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A Review of the Cod Fisheries at Greenland, 1910–1995

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Foreword

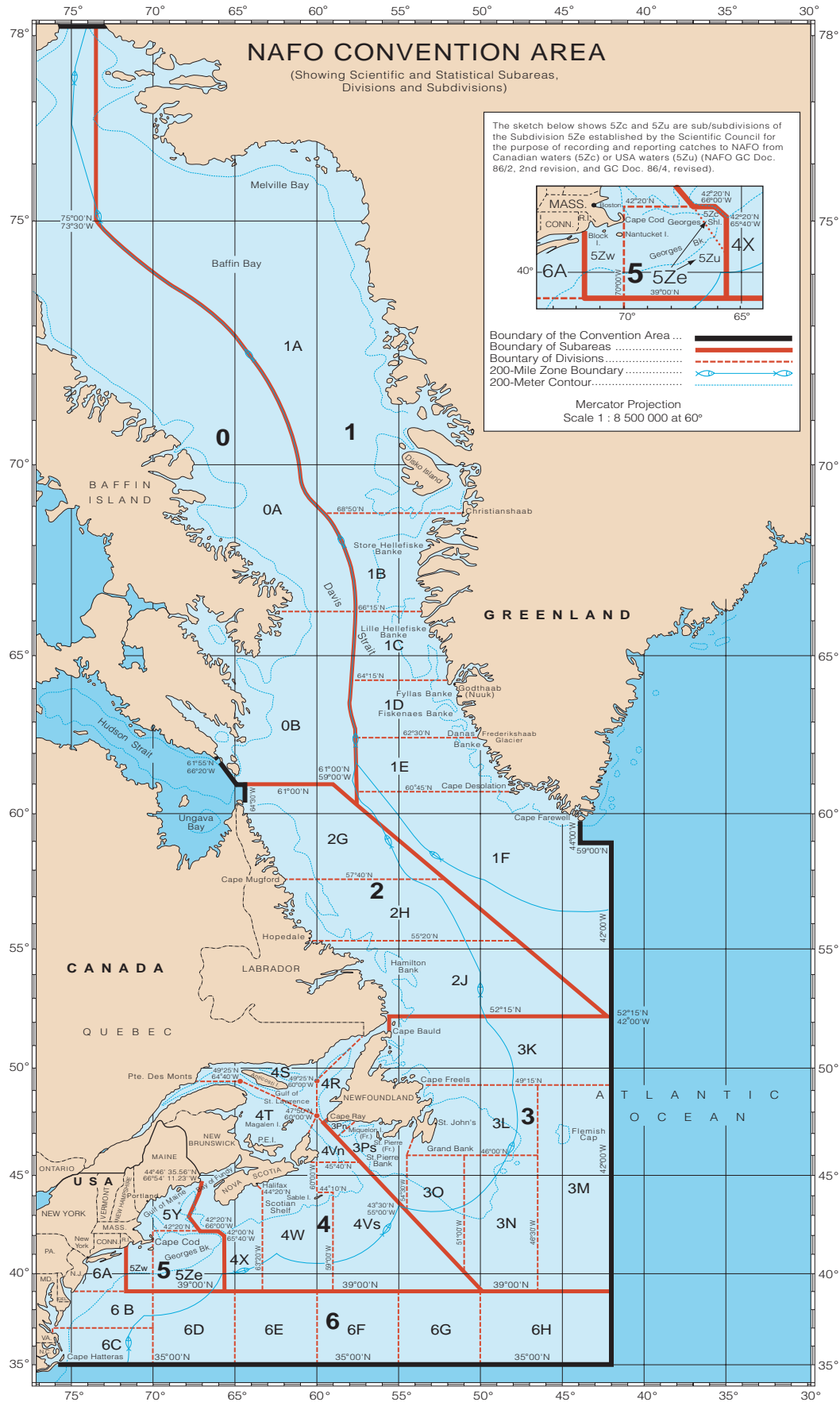
The first volume of the NAFO Journal was published in December 1980, after NAFO came into force in 1979 replacing its predecessor, the International Commission for the Northwest Atlantic Fisheries (ICNAF). This volume celebrates the completion of two decades of publications and contains another of the series of invited review papers concerning Northwest Atlantic fisheries, fishery research and management.

The Northwest Atlantic fisheries have a rich history, and a great deal of research has been sponsored or encouraged by NAFO and its predecessor, ICNAF. Indeed, ICNAF was, in the years immediately prior to extension of coastal state jurisdictions, an international pioneer in the application of science to fishery management and in the regulation of fisheries. An analysis of those historic events provide many lessons relevant to the understanding and resolution of present and future fishery research and management issues.

The idea of a series of invited papers for publication in the NAFO Journal was first raised by the Standing Committee on Publications of the NAFO Scientific Council in 1985 as one way to enhance the scope of the Journal and to stimulate broader interest in it. The first such invited paper was published at the completion of the first decade of the NAFO Journal in December 1990. Invited issues have considered topics such as delimitation of fishery areas and establishment and development of regulatory systems for the North Atlantic Fisheries. The present paper being published at the end of the second decade of the NAFO Journal, documents the development of the cod fisheries around Greenland since official statistics were first recorded in 1910. The review which includes the development of fisheries regulations to the present day, is very much the kind of broad review paper that the Standing Committee had hoped to attract. This paper should be of use to scientists, to historians and to fishery administrators alike. The author, who devoted considerable effort compiling this valuable information during his retirement time, is congratulated with sincere thanks for the work.

December, 2000

Tissa Amaratunga
Technical Editor
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Abstract

A Review of the Cod Fisheries at Greenland, 1910–1995

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Abstract

For Greenland and the fisheries around Greenland, one of the most pronounced and extremely important fluctuations in abundance of marine resources was shown by cod in Greenland waters during the 20th century. The present paper reviews the cod fisheries during this century for which official statistics exist since 1910. From 1925, data were collected and published by the International Council for the Exploration of the Sea (ICES) and, from 1950, by the regional fisheries organizations International Commission for the Northwest Atlantic Fisheries (ICNAF) for 1950–79, and Northwest Atlantic Fisheries Organization (NAFO) for years since 1979.

The official published catch statistics are given in terms of nominal catches, i.e. landed weight, for instance gutted, heads-on fish converted to corresponding weight of round, fresh fish. The conversion factors themselves set by each country participating in the fisheries varied somewhat among countries. A critical review of the conversion factors is given as well as of other factors, and in quite a number of cases, amendments to the officially published statistics are presented.

The total cod fishery in Greenland waters is reviewed by various identified components:

1. The local Greenland fishery, until the mid-1960s a coastal and inshore small-boat fishery by hand- and long-lines and pound nets. From the mid-1960s large liners fished offshore and since 1968 large trawlers have fished offshore.
2. A Faroese land-based fishery by small boats operating mainly offshore but close to shore and mainly by hand lines.
3. An offshore fishery by liners, dory vessels (from Portugal) and trawlers. The Faroese operated liners and trawlers besides the land-based small boats mentioned above (2).

The fisheries are reviewed country by country, including a review of fleets and effort, and of tendencies in temporal and spatial distribution of the fishery.

¹ Retired. Work finalized at The National Environmental Research Institute, Department of Arctic Environment, Tagensvej 135, 4th floor, DK-2200 Copenhagen N, Denmark

The fisheries regulations are reviewed. The offshore area open to non-Greenlandic fleets was outside 3 naut. miles until 1963, then 12 naut. miles until 1977 when the 200 naut. mile Exclusive Economic Zone was introduced. TACs and catch quotas were introduced in 1974.

Total catch of cod at West Greenland peaked by about 460 000 tons in 1962. After 1968, catches decreased rapidly, and since 1973 it has been below 100 000 tons. The exploitation for cod at East Greenland began when modern trawlers, mainly from Germany, started fishing there in the mid-1960s. The catch at East Greenland until 1995 has generally been much below that at West Greenland for the period reviewed.

Over the total period (1910–95) 16 different nations have participated in the cod fisheries at Greenland landing a total of about 10 million tons. The coastal state Greenland has taken about 15% of that total, while the biggest share has been taken by Portugal (2.09 million tons or 21% of total).

Adverse environmental factors, for instance relatively low temperature of upper water layers since about 1968 seem to be the main reason for the recent drastic decline of the stock size. Low larval productions at Greenland and relatively low transport of larvae from Iceland to Greenland waters have resulted in a period with lower recruitment than earlier in the century. It seems like the good period of the 20th century has come to an end, with no signs of an immediate and long lasting rebuilding of a Greenland cod stock to the levels seen in the mid part of the century.

Key words: cod, distribution, environment, fishing fleets and gears, Greenland, statistics, management

I. Introduction

I. Introduction*

The occurrence of cod in Greenland waters has been of an episodic character. Rink (1852 and 1857) refers to two periods in the first half of the 19th century, when cod seems to have been abundant at West Greenland and some commercial fishing took place both offshore by international vessels and inshore by Greenlanders. Bendixen (1930), Jensen and Hansen (1931) and Hansen (1949) reviewed the history of the cod fisheries in Greenland waters including those periods in the 19th century referred by Rink (1852, 1857). Horsted in Buch *et al.* (1994) reviewed evidence of occurrence of cod at West Greenland in the 17th–19th centuries and the fluctuations in occurrence and distribution of cod during the 20th century. Also Mattox (1973), in a very detailed study, reviewed fishing at West Greenland concentrating on the development of Greenland's own fisheries and fishing industry in the period 1910–66, i.e. just up to the time when Greenland started developing its offshore fisheries.

Fishing experiments at West Greenland at the beginning of the 20th century, carried out in 1906 by two Faroese vessels for the Royal Greenland Trade Directorate, gave disappointingly poor results so far as cod was concerned (Andreasen, 1906). The "*Tjalfe*" expedition in 1908 and 1909 under leadership of Adolf Jensen found virtually no cod in the offshore areas of West Greenland, although at some inshore localities, especially at the dwelling place Fiskerøset (south of Nuuk/Godthåb), cod seemed to have occurred during summer and autumn in most years (Jensen, 1909a and b). At this and some other localities commercial fishing, and production of salted fish, started in 1911 and spread to other places in the following years.

Hansen (1949) reports that the international offshore fishery on the West Greenland banks by non-Greenlandic vessels increased with catches from 352 tons in 1925 to 14 312 tons in 1929 and as much as 43 060 tons in 1930, and fluctuated around that level until 1938. Figures for this period are, however, drastically revised in the present paper indicating that from 1925 to 1930 total annual landings of cod from West Greenland waters increased from about 3 000 tons to about 104 000 tons fluctuating thereafter in 1931–39 in the range between 63 000 and 133 000 tons (Table 1 and Fig. 1).

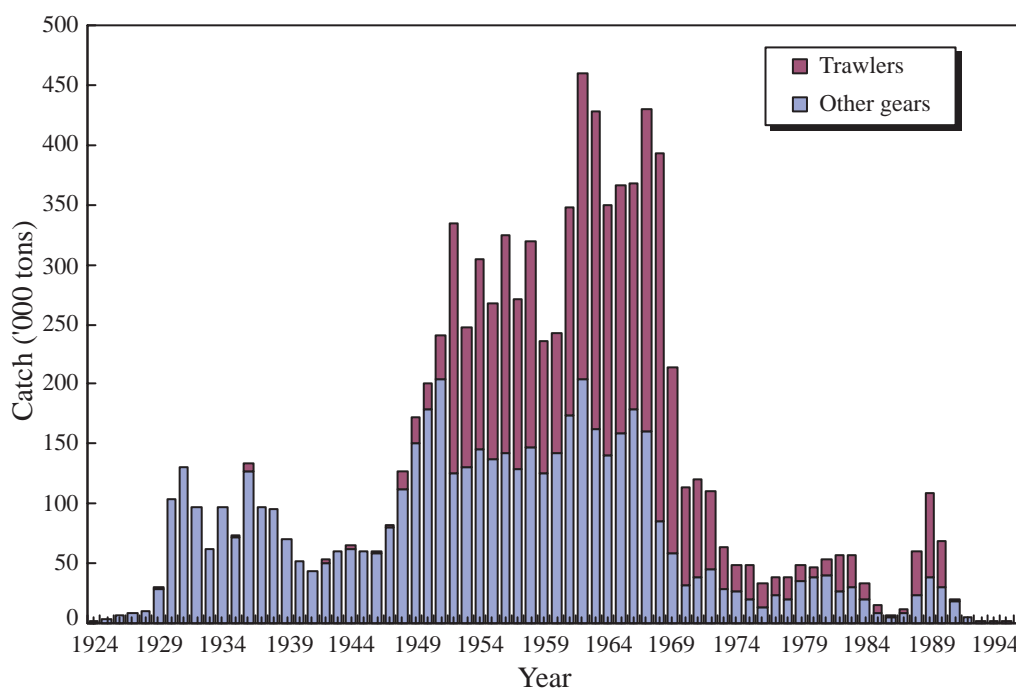


Fig. 1. Nominal catches of cod at West Greenland taken by trawls and by other gears, 1924–95. (Small catch values during 1911–23 were not plotted.)

* [For convenience of presentation, all Tables in this publication are placed at the end of each section]

The evident increase of the cod stock and its spatial distribution at West Greenland was explained by Jensen (1939) as one of the biological consequences of the general warming of the Arctic and Subarctic regions in the 1920s.

During the World War II years 1940–45, catches fluctuated at a lower level, 44 000–85 000 tons with Portugal and Greenland being the only participants during 1941–45 (Table 1)

Annual catches of cod at West Greenland after World War II increased rapidly to culminate in 1962, when about 460 000 tons were taken (Table 2 and Fig. 1). The total nominal catch was still as high as 394 000 tons in 1968 but decreased sharply thereafter to reach only 33 000 tons by 1976. Temporary improvements since then have not prevented a further general decline of catch levels with landings since 1993 around 2 000 tons, the latest year considered being 1995. No immediate improvement in recruitment was then foreseen (in Anon., 1996).

Offshore trawl surveys at West Greenland indicate a decline in cod biomass of as much as 90% from 1989 to 1990, and the survey in 1993 indicated as little as about 360 tons biomass in the offshore survey area (in Anon., 1994). Adverse environmental conditions seem to be the main cause for the decline of the stock (Buch, MS 1998)

Less is known about occurrence of cod and of the cod fisheries in East Greenland waters (except for more recent years), but also there the occurrence of cod seems to be of an episodic character (Schmidt, 1931). Holm (1918, page 297) quoting Björn Johnsen's Grønlandske Annaler (Greenland Annals) reports of evidence of shoals of cod at Ammassalik in the late part of the 16th century. For the 20th century, Schmidt (1931), basing his observation on personal information from Governors of Ammassalik (Petersen and Hedegaard), comments that cod was first noticed there in 1912 and has become fairly common since 1923.

The exploitation of cod at East Greenland increased much when modern trawlers started fishing there in the mid-1950s (Table 3). Fishing was to a great extent carried out as a mixed fishery (cod and redfish). Throughout the period here considered, the total catch of cod at East Greenland was much lower than that at West Greenland. In most years it was within the 10 000–20 000 ton level, seldom reaching over 30 000 tons. A temporary improvement in catches took place around 1990, but since 1993 catches and observed biomass have been at a very low level. Thus, the cod stock at East Greenland has also been very much reduced in recent years.

The recent development of the cod stock at Greenland seems to be just the reverse of the development in the second decade of the century. This is apparent at least at West Greenland. Thus it could be stated that, ... *the cod epoch of the 20th century at West Greenland has come to an end...* It has probably been one of the longest lasting. Nobody knows when a new epoch will start. Certainly judging from the stock situation at East Greenland a new epoch is not just a matter of back-migration of cod from East Greenland. (The late Danish scientist Chr. Vibe, who died in June 1998, studied climatic variation in the Arctic and its influence on occurrence of various animals (Vibe, 1967) and in recent years has offered the opinion that the 21st century will be a cold period in the Arctic, but that there may be a period with improved cod stock in southern Greenland, especially in fjords at the beginning of the century (pers. comm. and a newspaper feature article, 1997)).

It therefore seems proper now to review the recent cod epoch at Greenland both from fisheries and from biological points of view. Considering that intermediate reviews were made, primarily those by Hansen (1949) on mainly the biological events up to World War II and by Mattox (1973) on the local fisheries development in Greenland up to 1966, the present contribution will focus on that part of the epoch which starts after World War II, although further summary reviews of the pre-war period will also be made when felt pertinent. Special attention will be paid to the Greenland fishery since the mid-1960s. Also the management of the fisheries will be considered and discussed.

Table of each nation's output of the cod fishery at Greenland is supplied (Table 4 and Fig. 2).

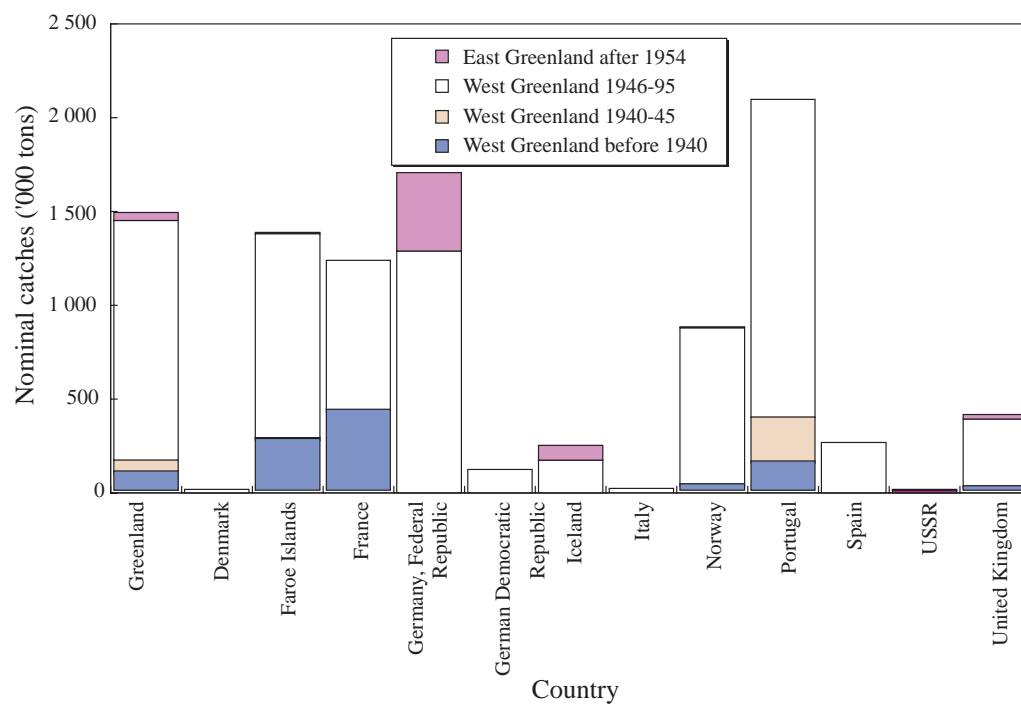


Fig. 2. Various national catches of cod at Greenland 1911–95. (small catches by Canada, Japan, Poland and USA not included).

Tables 1–4

TABLE 1. Nominal catches (tons) of cod at West Greenland 1911–45 by country and gear. Includes estimates as mentioned in the text. MIS = miscellaneous, OTB = bottom otter trawl, LLS = set long-line, DV = dory vessels (Portugal).

Country Gear	Greenland MIS	Denmark MIS	Faroe Isl. MIS	Canada LLS	France LLS	Germany OTB	Iceland LLS	Norway LLS	Portugal LLS (DV)	OTB	United Kingdom LLS	OTB	MIS	Total	OTB	Grand Total
Year																
1911	19												19		0	19
1912	5												5		0	5
1913	66												66		0	66
1914	60												60		0	60
1915	98												98		0	98
1916	193												193		0	193
1917	154												154		0	154
1918	441												441		0	441
1919	501												501		0	501
1920	454												454		0	454
1921	508												508		0	508
1922	602												602		0	602
1923	690												690		0	690
1924	843							200					1043		0	1043
1925	1024	20	429					1000			422		2895		0	2895
1926	2224		2880		700			750			122		6676		0	6676
1927	3570		3359		700						368		7997		0	7997
1928	4163		1570		700			3000			601		10034		0	10034
1929	7080	100	12294		8235	147					1528	147	29237		0	29237
1930	9658	30	29696		46560	123					3303	123	104257		0	104257
1931	9054		25086	50	81438			89		15010	3517		129912		0	129912
1932	9232		18022		59892			236		10678	1719		96505		0	96505
1933	8238		21647		18447			125		13760	372		62589		0	62589
1934	9468		30256		33663			603		23024	576		97590		0	97590
1935	7526		20965		27903			603		14600	564	1211	72161		1211	73372
1936	7174	141	19169		80973			3175		15800	443	6221	126925		6221	133146
1937	6961	159	29081		44169	138	50	2546		13200	1003		97119		138	97257
1938	5492	42	30364		27807			6975		24000	854		95534		0	95534
1939	7161		30562					14445		17800			69968		0	69968
1940	8026		16722							26400			51148		0	51148
1941	8622									35000			43622		0	43622
1942	12027									38600	2214		50627		2214	52841
1943	13026									47400			60426		0	60426
1944	13385									49000	2627		62385		2627	65012
1945	14289									45800			60089		0	60089
TOTAL	172034	492	292102	50	431187	408	50	33747	397476	4841	15392	7432	1342530		12681	1355211

TABLE 2. Nominal catches (tons) of cod at West Greenland 1946–95 by country and by gear. Includes estimates as mentioned in the text. MIS = miscellaneous, OTB = bottom otter trawl, GNS = set gillnets, LLS = set long-lines, DV = dory vessels, ("–") = indicates that there may have been some catches by OTB but likely very little and included in MIS.

Country Gear	Greenland MIS	Greenland OTB	Denmark MIS	Faroe Island MIS	Faroe Island OTB	Canada OTB	France MIS	France OTB	Fed. Rep. of Germany OTB	German Dem. Rep. OTB	Iceland OTB	GNS	Italy OTB	Japan OTB	Norway MIS	OTB
Year																
1946	15262			2716			5106								500	
1947	18029			7900			14180								2299	
1948	18675		2365	18668			30384								703	
1949	17050		4187	21984			35560				50				18750	
1950	21173		6307	35730			31200				1533				36216	2053
1951	18200		6414	41232			25976								53673	300
1952	16726			32916		679		36000	2750		19069		1630		23947	4368
1953	22651			16103				23976	2688		64093		2120		33977	5391
1954	18698			17115				64095	1475		18241		4415		38508	10745
1955	19787			17344				34121	7248		3377		2000		39076	3900
1956	21028			13904				30461	29082		8994		2400		39257	1709
1957	24593			11693				27194	10537		9719		1600		18237	1668
1958	25802			19285				23720	29910	607	9636		1100		33273	3195
1959	27577			21916				30379	17413	35	468		1700		25674	937
1960	27009			25347				21014	23791	69	4896		32		30990	793
1961	33965			32518				39623	83552	2200	11035				41904	1584
1962	35380			55482				52974	124900	10000	1156				31917	3144
1963	23269			48068				36188	136794	22984	3881				28821	8783
1964	21986			40463				34797	94539	15092	2473				30960	7480
1965	24322			44949				40091	104731	12980	3973		1251		29108	11720
1966	29076			46769				41409	82224	8734	1965				30277	22913
1967	27524			41664				43348	138502	8603	119				22794	28151
1968	20587			22763		8		46587	133217	28449		268		60	15138	2911
1969	21592	129		18344				25165	78560	9850		365		5	6293	2240
1970	15613	4394		7733				40667	40916	2061					11331	20209
1971	13506	5924		16440				4108	40916	3154					3094	411
1972	14648	8752		9949				5515	16833	77					3068	
1973	9622	8093		4499				38	1681						2825	
1974	8838	11294		4911					1681						1683	
1975	6557	12759		5355					10842						4	
1976	5174	11108		3390	70				5842							
1977	13999	10221		7346					2609							
1978	19679	17791							1057							
1979	35590	10794		38				139	1344							
1980	38571	7267							1024							
1981	39703	13336							417							
1982	26664	21029							8139							
1983	28652	16328		1339					10158							
1984	19958	4499							8941					13	5	
1985	8441	4210							2170					54	1	
1986	5302	1247							41					11	2	
1987	14604	3882							55					33	1	
1988	22829	29306							6574					10	7	
1989	38529	53623							12892							
1990	28799	30017							7515							
1991	18312	1926			51				96							
1992	5727				1											
1993	1926															
1994	2115															
1995	1710															
Total	994819	290058	19273	715873	372987	687	142406	665682	1287670	124895	173858	633	23268	186	691101	154255

TABLE 2. (Continued).

Country Year	Poland OTB	MIS (DV)	Portugal OTB	Spain OTB	USSR OTB	LLS	UK OTB	USA OTB	Total MIS	OTB	Grand Total	Estimates for assessment when differing from grand total	Footnotes
Year													
1946		35000		1000		73			58657	1000	59657		
1947		37924		1000		93			80425	1062	81487		
1948		41930		1000		16			112741	14992	127733		
1949		52361		1000					149892	23173	173065		
1950		48227	14291	1000		367			179220	21351	200571		
1951		58033		2000		58			203586	36954	240540		
1952		51965	14468	7055		26			125580	208691	334271		
1953		57421	7975	3519					130152	117516	247668		
1954		70664	42835	2202					144985	159833	304818		
1955		60818	42882	7451					137025	130693	267718		
1956		68713	57073	31550					142902	180743	323645		
1957		74702	37080	22875					129225	141410	270635		
1958		69078	43676	26995					147438	172483	319921		
1959		49867	16868	13723	74				125034	110208	235242		
1960	10	58936	7313	3936	1490				142282	100554	242836		
1961		65688	2064	1332					174075	173516	347591		
1962	484	80693	10961	3400					203472	257186	460658		
1963	273	61562	1631	478	5053				161720	267035	428755		
1964	92	52229	985	744					140481	209257	349738		
1965	38	57946	2737	650					158177	208540	366717		
1966	799	73357	2053	3573	224				178310	189896	368206		
1967	623	60474	2237	10664	570				159939	269540	429479		
1968	861	18461	14294	21689	1950				84873	308727	393600		
1969	354	2429	13370	23780	21			200	57868	156887	214755		
1970		2075	6632	18802	849			278	31714	81790	113504		
1971		4990	1305	22086	59				389566	82224	121180		
1972		8485		12951	1021				44413	66204	110617		
1973		8324	7	10235	120				28362	34580	62942		
1974		10081	85	5897	576				26924	21210	48134		
1975		4940		4017	214				19920	27991	47911		
1976		2495		2090	137				13884	19402	33286		1
1977		1052			1086				24080	13916	37996		1
1978									19683	18848	38531		1
1979									35628	12277	47905		1
1980									38571	8291	46862		1
1981									39703	13753	53456		
1982									26664	30342	57006		
1983									29991	26486	56477		
1984									19963	13453	33416		
1985									8442	6434	14876		
1986									5304	1299	6603		2
1987									14605	3970	18575		
1988									22836	36817	59653		2,3
1989									38529	70295	108824		3
1990									29747	39214	68961		
1991									18312	2023	20335		
1992									5727	0	5727		
1993									1926	0	1926		
1994									2115	0	2115		
1995									1710	0	1710		
Total	3534	1350920	342822	268694	13444	633	369548	478	3925658	4092066	8006829	163441*	

1) The Scientific Council of NAFO considered the actual catches to be much higher than those recorded in ICNAF/NAFO Stat. Bull. and used the estimates listed here for its stock assessment.

