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FISHING IN WEST GREENLAND 1910–1966
THE DEVELOPMENT OF A NEW NATIVE INDUSTRY

BY

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WITH 51 FIGURES, 11 PHOTOS, AND 210 TABLES IN THE TEXT,
AND 3 MAPS

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Abstract

Greenland, a former colony of Denmark, became an integral part of that country in 1953 (as a type of county--*amt*). Until the present century the Greenlanders pursued a traditional Eskimo hunting culture, but fishing was introduced in 1910 when it became apparent that hunting could not support the rapidly-growing population.

Initial utilization of Greenland halibut, shark, and arctic char was soon joined by cod which began to appear in Greenland waters in increasing numbers from 1917. Favorable conditions for cod were created by a climate warming which, at the same time, adversely affected seal hunting.

The fisheries along the southwest coast (where over 90 per cent of the Greenlanders live) developed along with the increase of cod. New fisheries of deep-sea prawns (1949) and Atlantic salmon (1960) have supplemented cod, but the Greenlanders' fishing industry has remained a fjord and inshore activity from rowboats and small cutters. At the same time an international fishery has developed off West Greenland, but until 1966 the Greenlandic fishery had not extended to these banks. This study traces the growth of the fishery of West Greenland and presents a picture of present-day fishing there through a sampling in three fishing locations.

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PREFACE

This study was supported in its early stages (1960) by a Banting Fund grant-in-aid from the Arctic Institute of North America, whose Washington office also kindly arranged for military transportation to the United States from Greenland in autumn 1960.

Part of the 1962 field work in Greenland was made possible by McGill University, and in this connection I appreciate the interest and support of Dean STANLEY B. FROST, Col. PATRICK D. BAIRD, and Professor TREVOR LLOYD. Transportation from Søndre Strømfjord via Cape Dyer to Winnipeg in September 1962 was kindly arranged at cost by the DEW Line administrators, Federal Electric Corporation, Paramus, New Jersey.

The Institute of Current World Affairs (New York), since the beginning of my Fellowship in October 1964, has been a constant source of financing and encouragement. Through the Institute I was able to spend four years in Denmark, to learn the Danish language, and to visit Greenland on two extended trips. I express my debt of gratitude to the Institute's Board of Governors, administrative staff, and to Executive Director RICHARD H. NOLTE for his ever-present support and understanding.

The background investigations and field work in Greenland could not have been completed without the cooperation of various authorities in Denmark and Greenland. My help has come from far too many persons to list all of them individually here; all of these people realize the significance of their assistance to me. I must, however, acknowledge publicly my appreciation to several individuals: Direktør HANS C. CHRISTIANSEN (Royal Greenland Trade Department), Departementschef ERIK HESSELBJERG (Ministry for Greenland), former Departementschef ESKE BRUN (Ministry for Greenland), Dr. PAUL M. HANSEN (Greenland Fisheries Investigations), Col. J. V. HELK (Arktisk Institut), overinspektør dr. scient. HELGE LARSEN (Nationalmuseet), vicedirektør MAGNUS JENSEN (Royal Greenland Trade Department), and acting trade chief (fungerende handelschef) SØREN CHR. SCHRØDER SØRENSEN, whose hospitality in Greenland on three lengthy visits (1960, 1962, and 1968) facilitated my work and made visiting Greenland a memorable experience.

Particularly helpful in providing statistical material in Denmark were kontorchef OTTO JENSEN, ministersekretær CHR. JENSEN, and fuldmægtig ANKER KNUDSEN (all of Ministry for Greenland); and kontorchef JENS FYNBO, marketingkonsulent B. MERCIER, redaktør AAGE V. STRØM TEJSEN, and produktionschef G. P. SVENDSGAARD (all of the Royal Greenland Trade Department, KGH). In Greenland, my work was facilitated by landshøvding N. O. CHRISTENSEN and at the three sample towns by handelschef A. COULET-SVENDSEN (Narssaq), handelschef SKJOLDAN-HANSEN (Sukkertoppen), handelschef ARNE HANSEN (Sukkertoppen), and udstedsbestyrer ORLA SANDBORG and OLE JOSEFSEN (Kangâmiut).

The local Greenlanders who aided my studies will not be named because I promised them anonymity. One purpose of my study of the fishing industry of Greenland has been to analyze the part it has played in modernizing Greenland. If this study were to be dedicated to anyone it would be to the Greenlandic fisherman, on whose enterprise, tenacity and skill in a hostile environment depends the future prosperity of his country.

The staff of Baker Memorial Library (Dartmouth College, Hanover, New Hampshire) has been of great help in many ways, especially in providing research materials (ERIKA PARMI, Stefansson Collection) and study space (VIRGINIA CLOSE, Reference Department).

Part of the final typing was done by Mrs. GRACE KNUDSEN, Canaan, New Hampshire. I commend her for her patience, especially with the Danish letters and words and with the tabular material.

Professor TREVOR LLOYD, as my thesis supervisor, has been of great help in many ways and for this I want to express my deep appreciation. Any faults and shortcomings in this study are, of course, my responsibility.

INTRODUCTION

A geographer embarking on a study of sea fisheries soon detects a paucity of previous work upon which he can build. There is no methodology of "sea-use" corresponding to numerous land-use studies. PADGETT (1961) drew attention to this situation and set out the priority:

> What is needed, for the present at least, is more studies. Geographers can concern themselves with approach, content, and the like at a later date.

NOWAK (1963) believed that the geographer's greatest contribution to economic oceanography lies in the regional sphere. He also described the most recent advances in economic oceanography and showed that "such advances are of fundamental interest to geographers" (p. 3). In attempting to reconcile economic oceanography with the traditional methodology of geography, NOWAK stated that oceanography is a branch of physical geography, "while the study of separate commodities can be regarded as a division of economic geography." NOWAK concluded his brief article with the statement:

> A good economic oceanography of a clearly defined marine region is a truly geographical study, worthy of much more attention from applied geographers than it has so far received.

This study in applied geography concerns the fishing industry carried on by the native inhabitants of West Greenland as fostered and administered by the Ministry for Greenland of the Danish government and the government's Royal Greenland Trade Department. Fishing for export has been limited mainly to the west coast of Greenland. This study, therefore, makes only passing reference to North and East Greenland. Small catches of arctic char and Greenland shark have been made in North Greenland, but this area still depends mainly on hunting. The same can be said for East Greenland, although there a promising cod fishery grew up in Angmagssalik district in the late 1950's, only to decline in recent years. Natural conditions in East Greenland are such that fishing has never been of much importance and few Ministry for Greenland planners consider it likely to play a major part in the future of

East Greenland. The undoubtedly rich occurrences of cod and redfish off the east coast cannot normally be brought to land for processing because of unfavorable ice conditions. These stocks, therefore, will be utilized only by foreign fishing fleets, and also possibly by a future deep-sea fleet based in West Greenland. Unless natural conditions change radically in the future, therefore, it seems unlikely that either North or East Greenland will play a significant part in the fishing industry of modern Greenland.

The fisheries of West Greenland are of special interest, less by reason of size than because of their recent beginning. The Greenlanders, who led the life of hunters until the 20th century, were left with no alternative but to take up fishing beginning around 1910. This recent changeover from a hunting to a fishing economy deserves careful consideration. Fishing is of overwhelming significance in Greenland today, whereas hunting cannot provide a living by modern standards. Conclusions drawn from this recent economic change may well have application in other areas, especially in the North, where native populations are beginning to participate in the modern economic world and government officials are confronted with problems arising from the changeover.

Although there is a growing international fishery on the Davis Strait banks off West Greenland, this study is restricted to the native Greenlanders' own inshore and fjord fishery. Reference is made to the bank fishery only in relation to possible future participation in it by the Greenlanders. Various attempts have been made to introduce private (non-state controlled) fishing and fish processing in Greenland; some were entirely private, others partially supported by the Danish government. These have been referred to in the study only for the purpose of illustration.

In this study I have made use of secondary sources in the fields of history, marine biology and oceanography, sociology, and economics. Sources have been articles in professional journals, unpublished Danish government papers and reports, and other unpublished statistical material mainly from the files of the Royal Greenland Trade Department. The concluding chapters depend greatly on my own field observations and interview material collected in the summers of 1960, 1962, 1967, and the spring of 1968. A wide range of other publications was also consulted in order to acquire a thorough background to the physical environment and the economic and social development of the area.

Because of a notable paucity of published material on the specific subject of the thesis, however, I have intentionally employed an extensive, rather than an intensive, approach. It seemed to me that the most appropriate procedure would be to begin with an historical survey covering the period in Greenland before 1910 when hunting was still

the main economic pursuit; then to trace the evolution of fishing as a new industry; finally, and more intensively, to outline the present-day situation with particular attention to the sample towns of Narssaq and Sukkertoppen, and the settlement of Kangâmiut. By selecting these places as examples, using as samples daily catch records of individual fishermen, a reasonably representative delineation of the current status of fishing in West Greenland becomes possible.

Two circumstances must be pointed out which have, to some extent, influenced the methods used in this study: first, it was not possible to examine records of the status of loans to Greenland fishermen to purchase boats, fishing equipment and gear, and houses or, indeed, such data for any Greenlanders. Second, the Ministry for Greenland considered it impossible to supply what they regarded as confidential financial information regarding the individual fishermen whose activities are considered in this study. This, despite the fact that I have used my own code for each fisherman to assure anonymity, made it impossible to illustrate the expense side of the fisherman's economic activity in Greenland. As I found repeatedly when attempting to obtain landing data from individual fishermen, personal financial or business records are non-existent in Greenland, and the few fishermen who had enough initiative to keep even approximate records did so incompletely and unreliably. For this reason it was difficult, indeed impossible, to get a balanced picture of receipts and expenditures.

This lack of sufficient data was caused only in part by official hesitancy to devulge what was considered to be confidential information. Even Danish government agencies have recently experienced difficulty in compiling reliable information on Greenland, as for example during a statistical study prepared for evaluation of possible introduction of income taxation there. Such a study was made of several selected fishing towns in Greenland for the year 1967 employing a team of students, as well as assigning Royal Greenland Trade Department employees to supervise the work.

There is undoubtedly a wealth of statistical material available for Greenland. Only when one gets down to specifics does one discover that data often have been collected according to guidelines unchanged for many years and which have become, in many respects, inadequate for present needs. To compound this problem, some statistics covering the number and distribution of boats, fishing gear and other tools, formerly gathered annually, are no longer recorded.

The Greenland fishing industry has evolved in close relationship with marine biological research in Greenland waters. These marine investigations have been carried out mainly by Danish scientists, but also by those of other nations fishing in Davis Strait and off East Greenland.

In the early years of this research, at the beginning of the present century, the scientific program was carried out by scientists sent out by the Danish Ministry of the Interior, later by Danmarks Fiskeri- og Havundersøgelser (Denmark's Fisheries and Marine Investigations).

In 1946, Greenland's own fishery investigation unit (Grønlands Fiskeriundersøgelser) was established, which is officially under and financed by the Ministry for Greenland. The unit coordinates marine biological investigations in Greenland waters, and has cooperated with the two large international organizations—Conseil permanent international pour l'Exploration de la Mer (International Council for the Exploration of the Sea, or ICES) and the International Commission for the Northwest Atlantic Fisheries, or ICNAF.

Danish marine biologists of Grønlands Fiskeriundersøgelser, headed until 1970 by Dr. PAUL MARINUS HANSEN, and scientists of other nations fishing in Greenland waters, have been the only scholars working with problems which are even remotely connected with the fishing industry of Greenland. Their work has, of course, been primarily in the biological sciences and hydrography, but they have at times written about the fishing industry itself in a more general way or in summary form. The scientists have published shorter papers of more general interest in such Danish or Greenlandic publications as Atuagagdliutit/Grønlandsposten (1952 to date), Det grønlandske Selskabs Aarsskrifter (1906–1952), tidsskriftet Grønland (1953 to date), and Beretninger vedrørende Grønland.

Most of the above-mentioned publications, except certain ICNAF and ICES publications, are in Danish. English publications on the fisheries in Greenland waters are virtually non-existent.

Apart from the above-mentioned studies in marine biology, which are only of peripheral interest to the subject of this study, no substantive work has been published on the fishing industry of Greenland. Totally lacking are studies on the economic changes taking place during the transition from a hunting to a fishing economy; detailed studies of seasonal and geographical distribution of the fish catch in West Greenland; fish landings and earnings of individual fishermen in various-sized settlements and geographic locations along the west coast of Greenland; and seasonal variation of fish catch versus boat size. The author has dealt with some of these subjects in this study. Taken together they are to be regarded as an "original contribution to knowledge".

The population and place-name location maps, together with the population tables with annotated remarks, included in the study, are the first maps and lists to show the location and period of occupancy of each inhabited place in West Greenland during the period 1901–1966. Compilation of them, which took the author several years to complete, was

necessary in order to analyze and illustrate the change of population distribution in West Greenland during the period under consideration. Taken by themselves, the population maps and lists can also be regarded as an original contribution to knowledge.

Reference is made throughout the text to many tables in the Appendix. Lack of uniform statistical material forced me to construct my own tables from various sources. Many of these tables are found in the text, as well as in the Appendix. Tables in the text are numbered consecutively from 1–118 and tables in the Appendix are numbered from 1a–92a.

I. GREENLAND – AN INTRODUCTION

Introduction

Greenland's physical features and natural characteristics have been described in an exhaustive manner in numerous publications. Reference is made especially, for example, to AMDRUP, G. C. *et al.* 1921; VAHL, M. (ed.) *et al.* 1928–29; BIRKET-SMITH, K. *et al.* 1950; and to a comprehensive volume of material published during World War II by the Greenland Administration.[1]) Little would be gained, therefore, in presenting a lengthy description here. It may be useful, however, to outline a few salient features of Greenland as an introduction to this study.

Greenland is a large island in the northern North Atlantic Ocean stretching from Kap Farvel (59° 46′ N.) to Kap Morris Jesup (83° 37′ N.), or a north-south distance of about 2,670 kilometers (1,659 miles). Its northern tip, Kap Morris Jesup, is closer to the North Pole than any other land. The southern tip of Greenland is as far south as Labrador-Ungava, Shetland Islands, Stockholm, and Nunivak Island, Alaska. Alaska's northernmost point (Point Barrow) is at about the same latitude as the town of Umanak, West Greenland.

By location, Greenland is in reality a part of North America. This is also true, to a large extent, of its geology, fauna, and flora. Greenland is separated from Canada's Ellesmere Island by the relatively shallow Nares Strait,[2]) which has a limiting sill depth of 250 meters (NUTT, 1969) and is about 22 kilometers (13.7 miles) wide at its narrowest point (Robeson Channel).

On the east, Greenland is 450 kilometers (280 miles) from the nearest land of Vest Spitsbergen, separated by the Greenland Sea and its 3,000-meter Lena Deep. The nearest part of Iceland is about 290 kilometers (180 miles) from East Greenland's Blosseville Coast, separated by Denmark Strait.

Greenland's easternmost point is Nordostrundingen (11°39′ W.)

[1]) Title: Sammendrag af Statistiske Oplysninger om Grønland, published in eight parts between 1942 and 1945 by the Greenland Administration under the publication series Beretninger vedrørende Grønlands Styrelse.

[2]) A collective name given in 1964 for the waters from Smith Sound through Kane Basin, Kennedy Channel, Hall Basin, to Robeson Channel.

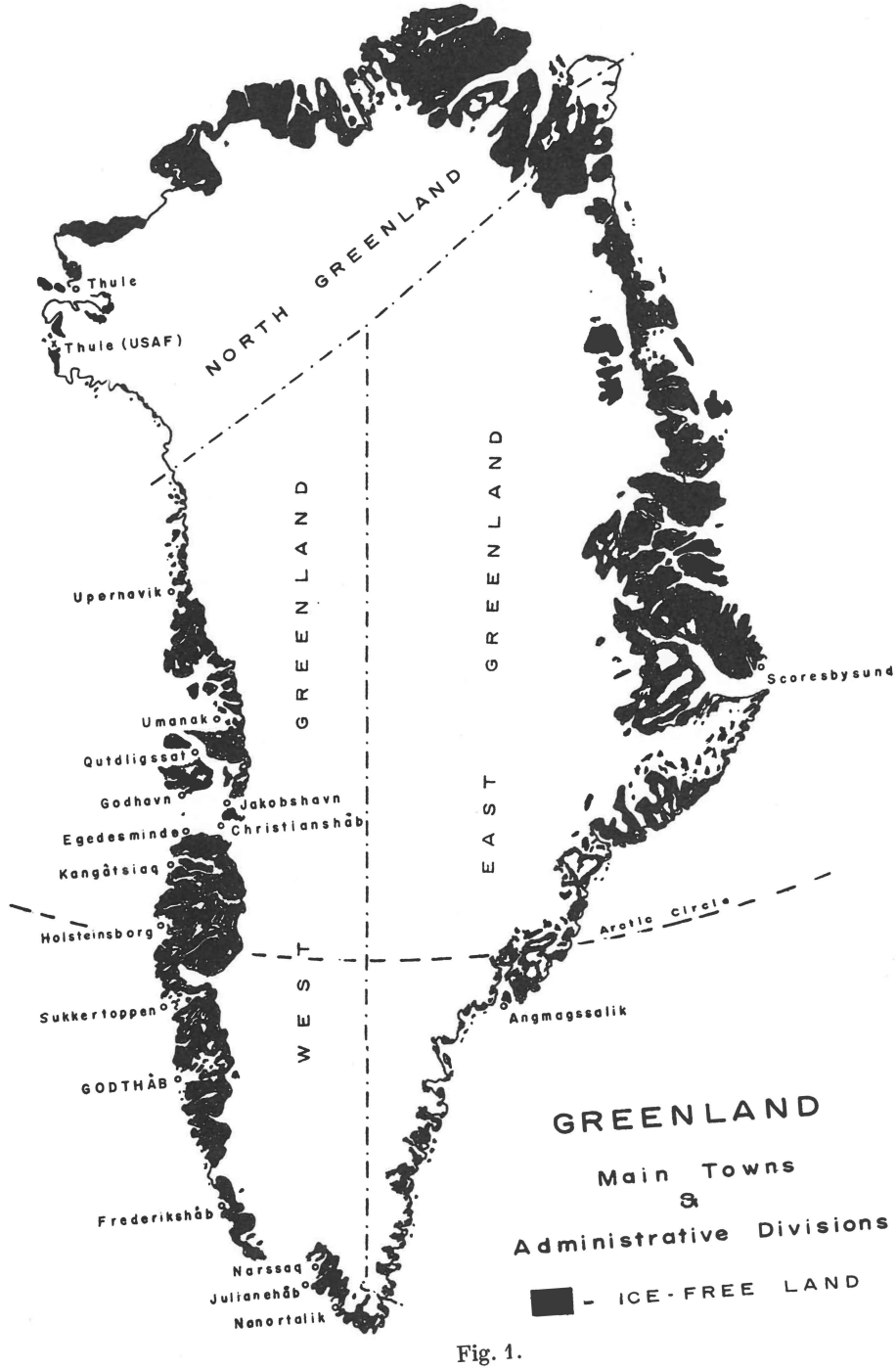

NORTH GREENLAND
WEST GREENLAND
EAST GREENLAND
Thule
Thule (USAF)
Upernavik
Umanak
Qutdligssat
Godhavn
Jakobshavn
Egedesminde
Christianshåb
Kangâtsiaq
Holsteinsborg
Sukkertoppen
GODTHÅB
Frederikshåb
Narssaq
Julianehåb
Nanortalik
Angmagssalik
Scoresbysund
Arctic Circle
GREENLAND
Main Towns
&
Administrative Divisions
- ICE-FREE LAND

Fig. 1.

and its westernmost is Kap Alexander (73°08′ W.) giving the island a maximum width of 1,050 kilometers (652 miles). Kap Alexander is at about the same longitude as New York City.

According to official Danish sources (Statistisk Årbog, 1968, p. 445), Greenland's total area is 2,175,000 square kilometers (about 840,000 square miles), of which area only 341,700 square kilometers (131,900 square miles) is ice-free land. According to FRISTRUP (1965, p. 9), unofficial planimetry of modern maps gives Greenland's total area as 2,186,000 square kilometers (about 844,015 square miles), of which 386,600 square kilometers (about 149,271 square miles) is ice-free.

The ratio between ice-covered area and ice-free land is about 5:1. Greenland is the largest ice-covered area outside Antarctica. Greenland's inland icecap (Indlandsisen), which has the shape of a shallow, inverted bowl, is up to 3,300 meters (10,800 feet) thick. Indlandsisen, with its outlet glaciers and other ice bodies, comprises about 12 per cent of the earth's total mass of land ice.

The coasts of Greenland all show the result of glacial modification. They are rugged, rocky, and deeply indented by fjords. The outer coast is in many places dotted with offshore islands and reefs, a typical fjord-skerry coastline. There are a number of natural harbors. All of Greenland's inhabited places are at tidewater. Most of the 36,380 native inhabitants (on 31 December 1966) live along a coastline equivalent in length to the distance from London to Gibraltar.

This study concerns West Greenland, which is the present-day political division of the areas formerly known as North and South Greenland (see Fig. 1). About 90 per cent of the native inhabitants of Greenland live in West Greenland. The 1966 census showed that, of the total population of 36,380, 33,239 lived in West Greenland, 560 in North Greenland, and 2,581 in East Greenland.[1])

Although 90 per cent of the population lives on the west coast, there is no land contact between villages there because of the rugged terrain and long distances. There are no extensive roads, no railroads, and no navigable rivers.

Ice

Greenland is dominated by the massive icecap (Indlandsisen), which covers all but a narrow coastal strip of varying width. In West Greenland this coastal strip is, in places, non-existent where outlet glaciers from the icecap disgorge icebergs directly into the sea. At other places, as in Holsteinsborg district, the width of ice-free land from the coast to the margin of the icecap may reach 175 kilometers (109 miles).

[1]) Beret. vedr. Grønl. 1967 (1): 7.

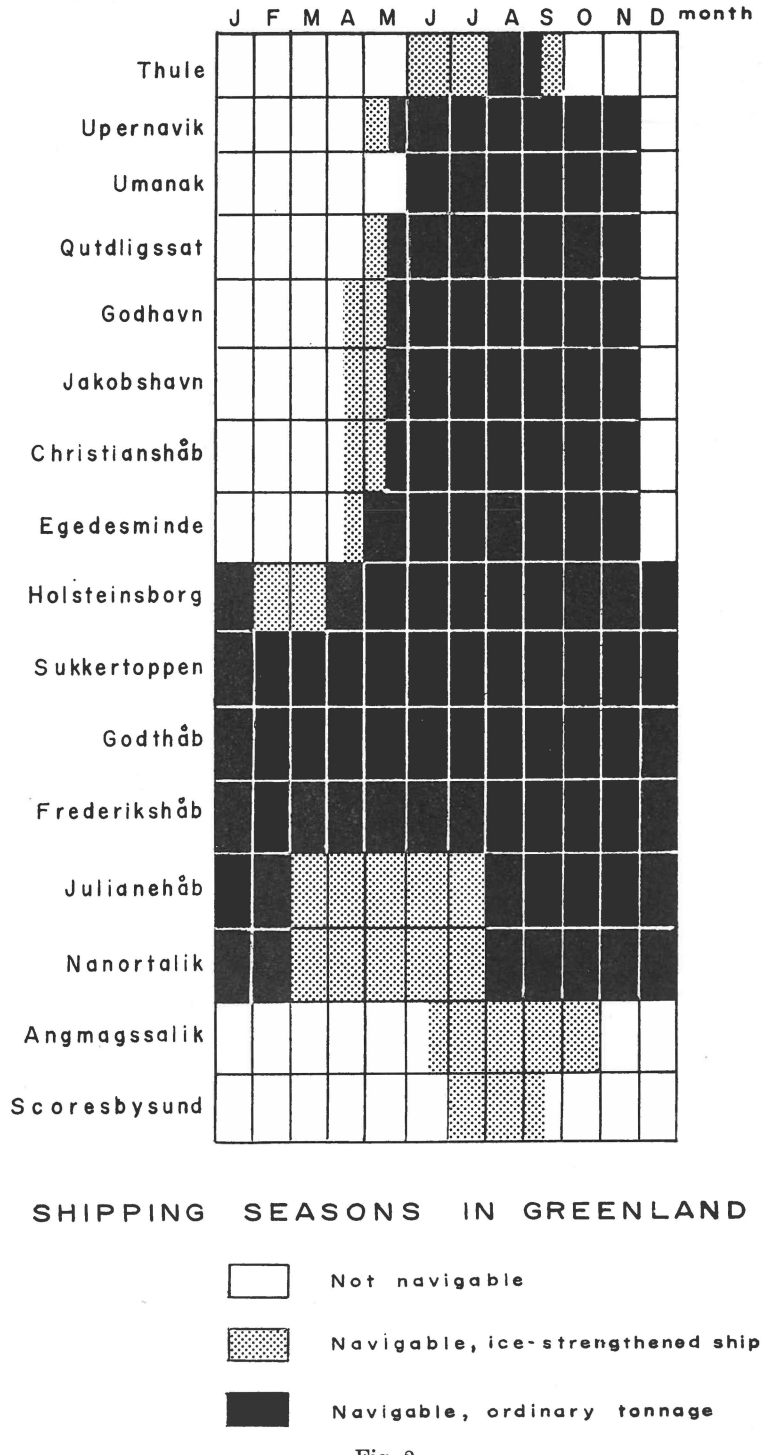

J F M A M J J A S O N D month
Thule
Upernavik
Umanak
Qutdligssat
Godhavn
Jakobshavn
Christianshåb
Egedesminde
Holsteinsborg
Sukkertoppen
Godthåb
Frederikshåb
Julianehåb
Nanortalik
Angmagssalik
Scoresbysund
SHIPPING SEASONS IN GREENLAND
Not navigable
Navigable, ice-strengthened ship
Navigable, ordinary tonnage

Fig. 2.

The icebergs calved from the outlet glaciers of the inland icecap are a danger to shipping along Greenland's coasts, but they are only one form of ice hazard. The main outlet for waters from the North Polar Basin is between Northeast Greenland and Svalbard. This outflow brings a great amount of pack-ice down along the east coast of Greenland. During some years the width and extent of pack-ice are sufficient to seal off this coast completely for long periods at a time, occasionally preventing all shipping from reaching land from one year to the next. This pack-ice (called storis, or "great ice", in Danish) drifts down with the East Greenland Current, joining with the warm Irminger Current before rounding Kap Farvel and proceeding up the west coast. In West Greenland it is the area from Kap Farvel to Frederikshåb where the storis has its strongest influence on the local population. It not only blocks the way of ships trying to reach southern population centers, but also prevents fishing cutters from reaching their fishing grounds. This usually occurs in early spring and summer, causing loss of fish nets and trawls, even when the ice is sparse enough to allow passage by the fishing vessels themselves.

Figure 2 shows how ice affects normal shipping in Greenland.[1]) The effect of storis is felt only on the east and southwest coasts. All other ice blockage in Greenland results from the third main type of ice – winter ice, which increases in influence as one proceeds northwards. There is also pack-ice from the Canadian arctic archipelago (vestis, or west ice), which extends as far as Greenland's northwest coast and usually freezes fast with the annual formation of winter ice. Winter ice is important as far south in West Greenland as Holsteinsborg district. South of this, only the inner parts of fjords and bays freeze over each winter, but the outer coast normally remains unfrozen. It is because of lack of winter ice for sledging that sledge dogs are not found (or allowed) south of Holsteinsborg on the west coast.

Greenland is, in summary, covered to a large degree by a thick central icecap, and the narrow strip of ice-free land is bounded at its seaward edges by icebergs, pack-ice and winter ice.

Climate

Greenland's climate (see Fig. 3) is arctic except for a small area of sub-arctic climate in the extreme southwest. The mean temperature of the warmest month (July) is under 50° F., and tree growth as we know it is impossible. Because of this harsh climate, the narrow strip of rocky land between the sea and the icecap must be considered as being on the margin of possible human habitation. Agriculture is virtually non-exist-

[1]) Diagram compiled from unpublished material provided by the Royal Greenland Trade Department (KGH).

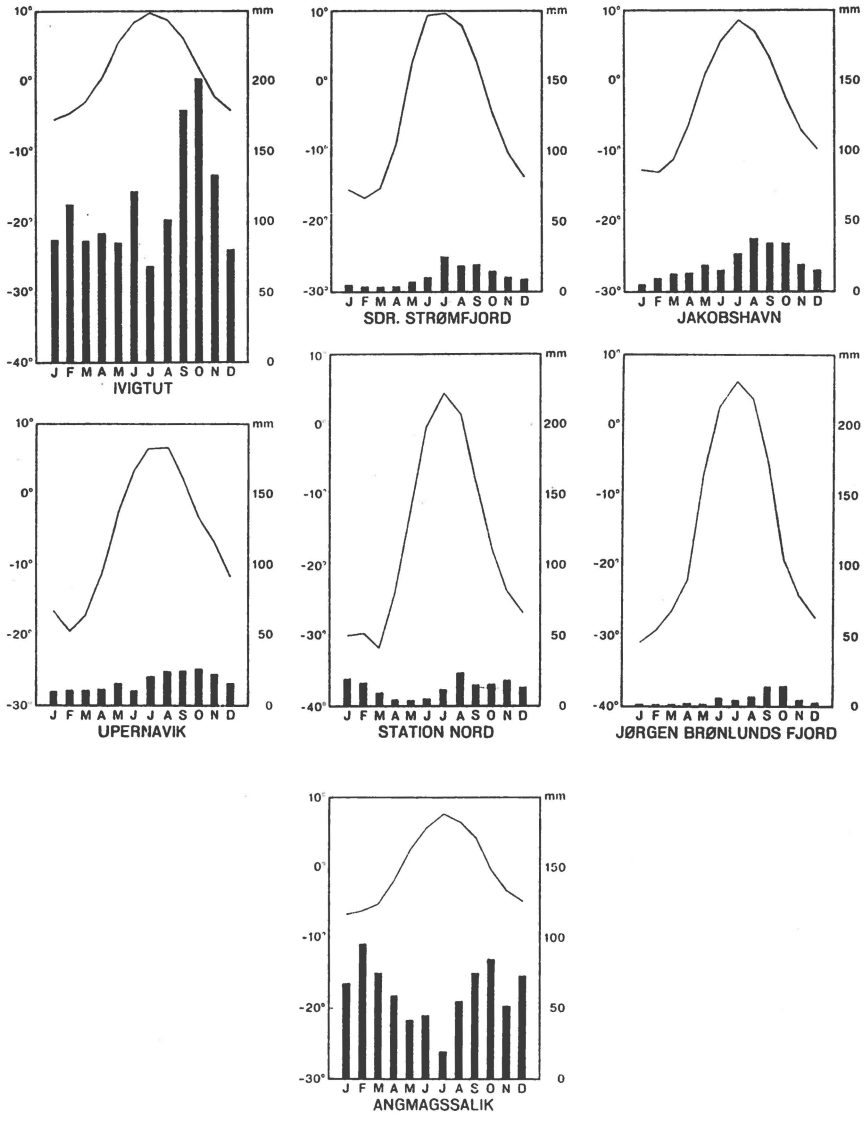


Fig. 3. Selected climate Stations of Greenland. (after FRISTRUP, B., 1965, pp. 38–39).

tent, although there is limited sheep-raising, especially in the extreme southwest fjord areas away from the outer coast. Forage crops are grown here, but not always in sufficient amount for the entire winter requirement.

In general, the climate of Greenland becomes colder and drier towards the north. North Greenland in winter is usually under the influence of polar air masses for most of the time, thereby enjoying many calm, clear (but cold) days. In the southern part of Greenland, where air

masses from the Atlantic, and the "Icelandic Low" between southeast Greenland and Iceland, are dominant, the result is one of unsettled, stormy conditions. In summer, southern Greenland is still affected by the regular passage of storms across the North Atlantic Ocean, although the low pressure area near Iceland is greatly diminished. In the southern part of Greenland, fog and rain are familiar conditions. The outer coasts are the wettest and foggiest; the climate becomes more continental farther inland.

Hydrographic conditions

The seas off West Greenland lie in the mixing zone of arctic and temperate water masses, each with characteristic fauna dependent upon the particular temperature, salinity, productivity, and current conditions of the respective water masses.

Most fish of commercial value in the waters off West Greenland are living near the northern limits of their geographic range. For this reason, small variations in hydrographic conditions can have significant effects upon the fish stocks, and therefore upon economic possibilities within the fishing industry.

The chief ocean currents off southern Greenland are shown in Figure 4. The cold East Greenland Current, the main outflow from the Polar Basin, flows close to the coast of East Greenland in a southwesterly direction. This is a rather broad current carrying with it the pack-ice (storis) already discussed. The quantity of pack-ice is so considerable at times that it reaches the northwest coast of Iceland (author's observation April 1968).

The cold East Greenland Current meets the warm, saline Irminger Current in Denmark Strait between Iceland and East Greenland. The Irminger Current, a branch of the North Atlantic Drift, is warm and of high salinity. Mixing between these two currents occurs first at about latitude 63–64° N. Both currents then flow around Kap Farvel (at about 1.8 to 3.0 knots) and northwest along the west coast of Greenland, forming the West Greenland Current.

Because of the warming influence of Atlantic water in this flow off West Greenland, the coast between Frederikshåb and Sukkertoppen is usually free of ice in all seasons. The warming influence also creates favorable temperature conditions on the fishing banks off West Greenland as well as the inshore waters.

In general, it is the change of relative influence of the cold East Greenland Current and the warm Irminger Current which determines fishing conditions off West Greenland from year to year.

The West Greenland Current continually loses volume as it flows northward; some of this water fans westward into the Labrador Sea. The

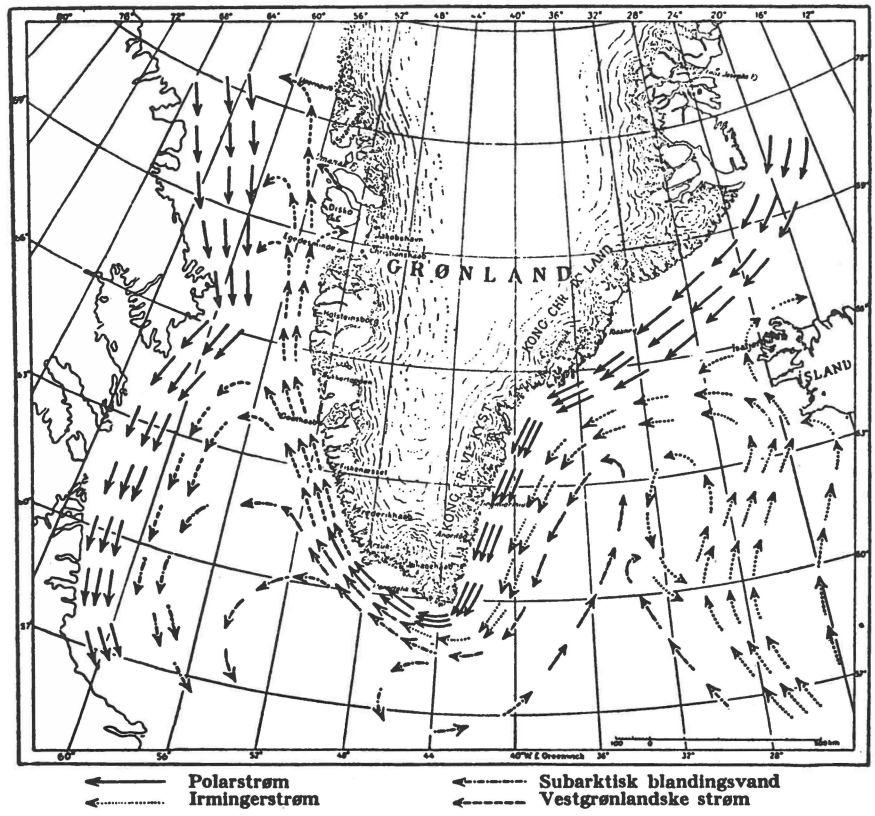


Fig. 4. Marine Currents Around Greenland. (Source: HANSEN, P. M. & F. HERMANN, 1953, p. 8). Polarstrøm = East Greenland Current. Irmingerstrøm = Irminger Current. Subarktisk blandingsvand = Mixed Subarctic Waters. Vestgrønlandske strøm, = West Greenland Current.

relatively warm Atlantic water, which because of its greater salinity flows at greater depth, branches westward at about latitude 62°–64° N., where it is barred by a submarine ridge across the strait. The remainder of the West Greenland Current flows north into Melville Bugt. Thus, the warming influence of this current is lessened towards the north.

Change of Climate and Hydrographic Conditions

In Greenland, as in other parts of the world, the climate has not been static through time. The development of a modern fishing industry for cod in Greenland, from its inception in 1917, was the direct result of a recent climate warming. It is not within the scope of this study to discuss in detail the climate warming which took place in Greenland, among other northern lands, early in the present century. This amelioration is an esta-

blished fact, proven by numerous scholarly investigations.[1]) A brief description of this recent climate change is introduced here, however, as a necessary background to the study of the fishing industry.

Ample meteorological records from Greenland show that the air temperatures at all stations increased after 1923. The first regular (thrice-daily) meteorological observations in Greenland were started in 1873 (Godthåb and Jakobshavn) and in 1874 (Upernavik and Qôrnoq). During the period 1923–1940, higher than normal mean annual air temperatures were recorded at all stations in Greenland. The temperature increases were greatest in winter and were especially noticeable at the northernmost stations.

The work of SMED (1946–1967), which described monthly anomalies of sea surface temperatures in the northern North Atlantic Ocean, showed that there was a steady alternation of positive and negative temperature anomalies during the years up to 1920. At the beginning of the 1920's, however, a very conspicuous rise in temperatures set in which continued to prevail into the 1950's, with a few years of strong negative anomalies (1938, 1949). This rise of sea surface temperature was simultaneous with the considerable increase in air temperatures.

For the waters off Greenland, the temperature rise was quite marked. This phenomenon, with concomitant increase in the stocks of certain fish in these waters, has been described by AD. S. JENSEN (1939).

The results of the climate warming have been visible in other ways. Many southern (boreal) species of animals have, since the early 1900's, been able to extend their ranges farther north, while the southern limits of some arctic species have retreated northwards. The thickness and extent of pack-ice in northern oceans has also diminished, as has that of glaciers on land. The decrease of pack-ice extent off southwest Greenland and the retreat of many outlet glaciers there have been especially noteworthy.

The graphs on the following pages (Figures 5–9) indicate the facts of the recent climate warming in Greenland. In Figure 5 the mean annual air temperatures at Ivigtut, Godthåb, and Jakobshavn are plotted (in 5-year running means). There is a clear increase of mean annual air temperatures during the period 1886/90 to 1926/30. Jakobshavn ex-

[1]) AHLMANN, H. W:SON, 1948, 1949, 1953; AHLMANN, H. W:SON, J. W. SANDSTRÖM & A. ÅNGSTRÖM, 1939; DUNBAR, M. J., 1946a, 1951a & b, 1954; ERIKSSON, B. E., 1943; FRISTRUP, B., 1952a; HANSEN, P. M. & F. HERMANN, 1953; JENSEN, AD. S., 1939, 1944; JENSEN, AD. S. and B. FRISTRUP, 1950; KIILERICH, A., 1943; KOCH, L., 1945; LYSGAARD, L., 1949; ROLLEFSEN, G. *et. al.*, 1949; SCHERHAG, R., 1937; SMED, J., 1949, 1965; SPEERSCHNEIDER, C. I. H., 1931; TÅNING, Å. V., 1943, 1949a & c; VIBE, C., 1967. Especially helpful bibliographies are included in AHLMANN, 1953; LYSGAARD, 1949; and ROLLEFSEN, 1949.

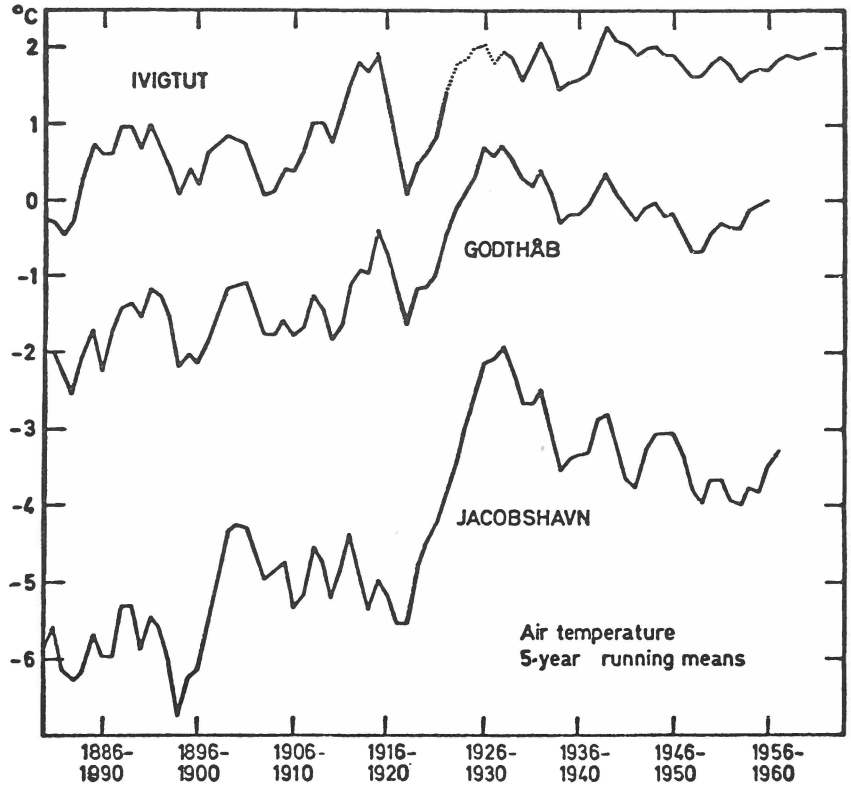


Fig. 5. Fluctuation in mean annual temperatures during the period 1886–1960 at Ivigtut, Godthåb, and Jakobshavn (5-year running means). (Source: from KGH Orientering nr. 32 (June 1968), p. 30, after material by F. HERMANN).

perienced an increase of about 3 C°. Subsequent to 1930, there was a general fall of mean annual temperatures, although perhaps not at the southernmost station, Ivigtut. As with the temperature increase up to 1930, the falling temperatures since that time were most marked towards the north in Greenland.

Figure 6 compares the summer and winter air temperatures (10-year running means) at these same three stations, plus Upernavik. Here again is shown a clear increase of air temperatures, both summer and winter, culminating around 1930, with subsequent fall-off. Seasonal graphs for Godthåb, Jakobshavn, and Upernavik (Figures 7, 8 and 9) show a similar pattern during the four seasons, with rather more definite fluctuations during the winter months and towards the north.

The development of marked positive anomalies of surface water temperatures off Greenland after 1920 is clearly shown in Figure 10. The graph plots average annual anomalies for five-year periods, and shows

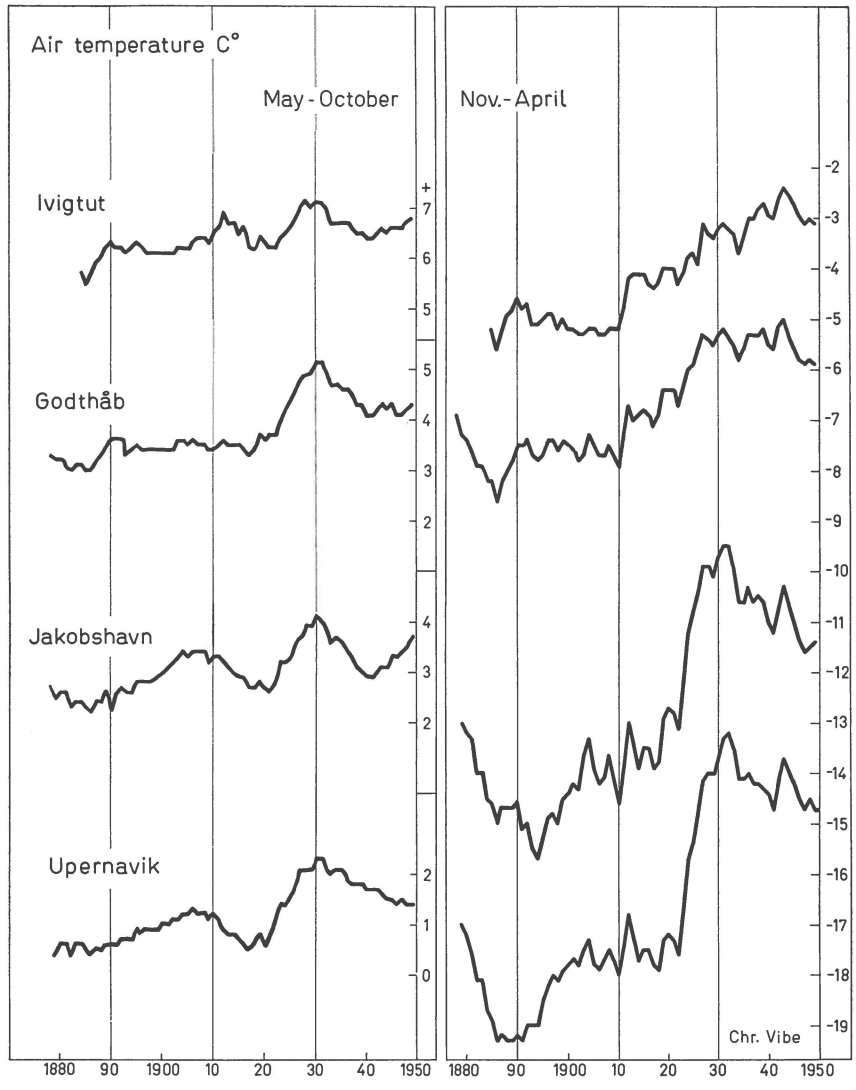


Fig. 6. Summer and winter air temperature curves at Ivigtut, Godthåb, Jacobshavn, and Upernavik (10-year running means) 1880–1950. (Source: VIBE, C., 1967, p. 31).

a cold period between 1890 and 1920, followed by a marked increase in temperatures (based on a norm for the period 1876–1950). This increase of surface water temperatures was contemporaneous with the influx of cod and the gradual spread northwards of cod in the waters along the west coast of Greenland.

As outlined by FREDE HERMANN, a Danish hydrographer, in an unpublished seminar in April 1968, studies have also been made of the

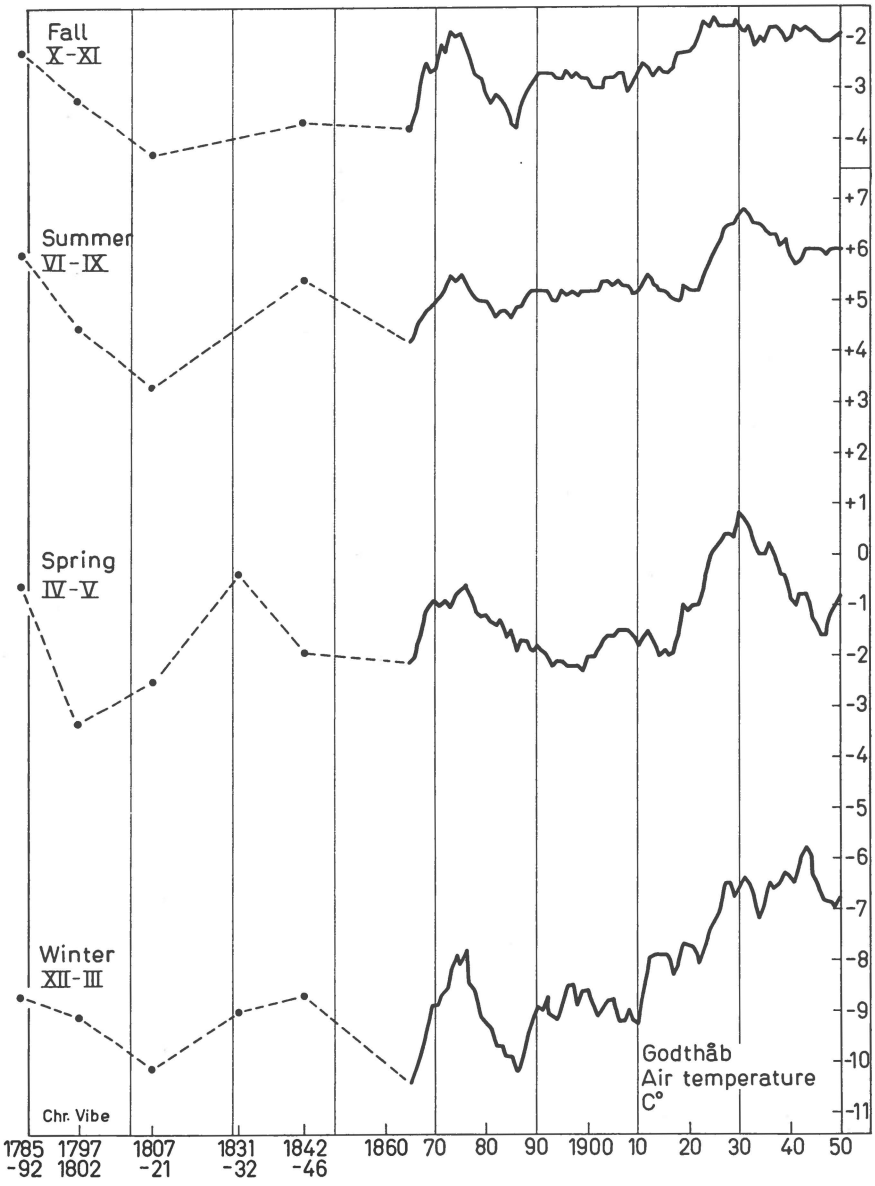


Fig. 7. Air temperature curves for Godthåb (10-year running means), seasonal means 1865–1950. (Source: VIBE, C., 1967, p. 30).

difference ("range") between summer and winter air temperatures (June-August and December-February respectively) in Greenland. The difference between summer and winter temperatures decreased at the end of the 1920's, largely due to higher winter temperatures. After 1950, this seasonal difference of air temperature increased, mainly because of falling

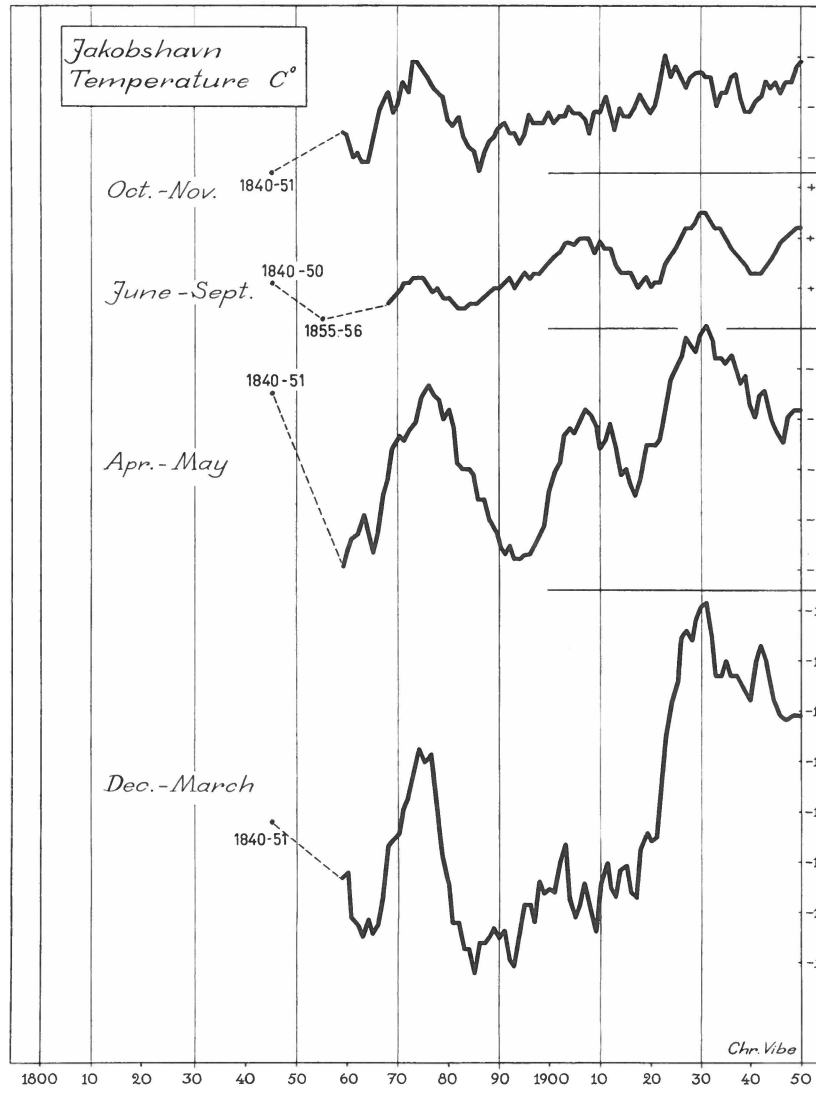


Fig. 8. Air Temperature curves for Jacobshavn (10-year running means), seasonal means 1860–1950. (Source: VIBE, C., 1967, p. 29).

winter temperatures. The change was accompanied by a southward movement of the northern range limit of cod.

The general pattern of water temperature variations has been a general increase up to the 1930's, followed by declining temperatures to a minimum in the early 1950's and a subsequent increase until the early 1960's. In recent years (1964 to present), a slight decline in water temperatures is apparent.

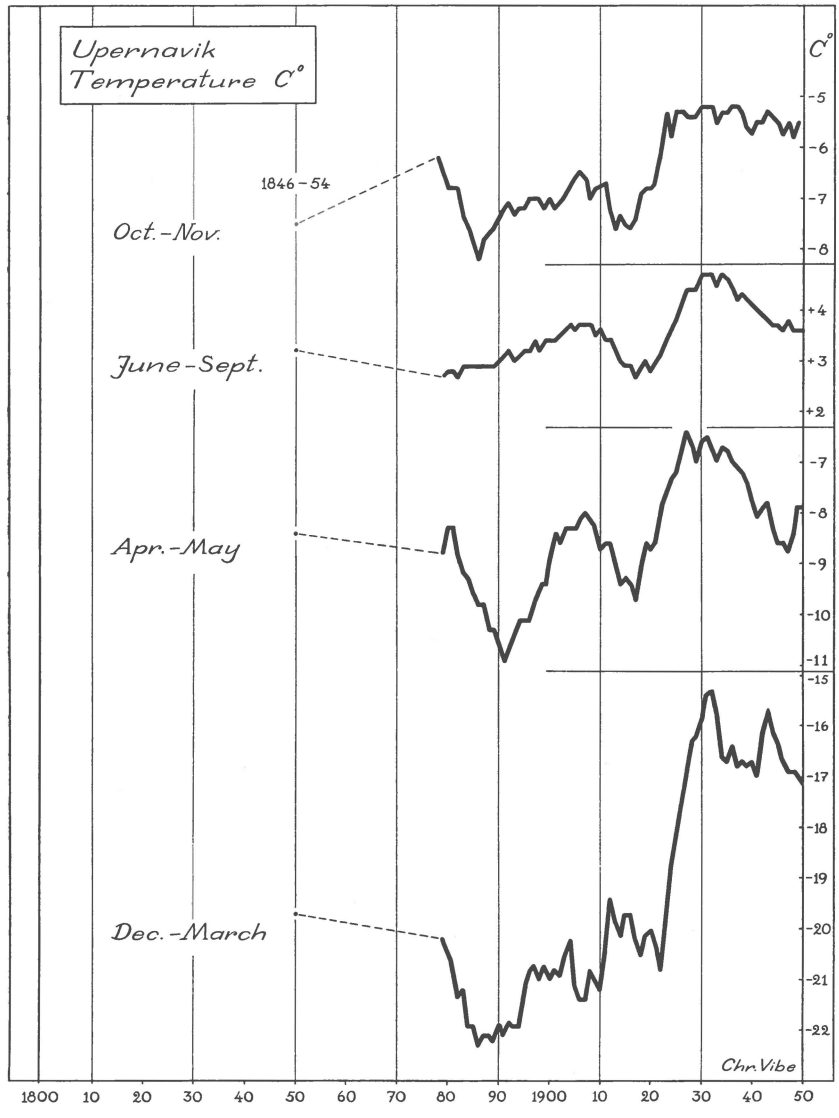


Fig. 9. Air Temperature curves for Upernavik (10-year running means), seasonal means 1880–1950. (Source: VIBE, C., 1967, p. 28).

The recent cooler trend in oceanographic conditions appears to be connected with an increase of northeasterly winds in the areas off East Greenland, which, in turn, resulted in an increase of water transport of the East Greenland Current and the Irminger Current (HERMANN, unpubl. notes). Because the cod in Greenland waters lives near its northernmost limit, even small temperature variations affect the survival of eggs and larvae, as HJORT (1926) first pointed out in his important paper on

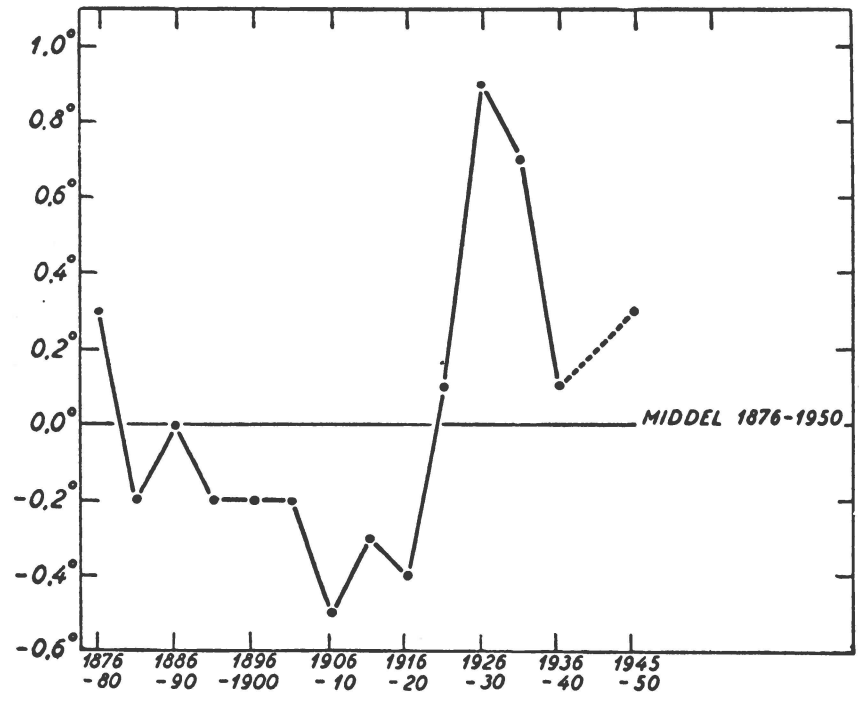


Fig. 10. Surface water temperature anomalies off West Greenland, departures from the mean (1876–1950) during five-year periods in degrees centigrade. (Source: HANSEN, P. M. & F. HERMANN, 1953, p. 25).

the fluctuations of year-classes of food fish. Temperature variations, in their effect upon egg and larvae survival, determine the richness of any given year-class (årgang), which is crucial for future fishery catches.

Kinds of Fish

Nine types of fish and one decapod crustacean (deep-sea prawn) have played the major role in the development of the fishing industry of West Greenland. All of the commercially-useful fish in Greenland waters have been described (HANSEN, P. M., 1961a, 1962b; HANSEN, P. M. & F. HERMANN, 1953) and more detailed accounts have been published by various scientists. In addition to the following short description of each type of fish, reference is made to Table 1 which lists, in the appropriate languages, the economically-important fish in Greenland waters. The fish of major commercial importance in the development of West Greenland's fishing industry are: Atlantic cod, Greenland shark, common halibut, Greenland (or blue) halibut, Atlantic salmon, arctic char, wolffish, lumpsucker, capelin, and a crustacean, the deep-sea prawn. Figure

11 shows the main fishing and hunting areas of Greenland. Only in Disko Bugt and southern Umanak district do hunting and fishing co-exist in any important degree. In East Greenland both are found together, to a minor extent, in Angmagssalik district.

Atlantic cod

The cod (*Gadus morhua*) is a fish of widespread occurrence in the northern North Atlantic Ocean and is by far the most important food fish (in total landed weight and export value) off West Greenland. The occurrence of cod is dependent upon definite conditions in the sea. Its appearance in Greenland waters has been of a periodic nature. As will be discussed in Chapter III, the present period of cod abundance in Greenland waters is the latest of three such periods since 1800, although the first two (1820's and 1850) were of considerably shorter duration. As in the present cod-rich period, the two appearances of cod off Greenland in the 1800's were connected with warmer marine conditions.

The cod stock which presently spawns in the waters off West Greenland is believed to have originated from the Icelandic stock (HANSEN 1961a, p. 21). Up to the 1920's, the cod fished off Greenland moved to Iceland on spawning and feeding migrations, but the cod now spawns independently off West Greenland, although some few fish wander periodically to Iceland to spawn. Extensive fish-tagging experiments by Danish scientists have elucidated the cod's biology and life cycle in Greenland waters (especially studies by Dr. PAUL M. HANSEN, former head of Grønlands Fiskeriundersøgelser).

Cod spawn between March and May on the western slopes of the fishing banks off West Greenland between 61° and 64° N. in depths between 200 and 450 meters in temperatures of around 4° C. One large inshore spawning area is found in inner Godthåbsfjord, which has its own spawning stock, but where also cod from Davis Strait come to spawn.

The eggs, larvae, and eventual cod fry are transported by the West Greenland Current from the spawning grounds in a northerly direction. The survival rate of cod fry depends on temperature and feeding conditions. When conditions are favorable, survival of cod fry is at a maximum and a good "year-class" is produced. The cod is first important in the fish catches when it is five years old, of optimum importance at seven to eight years, and thereafter of declining importance. Suitable conditions in 1960, therefore, which produced a good year-class, would have highest influences on good fish catches in 1967–68.

In winter the cod seeks the warmer temperatures in the depths of Davis Strait on the slopes of the fishing banks at 400 to 600 meters. The cod also migrates into the warmer, non-threshold fjords, for example Godthåbsfjord.

Table 1. *Economically important fish in Greenland waters.*

Latin	*English*	*Danish*	*Greenland Colonial*	*Greenlandic* (Eskimo)
Somniosus microcephalus SCHNEIDER	Greenland shark	Havkal	Haj	eqalugssuaq
Hippoglossus vulgaris FLEMING	Common halibut	Helleflynder	Helleflynder	natârnaq
Reinhardtius hippoglossoides WALB.	Greenland halibut, Blue halibut	Hellefisk	Hellefisk	qaleralik
Hippoglossoides platessoides FABRICIUS	Long rough dab	Håising	Fladfisk	oqâtaq
Salmo salar L.	Atlantic salmon	Laks	Skællaks	kapisilik
Salmo alpinus L.	Arctic char	Fjældørred	Laks	eqaluk
Gadus morhua L.	Cod	Torsk	Havtorsk	sârugdlik
Gadus ogac RICHARDSON	Fjord cod	Fjordtorsk	Uvak	ûgaq
Anarrhicas lupus L.	Wolffish, Catfish	Havkat	Havkat	qêraq
Anarrhicas minor OLAFSEN	Spotted wolffish	Havkat	Plettet havkat	qêraq
Anarrhicas latifrons STP. & HALLGR.	Wolffish	Havkat	Blå havkat	qêraq
Sebastes marinus L.	Redfish, Rosefish, Norway haddock	Rødfisk	Rødfisk	sulugpâgaq
Cyclopterus lumpus L.	Lumpsucker	Stenbider	Stenbider	nipisa
Cottus scorpius L.	Sea scorpion	Ulk	Ulk	kanajoq
Mallotus villosus MÜLLER	Capelin	Lodde	Angmagssæt	angmagssaq
Gadus saida LEPECHIN	Polar cod	Polartorsk	Gråfisk	equlagaq
Clupea harengus L.	Herring	Sild	Sild	angmagssagssuaq
Pandalus borealis KRØYER	Prawn	Dybhavsreje	Reje	râjat (qingugpak)

Sources: various references including:

HANSEN, P. M. 1961a. Kalâtdlit-nunâta imâne aulisagkat iluaqutaunerussut – Nyttefisk i de grønlandske farvande (Useful fish in Greenlandic Waters). København: Den kongelige grønlandske Handel. 84 pp.

JENSEN, AD. S. 1925. On the fishery of the Greenlanders. Medd. fra Komm. for Havunders. (Serie: Fiskeri) Bd. VII (7): 1–39.

Sammendrag af Statistiske Oplysninger om Grønland. Beret. vedr. Grønl. Styrl. 1942–45. ("Skandinaviske, grønlandske, latinske, og engelske Betegnelser for Nyttedyr og -planter").

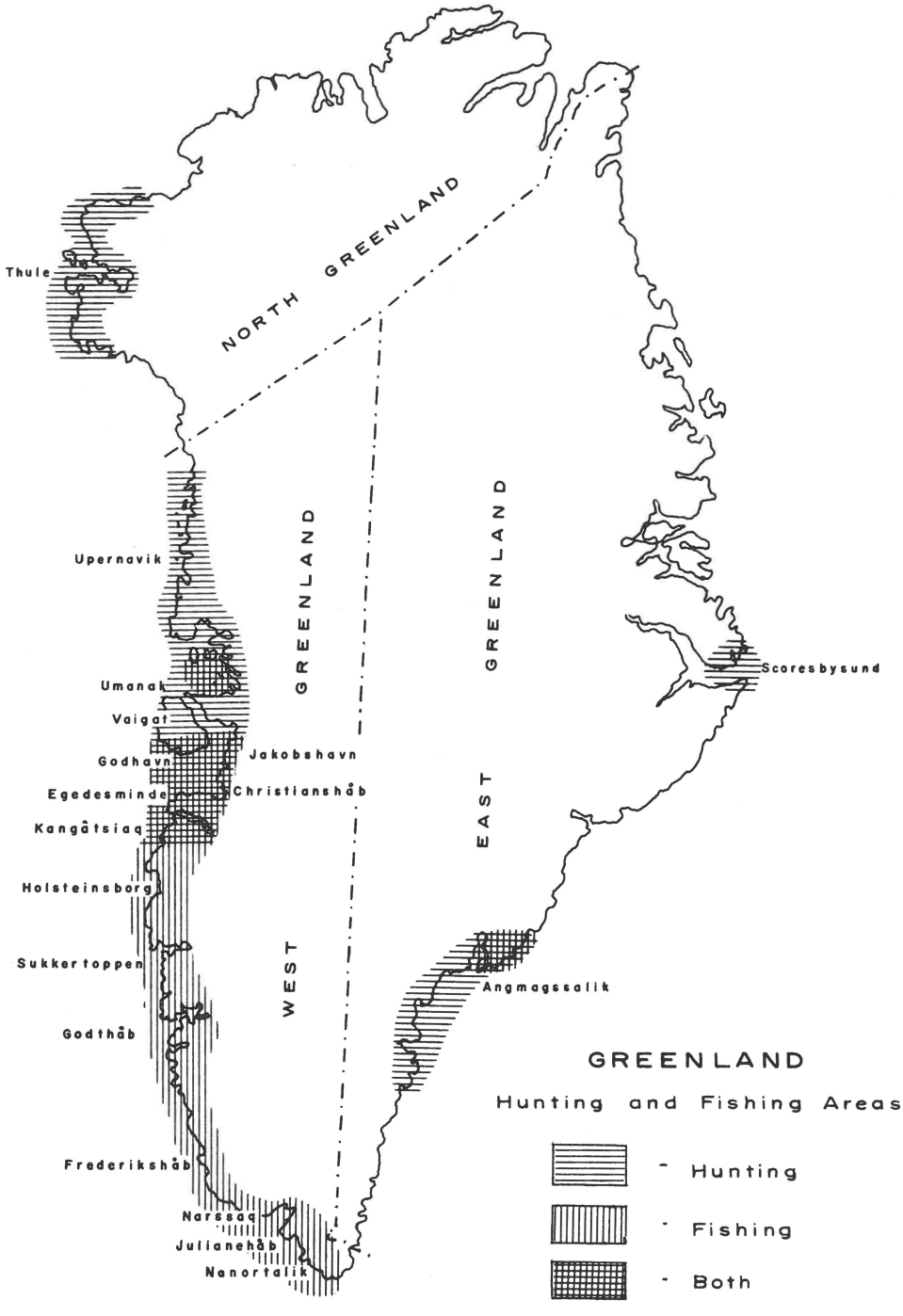

NORTH GREENLAND
WEST GREENLAND
EAST GREENLAND
Thule
Upernavik
Umanak
Vaigat
Godhavn
Jakobshavn
Egedesminde
Christianshåb
Kangâtsiaq
Holsteinsborg
Sukkertoppen
Godthåb
Frederikshåb
Narssaq
Julianehåb
Nanortalik
Angmagssalik
Scoresbysund
GREENLAND
Hunting and Fishing Areas
- Hunting
- Fishing
- Both
wgm

Fig. 11.

When the upper surface layers are warmed in spring the cod seek the shallow waters over the banks. Cod also prey upon the capelin (*Mallotus villosus*) as it moves to its inshore spawning locations, and thus forms the basis for the Greenlanders' inshore hand-line and long-line cod fishery. In recent years, an important pound-net (bundgarn) fishery has grown up to catch the cod as it follows the capelin on these spawning migrations. Because of the cod's erratic wandering along the coast, the Greenlanders' inshore cod fishery is highly-seasonal and of short duration. In some years the cod fails to appear in great numbers, and at other times ice conditions hamper the fishery and cause loss of gear.

Cod-marking and otolith age determination have solved many questions about cod year-classes, growth rates, mortality, and migrations. It is known that growth rates of Greenland cod were higher in the 1920's than now, and that cod from the banks had higher growth rates than the local spawning stock in Godthåbsfjord. The study of each cod year-class, its strength compared with other year-classes, and its potential to the future fish catches, has been the most significant contribution of marine biologists in planning the fishing industry of Greenland.

Up to the early 1950's in West Greenland, cod was processed mainly into saltfish and dried fish. Between 1950 and 1966, there has been a rapid growth of fish freezing plants in West Greenland, and the value of frozen cod products is now roughly twice that of dried and salted products.

Greenland shark

The Greenland shark (*Somniosus microcephalus*), as its scientific name indicates, is a lethargic, small-brained fish. Because of the shark's lack of fight, the Greenlanders could hook and land quite large sharks, even from their frail kayaks. Sharks have been caught off West Greenland which were four meters in length and one ton in weight.

The shark has been of great importance to the Greenlanders in the past, but it is of only minor importance today. The meat was formerly cut into strips for drying or was boiled. Both methods were employed to lessen the toxicity of shark meat before it could be used as rations for sledge-dogs.

Of most importance in the past was the liver of the Greenland shark. Oil was rendered from the liver which was used to some extent by the local Greenlanders to light their stone lamps, or was mixed by the Danes with seal oil to fabricate the so-called "three-crowns oil" (trekronertran), also used for lighting. Subsequently the shark liver oil was also used for medicinal purposes as a source of vitamin A. The shark's liver is quite large and averages 15–25 kilograms, although some livers of sharks caught off West Greenland weighed over 300 kilograms (660 pounds), according to HANSEN (1961a, p. 42).

The skin of the shark was also of some economic importance, although few shark skins are now landed. The skin can be tanned and gives a fine leather for women's handbags and for use in book-binding.

The Greenland Administration once had great hopes for the shark fishery as an important supplemental fishery to cod. It was believed the shark fishery could develop into an important industry should the cod fail (HANSEN, 1953b). These hopes for the shark fishery have not been realized, mainly because the shark, as an arctic species, has retreated northward during the recent period of warmer sea temperature.

Sharks have been caught in northern waters for many years, but until recently many basic facts of its life history were unknown. As late as 1954 it was first proven that the shark gives birth to live young. Even today many details of growth rates and migration of this fish remain little known (HANSEN, 1963b).

Common halibut

The halibut (*Hippoglossus hippoglossus*) was, for a short period during the 1920's and 1930's, of economic importance for foreign fishing fleets in the waters off West Greenland. But as a direct result of that fishery, the halibut is of little significance today. The halibut's fate in Greenland waters is an example of how a rich stock of a valuable food fish can be destroyed after only a short period of intensive fishing.

The halibut is a fish of slow growth, which also seems to produce low quantities of fry. Despite the slow growth rate, it can reach quite large size. Little is known of the biology of the halibut in Greenland waters. It is believed that Davis Strait is not an important spawning area and that a large part of the Greenland stock comes from Iceland (HANSEN, 1955a and 1961a).

Halibut was well favored by the Greenlanders in the early days of the fishing industry. Each year in the early part of this century, several hundred Greenlandic fishermen gathered on the rich fishing grounds of southern Egedesminde district, using mainly hand-lines from kayaks. Wooden dories were introduced in Holsteinsborg district in 1910 for halibut fishing. The small boats were towed by a cutter out to the banks 15–20 nautical miles from the coast. Both hand-lines and long-lines were used, and an increasing number of motorboats entered this fishery around 1920.

Halibut were also caught and salted north of Kangâmiut near the mouth of Søndre Strømfjord. In 1924, the canning plant from Grædefjord was moved to Holsteinsborg to process the catch of halibut, but the fish was by that time showing fluctuations, and the catches gradually declined because of overfishing by foreigners. By 1934 the halibut fishery was finished; attempts to begin again following World War II failed.

It is unlikely that the halibut will have any significance in the future fishing industry of Greenland.

Greenland halibut

The Greenland (or blue) halibut (*Reinhardtius hippoglossoides*) is an arctic flat-fish showing great resemblance to the common halibut, although the Greenland halibut is smaller in size and less asymmetrical. In English, it is perhaps easier to use the Danish name for Greenland halibut, *hellefisk*, in order to avoid confusion with the common halibut. The name hellefisk, will, therefore, be used often in the text of this study.

The hellefisk, first described from Greenland by AD. S. JENSEN (1935), is a deep-water fish (250–1,600 meters) occurring along the west coast of Greenland as far north as Smith Sound. It preys upon the deep-sea prawn and is especially plentiful in Umanak district (Umanak Fjord), in Jakobshavn district (at Qeqertaq, Jakobshavns Isfjord, Claushavn, and Rodebay), and in some fjords of Narssaq and Julianehåb districts in the extreme southwest.

The spawning areas of the hellefisk are in the deep waters in the southern part of Davis Strait. The hellefisk, as an arctic species, prefers cold water, and it withdrew northwards during the recent climate warming. The once-rich fisheries for the hellefisk in Narssaq and Julianehåb districts are no longer productive.

The Greenland halibut reaches a weight of 5 to 10 kilograms, rarely up to 15 kilograms. It is an extremely fat fish, which allows it to be smoked like salmon. It is exported in salted form (for later coloring and smoking) and in frozen fillets. Large quantities of hellefisk are consumed locally in Greenland, and also used as sledge-dog ration. The Greenlanders in former days utilized the fat of hellefisk (skimmed from the cooking water) for lamp oil.

The areas of present importance in the hellefisk fishery are Jakobshavn and Umanak. Off Jakobshavn, hellefisk are taken by long-line in summer in the vicinity of the ice-front of Jakobshavns Isfjord. In winter, strenuous dog-sledging is necessary to reach the fishing grounds of inner Jacobshavns Isfjord where hellefisk is taken by long-lines through the ice after utilizing an ingenious "glider" to shoot the line (NELLEMAN, 1961a).

Although landings of hellefisk have increased in recent years, as also landed values, it is doubtful if hellefisk will be relatively more important in the fishing industry of Greenland in the future. Hellefisk will, of course, continue to be of local significance, especially in Umanak district, and will continue to be important as a local source of food.

Atlantic salmon

The salmon (*Salmo salar*) was never, until recently, a common fish in Greenland waters. There is only one river in West Greenland where it is known to spawn; in the past it was regularly caught only in the river at Kapisigdlit in Godthåbsfjord and in the autumn in Ikertôq fjord near Sarfánguaq, Holsteinsborg district.[1]) Salmon is, however, one of the fish which became more common during the present warm period. In 1935 and 1936 it was reported to have been present in "quite large numbers" in Julianehåb, Godthåb, and Sukkertoppen districts, especially in autumn (Anon. 1940b, p. 358).

A report from the early 1950's called salmon "a quite uncommon fish off West Greenland" (HANSEN & HERMANN, 1953). But it was also stated at the time that it seemed to have become more common with the warmer conditions. By the mid-1950's, one scientist supported this observation and claimed also that the salmon had extended its range recently (NIELSEN, 1955a).

The occurrence of salmon off West Greenland has always been variable, and is near the northern limit of its range. Future investigations might show other rivers in Greenland where salmon spawn, but the lack of extensive river systems on the narrow ice-free strip of land on the west coast presents unfavorable spawning conditions.

By 1958, salmon began to appear in increasing numbers in Greenland waters. At that time the only important salmon fishery was near Napassoq in Sukkertoppen district (NIELSEN, 1961a). The Danish marine biologist JØRGEN NIELSEN mentions that in 1958, 500 salmon were taken near Arsuk (Frederikshåb district), and that "evidently salmon were of more common occurrence along the shores in 1958 than in any previous year" (NIELSEN, 1961a).

Early tagging recoveries showed that the salmon which were increasing in Greenland waters were not local spawning fish, but originated from spawning areas on both sides of the Atlantic. One salmon tagged at Loch na Croic, Scotland, in November 1955 was captured at Eqaluk (Sukkertoppen district) in October 1956, 2,800 kilometers distant. Another salmon tagged in the Miramichi River, New Brunswick, Canada, in May 1959 was recaptured near Napassoq in October 1960 (NIELSEN, 1961a).

The dramatic increase of salmon and the consequent explosive development of the salmon fishery off West Greenland since 1958 is now a well-known fact. This development is the basis for the passionate debate now

[1]) A short description of fishing salmon at Sarfánguaq in the 1920's is found in a book translated from the Greenlandic and published as Lærebog i fangst for Syd- og Nordgrønland (see references), p. 54.

raging on both sides of the Atlantic Ocean by sport fishermen and scientists who have observed the recent decline in salmon coming to the traditional spawning rivers in Canada and the British Isles. Recoveries have also been made in Greenland of salmon tagged in Sweden and the United States. It is believed also that salmon from Norway and Iceland feed off West Greenland, although no tagging recoveries had been made from these areas up to 1966 (HANSEN, 1966e, p. 154).

The salmon which has appeared in ever-increasing numbers off West Greenland in recent years arrives in autumn on a feeding migration and leaves again in the winter.

It should be noted here that, despite rapid growth of catches in the salmon fishery, the Greenlanders have yet to enter the large salmon drift-net fishery off the coast, and their catches therefore do not compare with the latter fishery, pursued by Danish and Færoese fishermen and those of other nations. The Greenlanders' unusually large catch in 1964, however, was about 20 per cent of the total world production of Atlantic salmon (HANSEN, 1966e).

Now that such a large feeding area for salmon from both sides of the Atlantic Ocean has been discovered, a natural question is whether or not this area has always harbored so many salmon. I agree with Danish scientists and others familiar with Greenland when they state definitely that such large numbers of salmon have never before been observed off West Greenland. The Greenlandic fisherman, with his intimate knowledge of conditions along his coasts, would scarcely have failed to notice if such a large number of salmon had been present.

Dr. PAUL M. HANSEN has suggested that the recent increase of salmon in Greenland waters can be compared in a general way with the well known cod invasion and that

> it is a phenomenon that the salmon, for one or more reasons unknown to us, has shifted feeding grounds and that it perhaps, within a shorter or longer period of time, will leave Greenland and choose another area. (HANSEN, 1966e, pp. 156–57, author's transl.)

HANSEN also suggested to me that he thought it possible that the recent, rapid increase of salmon off Greenland resulted from a sudden increase in numbers of salmon in the entire Atlantic stock, or that there had occurred a similar increase in prey species.

Because of falling prices for salmon in recent years and because of its short season in Greenland, it is unreasonable to believe that the salmon fishery of West Greenland will increase in relative significance in the future. Given good cod occurrences, most fishermen will pursue this fishery, with perhaps some effort in the more time-consuming netting of salmon.

Arctic char

Of the family *Salmonidae*, only two species occur in Greenland: the Atlantic salmon (*Salmo salar*) described above, and the arctic char (*Salvelinus alpinus*). The Danes in Greenland call the arctic char "salmon" (laks), which has perhaps contributed to the present controversy about the former abundance of salmon in Greenland waters. The true salmon is called "scale salmon" (skællaks) in Greenland.[1])

The arctic char, as in many other areas of the North, occurs in two forms in Greenland. A non-migratory form is found in both land-locked, freshwater lakes and in rivers with connection to the sea. A migratory, anadromous form spawns in fresh-water rivers and lakes, after hatching from eggs where the parr remain three to five years before their first migration to the sea. The char, after spending the summer in salt water not far from its native river, returns annually to its native river to spawn and spend the winter. It returns to the sea again in the spring. The char is sexually mature at nine years and spawns several times during its life time, although perhaps not annually (NIELSEN, 1961a).

The arctic char does not reach the size of the Atlantic salmon, nor is it as fat. The char averages 40 to 60 centimeters in length and between 1.5 and 2.5 kilograms in weight (HANSEN, 1961a). Fewer details are known about the biology of the arctic char than about the Atlantic salmon. Unlike the salmon, the char's scales cannot be used to determine biological details of age and growth-rates, although char otoliths can be used to some extent.

The arctic char has always been an important source of food for the Greenlanders. The Greenlanders, with their entire family in tow, moved out each year in late summer to fish for arctic char at a traditional place. The family lived in a tent by the river where char were caught in nets or with hooking poles. This form of fishing was often pursued by women and children while the men went off to hunt caribou.

The first canning plant in Greenland (at Grædefjord, Godthåb district) was built in 1914 to process arctic char, but the local stocks of char were so overfished that landings declined sharply and the station was closed.

The traditional processing of arctic char since the early 1900's has been salting it down in barrels. The char flesh is of varying color, some

[1]) In Denmark, the salmon is called laks and the arctic char fjældørred, so that there is no confusion about these two species. If English-speaking scientists, unaware of misleading local usage of the word "salmon" for arctic char in Greenland, have translated some of the old reports from Greenland, they have been misled into thinking that salmon were quite numerous in the past in Greenland waters. In reality, the word "salmon" (laks) in past reports has always referred to arctic char.

quite pinkish-red and other almost white. Of the two color "forms", the red char brings the better price.

The production of char is extremely variable and has declined in Greenland in recent years. Because of its slow growth rate and late sexual maturity age, the char has been vulnerable to overfishing. To protect the stock of arctic char, regulations now specify the minimum allowable mesh size for nets. It is also not allowed to block rivers with stone dams which would hinder the fish from reaching their fresh-water spawning grounds.

Wolffish

Of the three forms of wolffish in Greenland waters, only the spotted wolffish (*Anarrhicas minor*) is of commercial importance. The blue wolffish (*Anarrhicas latifrons*) is inedible, and the common wolffish (*Anarrhicas lupus*), a southern form, is of small size in Greenland waters, although it is landed and is of some importance in production.

The spotted wolffish is found as far north as Upernavik district, after having extended its northern range during the climate warming. This fish, occurring particularly over the fishing banks off the west coast, has a fine, white flesh suitable for frozen fillets.

The skin of the wolffish, since 1938, has been salted down and exported to Denmark for use in the leather industry (shoes, wallets, etc.), but by the mid-1950's this export had declined and no wolffish skins are presently being exported from Greenland.

Lumpsucker

This fish is caught along the west coast of Greenland during a short period in May and June when it comes to shore to spawn. The lumpsucker (*Cyclopterus lumpus*) is important because the roe of mature females is used to produce "Greenland caviar", which was first tried in 1952. The roe, after screening and sorting, is packed with salt in barrels.

Lumpsucker roe is an important source of income for fishermen, especially in Frederikshåb and Sukkertoppen districts. This fishery, although occurring only for a short period each year, has good potential for the future. Increased production recently has caused marketing difficulties, so that the landing price fell after 1966 and landings had to be limited.

Capelin

The capelin (*Mallotus villosus*) is a very valuable fish for the Greenlanders. When dried, it provides both human and dog food for the winter months. Even more important, however, is the significance of the capelin

as a food fish for seals, small whales, and commercially-useful fish: cod, halibut, hellefisk, salmon, and char.

The Greenlanders have traditionally caught this small, herring-like fish in hand nets when it comes to the coast to spawn in great masses in May and June. The cod, following the spawning capelin to shore, forms the most important part of the fishing industry of Greenland.

The traditional capelin catch has declined in Greenland, partly because imported foodstuffs are being consumed more in recent years. The capelin is not used to any great extent in Greenland as it is in other areas: for fish meal (North Norway) and fertilizer (Newfoundland). Past ventures by the Royal Greenland Trade Department in processing fish meal have not been of particular success.

Deep-sea prawn

The deep-sea prawn or shrimp (*Pandalus borealis*) is probably found in depths of 200 to 500 meters along the entire coast of West Greenland and southern East Greenland. It prefers a sea bottom of soft mud, water of high salinity (between 33 and 36 parts per thous.), and positive water temperatures. Despite its widespread occurrence, it is fished only at places where bottom conditions and depths allow trawling.

The prawn fishery in West Greenland began in 1935 near Holsteinsborg, where the declining halibut cannery was switched to this new resource. After the hiatus of World War II, the prawn fishery resumed, but the very cold winter of 1948–49 caused high mortality and resultant failure of prawn catches.

Post-war investigations by Danish marine scientists found rich prawn occurrences in Disko Bugt and near Narssaq in the southwest.

The biology of the prawn and the details of the prawn fishery off West Greenland have been well described by Danish scientists.[1]) The Greenlandic deep-sea prawn is the same type as is fished in Scandinavian waters, and also has widespread distribution in the northern parts of both the Atlantic and Pacific Oceans. The prawn off Greenland has a slower growth rate than in other areas because of lower water temperatures. The same factor also delays the interesting biological feature of this crustacean: a sex-shift (protandric hermaphroditism) between two and five years of age—five years in the cooler waters off Greenland.

Prawns are fished by otter trawl from cutters of between 15 and 30 tons (usually about 20 tons). The main processing factories in Disko Bugt are located at Christianshåb and Jakobshavn, with smaller production at Godhavn and Egedesminde. Prawns are also processed for export at

[1]) Hansen, 1949a; Horsted, S. Å., 1960a&b, 1962, 1969; Horsted & Smidt, 1956; Smidt, E., 1953, 1957a & b, 1965c, 1966.

Sukkertoppen and Narssaq. A private prawn factory opened at Holsteinsborg in 1962, and a smaller private trader lands prawns near Kangâmiut.

In general, the areas suitable for trawling prawns are limited compared with the extensive areas where prawns are found off Greenland, so that overfishing is not yet a threat. This is particularly true in Disko Bugt where prawns on the trawling banks have a steady recruitment supply from the rocky and uneven areas of Davis Strait on the west and southwest. Temperature fluctuations, however, are a constant threat to this fishery, as are ice conditions, which physically hinder trawling. In recent years, the size of prawns caught appears to have decreased somewhat—a phenomenon which Danish scientists attribute to trawling activity.

