230	120	230	140	230	135	2000	104	8314C34	8314C28	n/A	11.2/A	1
	3/32	.15	125	60	100	70	100	30	200	104	8314C35	8314C29	n/A	11.2/A	
	⅛	.25	75	30	60	40	60	25	200	104	8314C36	8314C30	n/A	11.2/A	
NORMALLY CLOSED OPERATION • Air *Only* — Exhausts to Atmosphere															
⅛	3/64	.04	230	120	—	—	—	—	2000	104	8314C19	—	n/A	11.2/A	
	3/32	.15	125	60	—	—	—	—	200	104	8314C20	—	n/A	11.2/A	
	⅛	.25	75	30	—	—	—	—	200	104	8314C21	—	n/A	11.2/A	
¼	3/64	.04	230	120	—	—	—	—	200	104	8314C22		n/A	11.2/A	
	3/32	.15	125	60	—	—	—	—	200	104	8314C23		n/A	11.2/A	
	⅛	.25	75	30	—	—	—	—	200	104	8314C24	—	11/A	11.2/A	
NORMALLY OPEN OPERATION															
⅛	3/64	.04	300	200	300	200	300	120	200	104	8314C49	"831~C58	ii/A	11.2/A	
	3/32	.15	175	70	175	90	175	45	200	104	8314C50	8314C59	n/A	11.2/A	
	⅛	.25	90	40	90	40	90	25	200	104	8314C51	8314C60	n/A	11.2/A	
¼	3/64	.04	300	200	300	200	300	120	200	104	8314C52	"83iic%l	n/A	11.2/A	
	3/32	.15	175	70	175	90	175	45	200	104	8314C53	8314C62	n/A	11.2/A	
	⅛	.25	90	40	90	40	90	25	200	104	8314C54	8314C63	n/A	11.2/A	

Page 16"

FIGURE 1 SUB BASE ASSEMBLY FOR COUNTERFLOW FURNACE ON COMBUSTIBLE FLOOR

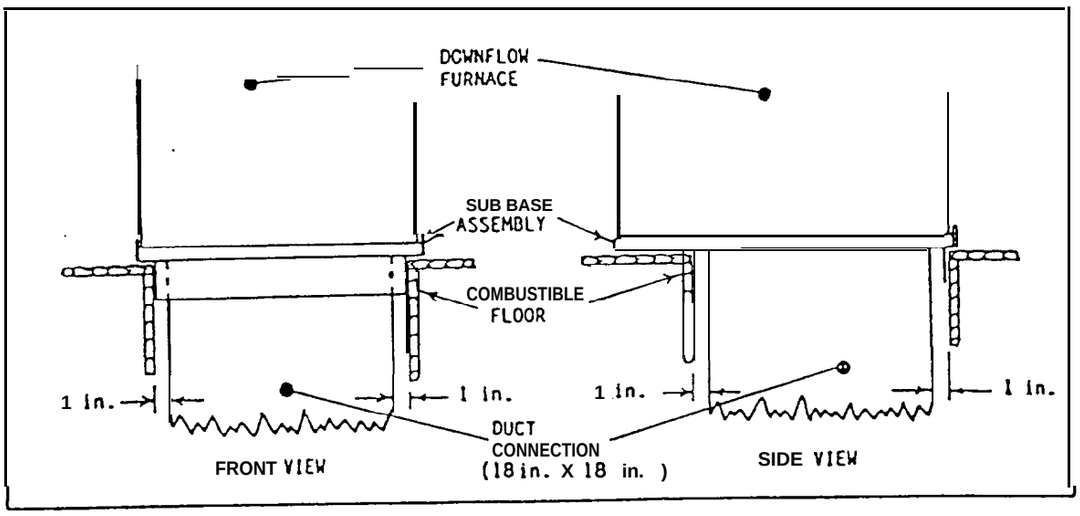
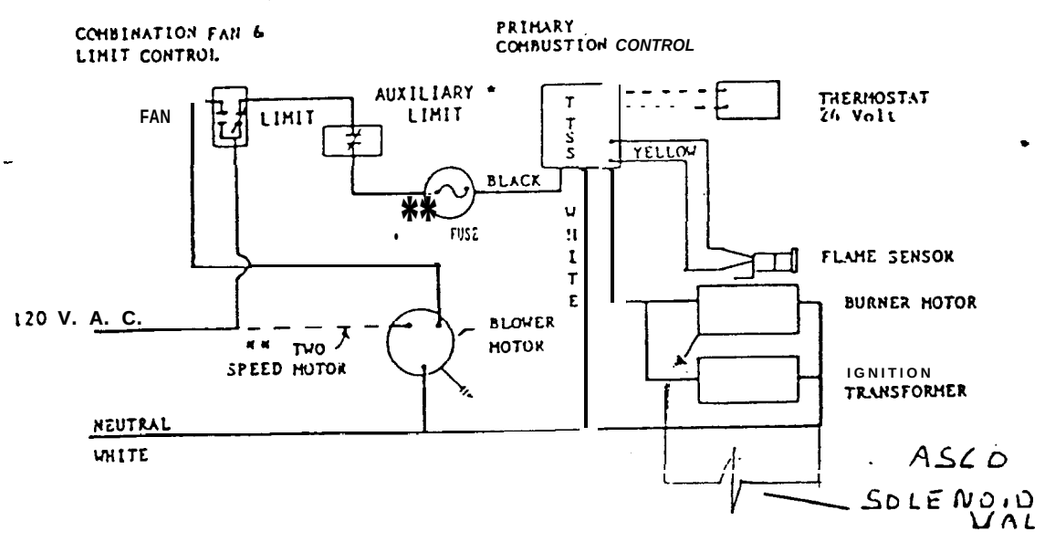


FIGURE 2 WIRING DIAGRAM - OIL FIRED WARM AIR FURNACE



IF WIRING IS REPLACED. THE SAME SIZE AND TYPE AS ORIGINALLY SUPPLIED ON THE FURNACE SHOULD BE USED.

NOTE: ELECTRICAL RATING IS 120 V. 60 Hz. 12 A FOR BCL 80(H).90(H).100(H).115(H)
ELECTRICAL RATING IS 120 V. 60 Hz. 16 A FOR BCL 125(H). 140(H)
ELECTRICAL RATING IS 120 V. 60 Hz. 20 A FOR BCL 170(H). 190(H)
ELECTRICAL RATING IS 120 V. 60 Hz. 12 A FOR WTL 80A/H. 90A/H. 100A/H. 115A/H
ELECTRICAL RATING IS 120 V 60 Hz. 12 A FOR WTL 80A/H. 90A/H. 100A/H. 105A/H

* THE AUXILIARY LIMIT CONTROL IS SUPPLIED ON DOWNFLOW UNITS ONLY.
** TWO SPEED MOTOR IS OPTIONAL.
*** A FUSE LINK IS PROVIDED FOR THE BURNER CIRCUITON ALL UNITS WHERETHE TOTAL AMP DRAWEXCEEDS 12 AMPS.

II 831 4L

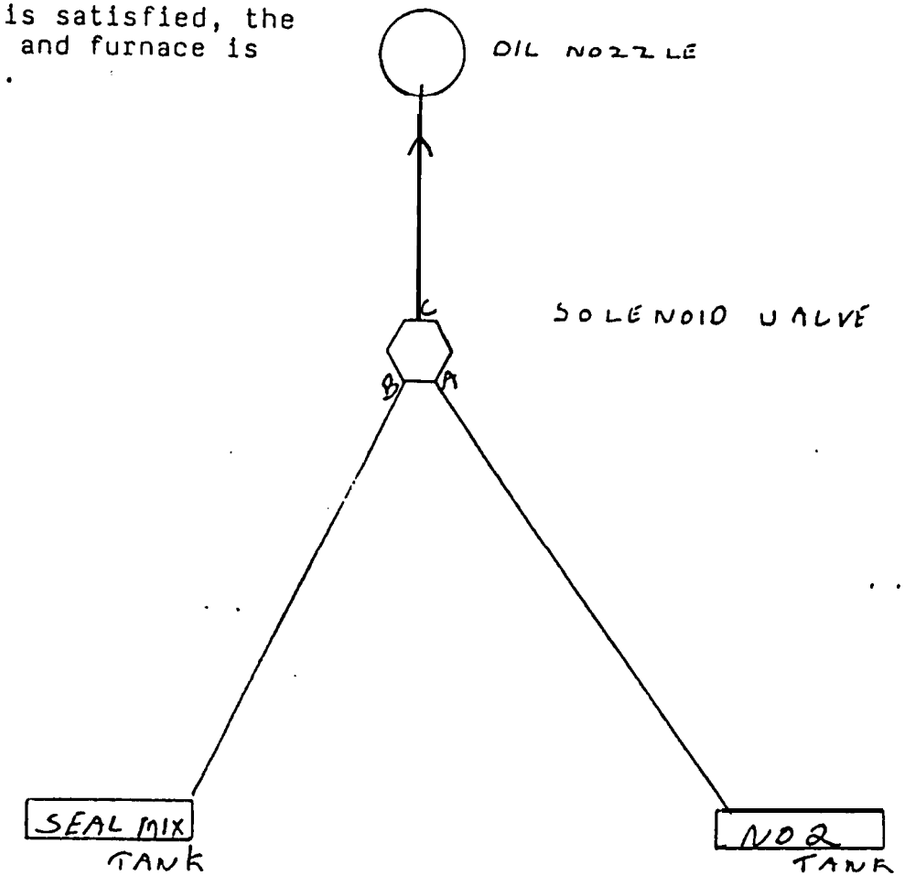
SHEET #2

OPERATION:

The thermostat calls for heat, energizes oil pump, transformer and solenoid valve. (opens port between A & C)

After preset time (1 min.) solenoid deenergizes, closing ports A & C and opening B & C allowing seal oil to pump.

Once the thermostat is satisfied, the oil pump deenergizes and furnace is ready for next cycle.



BULLETIN 8314 (continued)

ELECTRICAL INFORMATION

Standard Coil and Class of Insulation	Watt Rating and Power Consumption DC watts	Watts	Holding	Inrush	AC	DC	Spare Coil Part No.
A	11.2	11	21	42	27-462	2743	

OPTIONAL FEATURES

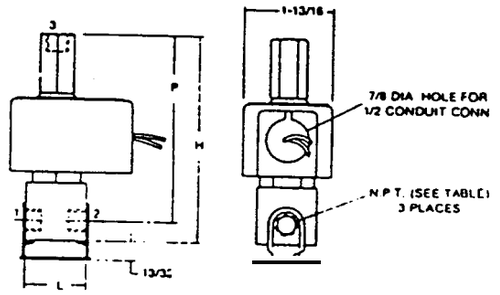
Many optional electrical and construction features are available, refer to Optional Feature Section.

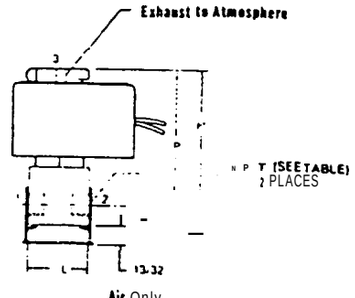
ORDERING INFORMATION

IMPORTANT: We must have CATALOG NUMBER, VOLTAGE and HERTZ, operating pressure and fluid handled. Use strainers with solenoid valves.

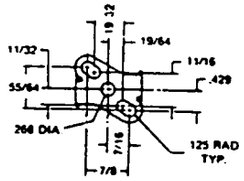
DIMENSIONS (in inches)

(Watertight and Explosion-Proof Solenoid Dimensions available on request.)