2) Figures for Greenland 1987 (MIS and OTB) and 1988 differ from those in Stat. Bull. They are from vessels monthly reports to Greenland authorities. An official correction to NAFO seems never to have worked out.

3) The ICES Working Group on Cod Stocks off East Greenland considered that some catches (3 000 tons for 1988; 2 741 tons for 1989) reported as taken at East Greenland were, in fact, taken at West Greenland (Div. 1F) (Anon., 1989 and 1990, respectively).

* Total difference between estimates and reported catches (not sum of estimates).

TABLE 3. Nominal catches (tons) of cod at East Greenland 1954–95 by country. (+ Catch less than ½ ton).

Country	Greenland	Faroe Islands	Fed. Rep. Germany ICES XIV	German Dem. Rep. ICES XII	Iceland	Japan	Norway	Poland	UK	USSR	Total	Estimates for assessment when differing from total	Footnotes
Year													
1954					4321						4321		
1955			3645		1490						5135		
1956	37		12092		758						12887		
1957	197		8468		1788						10453		
1958	882		5919		4099				15		10915		
1959	607	543	12598		5385				45		19178		
1960	1609	425	19069		2543				268		23914		
1961	1199	1221	15021		1381				868		19690		
1962	903		14299		298				1815		17315		
1963	904		13877		1804				775	5697	23057		
1964	1120		30623		2846				988		35577		
1965	887		10965		4713				932		17497		
1966	880		7786		3977				227		12870		
1967	753		12117		10474				1383	5	24732		
1968	628		8323		6723				27		15701		
1969	627		12635		4473					36	17771		
1970	501		13930		5461			841	140		20907		
1971	533		25644		5680			419	28	312	32616		
1972	279	924	21592		3195			318	184	137	26629		
1973	191	167	9262	8	1446			17	661		11752		
1974	68	652	2309	15	3009			1	499		6553		
1975	224	581	1552	326	785		1864	18	575	127	5925		1
1976	372	440	7075		3133		364		1514	16	13025		2
1977	1833	1407	3564		25		537		1393		8775	18000	2
1978	1347	6	3936		13		17		43		7827	26000	2
1979	2755		1062		3						8974	34000	2
1980	1778		3193		19						11244	12000	3
1981	890	292	7367		1						10381	16000	3
1982	898		8940								20929	27000	3
1983	438	368	8238								13378		
1984	1051		7035	34			794				8914		
1985	106		2006								2112		
1986	509	86	4063			97					4755		4,7
1987	1476		5358		1	74					6909		4,7
1988	345	12	12049		9	42					12457		4,7
1989	3870	40	10613			94			1293		15910	9457	5,7
1990	4490		26419			129	12		2458		33508	14669	6,7
1991	6677	9	8557			18	836		5499		21596		7
1992	1283		5893		22		1030		2995	126	11349		
1993	198		164				597		176		1135		
1994	73	1	24		1		43		296		437		
1995	29		22				+		232		284		
Total	43447	7174	387304	31163	79876	454	6094	1614	25329	6490	589294	60629*	

1) Total includes 2 tons by Canada.

2) Estimates for assessment include estimates of unreported catches (Anon., 1981).

3) Estimates for assessment include estimates of discards (Anon., 1981b, 1982 and 1983).

4) Figures listed under Japan were vessels chartered by Greenland.

5) 3 000 tons reported taken at East Greenland are considered caught at West Greenland (Anon., 1989).

6) 2 741 tons reported taken at East Greenland are considered caught at West Greenland, while 1 500 tons caught in other ICES areas are considered caught at East Greenland (Anon., 1990).

7) Figures for Japan are based upon vessels' weekly reports to Greenland authorities, see also footnote 4.

* Total difference between estimates and reported catches (not sum of estimates).

TABLE 4. Summarized national catches of cod at Greenland in the 20th century to the end of 1995. Nominal catches ('000 tons). (+ = catch below 500 tons.)

Country	Before 1940	West Greenland		Sub total	East Greenland After 1954	Grand Total
		1940–45	1945–95			
Greenland	103	69	1279	1451	43	1494
Denmark	+	0	19	19	0	19
Faroe Islands	275	17	1089	1381	7	1388
Canada	+	0	1	1	+	1
France	431	0	808	1239	0	1239
Germany, Fed. Rep.	+	0	1288	1288	418	1706
German Dem. Rep.			125	125	+	125
Iceland	+	0	174	174	80	254
Italy	0	0	23	23	0	23
Japan	0	0	+	+	+	+
Norway	34	0	845	879	6	885
Poland	0	0	4	4	2	6
Portugal	155	247	1694	2096	0	2096
Spain	0	0	269	269	0	269
USSR	0	0	13	13	6	19
United Kingdom	23	0	370	393	25	418
USA	0	0	+	+	0	+
Total	1022	333	8002	9357	589	9946

II. Materials and Methods

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1. Fisheries Statistics.

Regular annual reporting of Greenland fishery statistics by Greenland's own fisheries started in 1910 immediately after the "*Tjalfe*" expedition. Landing statistics have since then been published in the official annual reports on Greenland, issued under various titles by Danish ministries responsible for the administration of Greenland. Since 1990 this has been done by the Greenland Home Rule authorities. From 1946, the statistics included not only landings but also information on effort (number of fishermen, fishing days, etc.). Catch figures for the period 1911–50 were revised in 1952 due to revision of the conversion factors from products to round fresh weight of fish (Anon., 1952) (see also *ICNAF Second Annual Report*, 1952, page 42).

The Greenland fisheries statistics are collected for each "landing place" separately and summed up for each of the old administrative districts separately (see for instance Hansen and Hermann, 1953). To a very great extent the International Commission for the Northwest Atlantic Fisheries (ICNAF)/Northwest Atlantic Fisheries Organization (NAFO) statistical divisions (Fig. 3) introduced in 1952/53 were delimited to correspond with some amalgamation to these districts (see Halliday and Pinhorn, 1990, page 32). Using the Danish names in Hansen and Hermann (1953) Julianehåb District became ICNAF/NAFO Div. 1F, Frederikshåb became Div. 1E, Godthåb became Div. 1D, Sukkertoppen became Div. 1C, Holsteinsborg part of Div. 1B, the other part being Egedesminde, although some minor places of that district became Div. 1A. The Christianshåb District at the borderline between Div. 1B and Div. 1A was counted as Div. 1A together with the rest of the places in Disko Bay and places further north (Uummannaq and Upernavik). Figure 3 shows ICES/ICNAF statistical areas.

Greenland reports of its own fisheries statistics have been traditionally submitted to the International Council for the Exploration of the Sea (ICES) for East Greenland data, to ICNAF/NAFO for West Greenland and to United Nations Food and Agriculture Organization (FAO) for all data.

The international statistics of commercial landings and effort of the fisheries in Greenland waters are based on individual national reporting schemes. Originally they were coordinated and published annually by ICES in its *Bulletin Statistique des Pêches Maritimes* (*ICES Bull. Stat.*). The Bulletin started in 1903 and data on the fisheries in Greenland waters were included from 1925. Later, from 1951, these data were published by ICNAF and its successor NAFO (from 1979) in the Statistical Bulletin (*ICNAF/NAFO Stat. Bull.*), with the ICNAF and NAFO issues covering fisheries at West Greenland (Statistical Subarea 1). ICES since 1962 has covered only East Greenland (and other ICES areas). Both organizations participate in the worldwide scheme of reporting fisheries statistics set up by FAO in 1955. The relevant publications are hereinafter referred to as ICES Bull. Stat. and ICNAF (or NAFO) Stat. Bull.

Statistical information on the fisheries for cod off East Greenland is found primarily in *ICES Bull. Stat.* For the period 1925–57 these catches in Greenland waters were not broken down further than for the Statistical Areas XIV (East Greenland) and XV (West Greenland) combined. Furthermore, for the years 1934–38 catches at Greenland (Areas XIV plus XV) were combined with those at Newfoundland (Area XX). Only for the years 1958–61 have ICES recorded catches separately for East and West Greenland and since 1962 catches at East Greenland only.

It is thus difficult to achieve catch figures before 1958 for the East Greenland area separately, although the total for Greenland itself is available. For some countries a minimum figure for catches at East Greenland may be achieved by subtracting their West Greenland catch recorded by ICNAF from the total catch at Greenland recorded by ICES. This was tried by the author for the Federal Republic of Germany, Iceland and the United Kingdom but was not always successful (sometimes, negative catches at East Greenland result from this exercise). For certain other nations (Faroe Islands, Norway, Portugal and Spain) catches at East Greenland were considered nil or negligible before 1958. For France, it is known that in some years a small

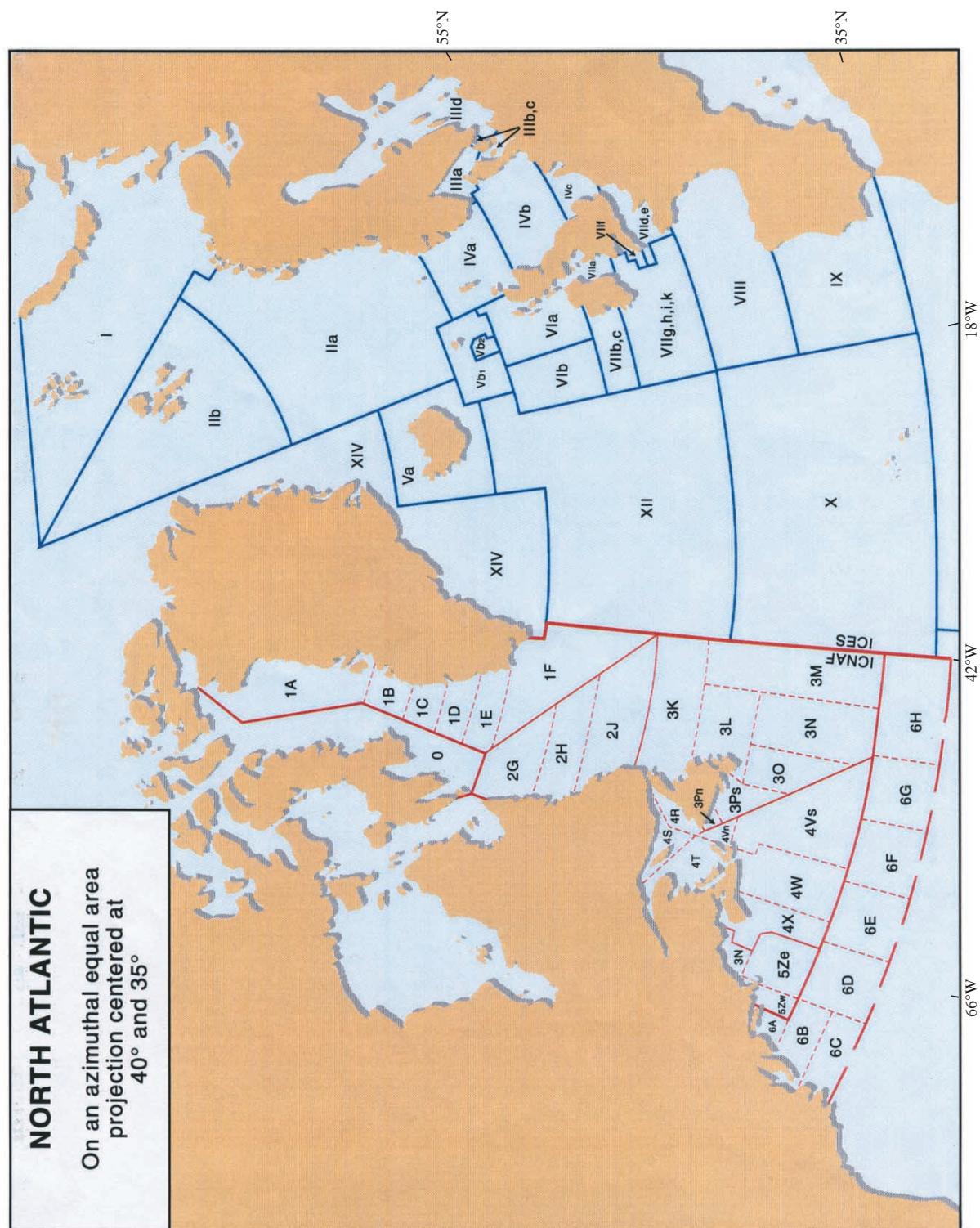


Fig. 3. Map showing North Atlantic fishery statistical areas (from ICNAF Statistical Bulletin of early-1960s).

the ICNAF area (*ICNAF Stat. Bull.*, Vol. 2, page 16). No attempt has been made here to separate French catches for West from East Greenland.

All catch figures in the above mentioned publications are intended to be nominal catches, which are defined as landings converted to live weight (round, fresh) of the landings. The figures do not, therefore, give the actual removal of fish from the stocks. For instance, they do not incorporate fish discarded at sea (many could be dead or likely to die due to the handling), fish used for consumption on board, recreational fishing, nor fish sold directly on local markets in Greenland. The nominal catch figures will, therefore, usually be minimum figures for the actual catch. A discussion of quantities not included in nominal catches is found in *NAFO SCR Doc.* 94/38 (Horsted, MS 1994), where it was concluded that besides the recorded nominal catch, these other legal catches may have been in the range of 1 000–10 000 tons annually, highest probably in the 1950s and 1960s.

It should also be remembered that conversion of weight of fish products to live weight usually is done by applying established standard conversion factors. However, although nominal catches are recorded by unit metric tons, the actual accuracy is rather by units of hundreds or even thousands of tons, and hence the accuracy in terms of actual catches is substantially less.

In a few cases (e.g. for the years 1977–80) there was strong evidence that some figures published in the statistical bulletins were misleading, and in such cases the NAFO Scientific Council and relevant scientific working groups of ICES have used (usually much higher) estimates of the catches for the assessment of the stocks (see for instance *NAFO Sci. Coun. Rep.*, 1979–80, pages 72–73 and 1981, page 32). Unless otherwise stated such estimates for the total catch are adopted in the present paper.

The author has reviewed the statistical information available in *ICES Bull. Stat.* and *ICNAF/NAFO Stat. Bull.* and in various reports. In quite a number of cases when the statistical information was not informative enough, the author had to estimate the catches in Greenland waters, e.g. when country reports of catch in the ICNAF/NAFO Statistical Area were not broken down to Subareas. In all such cases and in other cases when the author's figures differed from those in the above-mentioned publications, notes on how the estimates were arrived at are given. To incorporate these notes directly in the present publication would, however, make the publication very lengthy. It has, therefore, been decided to present basic tables and comments as a NAFO Scientific Council Research Document (Horsted, MS 1994). The basic tables and comments in that document are given country by country in alphabetical order. Only some of those tables are reproduced here, updated to include years up to 1995 and with a few minor revisions

When analyzing the spatial and temporal distribution of the fisheries the catch figures as they occur in the *ICNAF/NAFO Stat. Bull.* and *ICES Bull. Stat.* was usually used, but not all catches recorded there are broken down by Division or month. Unless otherwise stated, only catches specified by place and/or time are used in those analyses.

The section on vessels and their effort is based upon information in ICNAF/NAFO "List of Fishing vessels over 50 GRT..." issued as meeting documents and/or publication every three years starting with the fishing year 1952/53. Since 1982, the vessel reports to Greenland authorities (The Fishing Licensing Office) of their activity have also been used.

2. Revision of Catch Statistics Due to Changes of Conversion Factors

One of the more general considerations in the use of conversion factors to achieve live weight of landed products should be mentioned here.

Few, if any, catches of cod from Greenland waters are landed as round fresh fish, and although some vessels record a qualified estimate or even a measured weight of their catch as round fresh fish in their logbooks, most catches are weighed as the landed product, e.g. gutted with or without head, fillets, salted fish. Hence

conversion factors are needed to convert landed weight to equivalent round, fresh weight on which international statistics are based.

Whatever state of fish are in the landings, the true conversion factors are bound to vary; for instance between seasons, due to seasonal variation in condition factor of the fish and between size categories of fish. For practical reasons it is, however, necessary to simplify the conversion by using a standard average factor for each category of product landed. In reports to ICNAF/NAFO, each country has usually been requested to report its catch as round fresh weight, i.e. conversion is to be made by the reporting country. Conversion factors used by the countries were listed annually in *ICNAF Stat. Bull.* through the 1950s and 1960s. FAO (1971) in its *Bulletin of Fisheries Statistics* Vol. 25 for 1970 has a comprehensive list of conversion factors to which ICNAF and NAFO have since referred. Recent attempts by FAO to update this list (see *NAFO Sci. Coun. Rep.*, 1995, page 132) have not been taken into account in the present paper.

ICNAF also made attempts to standardize between countries some of the important conversion factors, e.g. from salted cod to round fresh weight. At its June 1955 Annual Meeting, the Commission adopted with effect from 1954 two factors for cod for converting from green salted wet fish to round fresh weight; one for European landings of 3.0 and one for Canadian landings of 2.7. However, these factors were considered tentative and no official revision of back statistics was made at that time. In fact, such a revision seems never to have been officially published except for the year 1953 (*ICNAF Stat. Bull.*, Vol. 4, page 8).

For most European countries the factor of 3.0 was a change from factors of 2.25 (Iceland), 2.4 (Norway), 2.5 (the Faroe Islands, France, Portugal and Spain) and 3.25 (Italy) (*ICNAF Stat. Bull.*, Vol. 2 and 3). In fact, the ICNAF Working Group of Scientists on Fishery Assessment in Relation to Regulation Problems hereinafter referred to as the ICNAF Assess. Work. Group 1961 and its report as the Assessment Report (Beverton and Hodder eds., 1962) took the consequence of this shift in conversion factors and revised catches prior to 1954 accordingly (see the unpublished Appendix to the report, ICNAF Serial No. 932, Dec. 1961, notes to Table 4.1 (Anon., MS 1961) extracts of which are also appended to *NAFO SCR Doc.* 94/38).

The author of the present contribution has also considered that the factors introduced in 1954 should be used for years prior to that, when salted fish was the product for most fleets fishing at Greenland.

Other revisions of officially published catch figures may also be required. For instance, Portuguese figures for catches of cod listed in *ICES Bull. Stat.* until 1952 (incl.) were thought to be round fresh weight, but an easily overlooked footnote in Bull. Stat. for 1953 states that previous figures for Portugal were in fact for salted fish. When such special needs for revision occur they are mentioned in the review of the fishery by the relevant country in *NAFO SCR Doc.* 94/38 (Horsted, MS 1994).

III. Fleets and Activity of Nations in Cod Fisheries at Greenland

III. Fleets and Activity of Nations in Cod Fisheries at Greenland

Horsted (MS 1994) presented a review of catch statistics by nations, which participated in the cod fisheries in Greenland waters in this century. The first draft of the review paper was distributed in April 1993 to national representatives of the NAFO Scientific Council requesting comments and advice on the appropriate sections of the country-by-country catch statistics. Responses were received during 1993 and 1994 from most of the countries addressed (see Acknowledgements). Although not all responses resolved the questions raised for the country in question, most of them identified the need for substantial revision. The review paper (Horsted, MS 1994) incorporated these changes, especially in the text and in several cases the published catch statistics were amended.

It is not the author's intention here to repeat that review, but it would be of interest to briefly consider each participating nation's fleet and general activity. This is done here country by country in alphabetical order. Not all references from Horsted (MS 1994) are repeated here, and readers are referred to Tables 1–3 for amended catch statistics, which are presented in this review by country.

CANADA: Schooners from Newfoundland had an insignificant dory fishery in 1931, which resulted in 50 tons listed under miscellaneous vessels. Three trawlers from Newfoundland landed 679 tons in 1952 and a new stern trawler landed 8 tons in 1968. Two tons are recorded from East Greenland in 1976. Otherwise there was no Canadian cod fishery at Greenland.

DENMARK: Danish activity in cod fishing at Greenland has been very low. In 1925, and in 1929–30, a few long-liners produced less than 200 tons altogether. During 1936–38, a few schooners altogether fish more than 300 tons. There was no fishing activity in 1939–47. During 1948–51 Danish fishermen tried various gear from cutters, introducing with some success the pound net in inshore Greenland waters. Altogether about 20 000 tons were fished in those years. There has been no Danish cod fishing in Greenland waters since then.

FAROE ISLANDS: Experimental fishing carried out in 1906 and 1914 was without success as far as cod was concerned. Commercial cod fishing at Greenland started in 1925 and was up to 1977 an important component of the international fisheries at Greenland and of the Faroese economy. From 1926, Faroese vessels were offered harbour facilities, first at Ravns Storø, thereafter at Færingehavn south of Nuuk. From 1937, that harbour was also open to other foreign fishing vessels. Until 1940, the Faroese catches were taken by long-liners mainly, if not solely. There was no fishing activity at Greenland 1941–45. From 1948 or probably earlier trawlers also participated, but since 1969 the catch has again been mainly by long-liners. Bottom gillnets came into operation in 1969. Since 1935, the Faroese have been allowed to operate outside the skerries from a couple of stations at the West Greenland coast, using small boats and mainly hand lines. The introduction of the *snelle* in the 1950s was a great improvement for the hand line fishing (see Templeman, 1969). Except for the year 1983, landings after 1977 have been nil or negligible (e.g. 38 tons in 1979), apparently because the Faroese as a non-member of the EEC/EU have not got a quota.

An important component of the Faroese fishery at Greenland since 1935 has been the small land-based boats mentioned above. The most important basis for this fishing became Ravns Storø and Færingehavn. Apart from the period during World War II, this seasonal fishing took place from 1935 until 1972. The ICNAF List of Vessels (ICNAF, 1955), issued for the first time as a document for the 1955 Annual Meeting, shows that 57 small land-based boats participated in 1954 with a total of 224 fishermen involved. Lists of Faroese vessels of various types fishing in Greenland waters 1967–72, kindly supplied by Faroese fishing authorities in Tórshavn

(Fiskivinnustovan and Hagdeildin) show the following numbers of small land-based boats and men participating in the fishery at Greenland:

Year	Boats	Men
1954	57	224
1967	75	309
1968	85	368
1969	43	168
1970	21	84
1971	7	29
1972	4	18

The same sources of information give the following number and crew for larger vessels:

Year	Hand liners		Long liners		Bottom gillnets		Trawlers		Total	
	Boats	Men	Boats	Men	Boats	Men	Boats	Men	Boats	Men
1954	5	121	29	543	0	0	10	274	44	938
1967	44	981	36	868	0	0	10	398	90	2 244
1968	23	500	33	767	0	0	11	454	67	1 721
1969	11	256	29	535	18	439	12	256	70	1 756
1970	3	52	8	120	14	284	0	0	25	456
1971	2	32	6	75	4	80	9	392	21	579
1972	2	38	15	252	0	0	8	359	25	749

The larger vessels consisted of wooden liners and steel trawlers. Some of the oldest liners also functioned as mother vessels to dories. Of the 56 large liners used in 1968 (according to the *ICNAF List of Vessels*) five were built before or during World War II, the oldest being a dory vessel from 1898. The rest were built around 1960. Most of the vessels also fished around Newfoundland.

Catches at East Greenland (i.e. after 1958) have been relatively small (altogether a little more than 7 000 tons). There was some fishing during the early 1970s with little fishing after 1977 (Table 3).

Altogether the Faroese output of the cod fishery at Greenland amounts to about 1.4 million tons, slightly less than the figure for Greenland itself, and placing the Faroese at number four on the list of nations which have exploited the resource (Table 4 and Fig. 2).

GREENLAND: Greenland as the coastal nation quite naturally has the longest history of cod catches, starting in 1911 and with no break thereafter. To this should be incorporated a non-registered catch for local consumption. The entire fishery was a small-boat fishery up to 1966 when four larger long-liners were introduced to fish offshore. They operated until 1970, when they were phased out. The first large stern trawler started fishing offshore in 1968, and several other stern trawlers owned and run by the government, since 1985 by the Greenland Home Rule companies, have since then been added to the fleet. Also a number of privately owned trawlers participated in the fishery, although now they mainly operate in the fisheries for shrimp.

The first record of commercial catch of cod by Greenland at East Greenland is from 1956, but there was some fishing for local consumption before then. Japanese trawlers were chartered to fish cod at East Greenland in 1986 and 1987 (Table 3).

Historically all inhabited places in Greenland have been right at the sea coast, and with no roads (except winter ice) between cities and settlements. Boats were essential for transport and communication, and for the

exploitation of the living resources of the sea. The Greenland fishing fleet before World War II consisted mainly of rowing boats and small motorboats (even kayaks were used). The Greenland statistics list number of boats for each settlement. Hansen and Hermann (1953, Fig. 38) graphically presents the total number of rowing boats during 1880–1952. The number increased rather steadily from about 150 by 1900 to about 1950 by 1950 with the highest rate of increase during 1925–30. Motorboats numbered less than 100 until the end of World War II, thereafter increased rapidly to about 400 by 1952. Although nearly all of them were in the cod fishing districts not all may have been fully active in cod fishing. But these were what the Greenlanders had at their disposal at that time.