In Disko Bugt, prawns are fished when ice conditions allow, usually from May to November. In the Narssaq area in the southwest, trawling for prawns is possible year round, although this area has experienced a decline in prawn landings in recent years.

Given suitable temperature and ice conditions, there is no doubt that the prawn fishery of West Greenland will continue to be a major part of the fishing industry of West Greenland.

Other fish

Several other fish have been of value to the Greenlanders in the past or are of importance to the international bank fishery off West Greenland. The redfish (*Sebastes marinus*) is a pelagic species fished off the coast of Greenland (especially off East Greenland) by foreign trawlers. It is often taken by the Greenlanders in their prawn trawls, after which it is filletted and frozen for export. If and when the Greenlandic fishing industry moves out to the banks, the redfish will become more important.

Herring (*Clupea harengus*) are found in Greenland waters, but are not pursued by the local fishermen.

The fjord cod (*Gadus ogac*) is important locally for food, especially in times of need, but it is not of sufficient quality to be processed for export.

The sea scorpion or sculpin (*Cottus scorpius*) has always been an important food fish for the Greenlanders in time of need. It has little potential, however, for the export fishery.

The People and Trade

Because the harsh climate severely limits agricultural possibilities, the inhabitants of Greenland have always looked to the sea for their livelihood: hunting of seals, whales, and other sea mammals and, in the present century, fishing. The part of the sea of most importance to the

Greenlanders is the inner coastal area. This inshore area, between the rocky islets and reefs of the skerrys (skærgård) and the mainland coast, has ice and current conditions which experience wide geographical and seasonal variations.

The aboriginal Eskimos who migrated to Greenland by way of northern Canada first hunted caribou and muskox, later whales, seals, and other sea mammals. Seal hunting was the basis for the Greenlanders' existence until early in this century. This hunting was supplemented, at certain periods and during definite seasons of the year, by hunting of walrus, small whales, caribou, polar bear, and birds, the collection of birds' eggs and berries, and various forms of fishing: for capelin (angmagssat), sea scorpion (ulk), shark, fjord cod (uvak), Greenland halibut, cod, and common halibut. It is important to recognize the fine balance between the natural factors of climate, marine conditions, and the number of animals which could be hunted, versus the number of people these resources could support. Because of dependence upon widely-varying natural factors and periodic fluctuations of food sources, the number of people which the natural resources could support also varied greatly. VIBE (1967, p. 13) has pointed out that:

> The history of Greenland is a testimony of prosperity and poverty following each other in rapid succession. Oral as well as written records from the last centuries, and archaeological finds from the last four-five thousand years, unfold the same picture: The periods of prosperity, after a few scores or at most a few hundred years, were succeeded by correspondingly long periods of decline, when settlements, parts of the country, or all of Greenland were depopulated and lay uninhabited.

During the seal hunting period in Greenland, the population was characterized by a small number of people living in widely scattered places, an arrangement which assured that the hunting resources would not be unduly taxed. It has been calculated that Stone Age people needed an average of five square kilometers (1.93 square miles) per person to survive in hunting on land, more if they were sea hunters (CHEMNITZ & GOLDSCHMIDT, 1964).

The modern history of Greenland began in 1721 when HANS EGEDE landed on the west coast north of the mouth of Godthåbsfjord to build a mission.[1]) EGEDE, who was from Harstad, North Norway, planned to finance his missionary work by trade. He went to Greenland as a re-

[1]) EGEDE had hopes of re-establishing contact with the Norse inhabitants whose fate had been uncertain for over 300 years before EGEDE's landing. Their fate is still unknown today and is the subject of many theories.

presentative of a commercial company which he had helped to organize with several merchants.

During fifteen years in Greenland, HANS EGEDE worked tirelessly as a missionary, colonizer, leader, and explorer. There were many hardships and privations in Greenland. Trade was poor, and in 1726 the Bergenske Kompagni, which had sponsored him, was forced to suspend operations. EGEDE was then aided by the Royal House, which in fact meant that the government assumed control of the mission and trade. In 1734, however, the King issued a charter by which the trade was given to JACOB SEVERIN for a period of six years, and again missionary and colonizing work became private enterprises with headquarters in Copenhagen.

SEVERIN's trade monopoly lasted until 1750, and was held during a period of hardship and adversity. A newly-organized General Trading Company (Det almindelige Handelskompagni) took over responsibility for the Greenland trade in 1750. But in 1774 the government took over the shares of the General Trading Company, which in its last years was suffering from deficits of over 100,000 rigsdaler and had been receiving state support for years (CHRISTIANSEN, 1961a).

Since 1774, Greenland trade has been carried on without interruption by the state monopoly represented by the Royal Greenland Trade Department (Den kongelige grønlandske Handel = KGH). The population, living in small settlements along the coast, sold their surplus hunting products to the government traders and, in return, were compensated in goods supplied from Europe through the local shop or depot. The number of Europeans in Greenland was low and all efforts were directed to protecting the natives from outside influences.

Visitors to Greenland were allowed only for the purpose of scientific investigation, and the health of all outsiders was checked before permission to land on the island was granted. Luxury goods were not stocked in the shops or, if found, were at a high price. Conversely, the goods deemed necessary to the Greenlanders were sold at low prices (at times, below cost). In general, the natives were protected from the vicissitudes of the world market for both the goods they bought and the products they sold to the monopoly.

This state monopoly was modified somewhat after the reforms of 1950, and although the monopoly is no longer absolute, KGH still carries on most of the trade and production in Greenland, and is also responsible for many other functions.

During the first years of the KGH, the desire to make money for the state treasury was a factor in trade operations in Greenland. This was because under KGH were gathered all activities carried out in Greenland: supply, production, mission, health service, schools, etc.; and all

expenditures came out of the State treasury. Years of surplus alternated with years of deficit. In the mid-1800's cryolite mining began in Greenland and the taxes from this enterprise contributed a significant proportion of each yearly balance. In periods of adversity for KGH the state responded by setting up commissions to look into Greenland affairs: in 1788, 1835, 1851, 1863, 1906, 1920, 1946, 1948, and 1960. The first four commissions had as their main consideration ending the monopoly, while the 1906 and following commissions until 1948 concerned themselves with the justification of the monopoly's activities and economic policy. The question of prices paid for Greenlandic products and for goods sold to the Greenlanders by KGH, as well as questions about the monopoly versus free trade in Greenland were, nevertheless, always the bases for each commission's deliberations.

The Government monopoly's economic success varied after 1774 between surplus and deficit, but after the beginning of the 1800's there was a series of good years when significant amounts went into the Danish treasury. In the meanwhile it became common political understanding, recognized by the commission of 1835, that the government monopoly's aim, in contrast with that of the private monopoly, was not to get profit for Denmark, but that the monopoly should be used as a tool in the State's Greenland policy, whose goal was to support and encourage a gradual cultural and economic development of the Greenlandic population.

To this end the monopoly seemed an ideal tool. The historic basis for maintaining the monopoly in Greenland had several main reasons:

1) It was argued that private monopolies had only maximum profit as their aim; because of long distances, harsh climate, and sparse population, free trade would be difficult in Greenland and any attempt to show a profit could be done only at the expense of the Greenlanders themselves.

2) It was deemed necessary to protect the population from unnecessary effects of sharp swings in world market and price conditions. The Greenlandic economy was very sensitive to fluctuations in export prices because there was little diversity in production, and economic life depended upon only a few products. Natural conditions in Greenland resulted in wide fluctuations in production of hunting products. Price policy and complete isolation from price fluctuations on the world level were a real benefit for Greenland. The general policy was to buy from the Greenlanders what they could produce from the natural products of the country and to sell to them what was considered necessary. The system's great advantage was that everything could work under a stable price level. From 1904 until 1919, KGH's sales prices were unchanged despite large price increases elsewhere during World War I. After that time prices were fixed and remained so for five-year intervals. What was lost on the

balance sheet in the supply service was made up for by earnings in production where landing prices also remained fixed.

3) It was believed that a government monopoly would give the largest total production in the long run in Greenland. A private firm, because of sparse population, might concentrate its activities only at those places large enough to show a profit. This, in turn, would encourage people to gather from the small places into the towns where the private traders were active, thus endangering local hunting resources at those places where the population concentrated.

4) It was feared that private monopolies would exploit the population, would cease operation in bad times, and would deal mostly in articles which would show a large profit instead of those most needed by the population.

In summary, it can be said that trade in Greenland on a private basis would have caused instability in Greenlandic economic life by private activity concentrating only at those places and during those periods of time when profitability was assured. This instability would have caused a lack of suitable development in social and cultural ways and would therefore have been in conflict with the humanitarian object of development in Greenland.

The instructions regulating Greenland trade, especially the humane provisions for care of the natives and the policy of rigid non-exploitation, have continued to the present day and may indeed be considered monuments of wise colonial administration. It must be recognized, however, that many of Greenland's economic problems today are due to relics of the old system which still exist in pricing policies for sale of European goods in Greenland and purchase of Greenlandic products. Even in the 1800's, despite many admirable features of the trading policies, the net effect was to support the authority of Europeans. Between 1860 and 1880 the natives of South Greenland were actually declining in number, living for the most part in wretched conditions, and they were losing initiative and enterprise.

Dr. H. J. RINK, who prior to 1868 had spent 16 winters and 21 summers in Greenland as a scientist and eventually became head of the Greenland Administration as Director of KGH, led the fight to improve conditions.

Through RINK's initiative and knowledge of conditions in Greenland, legal regulations based upon the natives' customs were introduced. He introduced major reforms to enlighten the natives, develop their country, and stabilize economic life. The post-RINK administration, by contrast, was characterized by lack of progress and even an undermining of the reforms RINK worked so hard to bring about.

Trade and administration of Greenland had been under one roof throughout these years. One of the great reforms of the Act of 1908 was to separate these functions, a reform which lasted only four years (Anon. 1950d, v. 2:10). It was not tried again until 1950.

Greenland was run by a special office under the Ministry of Interior (Indenrigsministeriet) called the Administration of the Colonies in Greenland (Styrelsen af Kolonierne i Grønland). After the Law of 1925, this office was transferred under the Prime Minister (Statsministeriet) and known as the Greenland Administration (Grønlands Styrelse). From 1925 a permanent Greenland Committee was set up to advise the Danish Parliament on matters pertaining to Greenland.

After 1950 the Greenland Department was created as the Prime Minister's Second Department (Statsministeriets 2. Departement, Grønlandsdepartement), which was replaced in August 1955 when the Danish government decided to set up a Ministry for Greenland (Beret. vedr. Grønl. 1956 (2): 4).

As stated above, the political division of Greenland, until the Royal Decree of 18 November 1950, was into North and South Greenland. These were political divisions of the west coast, separated by a line dividing Holsteinsborg district on the south with Egedesminde district on the north. Both East Greenland and the Thule area fell under varying status through time and did not, in fact, have regular representation in the Greenland Council (Landsråd) until the 1960's.

By the Royal Decree of 18 November 1950, North and South Greenland were merged into West Greenland, which was separated from the Thule district (to be known as North Greenland) where the 75th parallel of latitude cuts the west coast. West Greenland's eastern boundary is roughly the 44th line of longitude from 78° N. lat. (see Fig. 1). West, North, and East Greenland are further divided into 19 counties or districts, which are called kommuner (or distrikter by KGH). The political divisions of the kommuner do not in all cases agree exactly with KGH's trade distrikter, nor for that matter with the health service's lægedistrikter, or the police's politidistrikter, the court's retskreds, or the school's skoledistrikter. But the two main divisions, almost similar, are the kommuner and the handelsdistrikter, or more simply distrikter.

In the old North and South Greenland (before 1950), with which the first four chapters of this study deal, the highest official was the Landsfoged or Chief Administrator, who was not only administrator and judge, but also overseer of trade, public health, and other local affairs. The trade and administration of each inhabited place was carried out by a bestyrer at the main towns and larger settlements, and by an udstedsbestyrer or handelsbetjent at smaller places. These trade chiefs, at times Greenlanders, but more often Danes, were the *de facto* heads of the inhabited places by

reason of their power in bartering and their elevated social status. They were also *de jure* heads by reason of being the representatives of the Royal Greenland Trade Department, which was run by the Greenland Administration until the Trade and Administration were separated in 1950.

In the early days of the government monopoly, trading in Greenland was carried on by a system of barter. This system was replaced in 1926 by one using currency equivalent to a Danish krone (crown), but negotiable only in Greenland (CHRISTIANSEN, 1962d). In 1967, the Greenlandic currency was called in, to be replaced by regular Danish currency.

The KGH bought from the native Greenlanders a variety of products which were on the official trade list. All other products were excluded. The products were mainly from the hunt: pelts of seal, polar bear, caribou, and fox; blubber of seal, whale, and walrus; arctic char and Greenland halibut for salting; shark skins and liver, cod, halibut, and cod liver, plus smaller quantities of eider down, bird skin blankets, feathers, walrus tusks and hide, and other miscellaneous hunting products.

The prices for all these official trade products (called indhandlingsprodukter, or "trading-in" products) and for the sale of goods to the Greenlanders (called udhandlingsprodukter, or "trading-out" products) were uniform all over Greenland and were regulated by the Government at set intervals.

Summary

This short introduction to the development of the recent fishing industry of West Greenland has emphasized the outstanding physical features of the island: remote location, large size, great extent of ice-covered land, rugged topography, ice features, arctic climate, and hydrography. The recent change of climate in Greenland, as evidenced by higher air and sea temperatures, has been pointed out.

The kinds of fish forming the basis of the fishing industry of West Greenland have been described briefly. The people, their administration, and the economic principles governing past development of Greenland has been dealt with. The present political divisions into West, North, and East Greenland, and smaller administrative units have been listed.

The benefits and disadvantages to the Greenlanders of the benevolent colonial administration of Greenland, until it became an integral part of Denmark in 1953, has been described.

II. THE PRE-FISHING ERA IN GREENLAND

To describe adequately the developments which have taken place in the economic geography of West Greenland in the 20th century—due largely to the change from seal hunting to commercial fishing—requires a description of conditions in Greenland before commercial fishing began.

A few scholars have placed the climax of the "old" way of life based on seal hunting at around 1930. This date, paradoxically enough, is also often cited as marking approximately the culmination of the most recent climate warming. The rise in temperature brought cod and other fish to Greenland waters and made possible the replacement of seal hunting by fishing. I therefore prefer an earlier date for describing life in Greenland during a "typical" seal hunting period, one before commercial fish landings on any significant scale had begun. The turn of the present century meets the requirements sufficiently and is close enough to the subsequent changes to make comparisons even more meaningful.

Many descriptions of living activities are available from this period in Greenland.[1]) The general facts of the seal hunting life at this time are well known, so to make comparisons possible with subsequent developments, statistics selected from various official sources—published and unpublished—will be cited.

RYBERG (1903–04), as he had done for a previous period (see RYBERG, 1894a & b), described economic and social conditions in Greenland during the decade 1891/92 to 1900/01. He was Director of the Royal Greenland Trade Department (KGH), and a reliable source for data and description of the period. Greenland of RYBERG's day, even though a few barrels of salted arctic char and Greenland halibut were being prepared, had essentially seal hunting as the basis of the economy.

At the time, Greenland was closed to outside visitors and its trade was a state monopoly, conditions that had existed since 1774. It remained a closed land until 1950. Only visitors with recognized scientific activities could be considered for permission to travel in Greenland. Paragraph 1 of the regulations of 18 March 1776[2]) stated (author's transl.):

[1]) AMDRUP, G. C. *et al.*, 1921; BIRKET-SMITH, K., 1924 and 1928; RINK, H. J., 1857, 1877 a & b.

[2]) Beret. vedr. Grønl. Styrl. 1942–46 (Statistiske Oplysninger om Grønland), 3d section, p. 61.

> In accordance with treaties with the free states of North America as well as with Great Britain and other states, it is recognized that the west coast of Greenland between 60 & 73° N. lat. is closed for navigation by ships of foreign nations and Denmark, unless the Danish government, which operates the trade monopoly in Greenland, has given permission for such navigation.

The 1776 regulation was extended by "Regulations for Navigators in Davis Strait of 8 May 1884" ("Underretning til Søfarende i Davis Strædet af 8. Maj 1884").[1])

Greenland was stated to be a closed country for the following reason:

> ... both the ban on landing on Greenland's west coast and the trade monopoly is to protect the native Greenlandic population. This population will be threatened with extinction when communicable diseases are brought in or alcoholic beverages or other similar wares imported. (author's transl.)[2])

The main Danish interest in Greenland was to protect the native population so that they could continue the old seal hunting life without the threat of outside influences. The protection of Greenland's closed shores and the government trade monopoly was a two-sided coin. The beginning of this century noticed a rising current of protest against continuance of "outdated" policies—a protest heard from both Greenlandic and Danish voices.

The beginning of the present century was also marked by economic depression and social and spiritual stagnation. Greenland of the early 1900's was barely emerging from the decline which followed RINK's departure in 1882. The consequences of twenty years of unenlightened administration[3]) were compounded by a growing trade deficit as world market prices for Greenland products dropped and consumption of imported European goods in Greenland increased.[4])

From about 1830, the Greenland trade had been profitable to the Administration and for fifty years, until about 1880, significant amounts

[1]) Medd. fra Dir. for den kgl. grønl. Handel. 1888 (3): 48.

[2]) Ibid. p. 48.

[3]) Concerning the twenty years following RINK's resignation in 1882, the historian MADS LIDEGAARD (1961 b) wrote on page 118 (author's transl.): "During this entire period the Greenland Administration did nothing to bring Greenland farther ahead. The wheels were kept turning, everything was to be as before, the land was to take a rest, and slowly but surely were nipped in the bud those shoots Rink and his people had planted".

[4]) An accumulated surplus in Greenland trade of almost 5 million kroner between 1850 and 1888 was, by 1909/10, turned into a deficit through successive yearly trade deficits. ref. Statistiske Oplysninger om Grønland, Tables 436 and 437, pp. 569–70.

were paid into the Danish State treasury each year. The deficits which began in the late 1880's reflected, for the most part, a decline in the price of the main trade product: seal train-oil. RYBERG (1903–04) gives the price of a barrel of seal oil in 1882 as 71 kroner, in 1892 as 42 kroner, and by 1903 as 40 kroner.[1]) RYBERG also stated that there were at the time very dim prospects for an increase in price for this commodity. The Greenland Administration was therefore in desperate need of finding other ways of balancing its yearly budget.

Despite declining prices for seal oil, the period 1891 to 1901 can be looked upon as representative of seal hunting days before the fishing industry was of any significance in the total economy. Official published statistics in various issues of Beretninger, in addition to RYBERG's accounts,[2]) fill in the picture of conditions in Greenland at the turn of the present century.

The Population

In the late 1800's, the population of Greenland was, for the most part, scattered over a coastline extending almost 1,000 miles from north to south between Melville Bugt and Kap Farvel. In addition, small groups of natives lived in the Thule area of present-day North Greenland and along the coast of East Greenland in the Angmagssalik area. So the main bulk of the population lived in West Greenland in the former administrative divisions of South and North Greenland.

Tables 1a and 2a show changes in the Greenland population (native Greenlanders and Europeans) from 1805 to 1910. South Greenland has always had a larger population than North Greenland. Julianehåb and Godthåb districts were the most heavily populated areas. Table 2 illustrates the population growth in West Greenland 1861–1910.

From the mid-1800's through to the beginning of the present century, the birth rate of native Greenlanders in West Greenland increased steadily from 34.8 per thousand (1861–1870) to 40.2 per thousand

[1]) OSTERMANN, H., 1929, p. 168, however, gives the following prices for a barrel of seal oil (including barrel): average 1860–77 of 64 kr. per barrel; 1878 (spring) 60 kr.; 1878 (autumn) 58 kr.; 1879 50 kr.; 1880 45 kr. JENNESS, D., 1967, p. 57, states: "RINK's successor inherited [1882?] a deficit trade in which the prices of seal-oil were constantly falling. A barrel of Greenland oil, which before 1880 had brought from 70 to 80 crowns, now sold for as little as 30". JENNESS does not indicate the source of this information. RYBERG's 1882 seal-oil price seems to disagree with OSTERMANN, and the prices stated by JENNESS disagree with both RYBERG and OSTERMANN. RYBERG must be taken as the authority here.

[2]) Cf. also AMDRUP *et al.*, 1921; BIRKET-SMITH, K., 1928; LINDOW, H., 1929; OLSEN, I., 1961; OSTERMANN, H., 1929; RINK, H., 1857 and 1877a; and ROSENDAHL, PH., 1967. See also typical yearly reports of conditions in Greenland, Beretning om Tilstanden i Grønland, included in the Appendix, pp. 18–23.

(1901–1910). During the same period the death rate decreased from a high of 36.5 per thousand (1871–1880) to 28.1 (1901–1910). The average annual population growth rate during this period increased from a negative 0.60 (1861–1870) to 11.6 per thousand (1901–1910).

Table 2. *Population growth in West Greenland (native Greenlanders).*

	1861–1910			
	Average annual increase (‰)			
Period	Births	Deaths	Immigration	Total
1861–1870.....	3.48	–3.49	–0.05	–0.06
1871–1880.....	3.82	–3.65	–0.03	0.14
1881–1890.....	3.69	–3.24	0.04	0.49
1891–1900.....	3.95	–3.20	0.10	0.85
1901–1910.....	4.02	–2.81	–0.05	1.16

Source: Sammendrag af Statistiske Oplysninger om Grønland, Statistiske Meddelelser, 4th række, bd. 39, 2d. hft. 1912, p. 11.

The annual rate of population increase at the turn of the century was fairly constant, varying from about 0.6 to 2.0 per cent annually. In North Greenland, the increase was about double that in South Greenland, mainly because of a lower death rate.[1]) In South Greenland during three years in the period 1892–1901, the death rate was higher than the birth rate, while in North Greenland only one year showed a similar record during the same period.

The number of Europeans (Danes) in Greenland between 1892 and 1901 varied between 250 and 300, well over one third of them being employed at the Ivigtut cryolite mine (Table 2a).

The native-born population of West Greenland on 31 December 1901 (Table 3) totalled over 11,000. (See fig. 12 for the 1901 population distribution, Tables 40a–48a (Appendix pp. 76–91) for listings of each inhabited place, and Maps I and II for place name locations).

Table 3 shows the breakdown between men and women for each district in West Greenland in 1901. Women outnumbered men in each district of West Greenland except Holsteinsborg in that year. The ratio of men to women in 1901 in West Greenland was about 5:6 (5,259 men to 6,024 women). During that year, 228 males and 233 females were born;

[1]) RYBERG (1903–04, p. 79, 81–82) showed that South Greenland's low growth rate up to 1899 resulted from a lower birth rate and, more particularly, a higher death rate among Greenlanders living at Moravian mission stations, especially in Julianehåb and Godthåb districts. The Moravians concentrated people near the missions, so that epidemics were more lethal than among other Greenlanders living in scattered settlements.

Table 3. *Native population of West Greenland, 31 December 1901.*

District	Men	Women	Total
Julianehåb	1,247	1,448	2,735
Frederikshåb	356	449	805*
Godthåb	429	511	940
Sukkertoppen	450	513	963
Holsteinsborg	349	324	673
South Greenland	2,831	3,285	6,116
Egedesminde	585	680	1,265
Christianshåb	222	265	487
Jakobshavn	259	302	561
Ritenbenk	209	220	429
Godhavn	144	150	294
Umanak	577	647	1,224
Upernavik	432	475	907
North Greenland	2,428	2,739	5,167
Total, West Greenland	5,259	6,024	11,283**

* In disagreement with Statistikprotokoll, which lists inhabited places in Frederikshåb district in 1901 which total 815 inhabitants.

** Excluding 9 inhabitants of Ivigtut.

Source: compiled from Medd. fra Dir. for den kgl. grønl. Handel 1903 (1): 65.

171 males and 130 females died.[1]) The disproportionate male deaths were due to hunting accidents in kayaks for the most part.

The population of over 11,000 people in 1901 was scattered among 183 inhabited places along the west coast. Table 4 compares the 1901 population with that of 1870 (provided by RINK). Although the total population had increased from almost 10,000 to over 11,000 Greenlanders, it declined in four of the twelve districts of West Greenland (excluding Ivigtut) during those three decades. RINK's figures may have been a bit high, however, if one accepts the data provided by RYBERG (1903–04, p. 79).[2])

To understand the relationship between settlements along the west coast, it is necessary to study the administrative components. The coast was divided into districts, each centered about a main town called a koloni until the 1950's, but now called a "by" in Danish, or "town". Each district also included a number of smaller settlements of varying size. The largest of these were referred to as "udsted"s or "outposts". Still

[1]) Medd. fra Dir. for den kgl. grønl. Handel 1903 (1): 66.

[2]) The main published source of statistics of Greenland (Beretninger vedrørende Grønlands Styrelse, Sammendrag af Statistiske Oplysninger om Grønland 1942–46) gives no population statistics for 1870.

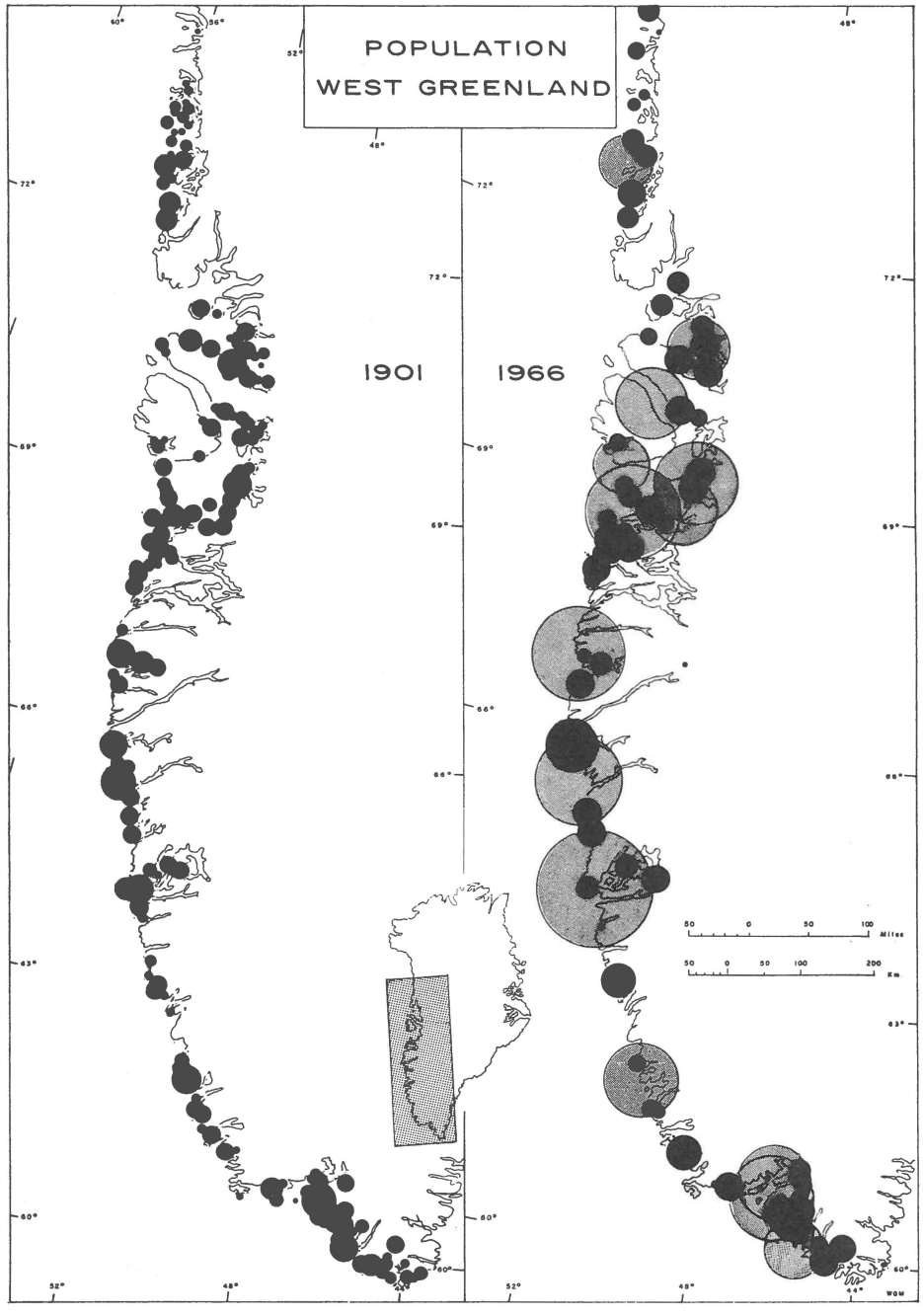
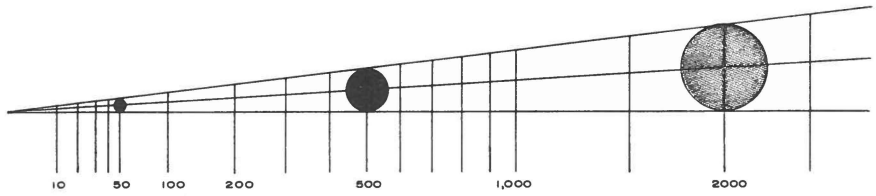

POPULATION
WEST GREENLAND
1901
1966
50 0 50 100 Miles
50 0 50 100 200 Km.
WDM

Fig. 12.



Scale of proportional circles for population map on fig. 12.

Table 4. *Population of West Greenland by district in 1870 and 1901, native Greenlanders.**

District	1870		1901	
	Inhabitants	Places	Inhabitants	Places
Julianehåb**	2570	54	2735	43
Ivigtut	14	1	9	1
Frederikshåb	821	14	815	11
Godthåb	999	14	940	16
Sukkertoppen	765	6	963	9
Holsteinsborg	545	9	673	8
Egedesminde***	1008	22	1321	22
Christianshåb	481	8	431	5
Jakobshavn	424	8	561	8
Ritenbenk+	447	8	429	9
Godhavn	245	6	294	8
Umanak	798	15	1224	22
Upernavik	702	9	907	21
Total W. Greenland	9819	174	11302	183

*) Excluding persons known to be Danes or Europeans.
**) Including present-day districts of Julianehåb, Nanortalik, and Narssaq.
***) Including present-day districts of Kangâtsiaq and Egedesminde.
+) Approximates present-day Vaigat district. *cf.* fig. 13 "Administrative Divisions of West Greenland in 1901 and 1966". From and including 1896 the boplads Nûgssuaq was transferred from Ritenbenk to Umanak district.

Source: compiled from RINK, H., 1877a, p. 315 (for 1870); and Statistikprotokol (for 1901).

smaller communities were called "boplads" (lit. "living place") or "village". The "outposts" usually had government monopoly stores (butikker), which the "villages" lacked—although at some of the latter, supply depots were maintained. So a boplads was in effect a satellite of an udsted, which in turn depended on a koloni.

The classification of inhabited places in Greenland into the three types described above remained essentially unchanged until 1963 (see

Table 5. *Population of West Greenland and number of inhabited places in 1901 by type of inhabited place, native Greenlanders.**

District	Population				No. of places			
	Boplads	Udsted	By	Total	Boplads	Udsted	By	Total
Nanortalik	1055	649	–	1704	22	6	–	28
Julianehåb	210	248	313	771	5	2	1	8
Narssaq	113	147	–	260	5	2	–	7
Ivigtut **	–	–	9	9	–	–	1	1
Frederikshåb	297	348	170	815	6	4	1	11
Godthåb	394	345	201	940	11	4	1	16
Sukkertoppen	206	373	384	963	5	3	1	9
Holsteinsborg	140	340	193	673	4	3	1	8
Kangâtsiaq	460	196	–	656	9	3	–	12
Egedesminde	332	194	139	665	7	2	1	10
Christianshåb	85	237	109	431	1	3	1	5
Jakobshavn	179	122	346	647	5	2	2	9
Vaigat	132	211	–	343	5	3	–	8
Godhavn	149	47	98	294	6	1	1	8
Umanak	392	653	179	1224	14	7	1	22
Upernavik	320	455	132	907	15	5	1	21
Total, West Greenland	4464	4565	2273	11302	120	50	13	183
% of Total	39.6	40.1	20.3	100.0	65.7	27.3	7.0	100.0

* In order to facilitate subsequent comparison with present-day population distribution, the 1901 district breakdown has been arranged according to 1960 divisions and not 1901 district boundaries. See fig. 13 for the two different district divisions. English translations for the headings are: boplads = living place (smallest of the three types); udsted = outpost; by = town (district center, and largest of the three types of inhabited places).

** Ivigtut is a mining center usually excluded from Greenland statistics. It is herein treated as a by, but it never had more than a few Greenlandic inhabitants.

Source: compiled from material in Statistikprotokol.

Appendix p. 113 for a more detailed discussion of recent changes). It is therefore possible, using this classification, to study the extent of population dispersal at any time and to trace the recent concentration and urbanization of the population.

Table 5 shows the distribution of the native population of West Greenland by type of inhabited place in 1901. It reveals that only about 20 per cent lived in the koloni or main center of each district. The remaining 80 per cent of the population was divided almost equally between the smaller "outposts" and "villages".

As stated, in 1901 the native population of West Greenland lived in 183 inhabited places, 120 (65 %) of which were small "boplads". These little communities were, at times, made up of as few as one or two

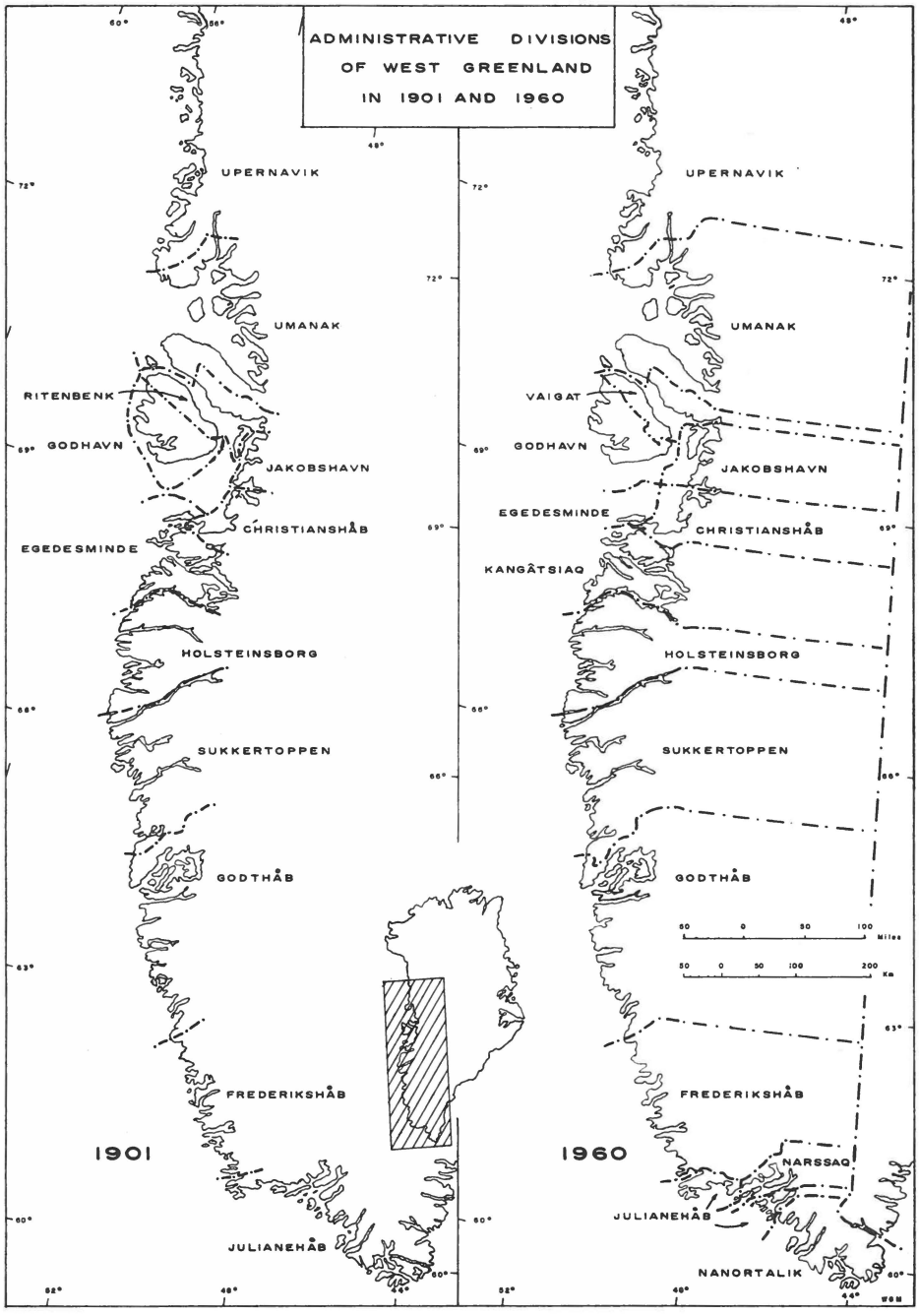

ADMINISTRATIVE DIVISIONS
OF WEST GREENLAND
IN 1901 AND 1960
UPERNAVIK
UMANAK
RITENBENK
GODHAVN
JAKOBSHAVN
EGEDESMINDE
CHRISTIANSHÅB
HOLSTEINSBORG
SUKKERTOPPEN
GODTHÅB
FREDERIKSHÅB
JULIANEHÅB
1901
UPERNAVIK
UMANAK
VAIGAT
GODHAVN
JAKOBSHAVN
EGEDESMINDE
CHRISTIANSHÅB
KANGÅTSIAQ
HOLSTEINSBORG
SUKKERTOPPEN
GODTHÅB
FREDERIKSHÅB
NARSSAQ
JULIANEHÅB
NANORTALIK
1960
Miles
Km

Fig. 13.

families. They were located at places along the coast where hunting conditions were best, because of favorable ice and current conditions, or where it was possible to launch and beach kayaks.

The 11,000 or so people of West Greenland in 1901 were scattered along the coast in many small hunting settlements as shown by Table 5. The birth rate was 41 per thousand and death rate 27 per thousand, giving an annual growth rate of 1.4 per cent. The average birth, death, and growth rates are given in Table 6.

In general, both birth and death rates were higher in Greenland than in Denmark and the rest of western Europe in the early 1900's. Table 7 shows the average annual number of deaths according to cause in five five-year periods from 1886 to 1910. The importance of tuberculosis and bronchial pneumonia (two causes included under "Chest diseases") as a cause of death is noteworthy in that they comprise about one third of all deaths during this period.

Also noteworthy during the period are the number of accidental deaths (1,033), of which well over one half were kayak accidents. Table 8 shows the types of accidents causing death (1901–1930) in West Greenland (exclusive of poisoning). It can be seen that an overwhelming percentage of accidents among men involved drowning (85 % and 91 % in North and South Greenland respectively). Most of these drownings were presumably kayak accidents. The frequency of types of accidents causing death among women were more evenly distributed than among men.

RYBERG (1903–04, p. 82–83) showed that in the period 1892–1901, kayak accidents caused 9.3 and 6.3 per cent of all deaths in South and North Greenland respectively. Other accidents caused 4.7 and 6.3 per cent

Table 6. *Number of births and deaths, birth rate, death rate, and growth rate in West Greenland 1901; average birth, death, and growth rates 1892–1901.*

	South Greenland	North Greenland	Total West Greenland
Births (1901)	241	220	461
Deaths (1901)	157	144	301
Birth Rate (%)	3.9	4.3	4.1
Death Rate (%)	2.6	2.8	2.7
Growth Rate (%)	1.3	1.5	1.4
Ave. Birth Rate 1892–1901	4.0	4.0	4.0
Ave. Death Rate 1892–1901	3.4	2.7	3.1
Ave. Growth Rate 1892–1901	0.6	1.3	0.9

Source: Adapted from RYBERG, C., 1903–04, p. 79.

Table 7. *Cause of death – native Greenlanders, West Greenland 1886–1910.*

Cause	Average annual number of deaths				
	1886–90	1891–95	1896–1900	1901–05	1906–10
Brain Diseases	7	9	9	15	16
Cramp	5	5	6	10	10
Throat Diseases	10	5	2	3	2
Chest Diseases (TB & pneum. etc)	111	108	107	66	130
Stomach Diseases	21	37	25	24	19
Dropsy and Kidney dis.	3	2	4	5	5
Childbirth	8	10	8	9	6
Infant diseases	46	61	67	49	55
Disease of the extremities	3	4	3	6	7
Other diseases	40	33	31	35	40
Old age	11	18	20	17	21
Kayak accidents*	25	24	28	23	26
Other accidents	15	17	16	16	16
Stillborn	9	12	11	13	20
Total	314	345	337	291	373

*) In the period 1886–1910 1,033 accidental deaths occurred, of which 630 were kayak accidents.

Source: compiled from Sammendrag af Statistiske Oplysninger om Grønland, Statistiske Meddelelser, 4th række, bd. 39, 2d. hft. 1912, p. 13.

Table 8. *Types of accidents causing death in West Greenland (North and South) in the period 1901–1930. (excl. poisoning).*

Accident	in per cent			
	Men		Women	
	North	South	North	South
Drowning	85	91	45	36
Gunshot	7	4	12	18
Freezing	4	3	21	25
Fall	3	1	5	10
Other	1	1	17	11
Total	100	100	100	100

Source: compiled from Sammendrag af Statistiske Oplysninger om Grønland 1942–46. afsnit 3, p. 49, tabel 27.

of deaths in South and North Greenland during the same period (RYBERG, ibid., p. 82). In addition to the high number of deaths by accidental drowning, another significant feature of mortality statistics is the startlingly high death rate of infants i.e., an average of about 60 out of 360,

Table 9. *Age distribution of native Greenlanders (%) 1840–1901, West Greenland.*

Age Group	1840	1860	1880	1890	1901
Under 10 years	31.4	28.6	28.4	25.5	27.7
10–20	24.6	25.4	21.5	23.8	21.1
20–30	17.5	17.4	18.9	17.5	18.0
30–40	12.0	13.5	14.9	14.2	13.0
40–50	7.6	8.8	9.2	10.7	9.8
50–60	4.8	4.3	5.0	5.6	7.0
60 and over	2.1	2.0	2.1	2.7	3.4

Source: compiled from Sammendrag af Statistiske Oplysninger om Grønland, Statistiske Meddelelser, 4th række, bd. 39, 2d hft. 1912, p. 10.

or one sixth. This figure added to "stillborn" gives an indication of the high infant mortality.

The age distribution (by per cent) of native Greenlanders in West Greenland between 1840 and 1901 is shown in Table 9. The 1901 age-group and sex composition for both West and East Greenland (native Greenlanders) is shown in Table 10 and Figure 14. About 37 per cent

Table 10. *Population composition of native Greenlanders 1901.**

Age Group	Male	Female	Total
Under 5 years	838	788	1626
5–10	729	740	1469
10–15	601	615	1216
15–20	573	569	1142
20–25	499	558	1057
25–30	415	539	954
30–35	359	433	792
35–40	296	364	660
40–45	250	338	588
45–50	223	283	506
50–55	179	297	476
55–60	116	197	313
60–65	56	142	198
65–70	45	79	124
70–75	14	28	42
75–80	4	7	11
80–85	1	3	4
Unspecified	211	232	443
Total	5409	6212	11621

* For West and East Greenland.

Source: compiled from Sammendrag af Statistiske Oplysninger om Grønland, Statistiske Meddelelser, 4th række, bd. 39, 2d hft. 1912, p. 9.

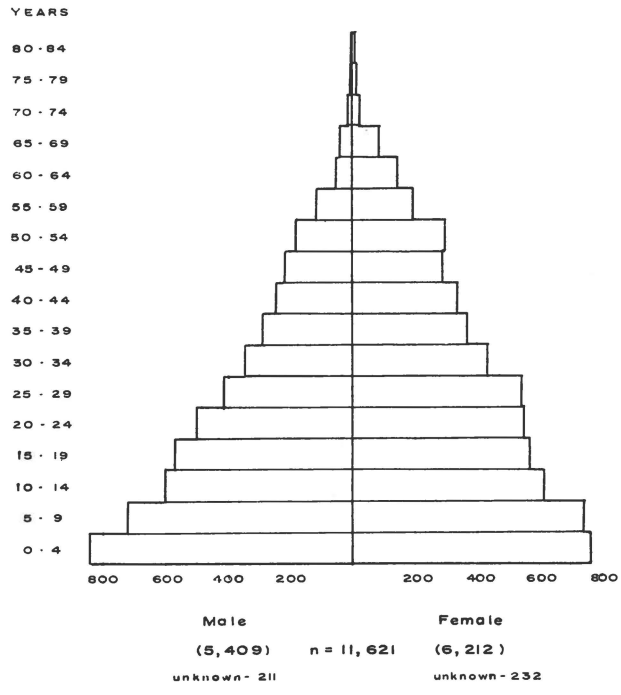


Fig. 14. Population profile of native Greenlanders, (1. oct. 1901).

Table 11. *Average number of Greenlanders per household 1880–1910.*

District	1880	1890	1901	1910
Julianehåb	10.3	6.8	6.6	6.1
Frederikshåb	8.1	7.6	7.4	6.7
Godthåb	10.3	9.3	8.0	8.0
Sukkertoppen	12.4	12.8	9.3	9.7
Holsteinsborg	11.6	10.5	9.8	8.3
S. Greenland	10.3	8.2	7.5	7.1
Egedesminde	12.5	11.1	9.7	9.3
Christianshåb	9.3	10.1	7.7	8.1
Jakobshavn	8.7	8.7	7.7	6.7
Ritenbenk	7.7	8.2	6.9	6.7
Godhavn	7.3	9.0	8.1	6.4
Umanak	9.3	7.4	6.9	6.0
Upernavik	9.5	7.2	6.5	7.0
N. Greenland	9.5	8.5	7.6	7.2
West Greenland	10.0	8.4	7.5	7.1
East Greenland			23.9	

Source: compiled from Sammendrag af Statistiske Oplysninger om Grønland, Statistiske Meddelelser, 4th række, bd. 39, 2d hft. 1912, p. 8; and Statistikprotokoll.

of native Greenlanders (West and East Greenland together) in 1901 were under 15 years of age; and 3.5 per cent were 60 years of age or older.

The number of persons per household (native Greenlanders) in West Greenland declined from 10.0 to 7.5 in the period 1880–1901 (down to 7.1 in 1910) as shown by Table 11. The only statistics for East Greenland during this period are for the year 1901 and they show an average of 23.9 persons per household! This higher figure was also no doubt characteristic of West Greenland before close contact with Europe beginning in the 18th century.

Economic Life

The Greenlanders of the old seal hunting days are often characterized as having been completely self-sufficient, because seals provided them with light, food, heat, and clothing, in addition to materials for tents and kayak coverings. In contrast, cod and other fish provide only food. To some extent this comparison is correct, but it must be remembered that trading for European goods was common long before commercial cod fishing began. There were some European goods in Greenland as far back as the whaling era before the 1700's. Once introduced, goods such as firearms, needles, metal cooking pots, tobacco, coffee, tea, sugar, and lumber were in great demand and eventually were considered essential. Until the early 1800's, trade with the native population was by barter, partly carried on by the missions and partly by government-granted concessionaires and, finally, exclusively by the government trading company. As was stated in Chapter I, in 1774 the State took over all Greenland trade and at that time the Royal Greenland Trade Department (KGH) was formed.

Thus, trading became well established before the introduction of fishing as a way of life. It was based on the barter system, European goods being offered for surplus seal blubber and other hunting products such as reindeer (caribou, *Rangifer tarandus*) skins, fox pelts, seal skins, polar bear skins, narwhal and walrus tusks, and a miscellany of other hunting and gathering products. These were all items for which the Greenlanders had little use after their domestic requirements had been met. Sealskins were in local demand for kayak coverings (which needed replacement every two or three years), for umiak (konebåd, or women's boat) coverings and for boots (kamikker), but it is reasonable to regard most of the hunting products, other than meat, as surplus and of little value to the Greenlanders except for trading. In the early days, this trade provided a significant extra profit for whaling ships, which were able to carry their European wares along the Greenland coast until a place was found where the inhabitants were willing to accept the traders' terms.

Before the present century the Greenland economy was almost completely dependent on the country's resources. Private traders had been excluded since 1776, so a government monopoly existed. The government traders offered the people in Greenland a relatively low price for their goods in relation to the world market. But it must be emphasized that the prices of European barter goods traded to the Greenlanders were also low. Prices were also uniform throughout the country, despite great distances and high costs of distribution between settlements along the coast. Greenland was near the limit for human existence based on local resources and, at the time, provided almost no possibilities for a European living standard based on an industrial society. The small size of each settlement and its "producing unit" also increased trading costs.

Although most of the Greenlandic hunting products were in fairly good demand in Europe, the catch from hunting fluctuated greatly from season to season and from year to year. Hunting was also a hazardous calling. In addition to natural wildlife cycles, ice and weather conditions made the economic possibilities in Greenland at best marginal, often uncertain, hard, and on a rather low level of development. In addition, there was a rather wide range of ability among the hunters, some remarkably expert, and others because of age, sloth, or infirmity, unable to contribute much in the main activity of seal hunting. There was an established system of sharing the catch which helped to reduce the more extreme uncertainties in the hunting economy. It is known, for example, that boys, old men, and women, and others unable to hunt seal, engaged in fishing and gathering berries, kindling, and so forth. This subsidiary production, as well as the hunting of the main sea mammals (seal, narwhal, walrus, beluga and other small whales), was seasonal so that it was an economy of feast and famine. In addition, some years were more borderline than others. Natural conditions such as storms, thin winter ice, amounts of storis (arctic pack ice from East Greenland), rain, fog, etc., all added to the uncertainties and consequent insecurity.

It had never been customary to store surplus food in particularly favorable periods against the risk of shortage later on, and the European influence from the 1700's on did little to change this. Periodic hunger, when coupled with the inevitable hunting accidents, resulted in a life filled with risks, and rigorous in the extreme.

There were some in Denmark who claimed that the primitive life of the Greenlander was a happy one, and who campaigned against outside influences which might interfere with the old ways. They condemned the influence of the Danish administrators and the economic changes they brought about.

Some people (Kiær, 1906) even went so far as to recommend that Denmark withdraw from Greenland completely in order that the popul-

ation could return to their former way of life based on strict harmony with the prevailing natural conditions. If complete withdrawal was not possible, it was suggested that Denmark and the Greenland Administration trade as little as possible with the native population so that the people would be spared the ill effects of contact with the European way of life and would be free to develop in their own way.

The period 1891/93 to 1900/01 was in many ways typical of the traditional seal hunting economy of Greenland,[1]) but changes were taking place. The presence of the "store" in the larger administrative centers and the availability of occasional wage-paying employment there, had resulted in a gradual population concentration in the larger settlements at the expense of traditional seal hunting.

It is possible to obtain a reasonably accurate picture of conditions through statistics of the catch of various animals in Greenland–statistics which have been kept for over 100 years in West Greenland. The catch of each hunter in West Greenland has been recorded at every inhabited place since 1862 by an appointed, paid person—usually a retired "great hunter" (storfanger).[2]) The so-called hunting lists (fangelister or fangstlister), or at least summaries of the original, hand-written lists, have been printed and published since 1873 in South Greenland and since 1903 in North Greenland (Piniartut . . .). A detailed description of these lists and the system of keeping hunting statistics in Greenland has already appeared (MATTOX, 1966).

The printed hunting list summaries ("Sammendrag af Fangelister") enable a reasonably complete picture to be drawn of conditions in West Greenland, especially for South Greenland.

The annual catch of seals in South Greenland averaged 33,515 during the period 1883/84–1890/91 and 34,702 for the period 1891/92–1900/01 (with extremes of 24,583 in 1891/92 and 47,590 in 1898/99).[3]) As seen in Table 3a, the average catch of seals per inhabitant in South Greenland was 5.9 during the period 1883/84–1890/91 and 6.0 in the period 1891/92–1900/01, a remarkably constant figure. The seal hunt in the two large southernmost districts of South Greenland, however, declined in the last decade of the 1800's, possibly because of a decrease in the amount of

[1]) One disadvantage of using this period to illustrate the conditions of Greenland in seal hunting days is that we lack complete statistics of the hunt of seals, beluga, shark, and fox in North Greenland during the period. There are, however, enough data to permit a fair description of conditions there.

[2]) Sammendrag af Statistiske Oplysninger om Grønland, III, Afsnit 13, 1944, pp. 595–96 (in Beretninger vedrørende Grønlands Styrelse 1942–46) states that hunting lists may have been kept as early as 1853 and that printed lists have been published since 1862 (North Greenland), although I have been unable to substantiate this.

[3]) RYBERG, C., 1903–04, p. 71.

storis drifting into the area with the East Greenland Current. In all districts except Julianehåb, the average catch of seals per inhabitant during the four years beginning 1901 was considerably less than that of the last decade of the 1800's. Table 3a also illustrates that seal catches per inhabitant in Julianehåb and Frederikshåb districts were considerably higher than in the remaining three districts of South Greenland and were therefore higher than the average for South Greenland as a whole.

The average catch of seals per seal hunter (rather than per inhabitant) in South Greenland during 1874–1905 (Table 4a) declined somewhat, and this decline has continued, with gathering momentum, throughout the 1900's to present day. In catch of seals per seal hunter, Julianehåb and Frederikshåb were again considerably higher than the other three districts.

The annual production of blubber in South Greenland during the period 1874 to 1901 experienced a slight declining trend, as illustrated in Table 5a. The production of seal blubber in Julianehåb district, consistently over one half of the entire export from South Greenland experienced a definite decline, especially during the first years of the decade 1891/92–1900/01. This seal blubber, Greenland's most important export item at that time, was shipped to Denmark in barrels and rendered into train oil in KGH's oil factory in Copenhagen.

Hunting conditions in North Greenland, as has been noted above, are somewhat more difficult to describe. After 1903, printed lists of hunting returns were published annually. If one compares North and South Greenland before 1900, the years 1862/63 to 1876/77 may be used, as well as the single years 1887/88, 1892/93, and the years 1903/04 and following. The average yearly catch of seals in North Greenland during the period 1862/63 and 1869/70 was 48,215 and 45,562 for the period 1870/71 to 1876/77. The four years 1887/88, 1892/93, 1903/04, and 1904/05 had seal catches of 37,291, 53,626, 52,399 and 62,909 respectively. The maximum catch for the period for which statistics are available was for 1904/05 (62,909); the minimum catch was in the year 1865/66 (30,713). Table 6a lists the catch of seals in North Greenland for the periods under discussion, both total catch and catch per inhabitant.

As can be seen when comparing Tables 3a and 6a, the hunt of seals per inhabitant in North Greenland in the late 1800's was roughly twice that in South Greenland. Although the years comprising the periods under comparison are not always the same, we see that in North Greenland (1870/71–1876/77) the average catch of seals was 11.2 per inhabitant versus 6.0 in South Greenland (1874–1883). In the early 1900's the catch of seals per inhabitant was 9.9 and 11.6 (1903/04 and 1904/05) in North Greenland, versus an average 5.3 (1901–05) for South Greenland.

As is evident from both Table 3a and 6a, only a slight decrease in catch of seals per inhabitant occurred from the 1860's to the beginning of the present century in North and South Greenland.[1])

RYBERG (1894a and 1903–04) suggested, rather enigmatically, that hunting conditions and production (export of products) in Greenland "do not have any definite relationship with one another". I interpret RYBERG's remarks to mean that the population did not consistently sell a definite per cent of the total hunting catch to the monopoly. The yearly statistics suggest that while "production" (products sold to KGH) during favorable hunting periods may be rather higher than usual, "production" during poor hunting periods is not always correspondingly lower. There is perhaps a tendency for hunters to attempt to sell a "normal" amount of products to KGH regardless of the catch, thus depriving themselves and their families of blubber and sealskins during poor hunting periods. Production figures, therefore, may not reflect accurately fluctuations in hunting conditions and, indeed, may even disguise periods of poor hunting.

There is therefore no unswerving relationship between the statistics from the hunting lists and landing figures of products sold to KGH. Despite this lack of direct statistical relationship between production figures and hunting returns, there is, however, a general relationship between the two and, since production figures were kept in greater detail with fewer gaps, they can be used to supplement hunting returns when describing conditions of the period under consideration.

Hunting and "Production"

In South Greenland the catch of beluga (hvidfisk, or white whale) seemed to be declining at the turn of the present century: the catch averaged 418 during the period 1891/92–1900/01, versus an average of 533 in the years 1883/84–1890/91.

Production of fox pelts increased from averages of 1,163 to 1,763 during the years 1883/84–1890/91 respectively. The quality of the skins, however, seemed to have deteriorated.

The production of blubber (spæk in Danish), which included blubber from all marine mammals but mostly seals, declined in the period 1891/92 –1900/01 to an average of 4,581 barrels from 4,660 barrels in the period 1874/75–1890/91. Blubber was the most important product of Greenland export production. When calculated on a per inhabitant basis, the production decline is even greater, a fact not overlooked by the Commission of 1906 in its report (Anon. 1908a), as will be pointed out later.

[1]) See SCHULTZ-LORENTZEN, 1911, p. 47 for a criticism of RYBERG's assumptions based on the accuracy of the Greenland hunting lists (Fangelister)

Production of "large"[1]) sealskins was an average 458 in the period 1891/92–1900/01, versus an average 794 during the earlier period.

The production of "small" sealskins,[2]) however, increased to an average 8,148 versus 7,270 during the earlier period.

RYBERG (1903–04) stated that production in South Greenland in the decade 1891/92–1900/01 was about the same as the average for the preceding 17 years, even though there was some change within certain of the colonies. Julianehåb and Frederikshåb seem to have declined in production. RYBERG (1903–04, p. 72) stated "this situation can ... result from pure coincidence and is certainly without significance for the future" (author's transl.).

In North Greenland, the periods for which comparisons can be made are 1862/63–1876/77 and 1891/92–1900/01. During this latter period, production of blubber and shark liver and "large" sealskins increased, while production of "small" sealskins declined.

Tables 7a and 8a have been included in the statistical appendix in order to facilitate later comparisons with production during the growth of commercial fishing in Greenland. In both the years 1900/01 and 1901/02, the production of Greenland's main export, seal blubber, was about 12,000 barrels (1 barrel = 115 kilograms, or 253 pounds).

Export to Denmark from Greenland during years other than the two shown in Tables 7a and 8a is presented in Tables 9a and 10a which cover the years from 1861 to 1910 (in yearly averages for five-year periods). From Table 10a it can be seen that, during the years 1901–05, about 60 per cent of the exports from Greenland by value were various types of blubber (later rendered into oil) and liver. Liver was from both cod and Greenland shark, both being rendered into medicinal oils. Next in importance in value of exports from Greenland were sealskins, fox pelts, and polar bear skins. These furs, together with blubber, accounted for about 85 per cent of the export value during the five-year period 1901–05 (average of 573, 485 kroner out of the total of 668,972 kroner). The remainder of the total export value consisted of a long list of miscellaneous hunting items (see Tables 9a and 10a).

Houses, hunting gear, and occupations

Government officials describing conditions in Greenland throughout the years of the late 1800's and early 1900's based their observations on conditions there upon the varying numbers of the Greenlanders' own possessions, especially hunting gear, such as numbers of kayaks, umiaks,

[1]) "Large" seals were: harp (sortside), harbor (spraglet sæl), hood (klapmydsen), and bearded seal (remmesæl).

[2]) "Small" seals were immature harp seal (blåside), and ring seal (netside).

rifles, tents and dog sledges. These statistics were reported annually after a census of each district. Table 11a lists the number of houses, tents, and hunting equipment owned by native Greenlanders in the years 1880–1910, with district breakdown for the year 1910. When calculated in number per 1,000 population, it can be seen that houses increased in number from 100 to 140 per 1,000 native Greenlanders between 1880 and 1910. There was a similar gradual increase in numbers of wooden boats, ice nets (for catching seals), rifles, and dog sledges; numbers of tents, umiaks, and kayaks showed only slight increases per inhabitant during the period.

During these same years, the natives of Greenland pursued occupations as indicated in Table 12a. In the year 1901, 1,900 Greenlanders were reported as having the occupation of hunter, 400 as fishermen, and the remainder held various wage jobs as lay teachers, clerks, cooks, apprentices, and outpost managers with the Administration. The remainder of the population was composed of the wives and children of these men.

The Decline of Sealing

At the beginning of the present century, an apparent decline in sealing seemed to be the most discussed subject in Greenland. It is possible that sporadic signs foretelling the change to come were already in the air. There was far from unanimous agreement on this subject, however, and even if many people believed that seals were, in fact, declining in number, the causes for this phenomenon were in doubt.

The hunting statistics seemed to give little indication of a decline in number of seals, despite claims of many Greenlandic hunters that they were having increasing difficulty in their hunt.

Because of the mounting discussion of sealing and its apparent decline in Greenland, RYBERG (KGH's Director) attempted to answer the question by presenting a statistical resumé showing the total catch of seals during the thirty year period of 1874/75–1904/05 in West Greenland (RYBERG, 1906). Table 12 shows the statistics presented by RYBERG, which indicate a general increase in the number taken.

Table 12. *Total hunt of seals in West Greenland 1874–1905.*

Year	Seals Taken
1874/75	64,954
1875/76	71,816
1876/77	84,524
1887/88	73,663
1892/93	86,964
1903/04	89,003
1904/05	97,352

Source: RYBERG, 1906, p. 41.

The total hunt of seals in West Greenland during the above period led RYBERG to state that the belief that seals were declining in Greenland waters was incorrect. Furthermore, RYBERG stated (1906, p. 41) that:

> ... there was therefore no consideration of an emergency situation in Greenland which necessitated seeking to take Greenlanders as a whole away from seal hunting and leading them into another occupation. (author's transl.).

The Commission of 1906, on the other hand, was quite pessimistic about the future of seal hunting in light of population growth in Greenland. The terms of reference of the 1906 Commission did not include the responsibility of considering new occupations and sources of income in Greenland. Nevertheless, one of the Commission's members (TULINIUS) had wide experience in the fishing industry, and he strongly suggested that the Greenlanders be helped to acquire fishing vessels and gear for long-lining. The Commission's report (Anon. 1908a) pointed out (p. 9) that the importance of such a course was stated already in Holbøll's report (Betænkning) of 1856.

The Commission of 1906, with the exception of its Chairman RYBERG and Mr. BONDESEN, declared in a majority statement that:

> One condition for a natural development of the Greenlandic population's living conditions is that the heretofore reigning principle of maintaining the national "industry", seal hunting, be given up officially as the only correct basis of existence for the Greenlanders. (author's transl.).

The Commission recommended that seal hunting not be favored and that the Greenlanders be urged to utilize *all* economic possibilities to be found in Greenland.

Regarding seal hunting, the Commission of 1906 pointed out in support of the above statement that a weakening of the economic basis for the Greenlanders' existence had taken place since the 1850's. The Royal Greenland Trade Department's main principle was always to maintain seal hunting as the only *right* basis of existence for the Greenlanders, and all other possibilities were discouraged so that the population would not be taken away from seal hunting. This policy was correct as long as seal hunting offered sufficient support for the population. But the Commission pointed out that since 1850, an absolute and relative decline in *surplus* production of sealskins had taken place. Surplus production was that part of the sealskin production which the population was able to sell to KGH for export. Table 13 illustrates this decline.

The table shows that from 1860 to 1907 a decline of sealskin export of about 36 per cent took place while the population had increased by

Table 13. *Export of seal skins and the population of West Greenland 1840–1906.*

	Seal skin export*	Population	Seal skins per capita**
1840		7,877	
1850–59	39,300		
1860		9,648	4.1
1860–69	35,400		
1870		9,819	3.6
1870–79	32,700		
1880		9,720	3.4
1880–89	29,300		
1890		10,207	2.9
1890–99	29,800		
1901		11,190	2.7
1900–07	25,200		
1906		12,084	2.1

* Yearly average for period.

** Average skins per capita in year of population statistics based on average skin export for preceding period.

Sources: Anon. (1908a), p. 9.
RINK (1877a), p. 314–355.

about 50 per cent. In 1860 there was a surplus production of 4.1 sealskins per capita, but this had gone down to 2.1 by 1907.

The Commission thought that one of the best alternative possibilities to seal hunting lay in exporting arctic char, Atlantic salmon, and Greenland halibut, an activity which had been started by private persons (civil servants) in Greenland in the late 1800's, but which was taken over in the early 1900's by the Greenland Administration's monopoly.

In a minority statement of the 1906 Commission, RYBERG and BONDESEN stated that it was undeniable that seal hunting has always been

> and still is the Greenland society's supporting occupation, and this condition will very surely not be changed for many years ... (author's transl.).

It can thus be seen that a wide difference of opinion existed regarding the economic situation in Greenland, seal hunting and its decline, and the advisability of diversifying the economy of the native Greenlanders at the turn of the present century. The traditional government policy, conservative and disliking change, was represented by Director RYBERG of the KGH. Despite RYBERG's claim (1906) that seal hunting was *not* in decline in Greenland in the early 1900's, many people recognized the subtle changes taking place in natural conditions with concomitant

population growth, and they became quite anxious about the future of Greenland based on seal hunting.

If there was argument in 1906 about the decline in seals in Greenland waters, it was only a few years later that the decline was a fact which could not be denied. This change of hunting conditions was well documented by scrupulously kept hunting records (fangelister) in Greenland. But the causes of the change are less easily documented, although many factors have been cited.

It is believed that one factor in the change of hunting conditions was the extensive whaling in Davis Strait in the 17th and 18th centuries (mainly by the Dutch), which depleted the stock of whales taken occasionally by Greenlandic hunters.

Of major importance, however, was the pursuit of seal hunting for fur at the breeding grounds east of Greenland (in the Jan Mayen area) and off Newfoundland-Labrador by European and North American exploiters (DUNBAR, 1946b, p. 361). In Table 13a is shown the seal catch off Newfoundland which in some years reached 500,000 seals killed and which was believed to be a contributing factor in the reduction in numbers of seals migrating each year to the coasts of Greenland after the breeding season. As can be seen from Table 13a, the number of seals taken off Newfoundland declined sharply in the decade 1880–89 and remained around the same level for thirty years. There seems little doubt that the hunt off Newfoundland affected not only the hunt off Greenland but its own results as well; the results in both areas, however, seem to have been influenced by natural conditions perhaps more than by the hunt itself.

Several authors have described the apparent connection between the occurrence and extent of pack-ice (storis) off southwest Greenland and the quantities of seals hunted in that area (Stat. Oplys. 1942, p. 609). It is known that seals are more numerous during years of heavy storis, so that the recent climate amelioration described in Chapter I, with resultant decrease in amount of ice coming each year, has also been claimed as a contributing (if not main) factor to the decline of seal hunting possibilities off West Greenland.[1])

This decline in sealing since the early 1900's applies mainly to all districts on the west coast of Greenland with the exception of Upernavik, which has continued on in much the old tradition and has not been affected with the changeover to fishing in any great degree.

In summary, despite a general agreement that changing climatic conditions was a major factor in explaining the decline in seal hunting possibilities off West Greenland, no one has yet offered a suitable reason

[1]) Statistiske Oplysninger om Grønland, diagr. XLIII, 1942.

to explain fully this phenomenon which occurred at the turn of the present century. In addition to changing climate and resultant ice conditions, sealing on the breeding grounds and moulting areas off East Greenland and Newfoundland-Labrador was another factor. Disease and kayak accidents among the Greenlanders, introduction of rifles and shotguns which frightened the seals away and wounded many more, the changing patterns of occupations and reliance on the "store" also had their influences. Explaining the declining seal catches is therefore not a straightforward matter, and the degree to which each factor caused this decline is still a moot point.

The decline is, however, very much an established fact as illustrated in Figures 15–18, and Tables 14a–22a.

In summary, the figures and tables show that the average annual catch of seals in West Greenland declined drastically during the period 1900–1937. In the case of South Greenland (excluding the main town of each district), the decline was from an annual average of 31,370 in the period 1900–1910 to 17,503 in the year 1933–34. The decline in North Greenland was not as great, from 55,737 (1903–10) to an annual average of 44,747 (1930–35) (see Table 15a).

The statistics in the tables have been separated according to type of inhabited place; the main towns of each district were more administrative centers than hunting communities, and a more accurate picture of hunting conditions can be obtained if the main towns are separated out of the totals.

The most significant statistics are for the catch of seals per hunter and per 1,000 inhabitants (Tables 16a through 19a and 21a and 22a). During the period 1905–10 to 1930–35, the catch of seals per hunter declined from 31 to 20 and from 49 to 33 in the outposts and hamlets (udsteder and bopladser) of South and North Greenland respectively. The decrease in catch of seals per 1,000 inhabitants was even more catastrophic: from 6,306 to 2,742 in South Greenland (1900–10 to 1933–34) and from 12,717 to 9,042 in North Greenland (1903–10 to 1930–35). These figures are for the outposts and hamlets. The decline in the main towns (byer) was even more catastrophic, but, as stated above, the main towns were really not the best seal hunting areas and should therefore be excluded from consideration here.

The graphs in Figures 15 and 16 trace the catch of seals in West Greenland in absolute numbers and in relative terms per 1,000 population 1862–1937 for both North and South Greenland. It is evident from the graphs that the decline in seal catch in South Greenland began with a sharp fall in 1899, although catches up until 1909 were not far below normal years in the late 1800's. The decline in North Greenland appeared somewhat later than in South Greenland, the beginning of the decline

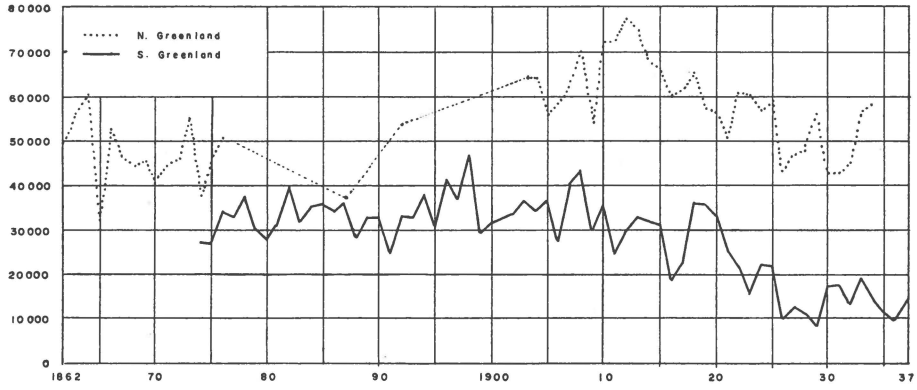


Fig. 15. Catch of seals in West Greenland 1862–1937.

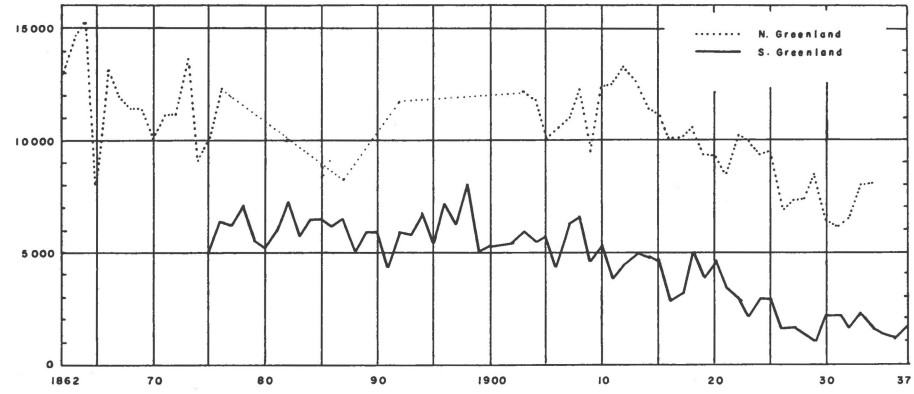


Fig. 16. Catch of seals (per 1,000 pop.) in West Greenland 1862–1937.

setting in after the high year of 1912. Blubber landings (absolute figures), as shown in Figure 17, maintained a fairly constant pattern in South Greenland until about 1915, after which a noticeable decline occurred. The same timing was true for North Greenland.

Sealskin landings in South Greenland seem to have begun a noticeable decline after 1902, and after 1914 in North Greenland. As shown in Figure 18, sealskin landings in North Greenland showed wide variations throughout the years, and it is even possible to trace a general decline in landings from about 1880 despite these wide fluctuations.

Thus the decline of sealing and deterioration of conditions under which it could be carried out began to erode the very basis of Greenlandic economic life. The effects were accelerated in that a decrease of seals led to increasing difficulty in acquiring skins sufficient for periodic replacement of kayak coverings which, in turn, crimped the very transport means necessary to hunt seals.[1])

[1]) Ref. Møller, J., 1928, p. 123.

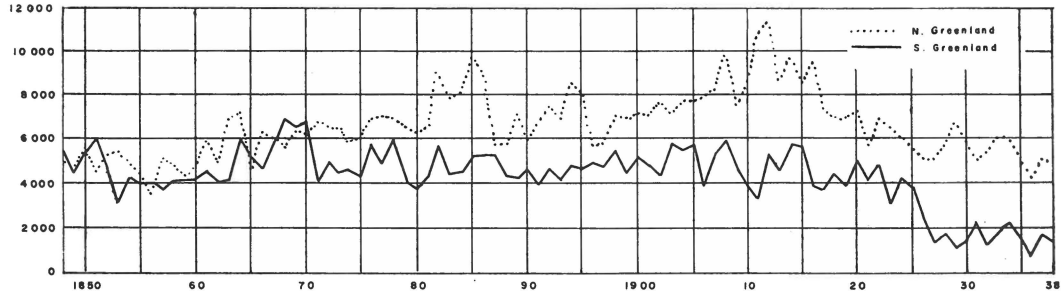


Fig. 17. Landing of blubber in West Greenland 1848–1938 (in barrels).

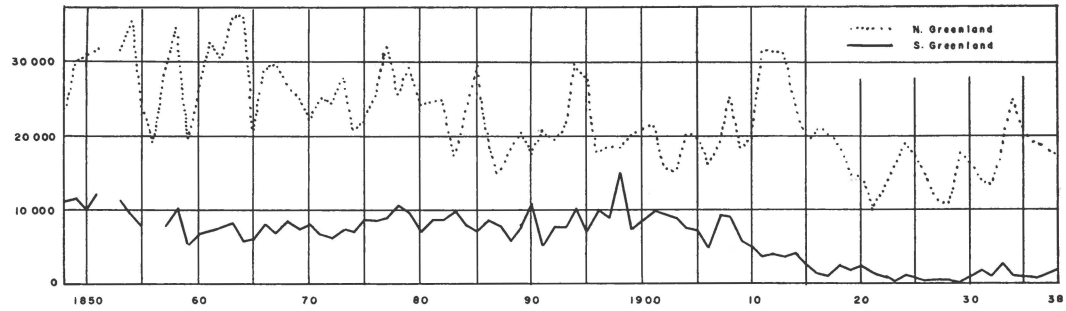


Fig. 18. Landing of seal skins in West Greenland 1848–1938 (ea.).

Apart from the decline in seal hunting possibilities, it must be noted that world market prices for sealing products, while quite favorable in the 18th and 19th centuries, declined generally towards the end of the 19th century and even more drastically in the present century as a result of the rise to prominence of vegetable oils.[1]) Sealing, therefore, could not possibly have afforded the basis of livelihood for the Greenlandic population which was marked by an increasing growth rate. Despite an increase in prices during both World Wars, recent prices for seal oil have been so low that the KGH has now discontinued buying seal blubber in Greenland. For some years, after buying the blubber, it was found cheaper to dispose of it on the spot, because the expense of transport, handling, and processing was higher than the world market price.

In a land with so few resources such as Greenland, every possibility had to be explored to the utmost. When it was seen that the present state of sealing and the indications of an increase in population growth rate would preclude the desired cultural and economic development in the early 1900's, the State decided to investigate the possibilities of commercial fishing. The voices of those wishing Greenland to remain in a primitive state away from all foreign influences could still be heard in the early

[1]) See Chapter II, pp. 48–49 for seal oil price trends.

1900's. Fortunately other voices were beginning to be heard, those of scientists and government men who wielded influence. The providence of such men was great. If anyone argued with their reasoning in 1906, they could have been called prophets by 1917, when warmer conditions in the sea allowed the incursion of cod in great numbers off Greenland.

Summary

1) In 1900 Greenland was a closed country living under the Danish trade monopoly as it had since 1774.

2) The beginning of the 1900's in Greenland was marked by economic depression and social and spiritual stagnation. The world market price of seal oil had dropped in the late 1800's, causing deficits in KGH's yearly finances, which spurred the Administration to find other ways of balancing the budget.

3) The population of Greenland in 1901 lived mainly along the west coast in 183 small, widely-scattered settlements. The native population of West Greenland totalled over 11,000 in 1901. The average annual population growth rate increased from – 0.60 to 11.6 per thousand in the period 1861 to 1910. The birth rate increased from 34.8 to 40.2 per thousand and the death rate decreased from 34.9 to 28.1 in the same period.

4) In 1901, only about 20 per cent of the population lived in the main town (koloni) of each district. The remaining 80 per cent was divided almost equally between the smaller "outposts" (udsted) and "villages" (boplads).

5) In 1901, about 37 per cent of native Greenlanders were under 15 years of age, and 3.5 per cent were over 60 years.

6) The Greenlanders, around the turn of the century, lived in many small hunting settlements. They caught seals which provided them with light, food, heat, clothing, and tent and kayak coverings. They traded surplus sealskins and blubber to KGH for various European wares. Also traded were reindeer skins, fox pelts, polar bear skins, narwhal and walrus tusks, and minor amounts of various other hunting products.

7) Only a slight decrease in catch of seals per inhabitant occurred from the 1860's to 1900 in North and South Greenland.

8) But the production of surplus sealskins and blubber declined towards 1900, especially in South Greenland.

9) At the beginning of the present century, 60 per cent of the exports (by value) from Greenland was blubber and liver. Various furs were also

important and, with blubber and liver, they accounted for about 85 per cent of the value of exports from Greenland.

10) In 1901 there were 1,900 hunters and 400 fishermen among the Greenlandic population.

11) Between 1900–10 and 1933–34 the average annual catch of seals in South Greenland declined from 31,370 to 17,503. In North Greenland the average catch declined from 55,737 (1903–10) to 44,747 (1930–35). This represented a decline per hunter from 31 to 20 seals in South Greenland and from 49 to 33 seals in North Greenland.

III. EARLY FISHING IN GREENLAND

Fishing by the Greenlandic Hunter

When an alternative to seal hunting was being sought early in this century in Greenland, AD. S. JENSEN put forward fishing as the best alternative. JENSEN (1907) pointed out that the fishery along the west coast of Greenland was larger and more extensive than most people believed.

Statistical material showing the extent to which fish were important to the Greenlanders in the seal hunting era is not plentiful. RINK's observations, however, in the mid-1800's showed how false was the common belief that the seal was the overwhelming Greenlandic food source in the years before the present climatic fluctuation. RINK studied the food consumed during a year by the people in the Southern Inspectorate (from Kap Farvel to about 67° N.). Despite the difficulties of undertaking such a study 100 years ago and the general paucity of statistical information at that time, the reputation of RINK as a scientific observer allows his results to be accepted as a general indication of food sources for the hunting people of West Greenland, especially the southern part.

RINK (1857, v. 2, pp. 251–52) stated that the indigenous food available during the year studied amounted (less quantities traded) to that listed in Table 14.[1]) KROGH & KROGH (1913, pp. 12–13) listed in kilograms the food sources published by RINK, but we must note that their figures are based on a literal acceptance of RINK's stated total for capelin.[1]) KROGH & KROGH (1913) listed the total food sources (after RINK, 1857) as that shown in Table 15.

From RINK's figures it is clear that fish played a vital role in meeting the nutritional requirements of the Greenlandic hunter. The production and consumption of fish equalled that of seal meat and blubber. The meat of caribou, birds, and whales, plus whale blubber was roughly equal, in weight consumed, to cod. From KROGH & KROGH (1913) it can

[1]) The total fish listed by RINK should be 5 million pounds if we take the figures he listed literally, instead of 4 million pounds as printed on page 252 (RINK, 1857, v. 2). It appears, however, that the capelin total of 2,500,000 pounds is a misprint and, indeed, it has been read as such by other workers (*cf.* HARTZ, 1906). In RINK's text (1857, v. 2, p. 228), the figure 1,500,000 pounds is estimated for the capelin catch in fresh weight.

Table 14. *Average annual production and consumption of food in the southern inspectorate of West Greenland (about 1855) estimated by* RINK *(1857, p. 251–2).*

Food	Pounds*
Reindeer meat (caribou)	500,000
Bird meat	100,000
Seal meat w/ blubber on	3,500,000
Seal blubber	240,000
Whale meat w/ blubber	100,000
	4,440,000
Capelin, whole fresh weight	2,500,000**
Cod, whole fresh weight	800,000
Char, lumpsucker, halibut, shark	500,000
Redfish, Greenland halibut, fjord cod, sea scorpion (food obtained both summer & winter)	1,200,000
	4,000,000
Larger sea bird eggs	200,000 ea.
Berries	over 100,000 barrels
Seaweed and mussels	a large amount
Angelica (*Kvan*) and misc. vegetable matter	??
European goods	misc. as listed

* 1 Danish pound = 1/2 kilogram = 1.1 U.S. pound.
** as listed by RINK, including erroneous total quantity of fish.

Table 15. *Weight (in kilograms) of food available during the year in the southern inspectorate of West Greenland according to* RINK *(1857).*

Type of Food	Weight in kg. (except eggs)
Meat and fat	2,200,000
of which seal meat and fat	1,750,000
Fish	2,000,000
of which capelin	1,250,000
Eggs	200,000 ea.
Berries	100,000
Plus misc. quantities of mussels, seaweed, angelica etc.	??
European food bought:	
bread and flour	50,000
barley and peas	10,000
sugar	10,000
coffee	12,000

Table 16. *Average food consumption per capita (based on equivalent of 5,000 adults) in kilograms per year and grams per day in the Southern Inspectorate of West Greenland circa 1855 (from* KROGH & KROGH, *1913).*

Food	kg. per year	gr. per day
Seal meat and fat	350	960
Other meat and fat	90	250
Capelin	250	690
Other fish	150	410
Eggs (at 50 gr. ea.)	2	6
Berries	20	55
Bread	10	27
Beans	2	6
Sugar	2	6
Coffee	2.4	6.5

be seen that the weight of fish available as food was approximately the same as that of all meat and fat. (Table 15).

RINK gave the 1855 population in the Southern Inspectorate as 6,100 people, with 40 per cent below 15 years of age, and 3 per cent above 60 years of age. Assuming for the total 6,100 people an equivalent of 5,000 adults, KROGH & KROGH (1913, p. 13) gave the yearly food consumption per person as shown in Table 16 based on their quoting of RINK's figures (Table 15). The annual per capita consumption was 440 kilograms of all meat and fat, and 400 kilograms of fish (of which 250 kilograms capelin). The daily consumption per capita was 1,210 grams of all meat and fat, and 1,100 grams of fish. These figures clearly indicate that the role of fish in meeting the food requirements of the Greenlandic hunter was of greater importance than commonly believed.

Considering waste (bones, gristle, spoilage, loss in preparation, etc.), KROGH & KROGH (1913, p. 14) estimated from RINK's figures the daily food consumption per person, with what they admitted was perhaps too low an estimate of fats (from blubber), as shown in Table 17.

Table 17. *Daily food consumption per capita in the Southern Inspectorate of West Greenland circa 1855 (after* KROGH & KROGH, *1913).*

Food	% album.	% fat	% carbo.	gr. wt. eaten	Total grams album.	fat	carbo.
Meat	19	12	3	1000	190	120	30
Fish	18	3	–	500	90	15	–
Bread	6	1	50	36	2	–	18
Sugar	–	–	100	6	–	–	6
Total calories = 2,640.							

Although it is obvious, from the figures presented in Tables 14 through 17, that fish played an important part in the nutrition and hunting life of the Greenland Eskimo in the 1800's, it is also evident that fishing was traditionally only a minor pursuit of a population wherein the great seal hunter (in Danish, storfanger) held pride of place.[1]) A Greenlander wrote in the early 1900's (MØLLER, 1928) about life in Greenland during the middle part of the 19th century:

> At that time, men who occupied themselves with fishing both summer and winter were considered pitiable ("cowards"), since as a rule, it was only the poorest kayakers who fished. The fishermen traded the fish which they had no use for to hunters and permanently employed men. (MØLLER, 1928, p. 117) (author's transl.).

Until the most recent climate warming, the economic activities of the Greenlanders were similar to those of other coastal Eskimo groups. RINK (1857, v. 1, p. 134) stated that:

> ... seal and beluga hunting in connection with caribou hunting comprise the Greenlanders' main occupations. Their entire way of life is based on these, and for them they will put aside everything else. (author's transl.).

Because of their hunting background, the Greenland Eskimos were not equipped with the means whereby they could make substantial use of great numbers of fish. It may not have been until contact with European whalers that the Greenlanders acquired the tools and knowledge necessary to pursue fishing, except perhaps for fishing of capelin, which came into the coast in great swarms. EGEDE (1741) mentioned capelin, salmon, and lumpsucker as being pursued by the native population in the early 1700's with simple methods and tools. When EGEDE came to Greenland in 1721, the Eskimos had the fish hook, made either of iron or bone. They also had fishing lines made from either short lengths of whale baleen tied together or thin strips of sealskin from the bearded seal.

Only in emergencies, however, was the sea called upon to offer other resources than seal, and few of these were utilized in a planned way. Nevertheless, each year at certain seasons, fishing had its place in the hunting culture of the Greenland Eskimos, although no one considered it to be other than a normal part of the hunting scene.

During spring and early summer, capelin (*Mallotus villosus* or, in Danish, lodde) appeared at the coast of West Greenland in dense schools. The Greenland natives had regular places for catching this small fish each year, as indicated by numerous Greenlandic place names such as

[1]) Ref. STORCH, M., 1930, p. 41 and VALLØ, V., 1861, p. 107.

Angmagssivik, or Angmagssalik in East Greenland. As seen in Tables 15 and 16 above, capelin played a vital role in providing winter food (in a dried form) for man and dogs. CRANTZ (1767, p. 94–5) described the fishing and utilization of capelin when it came to the coast to spawn for a short period in May and June.

In time of dire need, the first recourse seems to have been the sea scorpion (*Cottus scorpius*, or ulk in Danish). Concerning this, RINK (1857 v. 2, p. 232) said the fish is found along the entire coast in shallow water and that the "ulke fishery (has) no small importance for the Greenlanders". (author's transl.).