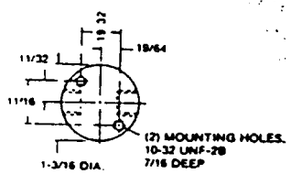


Air Only Construction



Mounting Bracket Standard
¼" N.P.T. Size Only

	Pipe Size	L	H	P
Air Only Construction	⅛	1 3/16	3 29/32	3 5/16
	¼	1 ¼	4 ¼	3 27/32
	⅛	1 3/16	3	2 21/32
	¼	1 ¼	3 5/16	2 25/32



Mounting Detail
⅛" N.P.T. Size Only

FLOW DIAGRAMS

UNIVERSAL CONSTRUCTION
Pressure at any Port

0

$

NORMALLY CLOSED CONSTRUCTION
Pressure at 2

NORMALLY CLOSED CONSTRUCTION
Air Only
Valve Vents to Atmosphere
Pressure at 2

NORMALLY OPEN CONSTRUCTION
Pressure at 3

Seal Data

This appendix includes the data collected on seals during the pilot project in Pelly Bay.

All weights are listed in pounds. Decimal weights are tenths of a pound.

Seals are listed by the number which was assigned to the seal upon receipt at the plant.

This data is summarized on page 24 of the report.

Sea No.	Sex	Penis Bone	Carcass	Meat for Human	Liver	Heart	Kidney	Meat for An	Bones	Skin Weight	Blubber Weigh	Blubber & Skin	Total Weight
S3 #2	M	.05	49	5	3.1	.66	.48	25	14	5.75	35	38	87
S3 #4	M	.05	70	8	3.30	1	.49	29	25	9.25	59.75	69	139
S1 #1	M	.02	60	6	2.42	.89	.44	28	19	6.00	24	30	90
S3 #11	F		66	8	2.58	.66	.49	29	19	5.75	36	62	128
S3 #12	M	.03	70	8	3.68	1.45	.55	28	23	10.25	46	R.T.	126
S9 #2	M	.06	85	8	3.36	.89	.61	43	20	11.25	51	R.T.	147
S3 #7	M	.09	105	11	3.83	1.03	.70	47	33	10.75	73	R.T.	189.
S3 #9	F		56	4	2.22	.64	.44	27	14	4.5	32	53	93
S4 #1	M	.03	42	5	1.83	.5	.3	17	13	4.5	24	R.T.	71''
S3 #5	M	.03	53	6	2.3	.69	.53	28	14	5.25	25	R.T.	83
S3 #6	F		75	8	1.99	1.06	.64	37	20	9.25	53	.	137
S8 #4	F		74	7	3.82	.82	.57	41	17 12		45	R.T.	131
A30 #9	F		53	6	2.83	.4	.4	24	17	9.	49	R.T.	111
S9 #1	F		59	9	1.72	.96	.63	30	19	19	79	R.T.	157

Seal No.	Sex	Pen	Carcass	Meat for Human	Liver	Heart	Kidney	Meat for Animal	Bones	Skin Weight	Blubber Weight	Blubber & Skin	Total Weight
A23 #11	F		54	7	2.6	.49	.38	26	17	9	34	R.T.	97
A21 #2	F		37	5	2.01	.43	.35	17	12	7	24	R.T.	68
S20 #13	M	.33	62.	17	2.87	.55	.43	19	19			46	108
S20 #10	M	.29	92	26	3.86	.68	.57	31	25			71	163
S20 #15	M	.02	69	14	9.06	.55	.49	21	23			49	118
S21 #18	F		55	9	2.73	.55	.44	26	14			47	102
S20 #16	F		71	13	4.06	.68	.71	23	25			55	126
S20 #3	M	.03	69	17	2.31	.68	.66	32	22			53	122
S20 #17	M	.04	65	13	2.91	.64	.46	27	17			47	112
S20 #9	M	.11	77	12	2.91	.73	.57	29	28			54	131
S20 #12	F		37	8	1.83	.46	.31	I-2	12			28	65
S20 #14	M	.15	97	16	.93	3.20	.57	43	29			76	173
S20 #11	M	.09	62	13	3.42	.68	.57	27	14	"		48	110
A30 #16	M	.04	47	8	2.34	.5	.31	17	15			42	89
S20 #8	M	.18	92	23	2.95	.68	.66	38	22			76	168
S20 #7	M	.04	74	7	3.73	.88	.57	33	24			51	125
S20 #6	F	-	64	7	3.33	.77	.66	30	19			49	113

Seal No.	Sex	Penis Bone	Carcass	Meat for Human	Liver	Heart	Kidney	Meat for Animal	Bones	Skin Weight	Blubber Weight	Blubber & Skin	Total Weight
S20 #5	M	.04	68	7	3.46	.62	.53	31	23			46	114
S20 #1	M	.04	69	9	3.04	.97	.53	32	19			51	120
S20 #2	F		62	7	2.95	.60	.55	31	16			45	107
A30 #3	M	.02	37	3	1.79	.71	.31	15	13			31	68
A30 #10	M	.04	69	7	2.65	.88	.55	26	27			35	104
A30 #11	F		77	8	3.35	.93	.55	40	21			61	138
A30 #19	F		63	7	3.33	.75	.51	26	24			41	104
A30 #7	F		34	4	2.27	.64	.35	17	11			26	60
A30 #18	F		62	10	2.29	.68	.4o	22	23			51	113
S3 #10	M	.04	72	9	2.49	1.21	.51	33	22			52	124
A30 #5	F		36	3	2.0	.40	.31–	18	10			24	60
A30 #8	F		57	8	2.51	.66	.53	27	15			43	10(I
A30 #1	M	.03	65	8	3.01	.62	.52	32	19			50	115
A30 #15	**M**	**.03**	**47**	**6**	**1.84**	**.79**	**.46**	**17**	**19**			**35**	**8?**
A30 #4	F		49	5	2.12	.6.7	.38	25	13			42	9:
A30 #12	M	.05	51	8	3	.6	.5	22	15			40	9:
A30 #17	F	-	52	5	2.22	.53	.51	27	14			39	9?

Seal No.	Sex	Penis Bone	Carcass	Meat for Human	Liver	Heart	Kidney	Meat for Animal	Bones	Skin Weight	Blubber Weigh	Blubber & Skin	Total Weight
A23 #30	M	.06	79	9	2.56	1.1	.44	38	22			49	128
A30 #2	M	.04	67	10	2.8	.85	.53	28	20			50	117
A30 #21	**M**	**.02**	**74**	**7**	**3.34**	**.88**	**.59**	**37**	**20**			**64**	**138**
A30 #13	**F**		**46**	**7**	**2.56**	**.66**	**.51**	**29**	**19**			**28**	**74**
A30 #25	**M**	**.17**	**92**	**9**	**3.12**	**.86**	**.51**	**51**	**25**			**93**	**185**
A30 #6	M		30	4	1.4	.36	.38	19	12			13	43
A30 #30	M	.03	29	4	2.5	.63	.38	12	11			27	56
A #22	F		78	5	3.96	.7	.48	21				92	170
A30 #14	M	.03	58	4	2.56	.86	.51	26	25			36	94
S3 #3	F		55	5	1.73	.53	.49	24	20			41	96
A30 #32	M	.03	53	4	2.1	.41–	.35	13	10			24	55
A30 #20	**F**		**53**	**6**	**2.65**	**.67**	**.44**	**25**	**15**			**59**	**112**
S3 #8	**M**	**.02**	**34**	**4**	**2.04**	**.35**	**.36**	**14**	**10**	**-**		**20**	**54**
S3 #1	**F**		**45**	**4**	**2.43**	**.6**	**.44**	**19**	**15**			**32**	**77**
A30 #26	**M**	**.06**	**98**	**10**	**3.29**	**1.48**	**.82**	**46**	**31**			**82**	**180**
A30 #28	**M**	**.07**	**77**	**8**	**3.26**	**.75**	**.44**	**40**	**21**			**54**	**131**
#29	M	.14	78	7	3.37	.99	.48	40	27			82	160

Seal No.	Sex	Penis Bone	Carcass	Meat for Human	Liver	Heart	Kidney	Meat for Animal	Bones	Skin Weight	Blubber Weigh	Blubber & Skin	Total Weight
A30 #27	M	.06	95	12	4.36	1.10	.61	42	30			81	176
A30 #24	F		64	7	3.1	.68	.46	35	19			63	127
A30 #23	M	.02	50	6	2.11	.78	.46	23	17			40	90
S8 #1	M	.04	66	6	3.58	.67	.5	36	17			35	18
S8 #3	F		75	6	3.87	.97	.86	42	28			63	13
S8 #2	M	.17	106	12	4.53	.93	.68	62	27			102	20
A28 #25	M	.03	75	8	3.07	1.08	.65	39	21			43	1 1
A28 #20	F		48	6	2.39	.93	.44	19	17			36	8
#31	F		52	6	2.88	.7	.54	28	15			6 3	115
A28 #19	M		62	7	2.22	.77	.57	33	16			51	113
A28 #13	F		47	6	1.93	.64	.51	22	14			34	81
A28 #18	F		55	8	2.35	.85	.45	26	17			46	10
A28 #8	M	.02	49	5	2.54	.63	.49	25	14			33	8
A28 #17	F		86	8	3.45	.9	.59	45	23			80	16
A28 #22	M	.03	47	5	2.35	.61	.35	24	14			43	9
	M	.15	77	9	3.04	.9	.49	40	23			65	14
A28 #12	F	-	87	11	4.05	.96	.81	43	28			89	17

Seal No.	Sex	Penis Bone	Carcass	Meat for	Liver	Heart	Kidney	Meat for Anima	Bones	Skin Weight	Blubber Weigh	Blubber & Skin	Total We ght
A28 #16	F		43	6	1.8	.49	.35	19	13			39	82
A28 #9	M	.01	37	4	2.11	.53	.41	17	11			29	66
A24 #21	F		57	5	2.71	.83	.5	30	15			58	115
A26 #16	M	.02	53	5	2.92	.68	.49	26	15			35	88
A26 #22	M	.03	60	6	2.44	.98	.45	29	17			36	96
A28 #6	F		101	12	3.39	1.15	.73	50	27			84	185
#23	F		71	10	3.49	1.05	.67	36	27			60	131
A28 #26	M	.15	80	10	3.46	1.03	.59	38	25			64	144
#71	M	.16	124	16	5.83	1.76	1.68	62	34			87	211
A23 #31	M	.21	112	12	5.37	1.22	1	62	29			102	213
A28 #14	M	.03	46	5	2.63	.82	.45	23	14			36	82
A27 #7	F		39	5	2.4	.82	.38	14	14			33	72
A28 #5	F		56	5	3.35	.73	.52	30	16			45	101
#6	M	.03	43	5	2.33	.52	.39	21	8			26	69
	M	.04	47	6	2.08	.69	.35	22	12			38	85
A23 #17	M	.04	60	8	3.28	.6	.5	31	17			31	91
	M	_.04	71	8	2.85	.79	.44	34	23			62	133