The number of rowing boats used for regular fishing decreased after 1950 (2 092 boats that year) to about 1 300 in 1955 and about 1 200 by 1960. Thereafter it is not clear how many of the boats could be counted as part of the fishing fleet. Since an increasing proportion was being used for recreational purposes, there may have been less than 500 fishing commercially and regularly.

The number of motorboats fishing was reported as 364 by 1950, 272 of them were less than 22 feet long and 92 were larger. By 1955 the figures were 283 below 22 feet and 199 were larger. The development towards more motor vessels and especially towards larger vessels has continued since then. The Danish Ministry of Fisheries publishes an annual list of registered fishing vessels in the Danish Kingdom (includes the Faroe Islands and Greenland). From this the following numbers of vessels in the Greenland fishing fleet by tonnage class were obtained (grouping by size categories differs somewhat between years). The figures for 1970 are from the Royal Greenland Trade Department and include registered boats below 5 GRT not included in the annual lists mentioned.

Year	Vessel tonnage class (GRT)					
	Below 5	5–24	25–49	50–99	100–499	above 500
1970	3	251	23	6	7	0
1975	no info.	253	20	12	7	6
1980	–	267	22	12	21	6
1985	–	341	22	12	23	22

For 1990 the grouping was somewhat changed:

Year	Below 5	5–19	20–49	50–79	80–149	above 150
1990	no info.	342	36	19	11	60

Whereas most vessels below 5 GRT registered as fishing vessel may have participated in the cod fisheries or mixed fisheries (wolffish, redfish, halibut, salmon), a good many of those between 15 and 49 tons were side trawlers specializing in shrimp fishing inshore. Also the increase in number of vessels in size classes above the 50 GRT reflects interest in shrimp fishing both inshore and offshore, rather than cod fishing. Many of the small and medium sized vessels (below 80 GRT) were also used for salmon fishing in autumn in the late-1960s and 1970s.

Since 1968, Greenland has had a steadily growing fleet of large trawlers enabling Greenland to compete with other nations in the offshore fishing throughout the year not only in Greenland waters but also in more distant waters, e.g. on Flemish Cap and in the Barents Sea. The large Greenland trawlers owned first by the State, later by the Greenland Home Rule, have, however, not had their own choice of fishing. They have been changing between cod and shrimp fishing, based on effort by management trying to take into account not only vessels' economy, but also that of the individual fish plants and social problems of the various Greenland

communities. One could say that the large Greenland trawlers came too late to benefit from the good part of the cod epoch. However, as seen from Tables 2 and 3 their contribution to the total Greenland catch of cod has been rather substantial. In 1989, for instance, 57 000 tons out of a total catch of 96 000 tons (including East Greenland) were taken by the trawlers – the highest annual Greenland catch of cod ever.

Greenland had a total output of the cod of about 1.5 million tons plus a non-registered catch directly for local consumption. This registered total catch is exceeded only by those of Germany and Portugal (Table 4, Fig. 2).

FRANCE: France has a long tradition of cod fishing in the Northwest Atlantic. Statistics dating back to 1874 were submitted to ICNAF (Second Annual Report, 1952). Only vessels from the mainland have fished in Greenland waters.

Fishing at West Greenland started in 1926 with two dory schooners. There was no French fishing there during 1939–45. Dories were phased out during 1947–51. Fishing thereafter has been by trawlers, and until 1962 by side trawlers only. In 1962, 30 such French side trawlers operated at Greenland, 28 of them were of the 901–1 800 GRT class, 2 larger than 1800 GRT. Nearly all were built in the first ten years after World War II. They also operated in ICNAF Subareas 2–4.

In 1965, a new stern trawler (1798 GRT) joined the fleet, now a total of 28 vessels, and in 1968 four vessels out of the 30 fishing at Greenland were large stern trawlers. Otherwise the French trawler fleet did not change much during the 1960s. In 1971, only seven out of a fleet of 29 trawlers operating in the Northwest Atlantic fished at West Greenland with a catch of 4 100 tons, and these were all side trawlers built around 1950.

Apart from negligible catches in 1973 and 1979, the year 1972 could be considered the last year of French cod fishing at West Greenland, with a catch that year of 5 515 tons.

There is no record of French fishing at East Greenland in the ICNAF or ICES statistics except that a note in *ICNAF Stat. Bull.*, Vol. 2, page 16 states that "part of the French catch registered as taken in the Northwest Atlantic before 1958 was taken just east of Cape Farewell".

The total French catch of cod from West Greenland waters amounted to about 400 000 tons before World War II and double thereafter. This total is slightly less than that registered by Greenland and the Faroe Islands but well below that of Germany and Portugal, making France number five on the list of nations exploiting the resource (Table 4, Fig. 2).

THE FEDERAL REPUBLIC OF GERMANY (FRG): FRG had virtually no fishing at Greenland before World War II, but rapidly built up a fleet of modern high seas trawlers in the 1950s. For 1956, the first year in which *ICNAF List of Vessels* contains a list for Germany, 66 trawlers of 501–900 GRT class built in the years 1949–56 are listed. All recorded one or more (up to four) trips to Div. 1D and five of them also to Div. 1F.

In 1959, 78 FRG trawlers of the 501–900 GRT class fished at West Greenland. In 1962 as many as 84 were engaged there, of which 26 were of the 901–1800 GRT class. In 1965, 79 trawlers participated in the fishery, six of them built in 1964 and 1965 at a size of above 1800 GRT (up to 2 555 GRT). Most of the fleet was equipped with Diesel motors with Brake Horse Power (BHP) from about 1 000 to 3 200 in the large new ones. After 1965 the number of FRG fishing vessels at Greenland gradually declined to 73 in 1968 and to 42 in 1971 (9 side trawlers and 33 stern trawlers).

In 1974, in spite of 32 vessels fishing in the Northwest Atlantic, only five reported fishing at West Greenland, while 30 reported fishing farther westward at Labrador (Subarea 2). Of the five at West Greenland one was as large as 3 577 GRT with 5000 BHP Diesel engine, built in 1973.

In 1977, all 37 trawlers fishing in the Northwest Atlantic visited Greenland waters. Only three of them were built before 1960. In 1980, 31 trawlers fished in the Northwest Atlantic, all with activity in Greenland waters, only one dating before 1960 while 14 were younger than ten years.

In 1983 the number was 21 vessels visiting Greenland waters, 13 of them larger than 1 800 GRT (up to 3 577 GRT), 6 just above 900 GRT and 2 in the 501–900 GRT class, all built in the period 1960–70s.

In 1986 and 1989 only two FRG trawlers fished in the Northwest Atlantic, including Greenland waters. The catch in 1989 was relatively good, but the small catches thereafter could indicate less activity.

At East Greenland the Federal Republic of Germany had been by far the most active nation of those exploiting the cod stock. They fished there throughout the period 1955–95 with catches recorded separately for East Greenland since 1958 in the *ICES Bull. Stat.* Catches reported for ICES Subarea XII (further to the Southeast) for the years 1978–84 were considered by the ICES Working Group on Cod Stocks off East Greenland (Anon., 1987) to have been taken in ICES Subarea XIV and are, therefore, included in Table 3.

Until the mid-1970s cod catches at West Greenland by FRG greatly exceeded those from East Greenland. Thereafter the two areas yielded catches of cod of about the same magnitude with East Greenland clearly dominating in the years 1989–95.

The vessels used at East Greenland were the same as those used at West Greenland. In 1989, the Greenland licensing office noted a participation of 12 different trawlers fishing at East Greenland. At East Greenland redfish has been a significant by-catch or even prime target species in the mixed FRG fishery.

The total catch of cod taken by the FRG in Greenland waters between 1952 and 1995 (inclusive) amounted to about 1.7 million tons (400 tons were recorded before 1939). The Federal Republic of Germany thereby ranks as second on the list of national catches of the cod at Greenland (Table 4 and Fig. 2) after Portugal. However, looking only at the post-war period, FRG would be the leader closely followed by Portugal (Tables 2 and 4, and Fig. 2). The same would be the case if total catches included species other than cod (primarily redfish).

THE GERMAN DEMOCRATIC REPUBLIC (GDR): GDR had a short history of cod fishing at Greenland only during 1958–72. For some of the years catches in the Northwest Atlantic were not reported separately by statistical areas, but the fraction taken at Greenland may be judged from observations in other years. Not being a member of the European Union (until being integrated with the Federal Republic of Germany in 1991) the GDR stopped fishing at West Greenland in 1972, when fishing zones were expanded.

Not being a member of ICNAF until 1974, the GDR was not included in the *ICNAF List of Vessels* until that year. *ICNAF Stat. Bull.* had no catch recorded by the GDR at West Greenland for 1973. However, the List of Vessels indicates that of the 64 trawlers from the GDR fishing in the Northwest Atlantic, 14 had activity at West Greenland. Most of these trawlers were of the 601–900 and 901–1800 GRT classes, but also larger vessels listed as factory trawlers or auxiliary vessels were recorded. All were built between 1950 and 1971 and all were Diesel powered. The listed home-port was Rostock.

The author could not resolve the question why the GDR showed no catch figures for cod for Subarea 1 for 1974, and that 3 409 tons of other groundfish, other than cod, redfish and flatfishes were recorded, while the list of vessels indicated significant activity there. The author has chosen to let the *ICNAF Stat. Bull.* be considered as correct, although one could well suspect that "other groundfish" may have been cod or at least included some.

ICELAND: Although a neighbour to Greenland, Iceland did not participate in the cod fisheries at West Greenland until 1936 by a long-liner with poor result. No further fishing experiments were carried out there until 1948 when a trawler operated. A trawler operated again in 1949 together with some long-liners. From

1951 to 1967, except for a total catch of 64 000 tons in 1952, the annual catch never exceeded 20 000 tons. The latest catch at West Greenland was about 100 tons for 1968 and 1969 by bottom gillnets.

For 1954, the *ICNAF List of Vessels* contains 23 vessels of 600 – about 700 GRT, probably all trawlers (10 of them were registered as trawler in the list for 1956, and 16 trawlers of the same size and age (built 1947–51) were listed as having fished in Subarea 1). In 1959, 24 out of 41 vessels fishing in the Northwest Atlantic were active at West Greenland (no noteworthy change from 1956). In 1962, two out of 12 vessels, and in 1965, 8 out of 13 vessels (now including 2 above 900 GRT, built in 1960) fished at Greenland. In 1968 only one vessel out of three operating in the Northwest Atlantic operated at West Greenland, using bottom gillnets.

The series of Icelandic catches are longer for East Greenland than for West Greenland, viz. 1954–76 with catches of up to 10 000 tons and with sporadic catches below 100 tons in some of the years thereafter. The vessels were most likely all trawlers since redfish was the major target species.

ITALY: Italy has shown little interest in fishing for cod in the Northwest Atlantic. Catch figures for cod were reported for 1938–40 but none of them are thought to be from Greenland waters. However, for the years 1950 to 1960 and for 1965 catches of cod were reported. Except for the years 1958, 1960 and 1965 when catches in Subarea 1 were specified, catches are given for the ICNAF Convention Area as a whole or for two or more Subareas combined. Thus catches listed as taken at West Greenland in other years (Table 2) are qualified estimates rather than directly reported figures.

There are no records of Italian fishing at East Greenland.

Vessels used were 1–3 of the large *Genepesca* trawlers (1 200 – about 1 600 GRT), built in 1947–50 and 3 built in 1953. 1953 was the best year for catches with 4 000–5 000 tons recorded. Probably not more than one vessel operated at Greenland in the other years.

JAPAN: Japan has had only negligible catches of cod in Greenland waters, apparently as by-catch in fisheries for redfish and Greenland halibut with trawlers chartered by Greenland or with the research and scouting vessel *Shinkai Maru* (3 395 GRT) in search for deep water resources at West as well as at East Greenland (Jørgensen, 1998). The catches at East Greenland (1986–91) were only marginally higher than those at West Greenland.

NORWAY: Norway has had a long tradition for fishing at Greenland, starting at West Greenland in 1924 although with Atlantic halibut as the target species (Hjort and Ruud, 1929). Halibut has remained of interest to Norway, especially for the long-liners. Only since 1950 were catches in the Northwest Atlantic reported separately for trawlers and long-liners. Catches prior to 1950 are here regarded as taken solely by long-liners. There is a nearly unbroken series of catch data from 1924 to 1978 (no fishing at Greenland 1940–45). The small catches (below 10 tons) listed since 1984 are by-catches in the fishery for shrimp.

Catches by long-liners were considerably higher than those by trawlers until 1967 inclusive. Thereafter the two fishing methods have varied much in relative importance. In several cases all or part of the catch by long-liners was not broken down by ICNAF Subareas. In such cases the author has allocated part of the catch to Subarea 1.

In 1953, 59 Norwegian vessels were fishing in the Northwest Atlantic. Most, if not all, were likely to have had their main activity at West Greenland. Three of them seem from their size (567–617 GRT) to have been trawlers, the remainder liners, mostly long-liners, 6 of the 51–150 GRT class and 50 of the 151–500 GRT class.

In 1956, 71 long-liners and 2 trawlers were fishing at Greenland. The long-liners were generally old vessels, the oldest dating back to 1885, with only 19 of them built after World War II.

In 1959, 52 liners and 2 trawlers were fishing at Greenland. In 1962, 46 liners (151–500 GRT class); in 1965, 18 liners and 2 trawlers; and in 1968, 35 long-liners and 7 trawlers were fishing at Greenland.

The Norwegian activity at Greenland thus fluctuated quite a bit in the 1950s and 1960s as also indicated by the annual catches (Table 2). Thereafter the Norwegian cod fishing activity at Greenland decreased rapidly. There seems to have been no trawlers fishing cod in 1970, and in 1971 only one trawler and four long-liners were fishing, with the long-liners also using drift gillnets, likely for salmon rather than for cod. For 1974 the ICNAF List of Vessels records 21 trawlers and 9 long-liners. However, since ICNAF Stat. Bull. indicated that only 411 tons of cod were caught by trawlers a good part of the 21 trawlers were likely fishing shrimp rather than cod. Since then there were no trawl caught cod reported by Norway, and cod catches by long-liners were negligible after 1977, when only 6 long-liners were fishing.

Norway's total output of cod fishing at Greenland was close to 900 000 tons (Table 4, Fig. 2).

POLAND: Poland had the only records of catches of cod at Greenland from 1960 and 1962–69 when small amounts (below 900 tons annually) were taken. The best year, 1968, when 861 tons were taken by large trawlers (about 2 800 GRT), the *ICNAF List of Vessels* indicated that 22 vessels participated in the fishery at Greenland. The *ICNAF Stat. Bull.*, however, indicates only 62 days on ground with 45 fishing days. Thus, there seems to have been just short trips to the area, probably on the way to (or from) Subareas 2 and 3 where Poland had much higher activity and catches. The Polish fleet fishing in the Northwest Atlantic that year amounted to 84 trawlers.

PORTUGAL: Like France, Portugal has a long tradition for fishing cod in the Northwest Atlantic, specifically off Newfoundland but also during the good part of the cod epoch at Greenland. The traditional fishing was by long-lines and/or handlines from dories. Trawlers were introduced in 1936 (*ICNAF Stat. Bull.*, Vol. 2, page 18).

Hansen and Hermann (1953) state that Portuguese fishing at Greenland started in 1913. *ICES Bull. Stat.*, which started to include fisheries at Greenland and Newfoundland in 1925, however, does not list any Portuguese catches there until 1932, and figures published up to 1951 are for Greenland and Newfoundland combined. It has, therefore been complicated to arrive at a reasonably qualified estimate of the proportion of the catch taken at Greenland (see Horsted, MS 1994).

Portugal does not seem to have been fishing at East Greenland.

By 1953 the Portuguese dory fleet fishing in the Northwest Atlantic consisted of 45 mother vessels 44 of which seem to have been stationed at West Greenland during part of the season. The trawler fleet consisted of 22 side trawlers of 200–1 700 GRT and 900–1 200 BHP. They were probably not all visiting Greenland that year since the trawlers catches were only 8 000 tons as compared to 14 000 in 1952 and 42 000 in 1954.

The dory fleet fishing at Greenland increased slightly through the 1950s. In 1956, there were 49 and in 1959, 48 mother vessels. Also the total tonnage and number of dories carried increased. The average number of dories per mother vessel was 51 by 1935, 55 by 1956 and 61 by 1959. In 1959, one of the vessels carried 10 motor-dories manned with more men than the traditional one-man dory. The number of trawlers remained constant throughout at 22.

By 1962, the number of dories had fallen relating to a decrease in mother vessels to 35 although the mean capacity was 64 dories. The number of trawlers had risen to 30 by 1962. The number of dory mother vessels remained at 30 in 1965 and 1968, while number of trawlers fluctuated much: 14 in 1965, 33 in 1968. Thereafter both fleets decreased rapidly. By 1971 only 8 trawlers participated, thereafter virtually none. The number of mother vessels fell to 8 by 1971 plus 3 with motor-dories fishing with bottom gillnets. In 1974 two and in 1977 four vessels with motor-dories fished by bottom gillnets, but thereafter Portuguese fishing activity at Greenland stopped.

Portugal has had a total output of about 2.1 million tons from its cod fishery at Greenland, the largest on the list (Table 4 and Fig. 2).

SPAIN: Like Portugal and France, Spain also had a long tradition for fishing cod in the Northwest Atlantic. Catch statistics have been reported since 1927 (*ICNAF Stat. Bull.*, Vol. 3, page 15). At Greenland, only trawlers, mainly single otter trawlers were used until 1968 when one otter trawler and 87 pair trawlers were reported fishing there. Since then only pair trawlers have been reported (in the *ICNAF List of Vessels*) fishing at Greenland.

A few Spanish trawlers fished at Greenland in the 1930s (Hansen and Hermann, 1953). Only since 1952 have Spanish catches in the Northwest Atlantic been specified by Subareas in the *ICNAF Statistical Bulletin*. However, fishing at Greenland probably occurred right after World War II although with less activity than in other parts of the Northwest Atlantic. Estimates of 1 000 tons landed were set for the years 1946–50, 2 000 tons for 1951 (Table 2). There has been no Spanish cod fishing at Greenland after 1976.

There are no records of Spanish fishing at East Greenland.

In 1953, Spain had 25 otter trawlers operating in the Northwest Atlantic, 23 of them in the 901–1 800 GRT class, 2 in the 151–500 GRT class, but not all of them are likely to have been fishing at Greenland. The list for 1956 has 18 otter trawlers and 2 pair trawlers fishing at Greenland. In 1959 and 1962, 25 and 24 otter trawlers, respectively, fished there. Most were built in the 1940s and 1950s. Thereafter there was a low activity period 1963–67 with only 6 trawlers operating in 1965 (catch 650 tons). For 1968 only one otter trawler was reported fishing at Greenland but 87 pair trawlers were there (pair trawlers counted as individual vessels). In 1971 and 1974 44 and 34 pair trawlers, respectively, were operating at Greenland, but there has been no activity since 1976.

UNION OF SOVIET SOCIALISTIC REPUBLICS (USSR): USSR until 1959 had no ICNAF or ICES records of fishing at Greenland, and none since 1977. Generally speaking, the activity in cod fishing has been very low at West Greenland as well as at East Greenland. In the latter area catches of cod are recorded for some of the years during 1963–77 and in 1992.

It is difficult to assess the USSR fishing from information in the *ICNAF List of Vessels* where no vessels fishing at Greenland were recorded until 1965 (one trawler, but no catch of cod was registered in ICNAF Stat. Bull.). In 1968, 11 trawlers were recorded, but since only 670 tons of cod were recorded this number of vessels may include some fishing for shrimp or fish other than cod. In 1971, 1974 and 1977, 7, 27 and 12 USSR trawlers, respectively, were recorded fishing at Greenland, but it is difficult to judge how many of them, if any, were fishing directly for cod. Thereafter no USSR cod fishing activity was recorded at Greenland.

The USSR vessels have also exploited redfish at Greenland. The cod/redfish ratio fluctuates much between years but in some years the quantities of redfish landed exceeded that of cod considerably. For instance in 1975 and 1976, close to 4 000 tons and 6 000 tons of redfish with only 214 and 137 tons of cod, were reported respectively. At East Greenland the USSR had also fished redfish, but the fishery was stopped by regulations (closed areas) when the fish size was found too small.

THE UNITED KINGDOM (UK): UK fisheries statistics for cod at Greenland are available from different sources, and annual figures differ between these (see Horsted, MS 1994). In general, the UK was amongst the first nations participating in the fisheries at Greenland, although in the beginning (from 1924) it was a fishery by long-lines for Atlantic halibut with a by-catch of cod rather than a directed cod fishery.

The first UK trawlers were at Greenland in 1935. Long-line fishing was phased out after World War II (there was no fishing during 1939–45), and trawlers have dominated since 1948. The target species for the trawlers was cod with redfish as the major by-catch.

Catches of cod were above 10 000 tons in most years during 1948–68, with a period of low catches during 1955–58 and a record high of 55 000 tons in 1962. Fishing activity and catches fell after 1968 to a level below 4 000 tons annually, and has been sporadic since 1976 with few thousand tons.

The UK has had a tradition of fishing in the Cape Farewell area, and already in the 1920s part of the catches was likely taken in waters east of the Cape. However, only since 1958 does the ICES statistics give figures for East Greenland separately. Catches at East Greenland before then were incorporated in figures for West Greenland. Annual catches recorded for East Greenland have seldom approached 2 000 tons during 1958–78. There are no records of cod fishing there during 1979–88, while for 1989–92 between 1 300 and 5 500 tons was reported with a few hundred tons annually thereafter.

Until the mid-1930s the UK fleet fishing at Greenland consisted of long-liners only. Some of them were again fishing right after the World War II until 1952, but only trawlers have operated thereafter. In 1953, 95 steam trawlers of the 501–900 GRT class participated. In 1956, only 8 were listed, fishing in Div. 1F. In 1959, 31 trawlers were listed, 33 in 1962 and 50 in 1965. In 1968, 25 trawlers were listed of which 14 were stern trawlers. In 1971 and 1974, only 14 trawlers were listed, all diesel powered and the oldest was built in 1957.

The UK like FGR have made use of redfish in the catches and their fishery may at least sometimes be characterized as a mixed fishery. Landings of redfish have, however, generally been modest (below 1 000 tons annually) at West Greenland.

The overall total UK catch of cod at Greenland is about 418 000 tons (Table 4).

THE UNITED STATES OF AMERICA (USA): USA had records of cod fishing only at West Greenland, and that was in 1969 and 1970 when altogether 478 tons were caught.

IN GENERAL: Table 5 illustrates the activity as judged by the number of vessels (over 50 GRT) participating in the cod fishery at West Greenland since 1953. It shows that the number of vessels was rather stable between 300 and 400 different vessels from the early-1950s to the mid-1960s. It seems to have peaked around 1968 when no less than 424 vessels were registered as fishing at West Greenland, several of them making more than one trip. After that time the number of foreign vessels declined drastically, especially so far as the long-liners and Portuguese dory vessels were concerned. Horsted (MS 1965) showed that vessel capacity and fishing power generally increased from 1953–54 to 1962. Developments seem to have continued especially for trawlers, where a gradual shift from side- to stern-trawlers seems to have been a major improvement allowing for fishing in more rough weather and hence to permit fishing to take place throughout the year. However, with stock abundance and catch-rate generally decreasing after 1968, the interest and hence the activity level have decreased much since then, but not necessarily accompanied by decreasing fishing mortality.

The ICES North Western Working Group recently, and for the first time, succeeded in performing an analytical assessment of the combined West-East offshore stock components covering the years 1955 to 1992 (Anon., 1996, 1997). This assessment indicates that average fishing mortality rate (F) for age groups 5–8 increased from a level of 0.1 by 1955 to about 0.4 by 1962, remained at that level until 1973 and then increased further to 0.9 by 1978. Large fluctuations thereafter (0.1 by 1987 and 1.3 by 1990) seem possibly due partly to regulations and partly to abrupt changes in recruitment (e.g. entrance of the 1984 year-class).

No doubt, however, there is a potential international fleet of vessels ready to go into a new rush for cod fishing should the stock situation improve. However, now there are also new political considerations: the extended Exclusive Economic Zone and new management regimes through nationally allocated quotas.

Table 5

TABLE 5. Estimated number of vessels (Nos.) above 50 GRT engaged in fishing for groundfish, primarily cod, at West Greenland and their average size (BHP for trawlers), crew (for liners) and number of dories (for dory vessels (except in 1977)). Number of Days (DoG) on Ground from information in *ICNAF List of Vessels*.

Year	Otter trawlers				Liners				Dory mother vessels				Total Nos.
	Nos.	GRT	Mean BHP	DoG	Nos.	GRT	Mean Crew	DoG	Nos.	GRT	Mean Dories	DoG	
1953	205	875	1061	30	89	185	19.8	96	40	693	51	73	334
1956	170	926	1112	28	113	178	19.4	85	49	765	55	54	332
1959	219	940	1224	40	108	190	20.2	154	47	872	61	72	374
1962	226	1037	1321	60	94	236	22.4	156	35	70	64	102	355
1965	213	1170	1704		67	300	21.9		30	908	67		310
1968	306 ¹	1268	1714		88	248	20.3		30	911	69		424
1971	136 ¹	1182	1900		12 ²	302	21.1		11	967	51 ³		159
1974	107 ¹	1521	2160		36 ⁴	219	18.8 ⁵		2	1068	6 ⁶		145
1977	56	1947	3013		6	405	18.7		4	957	67	crew	66
1980	37	2051	3315		0				0				37
1983	39	1615	3004		1	242	20		0				40
1986	13	1750	3349		5	185			0				18
1989	18	1379	2290		0				0				18

¹ Number of trawlers include 87 Spanish pair trawlers (counted as single vessels) for 1968, 44 for 1971 and 34 for 1974.

² 15 Greenlandic or Norwegian vessels fishing part- or full-time for species other than cod (salmon, shrimp) not included.

³ 18 motorboats from 3 mother vessels not included in mean number of dories.

⁴ Includes some vessels fishing shrimp part of the time or fully.

⁵ Calculated for 22 non-Greenlandic vessels only.

⁶ Motor boats fishing by gillnets.