BOBÉ (1915) translated and edited a report by the Dutch whaling captain FEYKES HAAN, published in Holland in 1720, in which the Greenlanders' fishery for sea scorpion (as well as for other fish) was thus described:

> When they go fishing for sea scorpion they have a fishing line in the front of their boats seven to eight fathoms long made of whale baleen; at one end, instead of a lead sinker they have a stone with three or four notches or hooks; the other end is tied fast. Above are fastened two or three white pearls or something else which is white, whereby they know catching ulke in the same way that we catch kabliau (cod). These ulke (sea scorpions) are found in great and overabundant numbers, and they (the Greenlanders) in a short while can catch a great amount which they bring to us for trade, but sometimes they also use them themselves for food. There is also a certain kind of salmon, but quite little, of the size of haddock (kuller) here in our country; these salmon are caught with spears which they have made for this use. Capelin are also numerous, so numerous indeed that the people can in a very short while with a net, warp net (rendegarn) or sea net (havnet) load half an umiak (konebåd) full. Halibut and cod are also found, which are not caught very much or only seldom, why we do not know. (BOBÉ, 1915, p. 76) (author's transl.).

Greenland's missionary and re-colonizer HANS EGEDE wrote of the sea scorpion (1745, p. 91):

> Cat-fish[1]) is the most common food of the Greenlanders, insomuch that when all other things fail, the Cat-fish must hold out, of which there are abundance, both Winter and Summer.

[1]) This is obviously an erroneous translation which should have been sea scorpion or sculpin and not cat-fish (*Anarrhicas lupus* and *minor*), which is also found in Greenlandic waters, *cf.* CRANTZ, D. (1767, v. 1, p. 96), who also calls this fish "cat-fish"; CRANTZ, however, states that it is also given the name "Rogen-kall by the Danes from their vast roe ...". It seems certain, therefore, that CRANTZ was referring to the lumpsucker (*Cyclopterus lumpus*), or stenbider in Danish, whose roe is now an export item in Greenland.

HOLTVED (1962, pp. 83–96) has edited a collection of the ethnological works of OTTO FABRICIUS in which FABRICIUS described various aspects of hunting and fishing by the Greenlanders in the years 1768–1773. In Greenland at that time halibut and cod, among other fish, were caught with a deep-water line called Itinersiut ("an instrument for searching the depths") or Neternarsiut ("halibut line"). The latter was used for halibut in depths of 100–200 fathoms. The hook was carved from bone with a sinker of soapstone. For line, said FABRICIUS, was used whale baleen cut into strips and tied together. Also used was the redfish line (Sulupaugarsiut) in depths down to 300 fathoms with a float on the upper end.

According to FABRICIUS, fishing was carried out from kayaks with the line coiled behind the seat. Calm weather was a necessity, and care was taken to avoid currents and sea-swells. Most of the fishing was done in spring and autumn when the Greenlanders had little else to do in the seasonal absence of seals. Fishing was pursued in winter also, mainly inside the fjords when jigging with sea scorpion bait was the most common method.

Wolffish, or catfish (*Anarrhicas lupus* and *minor*), and lumpsucker (*Cyclopterus lumpus*) were taken with the Kakkivsek (leister spear), which has much in common with the Danish eel spear. This spear fishing was, of course, done right at the shore, and calm weather was necessary so that the fish could be spotted in the water. FABRICIUS also mentioned capelin fishing in the spring spawning time, carried out mostly by the women on the shores of shallow fjords or from the umiak, the women's skin boat. A new scoop (Kallut') was used, and most fishing took place during ebb tide in the night or early morning. Capelin was dried for future use by placing it on rocks along the shore. Also mentioned in FABRICIUS's work were trout nets, presumably for taking arctic char, and weirs of stone built across small bays and in streams, also for arctic char.

There are no exact statistics on the percentage of the population in West Greenland engaged in fishing in the pre-1900 sealing days. RINK (1857, v. 2, p. 233), although estimating no precise figure, stated that the poorer kayak rowers fish all the time, while the better hunters pursue fishing only when seals are scarce.

Most of the kayakers of South Greenland, however, spent a few months during the winter fishing for sea scorpion and small cod. RINK (1857, v. 2, p. 233) suggested that in South Greenland about 200 fishermen (from kayaks) were found and that the remaining 1,000 kayakers spent several weeks a year in fishing.

RYBERG (1903–04) stated that in the years 1893–1901 the number of kayakers was 240 to 250 per 1,000 inhabitants, of which between 170 and 180 could be classed as seal hunters and 70 as fishermen. In other

words, in 1901, with a population of about 11,000, there were about 1,925 seal hunters and 770 fishermen. It should be emphasized here, however, that a man who caught at least one seal per year was listed as a seal hunter in the fangstlister (hunting lists), and it can only be guessed how many more fishermen there were than listed.

From all indications, therefore, fishing was more important in pre-1900 Greenland than generally believed. Fish formed a greater part of the diet of the Greenland Eskimos than most people realized. The aura of the "great hunter" (storfanger), however, monopolized the minds of the Greenland Eskimos. Fishing was for women and boys, and also for men who were too old or otherwise unable to pursue the dangerous occupation of hunting seals. Fishing was looked down upon as a rather ignoble pursuit engaged in by cowards—in addition to the above-mentioned infirm, aged, and young.

The Greenlanders' Early Fish Trade

Fishing, as shown above, was not an activity foreign to the Eskimo hunter of Greenland, although it was a minor pursuit in the total annual economic cycle, and not highly esteemed. Fish formed a good proportion of the food of the pre-1900 Greenlander. The Greenlanders, however, not only caught fish for immediate home consumption and to dry for winter provisions (especially capelin), they also, at times, sold fish to the Royal Greenland Trade Department or to other Greenlanders who had wage employment.[1])

This periodic sale of fish by the Greenlanders to the government monopoly and to Danish civil servants in Greenland, who supplemented their incomes by private fish export, can be considered the beginning of the commercial Greenlandic inshore fishery.

The inshore waters for commercial fishing were barred to foreign vessels. A second main commercial fishery developed off Greenland, therefore—that on the banks. These were beyond the reach of the Greenlanders in their unsuitably small boats and kayaks. This situation has remained essentially unchanged down to present day.

Otto Rosing (1961) cites the report of Danell's second voyage to Greenland in 1653 where, in what was probably the first mention of cod off Greenland, Danell said:

> The evening of 20 July we passed Baals Revier and headed thence to the southwest out to sea where we came to a fishing bank on which

[1]) Rink, H., 1852, p. 23 stated: "The sea along Greenland's coast is rich in various fish, which partly serve the population directly for food, partly as a source of income". (author's transl.).

we caught one and one-half loads of fish (about three tons), but we had to cease because of lack of salt. (author's transl.).

RINK (1852, pp. 23–24) wrote of the large cod (which, he said, commonly went under the name "Kabliau") occurring in Davis Strait along the coast of West Greenland from Kap Farvel to Disko Bugt. The cod occurred quite irregularly both on the banks and within the skerries and in the fjords along the coast. The cod, said RINK (1852, p. 23), was not found constantly in Davis Strait, but only appeared there on an annual migration ("from the deep sea, or perhaps from Newfoundland"). It did not, or only occasionally, spawn (in the strait) along the west coast of Greenland.

Up to the mid-1800's, when RINK recorded his observations in Greenland, it had not been considered possible to establish any regular fisheries off Greenland because of "unfavorable natural conditions" (RINK, 1857, v. 2, p. 212).

Early Foreign Fishing Efforts

RINK (1852, p. 26) mentioned foreign fishing efforts in Davis Strait in the 1700's by ships coming "from North America, but it is not known if the fishermen at that time had had stations or drying places on the coast (of Greenland)". (ref. RINK, 1857, v. 2, p. 221).

POUL EGEDE, son of Greenland's re-colonizer HANS EGEDE, also mentioned in his diary that "fishermen from Boston already before 1783 arrived annually on the fishing banks off Frederikshåb." (ROSING, O. 1961).

Fish Pursued by the Greenlanders

Among the three main fish taken by the Greenlanders for trade was the Greenland shark (*Somniosus microcephalus*). RINK (1857, v. 2, p. 215) described the shark fishery in the mid-1800's in Greenland as "increasing". The shark was pursued for its liver which, according to RINK, gave "about 53 per cent oil" when rendered down. An average of the five years preceding 1857 showed about 500 barrels of shark liver sold by the Greenlanders to KGH. An estimated 20 per cent of these barrels was cod liver. The shark was taken by hook and line from kayaks in South and North Greenland, and from the winter ice cover in North Greenland.

Another fish taken mainly for its liver was the cod (*Gadus callarias*, *G. morhua*). In the mid-1850's, KGH began to buy cod liver as an official trade item. The fish itself was not purchased, and what was not used for local consumption was discarded. But after the 1850's, cod fish itself began to be landed as a regular trade item. The annual production of

dried or salted fish averaged from nine to twenty-five tons (ROSING, O., 1961). Cod was found irregularly along the coast mostly in summer and autumn. The Greenlanders fished partly for their own use and partly for sale to the monopoly, after which KGH dried the fish and sold it along the coast (particularly in North Greenland), or it was used for distribution among the native people in times of need. Only a small amount of the cod bought from the Greenlanders was made into "klipfish" (salted and dried) and sent to Denmark. Much of this export was on a private basis until KGH absorbed this trade under its monopoly.

A third fish, arctic char (*Salvelinus alpinus*), was caught in streams and in salt water at the mouths of streams. Under good conditions, several barrels could be caught daily with nets, but the Greenlanders' pursuit of this fish was very sporadic, probably because many of the good char streams lay at some distance from the main settlements (RINK, 1857, v. 2, p. 220). The char was salted down in barrels and exported in small amounts to Denmark, mostly as a private undertaking by Danes working for the Greenland Administration.

It appears, however, from government records (especially Medd. fra Dir. for den kgl. grønl. Handel) and from RINK's books (1852 and 1857) that the Greenlandic commercial coastal fishery (known locally as kystfiskeri, or coastal = inshore fishery) was relatively insignificant and sporadic. The coastal fishery within the skerries and in the fjords of West Greenland, although of small and local extent, nevertheless benefitted from periods when cod were plentiful.

Two Periods of Cod Abundance

RINK (1852, pp. 28–29) wrote of two periods when cod were plentiful in Greenland in the first part of the 19th century. Although the information may be unreliable, older folk told RINK of a period "before 1820" when cod were present in great numbers in the area around Disko Bugt (and also, presumably, along the entire west coast). Also in Julianehåb district, according to Moravian missionaries and older Greenlanders, cod were present in "vast numbers" during the years 1819–1821. I have not been able to trace an increase in fishing activity because of the increase in cod. But in the early 1800's, there was apparently a noticeable decline in the number of seals, especially at some of the colonies in South Greenland (BENDIXEN, 1930, p. 13). One of the places with fewer seals was Fiskenæsset, where in 1828 the town's trader, J. MØLLER, recommended that cod be bought from the Greenlanders and processed into klipfish and dried fish. BENDIXEN writes (1930, p. 13):

> ... and in this connection MØLLER reported that he had already bought up and salted 45 tønder (barrels) of fish for a price of 2 skilling

per cod, and that they occurred in such great numbers in the fjord that three men in one morning could catch 300 fish. (author's transl.).

The Inspector for South Greenland, HOLBØLL, forwarded the recommendation for starting a cod fishery at Fiskenæsset[1]) to Copenhagen.

It was also known that in the 1800's, cod was fished for its liver in Julianehåb district (near Lichtenau and Sydprøven). The liver was landed at KGH's station at Sydprøven (RINK, 1852, p. 28).

While there may remain some uncertainty about the great increase of cod in West Greenland in the early 1800's,[2]) this definitely occurred in about the middle of the 1800's. It led to the appearance of European fishing vessels on the banks off West Greenland.

In 1845, two English vessels fished off Holsteinsborg. One of the vessels wanted to anchor in the harbor at Holsteinsborg and fish from small boats in the nearby fjord, but KGH forbade this. Because of its small size, the vessel was not able to "hold the bank" and was forced to sail home with a cargo of fish (15,000 cod) insufficient to show a profit (RINK, 1852, p. 26). The other English vessel had more success on the banks and got 30,000 cod.

In the following years more ships came to fish the banks off West Greenland. These were mostly from Shetland, but also from Scotland and Hull. There were, however, never more than ten fishing vessels on the banks. The years 1848 and 1849 showed especially good results.

In 1848, the largest catch was 44,000 fish (cod) with a 26-man crew working from June until early September. All vessels except two caught an average of 20–30,000 fish in 1848, but by the next year (1849), the cod seem to have become scarce again. RINK (1852, p. 27) wrote that in 1850 and 1851 the cod were so sparse that the bank fishery was unprofitable. By 1851, only three vessels from the British Isles worked the banks, and they had poor results. After the 1851 season, foreign interests gave up cod fishing along the west coast. In 1852, however, a Dane, Consul NOMMESEN of Føhr, was given permission by the Greenland Administration to set up a fishing station in Greenland. But the fishing was so poor that his efforts failed and his vessel had to be freighted home to Denmark by KGH.

[1]) Fiskenæsset was founded in 1754 and was a koloni until 1872. Its name suggests that fish have always been abundant there.

[2]) RINK (1852, p. 26) wrote referring to the activity along Greenland's coast in the 1700's from North America and said about the fishing: "Later it was quite finished until 1845 . . ." (author's transl.).

Early Attempts at a Commercial Fishery

Both the Greenlanders and the Danish Greenland Administration were quite sensitive to changes in natural conditions along the coast. RINK (1852, p. 26) wrote of "heretofore known (fishing) experiments". These fishing experiments[1]) were initiated by the Greenland Administration at the slightest sign of an increase in occurrence of fish stocks.

The 1828 cod fishery and processing at Fiskenæsset has already been referred to. At the same time, Inspector HOLBØLL also recommended that shark liver be declared an official trade item under the monopoly after some successful fishing trials in 1828 showed that many sharks were to be found along the coast (BENDIXEN, 1930, p. 14). Shark liver was included in the monopoly in 1835. By 1850, a yearly average of 500 barrels were produced in South Greenland and 350 in North Greenland.

The Royal Greenland Trade Department had difficulty selling the shark liver oil until they discovered that if it was rendered down with seal oil in a proportion of 1:2, an oil was produced, called trekronertran (three-crowns train oil), which gradually became KGH's main export item from Greenland, used almost universally in the tanning of leather (BENDIXEN, 1930, p. 14).

Private Danish companies gradually became interested in the Greenland fishery as a commercial possibility. One concern, PAHLEN and KALL Co., received State permission to set up fishing stations in Sukkertoppen and Holsteinsborg districts in 1834. They were to develop a whale fishery and also catch cod. They seemed to concentrate more on shark fishing and the seal hunt, however, and finally gave up the attempt in 1841. KGH looked with disfavor on this attempt and, from 1837 to 1845, it undertook its own attempt at a cod and shark fishery in South Greenland as described below.

When fish appeared in greater number than usual, KGH's personnel were quick to capitalize on the opportunity. They purchased fish from the Greenlanders, dried or salted it for klipfish, and sent it home to Denmark (with freight paid for by the State) to be sold for their own profit. The same was not true, however, for shark liver and cod liver, which had become trade items under the government monopoly and could not be dealt with by private persons. A small private traffic had also grown up for Greenland halibut and arctic char. Both kinds of fish were purchased from the Greenlanders, salted down in barrels and sent home in KGH's vessels. This private trade was taken over by KGH early in the 1900's.

In 1837 KGH decided to carry out cod fishing experiments. A vessel was sent to Greenland for this purpose; and an Icelander was signed on by Inspector HOLBØLL (North Greenland) with the specific purpose of

[1]) See RINK, 1852, pp. 30–31 for an example of such a fishing experiment in 1833.

teaching the Greenlanders how to prepare the fish correctly. It quickly appeared that the shark fishery offered more promise than cod (ltr. 1838, HOLBØLL), but by 1842 HOLBØLL wrote that the "shark fishery up to now had been carried out with poor result for the Trade's account" (RINK, 1852, p. 34).

By 1844 it was decided to pursue the cod fishery again at KGH's financial risk. Apparently cod had once again been considered more profitable than the shark fishery, as cod again appeared to be more numerous in Greenland waters. KGH agreed that Inspector HOLBØLL in 1845 should direct a cod fishery at Holsteinsborg. According to HOLBØLL's report in the autumn of 1845, this fishery was successful in July and August, producing 11,100 cod and a net income to KGH of 663 rigsdaler (RINK, 1852, p. 35). This fishery appears to have been carried on in a very primitive way, and led by people who had but a minimum of knowledge about fishing. The trials, therefore, gave no positive result, nor any definite conclusions, apart from conflicting reports, as to whether the fishery could make itself pay or was a complete waste of effort (BENDIXEN, 1930, pp. 15–16).

The result of the fishery in 1846 is not known, but in 1847 the Greenland Administration approved the landing of cod all along the southwest coast and brought in Mr. TH. THOMSEN, a former Iceland merchant, to direct the project. He had asked the State for authority to carry out cod and shark fishing in Greenland. RINK (1852, pp. 35–36) wrote in a very complimentary way about THOMSEN's ability. His efforts went reasonably well from 1847 to 1849, but they failed in 1850 and 1851, in which latter year they were abandoned. It appears quite clearly from THOMSEN's detailed accounts[1]) that the main reason for failure was lack of fish.

In 1847 THOMSEN fished in the fjords near Fiskenæsset and Holsteinsborg, and also on the bank off Holsteinsborg. The result was about 13,000 cod. Stormy weather seems to have been a hindrance (especially on the banks) and THOMSEN was apparently ill for a period. But he termed the 1847 season "successful".

In the following year, 1848, he had better results, and 46,753 cod were taken. No fish were caught until 22 June and the best catches were in July and August.

In 1849 the cod again did not appear until the end of June. Although they were then numerous, stormy weather hampered the fishery. About 14,000 fish were landed, plus another 10,000 caught by the native Greenlanders. At the end of the season, cold temperatures made fishing from the open boats almost impossible.

[1]) These detailed accounts were published in RINK, 1852, pp. 36–42 and are summarized here in the last three paragraphs of page 86 and the first paragraph of page 87.

In 1850, despite attempts at various places along the coast and out on the banks, only 14,550 cod were taken. The following year's fishery proved to be even more meager. THOMSEN traveled home to Denmark in mid-August of 1851, having given up the experiment.

Thus there is evidence of an abundance of cod from 1845 through 1849, but very few appeared from then until the early 1900's.

After the trial fishing period of THOMSEN, fishing in Greenland took place on a minor scale at five or six places along the west coast, most of the fish caught being dried for domestic use when other food was short. But, little by little, the cod fishery languished mainly, wrote BENDIXEN (1930, p. 18), through "lack of interest on the part of the Administration". Finally it was given up everywhere except at Fiskenæsset, which abandoned the fishery in 1865 by order of the Administration.

The Hiatus in Fishing

This order forbidding further fish landings was the result of prevailing opinion that fishing was ruining the pursuit of seals and had caused poverty among the population. BLUHME (1865, pp. 232–33) wrote condemning the split-cod and dried cod industry at Fiskenæsset and blamed it for enticing the natives away from sealing.

Although the inshore fishery was given up by the Administration, fishermen from North America took renewed interest in Greenland waters. JENSEN & HANSEN (1930, pp. 8–9) refer to frequent visits by American fishing schooners on the banks off West Greenland after 1866.[1]) During this period, many cruises for the purpose of fishing off West Greenland were made from Gloucester, Massachusetts during July and August. These fishing voyages yielded good catches of halibut, but cod were so scarce that none were landed for salting.

Purchase of fish by KGH had been discontinued after THOMSEN's trials in order to benefit the Greenlanders. RINK felt, and for good reasons, that seal hunting was the only activity in which the Greenlanders should be engaged. He argued that the more people engaged in sealing, the more self-supporting they would be, and the less they would be dependent upon European goods which were costly to supply to Greenland. The alternative was a well-organized fishing industry which, if it was to replace sealing, would have to support the people throughout the year and enable them to purchase the necessary goods of European origin at the local shops. The Greenlanders, in addition, were at that time largely unused to handling money and inexperienced in buying wisely.

RINK's and BLUHME's ideas were so well received that the Administration, as stated above, forbade all fishing except for shark, and even

[1]) Ref. SCUDDER (1883), who reported on expeditions during the years 1866–1881.

set a lower price for shark liver than for seal blubber. One result, however, was that no more dried fish was prepared and this important source of help for the needy and for winter food ceased. Capelin was of course still used.

In place of local dried fish, supplies had to come from Denmark. These were not as suitable because of high cost and poorer nutritive qualities. Instead of allowing limited fishing to take place for those who preferred it and thereby providing a domestic dried fish product, the fishing industry practically ceased to exist. Some local fishing was still carried on, however, to provide food especially in South Greenland.

Just when fishing was being discouraged toward the end of the 1800's, there came a decline in the number of seals. The Greenlanders began selling more seal products to KGH than they could actually spare. As seals became more scarce at the beginning of the 1900's, it was even difficult to acquire the necessary sealskins for kayak coverings or to store up seal meat for winter use. More and more men in South Greenland began to spend an increasing part of their time in the summer fishing. But because of the Administration's lack of interest, there was little suitable fishing equipment in the shops. Only lines and hooks for hand-lining were to be found, but no long-lines, nets, prams, and oars. The men, therefore, continued using their kayaks as if they were going out sealing, although a kayak is as unsuitable for fishing as could be.

Despite the primitive equipment, the Greenlanders, especially in South Greenland, learned more and more about how to fish and found fishing places not known before. However, there was little immediate benefit since fishing products were still not on the official purchasing (indhandling) lists.

The Small Private Fish Trade

Although not handled officially, there had for many years been a lucrative private trade in the hands of Danish and Greenlandic officials. After fifty years of this informal arrangement, the Administration could no longer close its eyes to the fact that the private traffic was of considerable local importance and was incompatable with the monopoly.

This private activity had started modestly in 1875 with the sending to Denmark of some barrels of salted arctic char from Holsteinsborg and Sukkertoppen. This export developed gradually into an annual shipment of about 400 barrels from these two places.

A corresponding export of hellefisk (Greenland halibut) from North Greenland grew up centering on Jakobshavn. Since the landing of hellefisk took place mainly in winter (from the traditional fishing places on the ice of Jakobshavns Isfjord), it was of such importance to the popula-

tion's well-being that the Administration could scarcely forbid the traffic, although the prices paid to the Greenlanders were modest (4 øre per fish, regardless of size).

Increasing commercial interest in Greenland's fishing possibilities forced the fishery question to be brought up for consideration by the Administration, which found itself in a rather difficult position. The purchase of fish had gradually become of economic importance for some of the Greenlandic population and had been carried on for over 20 years with the Administration's tacit approval. So it could scarcely be forbidden. However, large private enterprises could not be permitted to blossom in Greenland under the protection of the monopoly, so there was no other course than for the Administration to take over the fishing trade, which it did in 1903.

This was thus a turning point in Danish economic policy. A resolution of the Ministry of Interior (which at that time administered Greenland) of 15 January 1903 authorized the Directorate of the Royal Greenland Trade Department to take over the previously private trade in arctic char and hellefisk. This resolution was made official by KGH in two memoranda.[1])

At first this take-over by the government monopoly did not result in an expansion of the fishery. On the contrary, there was some reduction because of restrictions stipulated in the memoranda. The landing and export of red arctic char was limited to 100 barrels each from Sukkertoppen and Holsteinsborg (Anon. 1903a, p. 47). It was further stipulated that "the Greenlanders were not to be taken away from the more important seal hunt in order to pursue char fishing" (Anon. 1903a, p. 47). KGH was to supply barrels and salt, plus the necessary funds for repairing nets before the start of the season. This repair expense was then to be deducted from the amount paid to the fisherman when he landed his fish. The amount of salt to be used for temporary preservation of the fish at the rivers was 30 Danish pounds per barrel. The KGH's trade chiefs (kolonibestyrer) at each place were made responsible for gathering all the barrels of fish from the various fishing places and shipping them into the main settlements. Two landing prices were established, one for fish collected by KGH and another ("somewhat higher") for fish freighted into the main settlements by the fishermen themselves.

The amount of Greenland (or Blue) halibut (hellefisk) to be exported

[1]) Anon. 1903a. Skrivelse af 31te Januar 1903 fra Direktoratet til Inspektoraterne (ang. Direktoratets Overtagelse af Laksetrafiken i Grønland og Regler for denne Trafik). Medd. fra Dir. for den kgl. grønl. Handel, 1903 (1): 46–48.

Anon. 1903b. Skrivelse af 31te Januar 1903 fra Direktoratet til Inspektoraterne (ang. Direktoratets Overtagelse af Hellefisketrafiken i Grønland og Regler for denne Trafik). Medd. fra Dir. for den kgl. grønl. Handel, 1903 (1): 48–52.

from Greenland was likewise limited. According to the memorandum (Anon. 1903b, pp. 48–50), limited quantities of salted hellefisk could be exported from Christianshåb (including Claushavn), Jakobshavn, Ritenbenk, and Umanak. Again it was stressed that the Greenlanders were not to be taken away from the more important seal hunt in order to fish for hellefisk. The Greenland halibut was to be paid for by the fish; three price categories according to size were established. As in the other Greenlandic products exported and sold abroad, the trade chiefs and outpost managers (udstedsbestyrer) were to receive a set percentage of the profit realized through eventual sale of the fish.

In 1904, according to the yearly report of conditions in Greenland (Beretning om Tilstanden i Grønland)[1]), the catch of common halibut (helleflynder) at Holsteinsborg was only sufficient for the population's own needs, so that it was only possible to export a few barrels of salted halibut to Denmark. According to BENDIXEN (1903, p. 34), the Administration

> in 1904 began as a trial to land halibut at the colony of Holsteinsborg and made an attempt, although completely unsuccessful, to send fresh, frozen flounder to England. (author's transl.).

The official records report the attempt only to buy sufficient halibut for salting and export to Denmark, and it is unlikely that facilities for freezing and export of fish were found in Greenland at that time.

In a regulation of 10 March 1905, the hellefisk were to be paid for by weight and not by the fish.[2]) The price was to be 1 øre per pound in the period 1 June through 31 August, and $^1/_2$ øre per pound for the remainder of the year.

In the early 1900's, the "Greenland question"[3]) seemed to be on everyone's mind in Denmark, because of conditions described in Chapter II. In brief, there was a general awakening of interest in Greenland by the Danes. Consideration was given to improving the condition of the population. Among suggestions for providing other sources of livelihood, fishing was considered.[4]) A group of young and energetic civil servants went to Greenland and they were not prepared to accept the inevitability of the "old way" of doing things. Individuals in Denmark were also becoming interested in Greenland affairs and regarded critically the government trade monopoly on Greenland's closed shores.

[1]) Medd. fra Dir. for den kgl. grønl. Handel, 1905 (1): 157.

[2]) Anon. 1905b. Skrivelse af 10de Marts 1905 fra Direktoratet til Inspektoraterne (ang. Indhandlingsprisen for Hellefisk). Medd. fra Dir. for den kgl. grønl. Handel, 1905 (1): 154, para. 10.

[3]) Ref. BANG, H. V., 1912, p. 20 ("det grønlandske Spørgsmål").

[4]) Ref. Chapter II, pp. 67–68, which notes recommendations on fisheries of the Commission of 1906 (Anon. 1908a, Betænkning etc.).

Activity at the Turn of the Century

Just after the turn of the present century, when the "Greenland question" was being voiced in Denmark, the Danish government financed some exploratory fishing along the west coast of Greenland by two Færoese vessels under skipper NAPOLEON ANDREASEN, but without good results. Similar trials in 1913 resulted negatively for cod, although significant numbers of halibut (*Hippoglossus vulgaris*) were fished.

The well-known "Tjalfe" expedition investigated fishing possibilities along the west coast of Greenland during the summers of 1908 and 1909. Despite common belief, these activities (which will be outlined below) did not result from the fear of the oft-discussed seal decline, but rather from the well-founded conviction on the part of several men that sealing just could not support the growing population in Greenland.

Moreover, as Minister of Interior SIGURD BERG believed, a good part of the population of Greenland was either not able or not suited to pursue the rugged life of a hunter and was therefore in an unfortunate position in the struggle of life (JENSEN, 1907, p. 79).

Professor AD. S. JENSEN, who led the "Tjalfe" marine biological investigations of 1908–09, was one of the more provident and logical men involved in the "Greenland question" at the turn of the century. He agreed with SIGURD BERG[1]) and asked the glaring question (1907):

> Could not the disproportion be remedied that such a large part of Greenland's population have given up the national occupation, seal hunting, and now experience a more or less wretched existence in the colonies, only partially employed with occasional work for KGH or with a primitive fishery? (author's transl.).

JENSEN (1907) recognized that since seal hunting was the *secure* occupation because the seal could provide people with everything necessary for life in a polar land and since, for the time being, there was no other more certain source of income, the youth should be brought up not to reject the way of life of their forefathers. He suggested, therefore (1907, p. 82), that the State assume responsibility for getting the best hunter at each place to teach the young boys all about hunting.

However, JENSEN warned that even though such a course would help things, "the time will come when the necessity thereof (turning to other occupations) becomes apparent" (JENSEN, 1907, p. 82, author's transl.). JENSEN cited population trends, with a high birth rate, etc., which, he said, would result in a doubling of the population of Greenland

[1]) JENSEN had indeed enlisted BERG's help in getting State financing for the "Tjalfe" expedition against strong opposition.

by the 1950's.[1]) Since it was unlikely that the number of seals would also double (!), JENSEN therefore suggested that it would be wise to seek other ways of making a living in good time in order to avert the danger which threatened the population.

This, then, was the kernel of thought which began the change in way of life in West Greenland in the early 1900's. JENSEN's ideas got people to begin thinking more about fishing. The climate warming, although it was poised at the doorstep, had not yet influenced the faunal distribution in West Greenland to any noticeable extent (see Figures 15–18, graphs of the seal catch). JENSEN's "Tjalfe" investigations were to find cod only in small numbers, although their results pointed to the advisability of a commercial fishery for Greenland halibut.

The Andreasen Fishing Trials

In October 1905 a syndicate in Copenhagen petitioned the Ministry of Interior (Indenrigsministeriet) for a concession (not a monopoly) to fish for arctic char, Greenland halibut, common halibut, cod, and other types of fish along the coast of Greenland. The petitioners wished to make use of and to develop resources in Greenland which had not been adequately tapped. The stated objective was partly to improve the Greenlanders' economic status and to foster cultural improvements on the island. The group was supported by the government's fisheries consultant (C. F. DRESCHEL) and other influential persons. In a further elaboration of their plans, the syndicate proposed to place Færoese fishermen in charge of the work. A Greenlandic work force would be utilized in developing a coastal fishery with stations on land for preparing the fish for export. Motorboats and small sailing vessels were to be used. In addition to the basic business of fishing, scientific investigations of the stocks of fish on the banks and in the inshore waters were to be carried out. They planned to carry out fishing in the summer of 1906 at Fiskenæsset (for cod), off Taseralik (for halibut), in the districts of Holsteinsborg and Sukkertoppen (for char), and at Jakobshavn (for Greenland halibut). All these attempts were to be considered experiments as part of basic investigations of fish occurrence.[2]) The petition was denied, but it probably provided the impetus for the government to send out a small party in the summer of 1906 under NAPOLEON ANDREASEN.

[1]) Greenland's native population was 12,178 in 1903 and 23,859 in 1953, a development which showed how accurate were JENSEN's thoughts.

[2]) Ref. KRABBE, 1911, pp. 10–13.

This expedition consisted of two fishing cutters. The expedition's purpose, according to the plan outlined by the government,[1]) was:

> ... if possible through a development of the prevailing fishing methods or by the help of new methods and fishing locations, to seek to obtain an expanded or new source of livelihood for that part of the native population which is not engaged in seal hunting. (Medd. fra Dir. for den kgl. grønl. Handel, 1906 (2): 215) (author's transl.).

The experiments were to be based on not only the stocks of fish on the banks off Greenland's west coast, but also those in the fjords including, if possible, arctic char and also Greenland halibut in Disko Bugt. In general, the expedition was unsuccessful. According to ANDREASEN's report (ANDREASEN, 1906, pp. 270–72), the party fished for cod on the banks off Godthåb and Sukkertoppen and also in the coastal waters and fjords near Holsteinsborg in mid-June. In all, only three cod were taken (in a fjord). The boats then sailed to Disko Bugt where Greenland halibut were fished on the traditional banks near Jakobshavn. This produced 160 barrels of salted fish, but it could have been much more, but for a shortage of salt and barrels.

In mid-July the cutters again tried for cod at various places near Holsteinsborg (both on the banks and near the coast) and caught 2,000 cod which produced about five tons of salt fish. The greatest catch in one day was about 200 cod. Some halibut were also taken on Store Hellefiske-banke off Holsteinsborg. After sale of the fish caught in the operation and after paying off all expenses, the result was a deficit of 23,008 kroner. ANDREASEN's report of these experiments was quite pessimistic. When one considers the fine reputation of the Færoese as fishermen, as well as ANDREASEN's thorough preparations for the fishing trials in Greenland, ANDREASEN's pessimism is all the more depressing. ANDREASEN (1906, p. 271) wrote:

> If I were to express myself concerning the cod fishery off Greenland and use the experience gained this summer for a guide, I would very definitely dissuade any foreigner from going to Greenland with the sole idea of definitely catching cod, because in this regard he will be sadly disappointed just as I have been on many occasions, because I have never anywhere tried longer and more intensively to catch fish than here on the coast of Greenland and showed a poorer result in return. I can express myself only about those places where I have tried to fish, but I believe, however, that it would be fortunate

[1]) Ref. Anon. 1906. Skrivelse af 17de April 1906 fra Direktoratet til Inspektoraterne. Medd. fra Dir. for den kgl. grønl. Handel, 1906 (2): 214–217.

if the Greenlanders were to be taught to process the cod such that it could be a ware sold on the market, since the Greenlanders are always located here and will therefore be in a good position to take immediate advantage when possible shoals of fish appear. (author's transl.).

Thus, despite disappointing results, the first intensive effort by the Greenland Administration to find fishery resources for the Greenlanders pointed out the advantageous locational factor of the Greenlanders in relation to possible fish occurrences.

The Andreasen experiments were the first of a series of research efforts in physical and biological oceanography which have been continued by the Greenland Administration right up to the present time.[1])

The "Tjalfe" Trials

During the same summer of 1906, when ANDREASEN was patiently investigating the fishing possibilities at various places along the west coast, another man also interested in fish was also there—a man who was to have the greatest single influence on the development of the fisheries in Greenland. That man was the 30-year old Danish ichthyologist ADOLF SEVERIN JENSEN, who had been to North Norway with the Norwegian oceanographic vessel "Michael Sars" under Dr. JOHAN HJORT and Captain THOR IVERSEN in 1902. Magister JENSEN (who was to become dr. phil. and Professor of Zoology at the University of Copenhagen) planned a series of oceanographic investigations in Greenland similar to those carried out by the Norwegians. In 1906 he went on a reconnaissance trip to Disko Bugt. This was his first contact with the Greenlanders and with their living conditions. Thus began an interest and love of the Greenlanders which later characterized all of his activities as fisheries consulant[2]) for the Greenland Administration.

When JENSEN returned to Denmark after his trip to West Greenland in that summer of 1906, he paid a visit to the Minister of Interior, SIGURD BERG. JENSEN was deeply concerned by what he had seen of conditions in Greenland (see above pp. 91–92).

JENSEN was convinced, from what he had seen in Greenland, that seal hunting would never be able to support the population in a suitable way in the future. As the first and foremost alternative to seal hunting, JENSEN advocated fishing. He believed that good possibilities lay with ten kinds of fish, and of these, four would have the chief economic

[1]) See bibliography for reports of fisheries investigations in Greenland published in the official reports of the Greenland Administration.

[2]) See Anon. 1912a.

importance: cod, Greenland halibut, common halibut, and the salmons (arctic char and Atlantic salmon). JENSEN thought that, including the four kinds already mentioned, the fish listed in Table 18 could possibly be of economic importance in Greenland.

JENSEN named the Atlantic salmon (*Salmo salar*) along with arctic char, but pointed out that it would be less important in Greenland waters. He also named fjord cod or uvak (*Gadus ogac*), in addition to Atlantic cod, as having future potential.

The question of whether enough fish were present for a profitable fishery with modern vessels and gear off West Greenland could not be answered because of insufficient data (JENSEN, 1907).

JENSEN urged investigation of the fisheries possibilities and development of the feasible one. He also believed (and this is important in considering the raging argument about Greenland's future in the early 1900's) that the development of a fishing industry did not mean giving up seal hunting, but that the two could be carried on side by side (JENSEN, 1907, p. 86). This idea was recently quoted by VIBE (1967, p. 3) in the

Table 18. *Fish of commercial importance in Greenland waters as suggested by* JENSEN *(1907).**

	Danish	English	Latin
1.	lodde *angmagssæt**	capelin	*Mallotus villosus*
2.	fjældørred *laks**	arctic char	*Salmo alpinus* L.
3.	ulk	sea scorpion	*Cottus scorpius* L.
4.	rødfisk	redfish, Norway haddock, rosefish	*Sebastes marinus* L.
5.	haaising *fladfisk**	long-rough dab	*Hippoglossoides platessoides* FABR.
6.	torsk – kabliau *havtorsk**	cod	*Gadus morhua* L.
7.	havkat (3 kinds)	wolffish, catfish	*Anarrhicas lupus* L. – *minor* – *latifrons*
8.	helleflynder	halibut	*Hippoglossus vulgaris* FLEM.
9.	havkal *haj**	Greenland shark	*Somniosus microcephalus*
10.	hellefisk	Greenland halibut	*Reinhardtius hippoglossoides* WALB.

* Names marked are koloniudtryk, or "Greenland Danish".

Source: compiled from text of JENSEN (1907) also "Skandinaviske, grønlandske, latinske og engelske Betegnelser for Nyttedyr og -planter omtalt i nærværende Arbejde" Statistiske Oplysninger om Grønland, 1942–46, n.p.

dedication of his paper entitled "Arctic animals in relation to climatic fluctuations". I have not been able to trace the quote, which VIBE attributes to JENSEN in 1910, because it is not cited in VIBE's references, but it would be valuable to present it here:

> My ideal of a Greenlander is a man who goes a-sealing when there are seal to be had, and fishing when there are fish.
> Once Denmark has brought the Greenlanders to a point where they have really gained dominion over land and sea, her mission in Greenland will have to be completed. Only then can we look confidently to the future of that fine country.

This is a sentiment typical of many people interested in Greenland's welfare in the early 1900's. Its curious use as the dedication of a paper in the year 1967, however, represents a hopeful, but naive, assumption that the Greenlanders can return to seal hunting if the fishing industry fails. In 1910, though, it represented an assurance to sceptics, and also the idea that seal hunting and fishing were not mutually exclusive pursuits.

But, at that time, there were obviously many people who felt that any emphasis on fishing would be at the expense of seal hunting. This idea (supported by the powers-at-be in the Greenland Administration) survived well into the period of actual seal decline and concomitant cod appearance.

JENSEN picked the right man to convince about his side of the argument. SIGURD BERG, as Minister of Interior, had ultimate authority over the Greenland Administration.

At the time of JENSEN's call on Minister BERG, a report had just been received from NAPOLEON ANDREASEN (1906) about his own fishing trials in Greenland that summer. The Minister thought that the matter of fisheries investigations in Greenland should not end with ANDREASEN's preliminary reconnaissance, but that fishing conditions should be the object of renewed study. The Minister asked JENSEN to present recommendations on the matter (JENSEN, 1907, p. 79).

JENSEN presented his proposals to the Ministry of Interior in December 1906, but the lack of a research vessel suitable for work in arctic waters delayed the start of investigations. The steam trawler "Thor", used by the Danish Fisheries and Marine Investigations (Danmarks Fiskeri- og Havundersøgelser), was not suited for ice navigation, but finally KGH made their brig "Tjalfe" available. Although far from ideal for such work, "Tjalfe" was able to be supplied with an auxiliary motor to aid her sails and was rebuilt and modified for the investigations under the expert advice of marine biologists in Denmark. Minister BERG provided government support in the amount of 45,000 kroner in the 1907–08 budget as the first part of a three year appropriation of 135,000 kroner. The work

of adding the auxiliary motor and modifying the "Tjalfe" went on in late 1907 and early 1908.

JENSEN's plans, set forth in the Greenland Society's publication Det grønlandske Selskabs Aarsskrift 1907 (pp. 86–99), had two objectives:

> 1) to make an evaluation of the occurrences of the economically-important fish off Greenland, to show where they occur and in what quantities they occur.
> 2) with the experience thereby gained, to point out how the Greenlandic fisheries can best be developed by the native population. (author's transl.).

"Tjalfe" set sail from Copenhagen on 3 May 1908. In addition to JENSEN, the hydrographer cand. mag. J. N. NIELSEN (later to become dr. phil. and Danish State Hydrographer) was on board to carry out observations of temperature and salinity. The investigations[1]) were to be carried out during the course of the two summers of 1908 and 1909. Several Danish fishermen were on board who had special experience with arctic char and salmon. In addition, another crew member had had experience in whaling, because it was hoped to learn if there was any possibility for a whale fishery off Greenland.

The two voyages of the "Tjalfe" (3 May–10 November 1908 and 14 April–17 October 1909) covered the coast of West Greenland from Kap Farvel to Umanak. Both inshore fjord and coastal waters as well as offshore banks and deeper waters were studied and fished. The studies proved extremely valuable in increasing the knowledge of West Greenland's marine fauna, especially the living conditions of potentially commercial fish stocks. In addition, light was shed upon the physical conditions of the waters off Greenland at a time when conditions were believed to be changing.

The practical results of these investigations, however, were less successful. The reports of both summers' studies (JENSEN, 1909a, b, c, & d, and 1910; NIELSEN, J. N., 1909a & b; NIELSEN, H., 1909a & b) indicated much the same experience as the 1906 ANDREASEN trials regarding cod. No cod were found at all over the banks despite numerous long-lining attempts from Godthåb to Holsteinsborg. Cod were found at various times and places in the inshore bays and fjords, especially near Fiskenæsset in September 1908 and Eggers Ø (on which island Kap Farvel, Greenland's southermost point, is located) in September 1909. Some common halibut were found in early summer in the warmer water outside the banks before they migrated onto the banks with rising temperatures.

[1]) Called *Praktisk-videnskabelige Fiskeriundersøgelser ved Grønlands Vestkyst* (Practical-scientific Fishery Investigations along the west coast of Greenland).

Especially valuable information was obtained about the Greenland halibut (hellefisk in Danish),[1]) which for a long time was traditionally fished by the Greenlanders near Jakobshavn in Disko Bugt. The Greenland (or Blue) halibut is a valuable, fat, deep-sea flounder which is suitable for smoking. In addition to the occurrences of hellefisk near Jakobshavn, the expedition proved good occurrences in Bredefjord and, especially, Lichtenau Fjord, both in Julianehåb district in the extreme southwest.

The Greenlanders in Lichtenau Fjord had formerly fished some hellefisk with hand-lines for domestic use, but fishing on a large scale was not considered. No one expected to find a large stock of hellefisk in the deep fjord, as "Tjalfe"'s fishermen did. This stock represented a valuable source of income for the needy folk in that fjord district, the most heavily populated area in Greenland.

JENSEN showed that the hellefisk did not spawn at the coast of Greenland, but out in Davis Strait in depths of 350–750 fathoms. The significance of this fact was that the stocks of hellefisk at Greenland's west coast were being replenished continuously from Davis Strait, and that there was little danger of overfishing since the spawning grounds lay in the remote depths of the Strait (JENSEN, 1909b, pp. 17–18 and 1909d, p. 80).

JENSEN recommended that the fishery for hellefisk be encouraged by, among other things, increasing the landing price for the fish. Fish prices had been kept low so that the Greenlanders would not be enticed away from seal hunting.

There were also places (such as Narssaq in Julianehåb district), according to JENSEN (1909d, p. 91), where hellefisk was not bought as a trade item by KGH but where it was fished for domestic use only. The commercial possibilities were thought to be very good at such places. JENSEN found the best possibilities for developing a fishery for hellefisk at two main areas: around the fjord complex centered on Narssaq of Julianehåb district, and in Agdluitsup Kangerdlua, 60 kilometers south of Julianehåb. He suggested that up to 1,500 barrels could be fished in Agdluitsup Kangerdlua without danger of overfishing.

The "Tjalfe" investigations found rich occurrences of sharks (*Somniosus microcephalus*) in various fjords in Godthåb, Frederikshåb, and Julianehåb districts, where no shark fishery was developed. JENSEN suggested that a shark fishery should be developed in South Greenland which would be comparable to that already a tradition in North Greenland where 5,082 barrels of shark liver versus 8,415 barrels of seal blubber were produced in the trade year 1907–08 (JENSEN, 1909c, p. 75).

[1]) See Table 1, p. 30 above for fish names in various languages.

The redfish (*Sebastes marinus*) was caught by the "Tjalfe" expedition with good result in both Frederikshåb and Godthåb districts. JENSEN recommended an attempt to export redfish from Frederikshåb district (JENSEN, 1909d, p. 86). The suggestion was not accepted and, in this connection, BENDIXEN (1930, p. 42) writes:

> It is doubtful if the Greenlanders would be able to acquire and maintain the quite costly equipment of boats and lines required by such a fishery unless the Trade, in processing the product, was in a position to pay a reasonable price for redfish to the Greenlanders. (author's transl.).

JENSEN concluded that the common halibut (*Hippoglossus vulgaris*) must be sought in the warm water outside the coastal banks if a year-round fishery was to be carried out. The coast from Godthåb to Egedesminde was formerly fished between July and October when halibut came into the warmer water near the coast. But the fish went back into deeper water when the coast waters began to cool in October. JENSEN (1909c, p. 76) recommended a reorganization of this fishery at Holsteinsborg by sending out an energetic fisherman to teach long-lining to the population. In addition, a motorboat had to be introduced which could transport barrels and salt, as well as tow the Greenlanders' boats along the coast to the places where halibut were most concentrated. The boat could also transport the filled barrels so that they reached Holsteinsborg as fresh as possible.

Concerning arctic char (*Salmo alpinus*), which was studied by HANS NIELSEN of the expedition, JENSEN (1909c, p. 77) concluded in general that its export could be expanded and the quality improved. This referred to laks (the local term for char) or ekaluk, the Greenlanders' term for the arctic char. Nothing was noted about the Atlantic salmon and its possibilities in Greenland.

Large shoals of Atlantic cod or "Kabliau"[1]) (*Gadus callarias*, *G. morhua*), called Sarugdlik by the Greenlanders, were met with in the 1908 part of the "Tjalfe" expedition in the bays and fjords near Fiskenæsset and in 1909 near Kap Farvel. Since the Fiskenæsset area was inhabited by people who lived to a large degree from fish, the Administration sent a Færoese fisherman, ELIESER RUBBEKSEN of Thorshavn, to Fiskenæsset where he lived for three months in 1909 to teach the population to prepare klipfish (JENSEN, 1909c, p. 76).[2])

Unfortunately, the cod did not appear at Fiskenæsset in 1909,

[1]) See ROSING, O., 1961 for an interesting idea on the origin of the Eskimo word for "white man"- -Qavdlunak or Kabloona etc.

[2]) Ref. Anon. 1909b. Skrivelse af 14. April 1909 etc., Beret. og Kundg. vedr. Kolon. i Grønl., 1909 (4): 43–44.

but RUBBEKSEN did teach preparation of the smaller fjord cod (*Gadus ogac*), which appeared to be a marketable item.

It was not known by the "Tjalfe" people whether cod spawned off Greenland, nor was this question solved as a result of the 1908–09 investigations. Despite the failure of the Atlantic cod to appear at Fiskenæsset in 1909, the "Tjalfe" group found large concentrations of this fish in the waters around Kap Farvel.

JENSEN noted herring (*Clupea harengus*) briefly as a fish with possibilities which the future must decide. "Tjalfe" did not have adequate opportunity of investigating the areas known to be visited by herring. JENSEN, incidentally, mistakenly says that the Greenlandic for herring is Kapisilik (JENSEN, 1909c, p. 78), but this word refers to Atlantic salmon (*Salmo salar*).

The above-listed fish were believed by JENSEN to be those which promised the most for a Greenlandic export fishery. JENSEN also mentioned capelin, long-rough dab, wolffish, scorpion fish, lumpsucker, and polar cod as having varying economic importance for the Greenlanders, but of lesser value as export items.

The main purpose of the 1908 and 1909 "Tjalfe" voyages was to discover an occurrence of fish which could provide the basis of a fishing industry.[1]) This purpose was fulfilled only to a limited degree. The object of increasing fishery exports was difficult to achieve because of the primitive nature of the Greenlanders' techniques, which had changed little since the beginning of colonization 180 years before. It was obvious that the Greenlanders needed instruction in the use of equipment and the preparation of fish for export. It was also obvious that the Administration did not favor developing a fishing industry at the expense of seal hunting. The Administration, in fact, was actually importing Icelandic klipfish and some types of tinned fish products. The idea was prevalent, fostered by the Administration, that foreign, imported food was better than domestic food (JENSEN, 1909c, p. 74).

Cod were found in only small number by the "Tjalfe" people, with the exception of near Fiskenæsset and around Kap Farvel. But large numbers of Greenland halibut (hellefisk) were discovered in Lichtenau Fjord in Julianehåb district. JENSEN (1909c, p. 75), in what was the main conclusion of the "Tjalfe" studies, pointed out that the "main basis of a Greenlandic export fishery will be the hellefisk" (author's transl.). JENSEN also suggested that, to a lesser extent, the fishery for Greenland shark, which had long been important in North Greenland,

[1]) JENSEN, 1909a, p. 11: "the goal of these investigations . . . should exclusively be to create an expanded occupational base for the *native population*, namely that part which does not live by seal hunting". (author's transl.).

could be taken up profitably at many places in South Greenland,[1]) especially in the vicinity of Kvanefjord in Frederikshåb district and in the fjord areas where the redfish and Greenland halibut were being threatened severely by sharks. JENSEN, however, did not believe that the shark fishery had much future when carried on in a primitive manner from kayaks using hand-lines.

JENSEN emphasized that the Greenlanders needed a better supply of fishing equipment. He pointed out the need to set up a system for the summer drying of fish for winter use. For this purpose, fishermen from Denmark would be hired to teach the Greenlanders to use modern fishing equipment and to utilize fish products to a greater degree than was being done. Support of poor people should come from Greenland's own resources because the necessary fish were readily available. Such a plan would encourage the Greenlanders to be more self-sufficient and to gather food for winter use. Equally important, JENSEN noted, was the work force available which was not being used.

The "Rational" Fishing Investigations

As pointed out earlier, the beginning of the present century saw people interested in Greenland being drawn increasingly into a controversy as to whether Denmark was pursuing correct policies.

There were those who believed that the government ought to pull out of Greenland completely (KIÆR, 1906) and that things should be kept the "old way" by not introducing European products. KIÆR thought the Greenlanders should be protected but left alone to prosper or starve according to their own abilities.

There were, on the other hand, those who felt the Greenlanders' plight should be recognized and aided by the government in Copenhagen.

Part of the thinking along this line embraced the desire to diversify Greenland's economic base and to decrease the almost complete dependence upon the highly-fluctuating seal hunt. Some enlightened men (JENSEN, 1910) could foresee that sealing would not be able to support the Greenlanders in a world which was becoming mechanized and modernized.

The beginnings of diversification and the start of a commercial fishing industry were just around the corner for Greenland at the conclusion of the "Tjalfe" investigations in 1909.

In an official paper (Anon. 1910a), the Greenland Administration announced in March 1910 that it planned to begin so-called "rational

[1]) JENSEN, 1909d, pp. 95–96 outlined the inception and spread of shark fishing from Lichtenau.

fishing attempts" (rationelle fiskeriforsøg) in Greenland. The objectives were to establish a fishing industry both effective and adapted to local conditions, and this would enable the population to use more of the available fish resources where they were found, and also develop the existing export fishery.

This might have led to a fishing industry with a status comparable to that of seal hunting as an economic activity. But it remained obvious that the Greenland Administration still took the view that fishing for export should not be developed at the expense of sealing. It was, however, recognized that fishing would be a useful activity in times when sealing declined, as well as for those people who were not skillful seal hunters and were unable to survive by sealing. JENSEN (1910, pp. 628–29) believed that sealing and fishing could be carried on side by side, predominance depending on the supply at the time. The Administration had hitherto believed that sealing demanded the full attention of Greenlanders and was not at all compatable with other activities.

As the economic situation evolved, the idea that seal hunting and an export fishery could be compatable was shaken badly. A profitable export fishery on a modern scale is not compatable with sealing because the former demands a concentrated population, the latter a widely dispersed one. As will be seen later in this study, the policy of the Administration right up to present day has been a gentle effort to encourage population concentration without direct coercion. Modernization demanded focusing limited capital investment upon a few promising areas, which would be able to offer better health care, schooling, cultural amenities, and technical facilities, all of which could not possibly be built at repeated locations along the coast.

At the conclusion of the "Tjalfe" expedition, it was obvious that some very important questions had to be decided. It was, up to that point, a moot question to what extent fish could be relied upon as the basis for a serious export trade. On the other hand, a hint of a decline in seals offered little promise of supporting the population while a fishing industry was being developed. Moreover, a decline in prices for seal products on the world market at the time, and consequent inbalance of Denmark's Greenland account, meant that provision of expensive plant and capital investment in a new fishing industry would need to be met from government funds.

Nevertheless the government announced in March 1910 that an official fishing industry was to be started. This was a major step in the economic history of Greenland, but it was taken hesitatingly as the following statement shows. The natural question had been raised (Anon. 1910a, p. 183) after the Tjalfe studies ended, about what could be done

> to make the ("Tjalfe"'s) results bear fruit for the Greenlandic population and thereby also for the Danish State, in other words to seek, according to the existing conditions, a rational fishery adaptably introduced into the Colonies partly for the purpose of getting the native population to utilize to an even greater degree the ... fishing resources for their own use—especially for use as winter food—and partly to try to expand the existing export fishery. (author's transl.).

All this was not to be accomplished at the expense of seal hunting (Anon. 1910a, p. 183).

The attempt to develop an export fishery could not, according to the announcement (Anon. 1910a, p. 184), be carried out simultaneously at all the places where fish were available. It was to be a gradual affair. Other than the cod fishery at Fiskenæsset (which had been attempted as early as 1909), the main idea was to develop a fishery for Greenland halibut (hellefisk) in Julianehåb district, common halibut (helleflynder) in Holsteinsborg district, and arctic char (laks) in Godthåb district (see Table 1 p. 30).

The fishery at Fiskenæsset was to be turned over to the direction of the outpost manager (udstedsbestyrer) there, but the other locations would need the leadership of a Danish expert to get things going.

In order to raise the initial capital, a loan was authorized to be taken out of Grønlands Fællesfond (The Common Fund of Greenland)[1]) to be paid back from the profit realized on the export of fish from the newly-established stations (excluding Fiskenæsset), plus an annual interest of four per cent. The three places were to be considered as one enterprise for this purpose (Anon. 1910a, p. 187).

As part of the plan, and in keeping with former policy, the Administration acquired a monopoly over trade in the kinds of fish involved. This had already been done in 1903 for hellefisk and arctic char. By an order from the Greenland Administration (Anon. 1910b), the export of common halibut and cod were placed under the government monopoly from (and including) the Finance Year 1910–11.[2])

These early Danish efforts to establish a fish exporting industry were not really understood by the Greenlanders. Fishing, after all, was an occupation for those unable to hunt. But now fishing was being equated to seal hunting by the authorities in Copenhagen. The mighty seal hunter could not understand, much less accept, this situation. The great hunter (storfanger) derided the efforts to establish fishing as an industry, but at the same time he experienced increasing difficulty in finding seals.

[1]) A fund accumulated by retaining a stated percentage of the sales of KGH exports. It was to be used for the benefit of Greenland.

[2]) The Finance Year at that time was 1 April–31 March.

Gradually the native population of Greenland began to understand that the efforts to establish a fishing industry were made to ensure their own survival. The traditional ideas of the mighty seal hunter *had* to be modified.

Summary

The objectives of this chapter, in summary, are:

1) to describe the changes that went on in the supply of fish in West Greenland waters in the 19th and early 20th centuries. This is based on reports by RINK, HOLBØLL and others, and in the latter period by JENSEN.

To show that:

2) consumption of fish by the Greenland Eskimo equalled that of seal meat and blubber, and therefore formed a greater part of the diet than was generally realized.

3) fishing was, nevertheless, only a minor pursuit in the traditional seasonal cycle of the population, and was not highly regarded.

4) from time to time, a considerable amount of fishing was being done locally, which was encouraged by the local officials who made a personal profit out of fish export.

5) some attempts were made by deep-sea fishermen from abroad, but this did not become established.

6) the Danish administration made several rather half-hearted attempts to set up a local fishing industry, various trials were run and expert opinions obtained.

7) there was a deep-seated objection by the authorities to allowing fishing to interfere with the major occupation—sealing. Greenland traditions, in fact, favored sealing over fishing.

8) for a long time it could be argued that stocks of fish were insufficient and too irregular of occurrence to support the whole population by fishing.

9) The "Tjalfe" studies under JENSEN for the first time gave a reasonably complete picture of what were, in fact, available in the way of fish resources off West Greenland.

10) these studies, together with a shortage of seals, and rising criticism in Denmark about the low living standards in Greenland compelled the authorities to take some action.

11) The result was official introduction of commercial fishing in a few localities in 1910.

IV. GREENLAND–UNTIL THE GREAT COMMISSION

It is widely believed that the modern Greenland fishing industry began with an influx of cod in a period of climate amelioration. This was not so. The industry started with salting arctic char (laks), Greenland halibut (hellefisk), and common halibut (helleflynder) for export. Cod were, it is true, processed (klipfisk) for export at Fiskenæsset as early as 1909, but it was not until 1911 that the preparation of cod for export began on a regular basis.

As has already been mentioned (chapter III, p. 100), JENSEN's chief conclusion from the "Tjalfe" investigations was that hellefisk (Greenland halibut) would provide the main basis for any future export fishery. This is in agreement with my own contention that cod was never considered a permanent fishing resource in Greenland.[1]) Although the occurrence of cod increased and a separate stock began spawning off West Greenland, the Administration in Copenhagen always seemed to consider cod a resource which would disappear as quickly as it had appeared. This conviction eventually had serious consequences for expansion of the fishing industry.

By 1910, after the "Tjalfe" investigations, the Greenland Administration began to establish export fisheries for hellefisk and helleflynder and expanded the export of arctic char. This initially involved teaching the Greenlanders to use modern fishing gear. Danish fish masters were based at several locations along the west coast where the fishing possibilities were most hopeful. KILLEMOSE (1932, p. 79) writes of the change-over to fishing:

> and the change-over was started, something that was imperative, for without it the Greenlanders either would have starved to death or lived in poverty. (author's transl.).

Of subsequent developments, the same author writes:

> the upheaval was so great and sweeping that one could hardly believe it could be accomplished so quickly, in the course of twenty years in all. (author's transl.).

[1]) Even though more cod occurred off Greenland, JENSEN, in citing his "Tjalfe" findings as late as 1925, believed that Greenland halibut was the most promising of all fish resources (JENSEN, 1925, p. 10).

Between 1910 and 1920 conditions for sealing grew gradually worse (MØLLER, 1928, p. 123). Local seal movements and migrations seem to have changed radically. It was during this period that fishing stations were being set up to utilize a stock of cod which each year appeared in greater numbers and which gradually expanded northward. At the time, however, not much was known about the economic value of the various types of fish, their migrations, or whether a profitable industry could be based upon them.

Although arctic char and hellefisk were included within the State monopoly from 1903, the first Greenland Administration statistics which recorded the export of these products were for the financial year 1904–05.[1])

Denmark's Statistical Bureau has published figures for fish products exported from Greenland (by quantity and value) in yearly averages for five-year periods (1861–65 to 1906–10) and annually since 1906. In Tables 9a and 10a (Appendix pp. 9–10), fish exports may be seen along with the export of other products from Greenland. Table 19 has been extracted from these tables and indicates the yearly export of cod-liver oil by quantity and value from Greenland. The highest average annual value of cod-liver oil during a five-year period was for 1871–75, when exports amounted to 3,000 kroner, representing an average of 78 hectoliters exported annually during that period. Cod-liver oil accounted for over one third of Greenland's export of fish products in the late 1800's. This relative importance of cod-liver oil declined precipitously after the export of arctic char and hellefisk were included in the monopoly in 1903. From that year cod-liver oil became a relatively minor part of the fish exports from Greenland.

The quantity and value of fish products exported by the Royal

[1]) Statistics of fish landings and export from Greenland are difficult to present in a uniform and straightforward manner because of variations in the period covered, *e.g.*, the financial year, calendar year, and fish season year, and because conversion factors and production constants have changed over the years. Until 1953, KGH's financial year was 1 March–28 February, and that of the Greenland Administration 1 April–31 March. Both were changed to the calendar year after 1953, although many statistics (hunting lists, etc.) are still collected on the basis of the old financial years. Fish landings were recorded in various ways since 1910, depending on the type of processing. Early landings and recorded statistics were of whole fish (round, fresh weight). Later, beginning in 1928, cod were landed for the first time without head and innards; and after 1933 the fish was landed in cleaned and split form (without head, guts, and part of the backbone – so-called flækket in Danish). With the growth of freezing plants utilizing modern fish-processing machinery in Greenland, cod once again were landed with head, gutted. Various studies have suggested conversion factors to be used in compiling uniform catch statistics, but these conversion factors have been inconsistent over the years. The appendix to Chapter V (Append. p. 114) shows recent cod-conversion factors, and an attempt was made to recalculate all cod landings using the latest factors.

Table 19. *Cod-liver export from Greenland 1861–1910, in hectoliters and kroner value, and per cent of total fish export (excl. shark-liver oil).*

Year	hl.*	kr.	% of fish export**
1861–65 (ave.)	59	2,166	30.0
1866–70 –	16	624	27.5
1871–75 –	78	3,024	35.5
1876–80 –	53	1,388	35.6
1881–85 –	22	841	45.1
1886–90 –	5	77	100.0
1891–95 –	34	439	100.0
1896–1900 –	29	517	85.3
1901–05 –	16	388	2.0
1906–10 –	7	143	0.3
1906	12	133	0.3
1907	2	51	0.1
1908	–	–	0.0
1909	7	165	0.2
1910	14	368	0.7

* 1 hl. = 26.418 gal. (U.S.).
= 2.83782 bu. (U.S.).
** Computed by author

Source: Sammendrag af Statistiske Oplysninger om Grønland, Statistiske Meddelelser, 4de række, bd. 39, 2d hft. 1912, pp. 22–23, 26–27.

Greenland Trade Department from Greenland during the same period (1861–1910) are shown in Tables 20 and 21 (which were also extracted from Tables 9a and 10a). These data do not include exports by private individuals. The two tables also demonstrate that the amount of processed cod exported varied greatly from year to year.

Of course, fish exports were a very small item in the total export of Greenlandic products, being scarcely one per cent until 1900 (see Table 22). After 1900, fish products assumed more importance and in the five-year period 1906–1910 they were between five and ten per cent of all exports.

After the "Tjalfe" expedition reported its findings and recommendations for establishing a fishing industry in Greenland, the Administration quickly announced plans to start commercial fishing (Anon. 1910a) and included halibut and cod products under the monopoly (Anon. 1910b) as discussed in Chapter III, pp. 102–03.

The first efforts during the summer of 1910 were at Holsteinsborg (halibut), Godthåb district (char), Fiskenæsset (cod), and near Sydprøven

Table 20. *Quantity of fish products exported from Greenland 1861–1910 in kilograms (excl. cod-liver oil and shark-liver oil).*

Year	helle-fisk*	helle-flynder*	char*	klipfish & dried fish
1861–65 (ave.)	–	–	–	16,025
1866–70 –	–	–	–	5,572
1871–75 –	–	–	–	17,200
1876–80 –	–	–	–	5,894
1881–85 –	–	–	–	3,936
1886–90 –	–	–	–	–
1891–95 –	–	–	–	–
1896–1900 –	–	–	–	12
1901–05 –	15,900	–	13,800	–
1906–10 –	40,120	7,980	46,100	118
1906	24,300	2,100	48,300	–
1907	45,500	4,800	41,000	–
1908	30,500	900	42,500	–
1909	50,000	18,200	77,100	589
1910	50,300	13,900	21,500	–

* Salted, in barrels.

Source: Sammendrag af Statistiske Oplysninger om Grønland, Statistiske Meddelelser, 4de række, bd. 39, 2d. hft. 1912, pp. 26–27.

Table 21. *Value of fish products exported from Greenland 1861–1910 in kroner (excl. cod-liver oil and shark-liver oil).*

Year	helle-fisk	helle-flynder	char	klipfish & dried fish
1861–65 (ave.)	–	–	–	4,328
1866–70 –	–	–	–	1,645
1871–75 –	–	–	–	5,500
1876–80 –	–	–	–	2,516
1881–85 –	–	–	–	1,022
1886–90 –	–	–	–	–
1891–95 –	–	–	–	–
1896–1900 –	–	–	–	12
1901–05 –	12,322	–	6,492	–
1906–10 –	30,259	2,786	24,063	29
1906	24,173	344	15,210	–
1907	31,796	1,627	23,448	–
1908	22,126	220	25,282	–
1909	37,330	6,181	43,365	147
1910	35,871	5,560	13,007	–

Source: Sammendrag af Statistiske Oplysninger om Grønland, Statistiske Meddelelser, 4de række, bd. 39, 2d hft. 1912, pp. 22–23.

Table 22. *Value in kroner of total export, fish products exports, and per cent of total exports from Greenland, 1861–1910.**

Year	Total Exports	Fish Exports	% of Total**
1861–65 (ave.)	739,743	6,494	.87
1866–70 –	839,240	2,269	.27
1871–75 –	836,402	8,524	1.01
1876–80 –	675,815	3,904	.57
1881–85 –	652,927	1,863	.28
1886–90 –	537,026	77	.01
1891–95 –	504,114	439	.08
1896–1900 –	601,457	606	.10
1901–05 –	668,972	19,202	2.8
1906–10 –	795,086	57,251	7.2
1906	737,739	39,860	5.4
1907	755,474	56,922	7.5
1908	855,411	47,628	5.5
1909	855,139	87,188	10.1
1910	771,639	54,806	7.1

* Excluding private export and cryolite.
** Computed by author.

Source: Sammendrag af Statistiske Oplysninger om Grønland, Statistiske Meddelelser, 4de række, bd. 39, 2d hft. 1912, pp. 22–23.

(a place named Qarsorsat) in Julianehåb district (hellefisk).[1]) Included in Appendix p. 40–4 is a translation of the report of this first fishing attempt.

The initial fishery at Holsteinsborg, under the Danish fish-master J. M. JENSEN, involved introduction of new and unfamiliar gear (long-lines) and was met with some suspicion by the local population (Anon. 1911a, p. 225–227). JENSEN, however, was optimistic about the eventual success of a long-line fishery for common halibut there.

The char fishery at various places in Godthåb district was not an initial success.

At Fiskenæsset cod did not appear, nor had they done the previous year—1909. The attempt to produce klipfisk from fjord cod (*Gadus ogac*, or Uvak in colonial Danish) was unprofitable, and the local manager recommended that Uvak not be purchased in the future.

The fourth fishing experiment in 1910, near Sydprøven in Julianehåb district in the extreme southwest, began in the end of June under a

[1]) The reports of these initial fishing experiments, and all subsequent ones, are found published in Beretninger. The reports and fishing attempts were given various titles: Beretninger om Fiskeriforsøgene (1911–1913), Beretninger om de rationelle Fiskeriforetagender (1914–1924), Beretning om de rationelle Fiskerier (1925–1933), De rationelle Fiskerier (1934), Fiskeriernes Gang (1935–1940), Torskefiskeriernes Gang (1946, for years 1940–1944), Fiskeriernes Gang (1947 to present).

Danish fish-master. This hellefisk fishery was on a small scale, employing three or four men as fishermen and eight or ten women to wash and salt down the catch. It was obvious that the Greenlanders were unable to equip themselves with proper fishing gear. Well-made fishing boats were also lacking so the Greenlanders fished with hand-lines from kayaks (Anon. 1911a, p. 229).

Although the initial trials in 1910 did not show very satisfactory results, the administration decided to persevere. The 1910 efforts resulted in a net profit of 19,522 kroner, which was placed in Grønlands Fællesfond (Anon. 1911d, p. 270).

For the 1911 season, the Administration announced plans to introduce fishing at four additional locations: Sarfánguaq in Holsteinsborg district (salmon and cod), Kangâmiut in Sukkertoppen district (common halibut), Agto in Egedesminde district (common halibut), and Atangmik in southern Sukkertoppen district (cod). Plans were much the same as 1910 (Anon. 1911d, p. 272; and Anon. 1912b).

From April 1911, the landing of shark skin was included under the monopoly. The prices to be paid were: 50 øre (one-half krone) each (skins under 1.5 meters in length) and one krone (over 1.5 meters). A bonus of 50 øre was to be paid for well-processed skins which had been split up the back and not up the belly (Anon. 1911b).

In the summer of 1911, ADOLF S. JENSEN was appointed fishing consultant to the Greenland Administration (Anon. 1912a). Thus began his long and valuable scientific and technical assistance, notably through investigation of marine biological conditions in Greenland waters and their implications for fisheries development.

The most encouraging results of the new trials came from the common halibut fishery at Holsteinsborg.[1]) Despite resistance initially to the new technique (long-lining), the Greenlanders adapted well and the Danish fish-master was able to report after the first few seasons that

> it appears that resistance (modstand) to the long-line fishery is now broken ... Almost all of them (Greenlanders) have obtained boats (dories) as well as long-lines. (Anon. 1913a, p. 20) author's transl.

The method of fishing in Holsteinsborg district was for the Danish fishing leader to tow several Greenlanders' dories out to the fishing grounds, help them set their long-lines, and then tow them back to Holsteinsborg with their catch. The drawback with the system was noted in an early report:

> But ... with this comparatively strong development of the Green-

[1]) *Cf.* MÜLLER, R., 1912 and 1914, and HEDEGAARD, 1914 for the discussion of a recommendation to start a walrus-hunting scheme in association with the fishing trials at Holsteinsborg.

> landers' fishery, it is unfortunate that the trial has only one motorboat which can tow 5–6—or when the trip is far to sea—4 dories, while all the rest who are not fortunate enough to be taken along must fish quite close to land where the chances are very poor. Lack of a large decked vessel is therefore felt even more than before. (Anon. 1913, p. 20) author's transl.

From the beginning of the fishing trials in 1910, about one half of the value of fish export was from hellefisk, one quarter from common halibut, and the remainder equally divided between arctic char and klipfish.

After 1910 additional sites were selected to begin fishing. Handlines and shorter long-lines were commonly employed. The fish was usually sold to the Royal Greenland Trade Department, salted, and exported to Denmark in barrels or bundles. Except for hellefisk in Julianehåb district, the fishing season usually began in June and spanned the three summer months until reindeer hunting began in the autumn.

In some districts, following an old Eskimo custom, the fishermen moved out to traditional camping areas for the fishing. At many places the trade chief used his motorboat to transport salt and barrels out to individual fishing places and freight the catch back again at the end of the season. This was especially the case with common halibut and arctic char. The Greenlanders were quick to learn how to bait the hooks and set long-lines. By the second year they had become quite skillful (Anon. 1914, p. 242).

The output varied greatly from year to year, not only because of the small scale of the operations and the primitive gear used, but also because of varying weather conditions.

In 1913 a small plant for canning arctic char was set up at Grædefjord, a small outpost (boplads) of under 50 inhabitants in the southern part of Godthåb district (Anon. 1914, p. 244). Its capacity was 800–900 tins daily. Unfortunately it soon ran out of empty tins, so the initial season lasted only ten days with a total production of 2,928 tins. Further loss occurred when it was discovered that the arctic char which had not been canned had been insufficiently salted.

The fishery report for 1917 (Anon. 1918) gives the first clear indication of an increase of cod in Greenland waters and concomitant decrease of the arctic hellefisk. In fact the cod catch was so improved that its export value equalled all the other fish products combined. In the summer of 1917 cod appeared "everywhere in Julianehåb and Frederikshåb districts ... in surprising masses" (Anon. 1918, p. 62).

At Frederikshåb, 81,781 kilograms of cod were landed between 6 August and 21 September.

> Even though such an occurrence cannot be expected to recur regularly in the future, the Administration decided to send out a man experienced in processing the fish into salt- and klipfish in order to instruct the population in these two districts, and secondly to permit the landing of cod (kabliau) at Frederikshåb colony. (Anon. 1918, p. 62) author's transl.

The same trend continued in the 1918 season, with further decline in the hellefisk fishery and a continued "strong upswing" in the cod fishery (Anon. 1919b, p. 168). The value of cod production for that year was more than double that of all other fisheries.

In 1918, the canning plant at Grædefjord closed because it lacked tops for the tins. The operation was never resumed. Apparently the local population was indifferent about arctic char fishing, and most of the people went to Fiskenæsset to catch cod (Anon. 1919b, p. 172).

There were various problems with the fishing in 1918: a lack of salt, hindrance from storis, insufficient storage space, and lack of labor for fish preparation. The difficulties were intensified by the large masses of cod delivered at many places. In fact, landings had to be stopped at many places, a great discouragement to an infant industry.

The relative importance of different fish products changed radically between the early 1900's and 1916–1918 as is illustrated by Table 23. During the period 1901–10, the annual average export of salted fish (arctic char, hellefisk, salt cod and klipfisk) was 62 tons, valued at 37,975 kroner, or 5 per cent of the value of all exports. During the period 1916–19, this rose to 255 tons and 145,596 kroner, or 15 per cent of all exports.

The number of persons engaged in fishing in the early years of the new fishery in West Greenland is not easy to determine. Many men who were classed as hunters in the statistics in fact gained most of their livelihood through fishing.

Table 24 provides some information on occupations in West Greenland between 1915 and 1919 (the year varying with the district). From Table 24 it can be seen that for West Greenland as a whole, roughly 65 per cent were hunters, 15 per cent fishermen, and 20 per cent had wage employment or were without occupation.

The statistics in Table 24 were computed from reports scattered through an encyclopedic work commemorating the 200th anniversary of HANS EGEDE's landing in Greenland in 1721. This same source, which describes Greenland conditions around 1918, deals in detail with each district on the west coast. For example, in the case of Holsteinsborg, it describes sealing as still the most important economic activity. In 1917 in Holsteinsborg district, about 63 per cent of the population (heads of households) was engaged in sealing, 20 per cent in fishing, 12 per cent

Table 23. *Annual average of exported products from Greenland by quantity and value, 1901–1918.*

Item	Quantity		Value in Kr.	
	1901–10	1916–18	1901–10	1916–18
Train oil kg	1,412,300	1,354,300	397,217	689,285
Seal skins ea.	25,847	29,390	83,163	21,659
Fox skins ea.				
blue	1,636	1,835	79,788	23,317
white	1,096	1,345	22,471	8,629
Polar bear skins ea.	150	145	24,004	10,403
Reindeer skins ea.	52	?	183	?
Eiderdown and bird skin rugs kg	?	2,571	12,191	34,870
Bird feathers kg	8,800	12,100	12,843	19,886
Salted fish kg	62,000	255,400	37,975	145,596
Other*	–	–	4,690	9,819
			674,525	963,464

* Waterproof clothing, whale baleen, narwhal tusks, walrus tusks, walrus skin, etc.

Source: Amdrup, G. C. *et al.*, (eds.) 1921, v. 60, p. 121.

Table 24. *Occupations of West Greenlanders by district, 1915–1919 (in per cent).**

District	Hunting	Fishing	Wage Employment, State
Julianehåb	78	16	6
Frederikshåb	70	14	16
Godthåb	61	11	28
Sukkertoppen	60	17	23
Holsteinsborg	63	20	17
Egedesminde	82	6	12
Christianshåb	62	22	16
Jakobshavn	55	29	16
Ritenbenk	68	15	17
Godhavn	?	?	?
Umanak	70	15	15
Upernavik	53	0	47

* The percentages refer to heads of households in some cases but the entire population in others, counting dependents under the occupation of head of household. The statistics are not uniform and must be considered as rough approximations.

Source: Amdrup, G. C. *et al.*, (eds.) 1921, vol. 60: pp. 27, 107, 169, 232, 364, and 456, vol. 61: pp. 44, 132, 222, 335, and 472.

Table 25. *Value of Greenlandic products landed in Holsteinsborg district before and after the new economic pursuits* (1903, 1910, and 1918). In kroner.*

	1903	1910	1918
Originally Landed Products			
Blubber & sealskin	3,268	4,481	1,840
Shark & cod liver	2,215	561	1,235
Fox skins	705	1,251	1,326
Feathers	162	134	335
Other products	222	152	30
Total	6,572	6,579	4,766
*"New" Products**			
Char	–	1,055	157
Bird-skin rugs	–	1,068	2,640
Halibut	–	–	3,275
Cod	–	–	2,678
Total	–	2,123	8,750
Grand Total	6,572	8,702	13,516

* This refers to new fisheries (halibut and cod) and also traditional production taken under the KGH monopoly from 1903 onwards.

Source: AMDRUP, G. C. *et al.*, (eds.) 1921, v. 61, p. 46.

permanently employed in government and other wage jobs, and about 5 per cent without occupations.

In the same district, incomes from hunting and fishing doubled between 1903 and 1918, although income from landing the traditional hunting products decreased in value by 27 per cent during the same period (see Table 25).

The year 1918 was, up to that time, the most productive year in Greenland. The following year (1919) showed an even greater increase in cod in Greenland waters; and even the catch of hellefisk and common halibut showed slight increases. As in some other years, the fishery along the coast in 1919 was hampered by sickness, including influenza, among the population. Conditions in some of the temporary fishing camps were cold and wet, eventually limiting the season (*e.g.* Sarfánguaq). During a two-month season, the town of Godthåb experienced its first trial landing and salting of cod. Frederikshåb reported great masses of cod throughout the district. But, as had been normal during World War I, lack of salt and space, and the low number of persons participating in the fishery were hindrances (Anon. 1920b).

In the decade from 1910 to 1920, fishing activity in Greenland burgeoned. The four initial fishing sites of 1910 (Holsteinsborg, Godthåb,

Fiskenæsset, and Sydprøven), had by 1920 increased to nine (see Appendix p. 45–8 for a translation of the report on the fishery in 1920). These were areas where new fishing and fish processing for export were being carried on and do not include the traditional fisheries for arctic char in Sukkertoppen and Holsteinsborg districts, or for hellefisk in Disko Bugt and Umanak district. Tables 23a through 26a in Appendix p. 24–7 show the production and export of fish products in Greenland in the years 1904–05 through 1938–39.

As illustrated by these tables, production of shark liver remained constant throughout the 1910–1920 decade. The same held true, in a general way, for the arctic char, hellefisk, and common halibut fisheries. The small canning operation for arctic char at Grædefjord operated for only five years. Not until 1924 was another fish cannery opened in Greenland—at Holsteinsborg, to which the machinery from Grædefjord was moved (Anon. 1925d, p. 342).

In the early 1900's, as stated in earlier chapters, seals became less numerous in Greenland waters, the seal hunt declined, and the export of seal products (skins and blubber) fell. In 1920, one of the periodic government commissions[1]) organized to look into Greenlandic affairs reported on the "stagnation" of the seal hunting way of life. In addition to the complex play of factors outlined in Chapter II, many people believed that the increasing use of rifles had had an adverse effect in killing a great number of seals which sank and were unrecoverable. Other seals escaped badly wounded. Sealing, whatever the reason for its decline, seemed insufficient to cover the Greenlanders' needs.[2]) For this reason, and because of the dangers and difficulties in seal hunting, more Greenlanders were seeking wage employment or were turning to fishing.

Despite this situation, sealing was still listed in 1920 as the Greenlanders' main occupation. The 1920 Commission led to expression of the "threat" that some people believed fishing posed for seal hunting, a "competition which could be fatal for ... (seal hunting's) continued existence." A majority conclusion of the 1920 Commission, however, stated

> that there was no possibility that the Greenlandic fishery could be pursued to such a level that it would render seal hunting superfluous" (Anon. 1921b, p. 19). author's transl.

[1]) The 1920 Commission's title was Udvalg til Drøftelse af de grønlandske Anliggender, and was formed in December 1920.

[2]) The 1920 Commission, however, stated that there was no evidence of a decline in numbers of seals. Another source (Storch, 1930, p. 91–92) stated: "When the seal hunt began to decline, the Danish civil servants could not really believe it ... (they said) it was only the laziness of the Greenlanders". (author's transl.).

Table 26. *Landed production* in West Greenland in the years 1910–11, 1920–21, and 1930–31.***

Product	Unit	1910–11	1920–21	1930–31
Seal blubber	barrels	13,773	12,442	6,432
Liver	barrels	7,744	5,739	8,089
Polar bear skins	ea.	55	77	19
Blue fox skins	ea.	1,534	1,899	4,182
White fox skins	ea.	1,062	1,265	2,935
Seal skins	ea.	22,294	12,351	3,476
Reindeer skins	ea.	–	189	
Walrus skins	ea.	65	116	192
Narwhal tusks	kg.	175***	112	99
Char, salted	barrels	368	308	322
Cod & klipfish	kg.	–	132,270	–
Saltfish	kg.	–	–	3,056,616
Hellefisk	barrels	702	1,771	2,928
Halibut	barrels	181	265	38
Halibut, tinned	kg.	–	–	42,044
Eider down	kg.	630***	512	43
Bird feathers	kg.	11,649***	8,700	3,360
Bird skin rugs	ea.	454	1,150	533
Baleen	kg.	923***	6,132	1,677

* Exported products, not including local sales in Greenland.
** 1 April–31 March.
*** Computed from Danish pounds. 1 Danish pound = .50045 kg.

Sources: Beretninger og Kundgørelser vedrørende Kolonierne i Grønland 1912 (1): 308; Beretninger og Kundgørelser vedrørende Styrelsen af Grønland 1922 (1): 474; Beretninger og Kundgørelser vedrørende Styrelsen af Grønland 1932 (1): 890.

Despite hope by the traditionalists for continuance of the "old way of life" of seal hunting,[1]) which was particularly strong among many Greenland officials, the cod fisheries continued to expand and, around 1925, an explosive development began which reached a small peak in 1930, and then in 1942 began the climb which has been unabated to the present day.

Table 26 lists products exported from West Greenland during the years 1910–11, 1920–21, and 1930–31. As shown in the table, seal products (blubber and skins) declined in importance from 1910 to 1930. Other hunting products varied in significance during this period, but the rising importance of the cod fisheries overshadowed other production.

Cod products grew steadily in importance and yield except for slight

[1]) See STORCH, 1918, p. 81, where it is stated: "But the Administration's former (and some of the present) civil servants think 'that the natives are happier if they keep to their centuries-old occupation – seal hunting' ". author's transl.

decreases in production in the years 1920–21 and 1921–22. They reached a temporary zenith in the year 1931–32, although cod landings peaked in 1930, as mentioned above (see Table 30a, in Appendix p. 31).

Prior to 1950 cod fishing was a relatively simple process. Using small rowboats and dories, the Greenlanders landed the fish for sale to KGH which was responsible for converting it to saltfish and dried fish. New salting houses were built, especially after 1917 when a marked increase of cod was noticed in Greenland waters.

At a time when cod were appearing in Greenland waters in increasing numbers each year, a young Icelandic student, JÓN DÚASON, gave a talk to the Greenland Society (Det Grønlandske Selskab) in Copenhagen. The time was February 1917, and DÚASON uttered the first words in a debate about Greenland which has continued unabated down to the present day.

In discussing the suggestion that Icelandic colonists resettle parts of southwest Greenland, DÚASON said: "There must be good possibilities for a future sea-going Greenlandic fishing fleet ..." This fleet, at certain times of the year, said DÚASON, could fish off Iceland when conditions were unfavorable off Greenland (DÚASON, 1917, p. 96). author's transl.

DÚASON was obviously not too familiar with basic conditions in Greenland, and his ideas about a sea-going Greenlandic fishing fleet must have sounded comical to the "experts" present at the meeting. DÚASON was answered by no less an authority than Ad. S. JENSEN who said, among other things, that

> ... his plan for a sea-going Greenlandic fishing fleet is just as impossible to realize as the arm of the Gulf Stream, which, according to his ideas, flows along Greenland's southwest coast ... (DÚASON, 1917, p. 117) author's transl.

DÚASON was doubtless thought a young and impulsive person to suggest the possibility of a sea-going fishery in Greenland, and his thoughts were indeed ahead of their time.[1]) But he *did* state correctly that the Greenlanders received a price for their fish which was too low to enable them to save the necessary capital for a more mechanized fishery (DÚASON, 1917, p. 132).

The question of a sea-going fishery in Greenland was again raised in 1921 when the Commission of 1920, in its report (Anon. 1921b, p. 19), noted that the fisheries consultant, AD. S. JENSEN stated that:

> the polar current which flows over the banks along Greenland's coast makes the bottom temperatures too low for commercial fish

[1]) DÚASON also recommended concentration of the scattered population living along Greenland's west coast.

to be found on the banks in sufficient numbers for a sufficient period for a bank fishery to be pursued on a large scale. Only in a few summer months is the temperature high enough for fishing to be carried out on the banks, but this is, in general, only a halibut fishery, while the cod fishery is as good as excluded. It will therefore scarcely be possible to have a larger fishing fleet on the Greenlandic banks. . . . On the other hand, a cutter fishery can be pursued at times to advantage at various places, and we have already begun along these lines. (author's transl.).

The other fisheries

After the government monopoly took over hellefisk production and export in 1903, the fish was salted and exported from the North Greenland districts of Christianshåb, Jakobshavn, and Ritenbenk (all in Disko Bugt), and Umanak district. Most of the production from this part of the west coast came from Jakobshavn.

The first hellefisk production in South Greenland, which began in 1910 in Agdluitsup Kangerdlua (also called Lichtenau Fjord) in Julianehåb district, fluctuated greatly from year to year (see Table 26a). The first station had been established at Qarsorsat ("the fish corner") near Sydprøven. Under a Danish fish-master, Greenlanders were hired as crew for two motorboats and a number of small dories with line winches. In 1913 a station was set up at Sarfâ, closer to rich fishing grounds farther up Agdluitsup Kangerdlua. Greenlanders, moving down from Kînâlik in 1916 to fish hellefisk, settled at Nûgârssuk. And in 1923 a trading station was built in Agdluitsup Kangerdlua at the boplads Sletten (Angmagssivik) so that the fishermen there could sell their catch without having to travel great distances. A year later, in 1924, the first landings of hellefisk were made at Augpilagtoq, south of Agdluitsup Kangerdlua.

Meanwhile, in the northern part of Julianehåb district, a fish station for hellefisk had been built as early as 1914 at Narssaq (see recommendation and discussion in HANSEN, A., 1912).