Seal No.	Sex	Penis Bone	Carcass	Meat for Human	Liver	Heart	Kidney	Meat for Animal	Bones	Skin Weight	Blubber Weight	Blubber & Skin	Total Weight
A28 #1	M	.13	87	9	3.49	.72	.63	50	22			81	168
A23 #19	M	.07	71	8	2.32	.9	.46	41	18			63	134
A28 #18	F		71	8	3.17	.82	.62	38	19			62	133
423 #10	F		49	7	3.02	.64	.51	21	16			34	83
428 #3	F		54	7	2.43	.88	.47	26	18			44	98
A23 #15	F		60	8	3.18	1.17	.65	33	18			49	109
	M		33	3	1.98	.55	.41	18	12			29	62
A26 #14	M	.02	44	6	2.17	.52	.43	21	14			39	83
A23 #12	M	.04	50	4	2.95	.7	.45	25	15			41	9
A23 #16	M	.02	52	6	2.32	.58	.43	28	14			33	85
A28 #15	F		76	8	2.73	.65	.48	42	19			66	142
A23 #13	M	.09	77	11	3.75	.8	.53	36	23			66	143
A26 #20	F		73	9	2.36	.74	.43	35	23			56	129
A23 #24	F		64	7	2.84	.65	.48	34	18			51	115
A23 #14	M	.14	100	11	3.71	.85	.64	62	26			93.	193
	F		48	5	2.41	.82	.47	23	17			41	89
A28 #2	M	.04	46	4	2.25	1.16	.5	20	15			36	82

Seal No.	Sex	Penis Bone	Carcass	Meat for Humar	Liver	Heart	Kidney	Meat for Anima	Bones	Skin Weight	Blubber Weigh	Blubber & Skin	Total Weight
A25 #13	M	.02	53	7	2.67	.68	.49	27	15			36	89
A25 #25	F		47	5	2.26	.44	.37	23	13			40	87
A26 #5	F		45	5	2.24	.54	.33	22	12			35	80
A26 #10	F		75	8	3.94	.92	.77	40	24			92	167
A28 #4	F		51	5	2.2	.71	.47	23	16	.		31	82
A24 #30	M	.03	48	6	2.04	.41	.38	22	16			34	82
A26 #12	M	.05	59	6	2.56	.57	.41	25	18			29	88
A23 #28	F		73	9	2.46	.48	.43	42	19			71	144
A26 #13	M	.1	81	10	2.51	.97	.5	44	22			50	131
A26 #8	F		57	6	2.52	.76	.45	27	19			44	101
A26 #9	F		–70	8	2.75	.78	.5	34	21			65	135
A26 #1	F		74	8	3.13	.64	.57	41	21			73	147
A25 #23	M	.17	74	10	2.17	.63	.48	32	26	“		73	147
A26 #17	M	.15	73	9	3.01	.57	.53	42	24			86	159
A25 #24	F		80	9	2.73	.58	.57	38	25			76	156
A26 #11	M	.16	100	9	3.95	.82	.64	56	32			96	196
A26 #21	M	.12	107	12	4.22	1.48	.7	62	33			109	216

Seal No.	Sex	Penis Bone	Carcass	Meat for Human	Liver	Heart	Kidney	Meat for Animal	Bones	Skin Weight	Blubber Weigh	Blubber & Skin	Total Weight
A23 #29	M	.18	111	13	3.65	.79	.6	66	29			124	235
#30	M	.19	79	10	2.11	.89	.5	36	28			53	132
#18	M	.09	71	9	3.32	.61	.57	42	20			76	147
	F		86	10	3.2	.75	.64	46	22			51	137
#19	F		36	5	1.44	.5	.37	16	12			35	71
A25 #17	F		46	6	2.23	.65	.43	22	12			43	89
A26 #3	F		42	5	1.48	.59	.34	21	14			33	75
A26 #7	F		42	4	2.4	.59	.48	20	13			36	78
A26 #16	F		49	6	2.38	.63	.4	22	14			35	84
A25 #18	M	.03	68	7	2.86	1.10	.58	35	20			51	119
A25 #12	M	.02	32	3	1.71	.57	.32	14	11			27	59
A24 #18	F		96	12	4.24	1.11	.82	46	29			95	191
A24 #26	M	.15	75	9	2.96	.81	.46	36	25			49	124
A24 #8	F		85	11	3.29	1.07	.73	39	30			78	163
A24 #29	F		77	9	3.07	.69	.59	42	21			66	143
A25 #2	F		61	9	2.24	.77	.48	24	23			48	109
A25 #26	F		91	10	2.65	1.06	.59	50	25			76	167

	Sex	Penis Bone	Carcass	Meat for Human	Liver	Heart	Kidney	Meat for Animals	Bones	Skin Weight	Blubber Weight	Blubber & Skin	Total Weight
5 1	M	.06	91	7	2.93	.67	.75	33	25			63	154
5 0	F		4E	6	2.27	.58	.46	23	15			44	90
4 4	F		3E	4	1.95	.45	.31	19	11			27	65
5	F		7 -	8	2.64	.71	.58	40	25			50	127
26 1	F		7	8	2.85	.68	.70	43	21			69	147
24 27	M	.03	4-	5	2.5	.44	.37	21	15			37	81
24 25	F		4	6	2.13	.57	.46	24	14			43	90
25 22	F		7 -	9	2.9	.65	.56	39	26			76	149
,23 '5	M	.03	4	6	2.02	.49	.39	22	13			45	87
\24 #17	F		9	11	3.28	.7	.59	55	36			103	202
\24 #25	M	.02	6	7	2.84	1.06	.54	30	19			51	112
\25 #27	M	.17	9	13	4.23	.77	.9	52	27			85	181
425 #4	M	.03	4	6	2.11	.63	.36	23	16			35	83
	M	.02	4	7	1.93	.45	.36	21	13			30	73
A24 #14	M	.03	62	5	1.63	.61	.4	36		17		39	101
A24 #22	F		60	7	2.88	.79	.49	30	18			43	103
A29 #3	F		67	8	2.71	.49	.47	38	17			58	125

Seal No.	Sex	Penis Bone	Carcass	Meat for Human	Liver	Heart	Kidney	Meat for Animal	Bones	Skin Weight	Blubber Weight	Blubber & Skin	Total Weight
A25 #10	F		60	6	2.83	1.04	.46	29	16			51	111
#10	M		41	6	1.9	.61	.37	16	13			30	71
A24 #31	F		79	10	2.96	.82	.56	42	22			77	156
A24 #20	F		42	4	1.68	.42	.35	22	14			37	79
A24 #10	M	.05	71	10	2.96	.96	.44	34	24			37	108
#3	M	.04	59	10	2.15	.6	.45	29	17			43	102
A25 #9	F		63	7	3.1	1.63	.5	28	22			43	106
A24 #13	M	.06	65	10	3.01	.57	.45	40	20			46	111
A25 #16	M	.03	69	9	3.33	.94	.54	35	20			54	123
#21	M	.05	73	11	2.5	.59	.51	36	22			72	145
A25 #8	M	—	46	7	1.94	.61	.35	21	14			30	76
#19	M	.10	98	14	4.26	.85	.64	47	29			103	201
A24 #9	M		78	8	3.72	.71	.64	33	32	"		34	112
A24 #7	M	.10	57	7	2.13	.66	.5	27	21			49	106
A28 #4	M	.01	45	5	2.33	.66	.42	22	14			31	76
A24 #22	F		63	8	2.78	.64	.53	31	16			43	106
A24 #1	M	.03	59	7	2.89	.72	.72	28	16			39	98

Seal No.	Sex	Penis Bone	Carcass	Meat for Human	Liver	Heart	Kidney	Meat for Animal	Bones	Skin Weight	Blubber Weigh	Blubber & Skin	Total Weight
A22 #15	M	.03	45	5	2.38	.54	.38	20	16			34	79
A22 #13	M	.05	45	7	2.68	.76	.43	19	17			33	78
A22 #19	M	.03	56	9	2.94	.77	.50	25	19			63	119
A22 #16	M	.03	52	6	2.59	.89	.69	26	19			53	105
A22 #12	M	.02	51	7	2.05	.51	.41	24	17			37	88
A22 #20	M	.03	56	9	2.81	.76	.46	27	18			48	104
A22 #29	F		54	10	2.11	.55	.38	27	16			42	96
A22 #11	M	.02	68	7	3.33	.77	.63	31	27			64	132
A22 #17	M	.07	69	9	3.87	.71	.63	34	19			51	120
A22 #21	M	.09	68	9	3.09	.93	.48	35	19			68	136
A22 #31	M	.02	38	4	1.76	.58	.44	17	15			38	176
A22 #22	M	.03	44	8	2.51	.66	.43	18	16			38	82
A22 #24	F		50	7	2.63	.52	.38	25	14			42	92
A23 #25	M	.15	90	10	4.36	1.51	.75	43	31			90	180
A22 #27	F		54	8	2.3	.48	.49	25	16			41	95
A23 #20	M	.03	49	7	2.5	.71	.35	21	18			39	88
A22 #14	M	.04	59	8	2.62	.54	.59	29	19			68	127

Seal No.	Sex	Penis Bone	Carcass	Meat for Human	Liver	Heart	Kidney	Meat for Animal	Bones	Skin Weight	Blubber Weigh	ubber & Skin	Total Weight
A23 #9	M	.13	78	11	3.52	.76	.61	42	22			63	141
A23 #4	M	.04	93	9	2.13	1.32	.71	35	40			73	166
	M	.21	135	22	3.82	1.09	.98	70	37			112	247
A22 #10	F		32	4	1.39	.37	.29	13	12			29	61
A21 #4	F		37	4	1.78	.34	.28	16	16			29	6[illegible]
A22 #4	F		52	5	1.79	.67	.37	26	20			35	153
A23 #27	F		75	10	3.16	.77	.62	29	31			55	13[illegible]
A22 #9	F		73	7	3.35	.67	.52	33	27			55	1 2[illegible]
A21 #5	M	.05	48	7	2.79	.35	.32	24	13			35	83.
A21 #1	M	.05	53	6	2.64	.55	.44	26	20			46	99
A21 #3	M	.13	73	12	3.36	.7	.47	37	21			64	137
A22 #3	F		75	8	2.88	.72	.56	34	23			52	127
	F		64	8	2.63	.48	.44	32	20			51	115
A22 #8	M	.2	108	15	4.62	.9	.59	50	40			88	196
A22 #6	F		77	11	“4.1	.62	.50	39	28			97	174
A21 #6	F		58	9	2.41	.43	.45	30	18			55	113
A21 #7	M	.11	66	10	3.16	.7	.51	32	29			65	131

Seal No.	Sex	Penis Bone	Carcass	Meat for Humans	Liver	Heart	Kidney	Meat for Animal	Bones	Skin Weight	Blubber Weight	Blubber & Skin	Total Weight
A22 #26	M	.06	65	7	3.47	.66	.58	32	20			67	132
A22 #30	M	.06	54	8	2.46	.79	.55	27	15			49	103
A22 #23	F		69	9	3.05	.81	.61	28	17			41	110
A22 #18	F		71	9	2.58	.59	.76	34	23			70	141
A22 #25	M	.07	77	10	2.72	.64	.58	39	23			71	148
A22 #32	F		93	12	4.1	.88	.77	51	23			68	161
A22 #33	M	.06	81	10	3.32	.89	.56	44	23			71	152
A22 #20	M	.10	63	9	3.68	.81	.63	32	24			48	111
A22 #28	M	.15	91	12	3.24	.75	.57	49	29			96	187
A23 #21	M	.19	133	15	6.11	1.0	.92	72	40			95	228

A REPORT ON A

SEAL OIL RENDERING PROJECT

CONDUCTED IN PELLY BAY, NWT

DATES: JULY 4, 1987 to OCTOBER 31, 1988

INDEX

Appendices

" INTRODUCTION

In February 1987 the Canadian Government through the Department of Indian and Inuit Affairs requested the Inuit Tapirisat of Canada to conduct an inquiry among Inuit hunters, to advise Government as to how it could best implement the recommendations of the Malouf Commission.

The Inuit Tapirisat formed a working group on the Inuit seal economy.