IV. The Catches

IV. The Catches

1. Review of Total Catch and Main Causes of Fluctuations

1.1 The pre-war and war period at West Greenland (Table 1 and Fig. 1)

The Greenland commercial cod fishery started locally in West Greenland in 1911 at some localities where cod seemed to occur regularly during summer and autumn. The gradual increase of the landings and their spatial distribution was described by Jensen and Hansen (1931) and by Hansen (1949). It took 15 years to reach the level of 1 000 tons (Table 1; Fig. 1). Thereafter, annual landings by Greenland increased rapidly to reach nearly 10 000 tons by 1930. During the 1930s, annual landings by Greenland fluctuated between 5 500 and close to 9 500 tons. During the war 1939–45 it increased from 7 000 to some 14 000 tons.

Catches presented in Table 1 suggest that offshore fishing by non-Greenlandic vessels started in 1924 and increased rapidly up to 1931 when the total catch (including Greenland) reached as much as 130 000 tons. The total catch fluctuated thereafter between 62 000 and 97 000 tons, reached a new peak of 133 000 tons in 1936 but decreased thereafter to about 95 000 tons in 1938. Most of the distant-water fleets, which had participated in this fishery (the Faroe Islands, France, Norway and the UK), did not fish at Greenland during World War II, the only nation besides Greenland continuing after 1940 being Portugal. During 1939–45 catches, therefore, were at a somewhat lower level, 44 000–65 000 tons.

Nearly all pre-war catches were taken by hand- or long-lines and during May/June to September/October. The highest national catch was that by France in 1936 (81 000 tons) while the Portuguese catches generally increased during the period after 1930 to reach a level of close to 50 000 tons during 1943–45.

1.2 The post-war period (1946–95) at West Greenland (Table 2 and Fig. 1)

Catches by nations and gears for the period 1946–95 are listed in Table 2 (the Table corresponds to Table 2b by Horsted, MS 1994, updated and with a few minor corrections). The development at West Greenland is also illustrated by Fig. 1 (including catches 1924–45).

Immediately after World War II, the nations, which fished at Greenland before the war, resumed fishing. Additionally, Spain may have had some fishing there from 1946, at least no later than from 1952. New entrants around 1950 were Denmark (mainland) for a short period only, the FRG, Iceland and Italy. Of these, the FRG came to play the major role, with catches increasing abruptly in the first part of the 1960s to levels equal to or well above those achieved by the former dominating nations (Portugal, the Faroe Islands, France and Norway). Although individual national effort fluctuated between years, the total effort seems to have increased steadily and rapidly from 1946 to the mid-1960s. Associated with this was the steadily increasing fishing power and extension of the fishing season for some fleets, especially trawlers.

The total catch, therefore, developed rapidly from the 60 000 tons level during World War II to 200 000 tons by 1950 and 334 000 by 1952. It fluctuated thereafter without trends between 235 000 and 348 000 tons over the period 1953–61. The catch peaked in 1962 when about 460 000 tons were landed. Catches remained at a high level (350 000–430 000 tons) during 1963–68, fell off rapidly thereafter to reach only 33 000 tons by 1976. Fishery regulations thereafter played some role, but were evidently not fully adhered to in 1977–79 when catches were up to 100 000 tons annually (see Section V.2). The extension of the Coastal State Exclusive Economic Zone from 12 naut. miles to 200 naut. miles in 1977 (or the mid-line between Canada and Greenland) was probably the most important regulation. Greenland with Denmark was a member of the EEC at that time and fishing was not disrupted. However, non-EEC nations like the GDR, Norway, Portugal, Spain and USSR had to give up cod fishing in Greenland waters. This represented a substantial change as the

total catch by these five nations alone was 54 000 tons in 1972, decreased to 34 000 and 20 000 tons in 1973 and 1974, respectively, and phased out during the next three years. The GDR performance was different in that fishing at Greenland stopped in 1973 after a period of rapidly decreasing catches. The same pattern was also true for the EEC members France (stopped after 1973) and the UK (stopped after 1976). The Faroe Islands, not an EEC member, although part of the Danish Kingdom, has fished little at Greenland after 1977.

The drastic decrease in cod catches at West Greenland since 1968 can thus be ascribed to the decrease in effort. This may be attributed less to fisheries regulations than to the actual practical interest level on a fishery with low catch rates and a stock under stress. This was not only due to fishing pressure but more importantly due to adverse environmental conditions since 1968 resulting in poor recruitment, with the exception of the 1973 and 1984 year-classes (Buch *et al.*, 1994). The recruitment to the fishable stock of these two year-classes during 1976–79 and 1987–90, respectively, led to temporary improvement in the total catch at West Greenland to levels around 100 000 tons by 1979 (during 1978–79 there was a quota overrun, see Table 9) and 1989. Otherwise the catch curve for the period after 1968 shows a decline to a very low level, with total catches comparable to those in the first part of the 1920s.

1.3. The cod fisheries at East Greenland (Table 3)

As explained in Section II.1 it is difficult to achieve figures for catches at East Greenland prior to 1958. However, it is clear they have been much lower than those at West Greenland. Although catches for local consumption by Greenlanders at Ammassalik are likely to have occurred before World War II, a commercial fishery for cod by Greenland only started in 1956. However, Iceland, FRG and UK seem to have taken catches off East Greenland since the mid-1950s. The annual catches by nations during 1954–95 are listed in Table 3 (this was updated from Table 3 in Horsted, MS 1994).

The annual total catch at East Greenland was likely at the 10 000–13 000 tons level during 1956–58, then doubled to fluctuate without trends between 16 000 and 24 000 tons during 1959–70 except for the outstanding year of 1964, when nearly 36 000 tons were caught. Catches increased again from 1970 to 1971 (21 000 to 33 000 tons) but fell rapidly thereafter to reach a low of 6 000 tons by 1974–75. For the years 1977–82 the ICES Working Group on Cod Stocks off East Greenland (Anon., 1981b, 1982, 1983) considered that catches were well above those recorded in the official statistics by as much as 34 000 tons in 1979 and 27 000 in 1982. A new period with low catches occurred during 1984–87, the lowest being 2 000 tons in 1985. A temporary improvement took place when the important 1984 year-class invaded the area from West Greenland waters from 1988. The catch in 1990 was then close to 34 000 tons, about the same as in the two other years of record high catches (1964 and 1979). After 1991, catches decreased rapidly to a negligible level.

Besides Greenland itself, only the FRG has an unbroken record of catches for the entire period since 1955 (1956 for Greenland). Until 1976, catches by Greenland were from small local operations taken by hand- and long-lines and by pound nets. Thereafter the Greenland trawlers also participated in the fishery. Iceland and the UK stopped fishing in the mid-1970s, although the UK participated from 1989 in the temporary good period related to the 1984 year-class. Catches by other nations were sporadic and generally negligible (except for 6 000 tons landed by the USSR in 1963). Except for minor catches by Greenland, Faroe Islands and Norway, catches at East Greenland were taken by trawlers.

Annual and seasonal fluctuations of the fisheries at East Greenland depend much upon the physical conditions for fishing, not least the occurrence of drift ice. Drift ice is usually found over the East Greenland fishing grounds during the first half of the year, the same time as when pre-spawning and spawning shoals of cod are formed. It should also be taken into account that the trawl fisheries off East Greenland, much more than those at West Greenland, are mixed fisheries in which catches of redfish are just as important as cod, and in some years much more important. Thus, for the period

1960–70, catch figures in the FRG Research Reports to ICNAF show that redfish catches at East Greenland exceeded those of cod every year. It was most pronounced in 1966 when it was 3.2 times higher than those for cod. For the overall period 1960–70, the FRG redfish catches exceeded those of cod by 84% (Meyer, 1963; Meyer and Lenz, 1973), although this was a period with relatively high catches of cod (Table 3). However, in 1971 and 1972, when catches of cod by the FRG were 26 000 and 22 000 tons, respectively, those of redfish were only 1/2 and 1/3 of catches of cod. The low catch of redfish was explained as being partly the effect of less market demand. (Meyer and Lenz, 1973).

2. Spatial and Seasonal Distribution of the Fisheries (Table 6a)

2.1. The fisheries by Greenland and the Faroese land-based fishery

As in any fishery, the distribution of the local Greenland and Faroe Islands fishery was determined first by the occurrence of the target species, but fluctuations especially in the spatial distribution of the fish influenced the activity and economy of small, localized, land-based boats. Several other factors also influenced the small-boat fisheries. The Greenland larger long-liners and trawlers were, of course, much more mobile than the small boats.

2.1.1. The spatial distribution of the Greenland fishery

The catches by Division by *Greenland vessels less than 50 GRT*, are listed in Table 6a for the years 1911–95. Catches were generally taken with gears other than trawls at the coast or in fjords, and although some have been taken offshore under good weather conditions this fleet was generally rather localized up to 1964 so that the landing place would indicate the Division in which the catch was taken. For the years 1966–70 the catch figures also included minor amounts landed by long-liners (51–150 GRT tonnage class, see text to Table 6a and their catches could well have been taken in Divisions other than where they were landed. Information without the actual fishing location, are recorded under Div. 1NK.

Greenland's commercial fishing started in Div. 1D in 1911, and included Div. 1C and 1B in 1915 followed by Div. 1F in 1918 and Div. 1E in 1919 (Table 6a). Places around Disko Bay (Div. 1A) came into the picture in the late-1920s and Uummannaq from 1932. Through most of the 1930s Div. 1F was the major area for the Greenland fishery accounting for about 20–35% of the total catch, followed by Div. 1B (18–32%) and Div. 1C about 20%. The relative importance of Div. 1D decreased from the 1920s to the 1930s, while that of Div. 1B increased. Through the 1940s the most important area was Div. 1B, but Div. 1A (southern part) also showed increasing importance so that catches were fairly evenly distributed along the West Coast from Cape Farewell to Disko Bay. Catches in the small Div. 1E were lower than in the larger Divisions.

The catch distribution for the post-war years 1946–94 is shown in Fig. 4. Throughout the 1950 and 1960s the situation was very much the same as in the 1940s but by 1968 catches in the northern Divisions suddenly decreased. During the 1970s and the 1980s and the first half of the 1990s, the relative importance between Divisions fluctuated between Div. 1C, 1D, 1E and 1F. Div. 1B, and the Disko Bay area (southernmost part of Div. 1A) showed surprisingly high catches during 1989–91, with catches in Div. 1B the highest ever. The catch in Div. 1F fell relatively more than those in the other Divisions in the mid-1980s. However, for the years 1981–84 relatively high catches (19–31% of the total for Greenland including the trawler catches) were not broken down by Division. The overall picture mentioned above might have changed had they been considered.

The Greenland trawlers engaged in cod fishing (since 1968) have been those owned by the State (the Royal Greenland Trade Department) later (from 1985) by the Greenland Home Rule authorities, while privately owned trawlers have been fishing shrimp mainly. The State/Home-Rule owned vessels were gradually rebuilt so that they could also engage in shrimp fishing and production at sea. When fishing for cod, their main task was to supply gutted, iced fish for further processing at the fish

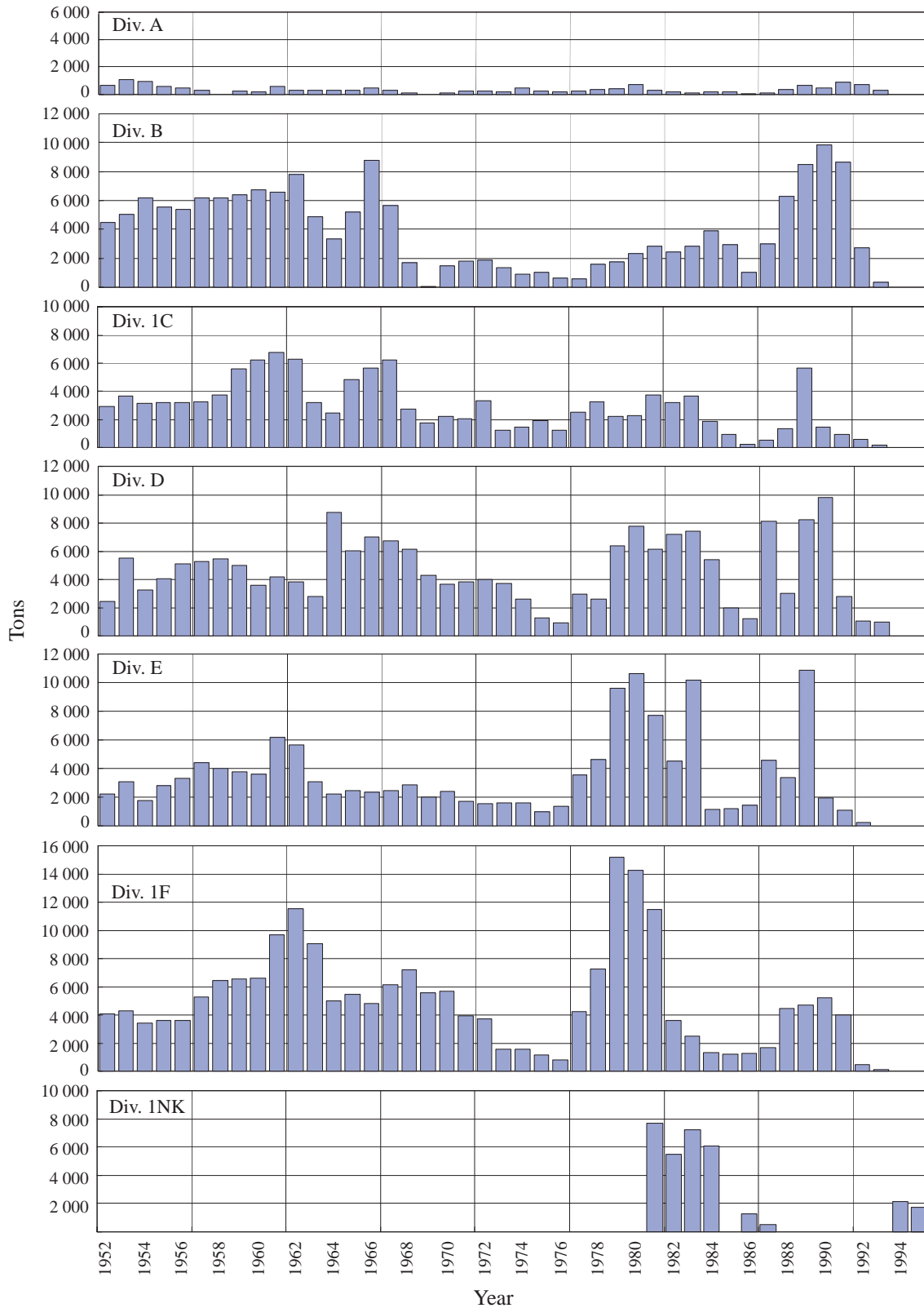


Fig. 4. Distribution by statistical Divisions of nominal catches of cod at West Greenland by small Greenland boats (below 50 GRT) 1952–94.

plants in the major Greenland cities (the plants also State/Home Rule owned). As a result they had to take into account factors such as distance (time) between fishing ground and actual landing place. The latter was decided upon by the fishing industry managers, especially since the duration of storage of fish on ice was set short to ensure high quality products. The trawlers, however, did not come into operation until after the downward trend of the cod stock by the end of the 1960s, and they generally had to follow the same southward displacement of the fishing grounds (as did the non-Greenland offshore fleet described later in this paper). Their cod fishing activity (catch and effort by Division, year and month) is listed in Table 7a for the years 1973–85, the only period for which cod fishing was large enough and in sufficient detail to be of interest for the analysis. The statistical figures presented here are for the two vessel categories combined (one trawler of 433 GRT, 2 200 BHP, and up to six stern trawlers of 722 GRT, 2000 BHP) and the corresponding catch-per-unit-effort is listed in Table 7b.

There was no cod fishing activity in Div. 1A since 1969 and very little in Div. 1B and in Div. 1F. During the 1970s, Div. 1C and 1D were the most important, but Div. 1E also supplied an important part of the total catch. Fishing activity in the first part of the 1970s in Div. 1C and 1E was less evenly distributed through the months than in Div. 1D. From 1977 the activity in all three Divisions was concentrated in the first two quarters of the year, and in 1978, 1980–82 fishing included the last quarter of the year (with shrimp fishing in between).

The southward displacement of the stock and the fishery became evident from 1983, although this did not lead to any noteworthy increase of activity in Div. 1F. Instead, the activity at East Greenland seemed to have increased in the 1980s (see Table 3).

2.1.2. The fishing season of the Greenland fishery

Up to the end of the 1950s, the local Greenland cod fishery was hampered by the lack of modern facilities on land. Production was limited to only salted or dried fish in a season, and the length of the season was determined, among other factors, by the availability of fresh water. The governing feature was atmospheric temperatures, because the supply pipelines, which were exposed at many places, were closed during the long period with frost. Also weather conditions and sea ice limited the length of the fishing season, although at some places, for instance at Kapisillit in the innermost Godthåb Fjord, a winter fishery took place from the ice by hand line, the production then being dried fish.

The gradual development of the fishing industries, especially after the report of the so-called G-60 Committee was issued (Anon., 1964), meant that production facilities became available throughout the year at an increasing number of places (see for instance Mattox, 1973). However, the climatic conditions remained a hindrance for the small boats to conduct an effective fishing throughout the year.

The distribution by month and Division of the cod catches by the *Greenlandic small boats* (below 50 GRT) as it occurs in the *ICNAF/NAFO Stat. Bulletin* (1952–93) is given in Table 6b. The following remarks, however, should be noted:

- a) For the years 1967–69 the statistics for the smallest vessels include vessels up to 150 GRT, while for 1970–71 and 1974 the vessel tonnage class is not specified. For these latter years small-boat catches were reported by Division, while the trawler catches are listed under Division NK (not known).
- b) Statistics for 1972 are very poorly reported in that only the total for all months, Divisions and vessels are given.
- c) For 1973 and 1975–79, the figures were given separately for the 0–50 GRT category.
- d) For 1980–85, the large trawler catches were reported separately, while the small boats are in the vessel size category "not known" together with small shrimp trawlers, large long-liners and

others. For these years (and the vessel group) relatively large quantities of cod are listed under month and/or Division "not known". The non-trawler catches specified by month and Division are still likely to be those taken by small boats below 50 GRT.

In Table 6c the material is presented as relative figures as the percent of the total catch of each year for the small boats below 50 GRT, while Table 6d presents the absolute figures summarized in periods of five consecutive years. Table 6e is the corresponding relative figures in per thousand of total for the small boats for the period, illustrated by Fig. 5.

The relatively low January–April catch is taken primarily in the three southernmost Divisions (1D–1F). They ranged from lows of about 25% of total January–April catches in 1974 to usually 80–90% with the highest in the late-1950s (up to 99%). Division 1D, and sometimes Div. 1F, had the highest January–April catch. Still, it should be remembered that the overall January–April catch is only a minor part of the total for the year.

During May, catches usually increased to levels of about 10% of the total for the small boats for the year. However, during the period 1969–84 the May catches were relatively low with the lowest in 1971 of only 55 tons or 0.4% and the highest in 1979 of 2 988 tons or 8.4% of total small boat catches for the year.

During October, catches decreased but October may still be counted amongst the important months, its contribution ranging from 2.2% (1964) to 10% (1982) of total small boat catches for the year.

The November–December catches are generally below 10% of the annual catch for small boats with winter fishing conditions having started. High catches were observed in 1965 with 12.8% and in 1986 with an exceptional figure of 21% of total small boat catches. No special explanation is offered for that 1986 event, however, it is possible that the extremely low figures recorded for the rest of the year creates the high November–December proportion (total non-trawler catch of cod that year was only 5 302 tons).

Thus, June–September every year stands as the high season for the small boats characterized by good weather, availability of cod over a wide area, including the shallow water close to land and especially the coastal area round islands and skerries. Shoals of cod found in the fjords presented good conditions for a lucrative pound net fishery – at least these were the conditions for many years.

July stands out as the best month in nearly half the cases studied, followed by August in about 1/3 of the cases. Both months usually accounted for about 20–25% of the total annual catch for small boats.

Geographically, this statement of highest catches in July and August is to some extent also valid when viewed on a divisional basis, although the situation may differ somewhat between Divisions. For example, during the 1960s May–June were frequently the peak period in Div. 1D, likely based on pound-net catches in the Godthåb Fjord, whereas for Div. 1F there is a tendency to a later high season than for the other Divisions, mainly because fishing in Div. 1F is usually hampered by polar drift-ice ("Storis") in the second quarter of the year.

Since 1965 *large liners* and since 1969 *large stern trawlers* have enabled Greenland to fish throughout the year. Large vessels' fishing resulted in concentrating the land-based industry at the larger cities, primarily (so far as cod fishing is concerned) in the so-called open-water-cities (Frederikshåb/Paamiut, Godthåb/Nuuk, Sukkertoppen/Manitsoq and Holsteinsborg/Sisimiut). These harbours seldom freeze up or get blocked by heavy drift ice to such an extent that large vessels cannot manoeuvre. Also, the major West Greenland fishing banks are found right off these cities, although now (since mid-1990s) cod occur sparsely on these banks (the monthly distribution of the cod catches by Greenland trawlers was commented on above).

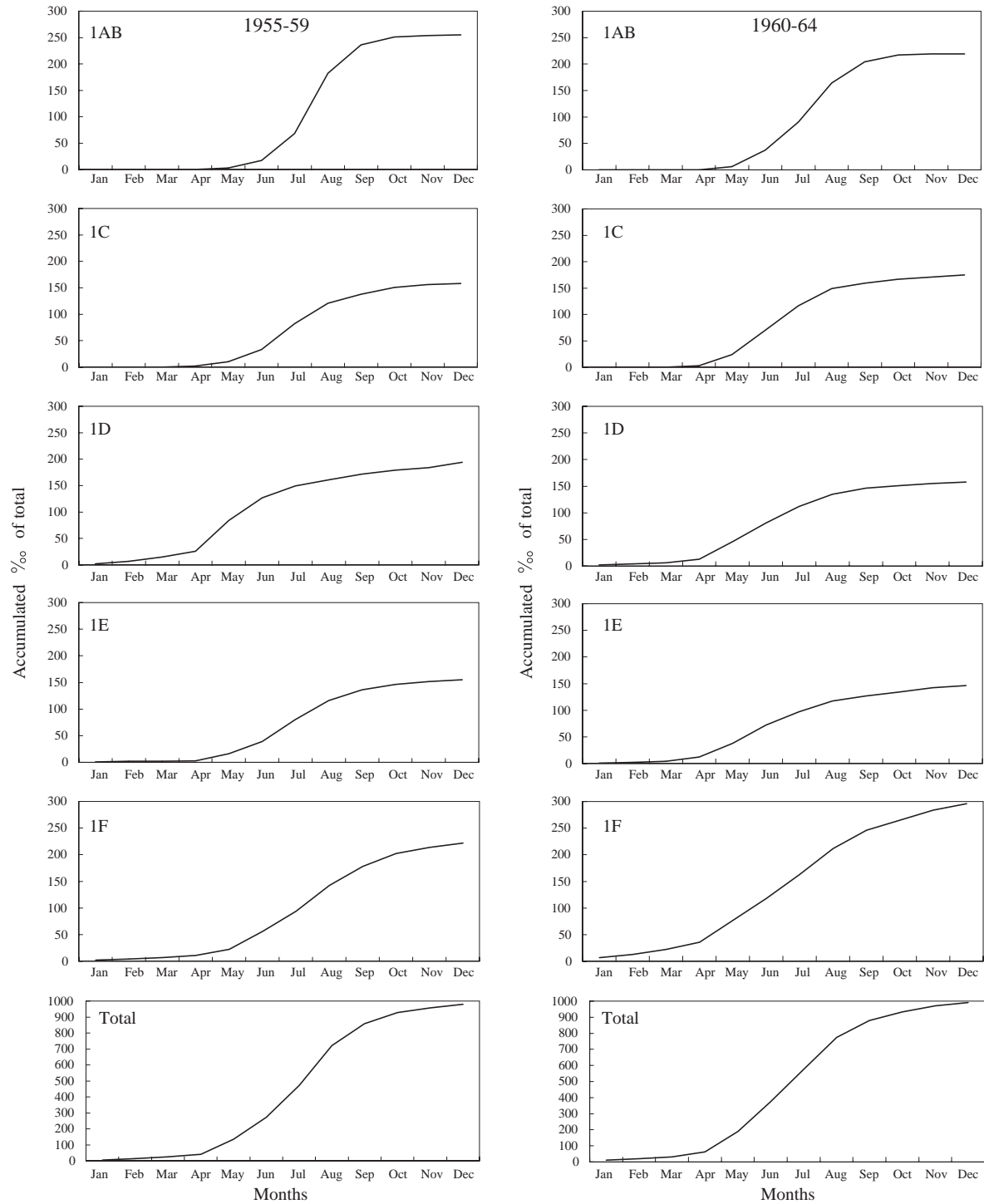


Fig. 5. Relative distribution by Division and month of nominal catches of cod at West Greenland caught by small Greenland boats (below 50 GRT) over five-years periods through 1955 to 1994 (note: values for Division and/or month not-known (NK) are excluded in the plots).