The common halibut (helleflynder) fishery which began at Holsteinsborg in 1910 continued in the initial way as described above until the early 1920's when the long-lines were laid directly from motorboats instead of dories. This was a summer fishery, made possible when the halibut came up from deeper waters farther off the coast. In 1924 the little canning factory, which had been moved north to Holsteinsborg from Grædefjord, began producing halibut in $^1/_2$ and 1 kilogram tins. The first year's production in 1924 was only a few hundred tins on a trial basis, but by 1925 production was 35,232 tins of 1 kg. and 31,516 tins of $^1/_2$ kg.

Most of this production was presumably sold locally in Greenland (Anon. 1926), because the first export of tinned halibut was recorded for the year 1925/26 (51,026 kg. in tins). Only a part of the halibut catch was tinned. The rest was sent to Denmark in the traditional way—salted in barrels. The two other halibut stations established at Agto (Egedesminde district) in 1912 and at Kangâmiut (Sukkertoppen district) in 1911, continued to produce salted halibut on into the 1920's, but catches declined appreciably by 1935.

The early bank fishery

Presumably it was thought that DÚASON's suggestion for a seagoing fishing fleet had been answered adequately at the time, so the 1920 Commission merely mentioned the possibility in passing. The question did not arise again for a few years, but the need for a bank fishery off Greenland seemed to be recognized by JENSEN and a few others. In 1924, the government acquired the motor schooner "Hvidfisken" ("white fish", or beluga), a 76-ton vessel with a 40 HP motor. The skipper was a Danish fisherman, and the crew Greenlandic. The boat was used in the halibut and cod fisheries, but with the decline of the halibut stocks, the idea of guiding and supporting the Greenlanders in an attempt at fishing the banks was given up (see note, Appendix p. 75).

As late as 1924, experts in Denmark concluded that the stock of cod in Greenland waters was so variable that there was no possibility of a large scale fishery (JENSEN, 1925).

This feeling of uncertainty was to be expected during the initial stages of a new fishing industry, especially in Greenland where the occurrence of cod was known to fluctuate. As stated above, as late as 1925 it was believed by experts (JENSEN, 1925) that the Greenland halibut (hellefisk) was the most promising and valuable of all Greenland's fish resources. It was predicted that this fish would provide the basis for exports.

But the cod appeared in increasing numbers farther north each year. From 1917 the increase was reflected in the quantities landed as more salting places were set up. In 1919 cod were observed in Godthåbsfjord, in 1922 at several places in Sukkertoppen district, and by 1928 at the entrance of Disko Bugt. Cod appeared in 1929 at Godhavn and places in inner Disko Bugt (Christianshåb and Ritenbenk).

In 1921 a few cod were caught quite by chance from an anchored vessel on Fyllas Banke off Godthåb. Up until that time few cod had been noted on the offshore banks since the previous century. The following years 1922 and 1923 the Danish inspection vessels "Fylla" and "Islands Falk" found numbers of cod on Fyllas Banke in July, and in 1924

fishing experiments were started on those banks by "Islands Falk",[1]) which discovered good numbers of cod on Fyllas Banke in June, but none on the banks farther north (JENSEN, 1925, p. 38). On board the Norwegian research vessel "Michael Sars", JOHANN HJORT also confirmed the presence of cod on Fyllas Banke in August, as well as on Lille Hellefiskebanke during the same month in 1924 (HJORT & RUUD, 1929, p. 16).

In the summer of 1924, the Norwegian halibut and cod fishery began on the West Greenland banks. The Norwegians were undoubtedly spurred on by growing interest in the cod incursion in Greenland waters, but also Norwegian whalers had reported great resources of fish in Davis Strait after hunting there in 1923. Two Norwegian companies from Trondheim and Ålesund sent out fishing ships in the summer of 1924. The ships returned home in a few months with good catches. The best fishing began in early July and continued on into September (OLSEN, 1963). So the bank fishery off Greenland had begun, introduced by the enterprising Norwegians.

The "Dana" investigations

The next year (1925), the Danish marine biological investigations vessel S/S "DANA" carried out the first extensive studies in Greenland waters since the 1908–09 "Tjalfe" voyages. The general purpose of the "DANA" studies[2]) was to assess the cod's occurrence on the banks in Davis Strait, as well as to study spawning conditions there (JENSEN, 1926b).

The main results of the "Dana" investigations were of both scientific and practical interest. Fyllas Banke was thought to be the most suitable for cod fishing. There were obvious comparisons to be made between the 1908–09 "Tjalfe" findings and "Dana"'s in 1925. Whereas cod had been found only in a few fjords in 1908 and 1909, the coastal cod fishery had reached 66° 45′ N. by 1925, and cod were abundant in many fjords. No cod were found on Fyllas Banke in 1908, but many in 1925. Probably the most important recent change in Greenland waters discovered by the "Dana" investigations was that cod were beginning to spawn in Greenland waters. "Dana"'s scientists also proved that common halibut spawned off West Greenland. In addition, they found the fry of hellefisk and redfish.

The "Dana" studies showed that variations in the number of cod spawned each year (the year-class, årgang) were significant. This variability, which eventually affected the commercial fishery when the year-

[1]) Å. VEDEL TÅNING, the Danish scientist on board, also carried out fish-tagging, the first tagging of cod in Greenland waters.

[2]) Under the direction of ADOLF S. JENSEN, with PAUL M. HANSEN as assistant. The 1925 "Dana" voyage was the third and last time AD. S. JENSEN visited Greenland.

class reached 5–7 years of age, was to be observed with numerical variation of the shoals at different localities along the coast. The Greenlanders, in their small rowboats and prams, suffered more than anything from a lack of mobility and were really at the mercy of these large annual and geographic fluctuations in the numbers of cod. At some places in certain years, cod appeared in far greater number than could be utilized, while in other years the cod did not appear at all.

But a small inshore fishery was also a feature of the fishing industry of Denmark herself. A commission was set up by the Danish Department of Industry on 14 January 1925 to review the entire fishing industry of Denmark, including Greenland. The Danes admitted the weaknesses of their small cutter fishery in inshore waters at home and looked to the possibilities of using Greenland's fish resources, including those of the offshore banks (THORDARSON, 1927, pp. 316–323).

Færoese activity

The same year as the "Dana" investigations (1925), Færoese fishing cutters began to fish on the banks off West Greenland. The Norwegians, encouraged by their fishing success of the year before, sent out 40 ships with a total of about 1,000 men (THORDARSON, 1927, p. 170). French vessels first appeared in the area in 1928.

Because of failing catches and poor economic conditions at home, the Færoese were anxious to take advantage of the new possibilities off Greenland. The Færoese Lagting, which had broached the question of fishing in Greenlandic waters as early as 1914 (see BENDIXEN, 1930, p. 102), in 1924 asked the Danish government for the right to fish in Greenland waters. In the 1925 meeting of South Greenland's Council (Sydgrønlands landsråd), a Færoese petition to this effect was heard. In addition, the Færoese asked permission to set up stations on land for processing their catch.[1])

The Greenlanders agreed to the petition with some hesitation and on the condition that Færoese (and other Danish) fishermen be excluded from the bays and fjords and the waters within the territorial limit—at that time three nautical miles (see note, Appendix p. 74). In addition, any stations set up on land were to be away from Greenlandic settlements, preferrably at places recommended by the Greenlanders themselves.[2]) Permission was given in 1926 for Danish (including Færoese) and Ice-

[1]) Afskrift af Forhandlingsprotokollen for Sydgrønlands Landsraad for Aaret 1925. Beret. og Kundg. vedr. Styrl. af Grønl. 1926 (3): 436–438.

[2]) Afskrift af Forhandlingsprotokollen for Sydgrønlands Landsraad for Aaret 1925. Beret. og Kundg. vedr. Styrl. af Grønl. 1926 (3): 456–457.

landic fishing ships to use a harbor on the southeastern side of the island Ravns Storø as a fishing base.[1])

In answer to the Færoese petition, a temporary law was passed on 30 May 1927 (Law nr. 113)[2]) allowing them to fish in Greenland waters from 1 June to 15 October. One exception to the conditions laid down by the Greenlanders was that the Færoese were allowed within the three-mile limit, although not inside the bays and fjords. One proposal accompanying the Færoese petition was of potential value for the Greenlanders' own fishery: the Færoese agreed to take young Greenlanders aboard their vessels as deck hands, so that they could be taught the bank fishery. It was also proposed that native Greenlanders be employed in any fish stations established on shore.

In the early years the Færoese and Norwegian catches of cod off West Greenland equalled the entire cod catch by Greenlanders. The Færoese cod catch produced the following amounts of salt fish (JENSEN & HANSEN, 1931, p. 8):

1925.....	142,720 kg.
1926.....	960,000 kg.
1927.....	1,119,600 kg.
1928.....	523,000 kg.
1929.....	3,864,000 kg.

Norwegian salt fish production from cod caught off West Greenland was 300,000 kilograms in 1926 and 8–900,000 kilograms in 1929 (JENSEN & HANSEN, 1931, p. 19), but the Norwegians seemed to be concentrating on halibut. In fact, in the course of ten years, the Norwegian and British fishing fleets almost succeeded in eliminating the stocks of common halibut in Davis Strait.

The total Greenlandic production of salt fish during the above periods (see Table 23a in Appendix p. 24) ranged from 328,140 kilograms in 1925–26 to 2,305, 665 kilograms in 1929–30.

The law granting permission for the Færoese and other Danish fishermen to fish within territorial waters off West Greenland was, as its title indicates (see note [2]) a temporary one which has been renewed, with modifications, down to the present day. This permission was, in fact, a special exception to the new law on trapping, fishing, and hunting in Greenlandic waters which went into effect on 1 April 1925.[3])

[1]) Beret. og Kundg. vedr. Styrl. af Grønl. 1926 (1): 404–405.

[2]) Title: Midlertidig Lov om Adgang for danske Fiskeriskibe til Fiskeri i de grønlandske Farvande.

[3]) The law's title: Lov om Fangst, Fiskeri og Jagt i grønlandske Farvande m.m. (Law nr. 86). Beret. og Kundg. vedr. Styrl. af Grønl. 1925 (2): 258–260.

The harbor assigned to the Færoese on Ravns Storø in 1926 proved to be unsuitable and too far from the fishing banks, and in 1927 permission was given to move to Færingehavn, in Godthåb district.

The Fishery after 1920

The numbers of cod off West Greenland increased steadily during the 1920's, and saltfish production rose even more strikingly. Despite this, the fishery was highly seasonal. Fishing was possible only during the short summer, and weather conditions often hampered activity even then. Only the people of Jakobshavn and Agdluitsup Kangerdlua, who fished hellefisk, could be active year-round. The Greenland Administration recognized the difficulty of providing steady employment at an early date, and the problem has not been solved to this day.

After 1925, the hellefisk fishery in Agdluitsup Kangerdlua declined. By 1931, it had dropped to virtually nothing, due no doubt to warming conditions in the fjord, as evidenced by the arrival of cod in the area.

The Greenland Administration still seemed unwilling to make major investment in the west coast fishery, probably because they considered a large scale export fishery to be impractical since the Greenlanders, in their primitive vessels, would be unable to supply it with sufficient raw material. As for the Greenlanders, their main complaints during the 1920's seemed to be connected with the high cost of fishing equipment in the Royal Greenland Trade shop, and the low landing price for fish.

The fish landing prices, which remained fixed and unchanged for years at a time, were between 2–3 øre per kilogram for cod in 1912 and 7 øre per kilogram in 1926, 8 øre/kg. in 1928, and 10 øre a kilo in 1930 (Hauge, 1927, p. 44).

When after 1917 cod were found in ever increasing numbers, the Greenland Administration was faced with two possible courses of development. The Greenlanders could be equipped with modern fishing gear (motorboats) for efficient and mobile fishing, and even perhaps salting on board. The fish processing could be made more efficient and concentrated on land at places determined by fish availability and suitable fishing conditions. This was obviously the choice of the future.

The alternative was to continue as in the beginning, letting the Greenlanders fish with their primitive equipment in small vessels (kayaks and rowboats), landing their catch at existing population centers where facilities were often inadequate. This second choice would obviously restrict the growth of a domestic fishery since it would vary with the occurrence of cod along the coast.

It should be noted (Table 23a) that at this time only small amounts of the cod were being processed into klipfish (salted and dried cod),

whereas the bulk of the catch was processed into the less valuable trade item—saltfish. Klipfish was produced from fish caught late in the year after the last vessel had left for Denmark.

Lack of labor on land seems to have been a recurring problem, even in producing the less demanding saltfish. When a vessel arrived to be loaded or unloaded, people stopped fish processing to do this work. Lack of salt, lack of sufficient space in the salt and fish houses and, at times, an unenthusiastic attitude among the population (work on land was poorer paid than fishing),[1]) all caused fluctuating fish production.

Many examples of such appear in the reports in Beretninger, samples of which have been translated and included in Appendix p. 40–73 for the years 1910, 1920, 1930, 1939, 1940, and 1950.

Because of such restrictions on fish processing, the Greenlandic fisherman was often limited in the amount of fish he was allowed to land. In addition, because of his primitive fishing vessels, the action radius of the Greenlandic fisherman was quite short—limited mostly to the immediate vicinity of the salting station. Most fishermen went out in their rowboats and fished all night, landing their catch at the station in the early morning (the stations demanded that fish be landed the same day they were caught).

This lack of mobility of the Greenlandic fisherman in the early rowboat and kayak days is paralleled by the lack of mobility today, which has kept the Greenlanders, in their small motorboats, from fishing West Greenland's offshore banks.

The policy which the Greenland Administration chose to follow seems particularly tragic because the climate warming of the 1920's affected the distribution of seals so markedly. Fishing soon became (between 1920 and 1930) the most important economic pursuit in Greenland. Because of the irregular distribution of cod, the limited range of the Greenlanders' vessels, the primitive fishing methods, labor problems, and the lack of sufficient space and salt ashore, the Greenlandic fishery was of a very risky nature.

The Greenland Administration did something to ameliorate the situation, as for example by towing prams out to productive fishing places which were distant from salting stations, so that they could be used as containers in which to salt cod. When full, the prams were towed back to the main station.

JENSEN (*in* HAUGE, 1927, p. 69) urged the need for flexibility and mobility, but he admitted that this would be possible in only a few isolated cases in Greenland. Although lack of mobility was a serious problem, shortage of labor to process the catch on land was an even greater one. In the years leading up to 1930 it was obvious that the output of the

[1]) SIMONY, 1928, p. 263.

fishing industry was far below what might have been expected from the increasing swarms of cod found each year in Greenland waters.

Around 1928 the situation became so bad that the Administration began talking in terms of fish cleaning and preparation as "the compulsory public duty of the inhabitants" (tvunget borgerligt ombud), which idea was laid before the Greenland Council.[1])

In reality the population of Greenland was probably too thinly scattered to service a modern fishing industry. In 1930 there were only 25 places in South Greenland where fish was salted, only a third of the inhabited places (see Tables 40a–48a, Appendix p. 76–91). JENSEN (1926a, pp. 37–38) suggested that the government begin moving a large part of the population to the places carrying on an export fishery. This solution, which would really only need to be seasonal, would obviously alleviate the widespread labor problems, and would also add to the number of men landing fish. But compulsory population movement has never been a policy in Greenland and would have been out of character. The exception has been Thule, a village displaced by the large U. S. air base, and the now-pending move of the inhabitants of Qutdligssat, a coal mining town in Vaigat district which is to close by 1972.

In 1926 there were about 1,000 full-time Greenlandic fishermen in South Greenland and 270 Færoese. The Greenlanders' production was less than that of the Færoese, even though their season was twice as long. In 1927 the production was roughly the same, with 300 Færoese fishermen working a six-week season, while the Greenlanders fished from three to four months.

In 1929–30 the total production of saltfish in Greenland was a bit over 2,000 tons, plus 70 tons of klipfish (Table 23a). This was about the production of one of the large French fishing vessels then found on the banks off West Greenland (BENDIXEN, 1930, p. 81).

Despite low labor costs and a low price paid for fish landed,[2]) the Greenland Administration was certainly not showing a profit in the export fishery. One man (former Minister of Interior C. N. HAUGE) believed the price for cod paid to the Greenlanders was too high. In the financial year 1925–26, according to HAUGE (1927, p. 58), the fish was bought by KGH for 8 øre a kilo,[3]) made into saltfish, which reduced the weight (after head, guts, and backbone were removed) by about two thirds, which would bring the price per kilogram up to 24 øre. But the

[1]) Afskrift for Forhandlingsprotokollen for Sydgrønlands Landsraad for Aaret 1928. Beret. og Kundg. vedr. Styrl. af Grønl. 1928 (5): 81–82.

[2]) This low price must be considered in comparison with correspondingly low prices for items bought by the Greenlanders in the KGH shops.

[3]) The price paid for cod was actually 7 øre per kilo in 1926, according to official publications.

saltfish was sold for less than that price by KGH (HAUGE, 1927, p. 58). The price obtained for saltfish by KGH in Europe did not cover purchase of the raw fish in Greenland, to say nothing of operational costs, wages for processing in Greenland, salting, transport from the outposts in Greenland and from there to Denmark, administrative costs, and so forth.

Little information is otherwise available about the profitability of the Greenlandic fishing industry in its early years. It can be seen in the yearly Beretninger, however, that KGH's financial statement showed an increasing deficit which rose in proportion to the decline of sealing and the growth of fishing as the most important economic activity.

By the mid-1920's, when the Administration raised from time to time the price paid for fish, it became apparent that they were attempting to encourage more Greenlanders to take up fishing and to make conditions better for them. This price policy was clearly in opposition to the earlier policy that the fishery was not to be carried out at the expense of sealing. It, in effect, acknowledged that fishing had become the Greenlanders' most important economic activity.

By 1930 the price for cod (without head and guts) was ten øre per kilogram which, according to BENDIXEN (1930, p. 86), was the same price paid in the Færoe Islands and in Norway. BENDIXEN (1930) cites increasing Greenland trade deficits and concludes that the Greenlandic fishery was being maintained only through significant subsidies. BENDIXEN then asks:

> if it would not be possible to make a better basis for the Greenlanders' existence through a reorganization of the fishing industry, whereby the Greenlanders could gain the same freedom of mobility which allows the foreign fishermen to utilize the entire international sea territory ... (p. 87) author's transl.

It was apparent that the Greenlanders in 1930 were unable to earn enough by fishing to supply themselves with motorboats, but also that had they used more modern craft the Administration would have been unable to process the additional fish brought in. Nor was there any evidence that service facilities required by modern fishing boats would be provided. Even when receiving reasonably good prices for their fish, the Greenlanders in their rowboats could not physically land enough each day to finance more modern gear.

The Commission of 1920 had concluded (Anon. 1921b, p. 15) that the main goal of the Administration's work in Greenland

> ... must be ... the Greenlanders' development to self-sufficiency, that is to such a maturity in moral and economic aspects, that they

> would be able to live in free association with the outside world when the country's present closed status ends at some time in the future. (author's transl.).

Many believed the only way to realize this aim was to begin a gradual and controlled opening up of Greenland to Danes as a transition to eventual unlimited free trade.

The main consequence of the Commission of 1920 was a new legal framework for Greenland (Lov om Grønlands Styrelse, nr. 134, 18 April 1925).[1]) This instituted wide-ranging changes which remained in effect until the still greater reforms of the early 1950's. Paragraph 21 of the legislation dealt with trade. It read, in part:

> All trade activities in Greenland shall have the goal of improving the Greenlandic population's economic conditions and are reserved to the Danish state under the jurisdiction of the Interior Ministry. (author's transl.).

STORCH (1930, p. 98) asked: "What are now the present conditions of the population after all these administrative improvements?" He concluded that there had been great advances in economic life and cites the impression of a Greenlander from Upernavik who visited Holsteinsborg in 1928 and had seen the fish-canning plant. The Greenlander summarized his impressions thus:

> imaqa sordlo qavdlunat nunarssuat (i.e., "it is perhaps the same as in the Danes' great land?").

By 1931, when a delegation from the Danish Parliament (Rigsdag) travelled along the coast of West Greenland, fishing had become the universal occupation there (VASLEV, 1930, p. 22). The Rigsdag delegation was met everywhere by expressions of concern from the Greenlanders over the increasing Færoese threat to the inshore fishery and apparent abuses by the Færoese of the laws of hunting, trapping, and fishing in Greenland waters (Anon. 1931b). In 1934, the Council (Landsråd) of South Greenland voted in favor of a proposal to open Færingehavn to vessels of other nations, but these countries were not to be allowed to fish in inshore waters, nor could they land their catch for processing on shore.[2])

Later on, the Færoese sought, and won, expanded fishing rights and

[1]) Beret. og Kundg. vedr. Styrl. af Grønl. 1925 (2): 261–273. See JENNESS, 1967, pp. 92–96, for a short description in English of this important law.

[2]) Beret. og Kundg. vedr. Grønl. Styrl. 1934 (7): 356–357.

land stations in West Greenland.[1]) In a law of 15 March 1939, the Færoese were given the right to use additional land stations. It is interesting to note that this law was passed by the Danish Parliament and presented as a *fait accompli* to the Greenlanders, who were in unanimous disagreement with it.[2]) In their meetings in 1936, the Councils of both North and South Greenland had expressed their feelings against freer admission of the Færoese to the skerry regions of certain portions of the west coast.[3])

During these years the Greenlanders themselves began to be more and more dissatisfied with their small rowboat fishery which was entirely dependent upon the government salting houses. In 1930 a suggestion was made in South Greenland's Council to allow Greenlandic fishermen to land their fish in a more processed form.[4]) The objectives were to achieve a greater yield with fewer delays in landing, to encourage individual initiative among the fishermen, and to make the fishermen less dependent on the location of KGH's landing places. Most of the Council's members were strongly in favor of the proposal. But the Chairman (the Danish Governor of South Greenland) said that the crux of the question was product quality and uniformity, which was the primary objective in development of the fishery. The Council meeting of 1934 heard a similar Greenlandic petition, but also without apparent result.[5])

The next year, however, the Greenland Administration, in an announcement on 18 February 1935, agreed to accept well-prepared cod at the colonies of Godthåb, Sukkertoppen, and Holsteinsborg on a trial basis. The cod had to be salted at least six days; the price was set at $6^1/_2$ øre per kilogram. Free salt was supplied to fishermen desiring to process fish, but use of KGH's vessels or fish-salting houses was forbidden.[6]) This type of landing was extended for one year by the Administration on 27 June 1936, and the price was increased to $7^1/_2$ øre per kilogram.[7]) This innovation does not appear to have been used extensively by the Greenlanders.[8]) There were no private fish-houses available. In addition, the landing price for salted fish was low compared with the price for split and gutted fish.

[1]) Law nr. 93 of 7. April 1936 permitted use of the harbor at Tovqussaq from 1 June to 15 October (Beret. og Kundg. vedr. Grønl. Styrl. 1936 (3): 698.) and law nr. 141 of 7 May 1937 extended the season to 1 May–31 October (Beret. og Kundg. vedr. Grønl. Styrl. 1937 (3): 1011.). This same law granted foreign ships the right to use Færingehavn, but the foreigners were prohibited from living on land and setting up private establishments.

[2]) Sydgrønlands Landsraads Forhandlinger 1939, pp. 123–133.

[3]) Beret. og Kundg. vedr. Grønl. Styrl. 1936 (7): 818–826, 880–881.

[4]) Beret. og Kundg. vedr. Styrl. af Grønl. 1931 (5): 732–734.

[5]) Beret. og Kundg. vedr. Grønl. Styrl. 1934 (6): 379–380.

[6]) Beret. og Kundg. vedr. Grønl. Styrl. 1936 (7): 796.

[7]) Ibid.

[8]) Beret. og Kundg. vedr. Grønl. Styrl. 1937 (8): 1125.

Marine research

During each summer, fisheries research was carried out off West Greenland by Danish marine biologists who concentrated mainly on cod, but also studied the Greenland shark, hellefisk, wolffish, deep-sea prawn, and common halibut.

The marine biological investigations begun by the "Tjalfe" voyages of 1908–09 and continued on the "Dana" trip of 1925 evolved into an annual research program. The aim was to study the biology of various fish in Greenland waters so that information could be used in improving the fishing industry. The investigations included tagging experiments to clarify the cod's migrations, and collection and examination of otoliths (ear stones) to study the growth and occurrence of rich and poor year-classes in order, if possible, to predict the size of the catch.[1])

In 1928 the "Godthaab" expedition under RIIS-CARSTENSEN investigated hydrographic conditions off West Greenland. In every year since 1931, with the exception of the war years, the results of marine biological investigations in Greenland waters have been reported in the official government publications.

The Fishery after 1930

The fisheries for shark liver, salted arctic char, and hellefisk remained essentially constant during the 1930's. The hellefisk fishery in Julianehåb district, however, declined to practically nothing in the early 1930's, but this was balanced by increasing catches in North Greenland, especially at Jacobshavn.

Shark skins (from the Greenland shark, *Somniosus microcephalus* BLOCH & SCHNEIDER) were included in the monopoly in 1911 (Anon. 1911b), which for the first time gave the Greenlanders the opportunity of selling shark skins to KGH. Prior to that time, the Greenland shark was jigged for its liver, with a limited amount of meat being dried for dog food.[2]) Placing shark skins on the list of products which could be landed seemed to spur shark fishing and landings,[3]) but by the summer of 1913 so many shark skins had been landed that KGH could not accept any more. Shark skins were therefore taken off the trade list and landings prohibited as of 1 January 1914 (Anon. 1913b). Shark skins were in modest demand by the leather industry in Denmark.

[1]) Early findings were reported in JENSEN & HANSEN, 1930 and 1931; HANSEN, 1937.

[2]) Shark meat is slightly toxic unless dried or boiled.

[3]) Beret. og Kundg. vedr. Kolon. i Grønl. 1912 (1): 302.

In 1922 landings of shark skins were resumed,[1]) although the author has been unable to find any official announcement of this in the government reports. Shark skin was listed in Beretninger for the first time as an export item for the year 1933, and a discussion of prices for shark skins was held during the 1934 meeting of North Greenland's Council.[2]) Table 27a lists the export of shark skins from West Greenland during the period 1920–1950, the pre-1933 statistics being obtained from a source other than the yearly government reports on Greenland. The Greenlanders felt, in general, that it was not worth their while to skin a shark. The prices were probably too low, considering the time involved. It was far easier to slit the shark, extract the liver, and let the rest slip back into the water.

In the same manner as shark, wolffish skins appeared on the export listings (for the year 1938), but there is some doubt about when this item was placed on the monopoly list. Wolffish and shark skins experienced difficult marketing conditions, as well as tanning and processing problems. During World War II, the skins could not be sold. After the war and up to 1950, shark skins were once again landed, but in quite limited quantities. Wolffish skins, on the other hand, were bought from the Greenlanders in increasing quantities (see Table 27a).

Cod landings peaked in 1930, dropped off again between 1935 and 1941, but increased substantially during the years of World War II when the demand for foodstuffs was high and the other Atlantic fisheries were disrupted (see Table 30a). During the period up to 1950, landings from South Greenland accounted for an overwhelming proportion of total cod landings. Of the districts in North Greenland (Egedesminde to Upernavik), only Egedesminde showed considerable landings, which totalled over 38,000 tons between 1911 and 1950—greater than the district totals of Frederikshåb (23,894 T.), Godthåb (33,032 T.), and Holsteinsborg (35,746 T.). Landings in Egedesminde increased by four times during the ten years from 1940 to 1950,[3]) due to both the northward progression of cod shoals and to the energy of the kolonibestyrer at Egedesminde (AXEL MALMQUIST).

Table 27 shows the total cod landings for each district in West Greenland during the period 1920 to 1950. There is a general decrease in landings as one progresses north along the west coast, with the exception noted above regarding Egedesminde district. Yearly statistical details

[1]) Sammendrag af Statistiske Oplysninger om Grønland, Beret. vedr. Grønl. Styrl. 1942–45, p. 800.

[2]) Beret. og Kundg. vedr. Grønl. Styrl. 1934 (6): 403.

[3]) Tables 28a and 29a (Appendix p. 29–30) show yearly cod landings for each district in West Greenland during the period 1911 to 1950.

Table 27. *Cod landings in West Greenland, 1920–1950 by district (in tons, whole fresh weight).*

District	1920	1930	1940	1950
Julianehåb	95	2,312	1,759	4,383
Frederikshåb	23	994	646	2,278
Godthåb	187	1,681	1,061	2,357
Sukkertoppen	32	2,326	1,600	4,140
Holsteinsborg	117	1,492	1,396	2,097
South Greenland	454	8,805	6,462	15,255
Egedesminde	–	716	1,082	4,261
Christianshåb	–	106	339	549
Jakobshavn	–	–	60	814
Ritenbenk	–	–	45	–
Godhavn	–	31	–	135
Qutdligssat	–	–	–	82
Umanak	–	–	38	77
North Greenland	–	853	1,564	5,918
Total West Greenland	454	9,658	8,026	21,173

Note: Upernavik landed no cod during the period.

Sources: compiled from Tables 28a, 29a and 30a in Appendix p. 29–31.

for each district are listed in Tables 28a–30a (Appendix p. 29–31), from which Table 27 was compiled. From these tables was also computed yearly catch per inhabitant for each district along the west coast for the years 1920, 1930, 1940, and 1950 as listed in Table 28.

As Table 28 shows, cod landings in South Greenland were almost insignificant in 1920 (62 kg. per inhabitant) and in ten years increased to over 1,000 kilograms (one ton) per inhabitant. The year 1930 was a peak year for cod landings in West Greenland. Total landings (and landings per inhabitant) did not again reach 1930 levels until 1942. By 1950, landings per inhabitant were well above 1930 levels, albeit lower in some of the individual districts in South Greenland (Godthåb and Holsteinsborg).

Fish landings (cod) per inhabitant in North Greenland have never approached the level of South Greenland, although by 1950 Egedesminde district exceeded the per capita landings of all but one district in South Greenland. This anomaly has never been satisfactorily explained and a

Table 28. *Cod landings in kilograms per inhabitant in West Greenland, 1920–1950.**

District	1920	1930	1940	1950
Julianehåb	29	629	456	979
Frederikshåb	26	940	565	1,640
Godthåb	156	1,199	621	1,113
Sukkertoppen	26	1,568	976	2,227
Holsteinsborg	148	1,522	1,114	1,233
South Greenland	62	1,024	678	1,321
Egedesminde	–	408	521	1,672
Christianshåb	–	166	532	830
Jakobshavn	–	–	75	523
Ritenbenk	–	–	37	–
Godhavn	–	72	–	202
Qutdligssat	–	–	–	80
Umanak	–	–	27	49
North Greenland	–	122	197	642
Total West Greenland	33	622	460	1,020

* Averages include Upernavik's population despite no cod having been landed there during the period.

Sources: Computed from Table 27 and from population statistics in various Beretninger.

reasonable answer must perhaps be sought in the build-up of local initiative and tradition, despite a shorter fish season.[1])

Around 1930 the catch and export of common halibut from Holsteinsborg began a decline, almost certainly from overfishing by foreign vessels on the offshore banks. By 1938–39 this fishery had ceased to be of any importance (Table 31a). Concurrent with this decline, however, came a rise in importance of deep-sea prawns (*Pandalus borealis*) near Holsteinsborg, especially in Amerdloq and Ikertoq fjords, so that the canning factory began processing these.

Prawns were first landed in 1935 at Holsteinsborg, and during the first season 22,440 tins were processed and exported (Anon. 1936b, p. 686). The prawns were trawled by two Danish fishermen from Skagen, who used two of the Administration's motorboats from Holsteinsborg. The following year, three Administration boats fished for prawns, one boat being skippered by a Greenlander (Anon. 1937a, p. 967). The prawn fishery at Holsteinsborg was interrupted by World War II.

[1]) As noted in Table 28, the per capita averages for North Greenland and West Greenland as a whole include the population of Upernavik, where cod have never been landed.

Following the war, prawns were once again tinned at the Holsteinsborg plant, but cold water temperatures (1948–50) directly affected the catch. In the 1950 season 118,000 tins (of 90 grams) were processed, but the entire raw material supply was brought from Christianshåb in Disko Bugt (see Table 31a). For several years (1936–1938) crabs (*Chionoecetes opilio* O. FABR.) were tinned at Holsteinsborg, but this trial was unsuccessful.

Vessels and gear

The vessels used by the Greenlanders in the early days of the fishing industry were mainly kayaks and wooden boats (unpowered) of various sizes. Wooden rowboats and dories increased in number from about 1920, largely replacing the umiaks (konebåd—woman's boat), for which it had been increasingly difficult to obtain replacement skin coverings. The wooden boats were very similar to the umiaks in form and appearance, as evidenced from the name umiaussaq, "resembling an umiak" (BIRKET-SMITH, 1928, p. 179). They were built, largely by the Greenlanders themselves, in various lengths and were usually flat-bottomed.

After about 1930 there was an increasing demand for boats with a keel. Most of these were shipped from Denmark. Between 1930 and 1939, 47 of these boats were sent to Greenland, 26 were for hunters and fishermen, 4 for township councils, and the rest for Greenlandic civil servants.[1]) Table 29 shows the increase in number of rowboats (which

Table 29. *Kayaks, rowboats, and motorboats owned by Greenlanders in West Greenland 1925–1950 and numbers per 1,000 inhabitants, in paren.*

Year (31 Dec.)	Kayaks	Rowboats	Motorboats
1925	2,792 (199)	558 (39)	1 (.07)
1930	2,450 (157)	1,157 (74)	12 (.77)
1935	2,457 (148)	1,469 (89)	42 (2.54)
1940	2,356 (134)	1,479 (84)	69 (3.94)
1945	2,168 (112)	1,679 (87)	83 (4.30)
1950*	1,880 (90)	2,315 (111)	390 (18.7)

* Statistics for Julianehåb missing, those for 1949 used.

Sources: Sammendrag af Statistiske Oplysninger om Grønland, Beret. vedr. Grønl. Styrl. 1942–45, pp. 570, 572.

Beret. vedr. Grønl. 1948 (1): 42, 43, 47; 1949 (2): 126; 1950 (1): 117; 1951 (1): 124; 1952 (1): 130.

Numbers per 1,000 inhabitants computed by author using population statistics for corresponding years.

[1]) Sammendrag af Statistiske Oplysninger om Grønland. Beret. vedr. Grønl. Styrl. 1942–45, p. 569.

included all types and sizes of unpowered wooden boats), and the concurrent decrease in numbers of kayaks (see also Tables 32a and 33a). Table 29 also shows the growth in number of motorboats in Greenland.

The first motorboat was bought by a Greenlander in 1924, and in the following 15 years the native population acquired a total of 73 motorboats (see Table 29, and Table 34a in Appendix p. 35). Of these, 38 were bought by individuals (18 hunters and fishermen, 20 permanently employed), 26 boats by consortiums, and 9 by town councils.[1]) In 1939 the boat sizes were: 21 boats (up to 20′), 16 boats (21–25′), 31 boats (26–31′), and 5 boats (over 30′).[2])

Of the 73 motorboats acquired between 1924 and 1939, 19 were bought outright with cash, and 53 were bought on interest-free loans from the Administration, with a down payment of 10–20 per cent of the purchase price.[3])

From Table 29 can be seen the steady decline in number of kayaks, in both absolute and relative terms. From 199 kayaks per 1,000 persons in 1925, the number declined to 90 in 1950. This includes kayaks owned by hunters and fishermen, as well as by boys and permanently-employed persons, who would not use their kayak as a basis of income but only for sport and weekend hunting.

Rowboats (all unpowered wooden boats) were fairly constant in number during the years 1930–1945, but had increased in number markedly by 1950. This increase was, in part, based on the inability of supplying motorboats to all the Greenlanders who wanted them (OLDENDOW, 1947b, p. 114).

The number of motorboats did, however, increase rapidly by 1950, but at the end of that year there were still only 300 motorboats owned by West Greenlanders. Not all of these were used for fishing; but details are lacking because earlier statistics, unlike more recent data, do not indicate how many fishermen owned motorboats.

There is little material available with which to trace development of fishing gear ownership in West Greenland during the period under consideration. Statistics can be found, however, for the number of hand-lines and long-lines in North Greenland (from Egedesminde to Upernavik) and these are presented in summary form in Table 30 (also Table 35a, in Appendix p. 36). From these tables a decline in ownership of hand-lines is obvious, especially following World War II when there was a concomitant rise in the number of long-lines.

Hand-lines include both those used for jigging cod and stronger lines for fishing shark from a kayak or rowboat. Long-lines (in Table

[1]) Ibid. (Sammendrag . . .) p. 572.
[2]) Ibid. p. 572.
[3]) Ibid. p. 573.

Table 30. *Fishing gear: Hand-lines and long-lines in North Greenland 1930–1950, and number per 1,000 inhabitants in parentheses.**

Year	Hand-Lines	Long-Lines
1930	1,208 (174)	433 (62)
1935	931 (125)	555 (75)
1940	648 (81)	643 (81)
1945	757 (84)	822 (94)
1950	387 (42)	1,986 (215)

* These data are inconsistent in various issues of Beretninger vedrørende Grønland.

Hand-Line = dybvandssnøre
Long-Line = langline

Sources: Compiled from Table 35a in Appendix p. 36.
Numbers per 1,000 population computed from population statistics for corresponding years.

30) were mostly those used in the hellefisk fishery in Disko Bugt, especially near Jakobshavn and the neighboring Isfjord.

World War II

By the end of the 1930's, it had become apparent that the Law of 1925 had outlived its usefulness, although it had served its original purposes well (LIDEGAARD, 1961 b, p. 135). Another Greenland Commission was set up by the Danish Parliament in the autumn of 1938, and began work after the Greenlandic representatives arrived in the late summer of 1939. Its task was hardly completed, however, when World War II interrupted everything, and the Greenlanders had to return home while they still had a chance (GALSTER, 1940, pp. 139–140). No results of the Commission's work were published, but the unpublished report of the Commission was sent to Greenland on the last ship of 1939 (Anon. 1947d, pp. 50–51). The reforms which were considered necessary in 1939 had to be postponed, at least formally, until after the war.

Conditions in Greenland during the war, and the war's eventual effect on developments (including fisheries) have been described well.[1]) The complete cut-off from Mother Denmark when Denmark was invaded in April 1940, the unavoidable turning to North America for supplies and a market for Greenlandic products, the centralization of administration within Greenland itself, and the cohesiveness brought about by five years

[1]) BRUN, 1944, 1946a, 1961; DUNBAR, 1950b; GAD, 1945, 1946; GALSTER, 1940; OLDENDOW, 1945b; SIMONŸ, 1941, 1942, 1943, 1944; VINDING, 1946.

of isolation helped to carry Greenland along a path from which there was to be no turning. At war's end, while Denmark's objectives in Greenland were not questioned, the traditional policies and administrative arrangements were.

The cod fisheries prospered during the war, although exact statistics of production are lacking, as are those of other fisheries during the period. Yearly cod landings rose to between 12 and 13,000 tons (round, fresh weight) in the early 1940's, and then increased rapidly again by 1950 when over 20,000 tons were landed (Tables 28a–30a in Append. p. 29–31). Richer fish occurrences and vigorous leadership in Greenland resulted in a notable 50 per cent increase in cod landings from 1940 to 1941. The seal catch also increased during the war years, attributed by some to reduced hunting at the breeding grounds (LIDEGAARD, 1961, p. 140).

During the five wartime years when Greenland was completely cut off from Denmark, most of the export from Greenland went to North American markets, although saltfish was also sold to neutral Portugal, which fetched the fish and supplied salt in its own ships throughout the war years (BRUN, 1961, p. 8).

Prices for both cod and the mineral cryolite increased during the war, providing Greenland with the means of purchasing her wartime needs in the United States and Canada. Economic conditions in Greenland during the war have been described as being generally good, despite the price level increase of 100 per cent in 1943 for goods sold to the Greenlanders, goods called in Danish udhandlingsprodukter, or "out-traded products" (GAD, 1946, p. 250). The improvement in economic conditions in wartime Greenland was caused almost entirely by the expanding fisheries.

Table 31. *Production and export of saltfish from Greenland in kilograms per inhabitant, 1915–1950.*

Year	Kilograms per Inhabitant
1915–16*	2.2
1920–21*	9.9
1925–26	23.5
1930–31	197.0
1935–36	153.0
1940–41	154.0
1945–46	236.0
1950–51	320.0

* Cod and klipfish.

Source: computed from statistics in various numbers of Beret. vedr. Grønl. 1916–1953.

Just before World War II, however, despite the influx of great masses of cod into Greenland waters, the per capita landing and production for export of Greenland products showed little increase over the value of exports in the beginning of the 1900's. Export during the three financial years 1936–38 averaged 133 kroner per inhabitant versus 56 kroner in 1900–10, when the krone was worth roughly twice its 1938 value (GAD, 1946, p. 244).

The value of Greenlandic products exported from Greenland had exceeded the value of imports into Greenland in most years up to 1929. But during the 1930's, exports (not including cryolite) and imports had been in rough balance (Table 36a, Append. p. 37). Fish export (saltfish) per inhabitant increased steadily until 1930, after which it had levelled off until World War II (Table 31). The high production of the war years continued, and by 1950 it stood one third higher than during the peak 1930 years.

The 1946 Commission

After the end of the war, many in both Greenland and Denmark wished to take up again the reforms which the 1939 Commission had considered necessary—reforms which never saw the light of day officially, because the war broke off communication between Denmark and Greenland. The spirit of reform was certainly alive in wartime Greenland, reinforced by the five years of relative isolation.

In the summer of 1945 the Prime Minister (V. BUHL) asked the provincial councils of North and South Greenland to appoint a delegation to work with the Greenland Committee of the Danish Parliament and representatives of the Greenland Administration. The six representatives from Greenland arrived in Denmark shortly after Christmas 1945. Discussions began in January 1946 and ended on 12 June (Anon. 1946a, pp. 7–8). In general tone, the report of the Commission was an attempt to go back to 1939 and ignore wartime developments in Greenland—in short, the conservatism of the Copenhagen-based Greenland Administration versus the young and energetic men who had run Greenland so well during the isolated war years.

The report (Betænkning) of the 1946 Commission made a series of recommendations on various administrative, economic, cultural, and social matters (Anon. 1946a). Concerning the whole question of the fisheries, a short, three-page section outlined the apparent needs: more and larger motorboats, boat-building in Greenland, larger fish houses, continuation of sending Danish fish-masters to Greenland, and expansion of the prawn fisheries. The matters of processing dried fish (tørfisk) in times of low temperatures or when salt was in short supply, and allowing more processing by the fishermen themselves, were mentioned. Fish

freezing was to wait until experience in this more advanced (and expensive) process was gained in other parts of the world.

One of the more interesting sections in the economic portion of the report dealt with the shark fishery. There was unanimous agreement that shark fishing would have steadily increasing significance for Greenland. A major factor in the 1946 report was the conviction on the part of many that the cod would not last and that the economy should not be allowed to depend on it.

> If the cod fishery should fail at some time, it would be of great importance that we have the shark fishery to fall back upon. (Anon. 1946a, p. 22) author's transl.

In the 1940's, despite increasing catches and saltfish production from cod,[1]) Greenlandic fishermen expressed their concern about the future should cod fail to appear. The Administration was also anxious about this situation. They encouraged in every way the Greenlanders to obtain small motorboats "... so that the fishermen have the possibility of getting such sea-going boats before the cod fails" (ROSENDAHL, 1945, p. 238, author's transl.). Among other plans of the Administration was an emphasis on shark fishing, as formerly expressed in the 1946 report. The liver of the Greenland shark was the first fishery product bought by KGH. Originally the shark had been fished only in the upper water layers, but the government trade personnel in Umanak district began to fish it in deep water and taught the Greenlanders this method. In the 1930's, fishery investigations showed that Norwegian-type long-lines could be used successfully to catch sharks. Deep-water shark fishing spread southwards from Umanak district to Disko Bugt and eventually to the entire west coast. The shark's liver averaged 13 kilograms in North Greenland and 19 kilograms in South Greenland.[2])

The problems of possible cod decline or disappearance, according to the 1946 report, would be avoided by diversification among other fish types (including Greenland shark), plus the increase in motorboats, which would eventually allow the Greenlanders to follow the cod to distant waters.

In 1946, 400,000 kroner in materials for boat-building were sent to Greenland. In the next five years, it was planned to invest at least one million kroner in such material.

The 1946 Commission's report also outlined a five-year plan for all developments in Greenland. About five million kroner were to be spent in the economic and production spheres. In a discussion of the report,

[1]) Cod product export doubled between 1938 and 1946, as indicated by Table 37a.

[2]) Sammendrag af Statistiske Oplysninger om Grønland. Beret. vedr. Grønl. Styrl. 1942–45, p. 647.

this plan prompted talk of the "insufficient utilization of fishery resources" in Greenland (Anon. 1947d, p. 20).

The 1946 Commission was wholly in favor of retaining the government monopoly, the regulations against foreign fishing in coastal waters, and the closed nature of the country. The reason given for this was that

> ... the Greenlanders have not progressed far enough in intellectual and material development to make defensible an opening of the country now or in the immediate future. (Anon. 1946a, p. 18) author's transl.

Although the 1946 Commission's report and its five-year plan might have been a step in the right direction, it was soon apparent to many that it was an obvious attempt to return to pre-war conservatism in Greenland affairs. Amidst widespread disappointment at the tone and recommendations of the 1946 report, a campaign in Copenhagen on behalf of the men who administered Greenland through the war forced the government to review the whole situation. Prime Minister HEDTOFT decided to take a first-hand look at Greenland in 1948. As it turned out, his visit to Greenland that summer was a vital juncture in the development of modern Greenland.

HANS HEDTOFT talked with the Greenland Council (Landsråd) and invited their views about progress in Greenland. The Landsråd wanted an open system free from "protection" and to work towards "independent responsibility" (selvstændigt ansvar) for every mature Greenlander. The goal of this policy was to give the Greenlanders a better chance as free and equal members of Danish society to develop the possibilities their country afforded.

The Greenlander, Pastor EGEDE, spoke on behalf of the Landsråd about the wide-ranging changes needed. He welcomed private Danish citizens who wanted to teach the Greenlanders modern methods. He suggested that the major changes demanded consideration by a commission.[1]) Prime Minister HEDTOFT promised to appoint a commission as soon as possible. It soon became apparent that HEDTOFT's visit was to be of utmost importance for Greenland. A commission (called the 1948, or "Great" Commission) began work in late 1948 and issued its report in February 1950 after a year of concentrated effort. The 1950 report (Anon. 1950d, Grønlandkommissions Betænkning) and the changes it brought about are properly recognized as *the* critical turning point in the modern development of Greenland. The Report and its consequences will be considered in Chapter V.

[1]) De forenede grønlandske Landsraads Forhandlinger 1948, pp. 77–79.

The prawn discoveries

One of the main tasks of the first post-war marine biological investigations off West Greenland (summer 1946) was to find occurrences of prawns in areas which were suitable for trawling and where the situation on land was such that canning plants could be built for processing the catch. Under the direction of PAUL M. HANSEN, and in the new research vessel "Adolf Jensen", trawling trials for prawns were held in the summer of 1946 at four localities in West Greenland: Godthåbsfjord, Lichtenau Fjord, Tasermiut, and the fjord complex of Skovfjord and Tunugdliarfik. The first area is in Godthåb district, the others in the former Julianehåb district. In the latter district, quite promising occurrences of prawns were found in Skovfjord and Tunugdliarfik, as well as a good occurrence in Lichtenau Fjord (Anon. 1947c). The occurrences of prawns in these three localities were termed "very rich" in the report of the investigations. It was believed that a trawling and processing operation was commercially feasible (Anon. 1948d, p. 28).

In the following summer (1947), the same places in Julianehåb district were re-studied, and a few trawling tests made to the north, in Godthåbsfjord. In September 1947 a brief reconnaissance was made to Disko Bugt, where trawling for prawns was attempted on promising bottom terrain near Jakobshavn and Akugdlît. Unfavorable weather and mechanical difficulties hindered the 1947 Disko Bugt studies. In general, the results of the 1947 prawn investigations were not as favorable as those in 1946.

The indications from even the brief visit to Disko Bugt, however, were most promising, and it was decided to concentrate there in the summer of 1948 (Anon. 1948d, p. 31). The trawling grounds off Jakobshavn and Christianshåb were found to be most suitable for trawling. A constant re-supply of prawns from other areas of Disko Bugt and out in Davis Strait indicated little danger of overfishing. The Disko prawn beds were termed by HANSEN (1949a, p. 30) as "possibly the richest prawn beds in the world." None of the trawling trials in 1948 in Disko Bugt were interfered with by rocks or other materials which may destroy the gear. All trawling indicated "unusually good prawn occurrences with prawns of fine size and quality" (HANSEN, 1950b, p. 74).

While the trials in Disko Bugt continued in the summer of 1949, the first prawn landings were made at Christianshåb from the nearby trawling ground. Far to the south at Narssaq, prawn landings began in the summer of 1950 from the grounds of Skovfjord and Tunugdliarfik (SMIDT, 1965c, p. 100). Early landings (1935–1950) of the West Greenland prawn fishery are shown in Table 32. The total landings of 175 tons of prawns in 1950 was merely the modest beginning of a truly explosive branch of the

Table 32. *Landings of the West Greenland prawn fishery 1935–1950, in metric tons.*

Year	Narssaq	Holsteinsborg	Disko Bugt	TOTAL
1935	–	8	–	8
1936	–	26	–	26
1937	–	59	–	59
1938	–	54	–	54
1939	–	71	–	71
1947	–	42	–	42
1948	–	54	–	54
1949	–	–	25	25
1950	13	–	162	175

Source: SMIDT, E., 1965c. Deep-Sea Prawns and the Prawn Fishery in Greenland Waters. ICES Rapp. et. proc. verb. v. 156: 100.

West Greenland fishing industry. Fifteen years later in 1965, prawn landings had reached almost 5,000 tons (SMIDT, 1966, p. 92). This development will be discussed in the next chapter.

Conditions before the Great Commission

Conditions in Greenland immediately following World War II were investigated in detail by the Director of the Greenland Administration, KNUD OLDENDOW, during a five-month visit in 1946. His report of this inspection (OLDENDOW, 1947b) gives the most comprehensive picture of Greenland immediately prior to the monumental changes in the early 1950's. Health and social conditions were studied by a Board of Health expedition to West Greenland in 1947 and 1948. Their detailed report (Anon. 1949a) helps to fill in the picture.

The main characteristics of the fishery prior to the Great Commission of 1948 were: a widely-scattered coastal and inshore cod fishery from small rowboats and a few motorboats; small cod salting stations scattered along the west coast (from Julianehåb to Disko Bugt) at 141 locations; processing almost exclusively into saltfish with some dried fish; an alleged inability of the Greenlanders to manage and maintain motorboats; and only a slim margin of profit on saltfish because of the many small processing units, highly seasonal catch, and great distances both within Greenland and to world markets (OLDENDOW, 1947a & b).

The saltfish exported from Greenland was sold mainly to Spain, Portugal and Italy where it provided cheap protein and was especially important in periods of fasting. The demand was comparatively fixed and was not greatly influenced by price changes. In such an inelastic

market an increase in supply caused falling prices. In the late 1940's there was a general fall in the trend of prices for salt cod, but a rising tendency for fresh fish on ice and frozen fish. The economic position of Greenland, because of comparatively low production, was weak on the world market.

Added to low production per capita, an inelastic market, production in many small unprofitable units, and the great distances to market, was the primitive nature of fishing technology in Greenland. Concerning the future of fishing and the vital question of the type of fishing vessel to be used, Director OLDENDOW wrote the following in 1947:

> ... when the cod migrates and the autumn and winter months set in with poor weather and rough seas, heavier boats equipped with motor and preferrably decked, are the best vessels for the Greenlandic fishery. There is no doubt in my mind—and there has never been any doubt within the Administration about this—that the course towards building a satisfactory and stable Greenlandic fishery must proceed from the dory to smaller motorboats to larger cutters, perhaps schooners. But one must crawl before one is able to walk. (OLDENDOW, 1947b, p. 47, author's transl.).

The conditions found in West Greenland by the Board of Health expedition in 1947–48, just before the organization of the 1948 Commission, certainly pointed toward the need for changes. The expedition found locations of some of West Greenland's inhabited places to be rather poor, when considered from the health and hygiene standpoint. Some settlements (even relatively new ones like Kapisigdlit in Godthåb district) had severe problems in finding a suitable supply of fresh water. An average of 6.1 persons per household was found; two thirds of the houses were of wood (European design), one third the old Eskimo turf house (tørvemurshus).

Of most interest (for the purposes of this paper) were the expedition's observations on food consumption of the Greenlanders. Previously, information on consumption of natural food sources by Greenlanders had not been available in detail. The Health expedition found the daily diet in Greenland very variable, partly dependent upon the season, the particular hunting and fishing possibilities of each settlement, a person's occupation, the existence of a government shop at the settlement, and the economic situation of the family in question.

BERTELSEN (1937) had estimated that in 1930 about 63 percent of calorie consumption in Greenland was provided by imported foodstuffs and about 37 per cent by natural food sources acquired locally. Of the latter 37 per cent there was practically no vegetable matter. The situation

had not changed markedly by 1948. Chapter V will outline the situation in the mid-1950's based on detailed studies made for that specific purpose.

The expedition of 1947–48 found the consumption of native foods highest in the smaller outposts and settlements, where it formed a significant part of the diet. In summer and in periods of good hunting and fishing the diet was overwhelmingly fresh food. In winter, however, the consumption of shop foods imported from Denmark rose quickly. There was surprisingly little storing up of food for the winter. Even dried fish was bought from the local store.

By the late 1940's, the Greenland Administration had become concerned about the problems of Greenland's primitive fishery. The marginal profitability of the widely-scattered, small saltfish processing stations obviously demonstrated a need for concentration of effort into larger units. The Greenlanders themselves were voicing complaints about lack of landing stations near the best fishing areas, a problem magnified by their limited mobility in small rowboats.

In 1948 KGH's production chief, Axel Malmquist, was quoted in an interview as saying:

> We are now building the last fish houses and then we're finished. After this we are going over to centralization of the fishery in the larger places. There will be no more additions or new buildings at the small fishing places. (Anon. 1948b, p. 152) author's transl.

This statement was a dramatic change from only two years before, when no one would have dared voice the policy of centralization at the expense of smaller settlements. It is a good example of the influence brought to Administration affairs by those who had gained fresh insights from outside Denmark during the war.

Despite the scattering of stations from Julianehåb in the south to Umanak in the north, a new concept for subsequent planning in the fishery was recognized: the optimum area for year-round cod fishing was in the middle part of the southwest coast. The south (Julianehåb) was plagued by storis in spring and early summer. The north (north of Holsteinsborg, but particularly Disko Bugt and northwards) was frozen in by winter ice, in addition to being abandoned by cod each winter.

The idea of a "Lofoten" fishery was advanced whereby fishermen from North Greenland could come south to places where cod landings were possible the year round (Oldendow, 1947b, p. 53; Egede, P., 1948, p. 76). The area where cod landings were possible year-round would undoubtedly be the site of future centralization. The larger settlements in this area between Frederikshåb and Holsteinsborg eventually became known as the "open-water" towns (åbenvandsbyer). Only after 1964,

however, when the 1960 Commission's report was published, was real priority given to this concept.

The situation in the late 1940's seemed to require a massive reorganization from the bottom up. The typical Greenlandic fisherman caught only as many cod as he and his family could land (the fish had to be cleaned prior to sale to KGH) in one day. Lack of space and salt often stopped landings altogether for days at a time. Unfavorable weather conditions often kept the small-boat fisherman shorebound. Winter ice and storis prevented fishing for long periods. What seemed to be needed were larger boats to lessen the fisherman's dependence on the weather and increased mechanization of processing facilities on land to handle the larger quantities which the bigger boats would land. Motorboats and highly-mechanized landing and processing facilities required service facilities, electricity, water, good harbors, labor, fuel depots—in short, a complete modernization of the entire fishing complex from vessels and gear to shore-based processing plants. These improvements would, in turn, require vast sums of capital which the Greenlanders certainly could not provide, but which the Danish taxpayer could.

If the outline of what was needed seemed clear, the means for bringing it all about were not. The population was scattered in many communities along the west coast, a factor discouraging such modernization, even if the go-ahead were given and the capital provided.

In the search for a way out of the impasse, the Greenland Administration in 1947 gave a one-year dispensation to a private Danish company to fish along the west coast of Greenland (MYRUP, 1951). The report of this private fishing enterprise was rather discouraging (Anon. 1949b). The company (A/S Grønlandsk Havfiskeri), equipped with six fishing cutters and modern gear including a pound net (bundgarn), arrived in Greenland in early June 1948. A land station was built at Atâ-Pâ near the mouth of Søndre Strømfjord. The cutter owners, all of them from Esbjerg, promised to remain in Greenland for the entire fishing season, to try out all possible modern gear, and to take on some young Greenlanders so that they could learn Danish fishing methods.

The Danish seine and trawl were found to be unsuitable under Greenlandic conditions. The best results (at least for cod) were with the pound net, which had not been used before in Greenland. The usual method of setting up the net by attaching it to piles driven into the bottom was not possible in Greenland, so a system of anchors and floats was devised.

Some of the cutters, in addition to catching cod, also tried for shark. One of the boats showed good results in Disko Bugt.

The summer's catch amounted to 299 tons of saltfish, 300 barrels of shark liver, as well as halibut, wolffish skins and liver, and cod-liver

oil. This was described as a "poor result economically" (MYRUP, 1951, p. 53; and Anon. 1949b, p. 85).

The plan to teach Greenlandic fishermen was more successful. Seventeen Greenlanders participated, hired on board the Danish fishing cutters on the same terms as the Danish crew. The Greenlanders were impressive in their interest and initiative. The Greenlanders, for their part, were impressed particularly with the possibilities of the pound net. Hope was expressed from both the Greenlandic and Danish sides that continued cooperation would make a significant contribution to the local fishery.

In 1949, after an apparent extension of their dispensation, the company moved operations to the more promising Godthåbsfjord, with additional pound nets and materials to construct another station on land, since the facilities at Atâ-Pâ could only be moved south at prohibitive cost.

The 1949 season proved even less successful than the first. Initially, more cod were fished than could be processed. Problems with lack of salt, engine repairs to one cutter, and ice, prevented utilizing the almost 100 tons of fish per day obtained from the pound nets. When everything seemed in order and both cutters were back in operation after repairs, with salt provided from Godthåb, and the bothersome ice gone, the cod had also gone and the fishing results dwindled. The fishermen decided to remain and try an autumn fishery (with also the possibility of remaining over the winter). After a state loan to erect winterized quarters, the fishermen prepared for the winter season, but an unusual cold snap iced over the fjord. Fishing progressed in Greenlandic manner through holes chopped in the ice. The pound net fishery the following spring gave meager results, and on that note the trials ended and the company abandoned their operations in Greenland.

In 1948, at the same time that the company A/S Grønlandsk Havfiskeri was founded, another private company was started by CLAUS SØRENSEN, salvage expert from Esbjerg—Det grønlandske Fiskerikompagni. Operations began in the summer of 1948 using Tovqussaq as base. The fishing results of this company varied; they were hindered by restrictions against fishing in the fjords, which precluded using the pound net which was so productive in the spring fishery (SØRENSEN, F., 1952). In 1951 the Greenland Administration allowed the company to fish in several fjords, but the price of saltfish in Denmark dropped causing an operational deficit. About 50 Greenlanders worked in this fishery and in processing the fish on land.

In 1950 the company, in cooperation with KGH, built a freezing plant for prawn and hellefisk at Christianshåb. The next year, also in cooperation with KGH, the company build filletting and freezing plants

at Egedesminde and Sukkertoppen, with daily capacities of five tons of frozen fillets each. The Sukkertoppen plant processed mainly cod, and also smaller quantities of halibut and wolffish. Egedesminde handled wolffish, halibut, and hellefisk.

It was apparent that the presence of this company on the west coast was aiding fishery development. Greenlanders landed their catch at the company's various locations; their mobility was increased because they could shift their landings to the factory ship at places where landing possibilities were greatest with minimum sailing time, instead of being tied to the traditional government salt houses. Thus private companies made real contributions in the early stages of modernizing the Greenlandic fishery. Most of them ceased operations because of the strict regulations under which they had to work, difficult natural conditions which varied from season to season, and price problems accentuated by the long distance to markets.[1])

Production of saltfish had risen to over 6,000 tons by 1950 (Table 37a). Table 38a shows the production for export of other fish products up to 1950. Table 39a compares the exports from Greenland in the years 1930–31, 1940–41, and 1950–51. In general, fishing products had increased enormously in the export picture, but they were dominated entirely by salted products. New products of the sheep farms and prawn fishery had largely replaced hellefisk, halibut, and arctic char.

By 1950 it had been demonstrated that vast changes in the traditional fishery were essential. Recommendations of the 1948 Commission (to be published in February 1950) were awaited with great interest. Not only was the future pattern of fishery development at stake, but so was the traditional economic monopoly, along with price policy and wages, and important cultural and social questions. Greenland in 1950 was on the threshold of an exciting new era of development, an era which would inevitably be influenced profoundly by the recommendations of the 1948 Commission.

Summary

1) Following 1900 the Greenlandic fishery began on the basis of salted hellefisk (Greenland halibut), common halibut, and arctic char. Modern fishing gear was introduced to the Greenlanders by Danish fish-masters at several strategic locations along the west coast.

2) Cod-liver oil was an important item in fish export from Greenland until 1903, when arctic char and hellefisk were included in the government monopoly.

[1]) SØRENSEN's company was finally bought up by the State.

3) Export of klipfisk and dried fish had been very variable since the mid-1800's, declining to virtually nothing by 1886.

4) Fish products varied between 0.1 and 3.0 per cent of the total value of exports from Greenland until 1905. Thereafter the relative importance of fish products increased steadily.

5) After including cod and halibut products under the monopoly in 1910, the Greenland Administration began a series of fishing trials (fiskeriforsøg) along the west coast of Greenland to determine the best locations and most profitable types of fishing. From 1910, reports were published in official government publications of the outcome of each year's trial and the total fishing result.

6) The first real indication of an increase of cod in Greenland waters came in 1917. In that year, the export value of cod equalled that of all other fishing products combined. In 1918, cod products were worth twice all other fish products exported from Greenland.

7) In the years 1915 to 1919, the general occupational breakdown for West Greenland was: 65 per cent hunters, 15 per cent fishermen, and 20 per cent with wage employment or without occupation.

8) After 1917 the early years of the cod fishery were plagued by sickness among the population, lack of salt, low mobility of rowboats and their vulnerability to weather, and an official attitude which considered fishing a "threat" to the traditional seal hunting.

9) Fishing on the banks off West Greenland began in 1924 and in the next year Danish marine biological investigations were resumed, the first since the "Tjalfe" voyages in 1908–09.

10) The Greenlanders' inshore rowboat fishery was highly seasonal, and varied greatly on a daily basis depending on local weather conditions.

11) The Greenlandic catch in 1925–30 was about the same as the Færoese catches in Greenland waters despite a longer season for the Greenlanders, who outnumbered the Færoese fishermen by 2–3 times.

12) The Greenlanders repeatedly expressed their concern over increasing Færoese activity and extended rights given them in Greenland waters.

13) Prawns began to be landed and processed at the Holsteinsborg canning plant at a time when landings of common halibut had fallen to practically nothing.

14) Cod landings per inhabitant varied greatly during the period 1910–1950, and varied geographically in any given year. In 1950 in South Greenland, they averaged 1.3 tons per inhabitant (.9–2.2 ton range) and in North Greenland 1.0 tons per inhabitant (nil –1.6 tons range).

15) Post-war investigations of prawn occurrence along the west coast of Greenland resulted in the start of landings and processing of prawns at Narssaq and in Disko Bugt.

16) Between 1925 and 1950 the number of kayaks in West Greenland decreased from 199 per 1,000 inhabitants to 90. Rowboats increased from 39 to 111 per 1,000 during the same period. The first motorboat was bought by a Greenlander in 1924. Motorboats increased from .07 to 18.7 per thousand inhabitants during the period.

17) Between 1930 and 1950, fishing hand-lines owned by West Greenlanders decreased from 174 to 42 per thousand inhabitants. At the same time, long-lines increased from 62 to 215 per thousand.

18) The Greenlandic fishery by 1950 was handicapped by many small, widely-scattered production units, low mobility of fishing vessels tied to traditional landing places, and high seasonality of the fishery accentuated by unseaworthiness of the small vessels. The fishery had not, in fact, changed in character from its inception except in intensity.

19) Fishing trials in 1948–50 used various types of modern gear and vessels and hired Greenlanders as crew in order to introduce them to more modern fishing methods.

20) Two private companies, under a special dispensation from legal restrictions, began operating in a few localities along the west coast (other than at the traditional Færingehavn), but experienced great initial difficulties and varying natural conditions.

21) Reorganization of the Greenlandic fishery was clearly needed by 1950. The "Great" Commission of 1948 was looked to for recommendations which would initiate the change.

V. THE NEW GREENLAND 1950–1966

The study has referred from time to time to the part played by periodic government Commissions which have re-evaluated Denmark's role in Greenland, and have recommended changes in the direction of development. The Commissions of 1920 and 1946 concluded that the government monopoly and associated economic policies were basically sound and should be continued. For Greenland, the Commissions had to choose an economic and social system which, considering Greenland's geographic location, climate, and primitive state of development, would be best suited to carrying out a humanitarian policy.

In general, the idea of introducing private trade in Greenland was always countered by the claim that the requisites for such free trade were not present. The population was sparse and distances between inhabited places great. These facts, plus Greenland's apparent lack of sufficient resources, placed a limit on the extent to which private trade could prosper and still serve the basic needs of the population.

The specific reasons for maintaining the government trade monopoly can be reduced to five (see Chapter I, pp. 43–44):

1) the State monopoly was necessary to protect the population from the adverse effects of sharp swings in world market prices.

2) a monopoly was necessary to protect the established cultural and social policy, and the country was closed to protect the economic monopoly.

3) a government monopoly gives the largest total production in the long run.

4) private monopolies would exploit some or all of the population.

5) private monopolies would not provide for a suitable supply system because their first goal is profit, with less interest in providing the population with essential goods. The larger and more accessible centers would be given preference; the smaller, isolated ones would be neglected.

These reasons for maintaining the State monopoly in Greenland are, of course, open to debate, but need not be discussed here. One of the

more sweeping objections to the monopoly was that the Greenlanders lived under unrealistic conditions and were not being prepared for life in the modern world. On the other hand, those opposed to permitting private trading believed that it would be against the best interests of the Greenlanders. Traders would probably neglect unprofitable locations, withdraw when conditions became difficult and, in general, put their own interests ahead of the Greenlanders'. This would be contrary to the attitude of Denmark to Greenland.

Conditions under the trade monopoly

Such, in brief, were the arguments for maintaining a State monopoly in Greenland. After the 1948 Commission reported its findings in February 1950 (Anon. 1950d), legislation was passed to modify the traditional monopoly and closed shore policy, creating in Greenland the so-called "reorganization" or "reforms" (nyordning). This has continued up to present time with increasing financial and technical assistance from Denmark. In order to place developments in Greenland since 1950 in proper perspective, it may be best here to summarize the conditions there before policies were changed in the early 1950's. The "reforms" for Greenland did not open up the country completely and unconditionally to private trade and outside contacts. Some of the changes were indeed unprecedented, while others were only slight modifications of long-established practices.

A law passed in 1925 had laid down the authority of the Greenland Administration and authorized the trade monopoly in these words:

> The objective of all trading in Greenland shall be to further the Greenlandic population's economic conditions and is reserved to the Danish State ... (author's transl.).

When putting its monopoly obligations into effect, the Danish government endeavored to balance Greenland income and expenditures, in other words it should be considered as a self-sufficient economic unit. In addition to revenues from products traded by Greenlanders, there was also revenue from the cryolite mine at Ivigtut which, though run by a private concessionaire, was owned in part by the government (LLOYD, 1953). From it the government received (through share dividends and taxes) 100 million kroner in the years 1925 to 1950 (SVENDSEN, 1958).

The State's income and expenditures in Greenland were recorded in a special section of the government financial statement. Operating costs of production and export, expenditures for shipping, health, school, church, administration, and cultural and scientific activities were offset

by income from the purchase, processing, transport, and sale of Greenlandic products, as well as income from the sale of European goods in the Greenlandic shops. Any yearly surplus from the State activities in Greenland went into the "Special Greenland Fund" (Den særlige grønlandske Fond).

Capital expenditures in Greenland were financed by the Danish government treasury and not from this Special Fund, but the State was paid back in the form of depreciation and interest—shown in the operating budget. Capital investments were therefore not actually dependent upon a sufficient surplus in the Special Fund; but in effect large capital expenditures were discouraged. This hampered economic development as fishing grew in importance.

The trading company's main obligation was the processing and export of Greenlandic products, and provision of needed imports. Retail prices (udhandlingspriser) were established by the government, as were wages and the prices paid for raw products bought from the Greenlanders (indhandlingspriser). The State therefore controlled the standard of living in Greenland. This was the device by which it ensured the well-being of the local population.

In setting prices for products sold by the Greenlanders to the trading company, consideration was given to natural stocks of the animals hunted and to variation in the world market price. Prices for a specific product were uniform all over Greenland. This ensured the maintenance of the dispersed population pattern. Care was taken not to set prices too high in an attempt to spur production. As the catch of hunting goods (furs, blubber, and tusks) could not be increased markedly, higher prices might encourage a hunter to sell more to the monopoly than he could spare from his own needs.

The list of landing prices gives an impression of being low. However, it has to be judged against the cost of goods purchased by the Greenlanders. Furthermore, as there were no taxes in Greenland, and all health care, schooling, and other cultural and social amenities were free, the price level could not be compared with that elsewhere.

Retail prices in the shops were set so as to be relatively low for items considered to be necessities, but high on luxuries. As with landing prices, retail shop prices were uniform throughout Greenland, so that high distribution costs on bulky necessities (flour, cloth, building materials, etc.) could not be reflected in the price charged. Price-fixing was based mainly on the cost of the article plus a pre-determined mark-up which depended on the item's status as a necessity or luxury. For example, hunting and fishing gear and building materials were sold at below cost so as to encourage hunting and fishing (which provided an important source of local food) and housing improvement.

Wages were also fixed, in an attempt to provide the necessary work force without luring men away from primary production. The few wage-earners were expected to supplement their incomes by hunting and fishing so their wages were low. The income of wage-earners was intentionally kept below that of hunters and fishermen, but sufficient to provide a work force needed for processing, local transport of products, and for administrative duties. Price and wage control was also used to maintain a balance between State income and expenditure in Greenland.

The small cash incomes of the population made it difficult for them to buy new fishing gear. There were, for example, few fishing boats, while loans were provided for building home-made wooden rowboats and motorboats (the motors for which could also be purchased from Denmark on liberal loan arrangements), it was not until the reforms of the early 1950s that motorboats purchased in Denmark became important. This increase of fishing boats, in turn, required repair facilities, harbors, fuel depots, and improved unloading facilities at the fish plant.

The events leading up to the "Great Commission" of 1948 have been outlined in Chapter IV. The 1946 Commission was an obvious attempt by the old-line civil servants to retain the old system in Greenland. But the people who ran things in Greenland during World War II, influential groups in Denmark, and the Greenlanders themselves, wanted changes. The 1946 Commission was a general disappointment and a campaign in Denmark to change the old system demanded that a fresh look be taken at Greenland. The "Great Commission", set up in November 1948, reported its findings and recommendations on 28 February 1950. In unusually fast action, the Danish Parliament (Folketing) suggested eight laws which were adopted on 27 May 1950.

It is not necessary for the purposes of this study to analyze in detail the findings of the Commission. A discussion of the main recommendations and subsequent legislation is necessary, however, to provide a background to the economic structure on which the modern fishing industry is based.

The 1948 Commission Report

Two general principles were laid down by the Commission:

1) The need to develop private economic activity in Greenland, if necessary stimulated by the government, but also subject to controls.

2) The need to increase Denmark's financial support of Greenland, thus abandoning the traditional policy that Greenland should be economically self-sufficient.

A general overhaul of the economic and social structure of Greenland was recognized as essential. The Commission's findings, published in a

report of about 1,100 pages (Anon. 1950d), covered the following topics: inhabited places (their location and future form); future technical and plant facilities (to improve economic, cultural, and health conditions); political and administrative arrangements, and the judicial system; schools, church, and other cultural conditions; health service, housing, and social affairs; occupational and economic conditions; and the special areas of Angmagssalik, Scoresbysund, and Thule.

Economic organization

The economic reform advocated by the Commission called for private Danish initiative to bring about a major increase in production. No longer would there be an attempt to achieve an economic balance without subsidies. Investment from the rest of Denmark would be used to ensure a considerable improvement in the standard of living. The government would finance certain services (for example, health and education) without reference to a trading surplus or deficit (Anon. 1950d, 5[II]: 66).

Economic organization, which had been part of the Greenland Administration, was detached from it. Thus liberated, KGH was to be divided into two parts: the sales monopoly (landing, processing, and export of Greenland products) and the supply monopoly (import and sale of consumer goods).

It was recognized by the Commission that the entire production and sales system in Greenland needed to be expanded and made more effective. This would require large investments and, in order to get the best possible yield, also

> freedom in trading and independent economic responsibility, which would be difficult to achieve in an organization made up of civil servants, such as the Greenland Administration. (Anon. 1950d, 5[I]: 34) author's transl.

Another obvious advantage of allowing private Danish economic influences to operate in Greenland would be the possibility for bringing in the technical know-how of firms interested in large-scale production which would raise the general standard of living.

Fishing

The Commission foresaw that Greenland's economic future would need to be based mainly on fishing and the preparation and processing of fish products. The cod fishery was expected to be the most important, but the highly-seasonal nature of this fishery was recognized and the need to diversify into other activities so that the slow winter season could be utilized as much as possible. A large increase in fish production was seen as the major goal. It was also recommended that the Greenlanders

should extend their fishery to the offshore banks in case cooler conditions adversely affected the inshore cod fishery.

The Commission realized that private interests, once admitted, would concentrate mainly in establishing fish processing industries. It was expected that individual fishermen from Denmark and the Færoe Islands would settle in Greenland and could demonstrate modern fishing methods to the Greenlanders.

Because of Greenland's marginal location and the risk involved in most economic undertakings there, it was not anticipated that private concerns would take over the State's functions entirely, but that KGH's buying and production activities would continue side by side with the new private ventures.

The 1948 Commission recognized the importance of planning a program of capital investment for increasing fish production. Compared with the seal hunting economy, this required a large investment in vessels, gear, processing facilities on land, and all the other facilities demanded by modern industry. When changing natural conditions made commercial fishing possible at the expense of sealing, the capital investments needed to build up the new industry were not forthcoming at the scale required. Capital was needed to build technical facilities on land: fish plants, fuel depots, harbors, boat repair yards, workshops, water works, electric power generating plants, roads, and warehouses—in addition to the public housing, schools, hospitals, shops and recreational facilities required to meet social needs. In short, a complete modernization of facilities was required if fish processing were to be increased.

The Cod Fishery

The Commission noted the great increase of cod landings in Greenland after 1939 (see Table 30a). Table 33 shows cod landings in 1948 by district and average landings per fisherman. Although cod landings in Greenland in 1948 were the highest in its history, a comparison with Færoese average catches per fisherman demonstrated the need to increase still more the cod catch by Greenlanders. Their average annual landings were one half those of Færoese fishermen (during a 3.5 month season, 1939) working the banks off West Greenland (Anon. 1950d, 5[I]: 79).

At many places in West Greenland the fish salt houses were often unable to handle the amounts of fish landed, so that no more fish could be accepted for days at a time. Increasing the cod catch, therefore, would require increasing the fish-processing capacity on land. The short fishing season, as seen in Table 34, which was limited to the frost-free period, was another handicap since saltfish could not be prepared when the air temperature fell below freezing.

Table 33. *Cod landings in 1948, West Greenland (whole, fresh wt.).*

District	no. fishermen	tons landed	ave. tons/ fisherman
Julianehåb	368	4,820	13.1
Frederikshåb	320	1,652	5.1
Godthåb	257	1,657	6.4
Sukkertoppen	309	3,756	12.1
Holsteinsborg	208	2,166	10.4
Egedesminde	417	3,494	8.3
Christianshåb	144	413	2.8
Jakobshavn	111	489	4.4
Godhavn	23	142	6.1
Qutdligssat	14	37	2.6
Umanak	64	49	0.7
Total	2,235	18,675	8.35

Source: no. of fishermen: Anon. 1950d, 5 (I): 78. tons landed: Table 28a and 29a.

Table 34. *Length of fishing season in West Greenland, 1948.*

District	Season, no. of days (approx.)
Julianehåb	220
Frederikshåb	193
Godthåb	200
Sukkertoppen	175
Holsteinsborg	145
Egedesminde	100
Christianshåb	90
Jakobshavn	76
Godhavn	63
Qutdligssat	62
Umanak	42

Source: Anon. 1950d, 5 (I): 79.

Recommendations about the future Greenlandic cod fishery

Although it recognized that the cod fishery would need to become the main basis of the Greenland economy, the Commission recommended that not all efforts be concentrated there, but that it be supplemented by other fishing and by traditional pursuits such as hunting and trapping, and also by limited agriculture and sheep farming. In this way the largest number of fishermen possible could find dual employment. This also would encourage use of the work force in the non-fishing season (Anon. 1950d, 5[I]: 82).

It was pointed out that there had been two previous periods of cod abundance in Greenland, but that the cod had eventually disappeared. It was therefore recognized

> that the present period with rich cod occurrences cannot continue, so that one must expect changes in ocean currents and temperature conditions catastrophic for cod to occur. (Anon. 1950d, 5[I]: 85) author's transl.

Because of this, stress was placed on the importance of investigations in fisheries biology, especially in detecting any possible changes in natural conditions, so that fishermen would have time to become established in new fishing areas.

The Commission's recommendations for the future development of Greenland's fishing industry were based upon the belief that cod might not always be available in inshore waters, so that a sea-going fishing industry, similar to that developed in Iceland and the Færoes, might become necessary.

To achieve this, the Commission recommended an increase in the number of larger motorboats. It pointed out that even though the cod fishery off West Greenland was about 30 years old, there was only one motorboat for every eight fishermen. These motorboats were mainly small (20–22 foot) vessels and, because of their size, could only be used in fjord and inshore waters. The Commission believed that

> the continued development of the Greenlandic cod fishery, which in the future must be able to operate in offshore waters and in distant places, must happen gradually ... The evolution of the Greenlandic people into a fishing society must take a reasonable time. Building a sound Greenlandic fishery must therefore pass from smaller motorboats to larger and larger cutters, perhaps to schooners. (Anon. 1950d, 5[I]: 87). author's transl.

To enable Greenlanders to acquire larger fishing vessels, the Commission suggested favorable terms of financing based upon Færoese experience (Anon. 1950d, 5[I]: 90–94).

The Greenlanders, of course, would require training in fishing from larger vessels. It was thought that practical training could be carried out aboard Danish and Færoese fishing boats which were allowed to operate in certain areas of Greenlandic territorial waters. The Commission thought that permission to fish along the entire coast of Greenland (excepting certain fjord areas) could be granted Danish and Færoese fishermen with the stipulation that these vessels hire Greenlanders to make up to one half of their crew.

Other devices for training would be provision of a 50-ton cutter to be used as a school ship; technical courses in Greenland at an expanded seminary at Godthåb; and training at the Danish Fisherman's School (Danmarks Fiskerhøjskole) at Esbjerg.

Other types of fishing in Greenland

The ever-present fear that cod would some day disappear from Greenland waters and the highly-seasonal nature of the small boat fishery itself, determined the Greenland Administration's policy, through the years, of attempting to encourage diversity in the fishing industry.

Despite this policy, the Commission noted that other types of fishing were of slight economic importance. Sharks, wolffish, Greenland halibut, arctic char, and prawns were fished, although prawns, at the time of the 1948 Commission, had not yet assumed a position of any significance.

Cod processing

The cod landed by the Greenlanders was processed mainly into saltfish at 79 landing places along the west coast (1949). During World War II, dried cod (tørfisk) began to be processed in Greenland, mainly on fresh-air drying racks. Fresh-air drying was not feasible at some of the fishing towns along the more humid outer coast, but it was found mainly at inner fjord locations (for example, at Qôrnoq and Kapisigdlit, both in Godthåbsfjord).

If the Commission's recommendation about the use of larger fishing vessels were carried out a longer fishing season would be practicable. This would be incompatable with the limitations of saltfish production to the frost-free period (unless heated salt houses were used). In view of this, flash-freezing of cod blocks was considered the most logical way to process the increased production. This method had already been initiated (in 1948) by the Greenlandic Fishing Company (Det grønlandske Fiskerikompagni A/S) at Tovqussaq. The same company also operated the ship "Greenland", a floating freezing plant. Flash-freezing was independent of local weather conditions and could operate year-round; the process could also use cod which were too small in size for saltfish production. Future markets for fresh, frozen fish products, especially in North America, were seen as rather more favorable than those for salted fish. As distribution problems were solved, frozen fish seemed to hold the best possibilities for increased sales.

It was felt by the Commission of 1948, however, that saltfish and dried fish production would not decline and be replaced by frozen fish production. These more traditional forms of processing, especially salt-

fish, would continue to "be dominant in Greenland's fishing industry" (Anon. 1950d, 5[I]: 116). Fish landings at many of the smaller places along the coast were too low to permit profitable operation of a freezing factory.

Other economic considerations

While the Commission recommended discontinuing the State's exclusive right to buy up, process, and sell Greenlandic products, it also considered that an immediate dissolution of the supply monopoly would be inadvisable (Anon. 1950d, 5[I]: 61, 139). This was based on the conviction that any private trading system would not serve adequately the more than 200 inhabited places in Greenland, but concentrate on the larger places where it could be sure of a good profit. A State supply service would be needed to ensure proper service throughout the country. This really meant that the State would have to continue providing the goods which did not yield a profit, while private traders undersold it on other goods.

Before 1950 the Royal Greenland Trade Department (KGH) had been a part of the Greenland Administration (Grønlands Styrelse). Education, religion, production, and trade had been parts of a single system from even the earliest days of European activity. The Commission proposed to change this. KGH would be run as a separate enterprise but without attempting to make a profit for its owners, the government (Anon. 1950d, 5[I]: 74). The Director of KGH would be responsible to a Board of Directors chosen from business and industry and from Parliament's Greenland Committee, with one Greenland member and the Director of the Greenland Administration. No provisions were made to include representation from Denmark's Ministry of Fisheries or private fishing organizations.

The Commission believed that the State should continue to subsidize Greenland, if only because the existing standard of living was so low that the local population could not meet the cost of schools, church, and health services and so on (Anon. 1950d, 5[II]: 66). These costs were to be met by appropriations in the State budget and would no longer be dependent on a profit in KGH's production and the cryolite income.

State trade and production, however, were to be self-supporting so that any increase in the population's real income would be related directly to the country's resources, how well they were developed, and world market prices. In this way the Greenlanders would be able to raise their own real income through increased production. They would then learn that incomes depended upon their own initiative and that prices were not set arbitrarily by the State, but were a direct reflection of economic conditions.

The Commission realized that there appeared to be a circular relationship between standard of living and low production in underdeveloped countries. Increasing the income level could therefore be expected to raise productivity, as would a greater training and utilization of the work force. Improved health conditions were deemed urgently necessary (especially an effort to combat tuberculosis), as was an improvement in the housing standard.

Government appropriations were seen as the only way to finance these much-needed reforms and to break the vicious circle between production and standard of living. The Commission outlined a total investment program of 95 million kroner for the 10–15 years to 1960 or 1965 (Anon. 1950d, 1[I]: 57). The program aimed at improving health, training, and housing conditions—investments which could be expected to increase productivity in the long run. One lack in the investment program appeared to be capital for actual fish production plants. It was expected that these investments would be carried out by private Danish industry and covered, to a certain extent, by State loans and guarantees. Technical facilities were, however, included in the investment program: harbor works, repair shops, and boat yards. Electricity and water works, however, as well as roads, were not provided for in the initial budget.

The Commission, in citing the need for increasing capital input into Greenlandic economic life, anticipated investment capital from private sources. But, because of the great risks involved in economic activity in Greenland, it was believed that State activities would continue to be important. Because of small production and the continued need to protect the population against world market fluctuations, it was recommended that all export from Greenland be funnelled through a central sales organization run by the State (KGH) until such time as a private sales unit was set up. Such a sales organization could also coordinate transport of export products more economically and would assure a higher quality and more uniform product. Export of fish products from privately-owned factories in Greenland would also be channelled through this central sales organization.

With the idea of a central sales organization went the suggestion for establishing a fund for protection of the Greenlandic producers against sharp swings in market conditions (konjunkturudligningsfond). The fund would be financed from a percentage of KGH's profits where these occurred, as well as a tax on the value of products exported by private producers.

Development and Reforms

The Greenland of 1950, when the Commission's report was published, was by modern commercial standards virtually undeveloped,

inhabited by a sparse population of fishermen and hunters. I visited Greenland for the first time in the late summer of 1951, travelling along the west coast from Ivigtut (in the extreme southwest) to Qutdligssat (in Disko Bugt). The Greenland of that time now stands clearly in my mind in sharp contrast with the Greenland I last saw in March 1968. The development during the 17 years from 1950 to 1966 (the period covered in this final section of the study) was a direct result of the policy formulated by the 1948 Commission, with considerable impetus from the subsequent 1960 Commission (Grønlandsudvalget af 1960, or G-60), whose report was issued in 1964 (Anon. 1964i).[1]) The development since 1950, which is still in progress, has been nothing less than the evolution of Greenland into a modern, industrial society having free contact with the rest of the world. This process has not yet been completed; Greenland is not yet self-supporting, but the Danish aim is Greenland's economic independence.

The former economic policy, which had required a profit in KGH's production and export of Greenlandic hunting and fishing goods to support local expenditures in education, health, church, etc., was discontinued under the new reforms (nyordning). It was recognized that new capital would be needed from Denmark. While fisheries production and fur export would still have to operate profitably (or at least without State subsidy), they would be freed from the responsibility of supporting the vast range of expenditures in Greenland.

The infusion of capital from Denmark was used to improve and develop facilities in all spheres of Greenlandic life. These improvements under the reforms of 1950 have been summarized statistically (Anon. 1960s) and described by numerous authors (for example: BARFOD, 1958a & b; BRUN, 1958a & b; FYNBO, 1966; KOCH, 1950; LUNDSTEEN, 1961; and MARSCHALL, 1966b). Most of the improvements, outlined below, touched the country's basic infrastructure—health services, housing, education and training, transportation and communications (roads, harbors, air transport, local shipping, ice reconnaissance, telephone and telegraph, and postal services), water and electric power supply, boat repair yards, workshops, sewage systems, fish plants, fuel depots, warehouses, and shops. Administrative changes included revision of the existing legal system, and more local self-government. Through a constitutional change in 1953 (Grundlovsændring af 1953), Greenland officially lost its colonial status and was made an integral part of the Danish realm. Greenland thus became a type of amt (county) of Denmark. Since 1953 the Greenlanders have elected two Members of Parliament to the Danish Folketing.