On June 17, 1987 a meeting of the working group instructed Koomiut Co-operative to proceed with a pilot project related to alternative uses to the products of the seal and to apply to the Eskimo Loans fund for a contribution-to cover the costs of the project.

The immediate objective of the pilot project was to test the feasibility of burning seal oil in a conventional furnace and to produce hard data which can be used in determining the economic viability of a seal blubber rendering operation. The overall objective of the pilot project was related to the development of alternative economic activities related to the seal. As such the overall objective of the project was to investigate the possibility of using the entire seal with the exception of the skins which were to be used by Amiq Leather for leather products.

The oil and fat were to be used for heating fuel, the blubber residue to be packaged for animal food, along with the lesser quality meat, bones and viscera, and the better quality meat to be used for human consumption.

The pilot project began in Pelly Bay in the summer of 1987. The following is a report on the results of the project.

Seal Harvesting

Based on information obtained from hunters in Pelly Bay it was assumed that the optimum harvesting season for seals in the region was between the middle of July and the middle of October. As the project did not begin to take seals until mid-August, it was not possible to verify the beginning of the sealing season. It was discovered, however, that the number of seals harvested dropped off dramatically at the beginning of September with the last seal being delivered on September 20. The pilot project proposed to take 1,000 seals. In fact, only 249 seals were harvested. It is thought that the main reason for the low number of seals harvested is due to the late start of the project. Of the 249 seals taken by the project, 216 were taken in the period between August 21 and August 31 while only 33 were received in September.

While the sharp decline in the numbers of seals harvested, and the apparently premature end of the sealing season was a matter of curiosity and speculation among the local hunters, no specific explanation was unanimously agreed upon. The poor weather conditions, characterized by overcast skies and strong winds, seemed to be the most often suggested reason for the poor hunting results. This cannot be the sole reason however, because there were several clear, calm days in September when no seals were caught. It should be noted that some seals were being taken in September but with the dwindling supplies

of seals available, people were keeping a greater percentage of them to be cached for use as winter dog food.

By mid-October ice had formed on the nearby Kugaardjug River and had begun forming on the bay, effectively ending seal hunting until winter. People increasingly began to turn their attention to hunting caribou and fishing inland lakes and rivers for char.

Another factor that likely had an effect on the number of seals taken was the commencement of adult education classes in early September. This attracted approximately 25 students, most of whom were young adult males, who attended classes during regular school hours. It is precisely this age group that provided the-majority of hunters. To estimate the effect the temporary removal of these potential hunters had on the seal harvest is difficult and speculative but it is reasonably safe to assume that their participation would have increased the harvest of seals somewhat.

Whatever the reason for the small number of seals taken, it is worth noting that in 1988 seals in the area were still plentiful as late as October 15.

During discussions with hunters throughout the duration of the project it became apparent that in order to ensure that the quota of seals is fulfilled, the processing plant should be prepared to start accepting seals by the middle of June. This date should be considered only tentatively until two important factors are weighed. Firstly, seals caught before the middle of August are more likely to have a thinner layer of blubber on them than those caught later. This thinner layer of blubber will produce less oil when rendered thus reducing the economic value of the seal. Secondly, the diminished layer of blubber reduces the buoyancy of the seal resulting in significant losses due to sinking and a greater number of holes in the pelt caused by the increased use of harpoons to prevent their loss. There is an added danger here that the project may be perceived as wasteful by the media and the community, an image opposite the one desired by the involved parties. These factors should be considered, before the decision of when to begin the project is made.

It should be noted here that the majority of the seals processed at the plant were ringed seals. Bearded seals, sometimes reaching 8½ feet in length, were much rarer and highly valued by the Inuit for their more durable hides used in the making of kamiks and ropes. For the $15 the hunters received per seal delivered, it was economically rational for them to keep these seals for themselves.

Most hunting took place during the weekends and after work. The seals were usually dropped off at the plant at night when the hunters returned or at- the end of the weekend when the whole family returned. The hunters were requested to deliver only intact seals and as fresh as practical. While all seals processed at the plant were intact, not all were as fresh as they could be.

Labour

Community enthusiasm and support for the project remained quite high throughout its duration in spite of delays in the arrival of essential equipment. This support was not so readily apparent in relation to the recruitment and maintenance of a stable and reliable workforce. While there was little

problem recruiting the first group of butchers, subsequent replacement workers were sometimes difficult to locate. On one occasion, three butchers and a temporary interpreter resigned on the same day, leaving production at a standstill until new workers were hired. the reasons cited by these particular employees were that the pay was too low and the work too hard. At eight dollars per hour, the project was paying more than the average wage paid by the co-operative and the same wage as a construction project paid its manual labourers. In relation to other wages in Pelly Bay, the project was competitive.

In fairness to the workers, the work was often arduous and sporadic. As many as 33 seals (average weight 118 lbs.) would be processed in a single day. Throughout the entire butchering process, a seal and the various component parts would be lifted and carried at least seven times. While this was dirty, back-breaking work, the speed and efficiency of the butchers was impressive. A carcass could be separated from its blubber and skin in less than twenty minutes by an experienced butcher. An unfrozen carcass could be butchered in less than forty minutes. It is felt that a proper facility as outlined in Appendix I is essential and will overcome most of the difficulties mentioned.

The best butchers proved to be older hunters who usually spoke only Inuktitut. They proved to be better in terms of reliability, speed, efficiency and maintaining a relatively standard percentage of the various component parts (i.e. approximately 50%of the gross weight of the seal is dog food). Younger butchers had less experience with the anatomy of seals, took significantly longer to butcher the seals, exhibited greater variation in the relative proportions of the component parts butchered.

Other factors affecting labour supply include an unusually high number of alternative employment opportunities in the community during the time the project was operating in the summer and fall. This, combined with the sporadic nature of the work at the plant, led several butchers to accept other employment when the opportunity arose. As well, the commencement of adult education classes attracted many potential workers.

The interior of the plant lacked sufficient space, drainage and ventilation for butchering to be conducted indoors. Two open structures were built that could be used for storing vehicles. These structures were also used to shelter the butchering areas during poor weather. However, during very poor weather the shelters proved to be less than successful, increasing the discomfort of the workers and reducing productivity.

The facility used in Pelly Bay for this project was an old fish processing plant. A plant designed especially for the purpose of processing seals would make the work much easier and therefore eliminate many of the problems encountered. Alternative uses for the plant such as processing char and caribou should also be considered.

It should be noted here that the suggested pay of $5 to have each seal skin stretched, scraped and dired prove to be far too low to attract the necessary number of interested parties. Initial responses from the co-operative's board of directors, the president of the Hunters and Trappers Association, and various other individuals indicated that it would be very difficult to recruit people to do this work at that wage. When the pay was raised to $10 there was

no problem in processing the first run of twelve skins. When asked if they would be willing to do more skins, the two women were reluctant to commit themselves. The two women provided their own plywood, nails and ulus, and dired the skins near their homes. They indicated that there was no problem in their supplying the necessary materials although this would become unlikely on a larger scale.

Due to the lack of a sufficient number of clear, warm days during the drying period, the skins had not dried after being left outside from September 10 to September 23. They were eventually brought inside the plant to finish drying but the lack of sufficient space within the plant prohibited the drying of skins indoors on any large scale.

It should be noted that if a small tannery existed in the same community this would eliminate the need to stretch and dry skins. A defleshing machine would eliminate the need to scrape & clean skins. Once defleshed the skins could be tanned immediately.

The need for a defleshing machine is also heightened by the fact that Amiq wishes to tan the skins and use them with the hair off.

If the skin is used with the hair on any small cuts will be hidden by the hair. With the hair off the smallest cut will result in a large area of damage when the skin is tanned. This severely limits the uses of the tanned skin.

In spite of extreme caution exercised by the people in Pelly when scraping the skins, Amiq reported a large number of cuts per skin.

Recommendations

1. Pose initial employment offers to older, more experienced hunters. While proving to be the most efficient and knowledgeable butchers, other employment opportunities are scarce for them and they provide important role models for the younger generation. Recommendations of employees can be made by the Hunters and Trappers Association, the co-operative's board of directors, etc.

2. Women should be considered for positions not involving heavy lifting. The few women who worked in this project proved to be good butchers and hard workers.

3. The processing system and plant design should focus on reducing the amount of heavy lifting to a bare minimum. This would have a double effect of reducing the strain on the employees while boosting productivity and reducing wage costs. (A proposed plant layout is included in this report, see Appendix I).

4. The plant manager should bear in mind that most of the seals will be delivered on the weekend and work schedules should be planned accordingly. It proved to be advantageous to schedule less important tasks on weekdays while keeping the weekend open for butchering.

5. A defleshing machine should be included in the plant equipment.

   If the cleaning, drying & stretching of skins is done by hand the remuneration should be at least $10.00 per skin.

6. Facilities for the drying of skins should be arranged if there is to be any significant drying of skins after the first week in September. The weather in July and August in the Pelly Bay region should prove to be adequate for drying skins outdoors. The dried skins should be stored in a cool, dry area with some ventilation.

7. The labour costs incurred during the project do not reflect the true costs . "Many inefficiencies were apparent due to a variety of reasons.

8. A final recommendation is for the plant manager to encourage the employees to voice their suggestions and ideas on how to handle certain problems and to improve efficiency. Such suggestions often proved valuable and innovative.

Seals as Food for Human and Animal Consumption

One of the main objectives of this project was to collect hard data on the quantity of seal meat, viscera and bones that was to be sold as human and animal food. During the butchering process, careful records were kept of the weights and numbers of the various component parts of the seals.

To determine exactly what portions of seal meat should be sold as human food, consultations were conducted with a variety of individuals and groups, including the Koomiut Co-operative's board of directors, personnel at Arctic Co-operatives Limited in Winnipeg, the manager of the Koomiut Co-operative and the people of Pelly Bay. Initial research indicated that virtually all seal meat and most of the viscera was consumed traditionally by the Inuit. The diversion of all potential meat for human consumption would have proven impractical for two reasons. Firstly, early discussions indicated that the market for seal meat may be quite limited in Pelly Bay as there is usually fresh seals available in the area and the people value hunting as an integral part of their culture as well as being important economically and nutritionally. It would be unlikely that much seal meat would be sold when fresh ones were so readily available. Secondly, there would have been a shortage of suitable plastic containers in which to store the meat, and storage space in the community freezer had become scarce. It was decided that considering these factors, it would be wise to choose only the best parts of the seal for human consumption. These included the meat from the hips and shoulders, the heart, kidneys and the liver.

The seals were usually delivered to the plant in the evening when hunters were returning to their homes. Often the carcasses would not be butchered but instead, placed in the freezer until the following day. This period between the demise of the seal and its eventual freezing proved to be too long in terms of preserving the liver. On the suggestion of one of the elder butchers, the livers of several seals were closely inspected and found to have developed an unhealthy colour and smell. While not all of the livers were found to be bad, it was considered best to include them in the dog food. Any adverse publicity attached to the project due to someone consuming fouled liver would prove disastrous.

Seal Meat for Human Consumption

It is estimated that of the 31 lbs. of meat that can be derived from the average seal, a full 50% of this could easily be diverted for human consumption with little drop in the quality of the meat. In particular, the meat covering the body is of good quality, has little fat and is easily removed from the carcass. This meat can act as a reserve to be drawn from when the market for seal meat allows it. The importance of this reserve is discussed further below.

After soliciting the opinions of the co-operative's board of directors, the manager of the co-operative, and various individuals within the community, the retail price of this seal meat was set at $3 per lb. This price was decided upon with consideration of the prices of imported foods in mind and may prove to be a little high but it will be easier to lower the price if this proves to be the case than to raise it if the price proves to be too low.