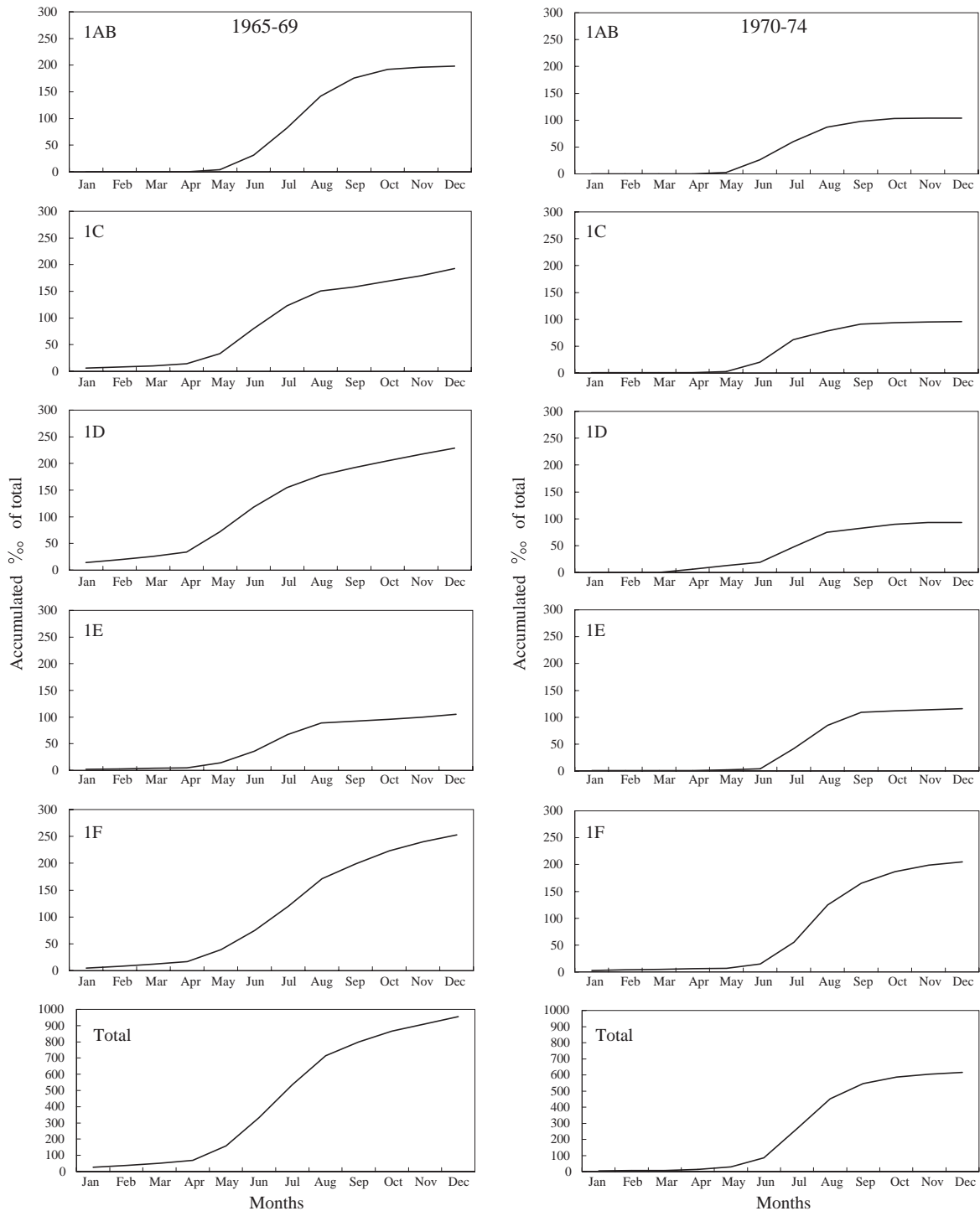


Fig. 5. (Continued). Relative distribution by Division and month of nominal catches of cod at West Greenland caught by small Greenland boats (below 50 GRT) over five-years periods through 1955 to 1994 (note: values for Division and/or month not-known (NK) are excluded in the plots).

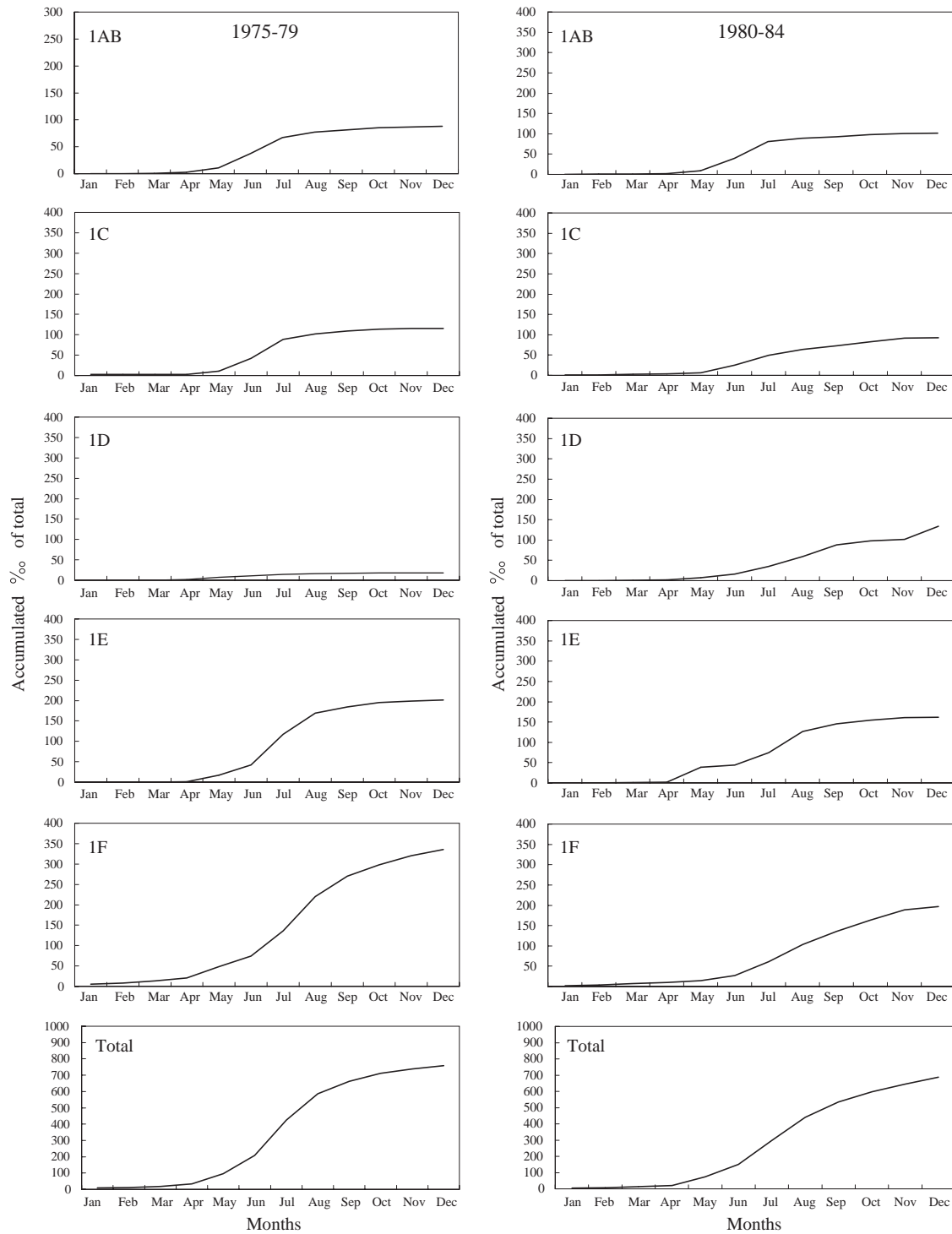


Fig. 5. (Continued). Relative distribution by Division and month of nominal catches of cod at West Greenland caught by small Greenland boats (below 50 GRT) over five-years periods through 1955 to 1994 (note: values for Division and/or month not-known (NK) are excluded in the plots).

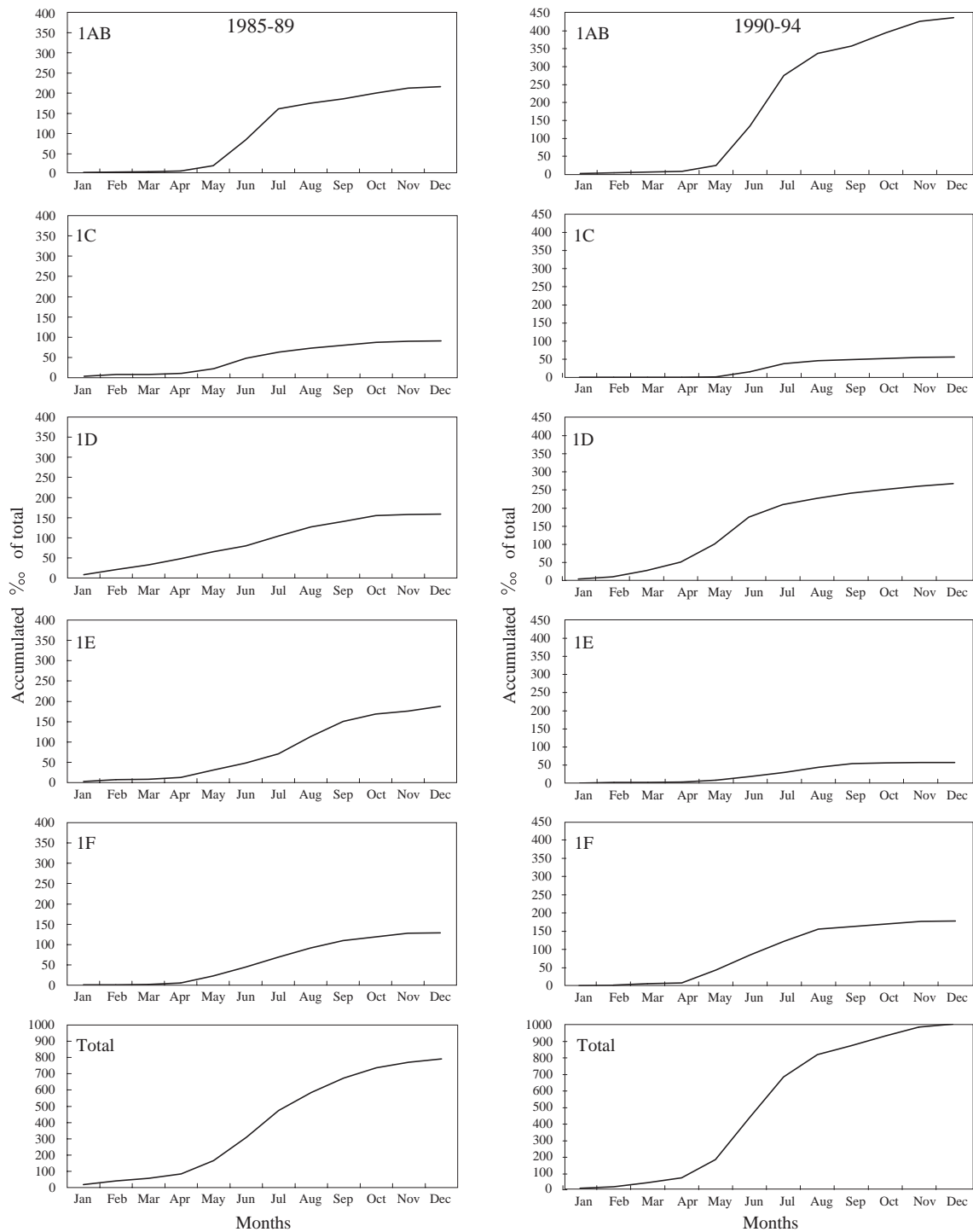


Fig. 5. (Continued). Relative distribution by Division and month of nominal catches of cod at West Greenland caught by small Greenland boats (below 50 GRT) over five-years periods through 1955 to 1994 (note: values for Division and/or month not-known (NK) are excluded in the plots).

2.1.3. The Faroe Islands land-based fishery

The Faroese land-based fishery by small boats has been restricted to the offshore area at those places where, from 1926, the Faroese were granted permission to establish some fisheries stations at the West Greenland coast (the most important being Føringehavn, south of Nuuk/Godthåb). From 1931 also a good part of the territorial area between the 3 naut. miles boundary and the outer skerries and islands but not inshore was opened for Faroese fishing. The Faroese fishery has also been seasonal given the same climatic conditions as the Greenland coastal fisheries and has taken place between the offshore banks and the coastline, and on the inner slopes of the banks.

2.2. The offshore fisheries by non-Greenlandic vessels

The distribution of offshore catches by non-Greenlandic vessels is, of course, also influenced primarily by the occurrence of cod. However, the tradition to go fishing where and when in terms of good physical conditions (weather, lack of ice, bottom characteristics) and availability of fish in previous years also seemed to play a major role for some fleets. Thus, the various national fleets traditionally preferred various fishing grounds. The least flexible offshore fleet, the Portuguese dory fleet, operated mainly in Div. 1B and 1D where fishing banks have relatively shallow water, and where weather in summer is generally good. They also fished to some extent in Div. 1C with negligible, if any, catches in Div. 1A and 1E and never any in Div. 1F. The French trawlers preferred fishing in Div. 1B–1D up to 1968, and then moved southward along with displacement of the stock. The FRG, who played a major role from the mid-1950s concentrated fishing in Div. 1D in the 1950s but gradually spread also to Div. 1C (the most important in the late-1970s). It is noteworthy fishing spread to Div. 1E and 1F, while fishing in Div. 1A–1B seemed of minor interest (except for Div. 1B in a short period in the 1960s). The distribution of the FGR fishery must be seen in the light of its interest in catching also redfish, occurring (in marketable size) mainly in the southern part of Subarea 1. The same goes for the UK trawlers with the greater part of their catch in Div. 1D–1F, with Div. 1F being the most important in the 1950s. Thereafter there was a more even distribution on Div. 1B–1F, frequently with Div. 1D being the most important. Economic considerations (to avoid too long journeys to and from fishing grounds) may also have played a role for fleets, especially if they were landing "fresh" iced fish.

When trawlers started to dominate (or at least to be as important as vessels fishing with other gear) from the mid-1950s, they generally started with their experience fishing in the good-weather summer season. But evidently they gradually found out that trawl fishing could be better at other times of the year when cod was more concentrated in shoals. The gradual switch from side- to stern-trawlers also meant that the vessels could operate in weather conditions which formerly prevented fishing operations.

The spatial and temporal distribution of the fisheries depended not only on the occurrence (density) and availability of fish inside Subarea 1 itself, but also on the actual fishing success in Greenland waters compared to other North Atlantic waters where the fleets were allowed to operate. This particular relationship is not studied in the present paper but deserves consideration. Also the variation in space and time of fish quality (size and condition) may in some cases have influenced the distribution of the fishery. Finally, what could also have influenced the catch distribution could be limitations of total allowable catches (TACs) and regulation by national quotas. TACs not allocated on national quotas would tend to create a rush as soon as the fishing year opens (pulse fishing). Allocation of TACs to nations may alleviate that risk, especially when a country allocates part of its quota to individual vessels through fishing licenses. Under such circumstances, vessels may tend to fish only in the season when catch rates peak (or are thought by experience to peak).

Evidently, these factors have to some degree influenced the spatial and temporal distribution of the cod fisheries at Greenland. Most clear are the physical and environmental conditions. Maintenance of traditions also seems evident, whereas influence from biological factors such as fish size and condition, and from fisheries policy and management are less clearly seen, except in cases when

specific areas were closed to some or all fishing activity (e.g. no trawling for cod allowed in inshore waters) or when TACs and quotas were fully fished before the TAC-year came to an end.

Until around 1950, the offshore catches were taken mainly by Portuguese dories and by long-liners of the Faroe Islands and Norway. Trawlers were at that time used by Iceland, the UK and Spain, and it is likely the larger French catches were by trawlers. The distribution of offshore catches in the 1946–56 period is likely to have been mainly from Div. 1B–1D. From 1952, several catches, generally an increasing proportion of the total, have been reported by Division (Table 8a). The distribution of offshore fisheries differs much from the localized inshore fisheries. Thus, Div. 1F plays a minor role offshore, most likely due to relatively difficult trawling grounds, to more rough weather and to more drift-ice than in the other Divisions. In general, the most important Division by far was Div. 1D, with the fishing banks of Fylla, Fiskenæs and Dana. Also Div. 1B (Store Hellefiske Bank/Great Halibut Bank) and Div. 1C (Lille Hellefiske Bank/Little Halibut Bank) showed relatively high catches.

There was a dramatic decrease of catches in Div. 1B from 1968 with negligible catches after 1974. The catches of Div. 1C showed the same drastic downward trend after 1982, and those in Div. 1F and 1D also decreased much in the late-1970s, to recover temporarily in the early- and mid-1980s when fishing centred in Div. 1D and 1E, and also in Div. 1F during 1983–85. Around 1990, the offshore catches (on 1984 year-class mainly) took place in Div. 1E–1F and at East Greenland. After that time virtually no offshore catches have been taken at West Greenland.

The monthly distribution of the cod catches by Division by non-Greenlandic vessels since 1952 is listed in Tables 8a and b and illustrated by Fig. 6. The fisheries before that time are likely to have had a monthly distribution very similar to the immediate post-World War II period, since it was basically the same nations (Faroe Islands, France, Norway and Portugal) who operated in those periods and with the same type of gear. Although British trawlers had minor pre-World War catches, their catches increased very much right from 1948 and had a considerable part of their fishery in Div. 1F in the last part of the year, including the winter. The British fleet more or less followed that tradition in its fishing at Greenland. In fact, the spatial and temporal distribution of catches seems to have been to a great extent influenced by traditions.

The fleet with the least flexible operating pattern, besides that of Greenland and Faroese small boats, was the Portuguese dory fleet, operating on rather shallow banks in Div. 1B–1D in the stable-weather season (May/June–September). Also liners of the Faroe Islands and Norway generally maintained traditional patterns. The Faroese hand-liners and small land-based boats mainly fished in Div. 1D–1F in summer and autumn, while the long-liners were a little more flexible but fished generally in late summer and autumn-early winter. The Norwegian liners seemed to have been more flexible, with catches being distributed over all Divisions and months. However, for both these nations the statistical information on spatial and temporal distribution is sparse for many years, but the author has had good opportunities to observe the fishing, including listening to vessel radio correspondence.

In terms of monthly and to some extent the spatial distribution of the annual catches, Tables 2 and 8 show that the post-World War II period had some identifiable characteristics:

The period 1946–54 is not well documented. However, it was dominated by Faroese and Norwegian long-liners, French vessels (trawlers since 1952), and especially by the Portuguese dory vessels (Table 2). It seems likely that the major part of the catches was taken in Div. 1B–1D and during May–October. Another important component was the UK trawl fishery in autumn and winter mainly in Div. 1D and 1F. The relatively small catches in Div. 1A were mainly taken by Norwegian long-liners.

During the years 1952–54 (incl.) around 2/3 of the specified catches were taken in June–August, mainly in Div. 1B and 1D. The unspecified catches in those years were as high as 81% and 32% of

the total in 1952 regarding spatial and monthly distribution, respectively. For 1953 it was 44% and 43% and for 1954, 21% and 19% of the total catch regarding spatial and monthly distribution, respectively, but since these unspecified catches were mainly those of France and the Faroe Islands (in 1952 also by Portugal) the actual catch in June–August and in Div. 1B and 1D may well have been relatively higher than stated.

In the period 1955–59 Div. 1B and 1D were still the major fishing areas, but Div. 1C and 1E increased their relative contribution, while that of Div. 1A and 1F decreased. The main fishing season included May (May–August) and (from 1959) September. Altogether between 62 and 74% of the specified catches were taken during May–August (incl.). Trawlers from the FRG, France, the Faroe Islands, Portugal and Spain played the major role, while the UK seemed to show decreased interest. The Portuguese dory fleet maintained its high activity. The unspecified catches for that period accounted for 19–33% of the total catch so far as divisional distribution was concerned and 6–24% regarding monthly distribution. These catches would, if specified, most certainly strengthen figures for Div. 1D in this period as the Faroese catches constituted the major part of the unspecified catches.

During 1960–67 the total annual catches were very high, ranging from some 240 000 to some 460 000 tons, culminating in 1962, the summit year of the whole cod epoch. Up to 1966, Div. 1B and 1D remained the most important areas followed by Div. 1C. However, in 1967, Div. 1C showed higher catches (25% of total specified catches) than Div. 1B. Div. 1E again increased its importance (up to 16% of specified catches) while catches in Div. 1F were below 5% of the total catch except in 1967 (5.5%) and those in Div. 1A below 1% of the total. There was a tendency towards a somewhat better balance between months, although the months January–August (inclusive) were still the most important. September replaced May in the upper-four months in 1960–63, where after May again showed higher catches. Apart from Div. 1A, especially in the first half of the year, there was hardly any Division without some fishing in any given month. Clearly, this is the period in which vessels, particularly stern trawlers, started to operate throughout the year. The non-specified catches (still mainly those of the Faroe Islands and Norwegian liners) were relatively lower (between 24 and 35% of total for Division and 8–26% for month). If specified, they would probably not change the general picture for these years much.

In the period 1968–76 the tendency of a southward displacement of the fishery and more uniform distribution on months continued. The total annual catch decreased abruptly from 1968 to 1970 and again from 1972 to 1977 to reach a level well below the 100 000 tons. There was virtually no catch in Div. 1A, and Div. 1B had lost its great importance (5% of total catch or less). Divisions 1C and 1D were the most important during 1968–75, thereafter Div. 1D and 1E, continuing the southward displacement of the fishery indicating a southward displacement of the stock.

While the spatial shift can be said to concentrate fishing in a smaller area than previously, the

Fig. 6. Spatial (NAFO Division) and temporal (year and month) distribution of non-Greenlandic vessels nominal catches of cod at West Greenland 1952–95 (no fishing, 1992–95), illustrated by symbols as follows:

—	0	no fishing
.	<10	Less than 10% of total for Subarea 1 for the year.
◆	10–49	10–49% of total for Subarea 1 for the year.
○	50–99	50–99% of total for Subarea 1 for the year.
□	100–149	100–149% of total for Subarea 1 for the year.
❖	150–249	150–249% of total for Subarea 1 for the year.
•	250–499	250–499% of total for Subarea 1 for the year.
◆	> 500	500% or more of total for Subarea 1 for the year.

Each vertical column represents one (in consecutive order) of the five years. (The absolute and relative catches are listed in Tables 8a and 8b, respectively. (to follow on next three pages))

1950-1954								
	1F	1E	1D	1C	1B	1A	1NK	TOTAL
1	•	-	-	-	-	-	-	•
2	-	-	-	-	-	-	-	•
3	-	-	-	-	-	-	-	•
4	-	-	-	-	-	-	-	•
5	-	-	○	•	-	-	•	○
6	-	-	•	•	-	-	•	•
7	-	-	•	-	□	-	□	•
8	•	-	•	-	□	-	•	□
9	•	-	-	•	○	-	•	○
10	○	-	-	-	-	-	-	•
11	•	-	-	-	-	-	-	•
12	•	-	-	-	-	-	-	•
NK	□	-	○	•	•	-	•	•
Total	□	-	○	•	•	•	•	•

1955-1959								
	1F	1E	1D	1C	1B	1A	1NK	TOTAL
1	•	-	-	-	-	-	-	•
2	-	-	-	-	-	-	-	•
3	-	-	-	-	-	-	-	•
4	-	-	-	-	-	-	-	•
5	-	-	○	•	-	-	•	○
6	-	-	•	•	-	-	•	•
7	-	-	•	-	□	-	□	•
8	•	-	•	-	□	-	•	□
9	•	-	-	•	○	-	•	○
10	○	-	-	-	-	-	-	•
11	•	-	-	-	-	-	-	•
12	•	-	-	-	-	-	-	•
NK	□	-	○	•	•	-	•	•
Total	□	-	○	•	•	•	•	•

1965-1969											
	1F	1E	1D	1C	1B	1A	1NK	TOTAL			
1	.	.	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.	.	.
3	.	.	.	.	.	.	.	.	.	.	.
4	.	.	.	.	.	.	.	.	.	.	.
5	.	.	.	.	.	.	.	.	.	.	.
6	.	.	.	.	.	.	.	.	.	.	.
7	.	.	.	.	.	.	.	.	.	.	.
8	.	.	.	.	.	.	.	.	.	.	.
9	.	.	.	.	.	.	.	.	.	.	.
10	.	.	.	.	.	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.	.	.
12	.	.	.	.	.	.	.	.	.	.	.
NK	.	.	.	.	.	.	.	.	.	.	.
Total	.	.	.	.	.	.	.	.	.	.	.
1970-1974											
	1F	1E	1D	1C	1B	1A	1NK	TOTAL			

1980-1984								1985-1989							
1F	1E	1D	1C	1B	1A	1NK	TOTAL	1F	1E	1D	1C	1B	1A	1NK	TOTAL
1	○	+	+	○	○	○	◆	1	○	○	+	○	○	○	◆
2	○	○	○	○	○	○	○	2	○	○	○	○	○	○	○
3	○	○	○	○	○	○	○	3	○	○	○	○	○	○	○
4	○	○	○	○	○	○	○	4	○	○	○	○	○	○	○
5	○	○	○	○	○	○	○	5	○	○	○	○	○	○	○
6	○	○	○	○	○	○	○	6	○	○	○	○	○	○	○
7	○	○	○	○	○	○	○	7	○	○	○	○	○	○	○
8	○	○	○	○	○	○	○	8	○	○	○	○	○	○	○
9	○	○	○	○	○	○	○	9	○	○	○	○	○	○	○
10	○	○	○	○	○	○	○	10	○	○	○	○	○	○	○
11	○	○	○	○	○	○	○	11	○	○	○	○	○	○	○
12	○	○	○	○	○	○	○	12	○	○	○	○	○	○	○
NK	○	○	○	○	○	○	○	NK	○	○	○	○	○	○	○
Total	○	○	○	○	○	○	○	Total	○	○	○	○	○	○	○

temporal distribution showed the opposite trend spreading fishing throughout the year. There was also a gradual changing from the formerly best period (May–September) to become a low-catch period from 1971. At the same time the Portuguese dory fishery and the Faroese and Norwegian long-line fishery decreased abruptly and nearly ceased after 1977. French trawlers also left the area after 1972. The remaining trawlers (the FRG, Norway and Spain) seemed to be those well acquainted with fishing during winter and spring, when shoals of spawning cod are formed on the western slopes of the southern West Greenland banks.

The unspecified catches were relatively low in this period, and from 1974 all reported catches were broken down by Division and month.

The period 1977–95 (and maybe further on) shows some temporary improvement in total catch as a consequence of recruitment of a relatively good 1973 year-class. There was clear evidence that not all catches taken in 1977–80 were reported to official offices and hence not to ICNAF/NAFO (Anon., 1981; Horsted, MS 1981). The Scientific Council of NAFO used estimates of total catch for these four years for its stock assessment, but no attempt was made to describe the distribution of these extra catches.

The fishery by liners (except those from Greenland) virtually disappeared after 1977 leaving fishing operations to trawlers, mainly those from Germany, Norway and Spain (partly pair trawlers since 1968), and to some former long-liners now fishing with bottom gillnets. During 1984–87, catches were again very low, and for the years 1981 and 1986–87 the non-Greenlandic catches were only 417, 54 and 89 tons, respectively. For 1978–80 the catch was between 1 000 and 1 500 tons only. There were negligible or no catches in Div. 1A–1B. Div. 1C showed relatively good catches until 1982, thereafter virtually nothing. Even Div. 1D lost its relative importance from 1985, and nearly the entire offshore catch from then on was taken in Div. 1E–1F.