[1]) The 1948 Commission's recommendations were in general put into effect by Acts of Parliament which provided the necessary funds in the State budget, whereas the 5-year and 10-year plans resulting from G-60 were, in fact, actual authority for the expenditure of money.

The technical advice and labor necessary for these basic improvements of physical facilities in Greenland, which are still being carried out today, relied mainly on people sent up from Denmark. In the early 1950s there were few Greenlanders trained in the skills needed by this massive project. It was also thought best to bring in trained Danish workers rather than to take the Greenlanders away from primary production in fishing and hunting.[1])

In its initial investment program, the 1948 Commission planned expenditures of about 100 million kroner. Between 1950 and 1964, however, the State's actual investment in Greenland totalled 822 mill. kr. (about $121 million), or about 55 mill. kr. annually (Anon. 1964i, p. 13). The average annual investment by the State increased from 24 mill. kr. in the period 1950–53 to 136 mill. kr. in 1964 (Anon. 1964i, p. 13), as shown in Table 35. That table also indicates the amount of investment in several general categories: the work of the Ministry for Greenland (hospitals, schools, radio, technical plant, and housing); KGH (factories, salt houses, shops, fuel tanks, and transport); and loans (houses, fishing vessels, and gear).[2])

Table 35 shows the apportionment of investment until 1964: 28 per cent (235 mill. kr.) of the total investment went for construction of technical facilities (harbors, electricity and water works, repair shops, roads, etc.) to relieve this pressing need. All of the larger towns of West Greenland were supplied with electricity by 1964, and all had a suitable water supply. Hospital and school construction used 12 per cent (100 mill. kr.) of the total investment.

Housing was improved through loans to native Greenlanders of 105 mill. kr. (13 per cent of the total invested capital). An equal amount of investment was required to build housing for the Danes sent to Greenland (the so-called udsendt, or "sent out", in Danish) to carry out the entire program of modernization (110 mill. kr., or 13 per cent). Housing in general, therefore, accounted for about 26 per cent of the total capital investment during the period 1950–64.

Investment of about 27 per cent of the total went for KGH's activity: factories, salt houses, shops, fuel depots, housing, transport, etc.

The investment for development under the new reforms (nyordning) beginning in 1950 recognized that the fishing industry would be the basis

[1]) The social and psychological problems resulting from this policy have been serious, but lie outside the scope of this study. Since 1955 a research group has investigated some of these problems (see under Udvalget . . . in bibliography).

[2]) Because of the changing value of a krone, both officially and unofficially, it is difficult to compare directly the investments of any given year with, for example, 1950. Official krone devaluations have occurred, but it has not been feasible to adjust statistics to a uniform base.

Table 35. *Gross investments by the Danish State in Greenland, 1950–64 (in mill. kr.).*

	1950–1953	1954–1957	1958–1961	1962	1963	1964	Total
I. Ministry for Grld.							
Hospitals	9	21	13	3	0	1	47
Schools & radio	3	14	14	6	6	8	51
Plant (harbors, roads, elect. & water works)	26	36	61	29	41	42	235
Housing for Danes	14	9	27	10	11	15	86
Other	3	8	12	17	3	3	46
Sub-total	55	88	127	65	61	69	465
II. KGH							
Factories	4	1	15	10	11	10	51
Salt Houses	1	4	4	1	1	0	11
Shops, tank install.	8	8	13	12	5	8	54
Transport	8	8	17	2	9	17	61
Housing for Danes	4	5	4	3	4	3	23
Other	3	2	3	1	3	6	18
Sub-total	28	28	56	29	33	44	218
III. Loans							
Housing	7	27	33	10	12	15	104
Equipment							
Fishing vessels	3	3	7	5	4*	7*	29
Other	1	1	2	0	1*	1*	6
Sub-total	11	31	42	15	17	23	139
Total	94	141	225				822
Ave. per year	24	37	56	109	111	136	55

* Estimated years 1963 and 1964, budgeted amounts.

Source: Anon. 1964i, p. 13.

of the future economic life of Greenland. Other than a series of rich prawn trawling grounds in Disko Bugt, the most favorable area for the modernized fishing industry to develop was along the southwest coast from Julianehåb to Egedesminde, more particularly in the central portion of that stretch of coast (Frederikshåb to Holsteinsborg) where ice hindrances were less. It was obvious that modern development would not be possible at all the numerous small inhabited places. A policy of population concentration at the larger places, especially on the central, southwest coast, was seen necessary. This policy and the general features of Greenlandic population growth will be discussed in a subsequent section.

The first large and modern fish plants constructed under the new plan were at Christianshåb (prawns) and Sukkertoppen (cod and wolffish freezing). A diverse plant was also begun at Narssaq in the early 1950s

(sheep products, prawns, and fish). During the fifteen years (1950–64), 62 mill. kr. was invested in new fish processing plants. An additional 29 mill. kr. was invested in loans and grants for new fishing vessels.

By 1959 even more attention began to be placed on modern factories. This resulted in modernization and expansion of the factory capacity for prawns at Christianshåb, as well as construction in 1962 of a freezing factory at nearby Jacobshavn (prawns and hellefisk). In 1959 a fillet freezing plant was built into the already existing factory at Narssaq. A large factory was completed at Godthåb (semi-private ownership) in 1963, and in 1964 a new freezing factory was built at Holsteinsborg using a building constructed in 1958 as a factory, but which had been used only as a salting station because of variable fish landings. At the end of 1966 a factory was nearing completion at Frederikshåb, planned for opening in May 1967.

As of 1966, there were four large plants for fish-freezing in operation in West Greenland: at Narssaq, Godthåb, Sukkertoppen, and Holsteinsborg. The Frederikshåb plant in 1967 would complete the present plan for freezing factories along the coast. The four factories could handle 400 tons of whole fish a day, producing 400,000 pounds of frozen fish.

In addition to the four large freezing plants, Egedesminde had a smaller fillet freezing capacity along with its prawn processing capacity. In Disko Bugt prawns were therefore being processed in large plants at Christianshåb and Jakobshavn, as well as at smaller plants at Egedesminde and Godhavn (on board the old factory ship m/s "Sværdfisken"). Narssaq processed prawns in the southwest. Prawns were also being landed at several smaller private plants at Holsteinsborg and Kangâmiut.

The large capital investment in Greenland by Denmark was over and above normal yearly operating expenditures for health and educational services, the legal system, and administration. These yearly expenditures also included subsidies for lowering the cost of goods in the shops (between 6 and 10 mill. kr.), plus other subsidies toward the cost of coal, water, and electricity for the native Greenlanders, about 5 mill. kr. (Anon. 1964i, p. 15). The subsidy in house and apartment rents was, in 1964, 3 mill. kr. Other normal yearly expenditures by the Ministry for Greenland were for the telegraph system, KGH's supply service and production activities, ice reconnaissance, and internal transportation. The State's net operating expenditure in Greenland increased from a yearly average of 28 mill. kr. (1950–53) to 78 mill. kr. (1958–61), and in 1964 stood at 141 mill. kr., or over 4,000 kr. ($580) per inhabitant. Gross capital investment during the same year was 136 mill. kr., as noted above.

Population Changes

Introduction

The small population and its scattered distribution along the coast is a factor of overriding significance in Greenland's economic development. Recent trends toward concentration of the population in a few of the larger settlements must be considered here in detail because the concentration directly affects the operation of the Greenlandic fisheries and fish processing on shore (OLSEN, K., 1963). Other population trends of economic significance are an unusually high annual growth rate and a high proportion of the population under 15 years of age.

As will be seen in a subsequent section (Figure 28 and Table 55), cod production during the period 1950–66 increased markedly, but the output per capita remained about the same because of the high population growth rate.

One of the most important aspects of modern Greenland has been a steadily declining death rate as health and housing improvements under the nyordning began to have their effect. At the same time the birth rate has been increasing, resulting in an excess of births over deaths. The consequent population growth rate is now of great concern to economic planners in Greenland. The birth rate, among women in the age group 15–49 years, rose by about 30 per cent during the period 1951–52 to 1961 (Anon. 1964i, p. 20).

Not only has the Greenlandic population been characterized by a high annual growth rate (reaching up to 4 per cent in some years), the pattern of population distribution during the past 20 years has shown a marked trend toward concentration in the larger inhabited places. Most of the net population growth, therefore, has occurred in the larger towns, while many of the smaller villages have either been abandoned altogether or have suffered population declines through migration. The total number of inhabited places has decreased in recent years, although there has been some increase in one- or two-family sheep farming locations in the three southwestern districts of Nanortalik, Julianehåb, and Narssaq.

Population growth and concentration

Tables 40a to 48a (in Appendix pp. 76–91), which have been compiled by the author, form the basis for other tables which illustrate the development of population in each district of West Greenland until 1966. Listed under each district is the name of each place inhabited by native Greenlanders during the period 1901 to 1966 in rough geographic order from south to north.[1])

[1]) Native Greenlanders are defined in the statistics before 1953 as "native-born Greenlander" (indfødte); for 1953 and subsequent years this is defined as "persons born in Greenland", which therefore includes children born of Danish parents in Greenland and excludes children born of Greenlandic parents in Denmark or elsewhere.

Table 36, compiled from the above-mentioned tables, lists by district the number of places which have been inhabited in West Greenland during the period 1901–1966. In all, 324 places were found to have been inhabited. Of these, 19 could not be located, although the correct district for all but one of them was determined. In 1901, 183 inhabited places were found

Table 36. *Inhabited places of West Greenland 1901–1966 (native Greenlanders).**

District	Total Inhab. Places 1901–1966	Of Which Unknown locat.	Mines	Other**	Inhabited places 1901	1966
Nanortalik	55	7	1	2	28	19
Julianehåb	27	2	1	–	8	16
Narssaq	23	2	–	1	7	16
Ivigtut	1	–	1	–	1	1
Frederikshåb	15	2	–	–	11	5
Godthåb	26	–	–	2	16	8a)
Sukkertoppen	15	–	–	1	9	4
Holsteinsborg	15	1	–	–	8	5
Kangâtsiaq	19	–	–	–	12	10
Egedesminde	11	1	–	–	10	4
Christianshåb	6	–	–	–	5	3
Jakobshavn	13	–	–	–	9	4b)
Vaigat	11	–	1	–	8	1c)
Godhavn	12	–	–	–	8	4d)
Umanak	33	1	3	–	22	9
Upernavik	41	2	–	–	21	13e)
District unknown	1	1	–	–	–	–
Total	324	19	7	6	183	122

* Native Greenlanders ("indfødte") pre-1953; persons born in Greenland post-1953.

** Weather, loran, or foreign fishing station.

a) Ny Herrnhut counted separately in 1901, but part of Godthåb town in 1966.
b) Igdlumiut and Pitorqeq counted separately in 1901, but both are now part of the town of Jakobshavn.
c) Excluding Sarqaq and Qeqertaq which were transferred on 29 March 1963 from Vaigat to Jakobshavn kommune.
d) Upernivik counted as part of Godhavn town after 1912.
e) Nutârmiut counted in Ikerasârssuk's total in 1966, but separately in 1901.

The district breakdown used above is for 1966 and not 1901. The three districts of Nanortalik, Julianehåb and Narssaq were all part of a larger Julianehåb koloni (district) in 1901. Similarly, Kangâtsiaq district was part of Egedesminde koloni in 1901. Ritenbenk, with a part of present-day Jakobshavn and Vaigat districts, was a separate koloni in 1901. The remaining minor difference in district make-up in 1966 is that noted in c above concerning Sarqaq and Qeqertaq.

Table 37. *Population of West Greenland and number of inhabited places in 1960 by type of inhabited place, persons born in Greenland.**

District	Inhabitants				Number of Places			
	Bo-plads	Ud-sted	By	Total	Bo-plads**	Ud-sted	By	Total
Nanortalik	339	1251	725	2315	12	5	1	18
Julianehåb	147	512	1521	2180	11	3	1	15
Narssaq	234	117	934	1285	12	1	1	14
Ivigtut***	–	–	31	31	–	–	1	1
Frederikshåb	222	539	891	1652	3	3	1	7
Godthåb	53	1048	2537	3638	5	5	1	11
Sukkertoppen	98	929	1500	2527	2	3	1	6
Holsteinsborg	113	504	1566	2183	2	3	1	6
Kangâtsiaq	608	432	265	1305	7	3	1	11
Egedesminde	163	492	1655	2310	2	3	1	6
Christianshåb	64	366	500	930	1	2	1	4
Jakobshavn	–	231	1216	1447	–	2	1	3
Vaigat	7	411	1187	1605	1	3	1	5
Godhavn	74	194	532	800	2	2	1	5
Umanak	340	849	774	1963	4	5	1	10
Upernavik	213	814	504	1531	6	6	1	13
Total, West Greenland	2675	8689	16338	27702	70	49	16	135
% of total	10.0	31.4	58.6	100.0	52.0	36.3	11.7	100.0

* English translations for the heading are: boplads = living place (smallest of the three types); udsted = outpost; by = town (district center, and largest of three types of inhabited place).

** Included in boplads are 6 stations (loran, weather, foreign fishing stations) with Greenlandic inhabitants.

*** Ivigtut is a mining center usually excluded from Greenland statistics. It is herein considered a by, but it has always had only a few Greenlandic inhabitants.

Source: compiled from statistics in Beretninger vedrørende Grønland 1961 (1): 91–96.

in West Greenland. By 1960 the number of inhabited places had declined to 135 and to 122 by 1966, or a decline of about one third since 1901. As can be seen in the notes to Table 36, the decline was slightly less than indicated by the table because several smaller villages are no longer counted separately, but are included as parts of nearby larger towns.

In addition to the decline by one third in number of places inhabited in West Greenland during this century, the nature of population development is also illustrated by Tables 37–39, which list the number of places and their population (1901 and 1960) according to three size categories. Up to and including 1962, inhabited places were divided into three main

Table 38. *Number of populated places in West Greenland by type of Settlement, 1901–1960.**

District	Number of places 1901 Boplads	1901 Udsted	1901 By	1901 Total	1960 Boplads	1960 Udsted	1960 By	1960 Total
Nanortalik	22	6	–	28	12	5	1	18
Julianehåb	5	2	1	8	11	3	1	15
Narssaq	5	2	–	7	12	1	1	14
Ivigtut**	–	–	1	1	–	–	1	1
Frederikshåb	6	4	1	11	3	3	1	7
Godthåb	11	4	1	16	5	5	1	11
Sukkertoppen	5	3	1	9	2	3	1	6
Holsteinsborg	4	3	1	8	2	3	1	6
Kangâtsiaq	9	3	–	12	7	3	1	11
Egedesminde	7	2	1	10	2	3	1	6
Christianshåb	1	3	1	5	1	2	1	4
Jakobshavn	5	2	2	9	–	2	1	3
Vaigat	5	3	–	8	1	3	1	5
Godhavn	6	1	1	8	2	2	1	5
Umanak	14	7	1	22	4	5	1	10
Upernavik	15	5	1	21	6	6	1	13
Total, West Greenland	120	50	13	183	70	49	16	135
% of total	65.7	27.3	7.0	100.0	52.0	36.3	11.7	100.0

* According to 1960 district divisions, not 1901 divisions.

boplads = living place
udsted = outpost
by = town (district center)

** Ivigtut is a mining center (cryolite) usually excluded from statistics of Greenland. It is herein considered a by, but it has always had only a few Greenlandic inhabitants.

Sources: compiled from unpublished statistics in Statistikprotokol (for 1901 figures) and Beretninger vedrørende Grønland 1961 (1): 91–96.

size categories in West Greenland: town (by), outpost (udsted), and "living place" (boplads). This useful classification is no longer completely valid, and after 1962 only two main categories have been used: town (by) and settlement (bygd). The "town" is the district center; all other settlements (sheep farms, outposts, weather stations, small hunting villages, or former boplads) are listed as bygd (see Appendix p. 110).

Because of this change in usage after 1962, direct comparison of 1901 with 1966 cannot be made. Tables 37 to 39, therefore, have been used to show the situation in 1960.

Table 39. *Population development in West Greenland 1901–1960 by type of settlement, native Greenlanders (1901) or persons born in Greenland (1960).**

District	1901				1960			
	Bo-plads	Ud-sted	By	Total	Bo-plads	Ud-sted	By	Total
Nanortalik	1055	649	–	1704	339	1251	725	2315
Julianehåb	210	248	313	771	147	512	1521	2180
Narssaq	113	147	–	260	234	117	934	1285
Ivigtut**	–	–	9	9	–	–	31	31
Frederikshåb	297	348	170	815	222	539	891	1652
Godthåb	394	345	201	940	53	1048	2537	3638
Sukkertoppen	206	373	384	963	98	929	1500	2527
Holsteinsborg	140	340	193	673	113	504	1566	2183
Kangâtsiaq	460	196	–	656	608	432	265	1305
Egedesminde	332	194	139	665	163	492	1655	2310
Christianshåb	85	237	109	431	64	366	500	930
Jakobshavn	179	122	346	647	–	231	1216	1447
Vaigat	132	211	–	343	7	411	1187	1605
Godhavn	149	47	98	294	74	194	532	800
Umanak	392	653	179	1224	340	849	774	1963
Upernavik	320	455	132	907	213	814	504	1531
Total, West Greenland	4464	4565	2273	11302	2675	8689	16338	27702
% of total	39.6	40.1	20.3	100.0	10.0	31.4	58.6	100.0

* According to 1960 district divisions, not 1901 divisions.

** Ivigtut is a mining center (cryolite) usually excluded from statistics of Greenland. It is herein considered a *by*, but it has always had only a few Greenlandic inhabitants.

boplads = living place
udsted = outpost
by = town (district center)

Source: compiled from unpublished statistics in Statistikprotokol (for 1901 figures) and Beretninger vedrørende Grønland 1961 (1): 91–96 (for 1960 figures).

In 1901, out of 183 inhabited places, 120 (or two thirds) were of the smallest category (boplads), while 50 (or 27 per cent) were the larger outposts (udsted). By 1960, when the total number of inhabited places had declined to 135, the number of boplads had declined to 70 (or 52 per cent of all places). The number of outposts and towns, however, had remained virtually the same by 1960, but they comprised about 36 and 11 per cent of the total compared with 27 and 7 per cent in 1901.

The population of West Greenland increased from 11,302 in 1901 to 27,702 in 1960. But, as seen in Table 39, the smaller villages (boplads) and outposts (udsted) each had about 40 per cent of the population in

Table 40. *Population growth in West Greenland 1960–1966 by district.**

District	1960	1966	increase	%
Nanortalik	2315	2561	246	10.6
Julianehåb	2180	2459	279	12.8
Narssaq	1285	1686	401	31.2
Ivigtut	31	26	–5	–16.1
Frederikshåb	1652	1928	276	16.7
Godthåb	3638	4892	1254	34.5
Sukkertoppen	2527	3061	534	21.1
Holsteinsborg	2183	2740	557	25.5
Kangâtsiaq	1305	1227	–78	–5.9
Egedesminde	2310	2778	468	20.3
Christianshåb	930	1407	477	51.3
Jakobshavn	1447***	2342**	895	61.9
Vaigat	1605**	1223***	–382	–23.8
Godhavn	800	882	82	10.3
Umanak	1963	2189	226	11.5
Upernavik	1531	1838	307	20.1
W. Greenland	27702	33239	5537	ave. 20.0

* Persons born in Greenland.
** Includes Sarqaq and Qeqertaq.
*** Excludes Sarqaq and Qeqertaq.

1901. By 1960, only 10 per cent of the population lived in the small boplads, and 31 per cent in the outposts. The larger towns, in which only 20 per cent of the population lived in 1901, accounted for almost 60 per cent in 1960.

Between 1960 and 1966, the population of West Greenland increased by about 20 per cent, as shown in Table 40. The largest absolute gains in population occurred in Godthåb and Jakobshavn districts; but relative gains were also high in Narssaq and Christianshåb districts. In all four of the above districts, modern fish factories were built and expanded between 1960 and 1966.

If one considers the current categories of "settlement" and "town" in comparing the trend from 1960 to 1966, the percentage of people living in towns (including East Greenland) increased from 56 to 66 per cent within the seven-year period, whereas the percentage in outposts dropped from 43 to 33 in the same period (Table 41).

As Table 41 illustrates, the trend in the fishing districts (1960–66) was an increase to 74 per cent of persons living in the main towns, while the situation in the hunting districts remained static.

If one now considers the entire period (1901–66), as shown in Tables 42 and 43, it can be seen that the population of West Greenland trebled—

Table 41. *Distribution of population (born in Greenland) by type of settlement (in %).*

	1960	1965	1966
Greenland – Total			
Outposts	43.1	33.8	33.6
Towns	56.9	66.2	66.4
Fishing Districts			
Outposts	37.7	28.8	26.3
Towns	62.3	71.2	73.7
Hunting Districts			
Outposts	64.3	63.1	63.4
Towns	35.7	36.9	36.6

Outposts = Bygd.
Towns = By.
Source: Beretninger vedrørende Grønland 1967 (1): 4.

Table 42. *Population of West Greenland 1901–1966.**

District	1901	1918	1930	1946	1960	1966
Nanortalik	1704	2020	2095	1883	2315	2561
Julianehåb	771	837	1021	1501	2180	2459
Narssaq	260	334	558	823	1285	1686
Ivigtut	9	3	2	22	31	26
Frederikshåb	815	899	1057	1294	1652	1928
Godthåb	940	1192	1401	1948	3638	4892
Sukkertoppen	963	1158	1483	1773	2527	3061
Holsteinsborg	673	768	985	1573	2183	2740
Kangâtsiaq	656	768	923	1089	1305	1227
Egedesminde	665	821	829	1328	2310	2778
Christianshåb	431	510	633	669	930	1407
Jakobshavn	647	772	849	985	1447	2342
Vaigat	343	438	586	1370	1605	1223
Godhavn	294	330	428	552	800	882
Umanak	1224	1519	1456	1466	1963	2189
Upernavik	907	1102	1230	1437	1531	1838
Total	11302	13471	15536	19713	27702	33239

* Native Greenlanders. Until the Constitutional change in 1953, population statistics from Greenland included two categories: people believed to be Greenlanders, and "Europeans". After 1953, the two categories were defined as "persons born in Greenland" and "persons born outside Greenland".

with the largest relative gains occurring in Narssaq, Godthåb, Egedesminde, and Holsteinsborg districts.

The growth in size of individual settlements for West Greenland as a whole, and for settlements in the hunting, sheep-farming, and open-water

Table 43. *Population growth in West Greenland (native Greenlanders)* 1901–1966.*

District	A Pop. 1901	B Pop. 1966	C Increase	D % Growth (C/A)
Nanortalik	1704	2561	857	50.3
Julianehåb	771	2459	1688	218.9
Narssaq	260	1686	1426	548.5
Ivigtut	9	26	17	188.9
Frederikshåb	815	1928	1113	136.6
Godthåb	940	4892	3952	420.4
Sukkertoppen	963	3061	2098	217.9
Holsteinsborg	673	2740	2067	307.1
Kangâtsiaq	656	1227	571	87.0
Egedesminde	665	2778	2113	317.7
Christianshåb	431	1407	976	226.5
Jakobshavn	647***	2342**	1695	262.0
Vaigat	343**	1223***	880	256.6
Godhavn	294	882	588	200.0
Umanak	1224	2189	965	78.8
Upernavik	907	1838	931	102.6
W. Greenland	11302	33239	21937	194.1

* Native Greenlanders ("indfødte") for 1901; persons born in Greenland for 1966.

** Includes Sarqaq and Qeqertaq.

*** Excludes Sarqaq and Qeqertaq.

(fishing) districts, is summarized in Tables 49a to 52a (in Appendix pp. 92–3). In 1966, 38 places (or one third of the total) had between 100 and 500 inhabitants; and 16 places had 500 inhabitants or more (Table 49a).

The size of inhabited places in the hunting districts of West Greenland shows the effects of abandonment and migration to larger settlements. In 1966, only seven places in the hunting districts had under 50 inhabitants, whereas 55 places were in this size category in 1901. Not until after 1930 did any place in the hunting area reach a population of 500, but in 1966 there were seven such settlements.

The sheep-farming areas of southwest Greenland have not followed the trend toward a decrease in number of inhabited places as sheep farming receives more attention and people move to set up farming in the suitable locations. The number of places in the sheep-farming area increased from 31 in 1930 to 51 in 1966. Thirty-five of those places in 1966 had a population of less than 25 persons (Table 51a).

There are now under one half the number of inhabited places in the fishing districts compared with the early 1900s. The size of the remaining

settlements has increased through growth to such an extent that only 7 (out of 22) places in 1966 had less than 100 inhabitants compared with 33 (out of 44) in 1910 (Table 52a).[1])

Growth rate

The trends in birth and death rates (Table 53a) have resulted in a rate of birth surplus of close to 40 per 1,000 in recent years. It should be pointed out that the birth rate in Greenland declined somewhat in the three years since 1964, and that the birth surplus, which stood at over 40 per 1,000 in the early 1960s, declined to about 35 per 1,000 in 1965–66.

When considering the birth surplus together with emigration, the annual population growth rate of Greenland seems to have reached a peak of 4 per cent in 1960, and it exceeded 3.5 per cent during only one year (1964) thereafter. Despite the slight decline since 1960, the birth surplus is still high, and only during years of high emigration to Denmark (like 1965) does the population growth rate decline to a reasonable level (Table 54a).

Why Did the Population Concentrate?

Official policy, expressed in the 1948 Commission's report, was to foster greater population concentration in Greenland—a development which did, in fact, take place, as shown above. The reasons *why* this concentration took place are not entirely obvious, since there were no compulsory moves other than the unfortunate migration from Upernavik district between 1953 and 1956 (see LUNDSTEEN, 1954a), and minor moves during the war and in 1951 (from Nûk, Nanortalik district). In general, the main reason why population concentration took place in Greenland was that the Greenlanders themselves agreed with this policy. The 1948 Commission's recommendations were approved by the Landsråd in its 1950 session,[2]) although certain misgivings about this were expressed at the 1952 and 1953 meetings.

Even before the reforms of the 1948 Commission were enacted, population concentration was a trend in Greenland, as commented upon

[1]) A complete picture of population concentration in Greenland cannot yet be given, because only recently has an effort been made to gather the essential data. Before 1963, only *net* population changes in Greenland could be determined from the statistics. From 1 January 1963 a "folk register" was introduced which will begin to yield information not previously available on the progress of centralization. This register will record not only moves from district to district, but also intra-district moves of people. It should make it possible to follow in detail the movement of individuals throughout the area (see *At/Grpstn.* 103 (1): 3 Jan. 1963 and further notes in Appendix p. 111–13).

[2]) De grønlandske Landsråds Forhandlinger 1950, p. 64.

by the chairman of the Landsråd, Governor (Landshøvding) P. LUNDSTEEN at the 1950 meeting:

> As you all know, a change in the economic base of the Greenlandic society has occurred in recent decades, and this is one of the most important factors to keep in mind when one is choosing the best ways of aiding the Greenlandic people. Already now there is a tendency among the Greenlandic people to leave the small places for the larger colonies and a trend to leave those districts where economic possibilities are declining, and I would point out especially that this tendency has developed without stimulation of either the Greenlandic or Danish authorities. (Landsrådsforh. 1950, p. 46) author's transl.

The 1952 Landsråd recommended forming a committee to look into questions of population concentration (Landsrådsforh. 1952, p. 91). This committee was approved in 1953,[1]) began work in 1954, and presented its report in 1957 (Anon. 1957e). It recommended to the Landsråd ways in which the concentration of population could be implemented. Thus the Greenlanders' own council was actively involved in the whole matter of population concentration, eventually recommending closing a place, continuing its existence, or suggesting that it had potential for expansion.

After 1950 population concentration in Greenland was fostered by a policy of encouragement by local authorities, who showed the need for such moves and made conditions attractive at the larger places.

The Landsråd was instrumental in population concentration through its ability to grant loans and economic support for people willing to move. It was also able to deny loans for housing improvement in the less suitable smaller places (the so-called boligstøttebekendtgørelsen, or "housing-support regulation" of 29 June 1953).

Although no compulsion was to be involved in moves from smaller places, the Danish authorities made it clear that investment could not be made at those places considered to have poor future potential, even though some of the people might choose to remain at those places (Landsrådsforh. 1953, p. 42).

The policy of public support of moving expenses was well established before 1950. Eleven of the twenty-six places closed between 1901 and 1949 resulted from recommendations of local Greenlandic authorities, and in some cases money was paid out to those families affected because they had not chosen to move voluntarily.[2])

[1]) Beretn. vedr. Grønl. 1953 (2): 57, 127–8.
[2]) Befolkningstilvæksten i Vestgrønland. 1963, p. 22.

The Landsråd in 1953 adopted financial incentives for those wishing to move (500 kroner and 1,000 kroner for moves within and to another district), loans for new home construction and furniture, plus loans for purchasing hunting and fishing gear, and all costs of the move itself.[1])

As improvements were made at some of the larger places (new schools, larger stores, churches, better health care, etc.), people naturally wanted to take advantage of these amenities, so that many left the more unsuitable, smaller places.

As the authorities learned more about the varying conditions along the west coast and the Population Committee of 1953 looked into each place's attributes, it became clear that a uniform policy of population concentration was not flexible enough for the diverse conditions between Upernavik and Kap Farvel. It was noted that seals were increasing in the two northernmost districts of Umanak and Upernavik and that a dispersed pattern of settlement was still demanded there.

Among other factors fostering population concentration in Greenland is the Royal Greenland Trade Department itself. KGH has certainly had its influence through moving shops (butikker), fish-salting houses, and deleting certain products from the trade lists of products which the monopoly purchased from the Greenlanders. The uniform price policy was changed in 1958 when differentiation was introduced stipulating higher prices to be paid for the Greenlanders' products at the larger places. Such a price policy surely played its part in creating a desire, on behalf of some of the population at least, to move into the larger settlements.

Thus there were some quite direct factors causing population concentration in Greenland. On the other hand, it must be kept in mind that population concentration in Greenland was contemporaneous with similar trends in North America and Europe. Events in Greenland were therefore in keeping with the desire of people (especially young people) in other parts of the world to partake of the amenities of life in larger population centers.

Greenland certainly offers promise for future research in population dynamics. A high annual population growth rate and a population concentrating in larger places are two features which characterize Greenland, features which demand additional research. The lessons learned from the relatively small population of Greenland might possibly have wider application in other areas of the world where similar phenomena are occurring.

[1]) Landsrådsforhandlinger 1953, p. 96; Landsrådsforhandlinger 1954, p. 81 ff.

Population 1966

The total population of Greenland in 1966 (Table 44) was 42,102. Of this total, 5,722 persons were born outside Greenland (Danes for the most part). Of the remaining 36,380 persons (who were Greenlanders, or persons born in Greenland), 33,239, or over 90 per cent, lived in West Greenland. Out of the total 36,380, 560 persons lived in North Greenland (Thule district) and 2,581 in East Greenland (2,149 in Angmagssalik district and 432 in Scoresbysund district). Of the total native-born population of West Greenland (33,239), 23,000 lived in the main town of each district, and over 10,000 lived in other, smaller settlements (see Table 56a).

Table 44. *Population of Greenland 1966 (all persons) by status.*

District	Born in Grld.	Born outside	Total
Nanortalik	2,561	246	2,807
Julianehåb	2,459	422	2,881
Narssaq	1,686	318	2,004
Ivigtut	26	48	74
Frederikshåb	1,928	283	2,211
Godthåb	4,892	1,595	6,487
Sukkertoppen	3,061	315	3,376
Holsteinsborg	2,740	937	3,677
Kangâtsiaq	1,227	8	1,235
Egedesminde	2,778	328	3,106
Christianshåb	1,407	194	1,601
Jakobshavn	2,342	207	2,549
Vaigat	1,223	102	1,325
Godhavn	882	111	993
Umanak	2,189	100	2,289
Upernavik	1,838	82	1,920
Total West Greenland	33,239	5,296	38,535
North Greenland	560	117	677
Angmagssalik	2,149	213	2,362
Scoresbysund	432	96	528
Total East Greenland	2,581	309	2,890
Total Greenland	36,380	5,722	42,102

Source: Beretninger vedrørende Grønland 1967 (1): 7.

One of the striking features of population growth in Greenland is the recent influx of large numbers of Danes. Table 57a shows that the total of persons born outside Greenland doubled between 1960 and 1966, from 2,762 to 5,722 (of which, 5,296 in West Greenland). Of the 5,722

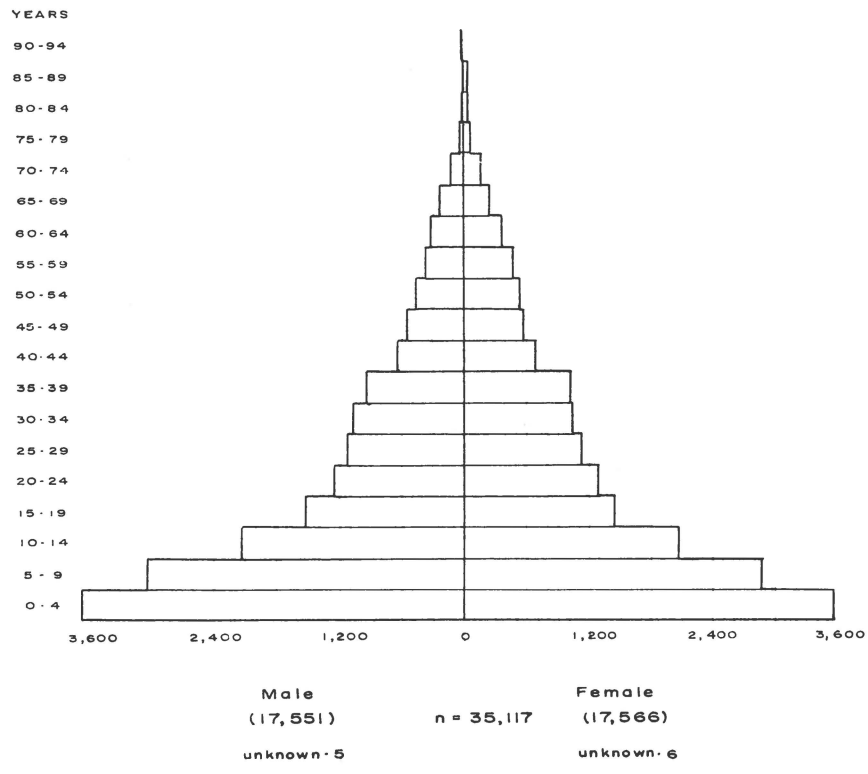


Fig. 19. Population Profile of Native Greenlanders (31 Dec. 1965).

persons, 960 lived at "stations" (loran, weather, air bases, mines, etc.) as shown in Table 58a. The remainder represents a large increase of technicians, teachers, engineers, and others within the settlements involved in construction and modernization projects and production activities, as well as private traders and persons involved in tertiary services.

According to the census figures which cover the period from 1840, few Danes lived in Greenland until after World War II, usually less than three per cent of the total population (Table 59a). Since 1950, when Danes comprised 4.5 per cent of the total population, the proportion increased steadily to 14 per cent in 1966–67 (Table 60a).

The annual increase in numbers of Danes in Greenland fluctuated up to about 20 per cent in the early 1950s as the activity of the new reforms began. Between 1957 and 1962, the growth rate declined markedly, only to increase in the early 1960s (Table 60a).

In 1966, exactly one half of the native-born population of Greenland was male, one half female. Just under one half (49.5 per cent) were persons under 15 years of age (Table 45). Figure 19 shows the population profile of the native-born population of Greenland on 31 December 1965. This

Table 45. *Greenland: Composition of the population* (%).

31 Dec. 1966	Born in Greenland	Born Outside	Total Pop.
Men	50.0	65.4	52.1
Women	50.0	34.6	47.9
Persons over 15 yrs.	50.3	80.4	54.4
Persons under 15 yrs.	49.7	19.6	45.6
Persons over 15 yrs.:			
Married	52.6	51.0	52.3
Formerly married	7.9	7.0	7.7
Unmarried	39.5	42.0	40.0

Source: Beretninger vedrørende Grønland 1967 (1): 5.

profile is characteristic of populations with a high growth rate, low median age, and a life expectancy less than that in Western Europe and North America.[1])

Household size

The average number of persons per household in Greenland increased from 4.8 in 1951 to 5.1 in 1965. This increase followed a general decrease since the beginning of the century, when the average size of the household was 7.9 (Table 46). Table 11 in Chapter II lists the pre-1900 household size.

Table 46. *Number of persons per household in Greenland, 1901–1965, by birthplace of head of household.*

Year	Greenlandic Head of House	All Households
ca. 1900	–	7.9*
1945	–	5.9*
1951	–	4.8
1955	5.5	4.9
1960	5.7	5.2
1965	5.6	5.1

* West Greenland only.

Source: Beretninger vedrørende Grønland 1967 (1): 20.

At the same time, the size of house and apartment types increased to 1966, so that it can be shown that space conditions were better in 1965 than in 1955. For persons born in Greenland, there were 3.2 persons

[1]) Figure 19 of the population profile of native-born Greenlanders in 1965 was constructed from data in Danmarks Statistik, *Statistisk Tabelværk*, 1969, p. 46.

per room in 1955 compared with 2.6 in 1965 (excluding rooms not used for sleeping).

As disclosed in the census of 31 December 1965, the average number of inhabitants per house was highest in houses in the settlements (bygder) occupied by persons born in Greenland (5.8 people per habitation). People born in Greenland living in the main towns (byer) had an average of 5.4 people per habitation. When the head of the house was born outside Greenland (Danish), the average number of persons in such households was 3.0 in towns and 3.1 in settlements, the latter figure comparing exactly with the national average in Denmark. Any comparison between Greenlandic and Danish households is skewed because of the larger number of children in Greenlandic families. The number of children per household under 15 years of age was 2.7 (Greenlandic), 1.3 (Danish families in Greenland), and 0.8 in Denmark as a whole, according to the 1965 census.

Table 61a indicates that the average number of occupants per habitation in 1965 was highest in the hunting districts (except Thule) and lowest in the sheep-farming districts. At the same time, there were more occupants per household in the settlements than in the towns, with exceptions in a few of the districts (Table 62a).

Nutrition

As European influence in Greenland increased and the living standard improved following the reforms of 1950, imported foods supplied an increasing proportion of the caloric intake compared with local food supplies. In a study by Danish scientists during the years 1952–53, it was shown that over one half of the daily calorie intake in Greenland was from imported foodstuffs (Table 47). In the three sample areas studied, imported foods formed between 75 and 83 per cent of the calorie intake in towns, but only 46 per cent in the outposts. Of the Greenlandic non-vegetable foods consumed, fish accounted for about three times the daily

Table 47. *Distribution of calorie intake in sample areas of West Greenland (imported vs. domestic foodstuffs) in 1953 (in per cent), average of all families.*

Place	Imported food	Greenlandic food
Jakobshavn, town	75	25
Julianehåb, town	83	17
Jakobshavn, district	46	54

Source: Anon. 1955d. Beret. vedr. Grønl. 1955 (3-II): 29.

Table 48. *Consumption of meat, fish, and innards (Greenlandic) in West Greenland, 1953 (in grams per person per day).*

Place	Meat	Meat innards	Fish	Fish innards
Jakobshavn, town.....	77	5	192	0*
Julianehåb, town	14	0.3	179	17
Jakobshavn, district....	304	20	646	283
All families.....	123	8	317	88

* Innards of hellefisk discarded.
Source: Anon. 1955d. Beret. vedr. Grønl. 1955 (3-I): 70.

intake per person than did meat (Table 48). In an average of all families, meat and innards provided a daily consumption of 131 grams per person, while fish and fish innards were consumed at the rate of 405 grams per person. Daily intake of both meat and fish (non-imported) was overwhelmingly higher in the outposts and smaller settlements than in the main towns.

It is not surprising that fish and fish products overshadowed meat in meeting the nutritional needs in West Greenland after the fishing industry grew up, although domestic Greenlandic foods have decreased steadily in importance compared with imported European foods in recent years. Table 63a lists the important food fishes for the Greenlanders, and gives the nutritional value in calories per 100 grams for most of the species. A re-emphasis on Greenlandic food sources was made in the mid-1960s when KGH encouraged more freezing and distribution of seal meat, birds, and other meats, especially from Umanak and Upernavik districts. Small local freezing barracks have been constructed to take care of the surplus from the hunt. New coastal vessels with freezing storage holds and frozen-food facilities in KGH's shops in the larger towns have also made this project a success.

Production

Production increase

The increase in value of production since 1950 is one of the best indicators of improvement in conditions in Greenland under the new reforms. During the 15-year period (beginning with the financial year 1951–52), a seven-fold increase in landed value of production took place.[1]) As seen in Table 49, the landed value of all Greenland products rose from 3 million (1951–52) to 24 million kroner (1966).

[1]) The landed value of products is the amount paid to Greenlandic fishermen, hunters, and sheep-farmers upon sale of their products (raw fish, prawns, seal skins, lambs, wool, etc.) to the Royal Greenland Trade Department.

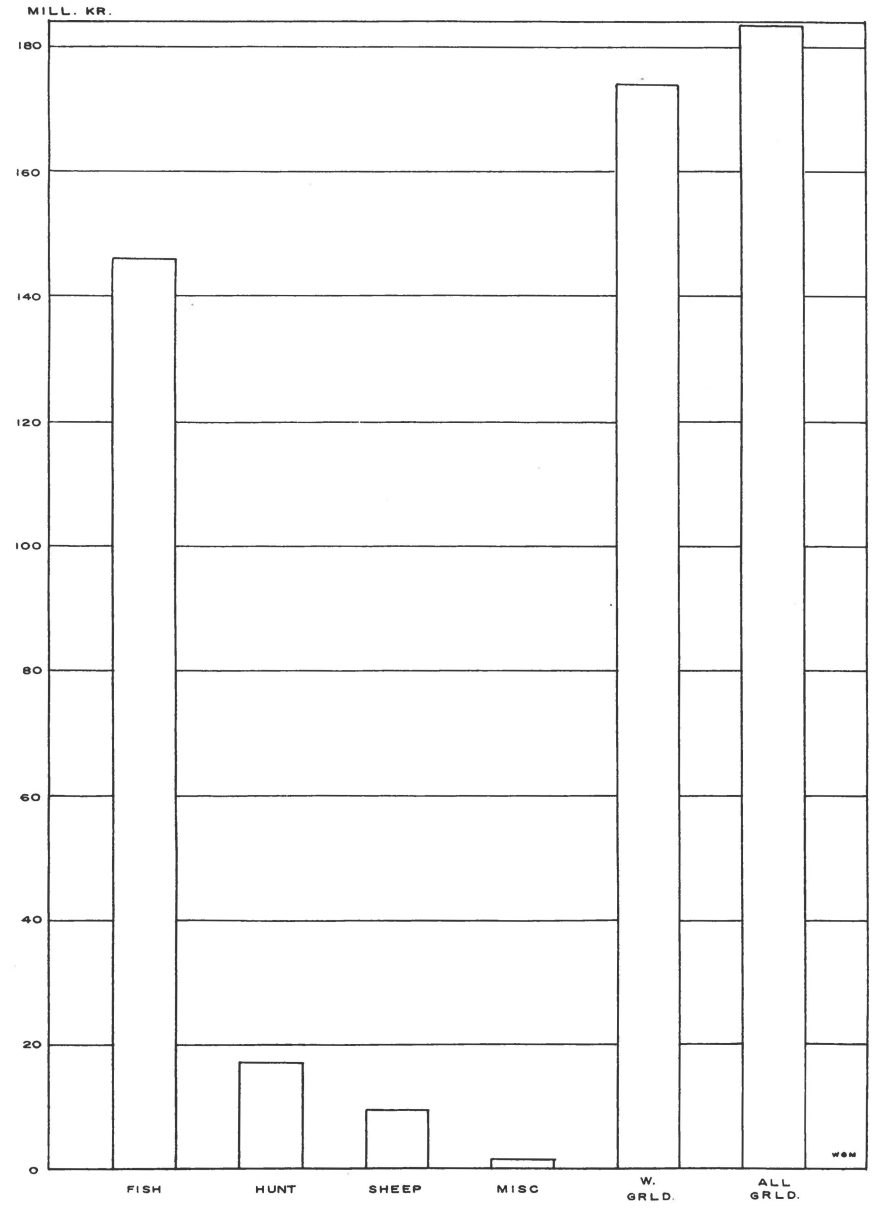


Fig. 20. Total landed value of fishing, hunting, and sheep-farming products, 1951–66.

The total landed value of products during this period was 184,921,500 kroner, of which 174,000,400 kroner (or about 94 per cent) was accounted for by West Greenland. Of the landed value of production in West Greenland (1951–52 to 1966), 146,042,000 kroner (or about 84 per cent) were fish and prawns. The remaining landed value was for hunting and sheep-

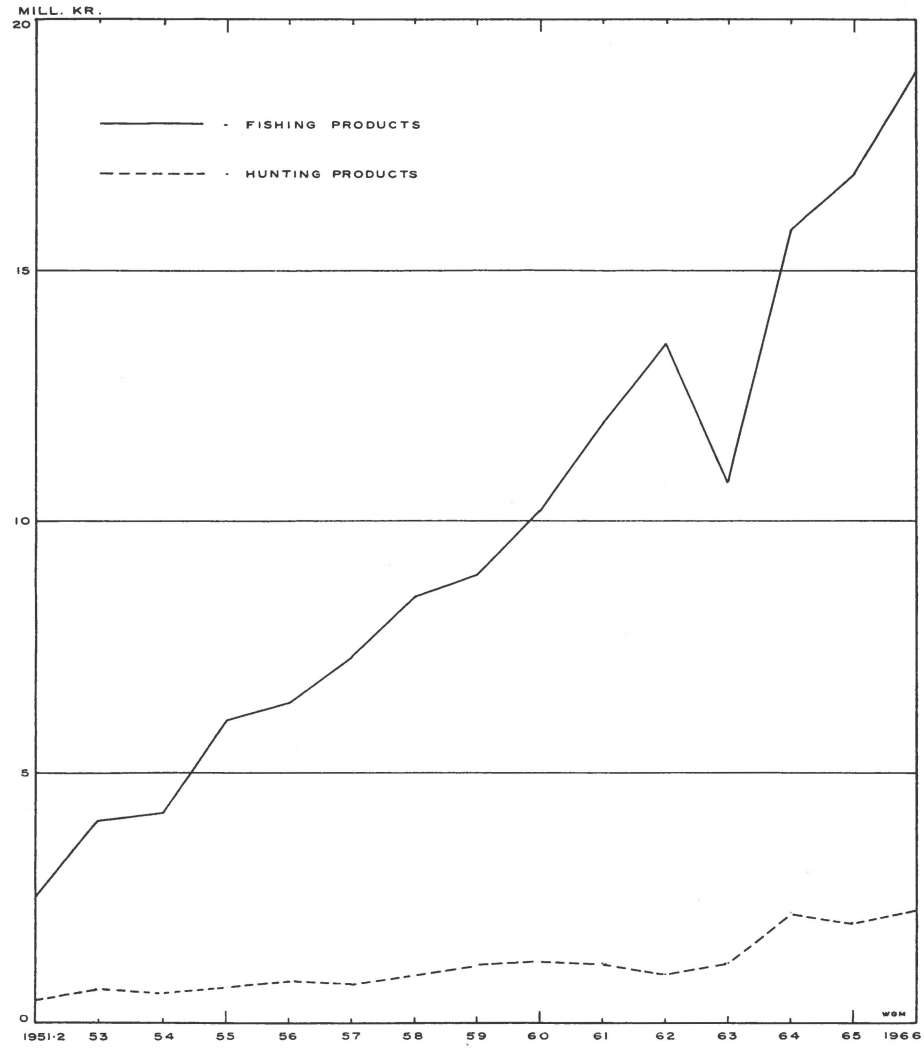


Fig. 21. Landed value of fishing and hunting products in West Greenland, 1951/52–1966.

farming products. Figures 20 and 21 illustrate this overwhelming difference of importance between fish products and others in Greenland.

The landed value of fish production in West Greenland increased steadily from 1951 (over 2 mill. kr.) to 1966 (almost 19 mill. kr.), with the exception of a particularly poor fishing year in 1963, which proved to be only a temporary reversal in the general upward trend of landed fish values (Fig. 21).

During most years, fish accounted for over 80 per cent of the landed value of all production in Greenland. In the years 1964 to 1966, the impor-

Table 49. *Landed value of fishing, hunting and sheep farming products in West Greenland 1951–1966 (in thous. kr.).*

Year	Fishing	Hunting	Sheep	Misc.	West Grld. Total	Grld. TOTAL
1951–2 *	2,359.8	486.5	152.5	24.8	3,023.6	3,209.0
1953....	4,010.7	653.3	349.5	106.3	5,119.8	5,368.0
1954....	4,227.6	585.2	305.0	120.8	5,238.6	5,527.8
1955....	6,055.6	681.5	287.6	93.5	7,118.2	7,428.8
1956....	6,317.0	768.6	502.5	96.1	7,684.2	8,058.2
1957....	7,383.5	715.3	341.8	84.7	8,525.3	9,066.8
1958....	8,503.8	959.1	374.8	97.0	9,934.7	10,705.3
1959....	8,926.4	1,091.0	420.7	128.8	10,566.9	11,292.0
1960....	10,208	1,253	776	120	12,357	13,296
1961....	11,992	1,160	818	56	14,026	14,981
1962....	13,545	919	839	142	15,445	16,326
1963....	10,772	1,108	750	123	12,753	13,751
1964....	15,772.5	2,177.0	1,160.4	52.6	19,162.5	20,536.2
1965....	16,988.3	2,056.1	1,009.4	110.7	20,164.5	21,279.0
1966....	18,979.8	2,199.3	1,591.7	110.3	22,881.1	24,096.4
Total...	146,042.0	16,812.9	9,678.9	1,466.6	174,000.4	184,921.5

* 1 April–31 March.

Source: compiled from statistics published in Beretninger vedrørende Grønland and (for 1965 and 1966) from unpublished material provided by KGH.

tance of fish varied between 80 and 85 per cent of the total landed value of products in West Greenland. Thus the situation had changed little in these last years under consideration—the figure for the entire period was 84 per cent.

Fishing, hunting, and sheep-farming

Table 49, which shows the general breakdown of types of production by landed value, is further elaborated in Table 50 for the years 1955, 1960, 1965, and 1966. The landed values of various types of fish (to be discussed later) increased, with particular rise to a position of importance of salmon, which had only begun to be landed in 1960. Sealskin production increased markedly in value, led by favorable prices in the fur auctions. Fox skins, on the other hand, declined in importance, as did seal blubber, which was not landed after 1962. The value of sheep-farming products increased steadily until the end of the period under consideration.

Although hunting accounted for only about nine per cent of the total landed value of all products in West Greenland between 1951–52 and 1966, the two northern districts of West Greenland (Umanak and Upernavik) and North and East Greenland were still important hunting

Table 50. *Landed value of Greenlandic products 1955–1966 in West Greenland (in thous. kr.).**

Product	1955	1960	1965**	1966**
Cod	4,202.0	6,495	6,322.3	8,155.8
Hellefisk	223.6	564	856.3	821.5
Wolffish	28.4***	–	863.9	673.4
Salmon	–	–	2,815.3	2,953.7
Prawns	562.9	1,459	5,513.9	5,542.3
Lumpsucker roe	4.0	58	336.2	589.9
Shark & cod liver	226.3	402	–	–
Other fish	808.4	1,230+	280.4	243.2
Total fish products	6,055.6	10,208	16,988.3	18,979.8
Seal skin	190.2	710	1,886.7	2,063.4
Fox skin	132.0	182	97.0	63.9
Polar bear skin	0.2	–	–	–
Blubber	359.1	361	–	–
Sheep farming prod.	287.6	776	1,009.4	1,591.7
Miscellaneous	93.5	120	183.1++	182.3+++
Total	7,118.2	12,357	20,164.5	22,881.1

*) Landed value is price paid by KGH to Greenlandic fishermen, hunters, and sheep farmers.

**) Including bonus on salmon and profit share (udbyttedeling) on seal and fox skins, but not other profit shares on fish products.

*** Shark and wolffish skins.

+ Incl. 96,000 kr. shark skins.

++ Incl. feathers & eider down (39,000 kr.); seal meat, blubber and narwhal tusks (21,300 kr.); reindeer and walrus skin (12,000 kr.).

+++ Incl. feathers & down (42,700 kr.); seal meat, blubber & narwhal tusks (16,000 kr.); reindeer and walrus skin (16,000 kr.).

Sources: Beretn. vedr. Grønl. 1956 (9): 23; 1962 (6): 23; and 1967 (6): 14–15; in addition to unpublished data (1966) from KGH archives.

areas. Figure 22 shows a comparison of seal hunting results for the years 1903–04 and 1963–64. All districts of West Greenland suffered absolute declines in the number of seals taken between 1903–04 and 1963–64, except Godhavn and Upernavik. Because of population growth, however, the per capita seal catch declined even in these two districts (from 20.8 to 15.6 per capita in Upernavik district).

Incomes

Despite the increase in production for export, the greatest relative increase came in the population's income from occupations other than export production, and in 1964 wages from these occupations comprised one half of all incomes. Table 51 shows the distribution of incomes in

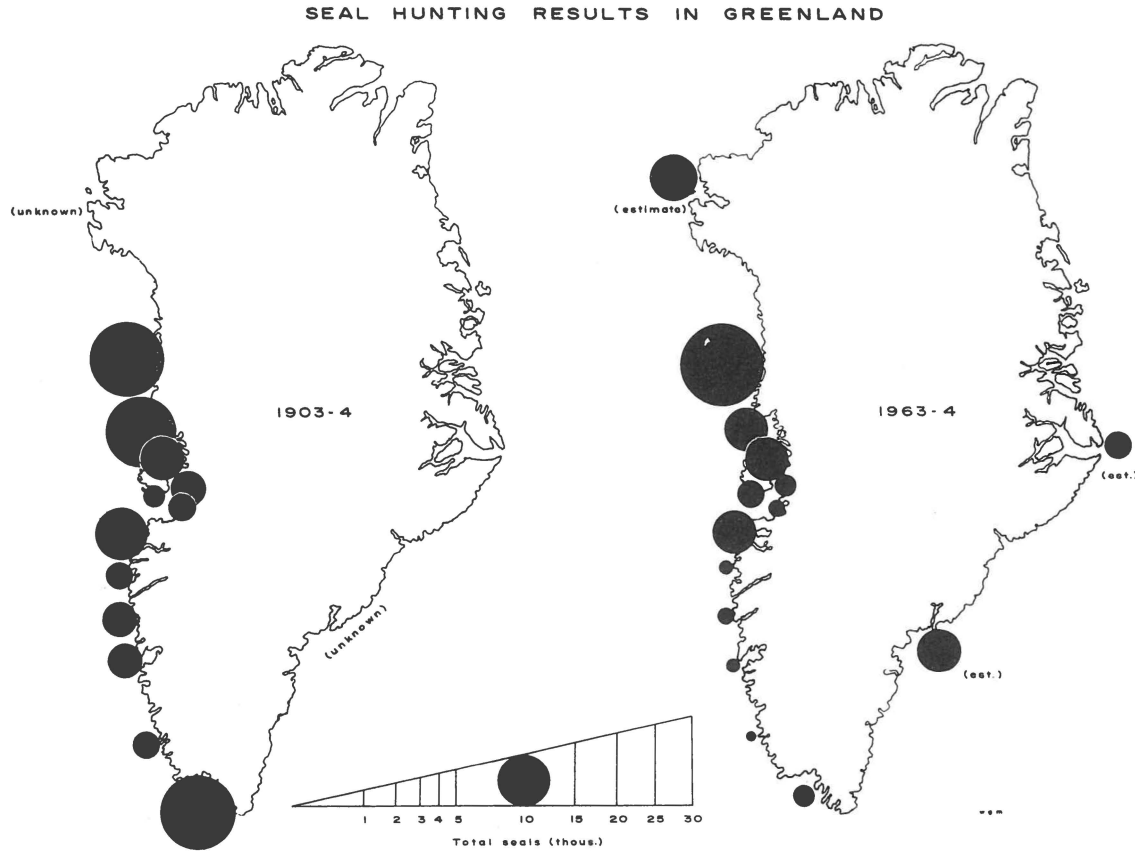


Fig. 22.

Greenland through sale of fishing, hunting, and sheep-farming products and wages paid out for their processing (plus an estimate of the value of food used for home consumption—naturforbrug[1])—and incidental wages through odd-jobs), which totalled 36 million kroner in 1962. All other occupations produced incomes of 37 million kroner, giving a total income for all native Greenlanders of 73.3 million kroner. In comparison, Danes sent up from Denmark (udsendt) for the construction program earned 60.4 million kroner during the same year (Anon. 1964i, p. 20).

[1]) Naturforbrug (lit.: "natural consumption") is the term used in Greenland for the domestic use of fish and game animals as food, and also includes birds' egg and berry gathering. The use of the term involves an attempt to place a monetary value, through rough approximation, upon these food sources. The value of "natural consumption" can be quite considerable, especially in some of the hunting districts and in the smaller settlements. The estimated value of food sources from hunting and fishing is established by placing a minimum price per unit of weight on each of the various food sources.

Table 51. *Incomes in Greenland, 1955–1962 (mill. kr.).*

	1955	1960	1962
Greenlandic			
1) fishing, hunting, sheepfarming*	17.9	28.6	36.1
2) construction & publ. works (wages)	4.0	7.2	9.8
3) State supply service	5.1	9.3	9.5
4) Privately employed	1.7	3.0	4.3
5) publ. institutions (school, health, etc.)	4.0	8.0	11.3
6) other publ. activity	0.3	0.9	2.3
Sub-total (2–6)	15.1	28.4	37.2
Total: Greenlanders	33.0	57.0	73.3
Total: Danes	20.7	41.1	60.4
Total	53.7	98.1	133.7

* Includes estimated natural consumption of fish and meat from hunting, private sale to others, and wages in processing industries.

Source: Anon. 1964i, p. 20.

The part of naturforbrug which was edible meat and innards is shown on a per capita basis in Figure 23 for the year 1963–64. There was naturally a high per capita natural income in the form of meat in the hunting districts. The per capita amount of meat gained through hunting in 1963–64 for Greenland as a whole was 83 kilograms. Seals accounted for over 70 per cent of the edible meat in 1963–64 (mostly ringed seals).

Upernavik hunts two times more meat than any other district (629 tons in 1963–64), followed by Thule (estimated 316 tons).

The hunting list summaries, from which the above calculations were made, include only the hunt of larger marine and terrestrial mammals, and do not include hunting and catching of birds. This source of food appears to be quite important in Greenland. SALOMONSEN (1966) estimated that bird hunting provides about 1,200 tons of meat annually to the Greenlanders, but the author was unable to find any district breakdown on this food source and was thus unable to include it in Figure 23.

Fish Production

Landed values and weights

As stated above, the landed value of fish production increased steadily to about 19 million kroner in 1966 and in that year it represented about 85 per cent of the landed value of all products in Greenland. Since 1963, private production activity began to increase (mainly a salmon-fishing operation at Napassoq in the southern part of Sukkertoppen

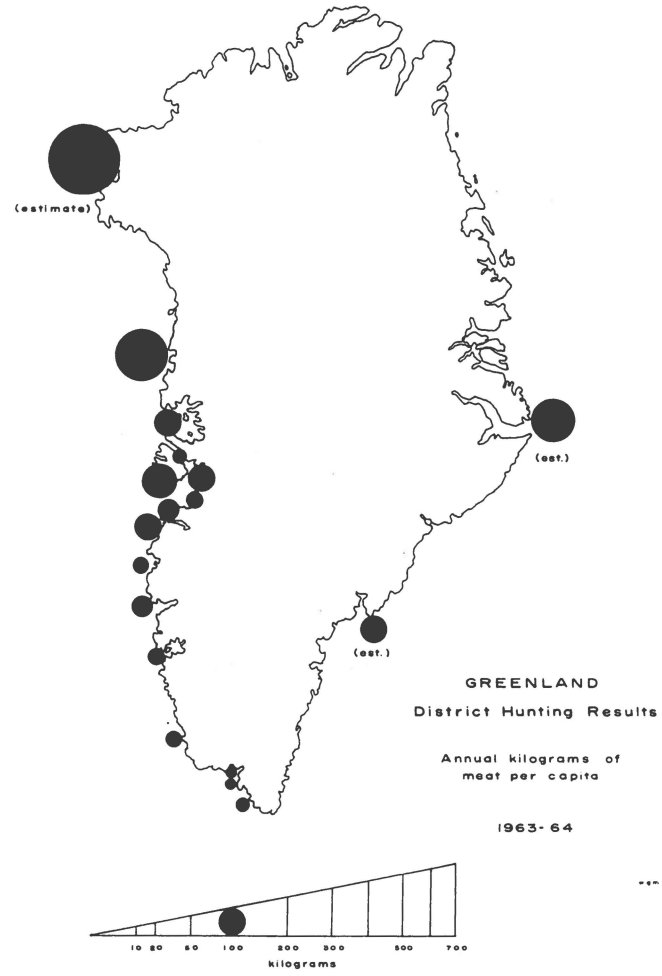


Fig. 23. Statistical source: "Sammendrag af Grønlands Fangstlister, 1963–64".

district and the freezing factory at Godthåb—Godthåb Fiskeindustri A/S) and by 1966 private production accounted for about 9 million kroner, versus 19 million kroner for KGH. In recent years (to 1966), private production in Greenland has been concerned only with fish and not hunting or sheep-farming products. Details of this production are, for the most part, not available in other than general terms.

Figure 24 illustrates the increase in the total landed value of fish and prawn production in Greenland. The KGH share of this landed value since 1963 may be seen in the lower curve. Figure 24 also indicates the relative importance of the value of various fish in Greenlandic production (1966). Cod is the most important fish (by value), accounting for over 40 per cent of the total landed value; salmon and prawns each accounted

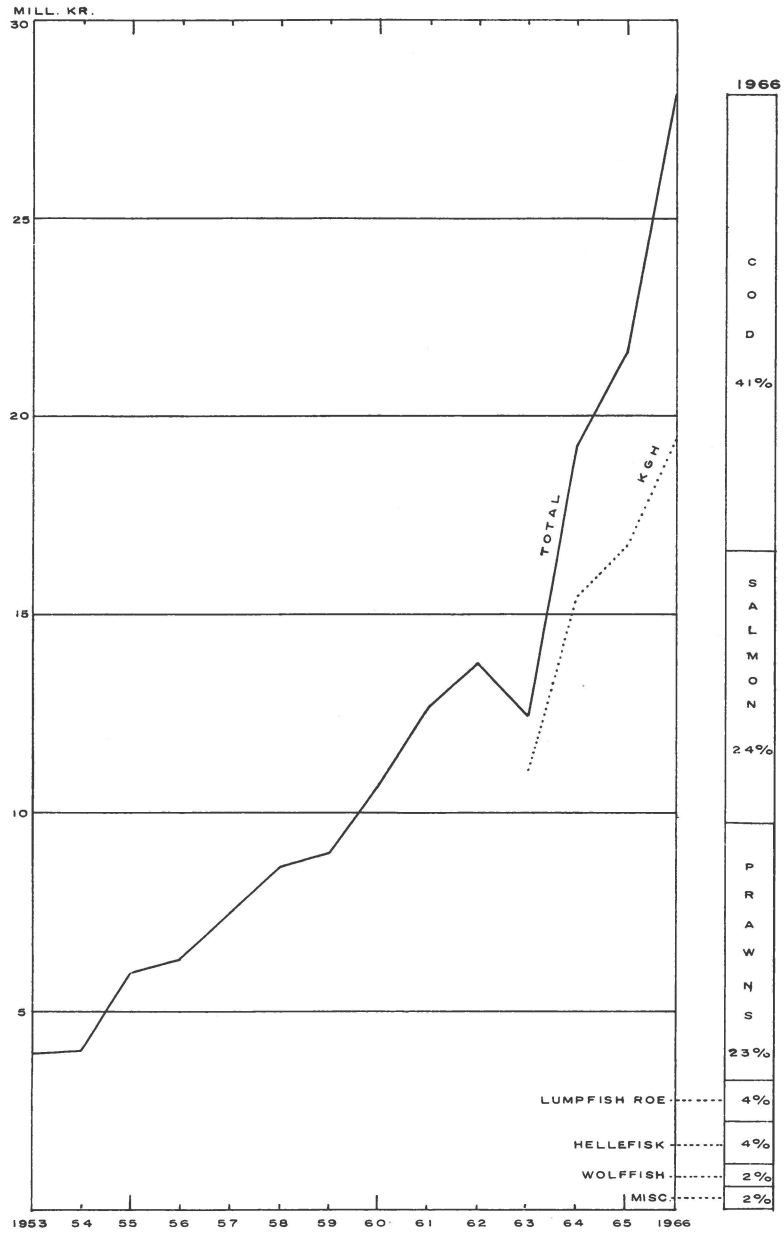


Fig. 24. Total Landed Value of Fish and Prawns in Greenland, 1953–66.

for an equal value (24 and 23 per cent) of the total. Lumpsucker (lumpfish) roe and hellefisk were of minor importance, each accounting for 4 per cent of the total landed value, wolffish 2 per cent, and the remaining 2 per cent in various other fish.

Table 52. *Landed value of fish products in West Greenland 1951–1966 in thousands of kroner.*

Year	Cod	Hellefisk	Salmon*	Wolffish*	Shark and Cod Liver	Shark and Wolffish skin	Prawns	Lumpsucker roe	Other	TOTAL
1951–2	2,026.3	51.1			187.2	34.9	51.4	*	8.9	2,359.8
1952	m	m	m	m	m	m	m	m	m	m
1953	2,812.1	119.1			278.7	6.4	308.8	10.8	474.8	4,010.7
1954	2,852.0	232.3			274.5	9.7	366.7	6.5	485.9	4,227.6
1955	4,202.0	223.6			226.3	28.4	562.9	4.0	808.4	6,055.6
1956	4,503.8	244.6			231.9	10.8	527.9	8.5	789.5	6,317.0
1957	5,160.4	325.7			277.1	17.9	652.2	25.5	924.7	7,383.5
1958	6,077.0	322.8			307.5	40.9	716.3	18.9	1,020.4	8,503.8
1959	6,366.8	444.9			283.0	39.8	760.2	26.3	1,005.4	8,926.4
1960	6,495	564			402	96**	1,459	58	1,134	10,208
1961	7,911	462			465	55	2,003	93	1,003	11,992
1962	8,623	443	744		378	–	2,774	53	530	13,545
1963	5,713	686	683***		12	–	2,889	80	709	10,772
1964	3,762.3	669.2	6,414.9	467.1	–	–	3,793.8	129.0	536.2+	15,772.5
1965	6,322.2	856.3	2,815.3	803.9	–	–	5,513.9	336.2	280.4+	16,988.3
1966	8,155.8	821.5	2,953.7	673.4	–	–	5,542.3	589.9	243.2+	18,979.8
Total	80,982.8	6,466.1	13,610.9	2,004.4	3,223.2	339.8	27,921.4	1,439.6	9,953.8	146,042.0

* Salmon included in "other" before 1962; wolffish included in "other" before 1964; 1951–52 lumpfish roe included in "miscellaneous products" with hunting products totalling a value of 24,800 *kr.*

** Sharkskin only.

*** Includes arctic char.

\+ Cod roe, halibut, char, redfish, capelin, fish meal, shark skin, shark meat, and herring.

m = data missing

Source: compiled from various issues of Beretninger vedrørende Grønland and from unpublished material furnished by KGH.

As shown in Table 52, cod was also the most important fish landed (by value) in West Greenland during the period 1951 to 1966, accounting for about 55 per cent of the total landed value of all fish. Next in importance is the deep-sea prawn with about 19 per cent of the total. Salmon's share was about 9 per cent; all other fish combined accounted for the remaining 17 per cent of the total.

Compared with the entire period, therefore, cod in 1966 was of less importance (41 per cent versus 55 per cent for the period), but both salmon and prawns had increased their percentage of the total landed value.

The following section treats in detail each fish type landed in West Greenland in 1966.

Cod

Not only was cod the fish of overwhelming significance in landed value during the period, but it comprised the bulk of the Greenlandic fish catch by weight (including landings for private processing), as seen in Figure 25.

Of the total catch of cod in Greenland since 1951, all but about two per cent has been landed in West Greenland (Table 53). The small East Greenland cod fishery began in the mid-1950s and grew after 1958 when a

Table 53. *Cod landings in East Greenland (Angmagssalik district), total landings in West Greenland, and in Greenland, 1951–1966, in tons, whole, fresh weight.*

Year	Angmagssalik*	West Grld.	TOTAL, Greenland
1951	–	18,200	18,200
1952	–	18,770.0	18,770.0
1953	–	20,418.5	20,418.5
1954	–	18,680.0	18,680.0
1955	–	20,985.8	20,985.8
1956	36.9	21,246.5	21,283.4
1957	196.5	24,998.1	25,194.6
1958	863.3	25,950.9	26,814.2
1959	607.5	27,807.4	28,414.9
1960	1,608.6	27,050.2	28,658.8
1961	1,117.9	33,829.3	34,947.2
1962	848.6	35,442.8	36,291.4
1963	937.1	23,174.4	24,111.5
1964	1,117.3	14,171.1	15,288.4
1965	887	19,314	20,201
1966	880	22,408	23,288
Total	9,100.7	372,447.0	381,547.7

* Mainly the fishery producing dried fish (tørfisk) at Kûngmiut, Angmagssalik district.

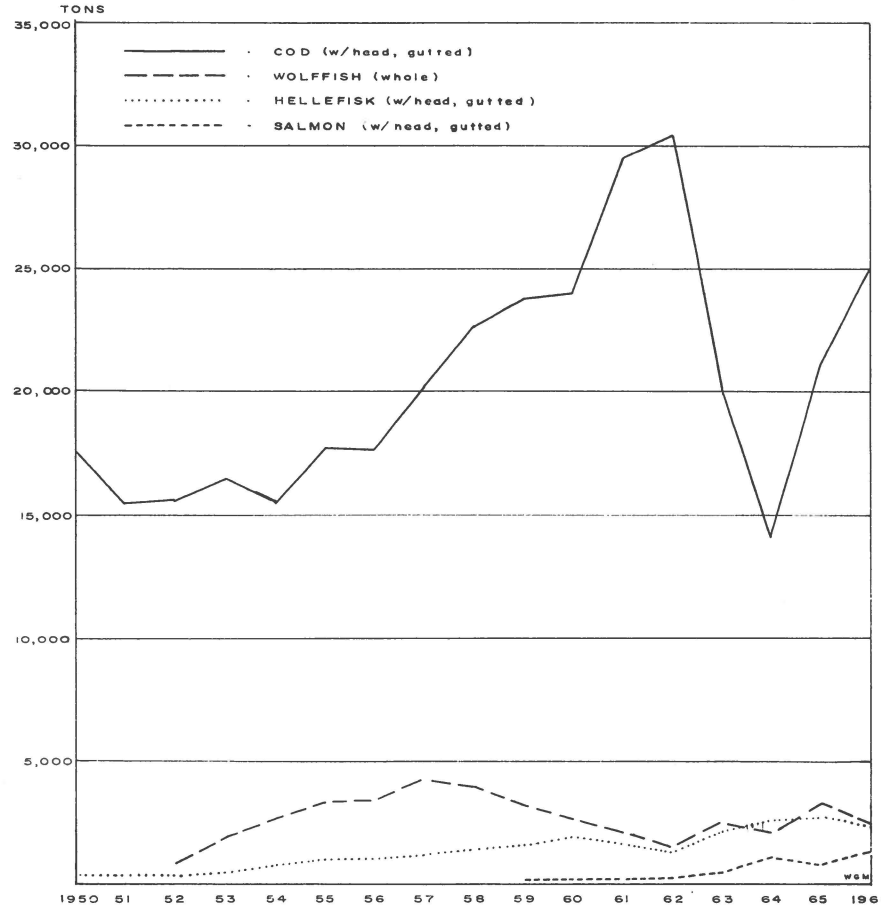


Fig. 25. Landings of the Main Types of Fish in Greenland, 1950–66.

new fish house was built at Kûngmiut (in Angmagssalik district). This fishery declined at the end of the period and is not included in this study, except in certain graphs and tables listing the total Greenlandic catch of cod. The cod catch in East Greenland since 1956 was about the same as that in the area of West Greenland north of Egedesminde district (Table 64a).

The area south of Disko Bugt in West Greenland, therefore, has been the main cod-producing part since the beginning of the cod fishery in 1911. The leading district in total cod production since 1911 is Julianehåb, followed by Egedesminde and Sukkertoppen (Fig. 26). The so-called open-water districts (Frederikshåb to Holsteinsborg) accounted for about 57 per cent of the total cod landings during that period.

From 1951 to 1966, the same general pattern is evident as during the period from 1911, with the important exception that the more northerly

Table 54. *Cod landings in West Greenland, 1950–1966 by district, in tons, whole fresh weight (excluding landings to private factories except where noted).*

District	1950	1955	1960	1962	1965	1966
Julianehåb*	4,383	3,870	6,616	11,908	5,447	4,800
Frederikshåb	2,278	2,889	3,643	5,843	2,476	2,335
Godthåb	2,357	4,617	3,619**	3,830***	1,037	954
Sukkertoppen	4,140	3,363	6,240	5,417	4,821	5,098
Holsteinsborg	2,097	2,637	2,636	4,641	2,806	4,765
Egedesminde+	4,261	2,992	4,106	3,480	2,351	3,787
Christianshåb	549	225	54	73	52	185
Jakobshavn	814	146	75	98	185	283
Vaigat	82++	86	–	–	–	–
Godhavn	135	148	61	160	137	185
Umanak	77	13	–	–	2	15
Upernavik	–	–	–	–	–	–
Total	21,173	20,986	27,051	35,443	19,314	22,408

* Including Narssaq and Nanortalik districts, see Table 68a for Nanortalik, Julianehåb and Narssaq.

** Including 203.7 tons landed by Greenlandic vessels at Færingehavn.

*** Including 216.8 tons landed by Greenlandic vessels at Færingehavn.

+) Including Kangâtsiaq district.

++) Qutdligssat trade district (handelsdistrikt).

Sources: compiled from statistics in various issues of Beretninger vedrørende Grønland for the years 1950–1962, and from unpublished material for the years 1965 and 1966 provided by the KGH.

districts declined in relative importance (Fig. 27). The declining trend in the northern districts supports the observation in Greenland that, since the late 1950s, the cod has appeared later and later each year, and finally failed to appear at all in some years in the northern districts.

Table 54, when compared with a corresponding one for the period 1911–50 (Table 27), shows the cod landings in each district for selected years to 1966 (see Tables 66a and 67a for the yearly landings in each district). The landings show a steady increase, culminating in 1962 when over 35,000 tons of cod were landed in West Greenland. The two subsequent years, however, showed a catastrophic fall in cod landings with 1965 and 1966 recovering partially to the level of the 1950s (Tables 53 and 54).

Although the total cod landings in 1965 and 1966 made a partial recovery to former levels (1952–55) after the sharp decline in 1963 and 1964, the landings per inhabitant did not recover in a similar fashion, as seen in Figure 28 (see Table 69a). Annual landings per inhabitant

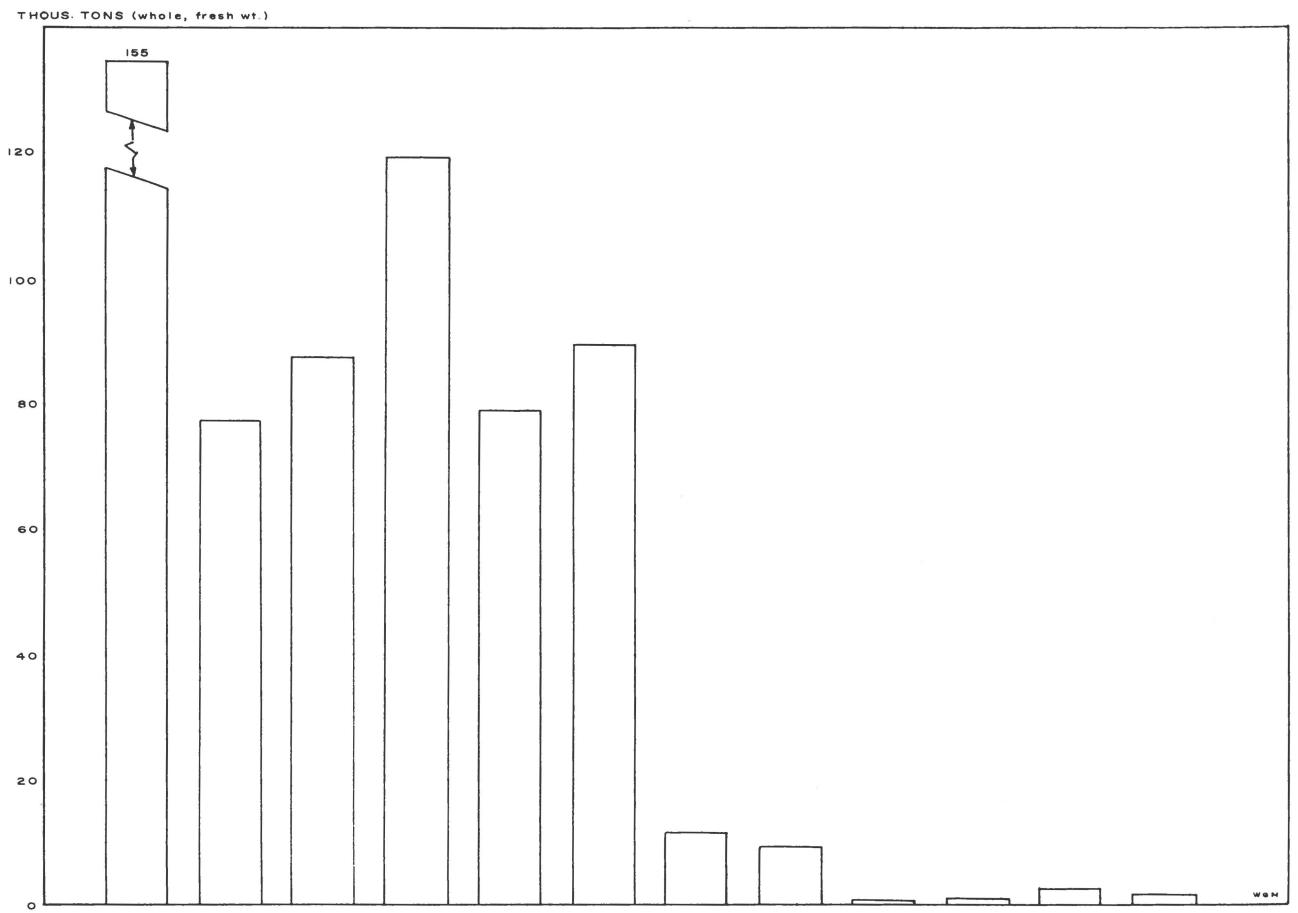


Fig. 26. Total cod landings in West Greenland, 1911–66. By district.

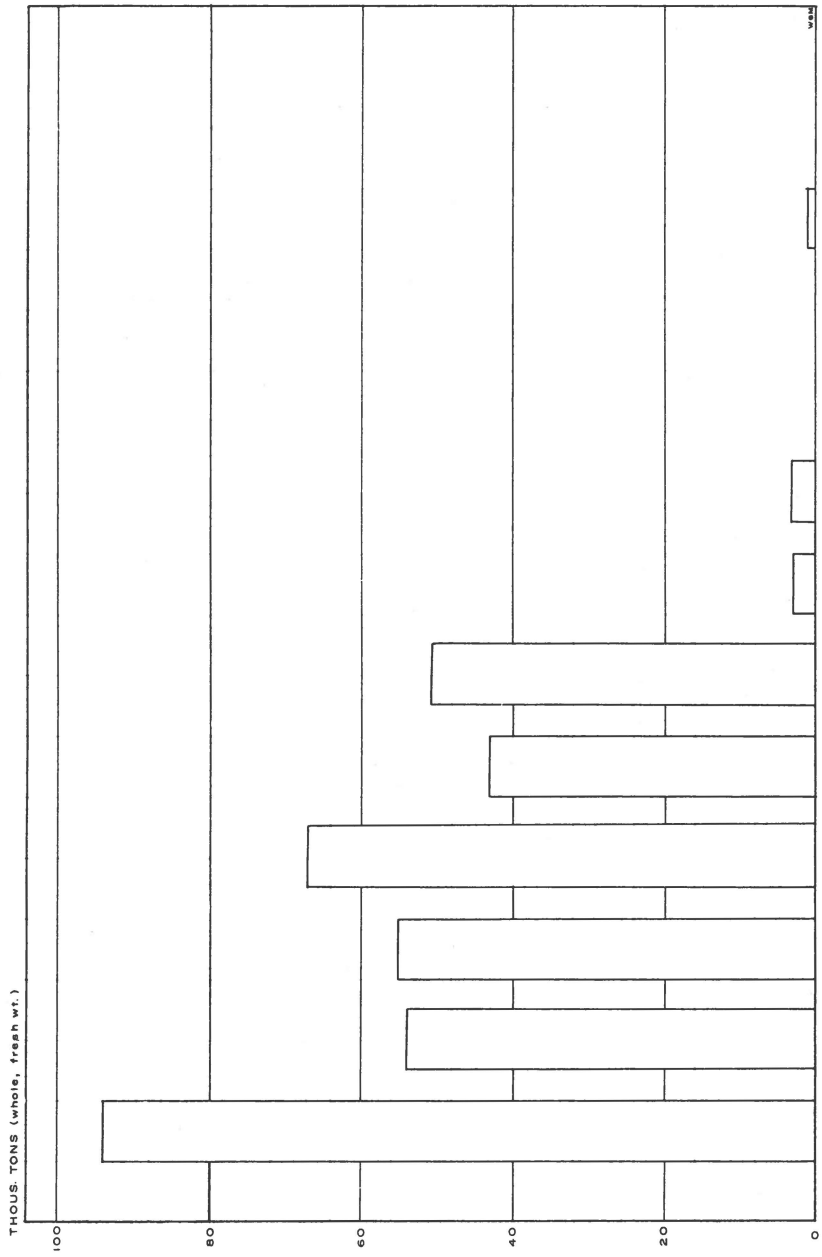


Fig. 27. Total cod landings in West Greenland, 1951–66. By district.

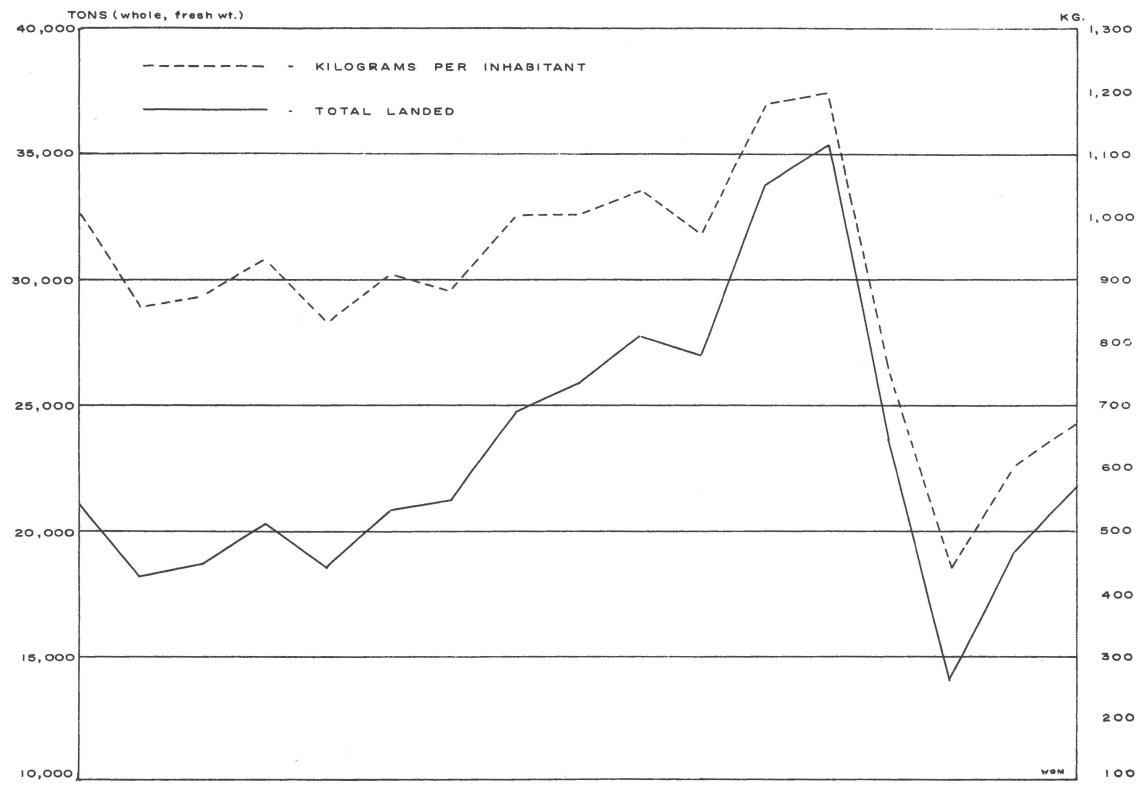


Fig. 28. Total cod landings and landings per inhabitant, W. Grld. 1950–66.

Table 55. *Cod landings in kilograms per inhabitant in West Greenland, 1950–1966 (excluding landings to private factories except where noted).*

District	1950	1955	1960	1962	1965	1966
Julianehåb	979	808	1,145	1,938	825	716
Frederikshåb	1,640	2,037	2,205	3,391	1,398	1,211
Godthåb	1,113	1,602	995*	958*	232	195
Sukkertoppen	2,227	1,591	2,469	2,009	1,619	1,665
Holsteinsborg	1,233	1,472	1,207	1,987	1,082	1,739
Egedesminde**	1,672	997	1,136	916	596	946
Christianshåb	830	291	58	69	40	131
Jakobshavn	523	114	51	63	83	121
Vaigat	80***	64	–	–	–	–
Godhavn	202	205	77	195	158	210
Umanak	49	8	–	–	< 1	7
Upernavik	–	–	–	–	–	–
West Greenland	1,020	912	976	1,205	603	674

* Including landings by Greenlandic vessels at Færingehavn.
** Including Kangâtsiaq district.
*** Qutdligssat trade district (handelsdistrict).

Sources: compiled from Table 54 and population statistics from various issues of Beretninger vedrørende Grønland.

increased by 50 per cent from 1954 to 1962, but fell thereafter to a low of about 450 kilograms per inhabitant, and then recovered to 674 kilograms per inhabitant in 1966.

Cod landings per inhabitant in the various districts of West Greenland in the banner year of 1962 varied from over three tons (in Frederikshåb and Julianehåb districts) to under one ton in Egedesminde district as shown in Tables 55 and 56.[1]) Cod landings per inhabitant are consistently highest in Sukkertoppen district; and Julianehåb's leading position in total cod landings becomes altered somewhat when one considers the average landings per inhabitant and not total landings.