The local demand for seal meat will likely peak in the mid-to-late winter when supplies of stored caribou and char begin to run low and extreme weather conditions will deter some people from hunting seals on the ice.

During the length of this project no seal meat was sold for human consumption due to the late arrival of the necessary scales for data collection and the relative abundance of alternate country foods such as caribou and char which seem to rate higher on the list of preferred Inuit foods. It should also be noted that caribou and char as well as seal meat are free when available, and that the seal meat from the project was available at $3 per lb.

At a later date, when the meat could have been sold, it had suffered freezer burn due to inadequate packaging and was no longer edible.

An additional deterrent to the sale of seal meat for human consumption was the condition of the plant itself. To say it did not meet health regulations is an understatement and everyone in Pelly Bay was aware of the unsanitary conditions.

Therefore, even the meat which was intended for human consumption was sold as dog food.

The market for seal meat in Pelly Bay is a limited one for reasons explained above. Other arctic communities with large Inuit populations and limited supplies of seals should be explored for potential markets. Taking advantage of underutilized cargo space on charter and regular scheduled flights between such settlements would reduce the costs and complications of such intersettlement trade.

Although there is an ongoing debate in the north concerning the potential of increasing the market for country foods throughout the north and into southern markets, seal meat will have a difficult time capturing a share of the non-Inuit market. The novelty of the product, the adverse effect of the publicity campaign against seal hunting conducted by the animal-rights movement and the strong, distinctive flavour of the meat will have a limiting effect on attempts to penetrate the southern market. This is not to deny the possibility of expanding the market for seal meat, but rather to suggest some of the problems likely to be encountered.

There is some potential for the marketing of some specialty items to specific markets. Seal flippers are a relatively common feature on menus in Eastern Canada, particularly in Newfoundland. With the demise of the sealing industry there, a substantial demand for new sources of seal flippers may exist. Seal liver is generally acknowledged as the best part of the seal and may find a wider market in the non-Inuit population in the north and in specialty stores in the south.

Recommendations

1. A separate, easily sterilized butchering area is essential for the safe butchering of seal meat. This area should comply fully with health regulations particularly concerning sanitation factors, the use of stainless steel tables, cutting areas, sinks, adequate water supplies, drainage, lighting, ventilation, etc. (See section on recommended materials, page 34 of this report).

2. The containers for the sale of seal meat should be Styrofoam trays with clear cellophane covering to allow viewing of the product and maintain health standards.

3. The removal of livers should be done as quickly as possible to prevent the organ from going bad. The price of the liver should be increased to $4 per lb. to reflect its higher demand.

4. Other markets in the north and in southern Canada should be explored for their potential.

5. As the demand for seal meat increases, the better meat now used for dog food should be utilized for human consumption. This will greatly increase the revenue for the project.

6. The butchers working for the project used their own knives and sharpeners and expressed their-preference for doing so.

Seal Meat for Animal Consumption

The sale of dog food provides an essential source of revenue for the project. As table 1 indicates, the average seal has 51 lbs. of potential dog food, excluding the amount of residue blubber from the rendering process. Included in the dog food is all the viscera (excluding the heart, kidneys and liver), the meat off the back, ribs and belly, the dismembered skeleton and the flippers. As mentioned above, much of the meat can easily be used for human consumption. The resulting mixture is a substantial, nutritious food the dogs eagerly devour. The food also acts as a catch-all for the rest of the seal processing ensuring that nothing at all goes to waste.

The original price for the dog food was set at 50¢ per pound. This was based on the understanding that the bones would be crushed and included to provide calcium and the blubber residue was to provide protein. The bone crusher was eventually cancelled due to delay in delivery and the nonfunction of the oil extraction equipment meant that there was no blubber residue. Large pieces of bone were added to the dog food but many complained that the bone was being wasted. Therefore, the price was dropped to 25¢ per pound.

The initial response to the sale of dog food was enthusiastic. This is particularly encouraging when one considers the fact that people still had access to other sources of dog food such as their own seal caches and leftover scraps of caribou and char. The demand for dog food will increase sharply in the winter when alternative sources of dog food are not available and caches begin to run low. At this time a price of $1.00 per pound could probably be demanded.

There were no negative responses to the price of the dog food at 25¢ per lb. nor at 50¢ per lb. for the more processed food. A few people did suggest that they would prefer to have fewer bones included as they were often wasted.

It seems that the purchase of a bone crusher would be a worthwhile investment if the revenues from the sales of dog food can be so easily increased. The crusher should be able to render the food into a fine consistency with no large pieces of bone being left intact. Also, the ability to say in the future that the entire seal, including the bones is being used, will prove good public relations in view of the potential critics of the project.

The community of Pelly Bay will likely consume all of the dog food produced by the project this year and indeed, could consume much more. For other markets, communities with large Inuit populations, substantial dog populations, and limited access to seals and other sources of dog food would likely prove to be interested in purchasing such a product.

It was observed that there were ads in both Yellowknife and Iqaluit newspapers that solicited seal meat to be used for dog food. The market need not be limited to the predominantly Inuit communities. Northern Indian settlements may express an interest in securing another source of dog food for their dog teams.

On its own seal meat is recognized as more nutritious than beef. When the bone meal is added (high in calcium) and the blubber residue is added (high in protein), a very nutritious dog food is achieved.

Recommendations

1. The purchase of a bone crusher would be a worthwhile investment. It should meet with the requirements outlined above.

2. Containers for dog food should be able to hold at least 40 lbs. as this is the smallest amount usually requested. It would be advantageous if these containers were returnable. The use of a mold and garbage bags to package the dog food is another option.

3. While Pelly Bay will consume all of the dog food produced by the plant this year, other markets should be explored.

Seal Oil Extraction

Prior to the establishment of the working group on the Inuit seal economy, Koomiut Co-operative in Pelly Bay had engaged an engineering firm to investigate the feasibility of burning seal oil in a conventional oil furnace. The investigation concluded that such a proposition was technically feasible and that an experimental project should be carried out.

The approach attempted in the pilot project in Pelly Bay was largely based on recommendations found in the aforementioned study. The study indicates that exposure to air, heat, or metal for any length of time would cause the oil to oxidize and should be avoided.

Three basic approaches were used in Pelly to extract the oil from the blubber: (a) rendering, (b) grinding, (c) pressing.

(a) Rendering

The rendering apparatus consisted of a fine screen suspended into a metal drum. The screen occupied the top half of the drum while the bottom half of the drum was to serve as a holding tank. The drum was located approximately 2' above the floor and equipped with a tap at the bottom. This would pennit the oil to be drained from the drum into another container.

The theory being tested was that blubber laid on the screen at room temperature would render out its oil. The oil would pass through the screen being filtered in the process. Clean oil would accumulate in the bottom portion of the drum. From here it could be drained off into another container and removed from the area.

Test #1:
A large piece of blubber was laid on the screen. Room temperature was 68°F. The results were observed every hour for 5 hours. After 5 hours a very small amount of oil had collected on the screen and in pockets in the blubber. However, no oil had filtered through the screen. .

Test #2:
This test was essentially a repeat of test #1. However, in this test the blubber was cut into small pieces, approximately 1" cubes. Room temperature was 68°F. The rendering was observed every hour for 5 hours. The results after 5 hours were the same as test #1. A small amount of oil had collected on the screen but did not pass through the screen.

Test #3:
This test was essentially the same as test #2. However, this time the blubber was agitated every half hour for 10 seconds. This produced 250 ml of light brown oil.

Test #4:
This test was essentially the same as test #3 but a large amount of blubber was used; 58 lbs. of blubber in 1" cubes were placed on the screen for 5 hours at 70°F. Agitation occurred every half hour for 10

seconds. After 5 hours a total of 3.6 L of oil was produced. The oil was clear, light brown in color and contained a white cloudy particulate.

Observation: The rendering process indicated that this process of extracting the oil was too slow to be practical and this method was abandoned.

(b) Grinding

The grinding apparatus consisted of a large electric commercial meat grinder. The grinder was mounted above the drum used in the rendering method. "

The theory being tested here was that when the blubber was passed through the grinder the oil and blubber would be separated. The ground blubber would collect on the screen while the oil would pass through into the bottom of the drum.

Test #1:
Approximately 40 lbs. of blubber was cut into pieces of an appropriate size to enter into the grinder. The process of cutting and feeding the blubber through the grinder took 2 hours. It was necessary to stop frequently to clean the blades and plates as the grinder would become plugged. Some of the blubber was tough and stringy and was very difficult to remove. Using various sizes of blades and plates made no improvement.

The grinding did not produce a blubber of hamburger-like consistency. Rather, it produced a very fluid substance of blubber and oil of a diluted milkshake consistency.

This substance collected on the screen. A small amount, 250 ml passed through the screen in the first hour. However, this fluid did not resemble oil. It looked the same as the substance on the screen..

This substance was allowed to sit on the screen overnight. By morning no further substance had passed through the screen. The color was now brown rather than pinkish white. At this point the substance was removed and the screen inspected. It was discovered that the screen was completely plugged.

Attempts were made to pass the substance through increasingly larger meshed screens. All became plugged until a large enough screen was used which allowed all the substance to pass through. No oil was obtained..

Conclusion: The grinding method was not practical and this approach was abandoned.

c) Pressing

Pressing the blubber is based on the theory that if the blubber is collapsed to a paper-thin film the oil will be forced out of the blubber.

Test #1

In this test a 1" cube of blubber was placed between two pieces of wood . Approximately 150 lbs. pressure was applied to the top piece of wood . After the 2 pieces of wood were separated it was observed that the blubber now covered a large area, approximately 6" in diameter. Both pieces of wood were soaked with oil. Apparently, all the oil had been extracted from the blubber.

Conclusion: Oil can be successfully extracted from the blubber through the application of pressure. The pressure required is about 150 lbs. per cubic inch of blubber.

At this time it was decided that a mechanism must be found which could:

a) apply high pressure to the blubber,
b) collect the oil when the pressure is applied, and
c) separate the blubber residue from the oil after the pressure has been removed.

The first apparatus used to press blubber was a small grape press. It consisted of a V-shaped container where the blubber was introduced into the press. The blubber would slide down one side of the V to the bottom of the container. At the bottom of the V container is a cylinder approximately 15" long and 3" in diameter. The cylinder is equipped with small spikes. The cylinder is turned by means of a manual crank. When the crank is turned the spikes grab the blubber and force it past a metal bar. The bar is groved to offset the metal spikes on the cylinder. The metal bar is adjustable which permits the operator to adjust the pressure which is applied to the blubber as it passes between the cylinder and the bar.

This press was located on top of the rendering drum used in the first tests. This would allow the oil to be pressed out of the blubber and pass through the screen in the drum below while the blubber residue would collect on the screen.

Test #1:
48 lbs. of blubber were cut into strips of approximately 1½" x 1½" and of various lengths. The press was set to apply the least possible amount of pressure. It took 2 men 20 minutes to run the slices of blubber through the press. A lot of effort was required to force the blubber through the press especially in areas where the blubber was cut a little thicker.

A substantial amount of fluid was extracted from the blubber. In a short time the blubber residue had blocked the screen and the oil collected on the screen. It was evident that there was still some oil remaining in the blubber. Approximately 750 ml of oil were extracted by the press. The blubber was allowed to sit for 5 hours which produced an additional 1,250 ml. In total, 2 L of oil were obtained. The oil was light brown in color and contained a large amount of sediment as well as a cloudy substance suspended in the oil. When the screen was inspected it was discovered to be clogged with blubber.