A new shift was also seen in the distribution between months. In 1978 and 1979 by far most of the (very low) total catch was taken in the first half of the year. The years 1980–83, especially 1982, showed relatively good catches in the first and last months of the year, i.e. during winter. There was a more even distribution in 1983–84, although mid-year showed a low-catch period in most years in this period. The recruitment to the fishable stock of the good 1984 year-class in 1988 seemed to spread fishing again over most of the year, but only temporarily.

It should be pointed out that the description of the distribution of the fisheries in the period after 1978 is based on very low annual catches. For 1978–80 (1 061, 1 521 and 1 024 tons, respectively), the description cannot be given much weight, and for 1981, 1986 and 1987 they are based on such low catches (see above) that a description seems meaningless. However, the southward displacement of the stock after 1982 is evidenced by groundfish surveys (Rätz, 1999).

Tables 6–9

TABLE 6a. Annual nominal catches of cod (tons) by small Greenland boats (below 50 GRT) at West Greenland, 1911–95, by NAFO Divisions where landed. (NK = Division not known.) * Figures for 1966–70 contain small amounts landed by long-liners of the 51–150 GRT tonnage class, and for 1968 also 129 tons caught by a trawler of the 151–500 GRT tonnage class are included. For 1987 figures are for all vessels.

Year	Div. F	1E	1D	1C	1B	1A	1NK	Total
1911			19				0	19
1912			5				0	5
1913			66				0	66
1914			60				0	60
1915			45	6	47		0	98
1916			103	24	66		0	193
1917			59	28	67		0	154
1918	169		140	26	106		0	441
1919	137	148	140	37	39		0	501
1920	95	23	187	32	117		0	454
1921	196	7	97	92	116		0	508
1922	158	40	144	178	82		0	602
1923	307	0	147	116	120		0	690
1924	267	1	221	223	131		0	843
1925	168	45	318	371	122		0	1024
1926	499	170	673	785	97		0	2224
1927	1027	305	982	974	282		0	3570
1928	1199	497	1153	888	426		0	4163
1929	2052	642	1335	1572	1479		0	7080
1930	2312	994	1681	2326	2208	137	0	9658
1931	2453	835	1520	2026	1905	315	0	9054
1932	3258	731	1042	2130	1713	358	0	9232
1933	2296	948	1148	1743	1799	304	0	8238
1934	3591	921	952	1473	2080	451	0	9468
1935	2466	670	769	1277	1870	524	0	7576
1936	2185	717	705	1199	2039	329	0	7174
1937	2061	496	854	1433	1982	135	0	6961
1938	1035	347	703	1406	1743	258	0	5492
1939	1430	431	896	1732	2256	416	0	7161
1940	1759	646	1061	1600	2478	482	0	8026
1941	1868	593	823	1473	3229	636	0	8622
1942	2733	1003	1332	2249	3831	879	0	12027
1943	2073	1134	1240	2016	5056	1507	0	13026
1944	2168	1198	1547	2355	4322	1795	0	13385
1945	2192	1474	1207	2844	4987	1585	0	14289
1946	2715	1139	1438	2871	5210	1889	0	15262
1947	4118	1658	2096	3323	5261	1573	0	18029
1948	4820	1652	1657	3756	5660	1130	0	18675
1949	3140	2151	2110	3666	4580	1403	0	17050
1950	4383	2278	2357	4140	6358	1657	0	21173
1951	3605	2101	2571	3324	5322	1277	0	18200
1952	4078	2216	2437	2906	4443	646	0	16726
1953	4261	3093	5513	3662	5030	1092	0	22651
1954	3418	1773	3275	3118	6164	950	0	18698
1955	3614	2773	4061	3225	5523	591	0	19787
1956	3586	3292	5127	3175	5373	475	0	21028
1957	5251	4380	5257	3282	6146	277	0	24593
1958	6450	3975	5456	3724	6178	19	0	25802
1959	6570	3767	5009	5590	6404	237	0	27577
1960	6610	3626	3614	6230	6741	188	0	27009
1961	9709	6182	4178	6726	6569	601	0	33965
1962	11525	5638	3824	6269	7809	315	0	35380

TABLE 6a. (Continued). Annual nominal catches of cod (tons) by small Greenland boats (below 50 GRT) at West Greenland, 1911–95, by NAFO Divisions where landed. (NK – Division not known.) * Figures for 1966–70 contain small amounts landed by long-liners of the 51–150 GRT tonnage class, and for 1968 also 129 tons caught by a trawler of the 151–500 GRT tonnage class are included. For 1987 figures are for all vessels.

Year	Div. F	1E	1D	1C	1B	1A	1NK	Total
1963	9037	3078	2804	3178	4877	295	0	23269
1964	4981	2206	8766	2447	3311	275	0	21986
1965	5447	2477	6046	4818	5209	325	0	24322
1966	4799	2335	7022	5669	8738	483	0	29046
1967	6132	2429	6747	6248	5658	310	0	27524
1968	7207	2837	6123	2738	1669	142	0	20716
1969	5568	2017	7540	4287	1767	57	0	21236
1970	5654	2424	3661	2219	1469	136	0	15563
1971	3933	1698	3802	2011	1807	255	0	13506
1972	3696	1533	3973	3328	1855	263	0	14648
1973	1581	1614	3682	1225	1362	158	0	9622
1974	1593	1628	2588	1449	926	454	0	8638
1975	1140	964	1269	1930	1038	216	0	6557
1976	831	1367	904	1224	644	204	0	5174
1977	4231	3521	2946	2505	580	216	0	13999
1978	7244	4642	2614	3244	1587	348	0	19679
1979	15201	9609	6378	2201	1768	433	0	35590
1980	14852	10647	7781	2269	2303	719	0	38571
1981	11505	7711	6119	3599	2810	281	7678	39703
1982	3621	4536	7186	3176	2448	206	5491	26664
1983	2500	5016	7330	3640	2803	148	7205	28642
1984	1333	1149	5414	1889	3908	175	6090	19958
1985	1245	1178	1976	957	2936	149	0	8441
1986	1268	1456	1209	255	1038	76	0	5302
1987	1678	4560	8110	536	2995	97	510	18486
1988	4484	3346	2992	1342	6294	333	0	18791
1989	4676	10845	8212	5671	8491	634	0	38529
1990	5241	1917	9826	1482	9857	476	0	28799
1991	4007	1089	2782	917	8641	876	0	18312
1992	450	239	1070	563	2710	695	0	5727
1993	109	19	970	168	327	333	0	1926
1994							2115	2115
1995							1710	1710

Note: Annual nominal catches of cod by Greenland summarized by NAFO Division and month are available from NAFO Secretariat (see also www.nafo.ca under statistics).

TABLE 6b. Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) (see text to Table 6a) by NAFO Divisions and months, 1952–93. NK Division/month not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
Catches not broken down by month.									
1952	NK	4078	2216	2437	2906	4443	646		16726
	Total	4078	2216	2437	2906	4443	646	0	16726
Catches not broken down by month.									
1953	NK	4261	3093	5513	3662	5030	1092		22651
	Total	4261	3093	5513	3662	5030	1092	0	22651

TABLE 6b. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) (see text to Table 6a) by NAFO Divisions and months, 1952–93. NK Division/month not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
Catches not broken down by month.									
1954	NK	3418	1773	3275	3118	6164	950		18698
	Total	3418	1773	3275	3118	6164	950	0	18698
Catches not broken down by month.									
1955	NK	3614	2773	4061	3225	5523	591		19787
	Total	3614	2773	4061	3225	5523	591	0	19787
1956	5	145	211	1132	183	37			1708
	6	266	481	930	355	266			2298
	7	962	904	481	828	787	10		3972
	8	893	748	126	669	2473	257		5166
	9	658	518	227	361	1510	108		3382
	10	366	267	144	389	225	100		1491
	11	184	76	18	228	49			555
	12	67	38	426	63	18			612
	NK	45	49	1643	99	8			1844
	Total	3586	3292	5127	3175	5373	475	0	21028
1957	1								0
	2	27		334	8				369
	3	24		460	4				488
	4	45	16	320	3				384
	5	302	352	1420	107	35			2216
	6	636	742	741	439	361			2919
	7	1398	1340	565	891	988	53		5235
	8	1051	911	321	994	2774	113		6164
	9	815	683	524	518	1479	108		4127
	10	543	197	195	227	389	3		1554
	11	276	95	128	63	96			658
	12	134	44	249	28	24			479
	NK								
	Total	5251	4380	5257	3282	6146	277	0	24593
1958	1	81		65					146
	2	81	2	68					151
	3	109	6	219					334
	4	117	21	400	32				570
	5	424	228	1286	97	21			2056
	6	904	458	1574	559	301			3796
	7	1377	980	629	1205	1449			5640
	8	1306	1168	424	923	2936	8		6765
	9	860	458	232	369	974	6		2899
	10	482	275	222	369	422	5		1775
	11	379	251	186	134	60			1010
	12	330	128	151	36	15			660
	NK								0
	Total	6450	3975	5456	3724	6178	19	0	25802

TABLE 6b. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) (see text to Table 6a) by NAFO Divisions and months, 1952–93. NK Division/month not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1959	1	83	113	141	8				345
	2	76	76	99					251
	3	129	15	89	2				235
	4	227	55	358	127				767
	5	267	493	1947	411	159			3277
	6	1539	620	993	940	488			4580
	7		865	486	1886	1750	63		5050
	8	1479	761	321	1262	2565	100		6488
	9	1198	289	147	428	1071	71		3204
	10	1016	230	165	327	302	3		2043
	11	317	193	133	86	66			795
	12	239	57	130	113	3			542
	NK								0
	Total	6570	3767	5009	5590	6404	237	0	27577
1960	1	110	47	69	19				245
	2	154	2	65					221
	3	143		37	3				183
	4	254	79	193	86				612
	5	489	473	904	795	115			2776
	6	614	748	935	1139	502			3938
	7	1006	617	525	1471	1679	3		5301
	8	919	469	247	1461	2659	67		5822
	9	1176	411	254	446	1098	104		3489
	10	643	353	225	395	518	14		2148
	11	681	262	84	253	154			1434
	12	421	165	76	162	16			840
	NK								0
	Total	6610	3626	3614	6230	6741	188	0	27009
1961	1	248	50	37	13				348
	2	348	63	78	11				500
	3	289	73	92	6				460
	4	436	386	337	96	3			1258
	5	1230	951	1390	706	230			4507
	6	1571	1393	782	1620	967			6333
	7	1338	1396	462	2072	1750	103		7121
	8	1359	758	314	1231	2122	186		5970
	9	1206	306	276	407	965	231		3391
	10	624	332	146	352	437	79		1970
	11	569	306	154	102	71	2		1204
	12	491	168	110	110	24			903
	NK								0
	Total	9709	6182	4178	6726	6569	601	0	33965
1962	1	327	58	49	3				437
	2	149	10	31	2				192
	3	421	149	87	39				696
	4	543	492	288	138	10			1471
	5	1722	1259	1059	816	379			5235
	6	1450	1346	731	1740	1722			6989
	7	1802	693	739	1534	1868	20		6656

TABLE 6b. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) (see text to Table 6a) by NAFO Divisions and months, 1952–93. NK Division/month not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1962	8	2048	662	204	1341	2187	147		6589
	9	1373	462	188	311	1156	110		3600
	10	655	275	260	212	455	36		1893
	11	564	141	136	63	27	2		933
	12	471	91	52	70	5			689
	NK								0
	Total	11525	5638	3824	6269	7809	315	0	35380
1963	1	193	24	36	3				256
	2	107	7	11					125
	3	303	6	5	3				317
	4	686	80	61	59				886
	5	1671	529	519	374	47			3140
	6	1664	784	539	1072	478			4537
	7	1352	652	467	670	1168	2		4311
	8	1229	393	144	511	1936	127		4340
	9	620	214	37	137	1135	135		2278
	10	616	44	26	124	96	31		937
	11	501	309	52	123	15			1000
	12	95	36	16	102	2			251
	NK			891					891
	Total	9037	3078	2804	3178	4877	295	0	23269
1964	1	121	7	81	5				214
	2	47	5	67					119
	3	63	4	23	1				91
	4	110	59	100	32	8			309
	5	704	517	835	309	30			2395
	6	510	520	1908	934	730			4602
	7	826	248	2202	721	897	31		4925
	8	1409	512	2392	193	844	179		5529
	9	426	70	847	101	650	59		2153
	10	210	8	101	29	137	6		491
	11	343	173	104	32	15			667
	12	212	83	106	90				491
	NK								0
	Total	4981	2206	8766	2447	3311	275	0	21986
1965	1	78	22	177	12				289
	2	49	1	55	2				107
	3	77	35	165	41				318
	4	129	18	220	83	2			452
	5	925	188	1027	580	123			2843
	6	691	508	697	1132	776			3804
	7	898	694	1126	777	1464	45		5004
	8	786	454	538	580	1490	110		3958
	9	484	54	466	280	788	143		2215
	10	532	184	583	498	409	27		2233
	11	426	165	542	427	139			1699
	12	372	154	450	406	18			1400
	NK								0
	Total	5447	2477	6046	4818	5209	325	0	24322

TABLE 6b. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) (see text to Table 6a) by NAFO Divisions and months, 1952–93. NK Division/month not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1966	1	139	43	620	123				925
	2	63	13	413	30				519
	3	154	27	315	165				661
	4	244	39	337	232	9			861
	5	539	207	1042	504	307			2599
	6	770	871	1159	1254	1502			5556
	7	573	643	823	969	2347	39		5394
	8	733	246	747	864	2414	261		5265
	9	393	78	522	253	1386	131		2763
	10	476	53	455	346	508	52		1890
	11	337	26	272	422	166			1223
	12	378	89	317	507	99			1390
	NK								0
	Total	4799	2335	7022	5669	8738	483	0	29046
1967	1	198	120	590	379	38			1325
	2	151	38	116	147				452
	3	109	35	188	13				345
	4	66	27	279	69				441
	5	450	238	948	757	55			2448
	6	935	401	1508	1529	796			5169
	7	1199	755	1069	1262	1619	17		5921
	8	1053	455	595	759	1603	159		4624
	9	619	50	226	172	824	90		1981
	10	653	68	348	368	492	38		1967
	11	393	102	319	281	138	6		1239
	12	306	140	561	512	93			1612
	NK								0
	Total	6132	2429	6747	6248	5658	310	0	27524
1968	1	127	25	341	99	1			593
	2	75	9	101	20				205
	3	45	7	119	1	7			179
	4	60	36	113	37	1			247
	5	459	368	1471	256	9			2563
	6	893	655	1754	673	121			4096
	7	1164	1050	1206	862	324			4606
	8	1483	255	341	248	564	63		2954
	9	1300	57	263	92	313	53		2078
	10	730	104	138	138	245	26		1381
	11	558	178	185	62	74			1057
	12	313	93	91	250	10			757
	NK								0
	Total	7207	2837	6123	2738	1669	142	0	20716
1969	1	58	20	20	143				241
	2	46	8	25	51				130
	3	51	8	7	7				73
	4	57	22	13	33		1		126
	5	114	49	142	235	1	1		542
	6	823	69	528	1157	173			2750

TABLE 6b. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) (see text to Table 6a) by NAFO Divisions and months, 1952–93. NK Division/month not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1969	7	1342	433	277	1464	420			3936
	8	1787	1171	579	973	637	35		5182
	9	489	92	218	59	382	15		1255
	10	398	44	119	27	131	4		723
	11	263	46	96	34	21	1		461
	12	140	55	106	48	2			351
	NK			5410	56				5466
	Total	5568	2017	7540	4287	1767	57	0	21236
1970	1	105	65	7	38				215
	2	44	5	6					55
	3	22	2	1					25
	4	20		7			1		28
	5	10	30	8	41		1		90
	6	291	67	49	392	94			893
	7	1414	235	445	699	522			3315
	8	1655	1041	627	282	571	54		4230
	9	1022	800	140	574	191	74		2801
	10	574	89	94	90	79	6		932
	11	302	64	48	6	12			432
	12	195	26	15	46				282
	NK			2214	51				2265
	Total	5654	2424	3661	2219	1469	136	0	15563
1971	1	71	3	9					83
	2	7		3					10
	3	10					1		11
	4	15		1		4			20
	5	9	22	5	19				55
	6	146	11	23	268	588			1036
	7	714	501	165	1145	776	3		3304
	8	1598	573	143	324	311	138		3087
	9	616	456	80	46	76	81		1355
	10	394	66	44	12	48	32		596
	11	234	53	25	5	4			321
	12	119	13	3	15				150
	NK			3301	177				3478
	Total	3933	1698	3802	2011	1807	255	0	13506
Catches not broken down by month.									
1972	NK	3696	1533	3973	3328	1855	263		14648
	Total	3696	1533	3973	3328	1855	263	0	14648
1973	1	4				5			9
	2								0
	3			5		2	5		12
	4	6		363	1	2	2		374
	5	33		419	24	138	1		615
	6	38	20	260	109	376	1		804
	7	280	797	1055	306	463	17		2918
	8	550	497	968	203	272	44		2534

TABLE 6b. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) (see text to Table 6a) by NAFO Divisions and months, 1952–93. NK Division/month not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1973	9	346	205	195	106	56	66		974
	10	186		316	23	47	21		593
	11	104		93	53		1		251
	12	34	95	8	1	1			139
	NK				399				399
	Total	1581	1614	3682	1225	1362	158	0	9622
1974	1	10		2		2	15		29
	2	2		1		6	8		17
	3	1		1		2	7		11
	4	1	2	5	2	1	9		20
	5	38	4	24	69	34	6		175
	6	15	51	19	270	383	6		744
	7	66	800	60	476	298	48		1748
	8	545	571		179	136	129		1560
	9	523	31	7	50	32	101		744
	10	230		11	30	16	50		337
	11	114	8	8	5	11	52		198
	12	48	5	3		5	23		84
	NK		156	2447	368				2971
	Total	1593	1628	2588	1449	926	454	0	8638
1975	1	28		4	1		3		36
	2	6	1	3	2		6		18
	3	2		2	5		6		15
	4	16		35	6	43	6		106
	5	37	12	170	139	40	1		399
	6	21	31	71	445	575	2		1145
	7	155	235	65	505	310	27		1297
	8	366	239	23	119	29	92		868
	9	190	16	4	62	16	32		320
	10	198	9	6	21	17	31		282
	11	100	8	9	5	5	10		137
	12	21	1	6	2	1			31
	NK		412	871	618	2			1903
	Total	1140	964	1269	1930	1038	216	0	6557
1976	1	1		2					3
	2			2	1		3		6
	3		1	2	1	4	4		12
	4	1	1	18	1	9	3		33
	5	7	23	74	10	6	4		124
	6	37	127	88	162	90	1		505
	7	95	538	45	525	405	44		1652
	8	189	162	37	225	91	62		766
	9	262	310	9	46	11	38		676
	10	127	43	6	29	7	32		244
	11	49		4	5	5	8		71
	12	63	11	6	2	16	5		103
	NK		151	611	217				979
	Total	831	1367	904	1224	644	204	0	5174

TABLE 6b. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) (see text to Table 6a) by NAFO Divisions and months, 1952–93. NK Division/month not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1977	1	7	1	1			2		11
	2	5		6	3	1	1		16
	3	11	1	3		1	3		19
	4	12	3	16			2		33
	5	185	270	23	387	45	1		911
	6	357	293	55	549	234	5		1493
	7	667	1370	38	780	170	46		3071
	8	1214	500	12	364	82	52		2224
	9	882	138	4	66	14	50		1154
	10	365	131	10	16	12	43		577
	11	240	18	1	2	6	7		274
	12	286				10	4		300
	NK		796	2777	338	5			3916
Total		4231	3521	2946	2505	580	216	0	13999
1978	1	55		3					58
	2	71		1			3		75
	3	32		5	32	2	6		77
	4	88		24	4	3	1		120
	5	319		41	99	304	1		764
	6	545	220	51	932	639	6		2393
	7	1525	1651	63	1567	490	116		5412
	8	1914	928	49	205	83	117		3296
	9	1128	722	21	115	18	39		2043
	10	428	40	21	22	21	43		575
	11	339	29	7	4	19	16		414
	12	661	43	8	2	3			717
	NK	139	1009	2320	262	5			3735
Total		7244	4642	2614	3244	1587	348	0	19679
1979	1	292	4	10	256	2			564
	2	185		5		5	1		196
	3	372	1	5		63	1		442
	4	566	91	44		93	11		805
	5	1654	1010	77		214	33		2988
	6	1169	1350	42	399	505	39		3504
	7	2597	2248	19	398	620	150		6032
	8	3101	2418	17	172	136	75		5919
	9	1548		8	279	38	50		1923
	10	1127	666	23	344	53	59		2272
	11	1029	276	18	26	19	14		1382
	12	298	71	5	1	13			388
	NK	1263	1474	6105	326	7			9175
Total		15201	9609	6378	2201	1768	433	0	35590
1980	1	149	18	7	6	22			202
	2	147	18	15	15	30	1		226
	3	176		32	7	22	25		262
	4	170		80	5	33	13		301
	5	341	275	85	103	337	88		1229
	6	750	365	58	534	883	218		2808

TABLE 6b. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) (see text to Table 6a) by NAFO Divisions and months, 1952–93. NK Division/month not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1980	7	3947	1754	42	608	669	174		7194
	8	2768	1873	21	368	77	61		5168
	9	1829	750	27	235	38	44		2923
	10	1118	501	41	78	78	50		1866
	11	1503	216	12	36	59	31		1857
	12	834	35	3	14	29	14		929
	NK	1120	4842	7358	260	26			13606
	Total	14852	10647	7781	2269	2303	719	0	38571
1981	1	169		2	6	3	1		181
	2	194		1	4	4	1		204
	3	247	20	21	230	6	5		529
	4	154		69	48	35	5		311
	5	234	17	111	57	322	2		743
	6	746	25	161	965	1408	77		3382
	7	774	643	26	1208	838	68		3557
	8	3042	1936	6	514	80	42		5620
	9	1589	422	8	171	19	16		2225
	10	1029	187	43	146	42	34		1481
	11	861	79	13	230	46	20		1249
	12	207	9	5	12	7	10		250
	NK	2259	4373	5653	8			7678	19971
	Total	11505	7711	6119	3599	2810	281	7678	39703
1982	1	23		15	204	1			243
	2	1		18		5	1		25
	3	86	98	20			6		210
	4	108	93	38		12	12		263
	5	39	173	207	35	50	4		508
	6	205	8	459	527	491	1		1691
	7	83	145	1553	524	951	29		3285
	8	476	2473	1539	670	265	51		5474
	9	874	960	1579	274	204	28		3919
	10	921	270	801	334	393	27		2746
	11	731	270	561	334	62	43		2001
	12	59	46	41	4	14	4		168
	NK	15		355	270			5491	6131
	Total	3621	4536	7186	3176	2448	206	5491	26664
1983	1		18			8	1		27
	2	1				13	2		16
	3		75		1	2	3		81
	4	3	113		6	16	3		141
	5	2	52		31	55	1		141
	6	191	53		617	648			1509
	7	244	344		752	1412	18		2770
	8	198	2094	606	619	423	21		3961
	9	724	1736	1269	584	108	32		4453
	10	718	322	606	689	64	42		2441
	11	241	189	142	325	47	25		969
	12	28	20		15	6			69
	NK	150		4807	1	1		7205	12164
	Total	2500	5016	7430	3640	2803	148	7205	28742

TABLE 6b. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) (see text to Table 6a) by NAFO Divisions and months, 1952–93. NK Division/month not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1984	1			1	2	25			28
	2	5		3	1	32			41
	3	6		5	8	27	1		47
	4			14	29	61	1		105
	5		1	349	38	138	1		527
	6	51	15	637	211	1052	1		1967
	7	103	63	670	615	2042	7		3500
	8	22	35	970	56	229	20		1332
	9	112	378	2261	158	54	28		2991
	10	528	283	432	250	78	70		1641
	11	469	257	60	519	76	41		1422
	12	37	117	11	2	26	5		198
	NK			1		68		6090	6159
	Total	1333	1149	5414	1889	3908	175	6090	19958
1985	1	2	1	9	3	20	7		42
	2	22		16	7	29	1		75
	3	7		6	12	47			72
	4	21		56	27	57	3		164
	5	80	10	173	210	233	1		707
	6	40	19	207	330	1228	8		1832
	7	55	57	210	118	782	30		1252
	8	101	406	609	9	41	15		1181
	9	530	449	408	30	48	23		1488
	10	279	159	246	135	45	29		893
	11	90	77	24	71	85	26		373
	12	6		12	5	53	6		82
	NK	12				268			280
	Total	1245	1178	1976	957	2936	149	0	8441
1986	1	2		7	2	35			46
	2	6		38	2	2			48
	3	7	18	74	3	2	3		107
	4	14	62	75	7	31	7		196
	5	32	19	102	26	61	1		241
	6	50	54	69	78	280	3		534
	7	82	185	293	53	384	4		1001
	8	61	87	190	6	62	5		411
	9	545	251	79	9	18	10		912
	10	328	318	102	20	52	20		840
	11	110	246	168	29	66	23		642
	12	26	216	12	1	37			292
	NK	5			19	8			32
	Total	1268	1456	1209	255	1038	76	0	5302
Catches not broken down by month.									
1987	NK	1678	4560	8110	536	2995	97	510	18486
	Total	1678	4560	8110	536	2995	97	510	18486