[1]) Trade statistics, including fish landings, are inconsistent with population statistics because KGH has always used its own breakdown of districts in West Greenland (*handelsdistrikter*). Population statistics issued by Ministry for Greenland cannot therefore be used in association with KGH's trade statistics to compute, for example, fish landings per inhabitant for each district (although some of the *handelsdistrikter* of KGH are identical in extent with the Ministry's *kommuner*). The trade statistics of KGH coincide with the political divisions in West Greenland (called communes, *kommuner*) in all areas except Nanortalik, Julianehåb, Kangâtsiaq, and Egedesminde communes. The trade district of Julianehåb includes places which are actually in Nanortalik commune. Kanâgtsiaq commune is included with Egedesminde commune to form Egedesminde trade district. The author has attempted to adjust these differences when computing landings per inhabitant.

Table 56. *Cod landings in kilograms per inhabitant in Nanortalik, Julianehåb, and Narssaq districts (former Julianehåb district), 1950–1966.*

District	1950	1955	1960	1962	1965	1966
Nanortalik	–	456	723	1,020	350	369
Julianehåb	979	1,587	1,998	3,234	1,290	1,037
Narssaq	–	119	455	1,470	883	774

Note: Nanortalik became a separate district in 1953. Narssaq became a separate district in 1960, but landing statistics for Narssaq are available from 1955. The three present districts of Nanortalik, Narssaq, and Julianehåb formerly comprised the district of Julianehåb.

Sources: compiled from Table 68a and from population statistics in various issues of Beretninger vedrørende Grønland.

It is significant to note that the annual catch of cod per inhabitant in 1965 and 1966 was at least 50 per cent lower than during the early 1950s, and that even during the peak year of 1962 the landings per inhabitant were not much greater than in 1950 (Table 55). There is thus good reason for recent fear that cod landings may now be insufficient to supply the future needs of the modern freezing factories which were built in Greenland in the years up to 1966. There have also been repeated citings of the need for Greenland to make use of the offshore banks of West Greenland and to join the large international deep-sea fishing fleet there. As will be seen in a later section of this chapter, Greenland has accounted for only about eight per cent of the total catch of fish off West Greenland since 1952, despite its favorable location near the fishing banks.

Atlantic salmon

The catch of salmon in West Greenland increased from almost nothing in 1959 to 1,400 tons in 1964, as noted in Chapter I.[1]) After a sharp decline in 1965, the 1966 catch was over 1,100 tons. Salmon has been one fish sought after by recent private efforts in Greenland, and landings to private processing plants in 1966 equalled the amount landed to KGH.

The salmon has appeared in ever-increasing numbers off West Greenland in recent years. The Greenlanders, who by 1960 were well experienced in fishing, were able to make immediate use of this new resource. Before 1960, landing statistics for salmon were included under arctic char in the Greenland summaries. But in the fisheries report for

[1]) Unlike cod, no landings of salmon have been made in East Greenland. West Greenland, therefore, accounts for the entire salmon catch.

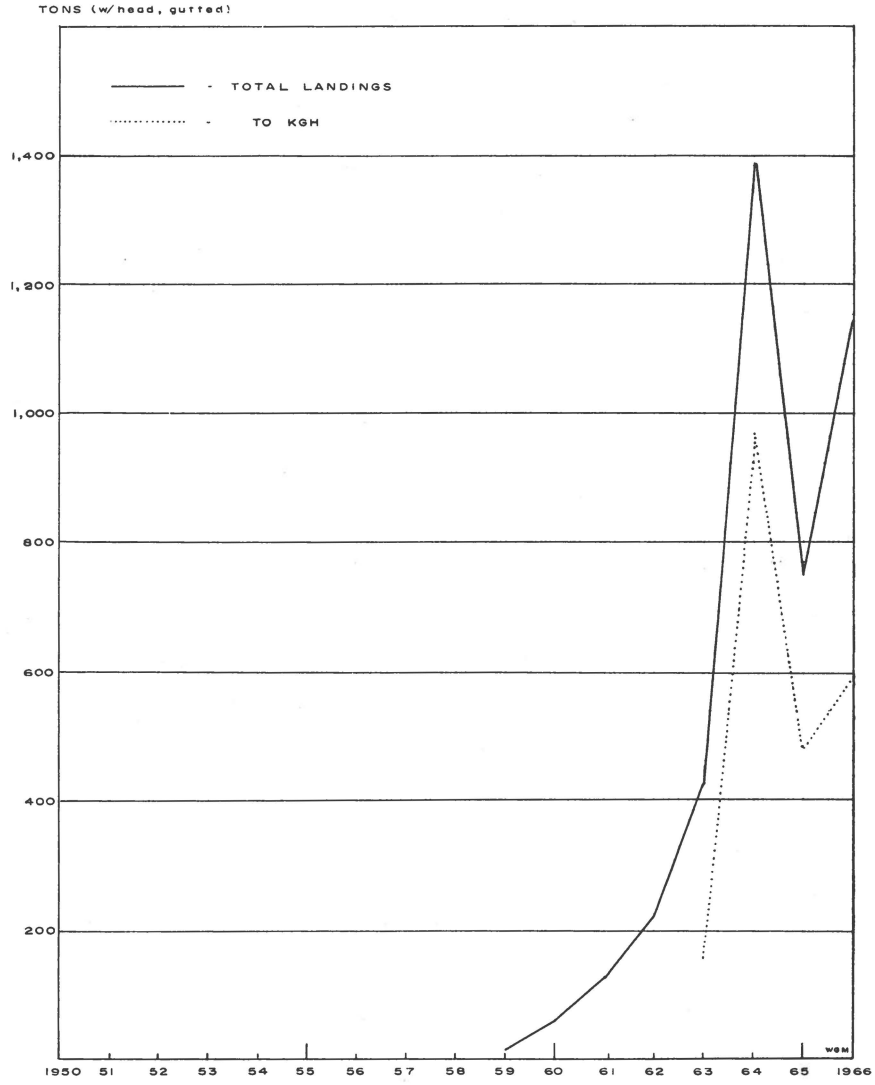


Fig. 29. Landings of Atlantic Salmon in West Greenland, 1950–66.

1959 it was noted that, in comparison with landings for 1958 (12 tons landed to freezing and salting), 1959 landings were 14 tons to freezing and 21 tons to salting. As stated above, this included the catch of arctic char, and also did not include fish caught for local consumption and sale to Danish residents (Anon. 1961n).

By 1960, when salmon and arctic char landings were separated in the statistics, 60 tons of salmon were landed (58 tons to freezing and about 2 tons to salting) and 28 tons of arctic char to salting (Anon. 1962e).

In the report for 1961, the salmon fishery was described as in "strong growth", when 127 tons of salmon were landed, most to freezing (Anon. 1963c).

The explosive nature of this fishery's expansion was only then beginning: 221 tons in 1962, 223 tons in 1963, and 1,249 tons in 1964 (Anon. 1966a). Landings of salmon for private consumption in Greenland were estimated at 177 tons in 1963 and about 350 tons in 1964 (see Fig. 29). Salmon landings declined sharply in 1965 to 524 tons (excluding private landings), but were 593 tons in 1966 (unpubl. material from KGH).

In the record year of 1964, salmon landings were twice the value of cod and made up about 40 per cent of the total landed value of fish products in West Greenland. In the following two years, however, the value of salmon landings fell by one half and were only one third to one half the value of cod landings (Fig. 24).

Deep-sea Prawns

The small effort to process prawns at Holsteinsborg ended with the cold winter of 1948–49, but new discoveries of prawn beds suitable for trawling near Narssaq and in Disko Bugt formed the basis for the present day prawn fishery of West Greenland. From its beginning in 1949, the recent prawn fishery of Greenland grew steadily in importance to 1959. Since 1959, however, its development can be described best as "explosive". Prawn landings, as seen in Figure 30, increased from under 1,000 tons in 1959 to nearly 5,000 tons in 1965. The production in 1966 was over 4,600 tons. This rapid increase in landings came during a period when the fishing industry needed more diversity. As seen in Table 57, most prawn fishing is in Disko Bugt which, before this fishery grew up, had less than promising economic conditions.

Since 1951, the total landed value of prawns has been about 28 million kroner, the next-largest landed value of fish products out of a total landed value of all fish products (1951–66) of 146 million kroner (cod totalled over 80 million kroner). Excluding private landings, prawns had a landed value in 1966 of 5.5 million kroner (versus 8.2 mill. kr. for cod), and had twice the value of the next-highest fish product: salmon, with 2.9 million kroner.

Narssaq was important in prawn-processing in the early 1950s, but after 1961 its landings fell somewhat as trawling yielded fewer prawns. It therefore did not keep up with the rapid increase shown in Disko Bugt at Christianshåb. Prawns began to be processed at Jakobshavn in 1962 and at Godhavn the year following. At Egedesminde prawns began to be processed in the early 1960s in the small plant there, with the raw material being supplied from the trawling grounds off Christianshåb.

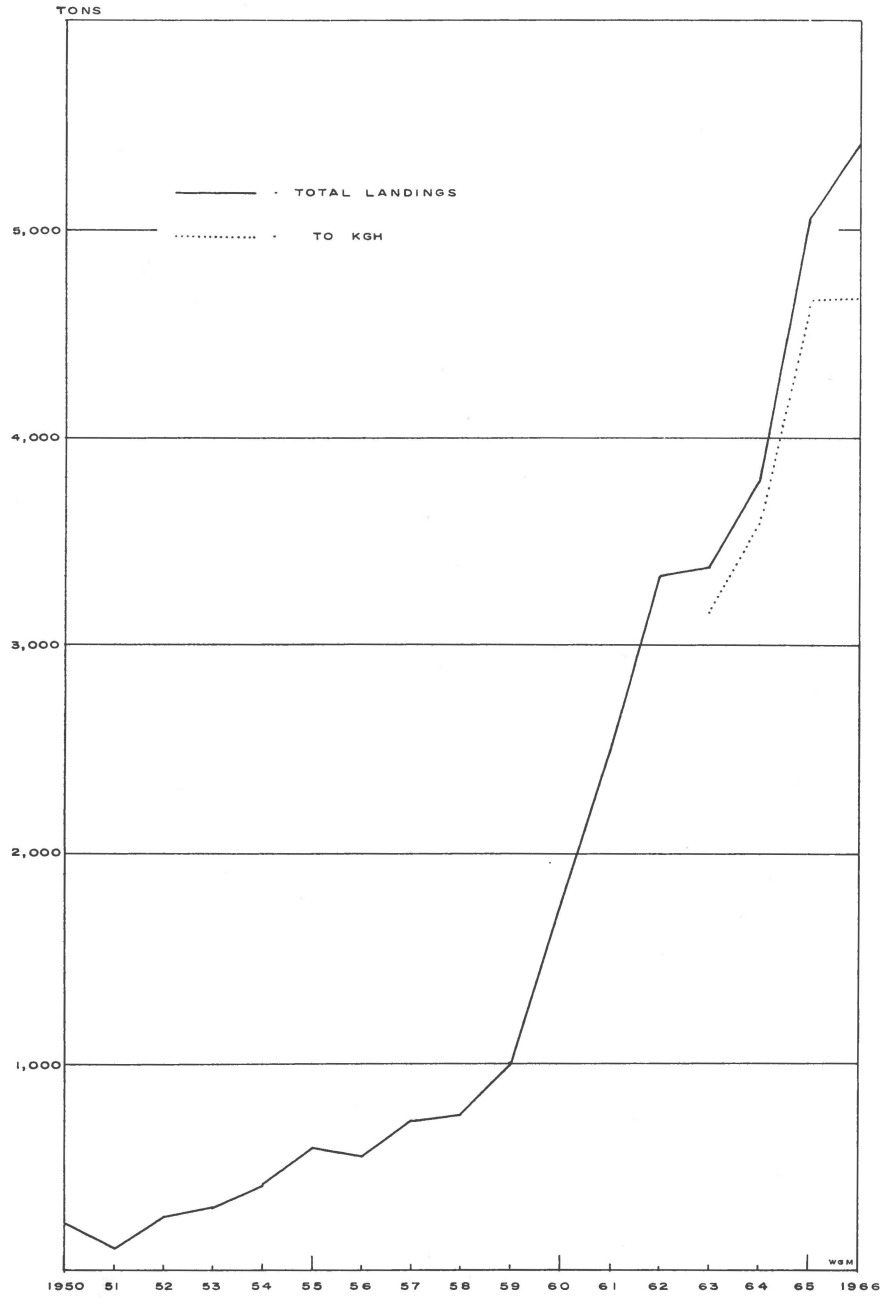


Fig. 30. Landings of Deep-Sea Prawns in West Greenland, 1950–66.

Of the total prawn landings in West Greenland since 1950, Christianshåb accounted for about 65 per cent (Table 57), with Narssaq and Jakobshavn each having about 15 per cent of the total.

Table 57. *Landings of the West Greenland prawn fishery 1950–1966, by district (in metric tons).*

Year	Nrq	Skt	Hbg	Egm	Chr	Jak	Godh*	TOTAL
1950.....	13	–	–	–	162	–	–	175
1951.....	20	–	–	–	104	–	–	124
1952.....	145	–	–	–	83	–	–	228
1953.....	162.7	–	–	–	150.1	–	–	312.8
1954.....	171.1	–	–	–	217.3	–	–	388.4
1955.....	170.6	–	–	–	395.9	–	–	566.5
1956.....	150.0	–	–	–	377.7	–	–	527.7
1957.....	151.5	–	–	41.1	480.6	–	–	673.2
1958.....	194.9	–	–	3.0	548.2	–	–	746.1
1959.....	252.4	–	–	–	697.0	–	–	949.4
1960.....	331.1	–	–	–	1,457.9	–	–	1,789.0
1961.....	565.8	–	–	–	2,028.4	4.8	–	2,599.0
1962.....	345.8	50.9	–	2.6	2,416.5	453.0	93.0	3,361.8
1963.....	283.1	85.7	–	0.3	1,522.8	883.7	331.7	3,107.3
1964.....	326.0	123.8	–	1.5	1,809.1	892.1	426.0	3,578.5
1965.....	325	152	83	276	2,747	853	187	4,623
1966.....	275**	94	186	131	3,060	801	92	4,639
Total.....	3,883.0	506.4	269	455.5	18,257.5	3,887.6	1,129.7	28,388.7

* Specified as landed to m/s "Sværdfisken".
** Including 7 tons at Julianehåb.

Sources: compiled from statistics in various issues of Beretninger vedrørende Grønland and from unpublished material furnished by KGH. Years 1950 to 1952 incl. from SMIDT, 1965c, p. 100.

Lumpsucker roe

The spring catch of lumpsucker (lumpfish) for its roe has increased in importance in recent years in West Greenland. From a modest beginning in 1953, the value of lumpsucker roe export increased from 10,000 kroner to 58,000 kroner in 1960. By 1966 it had reached a value of over 500,000 kroner, over four times the value in 1964. In the record year of 1966, 297 tons of roe were produced, mainly in Frederikshåb and Sukkertoppen districts, and it formed about four per cent of the total value of fish exports from Greenland.

Hellefisk

Although landings of hellefisk (Greenland, or blue halibut) have increased in recent years, they are, like lumpfish roe, of only local significance in Greenland. A steady increase in landings up to 1960, when over 2,300 tons were landed, was followed by a decline for several years there-

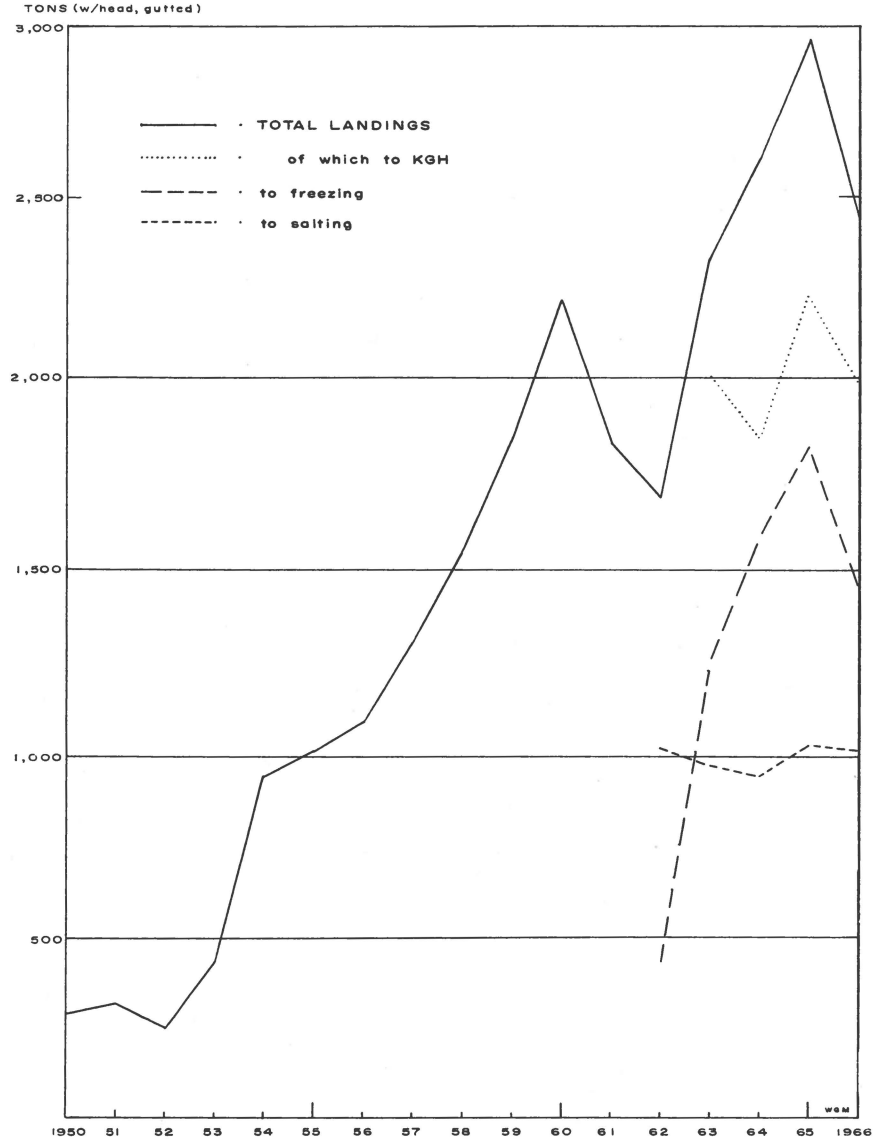


Fig. 31. Landings of Hellefisk (Greenland halibut) in West Greenland, 1950–66.

after. As private processing began to grow in West Greenland after 1962, hellefisk landings increased once again—to a high of almost 3,000 tons in 1965 (Fig. 31).

In 1966 about 2,000 tons of hellefisk (without head and innards) were landed in Greenland. Half of this was landed at Jakobshavn and in Umanak district, but with significant landings in Holsteinsborg and Godthåb districts. The landed value of hellefisk in the same year (1966)

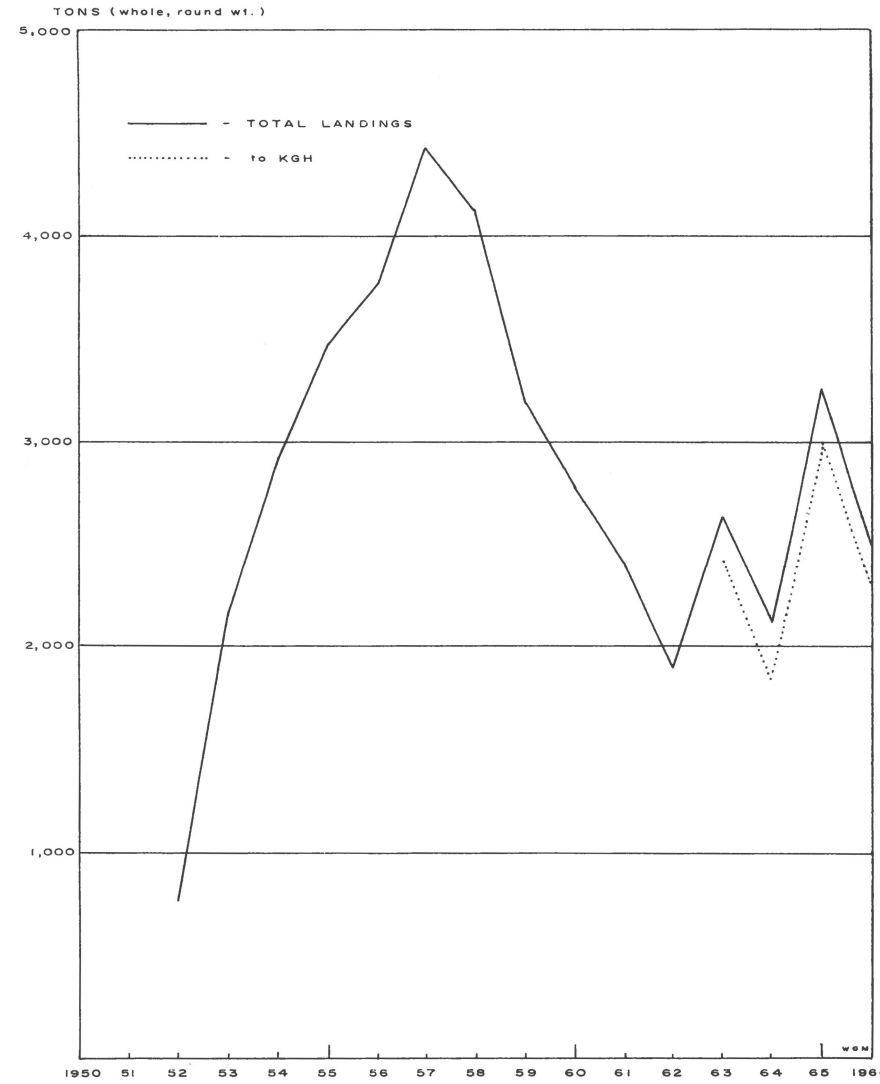


Fig. 32. Landings of Wolffish in West Greenland, 1952–66.

was less than one million kroner (one tenth the value of cod landings), out of a total landed value of fish of 19 million kroner (excl. private), or four per cent.

Wolffish

Wolffish landings in West Greenland increased rapidly until 1957, after which they declined and have never since reached former levels. Landings of wolffish in West Greenland in 1966 were about 2,300 tons (over half of which was in Sukkertoppen district) with a landed value of

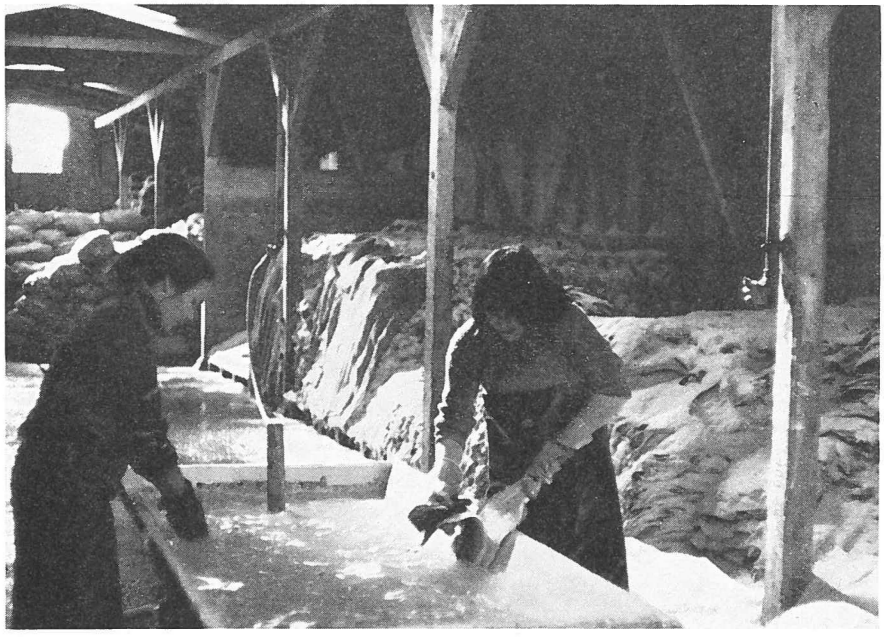


Photo 1. Washing saltfish at Qôrnoq, Godthåb district, 22 August 1967.

over 600,000 kroner (Fig. 32), or about two per cent of the total landed value of fish. No wolffish skins are now being exported from Greenland, although the fish is filletted and frozen.

Other fish

Miscellaneous other fish accounted for about two per cent of the landed value of fish in Greenland in 1966. Although the annual production of arctic char was about 62 tons during the period 1930–39 (HANSEN & HERMANN, 1953, p. 78), by 1966 only 12 tons were produced. The landed value of arctic char in Greenland is difficult to determine because it is not separated from "other fish" in recent statistics.

The Greenland shark, which was formerly of great importance for its liver and skin, had no significance by 1966. Capelin is of only local significance as a domestic source of food, as is the fjord cod and the sea scorpion. These fish types do not enter into the export market.

Processing

Cod

Following the decline in cod landings in West Greenland after 1962, the form of cod processing also changed radically, as illustrated by Figure 33. Freezing, which had been on the increase since 1958 and had equalled

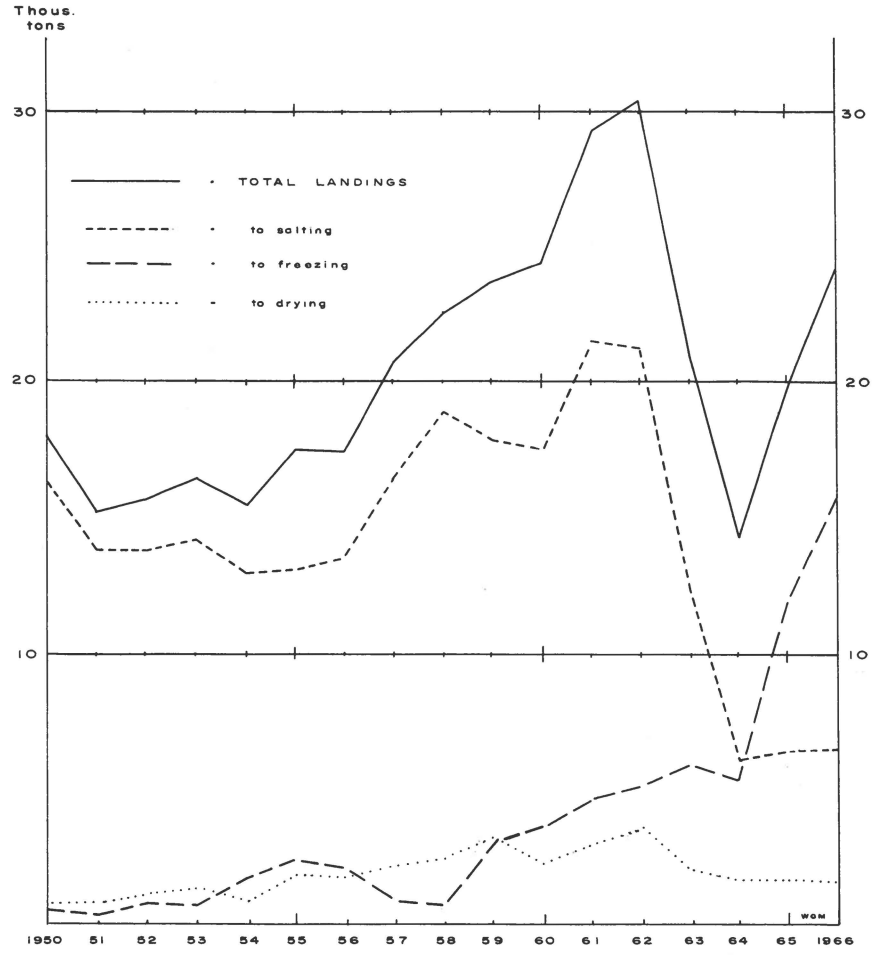


Fig. 33. Cod landings in Greenland, 1950–66 (w/head, gutted).

salting (in weight landed for this method) in 1964, rose quickly in 1965 and 1966 and is now by far the most important form of fish processing in Greenland.

Freezing of fish products in Greenland was actually started by a private company, the Greenlandic Fishing Company Ltd. (Det grønlandske Fiskerikompagni A/S) (SØRENSEN, 1956). This company, founded in 1948, was the major private Danish attempt at fish processing in Greenland at that time. It outfitted the freezing ship "Greenland", established a large fishing station at Tovqussaq, small plants in KGH's buildings at Sukkertoppen and Christianshåb, as well as a smaller operation at Egedesminde. Despite additional government capital, the company showed unsatisfactory economic results and was taken over by KGH on a lease basis in 1952 (GROES, 1956). The company introduced the pro-



Fig. 34. Total cod landings (and KGH) in Greenland, 1950–66 (w/head, gutted).

cessing of new fish types in Greenland (prawns and wolffish), but appears to have been forced to operate under conditions which "stifled private initiative" (SØRENSEN, 1956), such as certain tax regulations and residence requirements.

With the opening of the private factory of Godthåb Fiskeindustri A/S at Godthåb in 1963, cod freezing became the dominant form of processing.

The government's (KGH) share of this form of cod processing in Greenland can be seen from Figure 34. KGH has been forced to receive fish landings at the many salting stations scattered along the west coast. Were this not the case, KGH would be keeping up with the increase of frozen processing attained by the private company at Godthåb.

Since 1950 saltfish production showed a general increase up until

Table 58. *Production and export of saltfish from West Greenland, and export in kilograms per inhabitant, 1950–1965.*

Year	Kg.	Kg. per. inhab.
1950-1	6,028,700	320
1951–2	6,646,543	
1952 (9 mos.)	4,593,800	
1953	5,883,450	
1954	4,923,030	
1955	4,761,450	207
1956	4,488,648	
1957	7,003,800	
1958	7,794,121	
1959	6,896,764	
1960	6,153,116	222
1961	8,104,419	
1962	ca. 8,212,000	279
1963	ca. 4,600,000	
1964	ca. 2,500,000	
1965	ca. 2,600,000	81

Sources: compiled from statistics in various numbers of Beretninger vedrørende Grønland and from unpublished material furnished by KGH.

Table 59. *Production and export of saltfish from West Greenland in kilograms per inhabitant, 1915–1965.*

Year	Kilograms per Inhabitant
1915–16*	2.2
1920–21*	9.9
1925–26	23.5
1930–31	197.0
1935–36	153.0
1940–41	154.0
1945–46	236.0
1950–51	320
1955	207
1960	222
1962	279
1965	81

* Cod and klipfish.

Source: compiled from Tables 32 and 58.

1962, after which it fell to one third its former level (Fig. 33 and Table 58). The per capita production of saltfish for export also showed an increase during the late 1950s and reached 279 kilograms per inhabitant in the peak cod-landing year of 1962. It fell rapidly thereafter and was

only 81 kilograms per inhabitant in 1965 (Table 58). The saltfish production per capita from 1915 is shown in Table 59 and indicates a doubling of per capita production in the decade 1940–50, but a decline in the early 1950s which preceded the culmination in 1962.

Dried fish production (Fig. 33 and Table 70a) has been of only minor importance, except in certain local fisheries (Godthåbsfjord), although it increased gradually throughout the period.

Atlantic salmon

Virtually all salmon is processed by freezing in Greenland and production is in direct proportion to landings (Fig. 29). The fish is usually gutted, and then flash-frozen with a water glaze applied.

Deep-sea prawns

In the beginning of this fishery, prawns were processed by being hand-peeled and canned. This is still true to some extent (all prawns over 6 grams are hand-peeled), but the rapid increase in production recently resulted from the use of peeling machines. In addition to canning, some prawns are frozen (peeled and unpeeled). Experiments have also been carried out in freeze-drying, a process for which prawns are particularly suited.

Lumpsucker roe

Lumpsucker roe, after being screened and sorted, is salted and packed in barrels. It is marketed as "Greenland caviar".

Greenland halibut (hellefisk)

Hellefisk caught in Umanak district is salted down in barrels for export to Europe where it is smoked, colored, and sold as "sea-salmon" (sølaks). Fillets of this fish are frozen and exported to North America where it is sold as Greenland halibut or Greenland turbot. Of the total landings of hellefisk in 1965, 63 per cent was processed into frozen fillets (Smidt, 1969a). Export of hellefisk from 1950 (Table 60) shows a definite increase, but how much production can now be increased is questionable (KGH, pers. comm).

Wolffish

Since 1938 wolffish skins have been salted and exported for use in the leather industry, but the last skins were sent from Greenland in 1960 (Table 61). Wolffish is, however, presently landed for production of frozen fillets.

Table 60. *Export* of fish products (shark liver, cod liver, arctic char, hellefisk, and common halibut) from West Greenland 1950–1966.*

Year	Shark Liver kg.	Cod Liver kg.	Char bbl.	Char kg.	Hellefisk bbl.	Hellefisk kg.	Halibut kg.
1950–1	131,990	409,458	182		301		–
1951–2	381,397	458,673	152		407		–
1952 (9 mos)	369,891	385,044	378		521		–
1953	349,348	598,135	319		803	49,702	22,160
1954	352,859	557,295	175		2,052	43,641	55,585
1955	328,905	658,247	56		1,430	95,604	37,825
1956	426,699	669,570	57		1,660	86,643	22,553
1957	276,778	891,854	50	25,995	2,201	137,815	18,249
1958	419,074	1,148,082	83	18,404	2,167	89,802	164,473
1959	98,375	85,647	–	21,560	–	492,280	11,047
1960	98,629	827,760	249	28,360	3,180	516,245	10,313
1961	224,252	763,160	–	38,146	–	483,323	8,529
1962	227.8T.	1,772.4T.	–	25.3T.	–	1,419.2T.	13.1T.
1963	20.7	41.0	–	18.5	–	1,983.1	10.8
1964	–	–	–	16.9	–	1,816	14.3
1965	–	–	–	14	–	2,268	24
1966	–	–	–	12	–	1,924	17
Total	3,756,697	9,266,325	1,701	219,165	14,722	11,405,355	429,934

* 1962 and following years for amount landed (indhandlet), not necessarily exported from West Greenland.

Sources: compiled from statistics in various issues of Beretninger vedrørende Grønland and from unpublished material provided by KGH.

Arctic char

Char is still salted and exported in barrels from Greenland, but in only limited quantities at present (Table 60).

Greenland shark

Shark liver was not landed in Greenland after 1963, but shark skins are still salted and exported—albeit in minor quantities because of low demand (Table 61).

Common halibut

The export of frozen halibut still takes place, but this is incidental to the other fisheries. Only 17 tons of frozen halibut were sent from Greenland in 1966.

Table 61. *Export of shark skins and wolffish skins from West Greenland, 1950–1966.*

Year	Shark Skins (ea.)	Wolffish Skins (ea.)
1950–1	638	94,833
1951–2	2,386	103,031
1952 (9 mos.)	2,987	4,047
1953	2,741	891
1954	3,049	3,513
1955	2,659	36,017
1956	3,242	124
1957	3,062	354
1958	6,109	–
1959	7,147	–
1960	6,648	35
1961	8,447	–
1962*	7,680	–
1963*	1,825	–
1964*	2,446	–
1965*	2,757	–
1966*	4,867	–

* 1962 to 1966 specified as "landed products" (Indhandlede produkter), not necessarily all exported from Greenland.

Source: compiled from statistics in various issues of Beretninger vedrørende Grønland and from unpublished material furnished by KGH.

The Commission of 1960

With development in Greenland far outstripping the 1948 Commission's ideas, and perhaps not going as planned in some respects, a close look at what was really happening seemed advisable. In 1955, studies of social and cultural problems in Greenland were begun by a research group (Udvalget for Samfundsforskning i Grønland), which published the results of its research in a series of nine reports between 1961 and 1963 (ref. Udvalget ...).

The question of where Greenland was headed was not only a concern to administrators in Copenhagen but to Greenlanders as well. The necessity for re-evaluating all aspects of Greenlandic development following the new reforms was expressed by the Greenland Landsråd in 1959.[1]) The result was the appointment in February 1960 of another commission, the last to date, known as the Greenland Commission of 1960 (Grønlandsudvalget af 1960, or G–60).

[1]) Grønlands Landsråds Forhandlinger 1959, Beret. vedr. Grønl. 1959 (3): 96–99, 126–27.

The Commission's report was published in April 1964 (Anon. 1964i) and, among other recommendations, it emphasized a long-range plan to focus special consideration on the four "open-water" towns of Frederikshåb, Godthåb, Sukkertoppen, and Holsteinsborg. The master outline was in the form of a ten-year plan of development from 1966 to 1975. This plan involved capital investment of about two billion kroner ($300 million), and an equal amount in operating expenditures.

This huge investment amounted to a yearly per capita sum of 11,545 kroner ($1,670) over the ten-year period.[1]) The investment per household (5.1 persons in 1965) would then be 58,880 kroner ($8,533) a year.

A Commission recommendation led to the formation of a new, permanent Greenland Council (Grønlandsråd) to oversee the new ten-year plan. The Council replaced the Parliament's Greenland Committee (Folketingets Grønlandsudvalget) and is composed of both Greenlanders and Danes.

The last year covered by this dissertation is 1966, the year Greenland's new ten-year plan began. There is need, when statistical material becomes available, to analyze the results of the ten-year plan as it has progressed to date. For the purpose of the current study, however, it is only possible to outline the recommendations of G–60 as an introduction to the situation in Greenland in 1966, covered by Chapter VI.

When the findings of G–60 were published in 1964 the per capita real income in Greenland was one half that of the rest of Denmark (Anon. 1964i, p. 91). One reason for this was a low level of employment, with marked unemployment and underemployment during the winter (October-March).

One way of improving this situation would be to increase the yield of the fishing industry and to lessen its strong seasonal character (especially the cod fishery). G–60 underlined its belief that:

> economic development in Greenland must be based mainly on the productivity of the fishing industry. (Anon. 1964i, p. 92) author's transl.

The 1960 Commission recognized that changing natural conditions, as well as overfishing, could affect the catch, as had been the case in other areas of the North Atlantic Ocean. The main recommendation, which also had been heard from the 1948 Commission, was:

> the effects of possible changes in the natural basis (of the fisheries) can only be countered by making the Greenlandic fishery sea-going and thereby using the locational advantage Greenland holds in comparison with other nations. (Anon. 1964i, p. 94) author's transl.

[1]) Using the 1966 population of persons born in Greenland, and an exchange rate of US $ 1 = 6.9 kroner.

To utilize the offshore banks, larger vessels are necessary, both long-liners (of about 80–100 tons) and trawlers (450–500 tons). The prevailing boat type in Greenland (18–22 foot) can be used for fish types other than cod, with larger (36–42 foot) cutters trawling for prawns. But the cod-processing freezing factories in the "open-water" areas must be supplied on a year-round basis, which can be done only by larger vessels.

By the end of 1964, four freezing factories, each with a daily capacity of 40,000 pounds of ready product, were vastly undersupplied with raw fish for the better part of six months. With a fifth factory to begin operation in 1967 (Frederikshåb), the total unused capacity in the winter six-month period was about 30,000 tons of cod (with head, gutted), more than the total catch of cod in Greenland in recent years.

The program of fish factory building would be complete when the plant at Frederikshåb opened in 1967. The great raw material capacity of the five plants was not only not being supplied sufficiently, but expansion possibilities within these plants could double the capacity by 1975.

It was clear that the present raw material need and future increase in capacity would have to be supplied by larger vessels capable of fishing during all seasons under unsettled weather conditions off the coast and on the offshore banks, eventually perhaps in distant waters.

Favorable arrangements for financing loans on larger fishing vessels for the Greenlanders were suggested by the Commission, as well as improved training opportunities (Anon. 1964i, pp. 98–99). Until larger vessels joined the Greenlandic fleet, the capacity of existing fish factories would remain underused. Other sources of raw fish needed to be found. The two best possibilities seemed to be allowing non-Greenlandic (Danish and Færoese) fishermen to land fish to Greenlandic factories and the purchase of larger vessels by the State (with provisions for later sale to interested Greenlanders). Four long-liners were purchased and began fishing off West Greenland in 1965–66. Plans for Greenland's first stern-trawler were drawn up, with delivery expected in 1967. The fishing results of the State's four long-line boats in 1966 will be presented in Chapter VI.

If fishing conditions remained favorable and a sufficient labor force was available, the larger vessels would be supplying the five fish-freezing plants at an anticipated daily capacity of 400,000 pounds of ready product by 1975, a doubling of the 1966 capacity. This production level assumed full utilization of capacity on a year-round basis (Anon. 1964i, p. 103). The raw material necessary for this level of production at the five plants would have to be supplied by a total of 35 larger line vessels or 14 stern trawlers, and would be about 50,000 tons of cod a year (with head, gutted). The total catch of cod in West Greenland in 1966 was 18,367

Table 62. *Fish landings off West Greenland (ICNAF sub-area 1) 1952–1966 by main types, in metric tons*, round fish.*

Year	Cod	Redfish	Flounder	Other Ground-Fish	Prawns	Other	TOTAL
1952.....	252,758	159	572	566	m	–	254,190
1953**.....	242,000	13,800	964	–	m	2,861	259,625
1954.....	301,875	15,520	1,862	2,716	388	305	322,670
1955.....	265,318	32,249	2,043	4,391	565	4	304,629
1956.....	321,245	14,008	1,961	5,248	526	19	343,180
1957.....	269,035	28,137	1,953	4,708	m	74	304,073
1958.....	318,821	17,945	2,351	5,864	759	34	345,784
1959.....	233,542	32,540	2,316	4,511	950	56	273,978
1960.....	242,836	44,224	2,542	4,979	1,791	78	296,518
1961.....	345,391	54,418	2,233	11,445	2,545	282	416,979
1962.....	450,658	60,352	815	14,275	3,362	226	529,753
1963.....	405,771	46,657	3,751	17,343	3,341	653	477,675
1964.....	349,738	30,011	3,476	15,159	3,770	10,288	412,761
1965.....	360,341	19,052	3,461	13,280	5,051	2,627	404,166
1966.....	366,126	16,758	2,946	9,746	5,378	2,773	403,863
Total.....	4,725,455	425,830	33,246	114,231	28,426	20,280	5,349,844
%.....	88.0	7.9	0.6	2.1	0.5	0.4	99.5

* 1 metric ton = 2,204.622 lbs.
** Approximate.

Source: compiled from various issues of ICNAF *Stat. Bull.* v. 2–16.

tons, of which 10,951 tons were landed in the districts where the five main plants are located (not including landings to the private factory at Godthåb). A five-fold increase in catch of cod is therefore demanded within the decade if the plan is to be realized.

The International Fishery

As shown in Table 62, fish landings by all nations fishing off West Greenland (ICNAF Sub-Area I) in the years 1952 to 1966 totalled 5,349,844 metric tons (see Fig. 35 for the location and extent of this sub-area). The average annual catch of fish during the period was 356,656 tons. The years after 1960 all show above-average landings for the period, but with a falling tendency since 1962.

Of the total catch of fish during the 15 years, cod accounted for 4,725,455 tons, or 88 per cent. Other main fish types comprising the total catch were redfish (425,830 tons, or 7.9 per cent), the flounders: Greenland halibut, common halibut, etc. (33,246 tons, or 0.6 per cent),

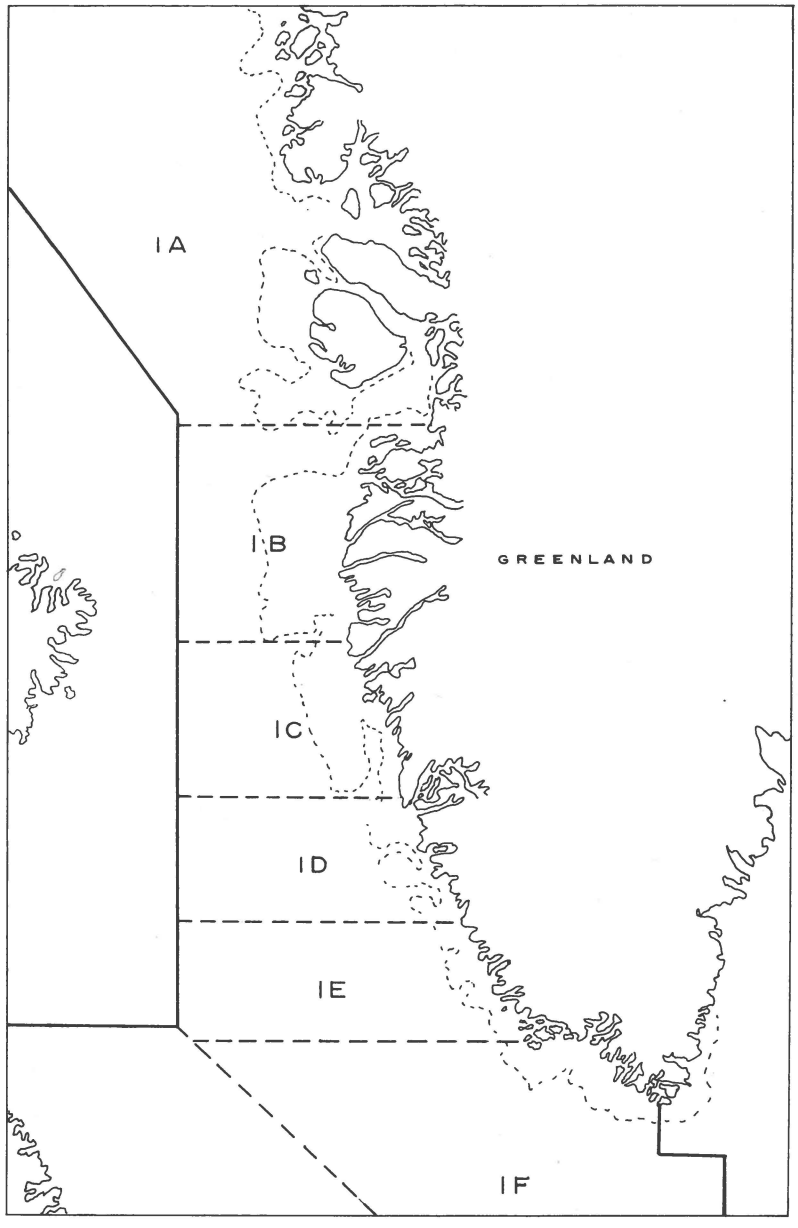


Fig. 35. Divisions of ICNAF Sub-Area 1 off West Greenland.

prawns (28,426 tons, or 0.5 per cent), and miscellaneous other fish (20,280 tons, or 0.4 per cent).

Cod, then, is the fish of overwhelming importance in the fishery off West Greenland, accounting for almost 90 per cent of the total catch by weight.

Table 63. *Total cod landings in ICNAF sub-area 1 (West Greenland) 1952–1966 by all nations and total catch by Greenlanders, including per cent of total by Greenlanders.*

Year	Total Cod Catch*	Greenlandic Catch*	% of Total
1952	252,758	16,726	6
1953	242,000**	20,000**	8
1954	301,875	18,680**	6
1955	265,318	19,787	7.5
1956	321,245	21,028	6.5
1957	269,035	24,593	9
1958	318,821	25,802	8
1959	233,542	27,577	12
1960	242,836	27,009	11
1961	345,391	33,965	10
1962	450,658	35,380	8
1963	405,771	23,269	6
1964	349,738	21,986	6
1965	360,341	24,322	7
1966	366,126	29,076	8
Total	4,725,455	369,200	7.8

* In metric tons, whole round weight.
** Approximate.
Source: compiled from ICNAF Stat. Bull. vols. 2–16.

Table 64. *Total catch of Cod (1952–1966) in ICNAF sub-area 1 (West Greenland) by country.*

Country	Total Catch*	Per cent
Portugal	1,232,772	26.1
Færoe Islands	771,745	16.4
West Germany	748,196	15.8
Norway	522,382	11.1
France	500,065	10.6
Greenland	369,200	7.8
United Kingdom	268,199	5.7
Iceland	136,824	2.9
Spain	127,786	2.7
Soviet Union	8,092	.1
Poland	1,696	–
Italy	32	–
Non-members	38,196	.8
Total	4,725,455	100.0

* In metric tons, whole round weight.
Source: compiled from ICNAF Stat. Bull. vols. 2–16.

Greenland's share of the total annual catch of cod in ICNAF Sub-Area I (West Greenland) varied from 6 to 12 per cent during the years 1952 to 1966. Total landings of cod by Greenland for the entire period were 369,200 metric tons (whole, fresh weight) out of a total of 4,725,455 tons by all nations fishing off West Greenland, or 7.81 per cent of the total (Table 63). During the five years up to 1966, Greenland's share of the cod catch varied between six and eight per cent of the total.

Greenland's share of the cod catch off West Greenland ranked behind five other nations out of a total of twelve (excluding minor catches by non-member nations), as shown by Table 64. Because of favorable location near this fishing area, it might be expected that Greenland could increase her share of the total fish catches in ICNAF Sub-Area I in the future, given rigorous pursuit of a policy enabling bank fishing to be carried out.

Summary

The 17 years between 1950 and 1966 were critical for Greenland's development and perhaps the most important in its entire history. Despite the belief of the 1948 Commission that an offshore fishery was imperative and that larger fishing vessels were needed to begin this operation, not until 1965 was any significant step taken in this direction.

Natural factors of ice-free waters and proximity to the best fishing areas caused the 1960 Commission to place emphasis on the "open-water" districts from Frederikshåb to Holsteinsborg. The main bulk of the huge investments began in 1965 were centered on these districts in order to develop modern fish processing plants and associated technical facilities. This policy would accelerate the phenomenon of population concentration already taking place in these districts.

The objectives of this chapter are to show that:

1) Conditions improved in Greenland between 1950 and 1966 reflecting the "reforms" (nyordning) which resulted from the 1948 Commission and, at the end of the period in 1965 and 1966, from the Commission of 1960 (Grønlandsudvalget af 1960, or G–60).

2) The central task of the 1948 Commission was to plan a program of capital investment for increasing the production of fish. The investment program carried out was far more expensive than predicted by the Commission, and an increase of fish production was realized.

3) Since 1950, a modern, industrial society has evolved in Greenland, a development which is still incomplete.

4) Between 1950 and 1964, capital investment by the Danish State in Greenland totalled 822 million kroner (about $121 million), or about

55 million kroner annually. The annual investment had reached 136 million kroner by 1964.

5) In addition to this capital investment, the State's yearly operating expenditures for various services and subsidies in Greenland increased from about 28 million kroner (1950–53) to 141 million kroner ($580 per person) in 1964.

6) During the recent period of development (1950–66), the population of West Greenland grew as the result of a declining death rate and a steadily high birth rate. At the same time, a marked concentration of the population occurred.

7) From 1901 to 1966 the number of inhabited places in West Greenland declined from 183 to 122, or by about one third. The places abandoned were mostly the small hamlets (boplads), while the number of towns and outposts grew.

8) The population of West Greenland increased from 11,302 in 1901 to 27,702 in 1960. In 1901, 40 per cent of the population lived in hamlets, 40 per cent in outposts, and 20 per cent in towns. By 1960, only 10 per cent lived in hamlets, 31 per cent in outposts, and almost 60 per cent in towns. The 1966 population in West Greenland was 33,239—a 200 per cent increase over 1901.

9) Between 1960 and 1966 the population of West Greenland increased by about 20 per cent. In 1966, about 74 per cent of the population in the fishing districts lived in towns and 26 per cent in smaller settlements (bygd).

10) In 1966, 42,102 persons lived in Greenland, of which 5,722 were born outside Greenland. Of the 36,380 native-born Greenlanders, over 90 per cent (33,239) lived in West Greenland. In 1966, the male-female ratio of native Greenlanders was 1:1 (17,551 to 17,566), and 49.5 per cent were under 15 years of age.

11) Household size of native-born Greenlanders decreased from 7.9 persons in 1901 to 5.1 in 1965, after having fallen to as low as 4.8 in 1951.

12) Imported foodstuffs grew in nutritional importance in Greenland in recent years. Of the local food sources, fish was about three times more important than meat.

13) Improved landings and prices resulted in a seven-fold increase of the landed value of production since 1951–52 (from 3 to 24 million kroner). West Greenland accounted for about 94 per cent of the total landed value of products.

14) Of the landed value of production in West Greenland, about 84 per cent was fish and prawns, the remainder hunting and sheep-farming products.

15) Incomes in Greenland increased from 33 to 73 million kroner between 1955 and 1962. The largest increase was in wage incomes (other than in fish processing, which comprised one half of all personal incomes by 1964. In 1962, native-born Greenlanders earned 73.3 million kroner, while Danes in Greenland earned 60.4 million kroner.

16) Fish production grew to a landed value of about 28 million kroner in 1966, of which 40 per cent was cod, 24 per cent salmon, 23 per cent prawns, and the remainder was lumpfish roe (4 per cent), hellefisk (4 per cent), wolffish (2 per cent), and various other fish (2 per cent).

17) All but two per cent of the cod landed in Greenland was landed in West Greenland, mainly in the area from Egedesminde to Kap Farvel. The so-called "open-water" districts (from Frederikshåb to Holsteinsborg) accounted for 57 per cent of the total landings from 1911, but one district outside this area (Julianehåb) had by far the largest landings.

18) Rapid declines in the catch of cod per inhabitant have occurred since 1962. In 1965 and 1966 the catch per inhabitant was one half of that in the early 1950s.

19) Salmon landings grew from about nothing in 1959 to about 1,400 tons in 1964, in which year salmon had twice the landed value of cod, or about 40 per cent of the total landed value of fish products in West Greenland. The two subsequent years, however, showed declining values of salmon landings.

20) Deep-sea prawns are the third major fish product which account like salmon, for about one quarter of the total landed value of fish products. Disko Bugt (especially at Christianshåb) is the major prawn fishing area.

21) Freezing has become the main form of fish processing in Greenland at the expense of salting. Other traditional forms of production such as shark liver, salted arctic char, and wolffish skins have all but disappeared from the export list.

22) Private activity in Greenland (production) did not develop as foreseen by the 1948 Commission.

23) The offshore (bank) fishery by Greenlanders did not develop as suggested by the 1948 Commission. From 1952 to 1966, Greenlanders were responsible for landing only 7.8 per cent of the total catch of cod off West Greenland (ICNAF Sub-Area I), which ranked Greenland behind five other nations out of the twelve fishing there.

VI. 1966

Introduction

The year 1966 is the latest for which statistics of commercial fishing along the west coast of Greenland are available. The Royal Greenland Trade Department (KGH) publishes only general data on the fishery, with many details lacking. To supplement these, I have chosen several sample areas in West Greenland for closer scrutiny. The results of this sample study are presented in the final part of this chapter, following a review of the situation as a whole.

The Fishery in 1966

Cod

Cod landings in Greenland in 1966 totalled 24,569 tons, about 20 per cent above those of 1965 and a continued improvement over the low year of 1964 (Fig. 31), but still 5,000 tons short of the high output of 1962. Of the 1966 improvement, there was a 15 per cent increase of landings at KGH's plants (total 19,069 tons) and an increase of about 30 per cent at private companies (total 5,500 tons). Most of the private increase was at Godthåb Fiskeindustri by the State's four line boats.

Figure 31 in the last chapter shows the rapid increase of frozen cod production which occurred at the expense of salted cod since 1962. In 1966 cod landed for frozen processing increased by one third over the previous year.

Cod landings in 1966 in Greenland are shown in Tables 65 and 66 (excluding private landings). East Greenland (Angmagssalik district) accounted for a small portion of the total landings. Most of the cod landed in East Greenland was dried (tørfisk), with also a small production of saltfisk.

As shown in Tables 65–67, and Figure 36, cod landings were better in the northern part of West Greenland, with over half of the total landings occurring in the three northern districts of Sukkertoppen, Holsteinsborg, and Egedesminde.

Landings to the private plant at Godthåb (including landings at Fiskenæsset), however, were over 6,000 tons—more than any of the

Table 65. *Cod landings (KGH) in Greenland in 1966 to various forms of processing (salting, filletting-freezing, and drying), in tons.*

District	Cleaned w/o head			Total	Whole TOTAL*
	Salting	Fillet	Drying		
Nanortalik	527	34	214	775	946
Julianehåb	516	1,502	71	2,089	2,549
Narssaq	–	1,070	–	1,070	1,305
Frederikshåb	1,886	–	28	1,914	2,335
Godthåb	244	–	538	782	954
Sukkertoppen	403	3,729	47	4,179	5,098
Holsteinsborg	194	3,664	48	3,906	4,765
Egedesminde	2,686	407	11	3,104	3,787
Christianshåb	–	152	–	152	185
Jakobshavn	110	122	–	232	283
Godhavn	152	–	–	152	185
Umanak	–	–	12	12	15
Total W. Greenland	6,718	10,680	969	18,367	22,408
Angmagssalik	74	–	647	721	880
Total *Greenland*	6,792	10,680	1,616	19,088	23,288

* Whole, fresh weight.

Source: compiled from materials supplied by KGH.

Table 66. *Cod landings (KGH) in West Greenland, 1966.*

District	COD*			Total*
	to salting	to drying	to fillet	
Nanortalik	643	261	41	946
Julianehåb	630	87	1,832	2,549
Narssaq	–	–	1,305	1,305
Frederikshåb	2,300	34	–	2,335
Godthåb	298	656	–	954
Sukkertoppen	492	57	4,549	5,098
Holsteinsborg	237	59	4,470	4,765
Egedesminde	3,277	13	497	3,787
Christianshåb	–	–	185	185
Jakobshavn	134	149	–	283
Godhavn	185	–	–	185
Umanak	–	15	–	15
Total	8,196	1,331	12,879	22,408

* Tons, whole, fresh weight.

Source: compiled from unpublished materials supplied by KGH.

Table 67. *Landing of fish products in West Greenland, 1966 (in tons).*

District	Cod (whole)	Hellefisk (w/ head, w/o guts)	Wolffish (whole, slit)	Prawns	Salmon w/h w/o g	Halibut (w/ head, w/o guts)	Lump-sucker roe	Char salted w/h; w/o g.	Redfish (whole)	Capelin (whole)	Industry fish (for meal)
Nanortalik	946	47	82	–	12	2	–	–	–	–	–
Julianehåb	2,549	51	40	7	91	5	–	–	74	–	–
Narssaq	1,305	69	69	268	14	6	–	–	109	–	–
Frederikshåb	2,335	73	–	–	222	–	102	–	16	–	–
Godthåb	954	233	–	–	–	–	10	–	–	–	–
Sukkertoppen	5,098	56	1,265	94	107	3	184	11	30	630	367
Holsteinsborg	4,765	322	185	186	62	1	1	1	–	–	–
Egedesminde	3,787	3	338	131	75	–	–	–	–	36	–
Christianshåb	185	5	38	3,060	6	–	–	–	–	–	–
Jakobshavn	283	371	96	801	3	–	–	–	–	93	–
Godhavn	185	–	174	92*	1	–	–	–	–	1	–
Umanak	15	675	6	–	–	–	–	–	–	–	–
Upernavik	–	19	22	–	–	–	–	–	–	–	–
Total	22,408	1,924	2,315	4,639	593	17	297	12	229	761	367

* Landed to m/s "Sværdfisken".

Source: compiled from unpublished materials supplied by KGH.

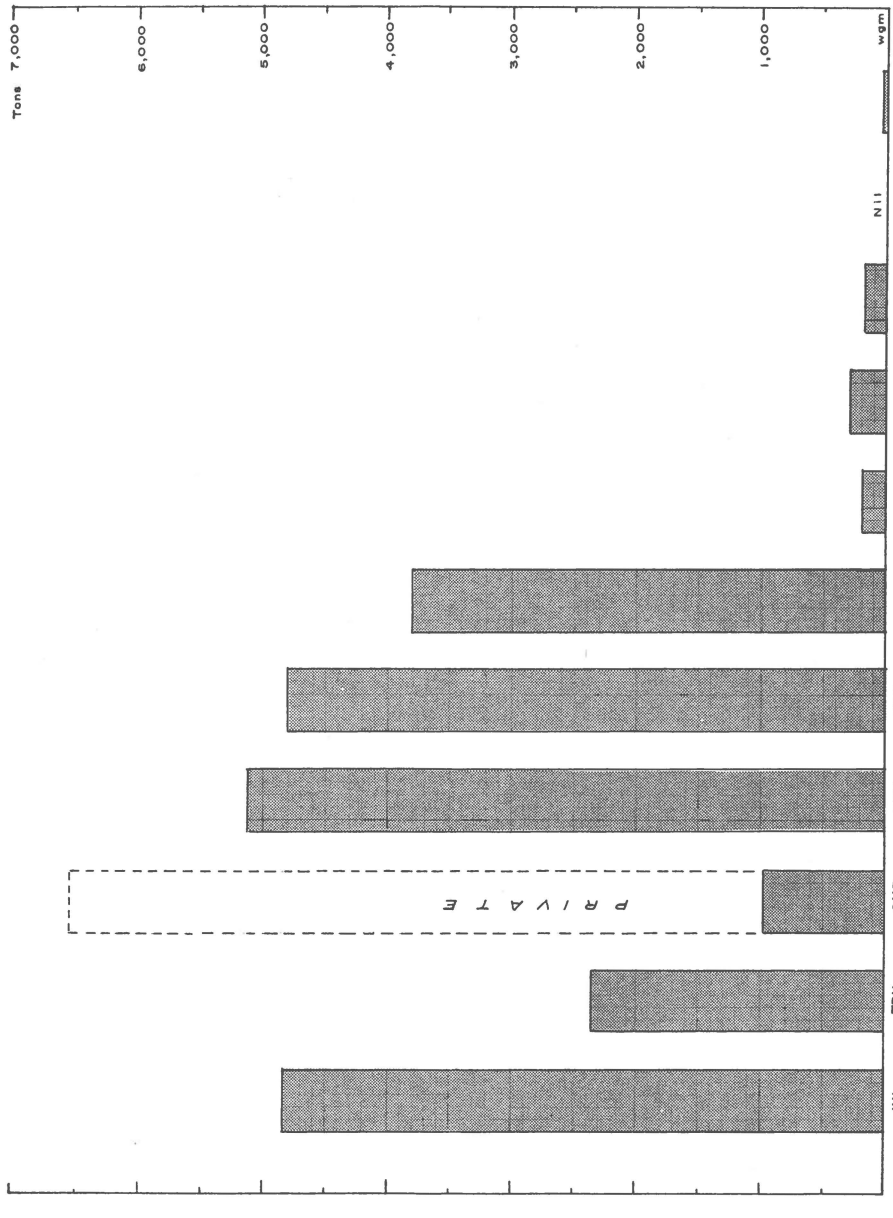


Fig. 36. Cod Landings in West Greenland, by district, 1966.

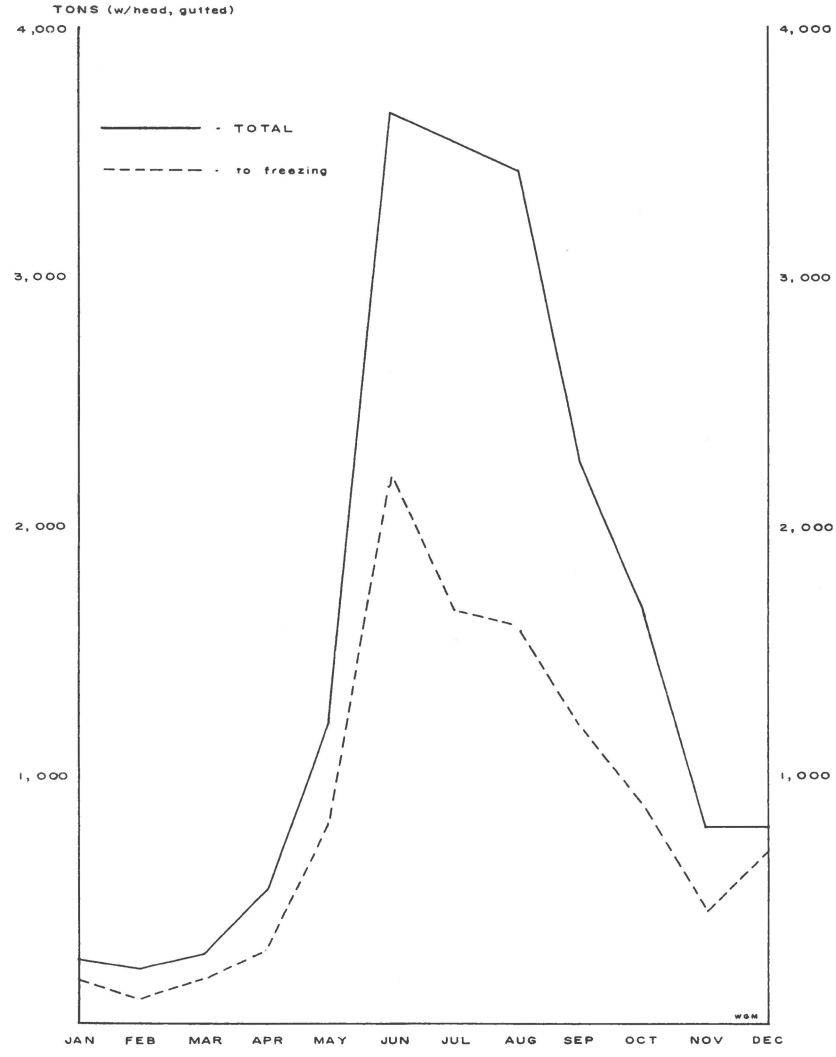


Fig. 37. Monthly cod Landings (KGH), 1966.

above-named districts. Landings by local fishermen remained unchanged in Godthåb district in 1966. The large increase of cod landings resulted, as mentioned above, from the activity of the four large line boats.

Monthly cod landings (Fig. 37) for 1966 show that the fishery was highly seasonal. June, when cod follow spawning capelin to shore, had the highest landings because of the important pound-net (bundgarn) fishery. July and August also had considerable landings, but the six-month period from November through April showed minimal landings. This strong seasonal character of the Greenlandic inshore cod fishery

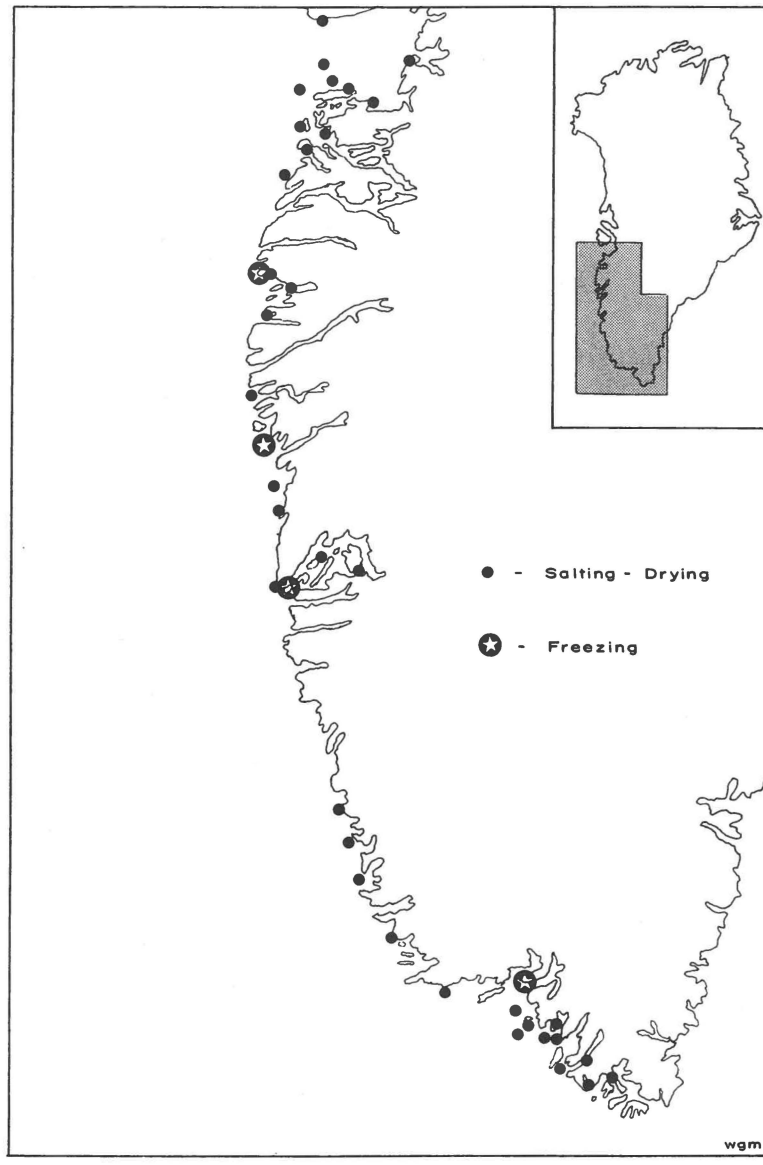


Fig. 38.

cannot be expected to change until vessels larger than the present 8–10 ton cutters are utilized.

Packing of saltfish for export gives an accurate picture of size distribution of the fish, since all fish are size-sorted when packed in 50-kilogram bundles. Size distribution of cod in 1966 showed a decrease in the number of larger cod compared with previous years. If the fish are divided into two groups (large = 10 to 59 per 50-kilogram bundle; small

Table 68. *Value of landed fish products in West Greenland, 1966 (in thous. kroner).*

District	Cod	Hellefisk	Wolffish	Salmon	Prawns	Lumpsucker roe	Other fish**	Total
Nanortalik	288.5	20.0	19.6	63.5	–	–	4.8	396.4
Julianehåb	852.5	16.3	9.2	489.4	9.4	–	31.7	1,408.5
Narssaq	635.3	20.5	23.7	65.2	359.7	2.4	48.0	1,154.8
Frederikshåb	690.0	33.2	–	914.4	–	200.6	4.7	1,842.9
Godthåb	268.4	96.0	–	–	–	19.5	–	383.9
Sukkertoppen	2,122.8	29.5	404.9	521.3	126.7	364.8	36.8	3,606.8
Holsteinsborg	1,857.2	138.3	56.5	318.5	256.0	2.4	4.6	2,633.5
Egedesminde	1,198.8	1.5	81.7	501.6	146.5	0.2	4.4	1,934.7
Christianshåb	78.6	2.5	8.7	51.6	3,537.5	–	–	3,678.9
Jakobshavn	106.2	156.7	26.1	24.1	1,001.6	–	10.0	1,324.7
Godhavn	53.2	–	38.1	4.1	104.9*	–	6.5	206.8
Umanak	4.3	298.0	1.1	–	–	–	90.5	393.9
Upernavik	–	9.0	3.8	–	–	–	1.1	13.9
Total	8,155.8	821.5	673.4	2,953.7	5,542.3	589.9	243.2	18,979.8

* Landed to m/s "Sværdfisken".

** Includes halibut, redfish, char, capelin, shark meat, shark skin, and herring.

Source: compiled from unpublished materials supplied by KGH.

Table 69. *Value of landed cod products in West Greenland, 1966.**

District	to salting & drying	to filleting	Total
Nanortalik	270.5	18.0	288.5
Julianehåb	190.2	662.3	852.5
Narssaq	–	635.3	635.3
Frederikshåb	690.0	–	690.0
Godthåb	268.4	–	268.4
Sukkertoppen	140.5	1,982.3	2,122.8
Holsteinsborg	74.9	1,782.3	1,857.2
Egedesminde	989.8	209.0	1,198.8
Christianshåb	–	78.6	78.6
Jakobshavn	37.7	68.5	106.2
Godhavn	53.2	–	53.2
Umanak	4.3	–	4.3
Upernavik	–	–	–
Total	2,719.5	5,436.3	8,155.8

* In thousands of kroner.

Source: compiled from unpublished materials supplied by KGH.

= over 60 per bundle), 36 per cent of the 1966 catch were large and 64 per cent small. In 1965 there were equal numbers in each category and in 1964 64 per cent were "large" and 36 per cent "small", or the exact opposite of 1966.[1])

It is believed that this decline in the average size of cod indicates overfishing by trawlers of the large international bank fishery in Davis Strait. The increasing use of the pound-net in inshore waters has also resulted in a decline of the average size of cod taken. By its relative non-selectivity the pound-net produces a smaller sized fish compared with long-lines and hand-lines.

In 1966 cod accounted for 41 per cent of the total landed value of fish in Greenland (Fig. 24). In West Greenland, cod landings were worth 8 million kroner out of a total landed value of 19 million kroner, or 42 per cent (Table 68). Of the value of cod landed, two thirds (5,436,300 kroner) went to filletting and freezing, while one third went to salting and drying (2,719,500 kroner), as shown by Table 69.

Other than the main private factory at Godthåb (not included in this study except for general totals of the Greenlandic fishery), the main freezing plants are at Sukkertoppen and Holsteinsborg. The Narssaq

[1]) From remarks of Dir. Hans C. Christiansen (KGH) at the annual fishing meeting on 17 April 1967, Christiansborg, Copenhagen: Referat af den kongelige grønlandske Handels Fiskerimøde 17 April 1967, p. 2.

factory processes smaller amounts of frozen cod, receiving also raw fish from Nanortalik and Julianehåb districts.

The main cod processing locations in 1966 in West Greenland are shown in Figure 38, which illustrates the widely-scattered, small-unit salting stations in each district up to Disko Bugt.

Hellefisk

Landings of hellefisk in 1966 in West Greenland are shown in Table 68. The important landings in Umanak district (about 36 per cent of the total landed value of hellefisk) are all salted in barrels. The two other main landing places are Jakobshavn and Holsteinsborg, which together landed an amount equivalent to Umanak. The hellefisk at these two places is frozen for export. Landings at Holsteinsborg decreased in 1966 because of the relatively good cod fishery and at Jakobshavn through a lack of interest in the traditional winter fishery in the Isfjord near Jakobshavn,[1]) landings from which were quite small in 1966. The value of hellefisk in 1966 was only about 4 per cent of the total landed value of all fish products, and landings declined from a high in 1965.

Wolffish

Wolffish landings declined by about one quarter in 1966 in West Greenland, doubtless because of the good autumn cod fishery. Over one half of the wolffish landings occurred in Sukkertoppen district, which represented about 60 per cent of the total landed value of this fish. Wolffish landings have fluctuated greatly after the general decline between 1957 and 1962.

Salmon

Salmon landings in 1966 in West Greenland were 593 tons (excluding private) and accounted for about 16 per cent of the total landed value of fish (or about 24 per cent if private landings are included). Salmon and prawns held equal importance (by value) after cod. Salmon landings were spread rather evenly along the coast from Julianehåb to Egedesminde, with highest landings in the districts between Frederikshåb and Sukkertoppen. Not included in salmon's landed value of 2.9 million kroner was a sales bonus of 1.1 mill. kr., or 42.7 per cent of the total landed value of this fish.

Prawns

Prawn landings increased by about 6 per cent in 1966 in keeping with a general increase since the beginning of this fishery. Over 4,600

[1]) see JACOBI, 1960; NELLEMAN, 1961a; SMIDT, 1969; and WAAGSTEIN, 1959 for a description of this fishery.

tons of prawns were landed, 3,000 of this at Christianshåb, which is the only place with peeling machines. Prawns accounted for 30 per cent of the total fish landings (by value) to KGH, or 24 per cent of the grand total (including private). Prawn landings to private processing facilities in 1966 increased by 73 per cent.

All fish

The total landed value of fish (KGH) in Greenland was about 20 million kroner in 1966, an increase of about 16 per cent over the previous year. Private landings increased by 57 per cent, from about 5 to 8 million kroner, giving a total increase in landed value of about 27 per cent (28 mill. kr.) over 1965 (Fig. 22).

Fishing accounted for over 19 million kroner of landed value out of a total landed value of all products (KGH) in Greenland of 24 million kroner (Table 70 and Fig. 39). Fishing therefore represents about 80 per cent of the total landed value. Hunting products were valued at about 3.1 million kroner, and sheep-farming products at 1.6 million kroner.

Table 70. *Landed value* of fishing, hunting, and sheep farming products in Greenland, 1966.*

District	Fishing	Hunting	Sheep Farm.	Misc.	TOTAL
Nanortalik	396.4	18.2	38.9	–	453.5
Julianehåb	1,408.5	65.6	–	–	1,474.1
Narssaq	1,154.8	4.6	1,552.8	–	2,712.2
Frederikshåb	1,842.9	23.9	–	–	1,866.8
Godthåb	383.9	26.2	–	–	410.1
Sukkertoppen	3,606.8	44.5	–	81.2	3,732.5
Holsteinsborg	2,633.5	29.4	–	–	2,662.9
Egedesminde	1,934.7	299.2	–	14.2	2,248.1
Christianshåb	3,678.9	6.6	–	–	3,685.5
Jakobshavn	1,324.7	142.1	–	1.2	1,468.0
Godhavn	206.8	62.0	–	–	268.8
Qutdligssat	0.1	41.7	–	–	41.8
Umanak	393.9	522.0	–	4.0	919.9
Upernavik	13.9	913.3	–	9.7	936.9
W. Greenland	18,979.8	2,199.3	1,591.7	110.3	22,841.1
Thule	–	283.5	–	1.6	285.1
Angmagssalik	303.9	392.3	–	3.0	699.2
Scoresbysund	–	231.0	–	–	231.0
Total	19,283.7	3,106.1	1,591.7	114.9	24,096.4

* In thousands of kroner.

Source: compiled from unpublished materials supplied by KGH.

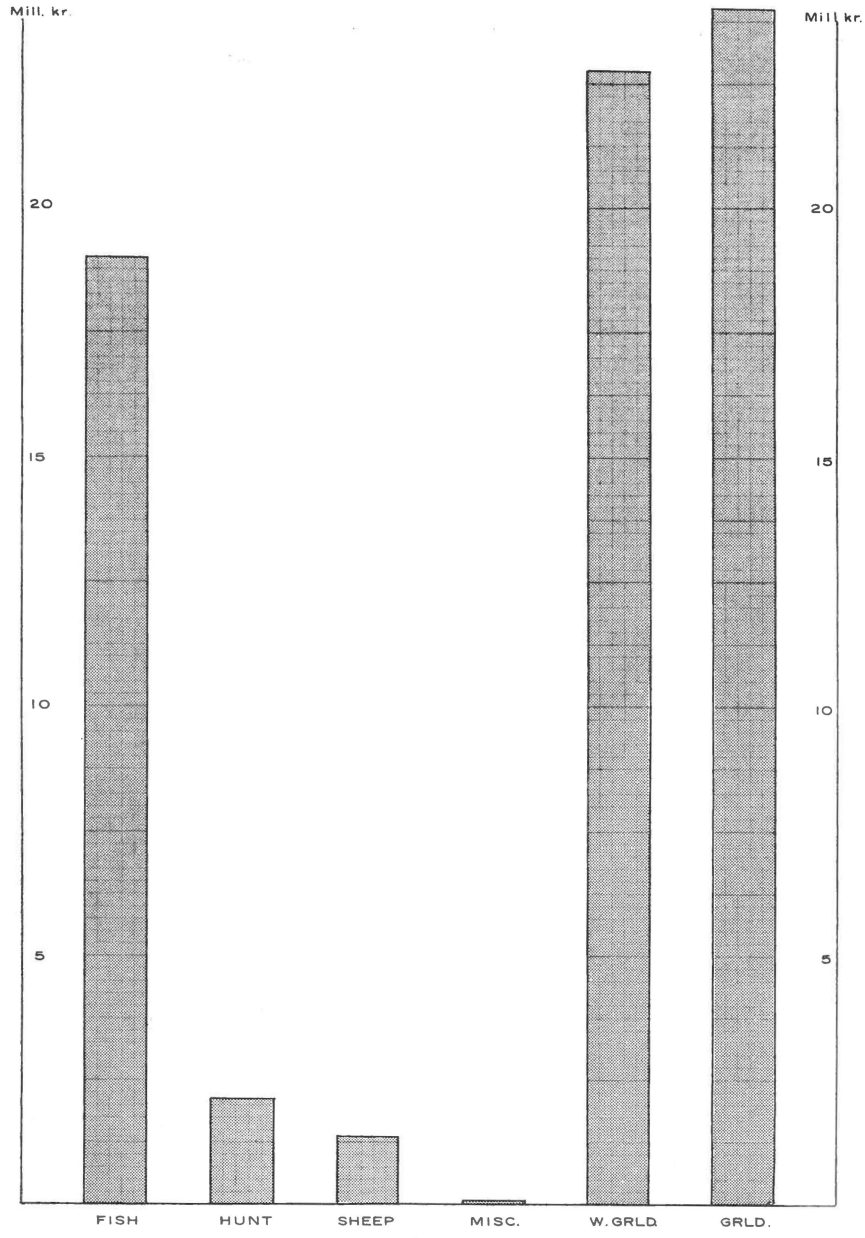


Fig. 39. Landed Value of Products, 1966.

Table 70 lists by district the landed value of fishing, hunting, and sheep-farming products in Greenland, and shows the high proportion of all these landings from West Greenland versus North Greenland (Thule) and East Greenland (Angmagssalik and Scoresbysund districts).

Table 71. *Total persons landing fishing and hunting products in West Greenland, 1966.*

District	Fishing	Hunting
Nanortalik	290	89
Julianehåb	293	165
Narssaq	44	11
Frederikshåb	275	75
Godthåb	m	m
Sukkertoppen	247	70
Holsteinsborg	184	52
Egedesminde	334	244
Christianshåb	159	35
Jakobshavn	183	186
Vaigat	–	101
Godhavn	90	88
Umanak	m	m
Upernavik	m	m
Total	2,099	1,116

m – data missing.

Source: unpublished data from KGH archives.

Occupations

A consideration of per capita landings (by value) for each district would normally be a logical step in such a study, but this would serve little purpose here. For example, Christianshåb is next to Sukkertoppen in value of landed products in Greenland, but this prawn-fishing district has a population of only 1,407 versus Sukkertoppen's 3,061. The landed value of products per capita would therefore be twice that of Sukkertoppen, but the bulk of prawn landings in Christianshåb are made by non-residents. A district per capita comparison of landed values, therefore, is not accurate because landings are recorded by district in which they are made and not according to where the fisherman is a resident.

Of more interest might be an enumeration of the total number of persons in each district landing fishing and hunting products as shown in Table 71. Unfortunately the data are incomplete, but they give a reasonably accurate picture for the west coast with the exception of Godthåb and the hunting districts of Umanak and Upernavik. It would be difficult to draw a conclusion from this table about the number of persons engaged in fishing or hunting as a main occupation because this list includes many spare-time hunters and fishermen (civil servants and others) who land their catch to KGH.

The official census figures (on 31 December 1965) provide more informative data on this question. Tables 72 through 77 have been

Table 72. *Main occupation groups in Greenland, 31 December 1965* (persons born in Greenland).*

Occupation	Male	Female	Total
Fishing	4,187	2,788	6,975**
Hunting	2,098	1,878	3,976
Agriculture	255	190	445
Mining	411	306	717
Manufacturing	1,340	1,346	2,686
Construction	1,651	1,464	3,115
Public works, etc.	260	229	489
Trade	1,782	1,902	3,684
Transport	1,591	1,218	2,809
Admin. & services	2,121	3,222	5,343
Pensioners	1,855	3,023	4,878
Total	17,551	17,566	35,117

* Including family and dependents of bread-winner.
** West Greenland – 6,589.

Source: compiled from: Denmark. Danmarks Statistik. Grønland, Folke- og boligtællingen 31. december 1965 etc. Stat. Tabelværk 1969: IX, p. 48.

Table 73. *Status of persons listed under fishing as occupation (in Table 72), persons born in Greenland (incl. family and dependents of breadwinner).*

Status	Male	Female	Total
Employed:			
Independent	1,497	2	1,499
Share fishermen	753	2	755
Civil servants	3	–	3
Skilled workers	–	–	–
Unskilled workers	181	2	183
Sub-total	2,434	6	2,440
Other:			
Housewives	–	975	975
Children	1,753	1,659	3,412
Domestic help (daughters)		138	138
Other domestic help		10	10
Sub-total	1,753	2,782	4,535
Total	4,187	2,788	6,975

Source: compiled from: Denmark. Danmarks Statistik. Grønland, Folke- og boligtællingen 31. december 1965 etc. Stat. Tabelværk 1969: IX, p. 48.

Table 74. *Geographic distribution of persons connected with fishing, hunting, and agriculture in West Greenland, 31 December 1965.**

District	Hunting	Fishing	Agric.	Total
Nanortalik	264	727	78	1,069
Julianehåb	66	435	79	580
Narssaq	16	169	268	453
Frederikshåb	55	515	-	570
Godthåb	72	844	20	936
Sukkertoppen	7	1,095	-	1,102
Holsteinsborg	18	686	-	704
Kangâtsiaq	299	547	-	846
Egedesminde	108	428	-	536
Christianshåb	79	285	-	364
Jakobshavn	390	362	-	752
Vaigat	18	-	-	18
Godhavn	72	129	-	201
Umanak	613	330	-	943
Upernavik	811	37	-	848
Total	2,888	6,589	445	9,922

* Includes family and dependents of breadwinner.

Source: compiled from - Denmark. Danmarks Statistik. Grønland, Folke- og Boligtællingen 31. december 1965 etc. Stat. Tabelværk 1969: IX, pp. 51 & 53.

extracted from official census figures to show the importance of fishing as an occupation in West Greenland. In Table 72 the main occupational groups are shown. As noted in the table, this breakdown includes not only people actually working in each employment category, but their families and dependents as well.

As seen in Table 72, fishing is represented by more persons than any other occupation category. The two groups "manufacturing" and "trade" include many people in fish processing and export, but who do not actually land fish. More people are therefore associated with the fishing industry than indicated in the table. Of note are the high numbers of people associated with construction and with administration and services

When one looks in greater detail at the occupational group of "fishing" in Table 72, which had 6,975 persons out of the total population of 35,117, one finds (Table 73) that there are 1,499 independent fishermen and 755 share fishermen working on another person's boat. The total of persons employed in fishing in 1966 in Greenland was 2,440 out of 6,975 in the occupational group. The remainder consisted of children and wives of the fishermen (4,535 persons).

Most of the persons in the occupational group of "fishing" (Table 72) lived in West Greenland (6,589 out of 6,975). Table 74 shows the distribu-

Table 75. *Residence distribution of persons connected with fishing in West Greenland* (31 December 1965).*

District	Town	Settlement	Total
Nanortalik	114	613	727
Julianehåb	178	257	435
Narssaq	169	–	169
Frederikshåb	217	298	515
Godthåb	421	423	844
Sukkertoppen	472	623	1,095
Holsteinsborg	491	195	686
Kangâtsiaq	54	493	547
Egedesminde	181	247	428
Christianshåb	153	132	285
Jakobshavn	262	100	362
Vaigat	–	–	–
Godhavn	70	59	129
Umanak	23	307	330
Upernavik	–	37	37
Total	2,805	3,784	6,589

* Includes family and dependents of breadwinner.