Test #2:
This test was identical to test #1. However, in this test the blubber on the screen was agitated every half hour for 10 seconds over a period of 5 hours. After 5 hours a total of 3.5 L of oil was produced. The blubber was then left to drain over night. An additional 1.5 L of oil was produced for a total of 5 L. The oil was light brown in color, cloudy, with dark sedimentation.

Test #3:
This test was conducted with the press set to apply the greatest amount of pressure; 48 lbs. of blubber was cut into strips of 1½" x 1½" and of various lengths. Great force had to be applied to the crank to force the blubber-through the press and it took 2 men approximately 30 minutes to complete the process. Under the higher setting a significantly greater amount of oil was produced, approximately 5 L; allowed to render for an additional 5 hours produced 2 more L for a total of 7 L. This oil was light brown in color, very cloudy and contained dark sediment. It was apparent that there was still oil remaining in the blubber residue. Upon inspecting the screen it was found to be plugged with blubber.

Observation: The apparatus used in the above tests made it impossible to obtain accurate readings on the amount of oil being produced. Once enough blubber residue had collected on the screen, no further oil would pass through the screen. The screen would then have to be removed and the oil and blubber residue would be dumped together into the collection drum. This means that the blubber residue, when removed from the oil, would be soaked with oil.

The following test was conducted to try to obtain a reading of the total amount of oil which could be obtained from the average size seal.

Test #4:
44 lbs. of blubber (the average blubber weight of a seal) was cut as in the previous tests.

In this test a bed sheet was placed in the collection drum instead of the metal screen.

The blubber was forced through the press and into the sheet. The sheet was then suspended above the drum. Pressure was applied to the blubber by spinning the sheet and blubber. As the bundle turned, the sheet began to tighten, constricting the blubber and forcing the oil out. The pressure was applied for 15 minutes. The total amount of oil extracted by pressing and constricting the blubber was 6 L. -

Now the entire process was "repeated. The blubber residue was reintroduced into the press. The oil and residue were collected in a sheet. The sheet was constricted in the same manner as in the first attempt. This time a total of 4 L of oil was obtained.

Through this process a total of 10 L of oil was obtained from 44 lbs. of blubber. While the volume of oil was encouraging the quality of the oil was not. The color of the oil was light brown. It contained a large amount of dark brown sediment and the oil was very cloudy.

Evaluation

While the project was late getting underway it came to an end on schedule. The project manager had previous commitments which obliged him to leave Pelly Bay by September 15, 1987.

On his way out of Pelly Bay he met with staff members of Arctic Co-operatives Limited who undertook to follow up on the project. Two days were spent discussing the problems encountered and many ideas were explored in terms of possible solutions.

This evaluation of the results obtained to date resulted in the following conclusions:

a) A screen is not a practical way to separate the blubber residue from the oil as the blubber residue creates a seal over the screen which blocks the oil from passing.

b) The oil obtained contains a large amount of sediment as well as a cloudy substance. While the sediment will eventually settle in the bottom of a container the cloudy substance does not. This was seen as an especially serious problem as a furnace nozzle contains an extremely fine filter screen.

c) The brown color of the oil is an indication that oxidization has already begun. The engineers study had indicated that the natural color for seal oil should be a straw-gold color. This meant that the process was taking too long and oxidization was being caused by excessive exposure to air.

d) Applying pressure to the blubber is probably the best means of extracting the oil. However, the present apparatus (a grape press) is not adequate. The percentage of oil being extracted is too low, too labour intensive, too time consuming and very hard work.

e) It was recognized that all testing to date was attempting to extract the oil from the blubber, separate the two and filter the oil all at the same time. It was felt that perhaps better progress could be made if at least the extraction and filtration processes could be separated and worked on individually.

As a result of the above evaluation the following plan of action would be followed:

a) ACL staff would search for a manufacturing firm in Winnipeg which would be prepared to design a press specifically designed for seal blubber.

b) Koomiut Co-operative would send some seal blubber to Winnipeg. This would allow testing of the press to make sure it was working satisfactorily before sending it to Pelly Bay.

c) Once the press was determined to be working satisfactorily it could be sent to Pelly Bay to process all the blubber.

d) Once a quantity of oil had been extracted some oil would be sent to Winnipeg. Attempts would be made to find a suitable filtration process in the south. Once a satisfactory process had been found it would be sent to Pelly Bay to filter the oil on hand.

e) Once a filtered oil had been obtained an attempt to burn the oil in a conventional furnace would be made at a properly equipped facility in Winnipeg.

When any burn problems had been overcome then the oil in Pelly Bay could be burnt.

Development of a Seal Oil Extractor Press

Prior to building such a unit it was necessary to determine how much pressure would be required to press a square foot of blubber with a thickness of 3 inches. Various tests indicated that about 5,000 lbs. would be required.

A Winnipeg company by the name of Tri-Star Metal Fabrications expressed a willingness to construct such a machine.

Discussions with their representative indicated that to develop this kind of force would require an hydraulic press. The largest hydraulic cylinder available off the shelf would only generate about 3,000 lbs. It was decided that for safety sake a machine would be built to accommodate a six inch square of blubber with a thickness of 3 inches.

This machine would require a 220V electric motor to operate the hydraulic pump. It would be equipped with a hydraulic control valve which would allow the operator to apply the pressure and then withdraw the press.

The press was designed as follows: a tray made of welded, heavy gauge cast iron 12 inches square and would be lined with Crystaplex and affixed with stainless steel countersunk bolts which would prevent the blubber from coming into contact with metal thus reducing oxidization. Four holes, one at the bottom of each side of the tray would allow the oil to flow away from the tray.

Located directly above the tray would be a heavy plate attached to the hydraulic cylinder. This plate would also be lined with Crystaplex to prevent contact with the metal by the blubber.

The blubber would be placed in the tray. When the hydraulic cylinder is activated the plate is forced down on top of the blubber and into the tray. The plate is sized so that it will just fit between the walls of the tray and will travel to the bottom of the tray. The theory at play here was that the plate would crush the blubber and force the oil out of the tray through the four holes. Four flexible hoses would carry the oil to a container.

When the press was tested it worked almost as planned. However, the press was forcing some blubber into the holes which eventually became plugged. When the holes and hose become plugged the extracted oil began to overflow the tray. It was evident that some modifications were required.

It was decided to build a second, larger tray around the outside of the existing tray. The holes were enlarged in the first tray by removing the nipples where the hoses were connected. These nipples were relocated in the outside tray. The theory behind this modification was that if blubber was forced through the holes in the first tray it would collect in the outside tray. Also, since the holes in the first tray were larger than the holes in the outside tray, blubber which collected in the outside tray would be too large to enter the holes in the outside tray. Also, if the holes in the first tray were to become clogged they would be easily cleared and if oil were to overflow the inside tray, it would collect in the outside tray. The hoses were connected to the nipples in the outside tray which would lead the extracted oil away from the press to a container. When the modified press was tested the results were most encouraging.

The Final Press Test

Blubber was cut into various sizes to see which size would work best in the press. It was discovered that the press could handle any size piece of blubber not larger than 6"x6"x3". Anything larger than 6"x6"x3" could easily be crushed by the press; however, as the pressure increased too much blubber would be forced into the outside tray making cleaning of the outside tray difficult. The remainder of the blubber was cut into sizes of approximately 4"x4"x3".

The blubber was placed in the inside tray. The press activated by means of the hydraulic valve control. Pressure is applied until the top plate of the press is flush with the bottom of the inside tray. The blubber has been pressed to the thickness of paper and oil rushes through the holes into the outside tray. The control value on the press is now reversed and the plate is withdrawn from the bottom tray to a height of about six inches above the tray. At this point the blubber residue can be easily seen. From having been crushed to a thickness of paper it has now reconstituted itself to a thickness of about 1/4". It is presumed that in expanding it is also functioning somewhat like a sponge and absorbing some oil. This blubber residue must be removed from the tray by hand and placed in a container. This is a very easy procedure.

After pressing about half the blubber some small pieces of blubber residue were collecting in the outside collection tray. It was necessary to remove the larger of these pieces from time to time. This is also done by hand. The smallest of these pieces would enter the drain holes of the outside collection tray and would be carried by the oil through the drain hoses into the oil collection container. This appeared to cause no difficulty in the extraction process. When the press was sent to Pelly the operator discovered that if the blubber was wrapped in cheese cloth it became much easier to remove the blubber residue.

For this test, which was conducted in Winnipeg, there was only about 25 lbs. of blubber on hand. The blubber was not weighed. Five L of oil were obtained and the entire time of the test was only 15 minutes. It must be recognized that a considerable amount of time was lost just observing how the press was functioning and what was happening to the blubber and with the oil. It was felt that an experienced operator in a normal work setting could easily have pressed 15 lbs. of blubber in 5 minutes.

The oil produced contained some sediment and was extremely cloudy with suspended white particulate. The oil was gray in color.

Conclusion: It was recognized that this machine may not be the ultimate in seal oil extractors. It is somewhat labor intensive and the small expansion of the blubber, when the pressure plate is withdrawn, is undoubtedly causing some oil to be lost.

It was felt however, that this machine was reasonably efficient; that the objective was to burn seal oil in a conventional furnace; that this machine was good enough for the time being. It was decided to send the machine to Pelly Bay and use it to extract the oil from the blubber on hand. Once the original objective had been proven, ie. the oil would burn in a conventional furnace, attention could be given to developing a better seal oil extractor.

Appendix 11 presents a conceptual drawing of what is thought to be a more efficient oil extraction machine.

Seal Oil Filtration

Once an oil extraction machine had been developed, attention was turned to finding a process for filtering the oil.

As has been mentioned elsewhere in this report filtration had to deal with the following situation regarding the oil:

a) The oil contains some small pieces of blubber residue. These can be removed fairly easily. As they float on the oil they can simply be removed through dipping them out with a strainer and cleaning the strainer regularly. It was already noted that if the oil is poured through-a strainer the residue will accumulate and block the strainer.

b) The oil contains a dark sediment. The problem can also be dealt with in a fairly easy manner. If the oil is left to stand overnight the sediment will collect on the bottom of the container. The oil can then be pumped or siphoned off as long as the sediment is not disturbed.

c) The oil contains a cloudy, white particulate which remains suspended in the oil. It does not float on the oil nor does it settle. This cloudy substance is similar to the cloudy substance which is found in egg white. It had already bee discovered that passing the oil through a screen would not remove this substance. Any screen which was fine enough to remove the substance would be clogged by the substance in very short order. This problem was of great concern because a standard furnace nozzle is protected by an extremely fine filter screen. This nozzle filter is designed to trap any particles which might manage to pass through a standard furnace oil cartridge filter.

The initial approach was to try and determine what the cloudy substance was. Many people were contacted in this regard. While very many people were contacted, all were very helpful and expressed great interest in the project. It was surprising to find that a number of these people were already aware of the Seal Oil Project in Pelly Bay through professional contacts, and were most encouraging regarding the possibilities of finding a solution. While not naming individuals the following institutions deserve mention. The University of Manitoba Research Department, The Canada Seed Producers Co-op in Saskatoon and The Canada Department of Natural Resources, Biology Section.

Biologists were quickly able to identify the cloudy substance in seal oil as protein.

Further discussions indicated that protein could be treated with different kinds of salts and sodiums. The right combination would probably cause the protein to crystallize which would make it easier to filter out.

Also, various oil seeds such as canola and sunflower seed oils contain protein and present a similar filtration problem. Processors of these oils use a clay filter aid to remove the protein.

Paper filters, reinforced with perforated metal supports are used to filter various fossil fuels.