TABLE 6b. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) (see text to Table 6a) by NAFO Divisions and months, 1952–93. NK Division/month not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1988	1	14	4	3	1	54			76
	2	8	48	11		13	1		81
	3	40	36	14		12			102
	4	173	77	46	1	4	2		303
	5	939	764	593	80	237	2		2615
	6	916	754	744	543	1614	47		4618
	7	929	625	885	338	2462	62		5301
	8	1012	593	466	164	442	57		2734
	9	234	296	105	81	439	44		1199
	10	125	58	101	54	347	44		729
	11	77	77	20	66	438	58		736
	12	17	14	4	14	232	16		297
	NK								0
	Total	4484	3346	2992	1342	6294	333	0	18791
1989	1	56	292	707	402	15	1		1473
	2	4	273	1131	354	34	10		1806
	3	34	13	1035	1	33	5		1121
	4	78	338	1165	238	25	2		1846
	5	528	805	710	702	932	7		3684
	6	908	692	316	1360	2550	67		5893
	7	1156	1226	762	828	2879	278		7129
	8	935	2646	790	721	589	123		5804
	9	298	2373	656	518	360	42		4247
	10	51	1121	828	385	590	82		3057
	11	544	202	51	71	416	16		1300
	12	84	864	61	91	68	1		1169
	NK								0
	Total	4676	10845	8212	5671	8491	634	0	38529
1990	1	7	18	217	6	12	12		272
	2	8	111	300	9	28			456
	3	192	8	780	5	65	2		1052
	4	6	14	1122	2	62			1206
	5	129	27	1839	49	272	5		2321
	6	1059	153	2350	406	3291	14		7273
	7	1397	483	861	559	3486	10		6796
	8	1569	590	630	231	762	66		3848
	9	297	388	632	94	328	58		1797
	10	288	94	327	63	734	140		1646
	11	264	23	430	42	640	108		1507
	12	25	8	338	16	177	61		625
	NK								0
	Total	5241	1917	9826	1482	9857	476	0	28799
1991	1	46		3	10	13	3		75
	2	31		1	1	29	3		65
	3	47	3	134		28	16		228
	4	103	38	174	1	53	10		379
	5	1689	207	681	19	560	7		3163
	6	1120	345	1109	298	1959	10		4841
	7	515	138	370	346	2782	194		4345

TABLE 6b. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) (see text to Table 6a) by NAFO Divisions and months, 1952–93. NK Division/month not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1991	8	169	155	89	89	1814	47		2363
	9	57	121	77	24	190	125		594
	10	93	36	73	29	468	175		874
	11	103	28	50	71	520	222		994
	12	34	18	21	29	225	64		391
	NK								0
	Total	4007	1089	2782	917	8641	876	0	18312
1992	1	9	3	19	6		4		41
	2	16	4	11		1	10		42
	3	6	10	1	1	13	3		34
	4	4	6	13	4	18	6		51
	5	79	66	214	2	107	5		473
	6	88	38	218	41	599	13		997
	7	80	46	376	286	865	144		1797
	8	118	36	87	108	463	165		977
	9	21	16	22	25	192	183		459
	10	13	3	59	45	290	104		514
	11	14	10	35	28	149	41		277
	12	2	1	15	17	13	17		65
	NK								0
	Total	450	239	1070	563	2710	695	0	5727
1993	1					16	31		47
	2	1				1	20		22
	3						6		6
	4			2		1	3		6
	5	1		30	1	3	5		40
	6	58	7	371	37	118	19		610
	7	27	8	297	66	98	87		583
	8	10	2	118	29	20	51		230
	9	4	1	41	7	10	46		109
	10	6		64	20	24	57		171
	11	2	1	44	6	24	8		85
	12			2	1	10			13
	NK			1	1	2			4
	Total	109	19	970	168	327	333	0	1926

TABLE 6c. Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) by NAFO Divisions and months, 1952–93, given as per thousand of each year's total for these boats (corresponds to Table 6b). – Monthly catch, if any, not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
Catches not broken down by month.									
1952	NK	244	132	146	174	266	39		1000
	Total	244	132	146	174	266	39	0	1000

TABLE 6c. (Continued) Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) by NAFO Divisions and months, 1952–93, given as per thousand of each year's total for these boats (corresponds to Table 6b). – Monthly catch, if any, not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
Catches not broken down by month.									
1953	NK	188	137	243	162	222	48		1000
	Total	188	137	243	162	222	48	0	1000

Catches not broken down by month.									
1954	NK	183	95	175	167	330	51		1000
	Total	183	95	175	167	330	51	0	1000

Catches not broken down by month.									
1955	NK	183	140	205	163	279	30		1000
	Total	183	140	205	163	279	30	0	1000

1956	1					0	0		0
	2					0	0		0
	3					0	0		0
	4					0	0		0
	5	7	10	54	9	2	0		81
	6	13	23	44	17	13	0		109
	7	46	43	23	39	37	0		189
	8	42	36	6	32	118	12		246
	9	31	25	11	17	72	5		161
	10	17	13	7	18	11	5		71
	11	9	4	1	11	2	0		26
	12	3	2	20	3	1	0		29
	NK	2	2	78	5	0	0		88
	Total	171	157	244	151	256	23	0	1000

1957	1	0	0	0	0	0	0		0
	2	1	0	14	0	0	0		15
	3	1	0	19	0	0	0		20
	4	2	1	13	0	0	0		16
	5	12	14	58	4	1	0		90
	6	26	30	30	18	15	0		119
	7	57	54	23	36	40	2		213
	8	43	37	13	40	113	5		251
	9	33	28	21	21	60	4		168
	10	22	8	8	9	16	0		63
	11	11	4	5	3	4	0		27
	12	5	2	10	1	1	0		19
	NK	0	0	0	0	0	0		0
	Total	214	178	214	133	250	11	0	1000

1958	1	3	0	3	0	0	0		6
	2	3	0	3	0	0	0		6
	3	4	0	8	0	0	0		13
	4	5	1	16	1	0	0		22
	5	16	9	50	4	1	0		80
	6	35	18	61	22	12	0		147

TABLE 6c. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) by NAFO Divisions and months, 1952–93, given as per thousand of each year's total for these boats (corresponds to Table 6b). – Monthly catch, if any, not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1958	7	53	38	24	47	56	0		219
	8	51	45	16	36	114	0		262
	9	33	18	9	14	38	0		112
	10	19	11	9	14	16	0		69
	11	15	10	7	5	2	0		39
	12	13	5	6	1	1	0		26
	NK	0	0	0	0	0	0		0
	Total	250	154	211	144	239	1	0	1000
1959	1	3	4	5	0	0	0		13
	2	3	3	4	0	0	0		9
	3	5	1	3	0	0	0		9
	4	8	2	13	5	0	0		28
	5	10	18	71	15	6	0		119
	6	56	22	36	34	18	0		166
	7	0	31	18	68	63	2		183
	8	54	28	12	46	93	4		235
	9	43	10	5	16	39	3		116
	10	37	8	6	12	11	0		74
	11	11	7	5	3	2	0		29
	12	9	2	5	4	0	0		20
	NK	0	0	0	0	0	0		0
	Total	238	137	182	203	232	9	0	1000
1960	1	4	2	3	1	0	0		9
	2	6	0	2	0	0	0		8
	3	5	0	1	0	0	0		7
	4	9	3	7	3	0	0		23
	5	18	18	33	29	4	0		103
	6	23	28	35	42	19	0		146
	7	37	23	19	54	62	0		196
	8	34	17	9	54	98	2		216
	9	44	15	9	17	41	4		129
	10	24	13	8	15	19	1		80
	11	25	10	3	9	6	0		53
	12	16	6	3	6	1	0		31
	NK	0	0	0	0	0	0		0
	Total	245	134	134	231	250	7	0	1000
1961	1	7	1	1	0	0	0		10
	2	10	2	2	0	0	0		15
	3	9	2	3	0	0	0		14
	4	13	11	10	3	0	0		37
	5	36	28	41	21	7	0		133
	6	46	41	23	48	28	0		186
	7	39	41	14	61	52	3		210
	8	40	22	9	36	62	5		176
	9	36	9	8	12	28	7		100
	10	18	10	4	10	13	2		58
	11	17	9	5	3	2	0		35
	12	14	5	3	3	1	0		27

TABLE 6c. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) by NAFO Divisions and months, 1952–93, given as per thousand of each year's total for these boats (corresponds to Table 6b). – Monthly catch, if any, not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
NK	0	0	0	0	0	0		0	
	Total	286	182	123	198	193	18	0	1000
<hr/>									
1962	1	9	2	1	0	0	0		12
	2	4	0	1	0	0	0		5
	3	12	4	2	1	0	0		20
	4	15	14	8	4	0	0		42
	5	49	36	30	23	11	0		148
	6	41	38	21	49	49	0		198
	7	51	20	21	43	53	1		188
	8	58	19	6	38	62	4		186
	9	39	13	5	9	33	3		102
	10	19	8	7	6	13	1		54
	11	16	4	4	2	1	0		26
	12	13	3	1	2	0	0		19
	NK	0	0	0	0	0	0		0
	Total	326	159	108	177	221	9	0	1000
<hr/>									
1963	1	8	1	2	0	0	0		11
	2	5	0		0	0	0		5
	3	13	0		0	0	0		14
	4	29	3	3	3	0	0		38
	5	72	23	22	16	2	0		135
	6	72	34	23	46	21	0		195
	7	58	28	20	29	50	0		185
	8	53	17	6	22	83	5		187
	9	27	9	2	6	49	6		98
	10	26	2	1	5	4	1		40
	11	22	13	2	5	1	0		43
	12	4	2	1	4	0	0		11
	NK	0	0	38	0	0	0		38
	Total	388	132	121	137	210	13	0	1000
<hr/>									
1964	1	6	0	4	0	0	0		10
	2	2	0	3	0	0	0		5
	3	3	0	1	0	0	0		4
	4	5	3	5	1	0	0		14
	5	32	24	38	14	1	0		109
	6	23	24	87	42	33	0		209
	7	38	11	100	33	41	1		224
	8	64	23	109	9	38	8		251
	9	19	3	39	5	30	3		98
	10	10	0	5	1	6	0		22
	11	16	8	5	1	1	0		30
	12	10	4	5	4	0	0		22
	NK	0	0	0	0	0	0		0
	Total	227	100	399	111	151	13	0	1000

TABLE 6c. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) by NAFO Divisions and months, 1952–93, given as per thousand of each year's total for these boats (corresponds to Table 6b). – Monthly catch, if any, not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1965	1	3	1	7	0	0	0		12
	2	2	0	2	0	0	0		4
	3	3	1	7	2	0	0		13
	4	5	1	9	3	0	0		19
	5	38	8	42	24	5	0		117
	6	28	21	29	47	32	0		156
	7	37	29	46	32	60	2		206
	8	32	19	22	24	61	5		163
	9	20	2	19	12	32	6		91
	10	22	8	24	20	17	1		92
	11	18	7	22	18	6	0		70
	12	15	6	19	17	1	0		58
	NK	0	0	0	0	0	0		0
Total		224	102	249	198	214	13	0	1000
1966	1	5	1	21	4	0	0		32
	2	2	0	14	1	0	0		18
	3	5	1	11	6	0	0		23
	4	8	1	12	8	0	0		30
	5	19	7	36	17	11	0		89
	6	27	30	40	43	52	0		191
	7	20	22	28	33	81	1		186
	8	25	8	26	30	83	9		181
	9	14	3	18	9	48	5		95
	10	16	2	16	12	17	2		65
	11	12	1	9	15	6	0		42
	12	13	3	11	17	3	0		48
	NK	0	0	0	0	0	0		0
Total		165	80	242	195	301	17	0	1000
1967	1	7	4	21	14	1	0		48
	2	5	1	4	5	0	0		16
	3	4	1	7	0	0	0		13
	4	2	1	10	3	0	0		16
	5	16	9	34	28	2	0		89
	6	34	15	55	56	29	0		188
	7	44	27	39	46	59	1		215
	8	38	17	22	28	58	6		168
	9	22	2	8	6	30	3		72
	10	24	2	13	13	18	1		71
	11	14	4	12	10	5	0		45
	12	11	5	20	19	3	0		59
	NK	0	0	0	0	0	0		0
Total		223	88	245	227	206	11	0	1000
1968	1	6	1	16	5	0	0		29
	2	4	0	5	1	0	0		10
	3	2	0	6	0	0	0		9
	4	3	2	5	2	0	0		12
	5	22	18	71	12	0	0		124
	6	43	32	85	32	6	0		198

TABLE 6c. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) by NAFO Divisions and months, 1952–93, given as per thousand of each year's total for these boats (corresponds to Table 6b). – Monthly catch, if any, not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1968	7	56	51	58	42	16	0		222
	8	72	12	16	12	27	3		143
	9	63	3	13	4	15	3		100
	10	35	5	7	7	12	1		67
	11	27	9	9	3	4	0		51
	12	15	4	4	12	0	0		37
	NK	0	0	0	0	0	0		0
	Total	348	137	296	132	81	7	0	1000
1969	1	3	1	1	7	0	0		11
	2	2	0	1	2	0	0		6
	3	2	0	0	0	0	0		3
	4	3	1	1	2	0	0		6
	5	5	2	7	11	0	0		26
	6	39	3	25	54	8	0		129
	7	63	20	13	69	20	0		185
	8	84	55	27	46	30	2		244
	9	23	4	10	3	18	1		59
	10	19	2	6	1	6	0		34
	11	12	2	5	2	1	0		22
	12	7	3	5	2	0	0		17
	NK	0	0	255	3	0	0		257
	Total	262	95	355	202	83	3	0	1000
1970	1	7	4		2	0	0		14
	2	3	0			0	0		4
	3	1	0			0	0		2
	4	1	0			0	0		2
	5	1	2	1	3	0	0		6
	6	19	4	3	25	6	0		57
	7	91	15	29	45	34	0		213
	8	106	67	40	18	37	3		272
	9	66	51	9	37	12	5		180
	10	37	6	6	6	5	0		60
	11	19	4	3		1	0		28
	12	13	2	1	3	0	0		18
	NK	0	0	142	3	0	0		146
	Total	363	156	235	143	94	9	0	1000
1971	1	5	0	1		0	0		6
	2	1	0			0	0		1
	3	1	0			0	0		1
	4	1	0			0	0		1
	5	1	2		1	0	0		4
	6	11	1	2	20	44	0		77
	7	53	37	12	85	57	0		245
	8	118	42	11	24	23	10		229
	9	46	34	6	3	6	6		100
	10	29	5	3	1	4	2		44
	11	17	4	2		0	0		24
	12	9	1		1	0	0		11

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1971	NK	0	0	244	13	0	0		258
	Total	291	126	282	149	134	19	0	1000

Catches not broken down by month.									
1972	NK	252	105	271	227	127	18		1000
	Total	252	105	271	227	127	18	0	1000

1973	1	0	0	0		1	0		1
	2	0	0	0		0	0		0
	3	0	0	1		0	1		1
	4	1	0	38		0	0		39
	5	3	0	44	2	14	0		64
	6	4	2	27	11	39	0		84
	7	29	83	110	32	48	2		303
	8	57	52	101	21	28	5		263
	9	36	21	20	11	6	7		101
	10	19	0	33	2	5	2		62
	11	11	0	10	6	0	0		26
	12	4	10	1		0	0		14
	NK	0	0	0	41	0	0		41
	Total	164	168	383	127	142	16	0	1000

1974	1	1				0	2		3
	2	0				1	1		2
	3	0				0	1		1
	4	0		1		0	1		2
	5	4		3	8	4	1		20
	6	2	6	2	31	44	1		86
	7	8	93	7	55	34	6		202
	8	63	66	-	21	16	15		181
	9	61	4	1	6	4	12		86
	10	27		1	3	2	6		39
	11	13	1	1	1	1	6		23
	12	6	1			1	3		10
	NK	0	18	283	43	0	0		344
	Total	184	188	300	168	107	53	0	1000

1975	1	4		1		0	0		5
	2	1				0	1		3
	3	0			1	0	1		2
	4	2		5	1	7	1		16
	5	6	2	26	21	6	0		61
	6	3	5	11	68	88	0		175
	7	24	36	10	77	47	4		198
	8	56	36	4	18	4	14		132
	9	29	2	1	9	2	5		49
	10	30	1	1	3	3	5		43
	11	15	1	1	1	1	2		21
	12	3		1		0	0		5
	NK	0	63	133	94	0	0		290
	Total	174	147	194	294	158	33	0	1000

TABLE 6c. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) by NAFO Divisions and months, 1952–93, given as per thousand of each year's total for these boats (corresponds to Table 6b). – Monthly catch, if any, not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1976	1	0				0	0		1
	2	0				0	1		1
	3	0				1	1		2
	4	0		3		2	1		6
	5	1	4	14	2	1	1		24
	6	7	25	17	31	17	0		98
	7	18	104	9	101	78	9		319
	8	37	31	7	43	18	12		148
	9	51	60	2	9	2	7		131
	10	25	8	1	6	1	6		47
	11	9		1	1	1	2		14
	12	12	2	1		3	1		20
	NK	0	29	118	42	0	0		189
	Total	161	264	175	237	124	39	0	1000
1977	1	1				0	0		1
	2	0				0	0		1
	3	1				0	0		1
	4	1		1		0	0		2
	5	13	19	2	28	3	0		65
	6	26	21	4	39	17	0		107
	7	48	98	3	56	12	3		219
	8	87	36	1	26	6	4		159
	9	63	10	0	5	1	4		82
	10	26	9	1	1	1	3		41
	11	17	1			0	1		20
	12	20				1	0		21
	NK	0	57	198	24	0	0		280
	Total	302	252	210	179	41	15	0	1000
1978	1	3				0	0		3
	2	4				0	0		4
	3	2			2	0	0		4
	4	4		1		0	0		6
	5	16		2	5	15	0		39
	6	28	11	3	47	32	0		122
	7	77	84	3	80	25	6		275
	8	97	47	2	10	4	6		167
	9	57	37	1	6	1	2		104
	10	22	2	1	1	1	2		29
	11	17	1			1	1		21
	12	34	2			0	0		36
	NK	7	51	118	13	0	0		190
	Total	368	236	133	165	81	18	0	1000
1979	1	8			7	0	0		16
	2	5				0	0		6
	3	10				2	0		12
	4	16	3	1		3	0		23
	5	46	28	2		6	1		84
	6	33	38	1	11	14	1		98

TABLE 6c. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) by NAFO Divisions and months, 1952–93, given as per thousand of each year's total for these boats (corresponds to Table 6b). – Monthly catch, if any, not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1979	7	73	63	1	11	17	4		169
	8	87	68		5	4	2		166
	9	43			8	1	1		54
	10	32	19	1	10	1	2		64
	11	29	8	1	1	1	0		39
	12	8	2			0	0		11
	NK	35	41	172	9	0	0		258
	Total	427	270	179	62	50	12	0	1000
1980	1	4				1	0		5
	2	4				1	0		6
	3	5		1		1	1		7
	4	4		2		1	0		8
	5	9	7	2	3	9	2		32
	6	19	9	2	14	23	6		734
	7	102	45	1	16	17	5		187
	8	72	49	1	10	2	2		134
	9	47	19	1	6	1	1		76
	10	29	13	1	2	2	1		48
	11	39	6		1	2	1		48
	12	22	1			1	0		24
	NK	29	126	191	7	1	0		353
	Total	385	276	201	59	60	19	0	1000
1981	1	4			0	0	0	-	5
	2	5			0	0	0	-	5
	3	6	1	1	6	0	0	-	13
	4	4		2	1	1	0	-	8
	5	6		3	1	8	0	-	19
	6	19	1	4	24	35	2	-	85
	7	19	16	1	30	21	2	-	90
	8	77	49		13	2	1	-	142
	9	40	11		4	0	0	-	56
	10	26	5	1	4	1	1	-	37
	11	22	2		6	1	1	-	31
	12	5			0	0	0	-	6
	NK	57	110	142	0	0	0	193	503
	Total	431	194	154	91	71	7	193	1000
1982	1	1	0	1	8	0	0	-	9
	2		0	1		0	0	-	1
	3	3	4	1		0	0	-	8
	4	4	3	1		0	0	-	10
	5	1	6	8	1	2	0	-	19
	6	8	0	17	20	18	0	-	63
	7	3	5	58	20	36	1	-	123
	8	18	93	58	25	10	2	-	205
	9	33	36	59	10	8	1	-	147
	10	35	10	30	13	15	1	-	103
	11	27	10	21	13	2	2	-	75
	12	2	2	2		1	0	-	6

TABLE 6c. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) by NAFO Divisions and months, 1952–93, given as per thousand of each year's total for these boats (corresponds to Table 6b). – Monthly catch, if any, not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1982	NK	1	0	13	10	0	0	206	230
	Total	136	170	270	119	92	8	206	1000
1983	1		1		0	0	0	-	1
	2		0		0	0	0	-	1
	3		3		0	0	0	-	3
	4		4		0	1	0	-	5
	5		2		1	2	0	-	5
	6	7	2		21	23	0	-	53
	7	8	12		26	49	1	-	96
	8	7	73	21	22	15	1	-	138
	9	25	60	44	20	4	1	-	155
	10	25	11	21	24	2	1	-	85
	11	8	7	5	11	2	1	-	34
	12	1	1		1	0	0	-	2
	NK	5	0	167	0	0	0	251	423
	Total	87	175	259	127	98	5	251	1000
1984	1	0	0	0	0	1	0		1
	2	0	0	0	0	2	0		2
	3	0	0	0	0	1	0		
	4	0	0	1	1	3	0		5
	5	0	0	17	2	7	0		26
	6	3	1	32	11	53	0		99
	7	5	3	34	31	102	0		175
	8	1	2	49	3	11	1		67
	9	6	19	113	8	3	1		150
	10	26	14	22	13	4	4		82
	11	23	13	3	26	4	2		71
	12	2	6	1	0	1	0		10
	NK	0	0	0	0	3	0	305	309
	Total	67	58	271	95	196	9	305	1000
1985	1		0	1	0	2	1		5
	2	3	0	2	1	3	0		9
	3	1	0	1	1	6	0		9
	4	2	0	7	3	7	0		19
	5	9	1	20	25	28	0		84
	6	5	2	25	39	145	1		217
	7	7	7	25	14	93	4		148
	8	12	48	72	1	5	2		140
	9	63	53	48	4	6	3		176
	10	33	19	29	16	5	3		106
	11	11	9	3	8	10	3		44
	12	1	0	1	1	6	1		10
	NK	1	0	0	0	32	0		33
	Total	147	140	234	113	348	18	0	1000

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1986	1		0	1		7	0		9
	2	1	0	7			0		9
	3	1	3	14			1		20
	4	3	12	14	1	6	1		37
	5	6	4	19	5	12	0		37
	6	9	10	13	16	53	1		101
	7	15	35	55	10	72	1		188
	8	12	16	36	1	12	1		78
	9	103	47	15	2	3	2		172
	10	62	60	19	4	10	4		158
	11	21	46	32	5	12	4		121
	12	5	41	2		7	0		55
	NK	1	0	0	4	2	0		1
Total		239	275	228	48	196	14	0	1000

Catches not broken down by month.									
1987	NK	91	247	439	29	162	5	28	1000
	Total	91	247	439	29	162	5	28	1000

1988	1	1	0	0	0	3	0		4
	2	0	3	1	0	1	0		4
	3	2	2	1	0	1	0		5
	4	9	4	2	0	0	0		16
	5	50	41	32	4	13	0		139
	6	49	40	40	29	86	3		246
	7	49	33	47	18	131	3		282
	8	54	32	25	9	24	3		145
	9	12	16	6	4	23	2		64
	10	7	3	5	3	18	2		39
	11	4	4	1	4	23	3		39
	12	1	1	0	1	12	1		16
	NK	0	0	0	0	0	0		0
Total		239	178	159	71	335	18	0	1000

1989	1	1	8	18	10	0	0		38
	2	0	7	29	9	1	0		47
	3	1	0	27	0	1	0		29
	4	2	9	30	6	1	0		48
	5	14	21	18	18	24	0		96
	6	24	18	8	35	66	2		153
	7	30	32	20	21	75	7		185
	8	24	69	21	19	15	3		151
	9	8	62	17	13	9	1		110
	10	1	29	21	10	15	2		79
	11	14	5	1	2	11	0		34
	12	2	22	2	2	2	0		30
	NK	0	0	0	0	0	0		0
Total		121	281	213	147	220	16	0	1000

TABLE 6c. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) by NAFO Divisions and months, 1952–93, given as per thousand of each year's total for these boats (corresponds to Table 6b). – Monthly catch, if any, not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1990	1	0	1	8	0	0	0		9
	2	0	4	10	0	1	0		16
	3	7	0	27	0	2	0		37
	4	0	0	39	0	2	0		42
	5	4	1	64	2	9	0		81
	6	37	5	82	14	114	0		253
	7	49	17	30	19	121	0		236
	8	54	20	22	8	26	2		134
	9	10	13	22	3	11	2		62
	10	10	3	11	2	25	5		57
	11	9	1	15	1	22	4		52
	12	1	0	12	1	6	2		2
	NK	0	0	0	0	0	0		0
	Total	182	67	341	51	342	17	0	1000
1991	1	3	0	0	1	1	0		4
	2	2	0	0	0	2	0		4
	3	3	0	7	0	2	1		12
	4	6	2	10	0	3	1		21
	5	92	11	37	1	31	0		173
	6	61	19	61	16	107	1		264
	7	28	8	20	19	152	11		237
	8	9	8	5	5	99	3		129
	9	3	7	4	1	10	7		32
	10	5	2	4	2	26	10		48
	11	6	2	3	4	28	12		54
	12	2	1	1	2	12	3		21
	NK	0	0	0	0	0	0		0
	Total	219	59	152	50	472	48	0	1000
1992	1	2	1	3	1	0	1		7
	2	3	1	2	0	0	2		7
	3	1	2	0	0	2	1		6
	4	1	1	2	1	3	1		9
	5	14	12	37	0	19	1		83
	6	15	7	38	7	105	2		174
	7	14	8	66	50	151	25		314
	8	21	6	15	19	81	29		171
	9	4	3	4	4	34	32		80
	10	2	1	10	8	51	18		90
	11	2	2	6	5	26	7		48
	12	0	0	3	3	2	3		11
	NK	0	0	0	0	0	0		0
	Total	79	42	187	98	473	121	0	1000
1993	1	0	0			8	16		24
	2	1	0			1	10		11
	3	0	0				3		3
	4	0	0	1		1	2		3
	5	1	0	16	1	2	3		21