Source: compiled from: Denmark. Danmarks Statistik. Grønland, Folke- og Boligtællingen 31. december 1965 etc. Stat. Tabelværk 1969: IX, p. 51 & 53.

tion in West Greenland of persons connected with fishing (fishermen and their families), hunting, and agriculture (sheep-raising) by district. The ice-free districts of Godthåb and Sukkertoppen had the largest number of persons connected with fishing, although Kangâtsiaq district had the highest number per population (547 out of a total population of 1,227). Sukkertoppen was next with 1,095 persons connected with fishing out of a total population of 3,061.

Of the persons connected with fishing in West Greenland, 57 per cent lived in settlements (the former udsted and boplads), and 43 per cent lived in the main town (by), as shown in Table 75.

Of the persons actually engaged in the traditional "independent" occupations in West Greenland, 2,311 (or 72 per cent) were engaged in fishing, 734 in hunting (23 per cent), and 153 in sheep-farming (5 per cent), as shown in Table 76.

Of the 2,311 engaged in fishing as the main occupation, 1,329 (or 57 per cent) lived in settlements (bygd) and 982 (43 per cent) in the main towns (by).

The 57 fishermen in Narssaq district all lived in the town of Narssaq (Table 77) and it is a sampling of these fishermen which comprises this final chapter. Likewise, a sampling will be presented of the 170 fishermen

Table 76. *Geographic distribution of persons engaged in hunting, fishing, and agriculture in West Greenland, 31 December 1965.*

District	Hunting	Fishing	Agriculture	Total
Nanortalik	65	277	26	368
Julianehåb	15	167	27	209
Narssaq	7	57	92	156
Frederikshåb	15	178	–	193
Godthåb	17	280	8	305
Sukkertoppen	2	388	–	390
Holsteinsborg	7	245	–	252
Kangâtsiaq	66	153	–	219
Egedesminde	21	132	–	153
Christianshåb	23	96	–	119
Jakobshavn	94	140	–	234
Vaigat	5	–	–	5
Godhavn	18	47	–	65
Umanak	165	140	–	305
Upernavik	214	11	–	225
Total	734	2,311	153	3,198

Source: compiled from: Denmark. Danmarks Statistik. Grønland, Folke- og Boligtællingen 31. december 1965 etc. Stat. Tabelværk 1969: IX, pp. 51 & 53.

Table 77. *Residence distribution of persons engaged in fishing in West Greenland, 31 December 1965.*

District	Town	Settlement	Total
Nanortalik	44	233	277
Julianehåb	59	108	167
Narssaq	57	–	57
Frederikshåb	89	89	178
Godthåb	135	145	280
Sukkertoppen	170	218	388
Holsteinsborg	176	69	245
Kangâtsiaq	16	137	153
Egedesminde	44	88	132
Christianshåb	56	40	96
Jakobshavn	100	40	140
Vaigat	–	–	–
Godhavn	26	21	47
Umanak	10	130	140
Upernavik	–	11	11
Total	982	1,329	2,311

Source: compiled from: Denmark. Danmarks Statistik. Grønland, Folke- og Boligtællingen 31. december 1965 etc. Stat. Tabelværk 1969: IX, pp. 51 & 53.

in the town of Sukkertoppen and the 218 fishermen in settlements (among which is Kangâmiut).

The number of persons engaged in fishing and hunting in West Greenland, as discussed above, was determined from the official census, but only tentative conclusions can be drawn from these statistics. For example, the 57 fishermen of Narssaq district listed in the census do not all fish regularly, as will be shown in the concluding portion of this chapter. Only 35 of the 57 were found to fish regularly (six months or more of the year), thus placing some doubt upon the rigid categories used in the census. It is also difficult to determine how much fishing is done by persons listed under other occupational categories in Greenland.

Vessels

In 1966 there were 759 fishing motorboats in West Greenland, although it should be noted that these data are incomplete (Table 78). There were 2,192 rowboats and other non-powered vessels used for fishing. The use of outboard motors has increased in recent years, but no statistics exist which show the extent and distribution of these motors.

Of the 759 motorboats, all but 29 were under 20 tons. Fifty-seven per cent (437 motorboats) were under five tons (Table 79). Of the 29 boats over 20 tons, 19 were between 20 and 40 tons. It can be seen, therefore,

Table 78. *Motorboats and rowboats in West Greenland, 1966, by district.*

District	Motorboats	Rowboats
Nanortalik	31	77
Julianehåb	77	210
Narssaq	15	16
Frederikshåb	110	113
Godthåb	109	95
Sukkertoppen	118	102
Holsteinsborg	110	50
Egedesminde	88*	141
Christianshåb	22	55**
Jakobshavn	44	83
Vaigat	2	200
Godhavn	33	50
Umanak	m	m
Upernavik	m	m
Total	759	2,192

* Data incomplete.
** Estimated.
m – data missing.
Source: unpublished data from KGH archives.

Table 79. *Weight category of motorboats (fishing) in West Greenland, 1966 (by district), in tons.*

District	under 4.99	5– 9.99	10– 14.99	15– 19.99	20– 39.99	40– 99.99	+ 100
Nanortalik	18	10	1	2	–	–	–
Julianehåb	20	21	20	15	1	–	–
Narssaq	2	3	4	6	–	–	–
Frederikshåb	81	15	3	8	2	1	–
Godthåb	60	20	4	14	3	4	4
Sukkertoppen	69	9	21	13	6	–	–
Holsteinsborg	55	18	13	23	1	–	–
Egedesminde*	68	1	3	13	2	1	–
Christianshåb	15	–	2	5	–	–	–
Jakobshavn	29	6	2	6	1	–	–
Vaigat	2	–	–	–	–	–	–
Godhavn	18	5	5	2	3	–	–
Umanak	m	m	m	m	m	m	m
Upernavik	m	m	m	m	m	m	m
Total	437	108	78	107	19	6	4

* Data incomplete.

m – data missing.

Source: unpublished data from KGH archives.

that the fishing vessels in West Greenland in 1966 were of small size, and that only slight progress had been made towards the goal of establishing a large-vessel, bank fishing fleet in Greenland.

As with the occupational categories, the official data on the distribution of boats in West Greenland must be treated with care, as the more detailed field investigations have shown. Sukkertoppen district is credited with 102 rowboats (Table 78), but the field studies showed that there were three times that number of rowboat fishermen in Sukkertoppen and Kangâmiut alone. Some of these persons landing fish from rowboat were of the same family using one rowboat, but conclusions from the field studies cast a dubious light upon the official statistics. Narssaq is listed as having 16 rowboats, but fish landings were made by 110 rowboat fishermen in 1966, of which 20 were "regular" fishermen with their own vessels.

Sample Fishing Towns

Introduction

For the purpose of illustration of fishing in West Greenland during a recent year, three places were chosen for more detailed study. They are Narssaq, a town (by) in the extreme southern part of the west coast and

Table 80. *Sample places and other places of corresponding size in Greenland.*

Towns:	1966 Population
Nanortalik	974
Julianehåb	1,875
Narssaq	1,337
Frederikshåb	1,329
Godthåb	4,035
Sukkertoppen	1,999
Holsteinsborg	2,355
Kangâtsiaq	285
Egedesminde	2,340
Christianshåb	1,114
Jakobshavn	1,859
Godhavn	725
Settlements:	
Augpilagtoq (Nan.)	248
Frederiksdal (Nan.)	238
Sydprøven (Nan.)	506
Sletten (Nan.)	217
Qagssimiut (Jul.)	212
Arsuk (Fred.)	353
Fiskenæsset (Godth.)	343
Napassoq (Skt.)	222
Kangâmiut (Skt.)	649
Niaqornârssuk (Kangat.)	283
Akúnâq (Egedes.)	217
Claushavn (Chrb.)	213

the center for Narssaq district; Sukkertoppen, a town and center for Sukkertoppen district in the middle part of the west coast; and Kangâmiut, formerly an outpost (udsted), but now classified as a settlement (bygd), in Sukkertoppen district. Both Narssaq and Sukkertoppen have large fish-processing factories and represent 50 per cent of such factories in Greenland in 1966 (excluding the prawn-freezing plants in Disko Bugt). The others are at Godthåb and Holsteinsborg. Kangâmiut has an active fish-salting station, one of 35 such stations in West Greenland. Kangâmiut is the largest outpost in West Greenland. There are 26 other settlements (bygd) with fish-salting stations, but only three of these are of comparable size (Sydprøven, Arsuk, and Fiskenæsset), so that the sample is about 25 per cent of such places. Table 80 lists the population of the main towns and settlements (over 200 inhabitants) in the fishing area of West Greenland. The locations of the three sample places are shown in Figure 40. Sukkertoppen and Kangâmiut were chosen for study because they are considered excellent fishing centers with a population of skilled,

active fishermen. Narssaq, as a district center in the sheep-raising area of the southwest, has a factory which is the most diversified in Greenland.

Methods

Each of the places was visited at least three times during the years 1960, 1962, and 1967. An attempt was made to choose sample fishermen from among those who fished regularly in each of three vessel categories: rowboat, small motorboat (under 22 feet), and large motorboat (over 22 feet). All fishermen in each of the three places were classified by vessel type and fishing frequency.

Greenlandic fishermen keep few records of their activity, except for saving salmon and prawn landing receipts for possible future bonus payments. It was not feasible, therefore, to rely on the personal records of individual fishermen for data on catch, type of fish, landed value, fishing frequency, and so forth. Records of expenses for operation, gear, bait, and other items are not kept, nor was there any recourse in official papers to aid in determining the expense side of the ledger for fishermen.

The author was forced to make use of the landing receipts (indhandlingssedler) of the KGH for the statistical material on which this concluding part of the study is based. Although the volume of landing receipts made this research tedious (KGH issued over one million receipts in 1966), and EDP systems are not used except for sealskins, the use of landing receipts supplied valuable data about the entire fishing population of each place—information which is not available in any accurate form in the official statistics. In addition, sample fishermen were chosen and their 1966 landings tabulated. A total of 13,860 landing receipts was tabulated: 3,709 for Narssaq, 4,999 for Sukkertoppen, and 5,152 for Kangâmiut.

The sample taken was of reasonable size compared with the number of vessels involved. Fishermen were chosen from among those who fished regularly. A "regular" fisherman was defined arbitrarily as one who fished during six months or more of the year.

As seen in Table 81, there were many rowboat fishermen who landed

Table 81. *Regular* fishermen in Narssaq, Sukkertoppen, and Kangâmiut, 1966 (total fishermen landing fish during the year in parentheses).*

Place	Rowboat	Motorboats	
		− 22′	+ 22′
Narssaq	20 (110)	2 (4)	13 (17)
Sukkertoppen	12 (195)	7 (20)	30 (41)
Kangâmiut	28 (107)	15 (22)	9 (17)

* Fishing during six or more months of the year.

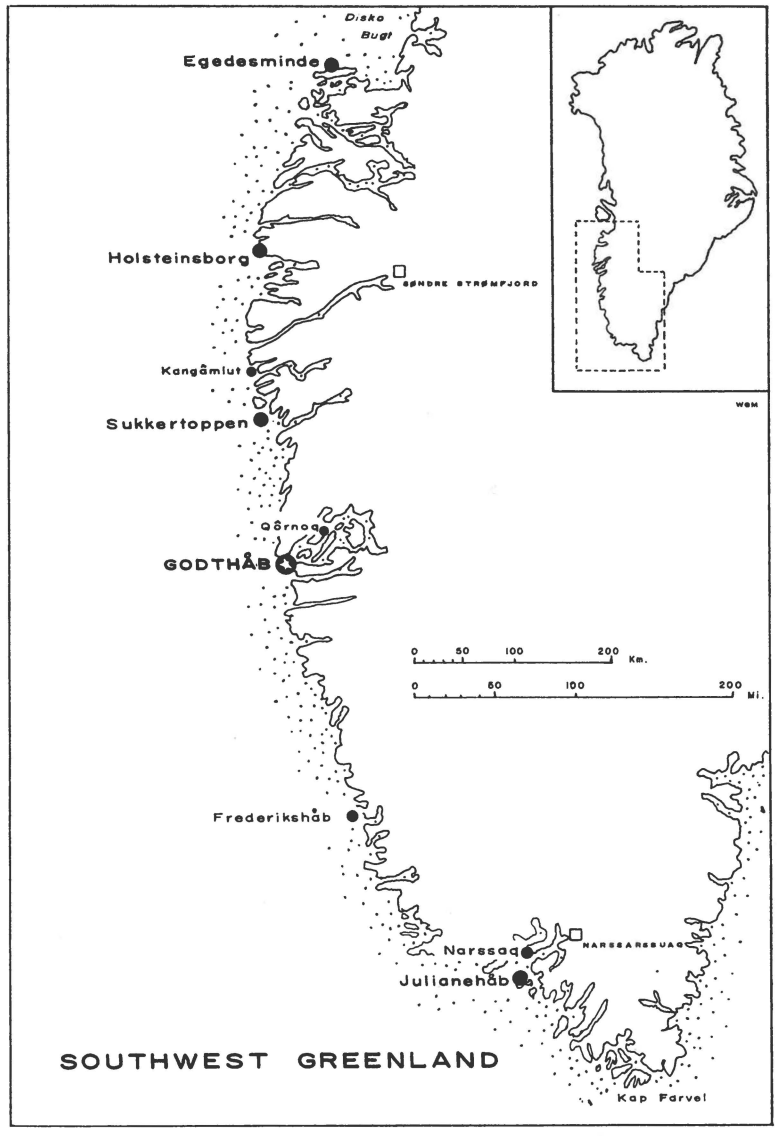


Fig. 40.

fish at least once during the year in the three places, but less than 25 per cent of these were "regular". The situation was better for motorboat fishermen; over half were regular in both the small and large motorboat category (52 per cent and 56 per cent).

The sample used can be seen in Table 82. For "regular" rowboat fishermen the sample ranged from four to ten per cent (average of seven per cent of all the "regular" rowboat fishermen in the three places). But

Table 82. *Sample of fishermen in Narssaq, Sukkertoppen, and Kangâmiut, 1966 (total regular fishermen in parentheses).*

Place	Rowboat	Motorboats	
		− 22′	+ 22′
Narssaq	2 (20) = 10%	1 (2) = 50%	3 (13) = 23%
Sukkertoppen	1 (12) = 8%	1 (7) = 14%	3 (30) = 10%
Kangâmiut	1 (28) = 4%	1 (15) = 7%	1 (9) = 11%
All places	4 (60) = 7%	3 (24) = 12%	7 (42) = 17%
All vessels	4 (412) = 1%	3 (46) = 7%	7 (75) = 9%

the sample was only one per cent of all rowboat fishermen. For "regular" small motorboat fishermen the sample ranged from 7 to 50 per cent (average 12 per cent of all "regular" small motorboat fishermen in the three places), and was 7 per cent of all small motorboat fishermen. The sample of "regular" large motorboat fishermen ranged from 10 to 23 per cent (average 17 per cent of all "regular" large motorboat fishermen in the three places), and 9 per cent of all large motorboat fishermen.

A total sample was made (for each vessel category) of the number of landing days, total landings, landings per day, landings per fishing day, and monthly landings per participating vessel.

The sample used, therefore, was a reasonable one: 7 per cent of regular rowboat fishermen in the three places, 12 per cent of regular small motorboats, and 17 per cent of large motorboats.

The activities of the sample fishermen were followed for each day of the year. Monthly totals were tabulated for the amount and value of each type of fish landed, number of landings, average value of landings for each month, and landed value of hunting and sheep products sold to KGH.

The detailed annual report on the fishery at each place compiled by the trade chief (handelschef) was consulted to give an idea of how the 1966 fishery compared with other years, weather and ice conditions, and other observations.

Finally, the 1966 results of the State's four line vessels were studied for comparison with fishing results of the other boats.

Narssaq

Narssaq is a small town located on the west side of a peninsula 22 kilometers (14 miles) north of Julianehåb and 44 kilometers (28 miles) west of the airbase Narssarssuaq, the former BW–1 (Fig. 40). Narssaq's location is rather atypical of the larger towns in West Greenland because

it is not on the outer coast, but halfway from the outer coast to the inland icecap, on the fjord complex of Skovfjord-Tunugdliarfik.

Narssaq is the main town of Narssaq district, which was formerly a part of Julianehåb district. The total population of Narssaq district in 1966 was 1,686 Greenlanders. In 1966, 1,337 Greenlanders lived in the town of Narssaq, while the remainder lived in 14 sheep-farming locations, most of which were single farms. Some, like Qagssiarssuk (103 Greenlanders) and Igaliko (117 Greenlanders) are larger outposts with several sheep farms. Narssaq is the only place in the district where fish are landed.

The population of Narssaq trebled between 1946 and 1966, most of the growth occurring after 1960. A factory for processing prawns was built in 1950, with an associated sheep-lamb abattoir. Production of frozen fish fillets began in 1954, but only four tons of cod were landed that year.

Narssaq, whose Greenlandic place-name means "the plain", was founded around 1880 as a trading post and, as a seal hunting place, had a population of 86 Greenlanders in 1901. In 1914 a fish station for salting hellefisk was built there, and by 1918 Narssaq had a population of 167 Greenlanders.

Cod is the main fish landed at Narssaq, but much of the cod processed in Narssaq's plant is sailed in from Julianehåb district (Table 94) and from outlying fishing camps up to two hours' sailing time along the Tunugdliarfik-Skovfjord complex. Cod fishing is poor in the vicinity of Narssaq, with the exception of the short pound-net fishery during early summer. The 1,305 tons of cod (whole fish) landed by Narssaq fishermen in 1966 represented over half of the landed value of all fish products in the district. Prawns (268 tons) accounted for about one third of the landed value of all fish, with salmon (14 tons) and redfish (109 tons) as the remaining fish of value. Hellefisk and wolffish (70 tons each) were valued at about one half the salmon and redfish landings (Tables 68 and 83).

In 1966, 110 rowboats landed fish at Narssaq, and 21 motorboats (4 of which were under 22 feet and 17 were over 22 feet). Of the 110 rowboats, I have classed 20 as "regular" (landings during six or more months of the year) and 13 as "summer" (3–5 months in the summer season). Out of the total of 110 rowboat fishermen, 67 landed fish for two months or less (55 during one month only, and 12 for two months). Ten fishermen had sporadic landings, which I classed as "miscellaneous" and were part of the "spare-time fisherman" (lejlighedsfiskere) category used by KGH. This last classification of "miscellaneous" also included fishermen landing fish for 3 to 5 months, only part of which occurred in the summer.

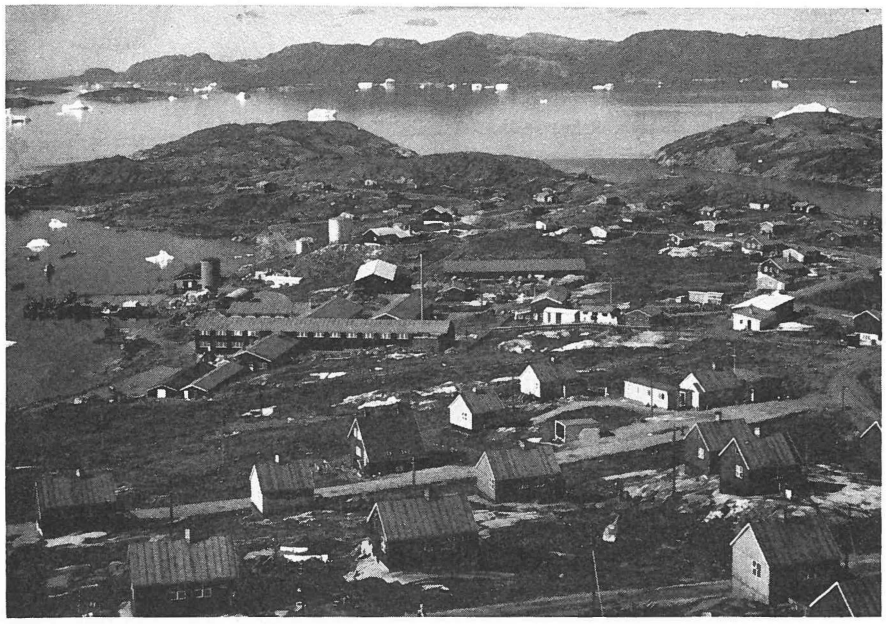


Photo 2. Narssaq. "Fabriksbugten", 12 August 1967.

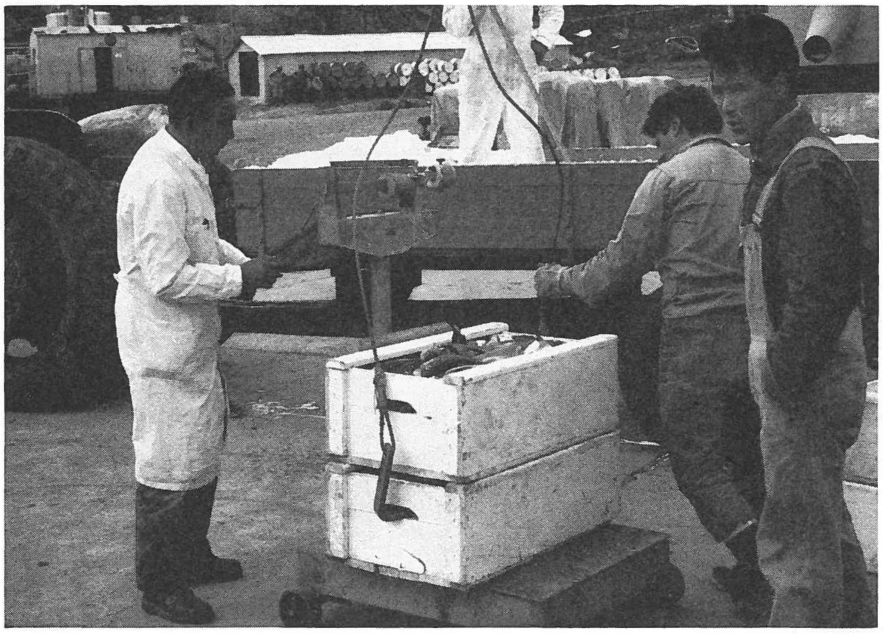


Photo 3. Weighing fish at Narssaq, 14 August 1967.

Table 83. *Narssaq fish landings in 1966, amount and landed value, and per cent of total landed value.*

Fish	Tons	1,000 kroner	%
Cod	1,305*	635.3	55
Hellefisk	69**	20.5	2
Wolffish	69***	23.7	2
Salmon	14**	65.2	6
Halibut	6**	50.4	4
Redfish	109*		
Prawns	268	359.7	31
		1,154.8	100

* Whole, fresh weight.
** With head, gutted
*** Whole, throat-slit (strubebeskåret)

Source: unpublished KGH data.

Of the small motorboats (under 22 feet), two were "regular" and two "summer". The large motorboats (over 22 feet) were mainly "regular" (13 out of 17), with three boats landing fish during one month only, and one boat for two months. Table 84 illustrates these categories.

The rowboats which fished for one or two months were, of course, most active during the summer (June-July), as shown in Table 85.

The number of vessels landing fish at Narssaq during each month of 1966 is listed by category in Table 86. It is difficult to determine the degree of fishing participation (or fishing intensity) for rowboats because of the low number which are active regularly (25 per cent of all rowboats). But if the total number of rowboats landing fish during the year is used

Table 84. *Categories of fishing vessels at Narssaq, with landing frequency, 1966.*

Category	Rowboats	Motorboats	
		− 22′	+ 22′
Regular (6 + mos.)	20	2	13
Summer (3 − 5 mos.)	13	2	–
Two-month	12	–	1
One-month	55	–	3
Miscellaneous	10	–	–
Total	110	4	17

Source: author's field observations and KGH landing receipts (indhandlingssedler).



Photo 4. Rowboat fisherman on Skovfjord near Simiutaq, Narssaq district, 3 August 1962. Note "snelle", a wheel for jigging cod with nylon monofilament and 10-hook lines.

in comparison with the number of boats landing during each month, a rough participation percentage can be determined which is valid at least for comparison with other places in Greenland.

Table 85. *Months of activity by one-month and two-month rowboat fishermen at Narssaq, 1966.*

Month	One-month	Two-months
January	–	1
February	1	1
March	2	1
April	4	2
May	5	1
June	17	3
July	13	4
August	2	4
September	5	6
October	5	1
November	1	–
December	–	–
Year Fishermen	55	24 ÷ 2 = 12

Source: author's field observations and KGH landing receipts (indhandlingssedler).

Table 86. *Participating fishermen by month at Narssaq, 1966, and per cent of total landing during the year.*

Month	Rowboat %	Motorboats	
		− 22′ %	+ 22′ %
January	17 (15)	1 (25)	11 (65)
February	9 (8)	1 (25)	11 (65)
March	14 (13)	1 (25)	14 (82)
April	35 (32)	3 (75)	13 (76)
May	30 (27)	4 (100)	13 (76)
June	40 (36)	4 (100)	13 (76)
July	46 (42)	3 (75)	12 (70)
August	39 (35)	1 (25)	8 (47)
September	43 (39)	3 (75)	7 (41)
October	33 (30)	3 (75)	11 (65)
November	15 (14)	1 (25)	11 (65)
December	3 (3)	0 (0)	13 (76)
Total boats landing and average monthly participation	110 (25 %)	4 (52 %)	17 (67 %)

Source: author's field observations and KGH landing receipts (indhandlingssedler).

Rowboats varied in participation from 3 per cent (December) to 42 per cent (July), with an average monthly participation of 25 per cent. The active months for rowboats were June through September, in which months the participation ranged from 35 to 42 per cent.

Of the four smaller motorboats, the average monthly participation was 52 per cent, with rather heavy participation in the seven-month period of April through October (with the exception of August).

The 17 larger motorboats showed more regular fishing participation throughout the year than did the smaller vessels, with an average monthly participation of 67 per cent. The two lowest months were August and September (47 and 41 per cent) when many boats were away fishing salmon in the more favorable areas of Frederikshåb district, and also on extended hunting holidays.

Landings of fish were made at Narssaq on 238 days of the year by rowboats, but on only 153 days by smaller motorboats and 204 days by large motorboats (Table 87). The month with the highest number of landing days for rowboats was September (30 days) and the lowest December (4 days). Small motorboats landed fish on only 6 days in October and December, and had a high of 23 days in June. Large motorboats had fewest days with landings in December (18 days) and highest in March (30 days), in which months 82 per cent of the large motorboats landed fish. From Tables 86 and 87 it is obvious that the large motorboats

Table 87. *Number of fishing days (days when landings were made) at Narssaq, 1966.*

Month	Rowboats	Motorboats	
		− 22′	+ 22′
January	19	13	27
February	8	13	24
March	13	14	30
April	20	14	24
May	20	11	28
June	27	23	29
July	26	17	27
August	28	12	21
September	30	16	24
October	24	6	26
November	19	8	24
December	4	6	18
Year	238	153	204

Source: Landing receipts (indhandlingssedler) of KGH.

were less hindered by cold temperatures and adverse weather throughout the year than were the smaller motorboats and rowboats.

Tables 88 and 89 show the total number of fish landings at Narssaq in 1966 by the three types of vessels. Rowboats had the highest number of

Table 88. *Total landings (excluding non-Narssaq vessels*) at Narssaq, 1966.*

Month	Rowboats	Motorboats	
		− 22′	+ 22′
January	67	3	158
February	15	1	171
March	42	5	202
April	194	7	174
May	99	11	113
June	216	24	167
July	320	22	151
August	322	10	43
September	249	18	53
October	178	6	51
November	47	2	81
December	5	0	46
Year	1,754	109	1,410

* See Table 89.

Source: KGH landing receipts (indhandlingssedler).

Table 89. *Total landings by non-Narssaq vessels at Narssaq, 1966.*

Month	Rowboats	Motorboats	
		− 22′	+ 22′
January	–	16	69
February	–	18	37
March	–	20	74
April	–	14	21
May	-	12	21
June	–	21	9
July	-	9	1
August	–	4	2
September	–	1	9
October	-	1	20
November	–	6	28
December	–	6	17
Year	–	128	308

Source: KGH landing receipts (indhandlingssedler).

landings during the year, but the average number of landings per participating vessel increased with the size of the vessel (Table 71a and Fig. 41). Rowboats averaged 16 landings each, small motorboats 27 landings, and large motorboats 83 landings in 1966.

The average monthly landings per participating vessel ranged from 1.66 (December and February) to 8.25 landings (August) for rowboats; from nil (December) to 10 landings (August) for small motorboats; and from 3.53 landings (December) to 15.54 landings (February) for large motorboats (Table 71a and Fig. 41).

The increase in average number of landings per month with increasing vessel size is another indication of the ability of the larger vessels to fish during adverse weather conditions in the winter period.

Tables 90 and 91 list the number of landings and their value by month for a sample of the three boat types. The total landed value of fish increased in direct proportion to vessel size. Average landings by rowboats were naturally low, and landings among the larger vessels had a great range, although the monthly averages of landed value were fairly uniform among the large motorboats. The Narssaq sample rowboats, being "regular" fishermen, had considerably more landings than the average of all Narssaq rowboats (*cf.* Tables 90 and 71a). The same was true of the sample small motorboat, whose 55 landings were twice the yearly average of all small motorboats. The three sample large motorboats were about the average of the total sample: one boat's total of 82 landings was exactly the average, while the two others averaged out at about the same as the total sample, although their range was great: 47 and 105 landings versus the average of all boats of 82.

Table 90. *Number of landings, landed value, and averages of fish landings for rowboats (2) and small motorboats (1) in the Narssaq sample, 1966.*

Month	Rowboats Nrq–1		Rowboats Nrq–2		Motorboats – 22	
	Land.	Kr.	Land.	Kr.	Land.	Kr.
January	4	79.90	–	–	–	
February	–	–	–	–	–	–
March	2	17.55	2	63.20	–	–
April	7	189.75	2	62.10	4	516.81
May	3	33.30	2	103.95	8	4,097.45
June	13	279.05	1	32.85	12	6,440.85
July	11	268.20	8	433.35	12	2,756.25
August	14	300.60	5	259.29	9	1,446.85
September	9	238.65	11	1,858.85	6	2,367.94
October	11	391.92	–	–	3	904.30
November	3	47.61	1	54.51	1	302.92
December	–	–	–	–	–	–
Year	77	1,846.53	32	2,868.60	55	18,833.37
Averages:						
Month		153.87		239.05		1,569.44
Fishing Month		184.65		358.57		2,354.17
Landing		23.98		89.64		342.42

Source: KGH landing receipts (indhandlingssedler).

Table 91. *Number of landings, landed value, and averages of fish landings for large motorboats (3) in the Narssaq sample, 1966.*

Month	Large Motorboats (+ 22′) Nrq–1		Nrq–2		Nrq–3	
	Land.	Kr.	Land.	Kr.	Land.	Kr.
January	–	–	13	3,947.60	5	2,683.25
February	–	–	20	3,616.40	6	2,851.80
March	3	2,087.50	22	7,164.95	7	3,343.90
April	7	8,159.48	18	4,450.45	8	2,657.05
May	6	3,177.75	–	–	9	6,460.45
June	14	7,410.70	13	13,824.58	15	7,780.11
July	7	2,798.08	2	869.50	10	3,151.80
August	–	–	–	–	2	588.08
September	–	–	–	–	10	5,779.30
October	3	3,941.48	4	2,017.41	5	8,170.69
November	3	7,251.13	10	2,999.56	3	3,758.48
December	4	3,495.75	3	2,486.78	2	2,359.76
Year	47	38,321.87	105	41,377.23	82	49,584.67
Averages:						
Month		3,193.48		3,448.10		4,132.05
Fishing month		4,790.23		4,597.41		4,132.05
Landing		815.40		394.06		604.69

Source: KGH landing receipts (indhandlingssedler).

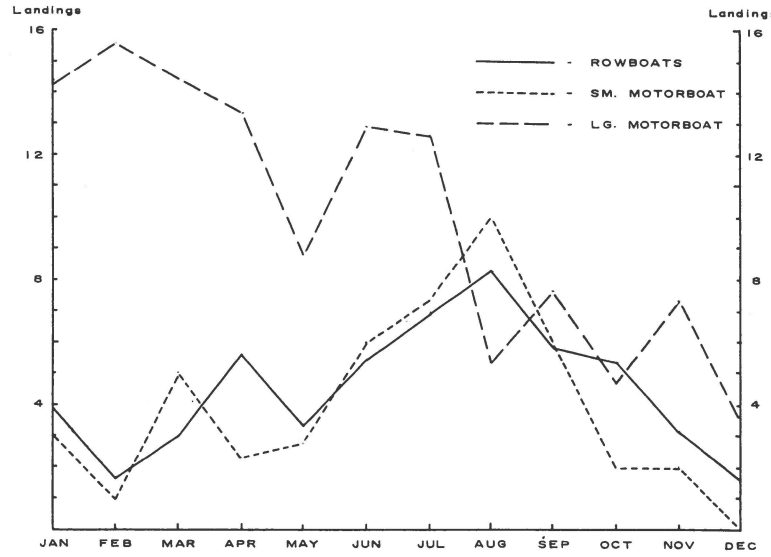


Fig. 41. Average Number of Landings per Participating Vessel at Narssaq, 1966.

The average value of landings increased with vessel size. The average landed value of fish per fishing months was 184 and 358 kroner for the two sample rowboats, 2,354 kroner for the small motorboat, and between 4,132 and 4,790 kroner for the large motorboats.

The value per landing was directly proportional to vessel size, and ranged from 24 to 90 kroner for rowboats, 340 kroner for the small motorboat, and between 400 and 800 kroner for the large motorboats (Tables 90 and 91).

Type of fish

The landing receipts, which are filled out in quintuplicate, list the weight and total value (weight times unit price) of each landing according to fish type. The receipts therefore enable a breakdown to be made of the types of fish landed throughout the year. The exceptions are salmon and prawn landings, in which the salmon is recorded under numerous weight and quality categories, and the prawns in similar, although fewer, categories. This prevented accurate tabulation of actual landed weight of these two types for each fisherman.

Rowboat and small motorboat fishermen landed fewer types of fish than did large motorboat fishermen. One rowboat fisherman landed virtually all cod (3.3 tons), the other landed 2.6 tons of cod, but an amount of salmon worth more than the cod landings (Table 92).

The small motorboat fisherman landed 33 tons of cod during the year, with minor amounts of wolffish and lumpsucker roe. He also landed salmon worth 20 per cent of his total cod landings.

Table 92. *Sample fish landings at Narssaq in 1966, amount and landed value of rowboats (2) and small motorboats (1).*

Fish	Kg.	Kr.
Nrq–1		
Cod	3,341	1,830.33
Redfish	54	16.20
Total		1,846.53
Nrq–2		
Cod	2,597	1,264.34
Salmon	*	1,604.26
Total		2,868.60
– 22′ motorb.		
Cod	33,558	15,439.91
Wolffish	697	243.95
Lumpsucker roe	19	38.00
Salmon	*	3,111.51
Total		18,833.37

* Salmon weight not available.
Source: KGH landing receipts (indhandlingssedler).

Table 93. *Sample fish landings at Narssaq in 1966, amount and landed value of large motorboats (3).*

Fish	Kg.	Kr.
Nrq–1		
Cod	57,010	36,292.08
Wolffish	2,649	1,087.40
Hellefisk	416	184.85
Redfish	2,587	753.14
Cod liver	22	4.40
Total		38,321.87
Nrq–2		
Cod	38,385	19,625.03
Wolffish	278	116.38
Hellefisk	2,827	844.40
Redfish	696	207.82
Prawns	*	20,583.60
Total		41,377.23
Nrq–3		
Cod	74,689	42,481.23
Wolffish	1,889	778.89
Hellefisk	3,246	1,415.05
Redfish	9,500	2,879.00
Lumpsucker roe	83	166.00
Salmon	*	1,864.50
Total		49,584.67

* Salmon and prawn weights not available.
Source: KGH landing receipts (indhandlingssedler).



Photo 5. Pound net (*bundgarn*) fishing for cod near Narssaq, 30 July 1962.

The large motorboat fishermen, although landing more types of fish, followed the same landing pattern—on a larger scale—as the smaller vessels. Cod was by far the most important fish landed, although in one case a fisherman went to Disko Bugt and landed prawns at Christianshåb equal in value to his cod landings. The large motorboats landed between 38 and 74 tons of cod each, plus minor amounts of wolffish, hellefisk, redfish, and salmon (Table 93).

The sample indicates that salmon played less of a role in the total landings of large motorboat fishermen than in the smaller vessels. On the other hand, the smaller vessels are not able to trawl for shrimp. Cod landings are unaffected by vessel size, although a rowboat fisherman is limited to simple hand-lines and long-lines, whereas even a small motorboat fisherman can operate a pound-net (bundgarn) by using a pram in which he tows his catch back to the factory from his fishing area. The pram can be rented from KGH at a nominal daily charge. The rowboat fishermen are, of course, much more limited in action radius than either of the motorboat sizes.

Production in 1966

In 1966, compared with previous years, landings of cod, halibut and redfish declined at Narssaq, while wolffish, hellefisk, and salmon showed increases. Prawn landings also declined, by about 60 tons.

Cod landings declined by 204 tons compared with 1965, mainly because of ice conditions (storis) especially in early July, although storis was found in the vicinity from January to mid-August. Another reason for declining cod landings was the absence of cod at Simiutaq (toward the outer coast from Narssaq) where they usually form the basis of an autumn fishery with the Norwegian-type handline wheel (snelle).

As seen in Table 94, over half the cod processed at Narssaq was transported in from outlying areas, mainly Julianehåb district (Table 72a).

Not only were cod landings hampered by storis near Narssaq in mid-summer, but smaller cod were landed compared with previous years as shown in Table 74a. The weight of fillets was 36.4 per cent of the cod's landed weight. This yield percentage declined steadily at Narssaq from 1963, a direct result of pound-net fishing, but also a possible indication of overfishing.

As with cod, more wolffish was transported in to Narssaq by boat than was landed by local fishermen (Table 94). Salmon was also sailed in, even from as far as Frederikshåb (16 tons) and Arsuk (10 tons).

This need to transport fish to the factory at Narssaq is a direct reflection of poor local fish landings unable to fulfill the factory's raw material requirements. In late 1966, a small plant was opened at Sydprøven and in 1967 a large factory at Frederikshåb. This will doubtless reduce the raw material flow to Narssaq.

In 1966 prawn landings of 268 tons at Narssaq were 57 tons less than in 1965. Landings were stopped in late August after the fishing inspector noticed that prawns were being processed in the fish fillet section of the factory. Prawn landings were resumed in mid-November. The prawn trawling grounds in the Narssaq and Lichtenau areas con-

Table 94. *Fish landings at Narssaq, 1966, plus fish transported in from surrounding districts, in tons.*

Fish	Narssaq	Transported	Total
Cod	1,070*	1,512	2,582
Wolffish	59**	72	131
Hellefisk	69	45	114
Halibut	5	7	12
Redfish	109	87	196
Salmon	14	117	131
Prawns	268	–	268

* With head, gutted.
** Disagrees with official KGH statistics.

Source: Narssaq trade chief, Rapport vedr. produktionen, 1966. mimeo.

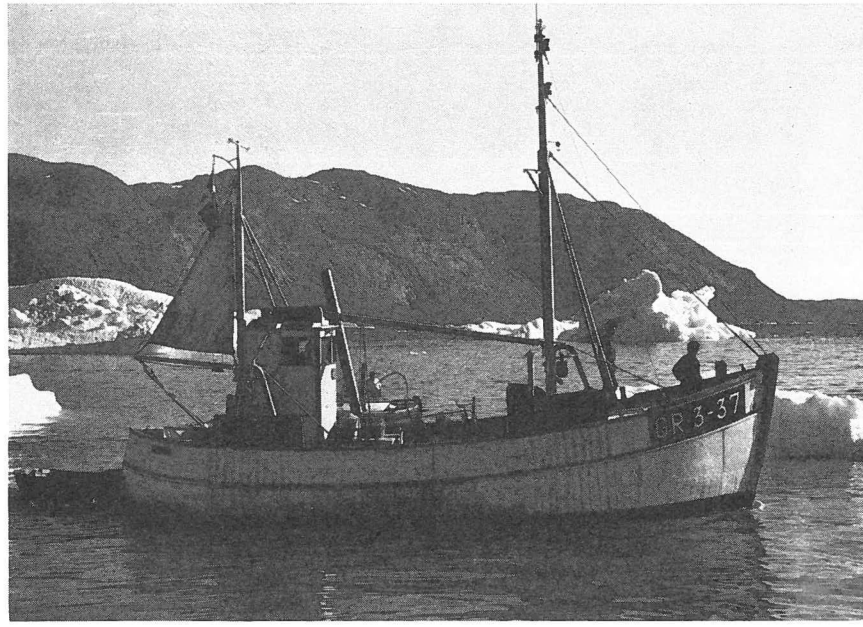


Photo 6. New prawn-fishing vessel (36′, 17.38 T.) near Narssaq harbour, 2 August 1962.

tinued to give poor yields in 1966, so that trawling had to be extended to the grounds near Nanortalik.

In 1966, 24,000 lambs and sheep (23,000 lambs) were slaughtered at Narssaq abattoir, 7,000 more than in 1965. Total production was 154 tons of meat, 98 tons of which was sold in Greenland and 56 tons sent to Denmark.

The factory at Narssaq, with fish fillet, prawn, salmon, and sheep product processing, is diversified. It suffers, however, from having to work at part-capacity for most of the year, although it is worked to capacity during the summer for short periods. The daily capacity of the fillet plant is 17 tons of raw fish (or a yearly capacity of 6,205 tons), so that the 3,035 tons of all fish supplied to the factory in 1966 enabled it to work only at half-capacity.

Sukkertoppen

Sukkertoppen is a town of 1,999 Greenlanders (1966) located on the southern part of a large island (Manîtsoq) halfway between Godthåb and Holsteinsborg on the outer skerry coast. Godthåb is 183 kilometers (114 miles) to the south and Holsteinsborg 208 kilometers (129 miles) to the north.

Sukkertoppen's Greenlandic name, Manîtsoq, means "the uneven", and gives a good indication of the rocky and rugged terrain. Sukkertoppen has limited suitable building space; rocky cliffs near the town had to be blasted away to provide the required construction sites for the town's growth.

Sukkertoppen is a town (by), the district center for Sukkertoppen trade district. The district had a population in 1966 of 3,061 Greenlanders, two thirds of whom lived in Sukkertoppen town. There are three other inhabited places in the district. All are former outposts (udsted), now classified as settlements (bygd). In south to north order they are: Atangmik (191 Greenlanders), Napassoq (222), and Kangâmiut (649). Atangmik is halfway between Godthåb and Sukkertoppen, 83 kilometers (52 miles) south of the latter. Napassoq is 34 kilometers (21 miles) north of Atangmik and 49 kilometers (30 miles) south of Sukkertoppen. Kangâmiut is 50 kilometers (31 miles) north of Sukkertoppen (direct line).

A number of smaller places (boplads) in Sukkertoppen district were abandoned recently. Since World War II, six small places (with populations ranging from 45 to 89) were abandoned, leaving the district with only a main town and three large settlements.

Fish is landed at all four places in the district, but Sukkertoppen has the only freezing factory, other than a small, private freezing plant at Napassoq. Atangmik fishermen landed 315 tons of cod (130 tons of which for salting and drying), Napassoq 117 tons (17 tons for salting and drying and 100 tons to freezing), and Kangâmiut 962 tons (305 tons for salting-drying and 657 tons to freezing). The fish for freezing from these three places was all transported by boat to Sukkertoppen.

Sukkertoppen's population increased by one third from 1960 to 1966 (1,500 to 1,999). During the same period the three smaller settlements in the district grew only slightly (from 929 to 1,062 Greenlanders).

Sukkertoppen was one of the early colonies, founded in 1755 by the trader Anders Olsen at the present site of Kangâmiut. In 1781 Sukkertoppen was moved to its present location.

In 1950 a fillet freezing plant was built at Sukkertoppen, which is one of the main factories in Greenland. The entire district is known for its good fishermen.

Cod is the main fish landed in Sukkertoppen district. In 1966, 5,098 tons, valued at 2.1 million kroner, were landed (vs. Narssaq's 1,305 tons and .6 million kroner). The landed value of cod was 58 per cent of the total landed value of all fish in the district in 1966 (Table 95). Next in importance was salmon (107 tons, valued at .5 million kroner), which was 15 per cent of the total. Lumpsucker roe was landed in record amount (184 tons valued at 365 thousand kroner) and accounted for 10 per cent of the total. Minor amounts of hellefisk (56 tons, 29,500 kroner) formed



Photo 7. Sukkertoppen, 30 August 1967.

Table 95. *Sukkertoppen district fish landings in 1966, amount and landed value, and per cent of total landed value.*

Fish	Tons	1,000 kroner	%
Cod	5,098*	2,122.8	58
Hellefisk	56**	29.5	1
Wolffish	1,265***	404.9	11
Salmon	107**	521.3	15
Lumpsucker roe	184	364.8	10
Halibut	3**		
Char	11**		
Redfish	30*	36.8	1
Capelin	630*		
Industry fish	367		
Prawns	94	126.7	4
		3,606.8	100

* Whole, fresh weight.
** With head, gutted.
*** Whole, throat-slit (strubeskåret).

Source: unpublished KGH data.

Table 96. *Categories of fishing vessels at Sukkertoppen, with landing frequency, 1966.*

Category	Rowboats	Motorboats	
		− 22′	+ 22′
Regular (6 + mos.)	12	7	30
Summer (3 − 5 mos.)	35	7	-
Two-month	45	2	4
One-month	96	4	4
Miscellaneous	7	–	3
Total	195	20	41

Source: author's field observations and KGH landing receipts (indhandlingssedler).

one per cent of the total and other fish (halibut, char, redfish, capelin, fish for meal—industrifisk), also one per cent of the total.

Unlike at Narssaq, prawn landings are relatively unimportant in Sukkertoppen district. The 94 tons of prawns landed had a value of 126,700 kroner, or 4 per cent of the total, whereas at Narssaq prawns formed one third of the total landed value of all fish.

In 1966, 195 rowboats landed fish at Sukkertoppen town, with 61 motorboats (20 under 22 feet and 41 over 22 feet). Of the 195 rowboats, I have classed 12 as "regular" and 35 as "summer". Many rowboats landed fish during one or two months only (45 two-month fishermen and 96 one-month), while 7 had sporadic landings and were classified as "miscellaneous" (Table 96).

Of the 20 small motorboats, 7 were "regular" and 7 "summer". Most of the large motorboats were "regular" (30 out of 41). Table 96 lists all vessels and their regularity of fishing.

Of the 141 rowboats fishing for only one or two months, most were active in July and August as shown in Table 97.

The fishing vessels making landings at Sukkertoppen during each months of 1966 are listed by number and category in Table 98. As in the fishery at Narssaq, few rowboats were active regularly (17 per cent of all rowboats).

Rowboats varied in participation from a low of 0 to 3 per cent (0 in January, 2 per cent in March and December, and 3 per cent in February) to a high of 41 and 45 per cent (August and July).

Of the 20 smaller motorboats, the average monthly participation was 40 per cent (versus 52 per cent at Narssaq). The high months were June through October (50 to 75 per cent range) and the low months (each with 10 per cent participation) were February, March, and December.

Table 97. *Months of activity by one-month and two-month rowboat fishermen at Sukkertoppen, 1966.*

Month	One-month	Two-month
January	–	–
February	2	–
March	–	–
April	1	6
May	16	12
June	4	9
July	27	25
August	26	16
September	8	9
October	10	8
November	–	5
December	2	–
Year Fishermen	96	90 ÷ 2 = 45

Source: author's field observations and KGH landing receipts (indhandlingssedler).

Table 98. *Participating fishermen by month at Sukkertoppen, 1966, and per cent of total landing during the year.*

Month	Rowboat	%	Motorboats − 22′	%	Motorboats + 22′	%
January	0	(0)	3	(15)	27	(66)
February	5	(3)	2	(10)	29	(71)
March	4	(2)	2	(10)	27	(66)
April	11	(6)	5	(25)	27	(66)
May	39	(20)	9	(45)	32	(78)
June	39	(20)	14	(70)	31	(76)
July	88	(45)	15	(75)	28	(68)
August	80	(41)	14	(70)	24	(59)
September	55	(28)	10	(50)	24	(59)
October	49	(25)	13	(65)	26	(63)
November	21	(11)	8	(40)	26	(63)
December	3	(2)	2	(10)	23	(56)
Total boats landing and average monthly participation	195	(17%)	20	(40%)	41	(66%)

Source: author's field observations and KGH landing receipts (indhandlingssedler).



Photo 8. Fishing vessels at Sukkertoppen 3 September 1967 (l-r: 19.99 T., built 1963; 19.99 T., built 1961; 15.94 T., built 1963).

The 41 larger motorboats had a high participation percentage (66 per cent), which was the same as Narssaq (67 per cent). This high average monthly participation resulted from uniformly high monthly activity throughout the year, ranging from 56 per cent (December) to 78 per cent (May).

Fish landings were made by rowboats during 240 days of the year at Sukkertoppen (versus 238 at Narssaq), on 220 days by small motorboats (at Narssaq on 153 days), and on 322 days by large motorboats (versus 204 days at Narssaq) as shown in Table 99. The greater number of participating vessels at Sukkertoppen skews any comparison in its favor, because a fishing day is registered if only one vessel of any type makes a landing. Nevertheless, the greater number of fishing days for large vessels is evident, and results directly from a lack of storis, although winter ice is sometimes a hindrance at Sukkertoppen.

Tables 100 and 101 show the total number of fish landings at Sukkertoppen in 1966 by the three vessel types. Rowboats and large motorboats had about the same number of landings (1,919 and 2,343), while the small motorboats made only 568 landings.

There were fewer landings by non-Sukkertoppen vessels than by outside vessels at Narssaq.

Table 99. *Number of fishing days (days when landings were made) at Sukkertoppen, 1966.*

Month	Rowboats	Motorboats	
		− 22′	+ 22′
January	–	4	18
February	6	4	26
March	15	5	26
April	17	16	23
May	30	29	30
June	28	27	30
July	29	25	30
August	31	27	31
September	30	25	30
October	30	28	31
November	22	19	26
December	2	11	21
Year	240	220	322

Source: Landing receipts (indhandlingssedler) of KGH.

The average number of landings per participating vessel at Sukkertoppen increased with the size of the vessel. The average number of landings were fewer in rowboats and large motorboats than at Narssaq, and virtually the same at both places in small motorboats. Figure 42 shows

Table 100. *Total landings (excluding non-Sukkertoppen vessels*) at Sukkertoppen, 1966.*

Month	Rowboats	Motorboats	
		− 22′	+ 22′
January	–	6	120
February	9	6	154
March	25	6	175
April	63	23	181
May	331	51	312
June	143	98	294
July	315	96	245
August	379	74	156
September	311	67	225
October	277	87	237
November	59	38	123
December	3	16	121
Year	1,916	568	2,343

* See Table 101.

Source: KGH landing receipts (indhandlingssedler).

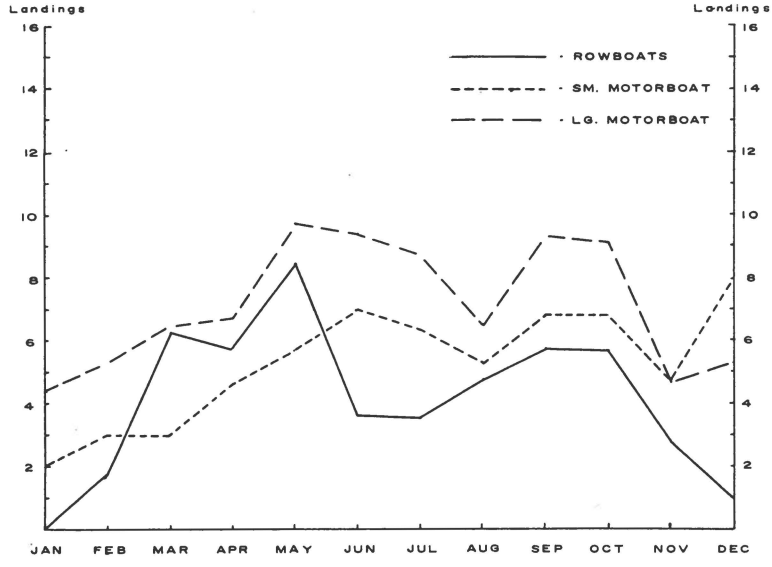


Fig. 42. Average number of landings per participating vessel at Sukkertoppen, 1966.

the monthly average number of landings by the three vessel types (see also Table 75a). Rowboats averaged 9.8 landings a year, small motorboats 28.4 landings, and large motorboats 57.1 landings.

The average number of landings per participating vessel ranged from nil (January) to 8.48 (May) for rowboats; from 2.00 (January) to

Table 101. *Total landings by non-Sukkertoppen vessels at Sukkertoppen, 1966.*

Month	Rowboats	Motorboats	
		− 22′	+ 22′
January	–	–	4
February	–	–	5
March	–	–	1
April	–	–	–
May	1	–	1
June	–	9	27
July	7	13	24
August	4	8	20
September	–	1	5
October	1	–	12
November	2	–	13
December	–	1	14
Year	14	32	126

Source: KGH landing receipts (indhandlingssedler).

Table 102. *Number of landings, landed value, and averages of fish landings for rowboats (1) and small motorboats (1) in the Sukkertoppen sample, 1966.*

Month	Rowboats		Motorboats	
	Land.	Kr.	Land.	Kr.
January	–	–	1	440.30
February	–	–	4	1,484.90
March	–	–	3	296.10
April	–	–	8	2,207.72
May	2	97.50	22	6,108.55
June	8	871.95	11	3,883.70
July	6	734.10	9	2,106.45
August	6	516.45	4	895.50
September	10	430.44	12	3,524.26
October	9	617.70	15	5,785.37
November	4	279.22	8	1,311.39
December	–	–	7	1,930.83
Year	45	3,547.36	104	29,975.07
Averages:				
Month		295.61		2,497.91
Fishing month		506.76		2,497.91
Landing		78.83		288.22

Source: KGH landing receipts (indhandlingssedler).

8.00 (December) for small motorboats; and from 4.44 (January) to 9.75 (May) for large motorboats. January had the lowest average number of landings per participating vessel in all size categories, while in May was recorded the highest average for rowboats and large motorboats, but in December for small motorboats.

Tables 102 and 103 list the number of landings and their value by month for a sample of the three boat types. The total landed value of fish increased with vessel size with the exception of one large motorboat (Skt-2), whose landings were considerably less in number and value than the small motorboat. The large motorboat Skt-2 did, however, have average landings of higher value than the small motorboat, and an average value per fishing month which was virtually the same as the small motorboat.

One of the sample large motorboats (Skt-3) fished for prawns in Disko Bugt (landing at Christianshåb) from 5 June to 5 November. Almost 90 per cent of this vessel's landings for the year were prawns (by value).

The landing receipts for all vessels at Sukkertoppen were given special scrutiny for the months June, July, November, and December. Daily landing totals were tabulated for all vessels landing at Sukkertoppen

Table 103. *Number of landings, landed value, and averages of fish landings for large motorboats (3) in the Sukkertoppen sample, 1966.*

Month	Large Motorboats (+ 22′) Skt–1 Land.	Skt–1 Kr.	Skt–2 Land.	Skt–2 Kr.	Skt–3 Land.	Skt–3 Kr.
January	2	840.20	–	–	4	4,250.40
February	4	2,664.95	5	4,043.00	–	–
March	1	467.95	13	8,653.30	–	–
April	7	3,571.23	3	1,066.23	–	–
May	16	13,360.35	4	1,665.25	–	–
June	6	4,840.40	8	2,236.15	23	15,764.00
July	10	3,214.97	7	727.45	25	20,340.50
August	11	2,815.65	6	977.90	27	20,382.00
September	14	7,850.73	9	1,363.04	26	16,235.71
October	13	4,885.54	17	2,272.61	21	11,978.25
November	10	2,626.17	1	46.23	5	2,826.61
December	6	3,041.68	–	–	7	6,469.90
Year	100	50,179.82	73	23,051.16	138	98,247.37
Averages:						
Month		4,181.65		1,920.93		8,187.28
Fishing Month		4,181.65		2,305.11		12,280.92
Landing		501.79		315.76		711.93

Source: KGH landing receipts (indhandlingssedler).

during these four months, which are typical of two winter and two summer months. Tables 104 and 105, a summary of this study, list the value of total landings of fish by all vessels in each of the three size categor-

Table 104. *Landed value of fish by all vessels at Sukkertoppen in June and July 1966, per cent of total landed value and average landing by rowboats, small motorboats and large motorboats.*

Vessel	Kr.	%	Average Landing
June 1966			
Rowboats	8,794.05	3.4	61.49
Small Motorboats	21,513.75	8.5	201.06
Large Motorboats	225,011.38	88.1	795.38
Total	255,319.18	100	
July 1966			
Rowboats	24,681.53	14.6	76.65
Small Motorboats	19,743.10	11.9	181.12
Large Motorboats	123,707.42	73.5	459.87
Total	168,132.05	100	

Source: KGH landing receipts (indhandlingssedler).

Table 105. *Landed value of fish by all vessels at Sukkertoppen in November and December 1966, per cent of total landed value and average landings by rowboats, small motorboats, and large motorboats.*

Vessel	Kr.	%	Average Landing
November 1966			
Rowboats	7,767.87	4.9	127.34
Small Motorboats	6,296.46	3.9	165.69
Large Motorboats	146,244.69	91.2	1,075.32
Total	160,309.02	100.0	
December 1966			
Rowboats	104.73	0.1	34.91
Small Motorboats	5,476.48	2.9	322.14
Large Motorboats	182,839.69	97.0	1,315.39
Total	188,420.90	100.0	

Source: KGH landing receipts (indhandlingssedler).

ies. In all months the large motorboats monopolized landings, although to a lesser degree during the summer period (74 to 88 per cent of total landed value) than during the winter (91 to 97 per cent). Rowboat landings accounted for an expected low percentage of the total landings, but during July and November they exceeded landings by small motorboats. Average landings (by value) in all cases were lowest by rowboats. The large motorboats were not affected by adverse weather conditions during the winter months, and indeed landed high quantities of cod and wolffish in November and December (Figures 43 and 44).

Type of Fish

Tables 106 and 107 list the weight and value of each type of fish taken by the three sizes of fishing vessels at Sukkertoppen in 1966.

The Sukkertoppen sample rowboat landed three kinds of fish during the year. Wolffish was the most important (45 per cent of total landed value), followed by salmon (30 per cent), and cod (25 per cent). The weight of wolffish landings was three times that of cod.

The small motorboat caught cod and wolffish in important quantities (30 tons total), which were about 50 per cent of the total landed value of fish. In addition, lumpsucker roe (17 per cent) and salmon (25 per cent) composed the remainder of the catch. Large amounts of capelin (15 tons) and fish for meal—industrifisk—(14 tons) were taken, but their value

Table 106. *Sample fish landings at Sukkertoppen in 1966, amount and landed value of rowboats (1) and small motorboats (1).*

Fish	Kg.	Kr.
Rowboat		
Cod	1,763	881.91
Wolffish	5,309	1,592.70
Salmon	*	1,072.75
Total		3,547.36
– 22′ motorboat		
Cod	17,917	10,199.44
Wolffish	12,770	4,243.75
Hellefisk	169	103.81
Redfish	264	74.60
Lumpsucker roe	2,506	5,012.00
Salmon	*	7,430.02
Halibut	18	36.00
Capelin	15,360	1,536.00
Herring	4,667	607.35
Fish for meal	14,312	732.10
Total		29,975.07

* Salmon weight not available.

Source: KGH landing receipts (indhandlingssedler).

was only about 4 per cent of the total. Minor amounts of hellefisk, redfish, and halibut, and herring were also landed.

One large motorboat (Skt-3) landed mainly prawns in Disko Bugt (88 per cent of its total landings by value), but also over 22 tons of cod and wolffish, which comprised the remainder of the catch's value. The other two large motorboats had a more diverse catch. In one (Skt-1), almost equal values of cod, lumpsucker roe, and salmon were landed, each accounting for one quarter of the total landed value. The remaining 25 per cent was mainly wolffish (12 per cent), capelin (4 per cent), and fish for meal (2 per cent).

The third large motorboat in the Sukkertoppen sample (Skt-2) fished mainly wolffish (32 per cent), prawns (28 per cent), cod (19 per cent), and salmon (10 per cent). The remaining 11 per cent of landed value was capelin, hellefisk, and lumpsucker roe, plus insignificant amounts of redfish, halibut, and fish for meal.

Two of the main fish types, cod and wolffish, accounted for 70 per cent of the landed value of all fish at Sukkertoppen in 1966. Figures 43

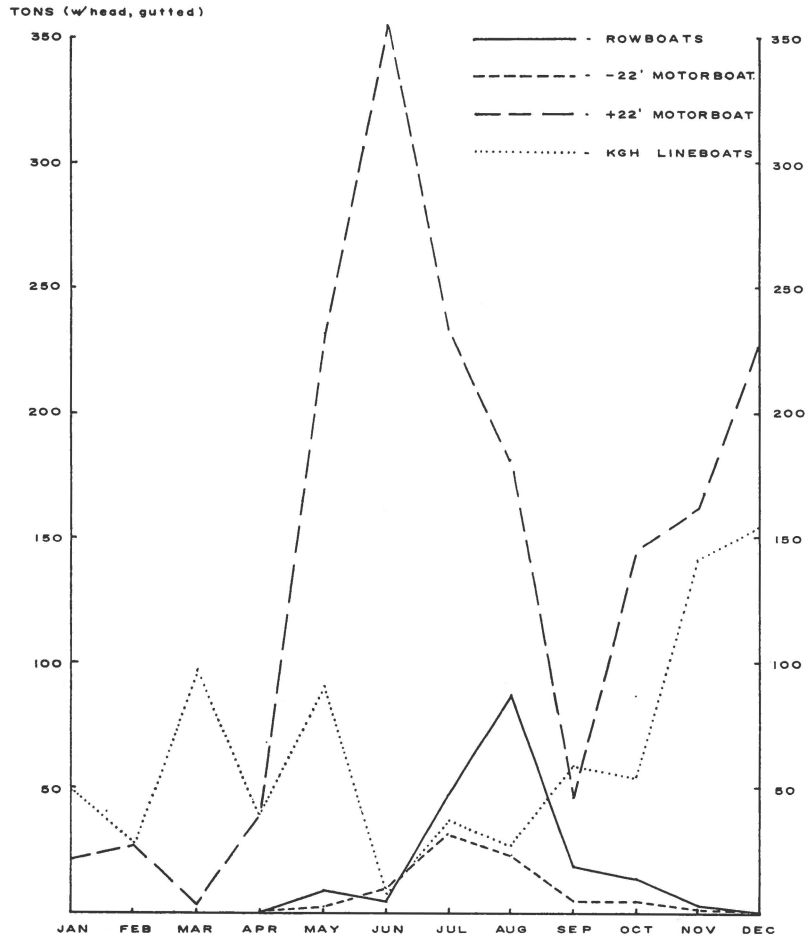


Fig. 43. Total monthly cod landings at Sukkertoppen in 1966 by vessels of various size.

and 44 show the catch of cod and wolffish at Sukkertoppen by the three vessel types and by KGH's four new line boats. These two graphs reinforce the findings of the sample (as well as confirm their reliability) that the large motorboats caught an overwhelming proportion of the main fish types landed at Sukkertoppen, and they did this with less seasonal fluctuation than the smaller vessels. While cod landings by the large motorboats were low until May, large amounts of wolffish were landed during the first four months of the year. Cod landings declined again in September (when salmon landings, and annual hunting trips prevailed), but rose thereafter to high levels.

Rowboat landings of cod were low until July-August, while wolffish landings by rowboats were important during June and July. The strong

Table 107. *Sample fish landings at Sukkertoppen in 1966, amount and landed value of large motorboats (3).*

Fish	Kg.	Kr.
Skt–1		
Cod	27,087	13,971.55
Wolffish	17,672	5,999.85
Hellefisk	16	9.60
Redfish	353	100.70
Lumpsucker roe	6,753.5	13,507.00
Salmon	*	13,046.02
Halibut	3.5	7.00
Capelin	23,020	2,302.00
Fish for meal	24,726	1,236.10
Total		50,179.82
Skt–2		
Cod	8,471	4,393.23
Wolffish	22,023	7,397.20
Hellefisk	1,144.5	597.80
Redfish	125	37.50
Lumpsucker roe	108	216.00
Salmon	*	2,252.83
Halibut	16	32.00
Capelin	16,308	1,630.80
Prawns	4,849	6,398.50
Fish for meal	1,696	95.30
Total		23,051.16
Skt–3		
Cod	11,812	7,974.52
Wolffish	10,742	3,759.70
Redfish	256	76.80
Halibut	40	80.00
Prawns	75,725	86,355.00
Fish for meal	27	1.35
Total		98,247.37

* Salmon weight not available.

Source: KGH landing receipts (indhandlingssedler).

seasonal character of the rowboat fishery is obvious from the graphs. The small motorboats were also active only in the summer period.

The four new line vessels of KGH, which will be discussed in greater detail later in this chapter, fished large quantities of cod during 1966, but lesser amounts of wolffish.

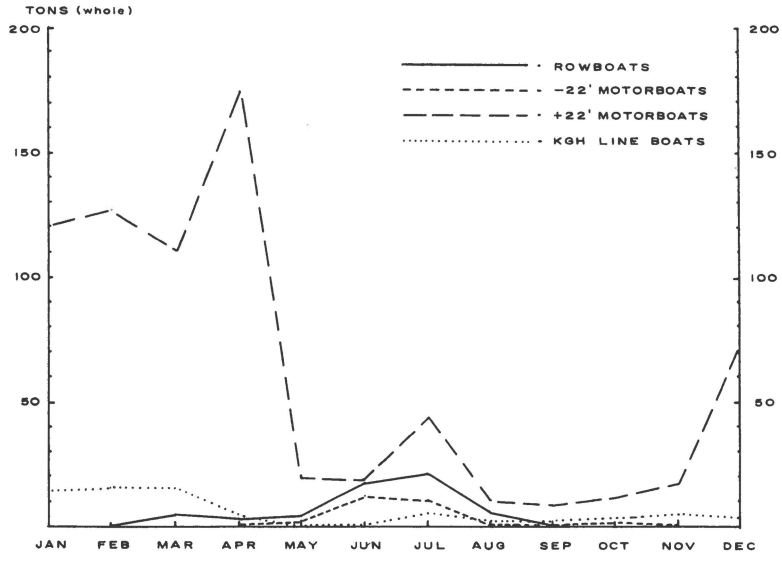


Fig. 44. Total monthly Wolffish landings at Sukkertoppen in 1966 by vessels of various size.

Production in 1966

In 1966, landings of cod at Sukkertoppen increased by 586 tons over 1965. There were also increases in landings of salmon (by 19 tons) and lumpsucker roe (by 27 tons). Wolffish, hellefisk, capelin, and prawn landings all declined in comparison with the previous year. As seen in Table 108, Sukkertoppen processes fish transported from three main places in the district: Atangmik, Napassoq, and Kangâmiut. The use of transported fish is not as extensive at Sukkertoppen as at Narssaq, where one half of the cod processed was transported fish. At Sukkertoppen 20 per cent of the cod processed was transported in from the district. Kangâmiut provided 70 per cent of the transported cod, with Atangmik (18 per cent) and Napassoq (12 per cent) sending lesser amounts.

Cod was the main fish transported to Sukkertoppen, although 38 tons of salmon were sent there for freezing, or 26 per cent of all salmon processed there.

The factory at Sukkertoppen is mainly for fish-freezing, although it also produces fish meal and oil in the only facility of its kind in Greenland.

As with Narssaq, the factory at Sukkertoppen has a problem getting sufficient raw material to operate at capacity. The introduction of the four new line boats alleviated this problem somewhat in 1966, and as more of these vessels come into use in Greenland, the importance of the smaller motorboats will decline and that of the rowboats will disappear altogether.

Table 108. *Fish landings at Sukkertoppen, 1966, plus fish transported in from Sukkertoppen district, in tons.*

Fish	Sukkertoppen	Transported in from district			Total
		Atang.	Nap.	Kang.	
Cod	3,727.5	164.5	100.6	644.3	909.4
Wolffish	1,256.2	45.1	19.8	106.8	171.7
Hellefisk	57.4	–	1.9	5.0	6.9
Salmon	108.5	10.2	0.3	27.6	38.1
Halibut	2.8	0.9	0.05	0.9	1.9
Fish for meal	366.9	–	–	–	–
Capelin	629.4	–	–	–	–
Redfish	29.8	–	–	–	–
Lumpsucker roe	41.6	–	–	–	–
Prawns*	107.6	–	–	–	–

* In addition to 13.1 tons of prawns from Holsteinsborg (with a value of 19,245.90 kr.).

Source: adapted from annual report of factory manager at Sukkertoppen, 1966, typescript.

Kangâmiut

Kangâmiut is the largest settlement (bygd) in Greenland, with 649 inhabitants in 1966. The village, which is 50 kilometers (31 miles) north of Sukkertoppen by direct line, lies on the western side of a large island on the outer coast just north of the mouth of Evighedsfjord. Kangâmiut's translation from Greenlandic is "the people of the promontory" (Forbjerg-folket). The village is the most northerly of the inhabited places in Sukkertoppen district.

Cod is the main fish landed at Kangâmiut. The 892 tons of cod landed there in 1966 was 45 per cent of the landed value of all fish products (Table 109). Next in importance was lumpsucker roe (99 tons), worth 198,000 kroner, or 26 per cent of the total. The 46 tons of salmon, worth 144,000 kroner, was 19 per cent of the total landed value of fish. Smaller quantities of wolffish (196 tons, 7 per cent), hellefisk (56 tons, 3 per cent), and halibut (1 ton, 1 per cent), completed the list of fish landed at Kangâmiut. Kangâmiut has a fish-salting house, but considerable amounts of cod, wolffish, and salmon are transported to the freezing factory at Sukkertoppen (4–5 hours' sail).

In 1966 there were 107 rowboats landing fish at Kangâmiut, and 39 motorboats (22 small and 17 large). Of the 107 rowboats, 28 were "regular" and 14 "summer". The remainder landed fish during one or two months only (21 two-month and 33 one-month fishermen), while 11

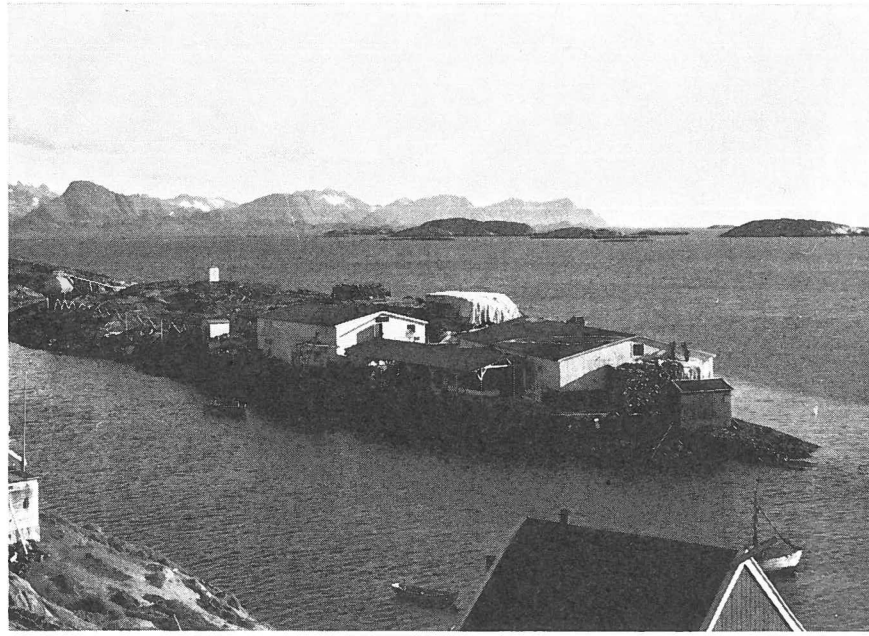


Photo 9. Fishing salting house, Kangâmiut, 4 August 1962.

had a few sporadic landings throughout the year and were classified "miscellaneous" (Table 110).

Of the 22 small motorboats, 15 were regular, and the remaining 7 fell in the other categories (1 summer, 1 two-month, 2 one-month, and 3 miscellaneous). One half of the large motorboats were regular (9 of 17), with 2 summer, 1 two-month, 2 one-month, and 3 miscellaneous (Table 110).

The 54 rowboats which landed fish during only one or two months

Table 109. *Kangâmiut fish landings in 1966, amount and landed value, and per cent of landed value.*

Fish	Tons	1,000 kr.	%
Cod	891.9	345.9	45
Hellefisk	55.9	23.3	3
Wolffish	196.0	54.4	7
Salmon	46.3	143.9	19
Halibut	.9	1.9	1
Lumpsucker roe	98.9	197.7	26
Total		767.1	100

Source: Kangâmiut salting house foreman (salterilederen).

Table 110. *Categories of fishing vessels at Kangâmiut, with landing frequency, 1966.*

Category	Rowboats	Motorboats	
		− 22′	+ 22′
Regular (6 + mos.)	28	15	9
Summer (3 − 5 mos.)	14	1	2
Two-month	21	1	1
One-month	33	2	2
Miscellaneous	11	3	3
Total	107	22	17

Source: author's field observations and KGH landing receipts (indhandlingssedler).

were active mainly during the summer, mostly in the months of July and August (Table 111). There were, however, some rowboats landing throughout the spring and on into October.

The vessels landing fish at Kangâmiut during each month of 1966 are listed by number and category in Table 112. The rowboats had an average monthly participation of 29 per cent, with over half of all rowboats active during July and August. One third of the participating rowboats landed fish from March to October, with quite low participation in the three winter months of December through February.

Table 111. *Months of activity by one-month and two-month rowboat fishermen at Kangâmiut, 1966.*

Month	One-month	Two-months
January	–	–
February	–	2
March	3	3
April	2	3
May	–	6
June	2	2
July	9	11
August	11	8
September	3	1
October	3	5
November	–	1
December	–	–
Year Fishermen	33	42 ÷ 2 = 21

Source: author's field observations and KGH landing receipts (indhandlingssedler).

Table 112. *Participating fishermen by month at Kangâmiut, 1966, and per cent of total landing during the year.*

Month	Rowboat	%	Motorboats − 22′	%	+ 22′	%
January	1	(1)	4	(18)	5	(29)
February	2	(2)	9	(41)	6	(35)
March	31	(29)	12	(55)	6	(35)
April	37	(35)	15	(68)	8	(47)
May	41	(38)	17	(77)	11	(65)
June	37	(35)	12	(55)	10	(59)
July	58	(54)	17	(77)	12	(71)
August	52	(49)	13	(59)	13	(76)
September	41	(38)	16	(73)	13	(76)
October	44	(41)	18	(82)	12	(71)
November	24	(22)	14	(64)	9	(53)
December	5	(5)	8	(36)	7	(41)
Total boats landing and average monthly participation	107	(29%)	22	(59%)	17	(55%)

Source: author's field observations and KGH landing receipts (indhandlingssedler).

The average monthly participation of the 22 small motorboats was 59 per cent, higher than at Sukkertoppen and Narssaq. The month of highest participation was October (82 per cent) and lowest January (18 per cent).

The 17 large motorboats had an average monthly participation of 55 per cent, lower by 10 per cent than Sukkertoppen and Narssaq. The months of high activity equalled the participation at Sukkertoppen and Narssaq, but the low months were considerably below the participation at the two other places (low of 29 per cent in January).

Fish landings were made by rowboats during 247 days of the year at Kangâmiut (more than at the two other places), on 263 days by small motorboats (versus 220 and 153 at Sukkertoppen and Narssaq), and on 253 days by large motorboats (322 at Sukkertoppen and 204 at Narssaq). Thus Kangâmiut compares favorably, in number of days fished, with the two other places. Winter ice is somewhat more of a problem because of Kangâmiut's location, but, as with Sukkertoppen, storis does not reach the area. Table 113 lists the number of fishing days at Kangâmiut in 1966 for the three types of vessels.

Tables 114 and 115 show the total number of fish landings at Kangâmiut in 1966 for rowboats and the two sizes of motorboats. Rowboats had 50 per cent more landings than all motorboats. There were few

Table 113. *Number of fishing days (days when landings were made) at Kangâmiut, 1966.*

Month	Rowboats	Motorboats	
		− 22′	+ 22′
January	1	10	12
February	4	16	18
March	11	16	12
April	25	22	16
May	28	29	29
June	30	30	28
July	29	28	27
August	30	29	22
September	30	29	29
October	30	30	30
November	22	19	20
December	7	5	10
Year	247	263	253

Source: Landing receipts (indhandlingssedler) of KGH.

landings made by non-Kangâmiut vessels—only two rowboat and four large motorboat landings.

As with the two other sample fishing places, the average number of landings per participating vessel showed an increase with vessel size.

Table 114. *Total landings (excluding non-Kangâmiut vessels*) at Kangâmiut, 1966.*

Month	Rowboats	Motorboats	
		− 22′	+ 22′
January	1	17	23
February	6	33	31
March	81	42	17
April	277	117	44
May	495	248	139
June	398	130	88
July	455	157	118
August	388	95	54
September	421	176	118
October	441	196	123
November	92	56	45
December	10	8	6
Year	3,065	1,275	806

* See Table 116.

Source: KGH landing receipts (indhandlingssedler).

Table 115. *Total landings by non-Kangâmiut vessels at Kangâmiut, 1966.*

Month	Rowboats	Motorboats	
		− 22′	+ 22′
January	–	–	–
February	–	–	–
March	–	–	–
April	–	–	–
May	2	–	2
June	–	–	–
July	–	–	–
August	–	–	–
September	–	–	2
October	–	–	–
November	–	–	–
December	–	–	–
Year	2	–	4

Source: KGH landing receipts (indhandlingssedler).

The average of 28 landings for each rowboat in 1966 was considerably more than at the two other places, but still was only one half the average for small motorboats. Many of the larger motorboats fished in the waters between Kangâmiut and Sukkertoppen, landing fish directly to the factory at Sukkertoppen. These landings are not included under Kangâmiut (except in the case of the sample fishermen) and are the reason that the larger vessels had fewer landings at Kangâmiut than the smaller motorboats (Figure 45, Table 76a).

All vessels had the highest average number of landings in May. The low months were December and January for all boat types.

All vessel types at Kangâmiut showed a remarkable similarity in average number of landings per month (per participating vessel), as shown in Figure 45. This pattern was not evident, except in only a very general way, at Narssaq and Sukkertoppen (Figs. 41 and 42). The average landings for large motorboats at Narssaq were quite unlike the smaller vessel types, but closer to the others at Sukkertoppen. Lack of ice at Narssaq during the first four or five months of the year (before the arrival of storis) is obviously a factor in favor of the larger motorboats and shows up clearly in Figure 41. But at Kangâmiut, all vessel types were strikingly close in average number of landings in each month, a pattern not at all evident at the other places, and a pattern for which there seems to be no logical explanation. The values for landings per month and for average landings in each vessel category at Kangâmiut were greater than at the other places (except perhaps for the larger motorboats, which were similar), which indicates that fewer fishermen at Kangâmiut were

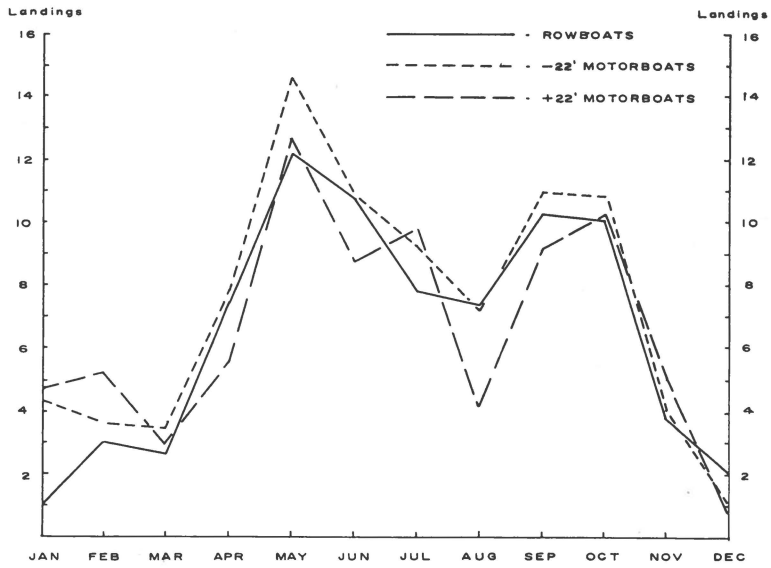


Fig. 45. Average number of landings per participating vessel at Kangâmiut, 1966.

Table 116. *Number of landings, landed value, and average of fish landings rowboats and motorboats in the Kangâmiut sample, 1966.*

Month	Rowboats		Motorboats − 22′		Motorboats + 22′	
	Land.	Kr.	Land.	Kr.	Land.	Kr.
January	–	–	–	–	5	1,990.74
February	–	–	–	–	4	1,458.47
March	1	366.90	4	1,649.74	3	888.00
April	15	1,398.75	5	1,219.59	8	4,890.85
May	17	4,152.00	10	2,532.40	13	4,757.00
June	13	2,055.03	16	22,222.84	7	2,276.25
July	16	2,329.79	5	880.27	17	7,528.44
August	8	701.89	5	1,041.96	7	1,492.75
September	22	2,794.55	18	2,741.68	14	2,724.17
October	17	2,657.23	15	4,738.76	19	6,493.75
November	4	299.63	3	567.22	7	3,146.94
December	–	–	1	94.32	3	1,440.90
Year	113	16,755.77	82	37,688.78	107	39,088.26*
Averages:						
Month		1,379.64		3,140.73		3,914.77
Fishing Month		1,861.75		3,768.87		3,914.77
Landing		148.28		459.61		415.72

* In addition to 6 landings worth 7,888.98 kroner landed at Sukkertoppen, which have been included in the averages.

Source: KGH landing receipts (indhandlingssedler).

of the spare-time and weekend variety. This is confirmed by the results of attempts to classify the fishermen at each place (Tables 84, 96, and 110).

A sample of one vessel of each type was made at Kangâmiut, which is presented in summary form in Table 116. The total landed value of fish increased with vessel size from rowboat (16,755 kroner) through small motorboat (37,688 kroner) to large motorboat (46,977 kroner).

The average values of landings per month and per fishing month followed the same pattern, as did the value of average landings for the year. It should be pointed out that the large motorboat made six landings

Table 117. *Sample fish landings at Kangâmiut in 1966, amount and landed value of rowboats (1), small motorboats (1), and large motorboats (1).*

Fish	Kg.	Kr.
Rowboat		
Cod	13,755	5,411.01
Wolffish	3,885	1,036.85
Hellefisk	146	63.86
Lumpsucker roe	2,729.5	5,459.00
Salmon	*	4,776.65
Dried capelin	14	8.40
Total		16,755.77
– 22′		
Cod	74,656	27,176.73
Wolffish	8,300	2,385.20
Hellefisk	294	125.89
Lumpsucker roe	176	352.00
Salmon	*	7,648.96
Total		37,688.78
+ 22′		
Cod**	45,228	18,026.40
Wolffish***	18,847	5,604.30
Hellefisk+	6,260	2,690.04
Lumpsucker roe	4,211.5	8,423.00
Salmon	*	7,739.40
Capelin++	44,941	4,494.10
Total		46,977.24

* Salmon weight not available.
** Incl. 5,996 kg. (2,883.10 kr.) landed at Sukkertoppen.
*** Incl. 419 kg. (154.35 kr.) landed at Sukkertoppen.
\+ Incl. 629 kg. (357.43 kr.) landed at Sukkertoppen.
++ Landed at Sktp. (4,494.10 kr.)
7,888.98 kr.

Source: KGH landing receipts (indhandlingssedler).

at Sukkertoppen (five in June and one in December). These landings totalled over 7,800 kroner, and have been included in the tabulations.

The rowboat and large motorboat each made 113 fish landings during 1966. The average landings per fishing month for the rowboat were less than half that of the large motorboat. The rowboat's average landings for the year were about one third those of the large motorboat.

Type of fish

Table 117 lists the weight and landed value of each type of fish taken by the three sizes of fishing vessel in the Kangâmiut sample in 1966.

The sample rowboat landed four main kinds of fish, mainly cod (13 tons and 5,411 kroner in value), lumpsucker roe (2.7 tons and 5,459 kroner), and 4,776 kroner worth of salmon. These three formed 93 per cent of the total landed value. In addition were 3.9 tons of wolffish (1,036 kroner) and minor amounts of hellefisk and dried capelin.

The small motorboat landed 75 tons of cod (worth 27,700 kroner, or 72 per cent of total landed value) and 8 tons of wolffish (2,385 kroner, or 6 per cent of the total). The salmon landings, worth 7,648 kroner, were 20 per cent of the total. Minor amounts of hellefisk and lumpsucker roe made up the remaining two per cent.

The large motorboat landed equal amounts of cod and capelin (45 tons each), but the cod's value of 18,026 kroner was 38 per cent of the total landed value, while the capelin was but 10 per cent. Lumpsucker roe, salmon, and wolffish were also landed in important quantities. The total value of these three equalled that of cod.

Comparison of the Vessels in the Sample Places

Direct comparison of the fishing industry at different locations in Greenland is made difficult by several factors. Fish landings by vessels from outside a district cannot be separated from the total statistics and skew a determination of effort and landings per capita or per vessel. Many of the larger motorboats fish for prawns in Disko Bugt for part of the year and thus lower the participation index for their home district.

Several general features of the fishery can, however, be determined through comparison of sample vessels in each size category. A look at individual districts may also confirm what is already known, in a general way, about types of fish important in the total catch in Greenland.

Cod accounted for 41 per cent of the total landed value of fish products in Greenland in 1966. In the two districts sampled, however, cod had a higher proportion than this. Both Narssaq and Sukkertoppen had

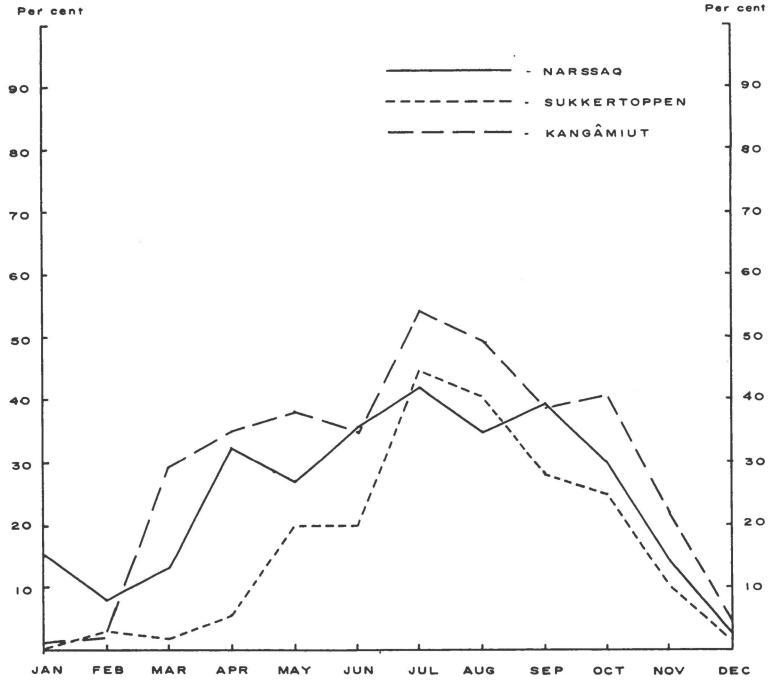


Fig. 46. Monthly participation of rowboats in 1966 (as percentage of total).

landings of cod of similar importance (55 and 58 per cent), but the relative importance of other fish types varied greatly (Table 77a). At Narssaq, prawns were 31 per cent of the total landed value, whereas all other fish together were 14 per cent. At Sukkertoppen, prawns were relatively unimportant, but wolffish, salmon, and lumpsucker roe comprised 36 per cent of the total.