A standard furnace pump was purchased along with nipples, hoses, gaskets, etc., as well as a mounting base for the oil filter. A 3/8" hand drill was attached to the pump to supply power. The amount of 250 ml of seal oil was filtered almost immediately. The oil was perfectly clear, straw-gold in colour and no trace of any sediment.

Test #5: Paper Filter under Pressure

This test was conducted on 5 gallons of seal oil, all that was on hand in Winnipeg at the time. The apparatus used for this test was the same as test #4. The oil contained small pieces of blubber residue, lots of sediment and, of course, the suspended cloudy particulate. The pump was started and timed. It took 45 minutes to filter the 5 gallons of oil. The condition of the oil was equal to that achieved in test #4.

The rate of filtration was less than 10 minutes per gallon. The pump was powered by a small electric hand drill. The speed of a hand drill is geared down to create greater power from a small electric motor. A standard electric motor would operate the pump at a much higher speed thus making the time required shorter. Further, a double shaft motor could be used. This would permit using two pumps with two filters. This alone would cut the time required by one half.

It was concluded that a satisfactory method of filtration had been found. The filter used for these successful tests was a Purolator filter #103.

It must be noted that the filter must be located on the suction side of the fuel pump. A furnace fuel pump can generate up to 170 lbs. per square inch of pressure. If the filter were connected to the output side of the pump, the pressure created by the pump could collapse the filter.

It was decided to test the later two possibilities as adding salt to the oil might damage furnace components over time.

Test #1: Filter Aid

A filter aid consists of using a specially treated clay in conjunction with a screen. The idea was to make a paste by mixing clay with the seal oil. The paste was spread evenly over a relatively large screen. The paste was about ½" in thickness. The oil to be filtered is flooded over the paste and seeps through the clay into a container below the screen.

First the seal oil was poured through the screen to make sure it could pass the screen freely. Then the paste was prepared and spread over the screen. (250 ml of seal oi 1 was poured over the paste). Nothing appeared to happen immediately. However, after one hour, there was some sign of oil passing through. After 16 hours approximately 200 ml of oil had been filtered. Four hours later the balance of 50 ml had been filtered. The filtered oil was a very clear straw-golden colour. It looked just as clear, pure and golden as a high quality cooking oil.

Some of the clay filter aid had washed through the screen with the oil. This settled out on the bottom of the container so it did not pose a difficult problem. However, the amount of time required to filter a cup of oil meant that this was not a viable solution to the problem.

Test #2: Paper Filter

The first test of a paper filter consisted of passing oil through a commercial coffee-maker filter.

The filter was supported by a funnel with a screen used to create a false bottom in the funnel 4" in diameter. The amount of 250 ml of seal oil was poured into the filter and oil began to pass almost immediately. It took 4 hours for all the oil to pass. The oil was perfectly clear, straw-gold in colour, and there was no sedimentation.

Test #3: Commercial Paper Oil Filters

A number of commercial oil and gas filters were purchased at random. These included automotive gas and diesel filters, motor oil filters, furnace oil cartridge filters, etc.

It was attempted to pass seal oil through all of these filters on a gravity-feed basis. None of these filters would pass-any oil on the basis of gravity force only with the exception of one. This filter did not pass any measurable amount in 10 minutes however, some did pass.

Test #4: Paper Filter under Pressure

It was decided to make up an apparatus which would permit attempting to pass seal oil through the paper commercial filter in test #3 which had shown the only sign of passing even the smallest amount of oil under gravity only.

As 55/45% represents a somewhat awkward mixture in terms of mixing the fuel in a workplace situation, the same tests were run at a 50/50% mixture of heater and seal oil. The results indicated that the stack temperature was only slightly higher. There was no change in the other points monitored. Therefore, for the sake of facility in mixing seal oil with regular heater oil it is recommended that a mixture of 50/50% be used.

A significant problem was encountered in the test burning of the 50/50 heater/seal oil mixture.

As long as the heat exchanger and gun are hot the furnace will ignite easily and consistently. However, if the heat exchanger and gun are cold the furnace will not light consistently.

This failure of the furnace to light could give rise to a potentially hazardous situation.

A furnace is equipped with a safety device which prevents it from starting up a second time once the furnace has failed to ignite. This device has a reset switch which allows a person to override the safety device and the furnace will begin its start up cycle again. If the person uses the reset several times and the furnace fails to ignite each time, a significant amount of oil will collect in the fire box.

If the furnace does ignite after several such attempts with excess fuel in the fire box, the furnace could overheat and become a fire hazard. This situation could present itself in burning the seal oil/heater oil mixture.

This problem can be overcome by equipping the furnace with an electrically operated, automatic switching device. This device would allow the furnace to start up on standard heating oil. Once the fire box, exchanger and gun have heated up and ignition is proven, the device would switch the furnace over to the mixture of heater/seal oil.

Further information on the device is provided in Appendix III. "

Two questions have been asked by almost everybody who has heard of this-seal oil project.

1) How badly will seal oil smell when it is used as furnace fuel?

2) How badly will seal oil smoke when burned?

When seal oil is burned as a mixture with regular heat and oil in a furnace, the odour produced is distinctive. It does not resemble seal oil nor does it resemble the odour produced when burning regular heater oil. The odour is not pleasant; however, it is less offensive than the odour produced by pure heater oil. As to the amount of smoke produced, seal oil mixed with heater oil burns cleaner than straight heater oil.

Burning of Seal Oil

An arrangement was made with the firm of Mikkelsen - Coward Limited, a Winnipeg firm, to burn the seal oil in a conventional oil furnace under controlled conditions.

One of the most frustrating problems associated with this project was the difficulty of finding an oil furnace in the Winnipeg area to test burn the seal oil without having to purchase a new furnace. In Winnipeg everybody uses natural gas.

Eventually a new furnace had to be purchased for the new co-op store being built in Pelly Bay. This furnace was sidetracked and used for the test burning of the sea oil.

The furnace used for the test was a 100,000 BTU by Olsen, Model HTL/WTL lOOH. The nozzle was .85 gallons ph. at an 80° angle. The furnace was already set to manufacturer's specifications and the furnace was first fired on standard heater oil to check the various readings. This was done to be able to compare these readings to those obtained while burning seal oil.

Test #1: 100% Seal Oil

The furnace was set up to run on 100% seal oil. The furnace would not ignite. The gun was removed from the furnace to observe the ejection of the oil from the nozzle. The oil came out of the nozzle as a jet, like water from a water pistol, rather than the cone shaped spray required for the furnace to function.

Test #2: Mixed Oil

Standard furnace oil was mixed with the seal oil in graduations of 10%. The furnace gun was fired outside the furnace to permit observation of the flow of oil through the nozzle.

Once a mixture of 40% regular heater oil had been added to the seal oil the mixture came through the nozzle in the required cone shape and ignition occurred.

The gun was replaced in the furnace and the furnace was fired. Ignition occurred immediately and the furnace appeared to operate in a perfectly normal manner.

Test #3:

This test was conducted to determine what mixture of seal oil and regular heater oil would produce the greatest efficiency. This was done by monitoring the stack temperature of the furnace, the cleanliness of the burn, the characteristics of the flame, the carbon monoxide output. It was discovered that the mixture that produced the best results on all points monitored was 55% heater oil and 45% seal oil.

Mixing Seal Oil and Heater Oil and the Effect of Temperature

A number of tests were conducted in Winnipeg on the mixing of seal oil with regular heater oil. These tests were conducted in Winnipeg in the month of July when the ambient temperature was 28° to 32°C.

As the oils are of different colors it is very easy to observe what is happening when the mixture is in a glass container.

Test #1:

125 ml of seal oil was poured into a container containing 125 ml of heater oil. Both oils mixed immediately without any need to stir or agitate the mixture in any way.

Test #2:

125 ml of heater oil was poured into a container which contained 125 ml of seal oil. Both oils mixed immediately without any need to stir or agitate the oil in any way.

The results obtained from these tests were too good to be true and of course, they proved not to be true.

A 50/50 mixture of seal/heater oil was placed in a deep freeze overnight at -20°C. In the morning the mixture was observed. The heater oil was floating on the seal oil and the seal oil had jellied.

This problem will seriously limit the use of seal oil as a fuel in the Arctic unless a solution can be found.

Until an adequate solution to this problem can be found, the use of seal/heater oil will have to be limited to buildings where the oil tank can be located in heated areas such as warehouses, garages, etc.

This limitation on seal oil would only become an obstacle if sufficient" quantities of seal oil were produced, beyond the capacity of the facilities mentioned above, to consume the oil.

Test #3:

This test was conducted to fix the temperature at which seal oil and heater oil separate and to determine the jell point of seal oil. A glass jar of seal oil was packed in ice in a plastic container. A thermometer was placed in the oil. When the temperature of the oil dropped to 0°C there was evidence of separation and jelling. For practical purposes it can be assumed that the separation and jelling point is 0°C. It is interesting to note that when the temperature is allowed to rise the two oils mix without any need for any agitation.

Data Collection

One of the objectives of the pilot project was to accumulate hard data on seals which could be used to establish the viability of seal processing plants in the Arctic.

It was initially proposed that the pilot project would take place in Pelly Bay between July 15 and October 15, 1987.

Commitments were made with a project officer for that time period. As the project was late starting he was actually employed from July 28 to October 28, 1987. His initial work involved remodeling the old fish plant for use as a seal processing plant and setting up the equipment as it arrived. The actual harvesting of seals began in mid-August.

While the project officer was in Pelly Bay, very reliable data was kept. However, as the equipment was not functioning as expected it was not possible to accumulate all the data anticipated even while he was there. After he left no exact data was kept.

The actual data collected on each seal is contained in this report in Appendix IV.

A summary of the data is presented here in Table #1 on page 24.

It is not possible to give exact figures on the total weight of the blubber or the exact amount of oil produced. We only know the exact weight of blubber from 19 seals which were completely processed before it was discovered that the oil extraction equipment was not working. Therefore, the information we have to work with is based on 19 seals only.

Further when the oil extraction machine finally arrived in Pelly Bay, no records were kept as to the exact amount of oil which could be extracted from a pound of blubber.

Based on the controlled weight of blubber from 19 seals the average weight of blubber per seal is 44.25 lbs. Since 249 seals were taken this means that a total of 11,018.25 lbs. of blubber would have been on hand.

We are able to account for a total of 628 lbs. of blubber which were used up in various extraction tests.

We also know that a large amount of the blubber which was frozen while awaiting a suitable extraction process suffered freezer burn and had to be discarded. No record was kept of the amount of blubber discarded for this reason.

We also know that 15 gallons of seal oil were used in various filtration experiments and that a total of 157.5 gallons of seal oil are on hand in Pelly Bay at time of writing.

TABLE #1

SUMMARY OF DATA COLLECTED ON SEALS

Total number of seals taken	249
Total number of males	140
Total number of females	109

Weight of various components

For Human Consumption	Total Pounds	Average Pounds
Meat	2,010	8.07
Liver	656	2.6
Heart	188.21	.76
Kidneys	128.74	.52
	2,982.95	11.95
For Animal Consumption		
Meat, including viscera	7,823	31.42
Bones	4,943	19.85
	12,766	51.27
Other		
Blubber*	52.93	44.25
Skins*	165	8.68
Waste	582.66	2.34
	800.59	55.27

*Only 19 skins had been defleshed when it was discovered that the oil extraction equipment was not working. The balance were defleshed later after the project officer had left the community and weights were not recorded.

We also know the following:

Discussions with the person in Pelly Bay who extracted the seal oil from the blubber indicates that the blubber from three average size seals will produce 5 gallons of oil. If one of the three seals is larger than average the oil will more than fill a 5 gallon container. This provides a ratio of 170 ml per pound of blubber.

During the testing of the press in Winnipeg it was estimated that 25 lbs. of blubber were on hand. This produced one gallon of seal oil. This provides a ratio of 180 ml of oil per pound of blubber.

Therefore, we will assume that a ratio of 170 ml per pound of blubber can be considered a safe figure for projecting the amount of oil available from a seal. *On* this basis one average size seal will produce 7.48 L or 1.65 gallons.

It must be noted that 7.48 L per average size seal is the amount of oil extracted with the equipment used. It has already been pointed out that some oil is resorbed back into the blubber. Test #4 described on page 12 of this report was able to extract 10 L of oil from 44 lbs. of blubber. While there were other problems with the method used it does serve to substantiate the validity of using 7.48 L per average seal in our calculation.

The Economic Value of the Average Seal

We will present in this report two calculations of the economic value of the average seal based on the data collected during the pilot project in Pelly Bay.

Calculation "A" is based on the utilization of the minimum amount of meat for human consumption. It is also based on extracting 7.48 L of seal oil from the blubber.

Calculation "B" is based on the utilization of the maximum amount of meat for human consumption. It is also based on utilization of a better oil extraction machine which could extract 10 L of oil from the average seal.

The value of a seal skin is accepted in this report as being worth $15.00. This is based on the price paid to the Pelly Bay project by Amiq leather. The $5.00 subsidy paid by the Government of the Northwest Territories is paid directly to hunters.

The value of seal oil in this report is 60¢ per litre. This is based on the following calculation. The value of heater oil in Pelly Bay at time of writing is 72¢ a litre. The BTU value of seal oil is 84% of regular heater oil (72 x 84% = 60¢). Obviously the value of seal oil will change as the price of oil fluctuates.

The weight of blubber residue is calculated as follows: seal oil weighs 3.5 lbs. per litre; thus for every litre of oil removed from an average seal's blubber 3.5 lbs. must be subtracted from the weight.

A. Average weight of seal blubber = 44.00 lbs.
Extracting 7.48 L (7.48 x 3.5) = 26.18 lbs.
Blubber residue = 17.82 lbs.

B. Average weight of seal blubber = 44 lbs.
Extracting 10 L (10 x 3.5) = 35 lbs.
Blubber residue = 9 lbs.

Calculation of Value of a Seal

Calculation "A" - Minimum Value		$
Meat for human consumption	$3.00 x 11.95 lbs. =	35.85
Meat for animal consumption	.50 x 31.42 lbs. =	15.71
Blubber residue	.50 x 17.82 lbs. =	8.91
Bones	.50 x 19.85 lbs. =	9.93
Seal oil	.60 x 7.48 L =	4.49
Skin	=	15.00
Total minimum value	=	89.89

Calculation "B" - Maximum Value

Meat for human consumption	11.95 lbs.	
add 1/2 of animal consumption	15.71 lbs.	
@ $3.00 x 27.66 lbs.	=	82.98

Meat for animal consumption	31.52 lbs.	
less 1/2 diverted to human	15.71 lbs.	
@ .50 x 15.71 lbs.	=	7.86

Blubber residue @ .50 x 9 lbs.	=	4.50
Bones @ .50 x 19.85 lbs.	=	9.93
Seal oil @ .60 x 10 L	=	6.00
Skins	=	15.00
Total maximum value	=	126.27

Operating Projections

Notes to Operating Projections

This projection is based on taking 1,000 seals. The income projections are based on selling the various components of the seal at the prices which were in effect in Pelly Bay during the life of the pilot project. The projection is also based on the value of an average seal as described in Calculation "A" on page 27 which is the minimum value of the seal.

One should not overlook the potential marketing problems associated with the project. Some 12,000 lbs. of meat for human consumption will have to be sold as well as some 70,000 lbs. of dog food. It should not be assumed that all of this meat could be consumed in the community where it is produced and some plan should be in place for the sale of this quantity of food before production begins.

Expenses

Two options are presented in terms of operating expenses.

Seals are to be purchased directly from the hunter at a flat rate of $15 each. In addition, the hunter is eligible for a $5 subsidy directly from the Government of the NWT.

Skins must be cleaned, stretched and dried for shipment out of the community. During the project in Pelly Bay S5 was paid initially. Complaints caused the price to be increased to $10.

In the event that the skins were tanned locally the cleaning, stretching and drying process could be omitted entirely as shown in option "B".

Audit and accounting expenses are estimated in option "A". Option "B" is the exact amount which ACL would charge a member co-operative using its member accounting service for the increased volume which this operation would create.

Insurance costs in option "A" are based on an estimate (not a quote), from an insurance company.

Option "B" is a quote of the cost of including this operation under the existing blanket insurance policy of an existing co-operative in the NWT. This rate would only be available to a co-operative organization.

Utilities

Costs are based on a two month operation in an energy efficient building. Most of this expense will be for electricity due to the equipment in the facility.

A separate calculation of wage and benefit costs is provided. It is assumed. that one of the plant workers will be the plant manager.

The cost of materials for packaging meat for human consumption and animal food is estimated.

The cost of chemicals and cleansers, mostly liquid bleach, is estimated.

Operating Projection

Revenue

Sales

Meat for human consumption:		$
19.95 lbs. x $3 x 1,000 seals		35,850
Food for animal consumption:		
'Meat . 31.42 X .50 X 1,000	15,710	
Residue 17.82 x .50 x 1,000	8,910	
Bones 19.85 X .50 X 1,000	9,925	
Total	34,545	34,545
Seal oil		
7.48 L X .60 X 1,000		4,488
Seal skins		
15.00 x 1,000		15,000
Total Revenue		89,883

	A	B
Total Revenue	89,883	89,883
Total Expenses	96,500	62.750
Profit (Loss)	[6,617]	27,133

Operating Expenses

	A	B
Purchase of seals $15 x 1,000	15,000	15,000
Cleaning, stretching & drying of skins: $1OX 1,000	10,000	
Audit & accounting	20,000	2,250
Insurance costs	10,000	4,000
Utilities	6,000	6,000
Wages and benefits	30,000	30,000
Product packaging	5,000	5,000
Chemicals, cleaners, etc.	500	500
	96,500	62,750

Calculation of Wage Costs

Under the adverse conditions in Pelly Bay three butchers were able to butcher up to 30 seals per day.

In the suggested plant layout in Appendix I, three butchers should be able to butcher 30 seals with ease. This would require 35 days to butcher 1,000 seals. Costs are calculated on an 8 hour day at a rate of $10 per hour.

Butchers - three	
3 x 8 hours x 35 days x $10	$8,400
Deflesher - one	
1 x 8 hours x 60 days x $10	4,800
Food packager - two	
2 x 8 hours x 60 days x $10	9,600
Oil extraction & preparation - one	
1 x 8 hours x 60 days x $10	4,800
Total wages	27,600
Benefits 6%	1,656
Total Wages & Benefits	$29,256
Say	$30,000

CAPITAL COSTS

Notes to Capital Budget

- The building described in the suggested layout in Appendix I is 1,040 square feet. Based on the cost of new construction for NWT Co-operatives of $65 per square foot. This facility can easily be built for $100,000.

- Health regulations will require the installation of stainless steel counters, sinks, shelves, etc. A quote based on current prices indicates that this equipment will cost approximately $11,000.

- Stainless steel panelling will be required by health regulations to cover all walls. A quotation based on current prices indicates that this material will cost $9,000.

- Metal rollers to facilitate the movement of products throughout the plant will cost $800.

- Butchering tubs may not be available off the shelf. If these tubs have to be designed especially for the purpose they will cost about $4,500 for three tubs.

- A commercial style defleshing machine may cost as much as $200,000. However, for the volume of skins to be defleshed it is expected that a type of motorized knife available at less than $5,000 will be adequate.

- A small bone crushing machine, large enough to crush seal bones, will cost about $30,000.

- The oil extraction machine used in Pelly Bay cost just under S4,000. No attempt has been made to determine the cost of the machine described in Appendix II.

- The oil filtration machine can be constructed with equipment which is readily available. The cost should not exceed $300.

- A number of tanks and containers will be required for filtering the oil, adding chemicals, and some storage capability; $5,000 will be adequate.

- A quote on overhead track based on current prices indicates that this equipment will cost $500.

- Pumps, hoses and fittings for moving oil in and out of the building will cost about $400.

- An amount of $1,000 is provided to cover knives, tools, cutting boards, etc.

- Freight on the building is included in the building price as long as sealift is used. An additional $30,000 is provided to cover freight on equipment.

The nature of the seal processing operation is such that most, if not all of the operating expenses, will be incurred before any revenue is generated from the sale of the products. Therefore, $100,000 will be required in working capital.

No provision has been made in the capital costs for a freezer unit. It is presumed that such a plant will be located adjacent to an existing community freezer and joined via a-connecting passage. A freezer is essential. “

Capital Costs

Building including electrical and mechanical	*$100,000*
Stainless steel sinks, tables, shelves and counters	11,000
Stainless steel **panelling** for walls, etc.	9,000
Metal rollers	800
Butchering tubs	4,500
Defleshing machine	5,000
Bone crusher	30,000
Oil extractor	4,000
Oil filtration machine	300
Assorted containers for oil	5,000
Overhead track	500
Pumps	400
"Miscellaneous tools, knives, etc.	1,000
Freight	30,000
Working capital	100,000
Adaptation of 3 furnaces to burn seal oil	1,500
Total capital costs	$303,000

Recommendations

1. Extensive burning of the seal oil mixture should take place in Pelly Bay. After the burning the various components of the furnace should be inspected in a qualified facility to determine any problems which the seal oil may be causing. It may be necessary to return the furnace to the manufacturer for their analysis.

2. In order to be able to respond to any environmental concerns regarding the burning of seal oil, the stack output should be analyzed to determine exactly what, if any, are the pollutants injected into the air by the burning of seal oil.

   It may also be advisable to conduct a similar analysis of the food products of seals.

3. Work should begin immediately to develop a more efficient machine for extracting seal oil.

4. At least one test plant should be constructed in an Arctic community to verify the findings of the pilot project in an actual working situation. It may be advisable to establish two test plants in the event of some unforeseen problems rendering one plant inoperable. For example, in a given year there may be very few seals in an area where they are normally plentiful.

5. That any seal processing plant should follow a layout similar to that suggested in Appendix I to take advantage of the experience learned in Pelly Bay.

6. It is important to discuss with local hunters the best time to take seals in a given area. This should be done to take advantage of the time when seals are most plentiful and not so early as to take seals before they have amassed enough blubber to prevent them from sinking.

7. A marketing plan must be in place before production begins to insure the volume of meat produced (both for human and animal consumption) can be sold.

8. Testing should be conducted to determine if there is any way to prevent seal oil from separating from regular heater oil and jelling at 0°C, as this will provide greater flexibility in the storage and burning of seal oil.

Conclusions

The objective of this pilot project was to test the feasibility of burning seal oil in a conventional oil fired furnace.

An additional objective was to provide hard data on the various products, derived from the seal which could be used to determine the viability of a seal processing plant in a northern community.

The project has been able to prove that seal oil will burn in a conventional oil fired furnace.

While the hard data collection process was less than desirable after the project co-ordinator left the community, sufficient data was provided to develop a viability projection.

The viability projection indicates that with the processing of just 1,000 seals a seal processing plant in a northern community can be viable.

The economic impact of a seal processing plant in a northern community is very significant. A full 76% of the total operating expenses are paid directly to community workers.

The capital costs associated with the establishment of a seal processing plant will have to be provided by grant funding.