Fish landings at Kangâmiut were closer to the Greenlandic average. The cod value was 45 per cent of the total, and salmon 19 per cent, but lumpsucker roe 20 per cent, compared with the Greenland average of 4 per cent. The Sukkertoppen district totals in Table 77a, of course, include Kangâmiut.

The landing frequencies of all vessels at the three sample places are compared in Tables 78a, 79a, and 80a. There appears to be a marked emphasis on large motorboat activity at the two towns compared with Kangâmiut, whereas the rowboats at Kangâmiut fish on a more regular basis. One half of all rowboat fishermen at Narssaq and Sukkertoppen land fish during one month only; this total includes many school children. The real rowboat fishermen at the three places, fishing for six months or more out of the year, comprised a small portion of the total (from 6 per cent at Sukkertoppen to 26 per cent at Kangâmiut). Among the motorboats, fewer landings were made by non-"regular" fishermen. The week-

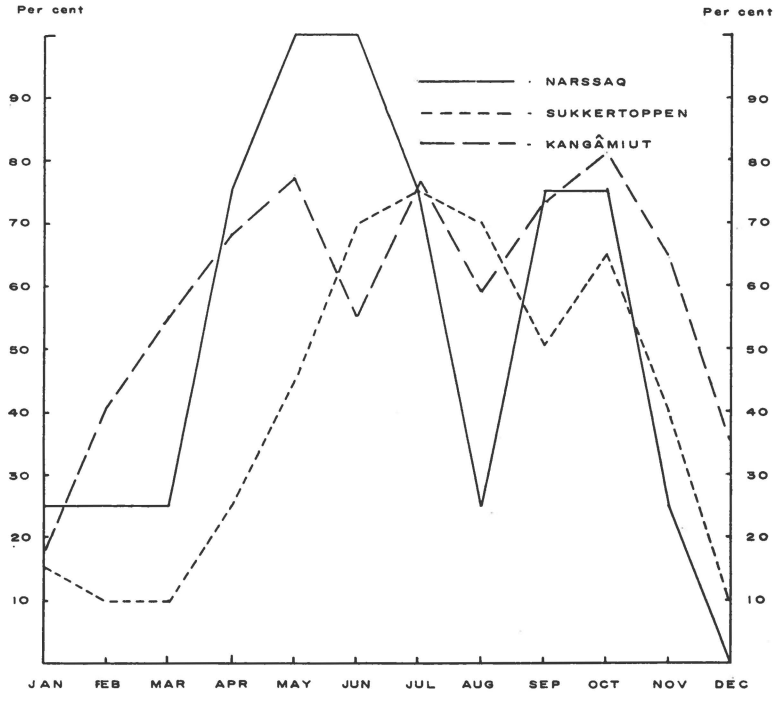


Fig. 47. Monthly participation of small motorboats (– 22′) in 1966 (as percentage of total).

end, spare-time, and occasional fishermen were noticeably fewer in number than in the rowboat category.

The average participation of rowboats was highest at Kangâmiut, and showed especially high spring and summer participation. The average monthly participation ranged from 17 per cent at Sukkertoppen to 29 per cent at Kangâmiut, with an average of all places of 24 per cent (Table 81a and Fig. 46). The graph of average monthly participation (Fig. 46) confirms the strong seasonal character of the rowboat fishery.

The average monthly participation of small motorboats (Table 82a on p. 120 and Fig. 47)was 50 per cent (from 40 per cent at Sukkertoppen to 59 per cent at Kangâmiut). Narssaq's small sample caused high variability in the participation index. But it is clear that a greater proportion of small motorboats were active during more months of the year than among the rowboats. A strong seasonal character was still evident, however, although with indications of less dependence upon physical factors.

The seasonal variation of fishing was less evident among large motorboats, as might be expected (Table 83a and Fig. 48). The average monthly participation was 63 per cent (from 55 per cent at Kangâmiut to 66 and 67 per cent at Sukkertoppen and Narssaq).

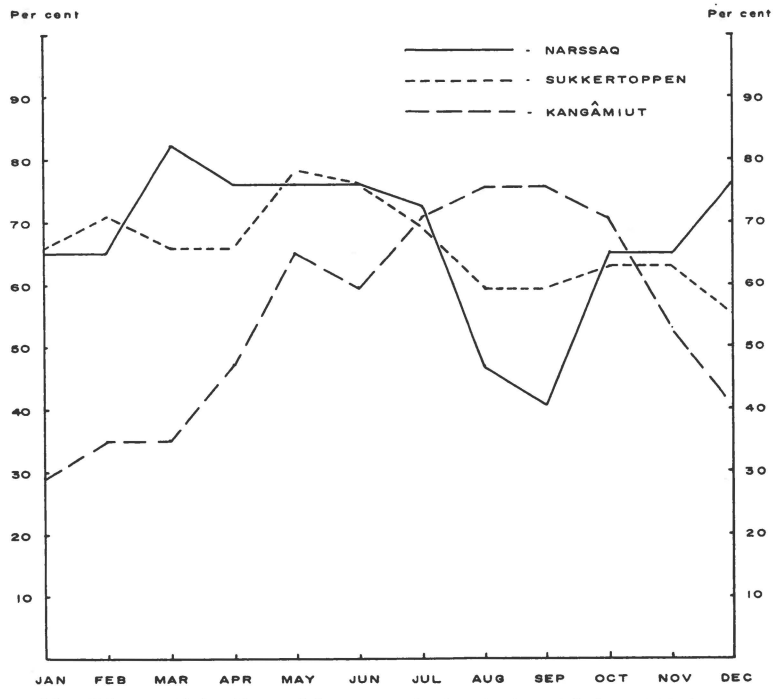


Fig. 48. Monthly participation of large motorboats (+ 22') in 1966 (as percentage of total).

The number of fishing days in 1966 increased slightly toward the north, with more days at both Sukkertoppen and Kangâmiut than at Narssaq in all vessel categories. As noted above, the greater number of vessels at Sukkertoppen skews this statistic. There was no apparent relationship between vessel size and number of fishing days, although there tended to be more fishing days among the larger motorboats (Tables 84a, 85a, and 86a).

The average number of landings per participating rowboat was highest at Kangâmiut (28.64 landings for the year), which was the same as the average for small motorboats at Narssaq and Sukkertoppen (Tables 87a and 88a, and Fig. 49). The average number of landings per rowboat also gave evidence to support the strong seasonal character of the fishery off West Greenland.

The average small motorboat landings varied widely, but showed a general seasonal character as well (Fig. 50). The average number of landings of small motorboats at Kangâmiut was twice that at the other places and even exceeded large motorboat landings at Sukkertoppen, as well as at Kangâmiut itself (Tables 88a and 89a). The average number of large motorboat landings was highest at Narssaq, where landings were high during the first four months of the year (Fig. 51 and Table 89a).

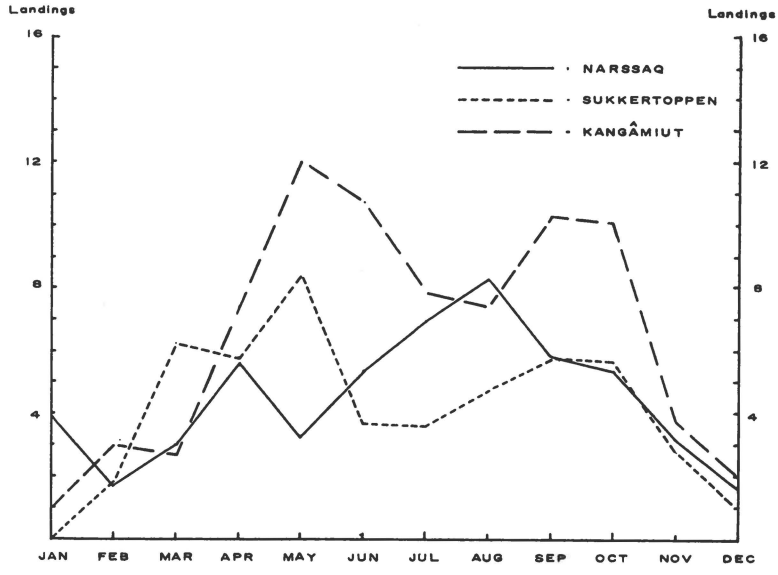


Fig. 49. Average number of landings per participating rowboat, 1966.

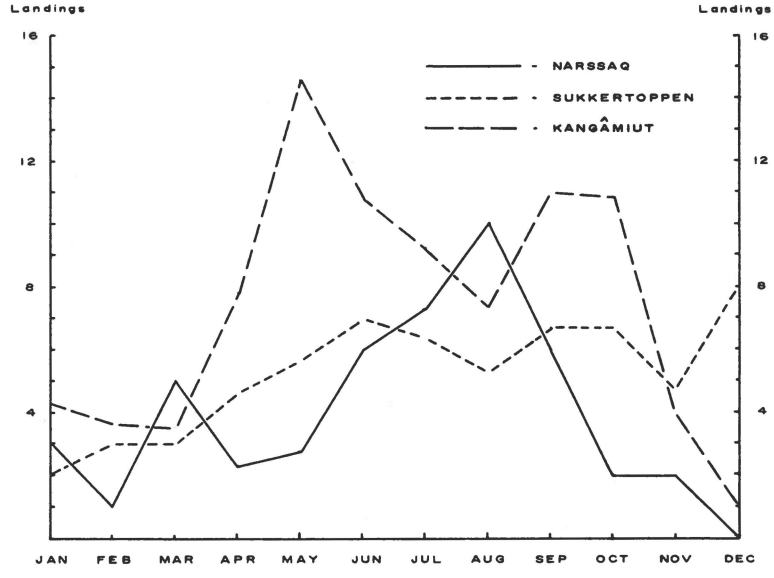


Fig. 50. Average number of landings per participating small motorboat, 1966.

This reflects the absence of winter ice compared with the two other places. The dampening of seasonal variations in the fishery among large motorboats was evident in the graph of average number of monthly landings (Fig. 51).

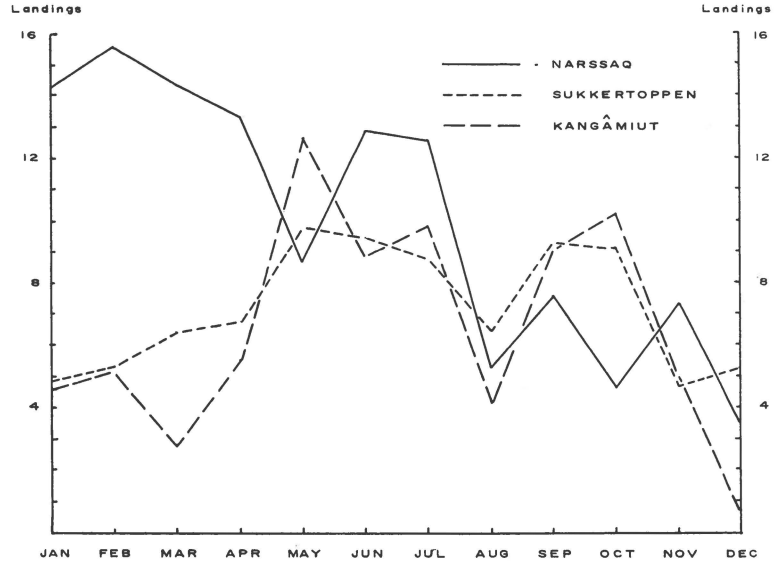


Fig. 51. Average number of landings per participating large motorboat, 1966.

Because of lower mobility, lack of mechanization, and smaller capacity, rowboats had fish landings of lower weight and value than the larger vessels (Tables 90a, 91a, and 92a). Landings of rowboats (which averaged 67 for the year among those sampled) were worth only 85 kroner each, and an average yearly total of 6,255 kroner (Table 90a). Small motorboats, on the other hand, averaged 80 landings worth 363 kroner each, and an average yearly landing of 28,829 kroner, or four times the rowboat landing value (Table 91a).

The seven large motorboats sampled averaged 93 landings for the year, and an average landing of 521 kroner, and average annual landings of 48,550 kroner (Table 92a).

Although there was some overlapping of the value of average landings between small and large motorboats, total landings of large motorboats were higher than the small motorboats in all but one case among those sampled.

The question of the optimum size vessel for the inshore fishery off West Greenland remains a moot point, although various studies have pointed to the advisability of using a 50-ton vessel. Initial cost and operating costs per unit of fish landed, however, have indicated the benefit of using smaller vessels than 50 tons. The whole question needs further investigation.

KGH's Line Boats

In 1965 the KGH began fishing with three large cutters off West Greenland. A fourth was in operation from 25 February 1966. Two of the cutters (wooden) are 82 feet in length and have a gross register tonnage of 105 BRT. They began fishing on 18 July 1965 (m/k "David Olsen") and 16 October 1965 (m/k "Jacob Heilmann"). The two others (steel) are 95 feet and 196 BRT. They began operating on 10 October 1965 (m/k "Carl Egede") and 25 February 1966 (m/k "Jens Mikkel"). The vessels are operated for KGH's account by a hired crew and skipper. Each vessel has a crew of 12 men, who work onboard on a one-year contract.

The first complete year of operation for these vessels was 1966 (except m/k "Jens Mikkel", which lacked seven weeks in 1966) and a summary of their results is therefore warranted.

Two of the vessels ("David Olsen" and "Jacob Heilmann") had Greenlandic skippers, while "Carl Egede" and "Jens Mikkel" had a Færoese and a Norwegian skipper respectively. The 82-foot, 105-ton "Jacob Heilmann" was sold by KGH to a private Greenlandic fisherman from Sukkertoppen early in 1968. All four cutters fished mainly with long-lines, but also at certain times with a Norwegian wheeled hand-line (snelle). Their 1966 catches and place of landing are shown in Table 118.

The fish taken was mostly cod (2,704 tons out of a total catch of 2,978). The four vessels together landed over ten per cent of the total catch of cod in Greenland in 1966. One half of the 2,704 tons of cod was landed at the private factory at Godthåb (Godthåb Fiskeindustri A/S). Sukkertoppen got 894 tons and Holsteinsborg 303 tons. The wide range of total catch of the vessels (495 to 992 tons) can be seen in Table 118. The four boats fished on the offshore banks for the most part and had an average of 6.8 operating days per trip (including travel time to and from the fishing areas). Non-operating time averaged 5.4 days per fishing trip. This non-operating time resulted mainly from repairs and unloading, with few days idle because of weather.

The catch per operating day was forecast at 5.5 tons and 6.4 tons for the 82 and 95 foot boats respectively. The 82-foot boats had catches of 2.8 and 3.7 tons and the 95-foot boats caught 4.2 and 4.0 tons per operating day. In both cases this was considerably under expectations.

There appeared to be a great variation in catch results between the four vessels. Repairs and forced delays at service facilities on land, plus perhaps a less qualified crew caused poorer results in one of the vessels. Another, although out of operation for five weeks after a fire onboard, had by far the best total result.

Table 118. *Total fish catch by KGH's line boats in 1966, in tons.*

Vessel	Cod	Other	Total	Weeks of Operation
"David Olsen"	434	61	495	52
"Jacob Heilmann"	635	114	749	52
"Carl Egede".....	932	60	992	52
"Jens Mikkel"	703	39	742	45
Total	2,704	274	2,978	201

	Place Landed				Forecast
	Godthåb	Sktp.	Hbg.	Total	
"David Olsen"	470	–	25	495	1,200
"Jacob Heilmann" ..	86	630	33	749	1,200
"Carl Egede".....	848	39	105	992	1,400
"Jens Mikkel"	377	225	140	742	1,400
Total	1,781	894	303	2,978	5,200

Source: unpublished information from KGH.

It was apparent from the 1966 results (as well as those from 1967) that the introduction of larger fishing vessels in Greenland met serious initial difficulties, which indeed might be expected. One of the boat's skippers suggested fishing for salmon with drift nets, but the State was hesitant to agree with this suggestion (which might have improved the final result), considering the international negotiations on limiting this fishery.

The total 1966 result by the four vessels was a deficit of varying magnitude. One must conclude, however, that the operation of larger vessels in Greenland will begin to supply the unused factory capacity (especially in the winter), thereby improving the economic result and possibly allowing raw fish prices to be increased. Such a price increase would improve the operating budgets of the larger vessels, which are presently operating at a loss. The winter fishing of the four line boats (1 November 1966 to 30 April 1967) accounted for 43 per cent of the total raw fish landed at all fillet factories in Greenland. Such a development in the future would not only have the effect of utilizing unused factory capacity, as stated above, but it would also have a beneficial effect upon the serious problem of winter unemployment.

In 1966 the skippers of the four boats themselves decided where to land their catch. It is believed that, in the future, each boat will be associated with a particular factory and that the factory will be responsible for the boat's operation.

In general, although the total result of the four boats was less than anticipated, the catch per hook set out was about that forecast. In the future, more hooks will have to be laid out, which will be possible after

increasing the bait capacity of the boat and also increasing the crew from 12 to 14 men.

Despite expected difficulties in this beginning effort, the larger vessels proved very seaworthy and were considered quite suited for fishing in Greenland waters.

It is anticipated that this type of vessel will be supplying an increasing portion of the raw material needs of the fish processing factories in Greenland. Trawlers were not yet in operation in 1966, but one stern trawler ("Nûk") started in 1969 (for Greenland's Landsråd) and more are planned for the future. Rowboats will assume even less importance, with smaller cutters also being eclipsed in importance, except in Disko Bugt (prawns) and in a few local inshore and fjord efforts.

Acquiring a cutter of 100 or 200 tons will obviously not be possible for any but a few enterprising Greenlanders working in cooperation. The alternative seems to be expansion of the fleet of cutters in the 40 to 60 ton range. The type of vessel, a consideration so vitally important in this fishery, will be decided eventually by the main factors of operational cost per unit of catch, and the design of the vessel which will determine its suitability for fishing in the demanding physical conditions in the seas off West Greenland.

The 10-Year Plan

In May 1958 the Royal Greenland Trade Department set up a committee to study the future development of an industrial program in Greenland, which included fish factories, harbors, and service facilities for the fishing industry. A series of proposals and resulting laws were enacted in 1959 (5 June 1959) and investment in this program began the same year.

In January 1962 another committee[1]) was established by the Ministry for Greenland, and this committee was enlarged in January 1965. Several working groups within this committee presented a report to the Greenland Committee (Grønlandsråd) about the development of the Greenlandic fishing industry and associated production activities on land. This report (dated 1 April 1965) and a subsequent one (dated 15 December 1965) outlined the status of the fishing industry and presented a development plan for the period 1966 to 1975.[2])

[1]) This committee issued a report which outlined development programs for each district in West Greenland entitled: *Rapport fra Arbejdsudvalget af 9. Januar 1962 vedrørende Industrianlæg i Grønland*, dated 25 July 1963, 77 pp. mimeo.

[2]) 1) *Rapport til Grønlandsrådet vedrørende Status og Udviklingsplan for Fiskeriet og Produktionen i Grønland* (1 April 1965), 19 pp. + 8 append., mimeo.

2) Rapport II, same title as above. Dated 15 December 1965, 16 pp. + 13 append., mimeo.

The committee worked out a yearly plan of investment for certain towns along the west coast for the years 1966 to 1970, a plan with total investments of 200 million kroner which was to be used for harbors, production plants, fishing vessels, and so forth. As of September 1968, no plan for 1971 to 1975 had been made public.

The goal of the plan was full employment throughout the year and establishment of the economic basis for higher landing prices and wages.

The main part of the investment would be focussed on the four "open-water" towns, followed by Jakobshavn in Disko Bugt. Narssaq was considered the best place to center southern West Greenland's fishing industry. Because of storis, this effort would continue to be a fjord and inshore fishery from smaller vessels.

Of the four "open-water" towns, Frederikshåb was to be expanded to a production capacity equalling Sukkertoppen and Holsteinsborg, while Godthåb would be developed to nearly twice the size of the three other places.

The whole plan was based on an employment of 3,000 persons within the fishing industry (both primary production and processing) by 1970.

The introduction of the four line boats (and a stern trawler in 1969), construction of Frederikshåb's new fish plant (1967), and Jakobshavn's hellefisk-prawn factory (expanded 1967), were all part of this 10-year plan. In general, the plan appeared quite ambitious—and indeed was slowed down by austerity measures following currency devaluation and inflation in Denmark.

The focussing of economic activity upon the open-water area, and the population build-up within the area, are all part of the developments anticipated (and recommended) by the 1960 Commission (G–60), discussed in Chapter V. The plan's present status (1971), halfway through the 1966–75 period, demands investigation.

It is clear that the modern fish-processing plants along the west coast of Greenland, if they are to escape the present yearly deficits, must receive greater supplies of fish to run at capacity. The present undersupply, especially during the winter period, can be rectified only by larger vessels fishing the offshore banks. To what degree the offshore banks will be able to support current landings at a reasonable and economic fishing intensity involves two vital questions:

1) the natural fluctuations in fish stocks
2) the fishing industry's effect on fish stocks

The natural fluctuations, so intimately dependent upon physical factors in the sea, are an overriding question in Greenland waters where the most important fish, cod, is near the northern limit of its range. This is evident from past periods of cod scarcity and abundance.

The question of overfishing is also of paramount importance. There are clear indications in Greenland waters of a fall in catch per unit of fishing effort. To increase the fishing effort, even if it proved economically feasible, might only accelerate the fall in catches.

Greenland appears, at long last, to be at the threshold of an offshore fishing industry. It seems ironic that the two factors cited above might threaten this development. Surely the location of Greenland's fish-processing facilities near the source of fish is a positive economic factor. A negative factor is the increasing cost of getting raw fish as fishing effort must be expanded to catch the same amount of fish. The threat to fish stocks themselves of this increased activity, plus the threat of a deterioration of natural conditions, are two considerations which cannot be neglected.

Summary

1) Total cod landings in 1966 in Greenland were 24,569 tons: 19,069 tons to KGH, and 5,500 tons to private factories— mainly Godthåb Fiskeindustri A/S.

2) In 1966, cod accounted for 41 per cent of the total landed value of fish in Greenland. In West Greenland, cod landings were worth 8,155,800 kroner out of a total landed value of all fish of 18,979,800 kroner (or 42 per cent).

3) The cod catch in West Greenland was highly seasonal. The period June-August was the most productive, while the six-month period from November through April showed minimal landings.

4) The year 1966 showed continued decline in the size of cod caught, with 36 per cent "large" and 64 per cent "small". It is believed that this trend results from overfishing in the large international bank fishery and increasing use of the pound-net (bundgarn) in inshore waters.

5) Two thirds of the cod landed in 1966 went to filletting-freezing, and one third to salting and drying. Freezing factories are found at Narssaq, Sukkertoppen, and Holsteinsborg, plus a large private plant at Godthåb. There are 35 small cod-salting stations scattered along the coast of West Greenland.

6) The other fish of importance in the 1966 catch in Greenland were outlined. Salmon landings (593 tons, excluding private) and prawns (4,600 tons) each accounted for 24 per cent of the total landed value of all fish. The remaining 11 per cent of the total value of fish products was made up by hellefisk, wolffish, and lumpsucker roe, plus small amounts of halibut, redfish, arctic char, capelin, and herring.

7) Fish products were about 80 per cent of the total landed value of all products in Greenland in 1966.

8) There were 2,440 persons in Greenland who had fishing as an occupation out of 35,117 Greenlanders in 1966. Of the 2,440, 1,499 were independent fishermen and 755 worked as share fishermen on another's boat. In addition to the 2,440 fishermen, there were 4,535 dependents giving a total of 6,975 persons connected with fishing. This does not include fish-processing and associated service industries. Of the 6,975 persons, about 57 per cent lived in settlements (bygd) and 43 per cent in the main towns (by).

9) Of the 759 motorboats in West Greenland in 1966, 730 were under 20 tons. Fifty-seven per cent (437 boats) were under five tons. There were, in addition, 2,192 rowboats (some with outboard motors) used for fishing. Fishing vessels in West Greenland, therefore, are of small size. Only slight progress has been made in establishing a sea-going fishery.

10) The results of a study of three sample fishing towns—Narssaq, Sukkertoppen, and Kangâmiut—were presented, outlining comparisons of vessel category, regularity of fishing, number of fishing days, total number of landings, average landings per participating vessel in each size category, and monthly landed values by fish types for each vessel size. The sample of regular fishermen for the three places was 7 per cent of rowboats, 12 per cent of small motorboats, and 17 per cent of large motorboats. A total of 13,860 fish landing receipts was tabulated (Narssaq 3,709; Sukkertoppen 4,999; and Kangâmiut 5,152).

11) A total sample of landings at Sukkertoppen for two summer and two winter months showed that rowboats landed as much as 15 per cent of all fish (July), but had insignificant landings during the winter (0.1 per cent in December). The landings of large motorboats varied between 74 and 97 per cent of the total.

12) The introduction of four line boats in 1965—66 by KGH was outlined. These four vessels landed over ten per cent of the total catch of cod in 1966. The vessels' catch varied greatly, and the total catch of all fish was only 57 per cent of that expected. The catch per hook was up to the forecast, but the number of hooks set out was less.

VII. CONCLUSIONS

This study outlines the salient features of the West Greenland fishing industry from its inception in 1910. In order to understand fully present-day fishing in Greenland and to estimate its future prospects, it is essential to study the development of what was a new native industry, and one which ran counter to the established traditions of a hunting culture. Hence the care taken to provide the historical basis for the industry.

The Greenlandic fishing industry is only 60 years old. While fishing as a commercial undertaking is relatively new, the study has pointed out that fishing was by no means unknown to the Greenland hunter before 1910. A large proportion of the caloric intake of Greenlanders on a traditional diet was supplied by fish, although fishing was looked down upon by the best hunters and was considered a pursuit worthy only of women, incompetents, boys, and old men.

The modern Greenlandic fishing industry began around 1910 as a conscious effort to find a viable alternative to seal hunting. One man in particular, Ad. S. Jensen, was far-sighted enough to realize that seal hunting could not provide the basis for a modern society in Greenland while the population was growing at a rate which finally caused it to double between 1910 and 1950 (see Jensen's statement above, pp. 91–92). Fishing was suggested as the only practicable alternative to hunting. Greenland halibut (hellefisk) and shark were considered the most likely possibilities for the new fishery.

It is usually stated that Greenland's fishing industry began only when seals grew scarce and cod moved into the waters off the west coast, when the climate became warmer. This study has shown that this was not the case. In 1910, cod had not yet appeared in any great numbers in Greenland waters, although sealing possibilities seemed to be deteriorating. The early fishing industry was established in an attempt to build a better economic base for a rapidly-expanding Greenlandic society.

Around 1917, however, cod did begin to appear off Greenland, and they increased in number and extent each year up to a culmination around 1930. So the infant industry, whose basis was to have been Greenland halibut, shark, and arctic char, received an unexpected dividend.

Cod provided the main basis for fishing, and has continued to do so to the present day.

The development of two other fisheries—prawns in 1949 and salmon in 1960—has now provided valuable supplements to cod. All other fish together form only ten per cent of the total value of fish products. Cod itself, which has been processed into the traditional saltfisk since 1917, is now of more importance (and export value) in frozen form. Saltfisk production cannot continue when temperatures fall below freezing unless heated salting houses are used, so that the more modern processing of frozen fish now allows landings throughout the year.

Once the Greenland Administration decided to establish a fishing industry, all fish landings were taken over by the government trade monopoly and private fish trading was forbidden. Arctic char and hellefisk had been under the monopoly since 1903, cod and common halibut since 1910. Initially, fish processing and export began in 1910 at four locations: Holsteinsborg (halibut), Godthåb district (char), Fiskenæsset (cod), and Qarsorsat, near Sydprøven in Julianehåb district (hellefisk). The early fishing efforts were called "trials" (fiskeriforsøg) and by means of these trials the government attempted to determine the best locations and most profitable types of fishing.

The first real indication of increasing numbers of cod in Greenland waters came in 1917, when the export value of cod equalled all other fish products combined. At that time (ave. 1916–18), fish products formed only about 15 per cent of the total export value from Greenland. By 1918 cod was worth twice as much as all other fish.

Although the commercial fishery was initiated by the Greenland Administration, the official attitude tended to regard fishing as a "threat" to the traditional seal hunting. Cod was considered only a temporary resource because of its sporadic appearance in the past, and little effort was made to utilize it fully. Small salting houses were built along the coast as the cod extended northward, but the fishery was plagued by lack of salt, low mobility of the primitive rowboats and their vulnerability to weather, the Greenlanders' general apathy (reflecting the official attitude?) towards the whole enterprise, and an overall lack of foresight and planning.

In 1925 AD. S. JENSEN stated that the basis of the future Greenlandic fishery would be Greenland halibut (hellefisk). But the year before (1924), Norwegians began fishing cod and common halibut on the banks off West Greenland. This developed rapidly and by the 1960s the yearly cod catch reached between 300,000 and 400,000 tons. By this time several other European fishing fleets had joined in. Yet until 1966 the Greenlanders did no fishing on the banks; their own inshore fishery using small boats averaged only eight per cent of the total catch off West

Greenland. This was in spite of the locational advantage held by the Greenlanders in comparison with European fleets based thousands of miles away.

As early as 1948–50 it had become apparent that the fishing industry based in Greenland had changed little since its inception. Cod still swarmed in the waters off the coast, attracting each year more foreign vessels, while the Greenlanders kept to the fjords and coastal waters. The need for reorganization of the Greenlandic fishery had become obvious by 1950. The "Great" Commission of 1948, which reported in 1950, recommended drastic reforms, but its strong recommendation to create a seagoing fishery was largely ignored. Not until 1965, in fact, was any significant step taken in this direction. And by this time the per capita cod catch in Greenland had fallen to one half that of the early 1950s, in spite of very considerable capital investment and the excellent market for fish products.

The huge investments recommended by the 1960 Commission (G–60) were begun in 1965, being aimed at the "open-water" districts from Frederikshåb to Holsteinsborg. They are only now beginning to show results.

The final chapter of this study reported on investigation of the situation in 1966 (the first full year of the new ten-year plan resulting from G–60). In order to provide a representative picture of the West Greenland fishing industry as it began to expand into an offshore fishery, three fishing ports were selected for detailed study. At each place the landings of sample rowboat and motorboat fishermen, their fishing frequency, and degree of participation in each month were recorded. This showed the Greenlandic fishery to be highly seasonal. The landings were also very variable. In addition, only about half the capacity of the new fish-freezing plants was met by the landings.

The Future of the Greenlandic Fishery

This study has shown that, following introduction of a few larger vessels (KGH's "line boats"), the unused processing capacity of West Greenland's larger factories is now beginning to be supplied. However, the data show that West Greenland still has a basically small-vessel fishing industry. Because of this, it is highly seasonal, there is winter unemployment, and the factories are not utilized to full capacity. The critical question to be faced by Greenland today, therefore, is how to expand and modernize the fishing industry—that is to say, to what extent, by which methods, and at what cost?

The Greenlanders' lack of private capital, which has left them with little alternative but to continue fishing from small vessels, and their lack

of experience with modern fishing technology are usually cited as reasons why Greenland today takes less than ten per cent of the fish caught off her shores.

According to one observer:

> The sea about the ... coasts of course abounds in fish, but this is mostly worked by English and other foreign trawlers, and there does not seem to be the capital in ... to fit out their own trawlers to any useful extent.
>
> Unless coal or minerals are discovered there, ...'s only possible chance of prosperity seems to lie in a development of the fishing industry. If they could get the capital they could surely work trawlers cheaper from their own ports than can the English owners, whose boats must go two thousand miles simply sailing to and from their fishing grounds.

This might be a description of the present state of fishing in Greenland, but it is not. It was written by an English author[1]) after a visit to Iceland in 1936. Anyone familiar with the recent modernization and development of the Icelandic fishing industry would hesitate to be pessimistic about the present state of affairs in Greenland. One may question, therefore, the time needed to build up an industry based on large vessels. Danish opinion in this matter seems to be needlessly pessimistic when it speaks of "generations".

The foreign fishing fleets off West Greenland are claimed to have not only long traditions in deep-sea fishing, but also an attitude to work and a degree of industriousness which is based on an agricultural and industrial tradition. Many Danes working in Greenland point with despair to the Greenlanders' lack of work "stability", to their infuriating habit of going hunting during some of the best fishing periods, and to their "lack of discipline" which, it is suggested, would preclude successful use of larger vessels. Such comments are not limited to Greenland, and they have long been heard as people change over to an industrial society. Given equal incentives, there is no reason to expect a lack of stability among Greenlanders. No one has shown that a more flexible fish landing and processing schedule could not accomodate the Greenlanders' understandable yearning for the hunt. And no one has been able to prove that the Greenlanders might be ill-suited for lengthy fishing operations on the banks. To the contrary, a few Greenlanders have risked much to acquire larger vessels and have shown skill and perseverance in operating them.[2])

[1]) LEWIS, E., 1938. pp. 101–02.

[2]) Several of KGH's line boats have been purchased by Greenlanders.

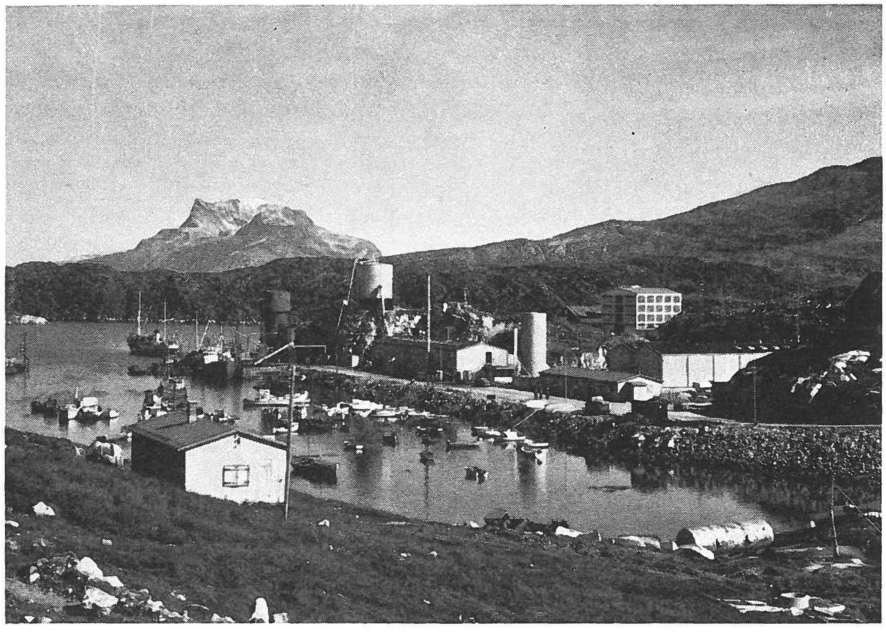


Photo 10. Godthåb, small boat harbor and fish factory of Godthåb Fiskeindustri A/S. 25 August 1967.

Many problems have arisen because of the rapid urbanization and modernization in Greenland. There is ample evidence of rising alcoholism, increase in venereal disease, and a rise in crime. This deplorable trend, which could perhaps be described best as civilization's "gift" to Greenland, has undoubtedly had its effect on the fishing and fish-processing industries as elsewhere. The socio-psychological impact of rapid changes in the way of life in Greenland has been studied, but more thorough research followed by remedial measures is no doubt desirable.

A Year-round Fishery?

During the summer, Greenlanders in their small vessels land large quantities of cod from the fjord and coastal waters. At this season cod appear in large numbers as they follow the spawning capelin in to the coast. Larger vessels at this time are not essential, but they are needed for the remainder of the year to catch cod after they have returned to the banks and offshore waters. Immediately following World War II, the international bank fishery off West Greenland seemed to be developing as a summer fishery, which indeed the Greenlanders' small boat fishery has always been. It was assumed for a time that, even on the banks, winter fishing was not feasible and that such northerly waters could not

be fished in the winter months. Toward the end of the 1950s, however, foreign trawlers began to appear more frequently in winter off West Greenland. It has now been demonstrated that year-round fishing off Greenland's west coast is possible, despite the rather more hazardous physical conditions during winter. It must be assumed, therefore, that it will be possible to modify the strongly seasonal character of the Greenlandic fishery by the use of more seaworthy (*i.e.*, larger) vessels. It is possible that the role which winter fishing can play is overestimated since cod are most plentiful on the West Greenland offshore banks during June-September (HORSTED, 1965, p. 266). But in view of recent successes of foreign trawlers there, we must conclude that the season can be at least extended by using larger vessels and it is possible to use the winter season, although not so fully.

A Cod Disappearance and Larger Vessels

If winter fishing on the banks is feasible for the Greenlanders, the question arises as to whether the stocks of fish will support such expanded bank fishing operations. We are here talking about the cod fishery, which accounts for 90 per cent of the total catch of fish off West Greenland (Table 62). As this study has shown, cod have been abundant in West Greenland waters during several periods separated by long intervals when they were lacking. The present period of cod abundance, which began about 1917, is the longest on record. Based on previous experience, we must assume that the present period will eventually end. In the mid-1960s there were certainly indications that a change was imminent. The present abundance of cod must therefore be considered temporary, but it is impossible to be certain when the cod will again abandon Greenland waters.

Rather than defer any initial planning for an expanded fishing industry using larger vessels, the threat of disappearance of the cod should spur efforts toward a sea-going fishery. Were the cod to disappear from Greenland waters tomorrow, the local fishing industry would be devastated. Not so, however, if the vessels supplying the modern factories were sea-going and capable of following the cod to distant waters.

Although more research is needed into the optimum vessel type for the first stage of an expanded Greenlandic fishery, I believe the vessel size should be in the 40–60 ton range, which is appreciably smaller than the four line boats brought in by KGH (100–200 tons). The best vessel for bank fishing by the Greenlanders should also be smaller than the foreign vessels currently fishing there because long distance fish transport is not necessary for the Greenlanders. Of course, trawlers will need to be used also, but the scale and expense of such an undertaking almost demands State

support and control, so that the decision will not be entirely in the Greenlanders' hands.

There are indications that the Danish government has now given up the idea that a 50-ton cutter is the best vessel for use by Greenlanders. The four line boats, plus a large stern trawler brought in in 1969, suggest urgency to get raw fish to the shore factories at any cost, rather than a desire to develop a rational fishery in the hands of the Greenlanders themselves. The move to such large vessels is the first step towards a distant-water fleet rather than an attempt to extend the fishing season on Greenland's offshore banks. Were the latter aim paramount, vessels of such large size would hardly be necessary.

The Stocks of Fish

In light of the fluctuation in occurrence of cod off Greenland, one must not take too seriously the oft-heard reference to the "colossal fish wealth of the Greenlandic fishing banks". So the availability of fish requires consideration in any discussion of Greenland's future prospects. It is true that the catch of cod off Greenland increased in recent years up to a maximum in 1962, with a slight decline thereafter. But this increase in catch was the result of a greatly increased fishing effort. The catch per fishing day off West Greenland has, in fact, fallen markedly in recent years. There are definite signs that the point of optimum utilization of the cod stocks has been passed and that any increase in total catch can only result from a disproportionally great fishing effort which might not be economically feasible. If the point of maximum utilization of the cod stocks has been passed, scientists believe that the same total catch can be obtained with lessened fishing activity and more economic use of each fishing vessel (Smidt, 1969b).

A decrease in the average size of cod taken off West Greenland in recent years is one indication of overfishing and suggests that the optimum use of the cod mass has been passed. This overfishing, a decrease of catch per unit of effort, has a purely *economic* result with no influence on the few spawning fish needed to assure normal recruitment in the fishery. The greatest *biologic* result will come through climate changes, and about these only uncertain prophecies are heard.

There is no doubt that in recent years the cod fishing season at the coast has become shorter in northern West Greenland and few cod are now fished in Disko Bugt. Hunting conditions, on the other hand, seem to have improved in northern West Greenland and arctic fish species are now encountered farther south. There are therefore definite indirect indications of a climatic deterioration, although the extent and duration of such changes are uncertain.

Another factor influencing the fish catch during a period of years is the size and longevity of any one year-class (årgang). The cod fishery off West Greenland in 1966 was dominated by the two rich year-classes of 1960 and 1961. Unlike earlier year-classes (1947, for example), which remained important in the landings for ten years or more, recent rich year-classes of cod off Greenland (1953, 1956, and 1957) remained important for only about five years because of the increased fishing effort mentioned above, especially trawling on the banks.[1]) Because of the shorter productive duration of any one good year-class, fewer overlappings of year-classes now occur, which has resulted in a greater fluctuation of total catch from year to year.

In summary, a falling catch per unit of fishing effort, a poor utilization of optimum fish weight, a decreased duration of the productive period for any one year-class, and the threat of cooler hydrographic conditions have resulted in a risky and expensive fishing effort off West Greenland. To enter this fishery now, the Greenlanders will have to make efficient use of larger vessels and will have to match the sustained efforts of experienced foreign fleets. One factor which remains clearly to the Greenlanders' advantage is proximity to the fishing banks, which could well be of overriding importance. If it is economically worthwhile for vessels from Europe to fish off West Greenland, it should be of at least equal advantage to Greenland, where the banks are only 10 to 15 nautical miles from the outer coast.

Processing

The possibility of producing a more finished fish product exists in Greenland. Wolffish and prawns are both processed into finished products, but cod is, for the most part, only half-processed (into cod blocks). Nearness of the source of raw fish to the processing plants makes it possible to land the fish in unusually fresh condition. Freshness of the raw fish is a critical factor in the quality of frozen fish products. In Greenland there is no problem because of short distance, and this suggests an important competitive advantage.

Both fish landings and biological research have shown that greater quantities of fish are available off West Greenland in summer than during other seasons. One must presume that there are limits to the extent winter fishing can be developed. Possibilities exist, however, for winter activities at the land factories. Half-finished fish products, stored from the summer season, can be processed into the final product; and it is possible that a double-freezing technique can be developed whereby part

[1]) Referat af Den kongelige grønlandske Handels Fiskerimøde, 17 April 1967, på Christiansborg.

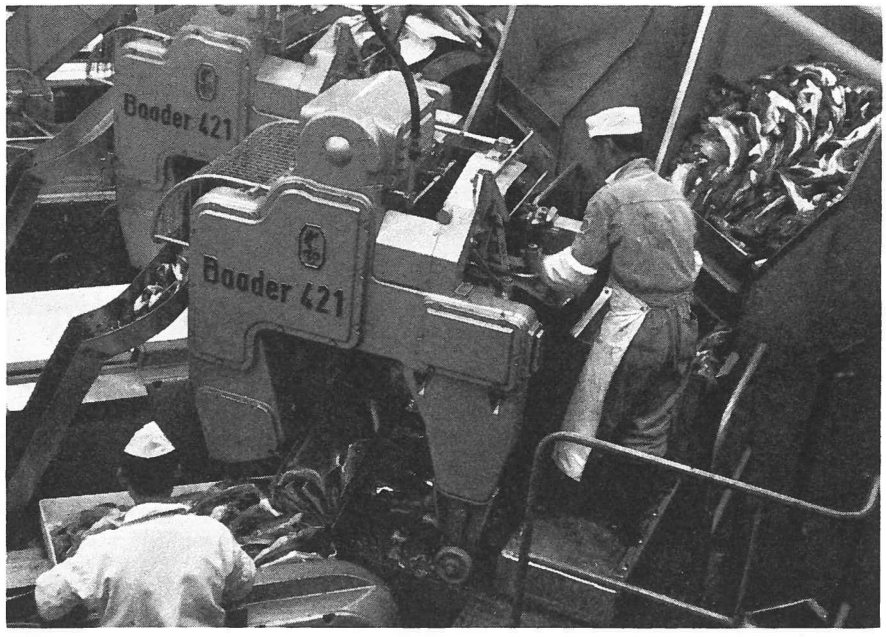


Photo 11. Processing cod at Godthåb Fiskeindustri A/S factory, 28 August 1967.

of the summer catch can be cleaned and frozen, for later processing during the winter. This would increase the daily capacity of the factories during the summer.

Is Fishing off Greenland too Uncertain?

1) It must be recognized that fishing off the west coast of Greenland always has been a high-risk undertaking, and it will presumably always be so. Variation in fish occurrence, rugged physical factors, and distance of the fishing banks from large markets are obvious handicaps. Icing ("black frost") has taken its toll of fishing vessels (through over-turning), as have icebergs. Violent storms, fog, dangerous reefs near shore, and communication black-outs add their weight to the risk. Surely some of the uncertainty is lessened for the Greenlanders, who are near the fishing areas and who have intimate knowledge of the coastal waters, not least the whereabouts of safe harbors.

2) The government-controlled (KGH) fishing industry in Greenland has shown a profit from only two products—prawns and salmon. In all three sample places studied there were deficits in 1966. All three, of course, had to bear a *pro rata* share of the extensive administrative and sales costs of KGH, which employs over 3,000 persons in Denmark and Greenland.

3) Private companies, which are not able to compensate for annual deficits in some way (through direct subsidy, government grants, loans or guarantees), have found it almost impossible to operate in Greenland at a profit. Further study is needed of the many private attempts at industrial development in Greenland and the reasons for their failure. In contrast, Nordafar A/S at Færingehavn, a Dano-Norwegian-Færoese concern, can be cited. It is open only during the very busy summer season of about 18–22 weeks. A thorough study of its record through over 20 years might be illuminating.

Future Research Needs

As with many investigations, this study has raised more questions than it has been able to answer. It may be useful to indicate some of the more important matters requiring future research, from which the results could be of direct value to Greenland and the fishing industry:

1) The optimum vessel for the Greenlandic bank fishery, possibly in the 40–60 ton category. Cost-catch analysis, plus a determination of the feasibility of a winter long-line fishery off Greenland.

2) A thorough and detailed study of fishing in one district or a comparison of two districts in West Greenland (Sukkertoppen-Godthåb or Sukkertoppen-Holsteinsborg).

3) Determination of the economic policy (including prices and wages, loans for vessels, and possible cooperative vessel operations) which will best foster Greenland's move to a year-round, sea-going fishing industry. This study would entail a comparison of the development of larger vessels to fish Greenland's offshore banks and a distant-water fishery—concepts which must be separated clearly in any consideration of larger vessels.

4) The feasibility of a "Lofoten-type" fishery in which numbers of fishermen make temporary moves along the coast each year to participate in a concentrated fishing season of relatively short duration.

5) The technical feasibility of a double-freezing process to even out the highly-seasonal nature of the Greenland fishery and its associated fish-processing industry.

6) The private operation (Nordafar A/S) at Færingehavn: costs, landings, profits—and possible applications for other parts of Greenland.

7) The record of private enterprises in Greenland since 1953; the

areas where private initiative has concentrated; the attempts made to initiate private commercial fishing and the reasons for the relative lack of success.

This study encountered considerable initial difficulty in finding suitable data and uniform statistical material. In many cases the data did not in fact exist in any organized form, but had to be assembled by long and painstaking archival searches. The data compiled have been included in this study, not only for immediate use but as a resource for future workers in this field. Over one half of the tables have been included in the text itself, but many others are placed in the appendices. The 200 or more tables themselves suggest areas of possible research focus and it is hoped that they may be used in this way.

The slowness of development within Greenland's fishing industry is regrettable. When considered in light of adverse physical conditions, however, the rapid modernization in Greenland in the past 20 years is a truly remarkable achievement, and it stands as a monument to Danish benevolence and skill and to the adaptability of the Greenlanders. The fishing industry has, of course, been a factor of this modernization and it is hoped that the young tradition in fishing can be strengthened to enable a year-round industry to be developed. Without such a move, Greenland is threatened with economic stagnation and the continued frustration of seeing foreign fleets reaping most of the harvest of fish resources off the west coast.

Greenland's future prosperity seems to depend upon a development of her sea fisheries and possible mineral exploitation on land. Smaller efforts in promoting tourism, home crafts, and perhaps even specialized manufacturing using a skilled labor force of proven mechanical ability, may have importance in the future. It is to the fishing industry, however, that we look for a self-sufficient and truly *Greenlandic* basis of future prosperity.

Notes on the Bibliography

The following bibliography includes references consulted while carrying out the initial field work and preparing this study. Many of these references have been cited in the text, but the bibliography is intentionally not restricted to references cited.

Official Danish government reports about Greenland having significance for this study have been published since 1882 under various titles, although in reality they form a continuing series. Below are listed these titles together with the abbreviations for them used in the text of this study and in the bibliography.

Title	Abbreviation
Meddelelser fra Direktoratet for den kongelige grønlandske Handel (1882–1908)	*Medd. fra Dir. for den kgl. grønl. Handel*
Beretninger og Kundgørelser vedrørende Kolonierne i Grønland (1909–1912)	*Beret. og Kundg. vedr. Kolon. i Grønl.*
Beretninger og Kundgørelser vedrørende Styrelsen af Grønland (1913–1932)	*Beret. og Kundg. vedr. Styrl. af Grønl.*
Beretninger og Kundgørelser vedrørende Grønlands Styrelse (1933–1937)	*Beret. og Kundg. vedr. Grønl. Styrl.*
Beretninger vedrørende Grønlands Styrelse (1938–1949)	*Beret. vedr. Grønl. Styrl.*
Beretninger vedrørende Grønland (1950-1967)	*Beret. vedr. Grønl.*

Abbreviations for other references frequently cited in this study are:

Title	Abbreviation
Atuagagdliutit/Grønlandsposten	*At/Grpstn.*
tidsskriftet *Grønland*	*Grønland*
Det grønlandske Selskabs Aarsskrift	*Grønl. Selsk. Aarsskr.*
Det grønlandske Selskabs Skrifter	*Grønl. Selsk. Skrift.*
Grønlandsposten	*Grpstn.*
Meddelelser fra Kommissionen for Danmarks Fiskeri- og Havundersøgelser	*Medd. fra Komm. for Danmarks Fiskeri- og Havunders.*
Meddelelser fra Kommissionen for Havundersøgelser	*Medd. fra Komm. for Havunders.*
Conseil permanent international pour l'exploration de la mer (International Council for the Exploration of the Sea)	
Annales biologiques	ICES *Ann. biol.*
Journal du Conseil	ICES *J. Cons.*
Rapport et proces-verbaux des réunions	ICES *Rapp. et proc. verb.*

International Commission for the Northwest Atlantic Fisheries	
Annual Proceedings	ICNAF *Ann. proc.*
Special Publication	ICNAF *Spec. publ.*
Statistical Bulletin	ICNAF *Stat. bull.*
Meddelelser om Grønland	*Medd. om Grønl.*

Most style manuals discourage the use of Anonymous (Anon.) as a bibliographic entry, and suggest instead using the title of the article or publication. Such procedure tends to make quite cumbersome the citing of references in the text, since most articles and publications referred to in this study are in Danish. In order to ensure succinct and accurate bibliographic citings in the text, the author therefore chose the less desirable usage of Anon. in the bibliography. As will be seen, some years have between 50 and 70 Anon. entries, necessitating use of the sub-letters a, aa, aaa, and so forth. The bibliographic order followed herein is, for example, Anon. 1965a through Anon. 1965z, followed by Anon. 1965aa, Anon. 1965ab, through Anon. 1965az, followed by Anon. 1965aaa, Anon. 1965aab through Anon. 1965aaz, etc. Only in a few years did this system become cumbersome, so it has been retained as the best of the alternatives available.

It will be noted that Danish alphabetical order is followed in the bibliographic listings: the letters a through z, followed by the Danish letters æ, ø, and å in that order.

Spelling and Place Names

A spelling reform in Denmark replaced the traditional aa with å in 1948. Although English transliteration usually retains the aa form, the present Danish usage of å is followed in this study. In addition to the use of the å form, the umlaut ø is used rather than the English transliteration oe; æ is used instead of ae, in order to follow the correct Danish usage.

Ordinary Greenlandic orthography has been followed with the one exception that the uvular K has been replaced by q. This letter is often transliterated into k or K in English usage. In an attempt to avoid confusion with the ordinary letter k, however, the letter q has been used in the text and bibliography, as well as on maps and diagrams.

An inconsistency exists in the bibliographical references when spelling such names as Kjöbenhavn (København or Copenhagen), Godthaab (Godthåb), and so forth, in various forms. This is due to changes in spelling over the years. In most cases, place names in references are spelled as they were at the time of publication of the reference in question. Place name spelling in the text, however, follows present usage.

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Anon. (EL.) 1963e. Når fiskerierhvervet svigtes, kan det få katastrofale følger. *At/Grpstn.* **103** (5): 1, 3.
Anon. (J.F.) 1963f. Den nye fiskerigrænse. *At/Grpstn.* **103** (5): 11.
Anon. (Julut) 1963g. Det første fiskefartøj med ren grønlandske besætning. *At/Grpstn.* **103** (5): 20–21.
Anon. (Julut) 1963h. Landskassens bådebyggeri står foran stor udvidelse. *At/Grpstn.* **103** (6): 1, 3.
Anon. (Janus) 1963i. Godthåbs nye fiskerianlæg lokker mange folk til byen. *At/Grpstn.* **103** (6): 1, 3.

Anon. 1963j. Træfiskekutter-byggeriet i Danmark skal standardiseres og rationaliseres. *At/Grpstn.* **103** (6): 16.
Anon. (sic.) 1963k. Store forventninger til fiskeriet i Sydgrønland. *At/Grpstn.* **103** (6): 8.
Anon. (h.j.) 1963l. Nye eller brugte kuttere? *At/Grpstn.* **103** (6): 11.
Anon. (sic.) 1963m. Rejefiskeriet i 1962 gav gode resultater. *At/Grpstn.* **103** (6): 12–13.
Anon. 1963n. Bliver kongekrabben indført i Grønland? *At/Grpstn.* **103** (6): 20.
Anon. 1963o. Fryse- og filetproduktionen på Færøerne skal centraliseres. *At/Grpstn.* **103** (6): 20.
Anon. (sic.) 1963p. Overproduktionen af stenbiderrogn. *At/Grpstn.* **103** (6): 20.
Anon. (e.l.) 1963q. Turist-erhvervet har en stor fremtid i Grønland. *At/Grpstn.* **103** (6): 28.
Anon. 1963r. Grønland får ny lønningslov formentlig fra den 1 April 1964. *At/Grpstn.* **103** (7): 1, 3.
Anon. 1963s. Mange kuttere leveret til Grønland i de seneste år. *At/Grpstn.* **103** (8): 7.
Anon. (Julut) 1963t. Fiskeyngel og plankton omkring Grønland kortlægges ved international teamwork. *At/Grpstn.* **103** (9): 1, 3.
Anon. 1963u. Økonomiske politik i Grønland. *At/Grpstn.* **103** (9): 9.
Anon. (h.j.) 1963v. Fiskeriets fremtid. *At/Grpstn.* **103** (9): 11.
Anon. 1963w. Vinter-torskefiskeriet i Qôrnoq gav et stort udbytte før i tiden. *At/Grpstn.* **103** (9): 18.
Anon. 1963x. Island havde overskud sidste år for første gang siden krigen. *At/Grpstn.* **103** (9): 20–21.
Anon. (sic.) 1963y. Udbyttedeling også for 1963. *At/Grpstn.* **103** (9): 21.
Anon. (I.O.) 1963z. Søulykker i grønlandske farvande. *At/Grpstn.* **103** (10): 20.
Anon. 1963aa. Forslag til anlægsprogram for årene fra 1964 til 1967. *At/Grpstn.* **103** (11): 15.
Anon. (sic.) 1963ab. Stor skuffelse over norsk Lofot-fiskeri. *At/Grpstn.* **103** (11): 22.
Anon. (Julut) 1963ac. Rekordsæson for stenbiderrogn. *At/Grpstn.* **103** (12): 4–5.
Anon. 1963ad. Nye priser på rejer og skællaks. *At/Grpstn.* **103** (12): 9.
Anon. 1963ae. Undtagelsesbestemmelser ved udvidelsen af fiskerigrænsen. *At/Grpstn.* **103** (12): 9.
Anon. 1963af. KNAPP opretter et støtte- og hjælpefond. *At/Grpstn.* **103** (12): 9.
Anon. (sic.) 1963ag. Om forsøgskutternes arbejde i 1962 og om planen for 1963. *At/Grpstn.* **103** (12): 13.
Anon. (sic.) 1963ah. Fiskeriåret 1962 var ikke på alle områder et rekordår. *At/Grpstn.* **103** (12): 14.
Anon. (Julut) 1963ai. Gasturbinedrevne helikoptere ventes indført om et par år. *At/Grpstn.* **103** (13): 1.
Anon. (sic.) 1963aj. Om anlægsvirksomheden indenfor produktionen. *At/Grpstn.* **103** (13): 25.
Anon. 1963ak. Ændrede priser på rejer. *At/Grpstn.* **103** (13): 25.
Anon. (Janus) 1963al. Grønlands største privatejede kutter koster ca. 800.000 kr. *At/Grpstn.* **103** (14): 8–9.
Anon (Janus) 1963am. Faderløse, opvokset i nød er blevet storfiskere ved et godt samarbejde. *At/Grpstn.* **103** (14): 20–21.
Anon. 1963an. Et mislykket forsøg. *At/Grpstn.* **103** (14): 21.
Anon. 1963ao. Grønland giver ikke nok for danske fiskere. *At/Grpstn.* **103** (16): 14.
Anon. 1963ap. Rekordindhandling af hellefisk i Jakobshavn. *At/Grpstn.* **103** (18): 1, 3.
Anon. 1963aq. Hellefisk på en ny måde. *At/Grpstn.* **103** (19): 1.

Anon. (Julut) 1963ar. Grønlænderne vil kunne klare sig i fiskeriet på de store banker. *At/Grpstn.* **103** (19): 1, 3.
Anon. (J.F.) 1963as. Den rigtige udvikling. *At/Grpstn.* **103** (19): 13.
Anon. (Julut) 1963at. Der er ikke tale om at affolke fangerområderne. *At/Grpstn.* **103** (19): 9.
Anon. (Julut) 1963au. Åben og fri debat om samfundsproblemer er nødvendig for en sund udvikling. *At/Grpstn.* **103** (20): 1, 3.
Anon. (EL.) 1963av. Usikker fremtid for Kapisigdlit-fiskere. *At/Grpstn.* **103** (21): 8–9.
Anon. (ano.) 1963aw. Usædvanlige klimatiske forhold årsag til produktionsnedgangen. *At/Grpstn.* **103** (21): 11.
Anon. 1963ax. Rejefiskeriet ved Jakobshavn fortsætter i vintermånederne *At/Grpstn.* **103** (4): 1.
Anon. 1964a. Erhvervsproblemer til debat i Grønlandsråd. *Berl. Tid.* 9 Dec. 1964.
Anon. 1964b. Grønlandsrådet imødekom de grønlandske ønsker. *Berl. Tid.* 11 Dec. 1964.
Anon. 1964c. Fiskeribiologiske undersøgelser i 1963 under ledelse af dr. phil. Paul M. Hansen. *Beret. vedr. Grønl.* 1964 (1): 54–59.
Anon. 1964d. Fiskeriernes gang i 1962. *Beret. vedr. Grønl.* 1964 (6): 31–42.
Anon. 1964e. 4 milliarder fordeles på næste ti år. *At/Grpstn.* **104** (1): 3.
Anon. 1964f. Skællaksfiskeriet har givet 400 tons. *At/Grpstn.* **104** (2): 18.
Anon. 1964g. Stor tilbagegang i torskefiskeriet. *At/Grpstn.* **104** (2): 11.
Anon. 1964h. Byg aldrig industrier baseret på sæsondrift. *At/Grpstn.* **104** (3): 1, 3.
Anon. 1964i. *Betænkning fra Grønlandsudvalget af* 1960. København: *Statens Trykningskontor.* 258 pp.
Anon. 1964j. Udbygning af fiskerierhvervet. *At/Grpstn.* **104** (3): 13.
Anon. (Janus) 1964k. Arbejdsløshed er flere ting. *At/Grpstn.* **104** (3): 14–15.
Anon. 1964l. Færre produkter—højere priser. *At/Grpstn.* **104** (5): 3.
Anon. 1964m. Modernisering af fiskeriet. *At/Grpstn.* **104** (5): 4.
Anon. 1964n. Fiskekvaliteten må forbedres. *At/Grpstn.* **104** (5): 6.
Anon. 1964o. Ti trawlere er nødvendige. *At/Grpstn.* **104** (5): 8.
Anon. 1964p. K-fondens underskud vokser for hvert år. *At/Grpstn.* **104** (6): 5.
Anon. 1964q. KGHs anlægsformue var på 122 mill. kr. i 1962. *At/Grpstn.* **104** (6): 15.
Anon. 1964r. Nyt optøningsanlæg for lynfrosne fisk. *At/Grpstn.* **104** (6): 28.
Anon. 1964s. Nyanskaffelser pr. år: Een motorbåd i 1924, ca. 50 fartøjer i år. *At/Grpstn.* **104** (6): 28.
Anon. 1964t. Landsrådet vil købe en trawler til 4 mill. kr. *At/Grpstn.* **104** (7): 4.
Anon. 1964u. "Johan Hjorth" til Grønland. *At/Grpstn.* **104** (7): 9.
Anon. 1964v. 22 kuttere til Grønland i maj. *At/Grpstn.* **104** (8): 1.
Anon. (sic.) 1964w. Bedre basis for et havgående fiskeri. *At/Grpstn.* **104** (8): 7.
Anon. (sic.) 1964x. Spændende forsøgsfiskeri i de grønlandske farvande. *At/Grpstn.* **104** (9): 11.
Anon. 1964y. Kortsynethed. *At/Grpstn.* **104** (9): 13.
Anon. 1964z. Planer om billiggørelse af kuttere. *At/Grpstn.* **104** (9): 25.
Anon. (sic.) 1964aa. Nedgang i fiskeriet i 1963—men dog flere lyspunkter. *At/Grpstn.* **104** (10):6.
Anon. 1964ab. Grønlands fremtid skal ikke undermineres af kortsynethed. *At/Grpstn.* **104** (10): 7.
Anon. 1964ac. Opsigtsvækkende resultater med kraftblok og snurpenot. *At/Grpstn.* 104 (10): 10.
Anon. (sic.) 1964ad. Forsøgsfiskeri i 1963 og planerne for i år. *At/Grpstn.* **104** (10): 11.
Anon. 1964ae. Nye regler om kutterbyggeri. *At/Grpstn.* **104** (10): 18.

Anon. (sic.) 1964af. Fiskeribiologerne peger på nye veje. *At/Grpstn.* **104** (11): 2.
Anon. (sic.) 1964ag. Anlægsarbejder i 1963 og planerne fremover. *At/Grpstn.* **104** (11): 9.
Anon. 1964ah. Dårlig bundgarnsæson. *At/Grpstn.* **104** (12): 20.
Anon. 1964ai. Grønlandsfiskeriet er nu i fare. *At/Grpstn.* **104** (14): 6.
Anon. 1964aj. Angmagssat kan fanges med net. *At/Grpstn.* **104** (15): 3.
Anon. 1964ak. Ingen opsigtsvækkende nyheder i den endelige G-60 betænkning. *At/Grpstn.* **104** (14): 1, 12. (15): 8.
Anon. 1964al. Grønlands erhvervsliv ophjælpes mest mulig i de kommende år-. *At/Grpstn.* **104** (15): 4–5.
Anon. (Julut) 1964am. Rejer er ikke mere en fin forretning. *At/Grpstn.* **104** (16): 1.
Anon. (Julut) 1964an. Bør Kangâtsiaq kommune nedlægges? *At/Grpstn.* **104** (16): 6–7.
Anon. 1964ao. En mand indhandlede 50 pct. af fangsten. *At/Grpstn.* **104** (16): 10.
Anon. (Julut) 1964ap. Fiskeindustrien sætter priserne på torsk op. *At/Grpstn.* **104** (16): 12.
Anon. (Julut) 1964aq. Ungdommen på små steder burde se udviklingsbyer. *At/Grpstn.* **104** (16): 28–29.
Anon. 1964ar. Fabrikker af medlidenhed? *At/Grpstn.* **104** (16): 32.
Anon. (Julut) 1964as. Diskobugten har brug for al disponibel arbejdskraft. *At/Grpstn.* **104** (17): 4–5.
Anon. (Julut) 1964at. Nedgang i produktionen på fabrikken i Jakobshavn. *At/Grpstn.* **104** (17): 22–23.
Anon. (Janus) 1964au. KNAPP er reorganiseret og blevet selvstændig. *At/Grpstn.* **104** (19): 1, 10.
Anon. 1964av. Færø-overenskomsterne skal nu drøftes pány. *At/Grpstn.* **104** (19): 1, 10.
Anon. (H.J.) 1964aw. Færø-forhandlinger. *At/Grpstn.* **104** (19): 11.
Anon. 1964ax. Færø-aftalen fra 1959 ændret en lille smule. *At/Grpstn.* **104** (20): 1, 3.
Anon. 1964ay. Der er håb endnu. *At/Grpstn.* **104** (20): 11.
Anon. (Janus) 1964az. Nordafar har kun haft en mindre tilbagegang i år. *At/Grpstn.* **104** (20): 12–13.
Anon. (Julut) 1964aaa. Torskefiskeriet har ikke slået fejl i år. *At/Grpstn.* **104** (21): 1, 3.
Anon. 1964aab. Rejefiskeriets problemer drøftet i Landsrådet. *At/Grpstn.* **104** (21): 11.
Anon. 1964aac. Hvordan bliver vejret i de kommende år? *At/Grpstn.* **104** (21): 16–17.
Anon. 1964aad. Rekordproduktion af rejer forventes i Christianshåb. *At/Grpstn.* **104** (23): 1, 3.
Anon. 1964aae. Fire søgående fiskefartøjer til Grønland. *At/Grpstn.* **104** (24): 4.
Anon. (H.J.) 1964aaf. Skællaksfiskeriet. *At/Grpstn.* **104** (24): 11.
Anon. (Julut) 1964aag. Industriledelsen burde ligge i selve Grønland. *At/Grpstn.* **104** (25): 1, 3.
Anon. 1964aah. Kutternes indretning forkert og bør ændres. *At/Grpstn.* **104** (25): 11.
Anon. 1964aai. Helikoptertrafik begynder i Grønland fra næste år. *At/Grpstn.* **104** (3): 1, 3.
Anon. 1965a. Fiskeribiologiske undersøgelser under ledelse af dr. phil. PAUL M. HANSEN. *Beret. vedr. Grønl.* 1965 (1): 51–53.
Anon. 1965b. Fiskerianlæg i Frederikshåb og rejeanlæg i Sydprøven. *At/Grpstn.* **105** (1): 1, 3.
Anon. (J.F.) 1965c. Mod bedre kår. *At/Grpstn.* **105** (1): 3.
Anon. (Julut) 1965d. Torskefiskeriet lovende i år. *At/Grpstn.* **105** (2): 1, 3.
Anon. 1965e. Investeringerne i Grønland op til 200 millioner kr. årligt. *At/Grpstn.* **105** (2): 16–17.
Anon. 1965f. Bør Atangmik affolkes? *At/Grpstn.* **105** (2): 19.

Anon. (Julut) 1965g. Forsvinder torsken helt fra Grønland? *At/Grpstn.* **105** (5): 1, 3.
Anon. (J.F.) 1965h. Torsken og Grønland. *At/Grpstn.* **105** (5): 11.
Anon. 1965i. Britisk krav om redning af den arktiske torskebestand. *At/Grpstn.* **105** (5): 11.
Anon. (sic.) 1965j. Lærebog i fangst for Syd- og Nordgrønland. *At/Grpstn.* **105** (5): 14.
Anon. (sic.) 1965k. Nye og større fartøjer til den grønlandske fiskerflåde. *At/Grpstn.* **105** (6): 8, 10.
Anon. 1965l. Nye kuttertyper til det grønlandske fiskeri. *At/Grpstn.* **105** (6): 18–19, 28.
Anon. (Julut) 1965m. Fiskeindustrien har tilført Godthåb 3 mill. kr. i 1964. *At/Grpstn.* **105** (6): 27.
Anon. 1965n. De nye fiskepriser. *At/Grpstn.* **105** (7): 1, 3.
Anon. (sic.) 1965o. Om anlægsvirksomheden inden for produktionen. *At/Grpstn.* **105** (7): 5.
Anon. (sic.) 1965p. Forsøgsfiskeriet i 1964–65. *At/Grpstn.* **105** (7): 16.
Anon. 1965q. Mindre stigning af rejeindhandling i Jakobshavn. *At/Grpstn.* **105** (7): 18–19.
Anon. (sic.) 1965r. Stigende fiskeriindtægter på trods af mindre fangst. *At/Grpstn.* **105** (7): 20–21.
Anon. (sic.) 1965s. Fiskeribiologerne om undersøgelserne og fremtidsmulighederne. *At/Grpstn.* **105** (7): 25.
Anon. (Julut) 1965t. Højere pengeløn er mulig på det nuværende grundlag. *At/Grpstn.* **105** (8): 4.
Anon. (Julut) 1965u. Fiskeriproblemer i grønlandsrådet. *At/Grpstn.* **105** (8): 10.
Anon. (sic.) 1965v. Der må gøres en indsats for at tage stabiliteten. *At/Grpstn.* **105** (8): 16, 30.
Anon. (Janus) 1965w. Trådt tilbage for at hellige sig fiskeriet. *At/Grpstn.* **105** (9): 1, 3.
Anon. 1965x. Torskefiskeriets udsigter. *At/Grpstn.* **105** (9): 11.
Anon. (sic.) 1965y. Fiskerirestriktionerne og Godthåb Fiskeindustri. *At/Grpstn.* **105** (10): 4–5.
Anon. 1965z. Planer om seks trawlere og 17 linebåde til Grønland. *At/Grpstn.* **105** (10): 7.
Anon. 1965aa. På udstederne tjener man kun halvt så meget som i byerne. *At/Grpstn.* **105** (10): 15.
Anon. 1965ab. En kedelig sag i Grønlandsrådet. *At/Grpstn.* **105** (10): 23.
Anon. 1965ac. Færøernes eksport af fiskevarer sidste år. *At/Grpstn.* **105** (11): 6.
Anon. (J.F.) 1965ad. En rig fattiggård. *At/Grpstn.* **105** (11): 11.
Anon. (Julut) 1965ae. Fiskerifagskolen begynder i år. *At/Grpstn.* **105** (11): 16.
Anon. (Heidi) 1965af. Grønt lys for afbetaling. *At/Grpstn.* **105** (13): 4.
Anon. 1965ag. "David Olsen" er nu i Grønland. *At/Grpstn.* **105** (14): 1.
Anon. 1965ah. Officielle Meddelelser. Samarbejdsudvalgets udtalelse vedrørende kutterstørrelser. *At/Grpstn.* **105** (14): 6.
Anon. 1965ai. Store Hellefiskebanke skal fredes om to år. *At/Grpstn.* **105** (14): 8.
Anon. (H.J.) 1965aj. De nye kuttere. *At/Grpstn.* **105** (14): 11.
Anon. 1965ak. Totaludbyttet bliver næppe større, selv om der indsættes flere skibe. *At/Grpstn.* **105** (14): 18–20.
Anon. (Julut) 1965al. På tærsklen til havgående fiskeri. *At/Grpstn.* **105** (14): 23.
Anon. 1965am. Afsætningen sikret for grønlandske laks. *At/Grpstn.* **105** (15): 6.
Anon. (J.F.) 1965an. En stor fejltagelse. *At/Grpstn.* **105** (15): 11.
Anon. 1965ao. Rovfiskeri efter laks i Grønland. *At/Grpstn.* **105** (15): 12.
Anon. 1965ap. Bør bopælskravet ophæves—eller skal det skærpes? *At/Grpstn.* **105** (15): 14.

Anon. (Janus) 1965aq. Pæn fremgang i torskefiskeriet. *At/Grpstn.* **105** (15): 18.
Anon. (Janus) 1965ar. Grønland blev hovedemne ved ICNAFs årsmøde i år. *At/Grpstn.* **105** (16): 2.
Anon. (Julut) 1965as. Torskepriserne er for små. *At/Grpstn.* **105** (16): 4.
Anon. 1965at. Fremtidens to typer trawlere. *At/Grpstn.* **105** (16): 4.
Anon. 1965au. Klar til laksesæsonen. *At/Grpstn.* **105** (16): 20.
Anon. 1965av. Fiskerifagskolen. *At/Grpstn.* **105** (17): 11.
Anon. 1965aw. En speciel trawlertype i Grønlands-fiskeriet. *At/Grpstn.* **105** (17): 12.
Anon. 1965ax. Havet omkring Grønland ikke det torskerigeste. *At/Grpstn.* **105** (17): 16.
Anon. 1965ay. Kreditstramningen i Danmark får også indflydelse heroppe. *At/Grpstn.* **105** (18): 1, 3.
Anon. 1965az. Vi er til dels selv skyld i manglende arbejdskraft. *At/Grpstn.* **105** (18): 3.
Anon. 1965aaa. Ikke nødvendigt at gå til Norge. *At/Grpstn.* **105** (19): 7.
Anon. 1965aab. En for stor mundfuld. *At/Grpstn.* **105** (19): 11.
Anon. 1965aac. Danske kontra grønlandske laks. *At/Grpstn.* **105** (19): 16.
Anon. (co) 1965aad. 4 måneders hårdt arbejde—så lukkes virksomheden. *At/Grpstn.* **105** (20): 1, 3.
Anon. 1965aae. Forslaget til drøftelse af investeringspolitik. *At/Grpstn.* **105** (20): 12.
Anon. 1965aaf. Henstilling om, at der gives lån til kuttere under 40 tons. *At/Grpstn.* **105** (20): 14.
Anon. 1965aag. Indkomsterne i Grønland er kun nået til år 1900. *At/Grpstn.* **105** (21): 4.
Anon. 1965aah. Udbyttedeling for 1964. *At/Grpstn.* **105** (21): 22.
Anon. 1965aai. Officielle Meddelelser. (re Holsteinsborg Shrimp Ltd. A/S). *At/Grpstn.* **105** (21): 24.
Anon. (co.) 1965aaj. Hvor vandrer laksene hen? *At/Grpstn.* **105** (22): 1, 3.
Anon. 1965aak. En hæktrawler på 500 tons er foretrukket til Grønland. *At/Grpstn.* **105** (22): 16–17.
Anon. 1965aal. Grønlandske saltfisk solgt for 7 mill. kr. *At/Grpstn.* **105** (23): 13.
Anon. 1965aam. Grønlands fiskeriflåde kan blive tvunget til langfart. *At/Grpstn.* **105** (23): 16.
Anon. 1965aan. Sukkertoppens kutterflåde udvides med to 45 tons både. *At/Grpstn.* **105** (24): 2.
Anon. 1965aao. Investeringer for 190 mill. næste år. *At/Grpstn.* **105** (24): 8.
Anon. 1965aap. Imponerende fiskerflåde. *At/Grpstn.* **105** (25): 1, 3.
Anon. (J.F.) 1965aaq. Hvad nøler vi efter *At/Grpstn.* **105** (25): 11.
Anon. (Julut) 1965aar. Grønlands største bonde. *At/Grpstn.* **105** (25): 16–17.
Anon. 1965aas. Vil se forsøgsfiskeri før de køber stor båd. *At/Grpstn.* **105** (25): 20.
Anon. 1965aat. 17 kuttere leveres næste år mod 39 i år. *At/Grpstn.* **105** (25): 24.
Anon. (Julut) 1965aau. Tasiussak, sydgrønlands perle. *At/Grpstn.* **105** (26): 32–33.
Anon. 1966a. Fiskeribiologiske undersøgelser. *Beret. vedr. Grønl.* 1966 (1): 39–43.
Anon. (sic.) 1966b. Problemerne skal løses og så langtsigtet som muligt. *At/Grpstn.* **106** (1): 6.
Anon. 1966c. Tilførslerne er gået frem med 1700 tons i forhold til 1964. *At/Grpstn.* **106** (2): 1, 3.
Anon. 1966d. Jeg vil have fem færøske fiskere. *At/Grpstn.* **106** (2): 2.
Anon. 1966e. Fabrikken i Sukkertoppen overtages ikke af private. *At/Grpstn.* **106** (2): 11.
Anon. 1966f. Officielle Meddelelser. (re. A/S Frederikshåb Shrimp Ltd. and Kangâmiut Shrimp Ltd. A/S). *At/Grpstn.* **106** (2): 14.

Anon. 1966g. En femårs-plan til 1245 millioner kroner. *At/Grpstn.* **106** (3): 1, 11.
Anon. (Janus) 1966h. De nye langline-kuttere har alt for mange mangler. *At/Grpstn.* **106** (4): 1, 3.
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Anon. 1966j. Et års garanti for fiskekuttere og deres udstyr. *At/Grpstn.* **106** (4): 19.
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INHABITED PLACES OF WEST GREENLAND

1900-1966

I · NORTHERN PART

⊙ - *By* - TOWN (District center)
● - *Udsted* - OUTPOST
○ - Former *udsted* (uninhabited 1966)
• - *Boplads* - LIVING PLACE
° - Former *boplads* (uninhabited 1966)
× - Mine
Glacier or *Indlandsis* (Ice-cap)
District boundary

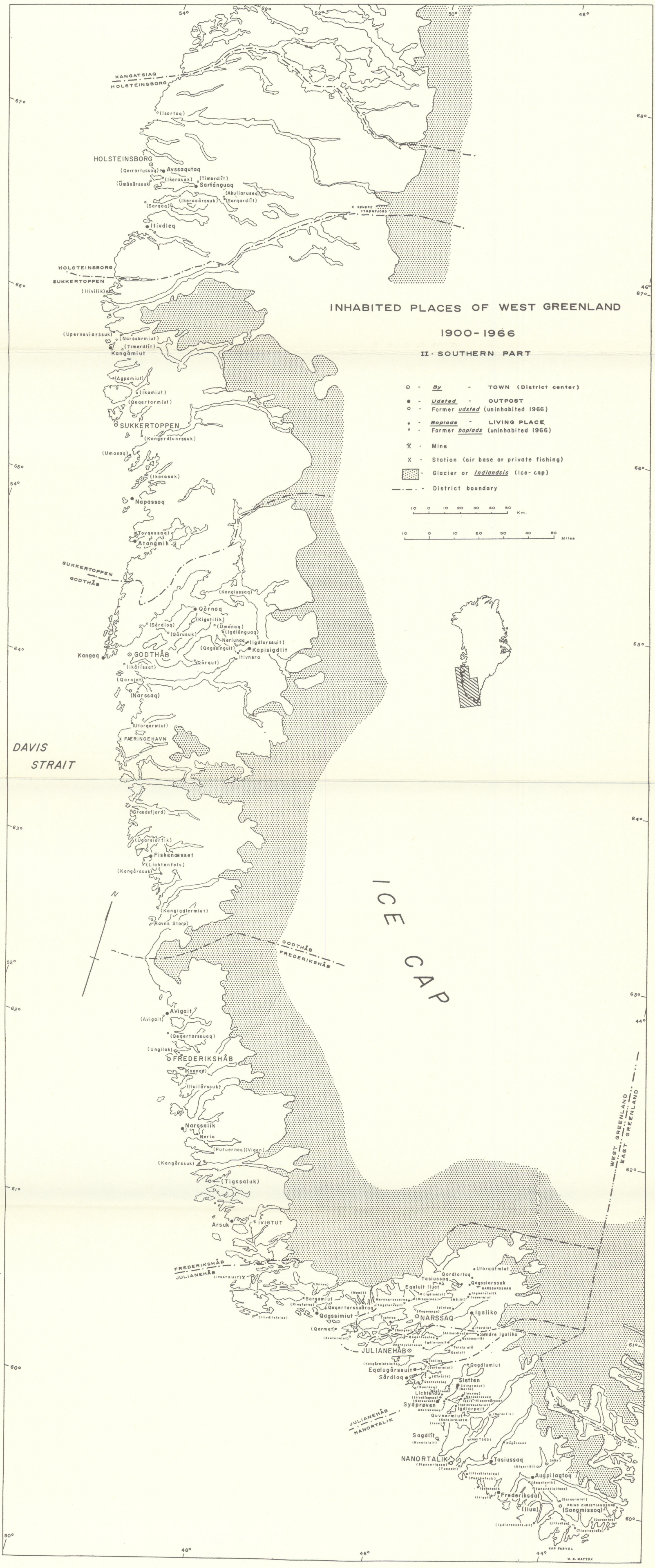
10 0 10 20 30 40 50 Km.
10 0 10 20 30 40 50 Miles

NORTH GREENLAND
WEST GREENLAND
UPERNAVIK
UMANAK
UMANAK VAIGAT
VAIGAT GODHAVN
ICE CAP
BAFFIN BAY
DAVIS STRAIT
N

(Qârusulik)
Kuvdlorssuaq
(Inugsuligssuaq)
Igdlulik
(Ikermiut)
Kraulshavn
(Itivsâlik)
(Kigtorsaq)
(Agpâligsiorfik)
(Mernoq)
Kûk
(Sarfaq)
(Itivdliarssuk)
Ikerasârssuk
(Sâtoq)
(Nutârmiut)
Tasiussaq
(Sagfiorfik)
(Erqordleq)
Ivnârssuit
(Sâtoq)
Naujat
(Itivdlilik)
Tugssâq
(Qaqsserssuaq)
(Âipe)
Augpilagtoq
(Savêrneq)
(Tunorqo)
(Avsserîtsoq)
(Upernaviarssuk)
(Kingigtoq)
(Qaersoq)
(Uluâ)
Prøven
(Ikerasak)
(Ingiugdlissoq)
Søndre Upernavik
(Itsako)
(Naujât)
Nûgâtsiaq
(Nuliarfik)
(Kakilissaq)
(Karrat)
Igdlorssuit
(Upernavik)
(Mârmorilik)
Uvkusigssat
(Akuliaruseq)
(Perdlerfik)
(Qeqertat)
(Qaqortuatsiaq)
(Agpat)
(Tûgdligtalik)
Sâtut
(Narssârssuk)
(Itivdliarssuk)
Niaqornat
(Qaersuarssuk)
(Igdlûnguaq)
Qaersut
UMÂNAK
(Augpilagtoq)
(Nûgssuaq)
(Nûgssûtâ)
(Sermiarssuit)
Umânatsiaq
Ikerasak
(Akuliaruseq)
(Qarajaq)
OUTDLIGSSAT
(Tartunaq)
(Qutligssârqat)
Qeqertaq
(Igdlorssuit)
(Anâ)
(Akûnâq)
Sarqaq
(Naujât)
(Nûgâq)
(Ikorfat)
(Arsivik)
(Ûnartoq)
(Ujarasugssuk)
(Ritenbenk)
Atâ
(Pâkitsoq)
(Qilersiut)
(Igdlûnguaq)
(Evqitsoq)
Diskofjord
(Sioraq)
(Nângissat)
Nipisat L
(Qivîtut)
(Skansen)
Rodebay
(Upernivik)
GODHAVN
JAKOBSHAVN
(Pitorqeq)
(Igdlumiut)
(Kingigtoq)
(Eqe)
(Nordre Huse)
Claushavn
Kronprinsens Ejland
(Kitsigsut)
Hunde Ejland
CHRISTIANSHÅB
(Manîtsoq)
Akúnâq
(Nûk)
(Akugdlît)
EGEDESMINDE
Ikamiut
(Nivâq)
Vester Ejland
(Manermiut)
(Kangârssutsiaq)
Ivnalik
(Igânaq)
(Akugdlît)
Qeqertarssuatsiaq
KANGÂTSIAQ
(Inugsulik)
(Qipingassoq)
Niaqornârssuk
(Arqitsoq)
(Aulatsivik)
Ikerasârssuk
(Nagtoralik)
Igliniarfik
Tunungassoq
Ikerasak
Agto
(Itivdlerssuaq)
(Imermiut)
Aqigsserniaq

59° 58° 57° 56° 55° 54° 53° 52° 51° 50° 49° 48°
75° 74° 73° 72° 71° 70° 69° 68° 67°

W. G. MATTOX



See Map III for enlargement of Julianehåb, Narssaq, and Nanortalik districts.


Arsuk
IVIGTUT
FREDERIKSHÅB
JULIANEHÅB
(IVNATSIAIT)
(Ikineq)
(Mamit)
Sargamiut
(Kingigtoq)
Qeqertarssuârag
Qagssimiut
(Itivdliatsiaq)
(Qarmat)
(Avatarmiut)
Narssarssuaraq
(Tugdlerûnat)
Eqaluit Iluat
(Igdlumiut)
(Niaqornaq)
Tasiussaq
Qordlortoq
Utorqarmiut
Qagssiarssuk
NARSSARSSUAQ
Ingnerûlalik
Ivssormiut
(Mâjût)
Ipiutaq
(Kugssanga)
NARSSAQ
Igaliko
Tugtutoq
(Qangue)
Qagertuquloq
Upernjviarssuk
JULIANEHÅB
Iterdlak
(Atikerdleq)
Søndre Igaliko
Qanissartût
Igdlorssuit
Tatsip atâ
Eqaluit
(Kangârmiutsiait)
Eqalugârssuit
Sârdloq
Tasiluk
(Sarfarmiut)
(KTnâlik)
Qaersutsiaq
(Qaersoq)
(Nûgârssuk)
Lichtendu
(Itivdlînguaq)
(Qarsorsat)
Sydprøven
Akuliaruseq
Qagdlumiut
Sletten
(Ilivermiut)
(Sarfâ)
(Inuvaq)
Narssarssuaq
Igpik
Niaqornârssuk
(Igdlorssuatsiat)
Igdlorpait
(Sermilik)
Quvnermiut
(Kanajormiut)
(Isua)
JULIANEHÅB
NANORTALIK
Sagdlît
(Nunatsiait)
(AMITSOQ)
Nûgârssuk
NANORTALIK
(Sigssarigsoq)
(Tuapait)
Tasiussaq
(Nigertût)
(Nûk)
(Itivdliatsiaq)
(Papikatsuk)
Igdlukasik
(Ikigait)
Augpilagtoq
(Sagdlevik)
(Anordliuitsoq)
Frederiksdal
(Sarqarmiut)
PRINS CHRISTIANSSUND
(Ilua)
(Sangmissoq)
(Igdlorssuatsiait)
(Itivdleq)
(Qernertoq)
(Tinuteqisâq)
KAP FARVEL
61°
60°
48°
46°
44°
W. G. MATTOX