TABLE 6c. (Continued). Annual nominal catches of cod (tons) by Greenland small boats (below 50 GRT) by NAFO Divisions and months, 1952–93, given as per thousand of each year's total for these boats (corresponds to Table 6b). – Monthly catch, if any, not known.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1993	6	30	4	193	19	61	10		317
	7	14	4	154	34	51	45		303
	8	5	1	61	15	10	26		119
	9	2	1	21	4	5	24		57
	10	3	0	33	10	12	30		89
	11	1	1	23	3	12	4		44
	12	0	0	1	1	5	0		7
	NK	0	0	1	1	1	0		2
	Total	57	10	504	87	170	173	0	1000

TABLE 6d. Nominal catches of cod (tons) at West Greenland by small Greenland boats (below 50 GRT) summarized over five-year periods, 1951–94.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
Catches not broken down by month.									
1952–54	NK	11757	7082	11225	9686	15637	2688		58075
	Total	11757	7082	11225	9686	15637	2688	0	58075
1955–59	1	164	113	206	8	0	0		491
	2	184	78	501	8	0	0		771
	3	262	21	768	6	0	0		1057
	4	389	92	1078	162	0	0		1721
	5	1138	1284	5785	798	252	0		9257
	6	3345	2301	4238	2293	1416	0		13593
	7	3737	4089	2161	4810	4974	126		19897
	8	4729	3588	1192	3848	10748	478		24583
	9	3531	1948	1130	1676	5034	293		13612
	10	2407	969	726	1312	1338	111		6863
	11	1156	615	465	511	271	0		3018
	12	770	267	956	240	60	0		2293
	NK	3659	2822	5704	3324	5531	591		21631
	Total	21857	15414	20849	15771	24101	1008	0	99000
1960–64	1	999	186	272	43	0	0		1500
	2	805	87	252	13	0	0		1157
	3	1219	232	244	52	0	0		1747
	4	2029	1096	979	411	21	0		4536
	5	5816	3729	4707	3000	801	0		18053
	6	5809	4791	4895	6505	4399	0		26399
	7	6324	3606	4395	6468	7362	159		28314
	8	6964	2794	3301	4737	9748	706		28250
	9	4801	1463	1602	1402	5004	639		14911
	10	2748	1012	758	1112	1643	166		7439
	11	2658	1191	530	573	282	4		5238
	12	1690	543	360	534	47	0		3174
	NK	0	0	891	0	0	0		891
	Total	41862	20730	23186	24850	29307	1674	0	141609

TABLE 6d. (Continued). Nominal catches of cod (tons) at West Greenland by small Greenland boats (below 50 GRT) summarized over five-year periods, 1951–94.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1965–69	1	600	230	1748	756	39	0		3373
	2	384	69	710	250	0	0		1413
	3	436	112	794	227	7	0		1576
	4	556	142	962	454	12	1		2127
	5	2487	1050	4630	2332	495	1		10995
	6	4112	2504	5646	5745	3368	0		21575
	7	5176	3575	4501	5334	6174	101		24861
	8	5842	2581	2800	3424	6708	628		21983
	9	3285	331	1695	856	3693	432		10292
	10	2789	453	1643	1377	1785	147		8194
	11	1977	517	1414	1226	538	7		5679
	12	1509	531	1525	1723	222	0		5510
	NK	0	0	5410	56	0	0		5466
Total		29153	12095	33478	23760	23041	1317	0	122844
1970–74	1	190	68	18	38	7	15		336
	2	53	5	10	0	6	8		82
	3	33	2	7	0	4	13		59
	4	42	2	376	3	7	12		441
	5	90	56	456	153	172	8		934
	6	490	149	351	1039	1441	7		3477
	7	2474	2333	1725	2626	2059	68		11285
	8	4348	2682	1738	988	1290	365		11411
	9	2507	1492	422	776	355	322		5874
	10	1384	155	465	155	190	109		2458
	11	754	125	174	69	27	53		1202
	12	396	139	29	62	6	23		655
	NK	3696	1689	11935	4323	1855	263		23761
Total		16457	8897	17706	10232	7419	1266	0	61977
1975–79	1	383	5	20	257	2	5		672
	2	267	1	17	6	6	14		311
	3	417	3	17	38	70	20		565
	4	683	95	137	11	148	23		1097
	5	2202	1315	385	635	609	40		5186
	6	2129	2021	307	2487	2043	53		9040
	7	5039	6042	230	3775	1995	383		17464
	8	6784	4247	138	1085	421	398		13073
	9	4010	1186	46	568	97	209		6116
	10	2245	889	66	432	110	208		3950
	11	1757	331	39	42	54	55		2278
	12	1329	126	25	7	43	9		1539
	NK	1402	3842	12684	1761	19	0		19708
Total		28647	20103	14111	11104	5617	1417	0	80999
1980–84	1	341	36	25	218	59	2		681
	2	348	18	37	20	84	5		512
	3	515	193	78	246	57	40		1129
	4	435	206	201	88	157	34		1121
	5	616	5719	752	264	902	96		8349
	6	1943	757	1315	2854	4482	297		11648
	7	5151	4699	2897	3707	5912	296		22662

TABLE 6d. (Continued). Nominal catches of cod (tons) at West Greenland by small Greenland boats (below 50 GRT) summarized over five-year periods, 1951–94.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1980–84	8	6506	8053	3805	2227	1074	195		21860
	9	5128	2832	4481	1422	423	148		14434
	10	4314	1430	1459	1497	655	223		9578
	11	3805	842	646	1444	290	160		7187
	12	1165	207	4867	163	82	33		6517
	NK	3544	9215	13367	531	95	0	20973	47725
	Total	33811	34207	33930	14681	14272	1529	20973	153402

1985–89	1	74	297	726	408	124	8		1637
	2	40	321	1196	363	78	12		2010
	3	88	67	1129	16	94	8		1402
	4	286	477	1342	273	117	14		2509
	5	1579	1598	1578	1018	1463	11		7247
	6	1914	1519	1336	2311	5672	125		12877
	7	2222	2093	2150	1337	6507	374		14683
	8	2109	3732	2055	900	1134	200		10130
	9	1607	3369	1248	638	865	119		7846
	10	783	1656	1277	594	1034	175		5519
	11	821	602	263	237	1005	123		3051
	12	133	1094	89	111	390	23		1840
	NK	1695	4560	8110	555	3271	97	510	18798
	Total	13351	21385	22499	8761	21754	1289	510	89549

1990–94	1	62	21	239	22	41	50		435
	2	56	115	312	10	59	33		585
	3	245	21	915	6	106	27		1320
	4	113	58	1311	7	134	19		1642
	5	1898	300	2764	71	942	22		5997
	6	2325	543	4048	782	5967	56		13721
	7	2021	675	1904	1257	7231	429		13517
	8	1866	783	924	457	3059	329		7418
	9	373	526	772	150	720	412		2953
	10	400	133	523	157	1516	476		3205
	11	383	62	559	147	1333	379		2863
	12	61	27	376	63	425	142		1094
	NK	0	0	1	1	2	0		4
	Total	9803	3264	14648	3130	21535	2374	0	54754

TABLE 6e. Nominal catches of cod (tons) at West Greenland by small Greenland boats (below 50 GRT) over five-year periods and given in per thousand of the total for the period for these boats, 1951–94.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
Catches not broken down by month.									
1952–54	NK	202	122	193	167	269	46		1000
	Total	202	122	193	167	269	46	0	1000

TABLE 6e. (Continued). Nominal catches of cod (tons) at West Greenland by small Greenland boats (below 50 GRT) over five-year periods and given in per thousand of the total for the period for these boats, 1951–94.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1955–59	1	2	1	2	0	0	0	0	5
	2	2	1	5	0	0	0	0	8
	3	3	0	8	0	0	0	0	11
	4	4	1	11	2	0	0	0	17
	5	11	13	58	8	3	0	0	94
	6	34	23	43	23	14	0	0	137
	7	38	41	22	49	50	1	0	201
	8	48	36	12	39	109	5	0	248
	9	36	20	11	17	51	3	0	137
	10	24	10	7	13	14	1	0	69
	11	12	6	5	5	3	0	0	30
	12	8	3	10	2	1	0	0	23
	NK	0	0	17	1	0	0	0	19
Total		221	156	211	159	243	10	0	1000
1960–64	1	7	1	2	0	0	0		11
	2	6	1	2	0	0	0		8
	3	9	2	2	0	0	0		12
	4	14	8	7	3	0	0		32
	5	41	26	33	21	6	0		127
	6	41	34	35	46	31	0		186
	7	45	25	31	46	52	1		200
	8	49	20	23	33	69	5		199
	9	34	10	11	10	35	5		105
	10	19	7	5	8	12	1		53
	11	19	8	4	4	2	0		37
	12	12	4	3	4	0	0		22
	NK	0	0	6	0	0	0		6
Total		296	146	164	175	207	12	0	1000
1965–69	1	5	2	14	6	0	0		27
	2	3	1	6	2	0	0		12
	3	4	1	6	2	0	0		13
	4	5	1	8	4	0	0		17
	5	22	9	38	19	4	0		90
	6	36	22	46	47	27	0		174
	7	45	31	37	43	50	1		202
	8	51	22	23	28	55	5		179
	9	28	3	14	7	30	4		84
	10	24	4	13	11	15	1		67
	11	17	4	12	10	4	0		46
	12	13	5	12	14	2	0		45
	NK	0	0	44	0	0	0		44
Total		253	105	273	193	188	11	0	1000
1970–74	1	3	1	0	1	0	0		5
	2	1	0	0	0	0	0		1
	3	1	0	0	0	0	0		1
	4	1	0	6	0	0	0		7
	5	1	1	7	2	3	0		15
	6	8	2	6	17	23	0		56
	7	40	38	28	42	33	1		182

TABLE 6e. (Continued). Nominal catches of cod (tons) at West Greenland by small Greenland boats (below 50 GRT) over five-year periods and given in per thousand of the total for the period for these boats, 1951–94.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1970–74	8	70	43	28	16	21	6		184
	9	40	24	7	13	6	5		95
	10	22	3	8	3	3	2		40
	11	12	2	3	1	0	1		19
	12	6	2	0	1	0	0		11
	NK	60	21	193	70	30	4		383
	Total	266	144	286	165	120	20	0	1000
<hr/>									
1975–79	1	5	0	0	3	0	0		8
	2	3	0	0	0	0	0		4
	3	5	0	0	0	1	0		7
	4	8	1	2	0	2	0		14
	5	27	16	5	8	8	0		64
	6	26	25	4	31	25	1		112
	7	62	75	3	47	25	5		216
	8	84	52	2	13	5	5		161
	9	50	15	1	7	1	3		76
	10	28	11	1	5	1	3		49
	11	22	4	0	1	1	1		28
	12	16	2	0	0	1	0		19
	NK	17	47	157	22	0	0		243
	Total	354	248	174	137	69	17	0	1000
<hr/>									
1980–84	1	2	0	0	1	0	0		4
	2	2	0	0	0	1	0		3
	3	3	1	1	2	0	0		7
	4	3	1	1	1	1	0		7
	5	4	37	5	2	6	1		54
	6	13	5	9	19	29	2		76
	7	34	31	19	24	39	2		147
	8	42	52	24	15	7	1		143
	9	33	19	29	9	3	1		94
	10	28	9	10	10	4	1		62
	11	25	6	4	9	2	1		47
	12	8	1	32	1	1	0		43
	NK	23	60	87	3	1	0	137	311
	Total	220	223	221	96	93	10	137	1000
<hr/>									
1985–89	1	1	3	8	4	1	0		18
	2	0	4	13	4	1	0		22
	3	1	1	12	0	1	0		16
	4	3	5	15	3	1	0		28
	5	18	18	17	11	16	0		81
	6	21	17	15	26	63	1		144
	7	25	23	24	15	73	4		164
	8	23	42	23	10	12	2		113
	9	18	38	14	7	10	1		88
	10	9	18	14	7	12	2		62
	11	9	7	3	3	11	1		34
	12	1	12	1	1	4	0		21
	NK	19	50	89	6	36	1	6	210
	Total	149	239	251	98	243	14	6	1000

TABLE 6e. (Continued). Nominal catches of cod (tons) at West Greenland by small Greenland boats (below 50 GRT) over five-year periods and given in per thousand of the total for the period for these boats, 1951–94.

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1990–94	1	1	0	4	0	1	1		8
	2	1	2	6	0	1	1		11
	3	4	0	17	0	2	0		24
	4	2	1	24	0	2	0		30
	5	35	5	50	1	17	0		110
	6	42	10	74	14	109	1		251
	7	37	12	35	23	132	8		247
	8	34	14	17	8	56	6		135
	9	7	10	14	3	13	8		54
	10	7	2	10	3	28	9		59
	11	7	1	10	3	24	7		52
	12	1	0	7	1	8	3		20
	NK	0	0	0	0	0	0		0
	Total	179	60	268	57	393	43	0	1000

TABLE 7a. Nominal catches of cod at West Greenland by Greenland trawlers above 150 GRT, 1973–85. Only catches when cod was the target species and when effort (hours fished) was reported are included. No fishing in Div. 1A. "–" = no fishing. 0 = fishing but no catch reported.

Div.		1F		1E		1D		1C		1B		Total	
Year	Month	Hours	Tons	Hours	Tons	Hours	Tons	Hours	Tons	Hours	Tons	Hours	Tons
1973	1					491	351	380	248			871	599
	2					55	44	1137	1028			1192	1072
	3			42	72	772	773	141	58			955	903
	4	25	5	479	502	510	616	37	16			1051	1139
	5			32	23	215	133	365	261			612	417
	6	69	134	1002	1287	491	264	3	1			1565	1686
	7			332	161	380	167	15	1	202	88	929	417
	8	777	349	51	16	90	33			4	1	922	399
	9					597	170					597	170
	10	155	16	185	71	711	325	10	0	14	2	1075	414
	11	48	12	238	54	1130	284	40	3	5	0	1461	353
	12	11	6	77	44	750	414	40	11	16	1	894	476
	Total	1085	522	2438	2230	6192	3574	2168	1627	241	92	12124	8045
1974	1	44	31	407	492	312	196	95	21			858	740
	2	20	10	77	34			1778	1791			1875	1835
	3	111	104	528	252	733	325	144	91			1516	772
	4	139	129	508	568	431	504	56	39			1134	1240
	5			239	375	628	1021	715	1345			1582	2741
	6			932	1082	239	192	67	71			1238	1345
	7	122	12	561	357	578	170	16	8			1277	547
	8	121	269	523	357	344	264	4	1			992	891
	9					346	114	14	0			360	114
	10			32	1	311	62	18	0			361	63
	11			6	1	147	35	8	1			161	37
	12	33	25	129	65	359	180	147	43			668	313
	¹⁾ Total	590	580	3942	3584	4428	3063	3062	3411			12022	10638
1975	1			135	49	339	133	1714	1019			2188	1201
	2			7	1	66	91	1765	1237			1838	1329
	3	19	11	92	55	124	58	1292	1022			1527	1146
	4			266	180	335	209	1154	773			1755	1162
	5	79	24	281	115	834	309	627	542			1821	990
	6			573	229	275	98	521	397			1369	724
	7	82	46	414	129	583	152	50	49			1129	376
	8			533	267	219	15					752	282
	9			84	6	478	76					562	82
	10			305	10	516	71					821	81
	11			352	88	745	65					1097	153
	12			215	81	610	36	275	62			1100	179
	¹⁾ Total	180	81	3257	1210	5124	1313	7398	5101			15959	7705
1976	1			259	184	678	405	1198	800			2135	1389
	2			1	2	193	27	1520	1006			1714	1035
	3			484	515	535	377	864	829			1883	1721
	4			724	299	900	105					1624	404
	5			1379	1048	408	89	275	155			2062	1292
	6			549	338	405	115	232	68			1186	521
	7			951	139	221	49					1172	188
	8			224	68	406	188					630	256

TABLE 7a. (Continued). Nominal catches of cod at West Greenland by Greenland trawlers above 150 GRT, 1973–85. Only catches when cod was the target species and when effort (hours fished) was reported are included. No fishing in Div. 1A. "–" = no fishing. 0 = fishing but no catch reported.

Div.		1F		1E		1D		1C		1B		Total	
Year	Month	Hours	Tons	Hours	Tons	Hours	Tons	Hours	Tons	Hours	Tons	Hours	Tons
1976	9			107	13	575	277					682	290
	10			560	518	261	241					821	759
	11			649	788	641	740	82	45			1372	1573
	12			603	773	689	584	197	94			1489	1451
	Total			6490	4685	5912	3197	4368	2997			16770	10879
1977	1			541	804	329	323	791	853			1661	1980
	2			433	748	217	190	797	1029			1447	1967
	3			409	214	373	124	670	525			1452	863
	4			754	1300	156	37	103	12			1013	1349
	5			742	1191	307	589	26	32			1075	1812
	6	33	111	380	973	103	222					516	1306
	7	88	182	141	157	28	16					257	355
	8											0	0
	9											0	0
	10											0	0
	11											0	0
	12			46	72	32	17	45	27			123	116
	Total	121	293	3446	5459	1545	1518	2432	2478			7544	9748
1978	1			260	257	5	1	1316	3244			1581	3502
	2					221	713	593	3159			814	3872
	3					35	37	1121	3370			1156	3407
	4			350	2241	162	596	487	1655			999	4492
	5			142	564	62	36					204	600
	6											0	0
	7	4	28									4	28
	8	8	79									8	79
	9	52	101	5	12	79	45					136	158
	10	6	4	32	28	27	18					65	50
	11			21	29	120	261					141	290
	12			63	137	104	707	45	375			212	1219
	Total	70	212	873	3268	815	2414	3562	11803			5320	17697
1979	1					388	1619	1098	3293			1486	4912
	2			18	7	127	136	1142	1925			1287	2068
	3			105	76	196	337	487	396			788	809
	4			142	359	159	526	147	471			448	1356
	5			100	269	208	663	60	186			368	1118
	6					85	305	49	157			134	462
	7											0	0
	8											0	0
	9											0	0
	10											0	0
	11											0	0
	12	9	24					12	1			21	25
	Total	9	24	365	711	1163	3586	2995	6429			4532	10750

TABLE 7a. (Continued). Nominal catches of cod at West Greenland by Greenland trawlers above 150 GRT, 1973–85. Only catches when cod was the target species and when effort (hours fished) was reported are included. No fishing in Div. 1A. "-" = no fishing. 0 = fishing but no catch reported.

Div.		1F		1E		1D		1C		1B		Total	
Year	Month	Hours	Tons	Hours	Tons	Hours	Tons	Hours	Tons	Hours	Tons	Hours	Tons
1980	1	4	2	61	15	160	292	628	780			853	1089
	2			5	1	65	54	103	71	382	1680	555	1806
	3	7	8	154	84	241	194	285	212	5	1	692	499
	4	3	5	256	301	4	1	1	1			264	308
	5	1	1	283	474	23	58	1	0			308	533
	6	3	2	214	415	18	29	1	2			236	448
	7											0	0
	8			4	1	8	1					12	2
	9	16	6	11	2	83	34	24	20			134	62
	10			21	3	644	648	214	130			879	781
	11	2	2	122	40	910	533	37	9	406	119	1477	703
	12			17	17	235	208	408	708			660	933
Total		36	26	1148	1353	2391	2052	1702	1933	793	1800	6070	7164
1981	1			19	43	103	108	325	1374			447	1525
	2					48	233	338	1104			386	1337
	3			99	606	207	674	348	990			654	2270
	4			294	1477	110	474	24	99			428	2050
	5			225	1165			2	1			227	1166
	6			143	492	55	87					198	579
	7			38	28	119	98					157	126
	8											0	0
	9											0	0
	10			22	9	212	176	6	3			240	188
	11			3	2	785	2335					788	2337
	12			109	559	217	516	236	683			562	1758
Total				952	4381	1856	4701	1279	4254			4087	13336
1982	1					339	1096	604	1966			943	3062
	2			299	1648	329	739	115	208			743	2595
	3			869	1325	523	433	290	377			1682	2135
	4			821	2572	76	77					897	2649
	5			442	1950	179	812	11	51			632	2813
	6			23	177	116	386	266	641			405	1204
	7			23	39	280	580					303	619
	8	14	10	119	211	137	220					270	441
	9	3	1	39	38	469	465	101	72	37	24	649	600
	10			23	10	778	751	196	249			997	1010
	11			28	101	683	1201	319	449	60	109	1090	1860
	12			615	1387	487	643	37	10			1139	2040
Total		17	11	3301	9458	4396	7403	1939	4023	97	133	9750	21028
1983	1			580	1723	235	471	27	11			842	2205
	2			509	315	524	404	6	1			1039	720
	3	2	2	1135	1805	53	38					1190	1845
	4			1244	2903	94	316	2	0			1340	3219
	5			629	1052	251	476					880	1528
	6			394	1059	289	517	13	10			696	1586
	7			366	823	447	499	271	306			1084	1628
	8	112	110	583	1201	287	392	59	81			1041	1784

TABLE 7a. (Continued). Nominal catches of cod at West Greenland by Greenland trawlers above 150 GRT, 1973–85. Only catches when cod was the target species and when effort (hours fished) was reported are included. No fishing in Div. 1A. "-" = no fishing. 0 = fishing but no catch reported.

Div. Year	Month	1F		1E		1D		1C		1B		Total	
		Hours	Tons	Hours	Tons	Hours	Tons	Hours	Tons	Hours	Tons	Hours	Tons
1983	9			47	17	465	88	202	151			714	256
	10			16	1	573	186					589	187
	11			344	304	582	528	13	2			939	834
	12			472	183	240	60					712	243
	Total	114	112	6319	11386	4040	3975	593	562			11066	16035
1984	1			764	1064	238	108					1002	1172
	2	134	142	270	344	3						407	486
	3	83	38	37	11	6	1					126	50
	4			104	60							104	60
	5											0	0
	6			1	2							1	2
	7			2		2	0					4	0
	8			386	702	632	1477					1018	2179
	9	10	1	429	128	871	316			51	1	1361	446
	10	90	4	267	55	91	6					448	65
	11			11	2	66	28					77	30
	12			5	1	17	8					22	9
	Total	317	185	2276	2369	1926	1944			51	1	4570	4499
1985	1	5	7	434	247	55	2					494	256
	2											0	0
	3											0	0
	4	78	104	317	427	3	0					398	531
	5	8	0	340	232	58	30					406	262
	6			186	134	29	13					215	147
	7			94	26	179	92					273	118
	8	11	0	272	211							283	211
	9			294	99	21	0					315	99
	10	11	0	12	0	31	0					54	0
	11											0	0
	12			101	182	2	2					103	184
	²⁾ Total	113	111	2050	1558	378	139					2541	1808

¹⁾ For 1974 and 1975 catches were not reported at directed cod fishing but by "roundfish" as the target although cod seems to have been the major target.

²⁾ For 1985 part of the cod catch by trawlers was reported without information of effort, viz. Div. 1F 764 tons, Div. 1E 545 tons and Div. 1D 986 tons in total 2 250 tons in addition to those in the table.

TABLE 7b. Catch-per-unit-effort (kg/hour trawled) at West Greenland by Greenland trawlers above 150 GRT, 1973–85 (calculated from Table 7a). "-" = no fishing. 0 = fishing but no catch reported.

Year	Month	CPUE (Kg/hr)				
		1F	1E	1D	1C	1B
1973	1			715	653	
	2			800	904	
	3		1714	1001	411	

TABLE 7b. (Continued). Catch-per-unit-effort (kg/hour trawled) at West Greenland by Greenland trawlers above 150 GRT, 1973–85 (calculated from Table 7a). "-" = no fishing. 0 = fishing but no catch reported.

Year	Month	CPUE (Kg/hr)				
		1F	1E	1D	1C	1B
1973	4	200	1048	1208	432	
	5		719	619	715	
	6	1942	1284	538	333	
	7		485	439	67	436
	8	449	314	367		250
	9			285		
	10	103	384	457	0	143
	11	250	227	251	75	0
	12	545	571	552	275	63
1974	1	705	1209	628	221	
	2	500	442		1007	
	3	937	477	443	632	
	4	928	1118	1169	696	
	5		1569	1626	1881	
	6		1161	803	1060	
	7	98	636	294	500	
	8	2223	683	767	250	
	9			329	0	
	10		31	199	0	
	11		167	238	125	
	12	758	504	501	293	
1975	1		363	392	595	
	2		143	1379	701	
	3	579	598	468	791	
	4		677	624	670	
	5	304	409	371	864	
	6		400	356	762	
	7	561	312	261	980	
	8		501	68		
	9		71	159		
	10		33	138		
	11		250	87		
	12		377	59	225	
1976	1		710	597	668	
	2		2000	140	662	
	3		1064	705	959	
	4		413	117		
	5		760	218	564	
	6		616	284	293	
	7		146	222		
	8		304	463		
	9		121	482		
	10		925	923		
	11		1214	1154	549	
	12		1282	848	477	
1977	1		1486	982	1078	
	2		1727	876	1291	
	3		523	332	784	
	4		1724	237	117	

TABLE 7b. (Continued). Catch-per-unit-effort (kg/hour trawled) at West Greenland by Greenland trawlers above 150 GRT, 1973–85 (calculated from Table 7a). "-" = no fishing. 0 = fishing but no catch reported.

Year	Month	CPUE (Kg/hr)				
		1F	1E	1D	1C	1B
1977	5		1605	1919	1231	
	6	3364	2561	2155		
	7	2068	1113	571		
	8					
	9					
	10					
	11					
	12		1565	531	600	
1978	1		988	200	2465	
	2			3226	5327	
	3			1057	3006	
	4		6403	3679	3398	
	5		3972	581		
	6					
	7	7000				
	8	9875				
	9	1942	2400	570		
	10	667	875	667		
	11		1381	2175		
	12		2175	6798	8333	
1979	1			4173	2999	
	2		389	1071	1686	
	3		724	1719	813	
	4		2528	3308	3204	
	5		2690	3188	3100	
	6			3588	3204	
	7					
	8					
	9					
	10					
	11					
	12	2667			83	
1980	1	500	246	1825	1242	
	2		200	831	689	4398
	3	1143	545	805	744	200
	4	1667	1176	250	1000	
	5	1000	1675	2522	0	
	6	667	1939	1611	2000	
	7					
	8		250	125		
	9	375	182	410	833	
	10		143	1006	607	
	11	1000	328	586	243	293
	12		1000	885	1735	
1981	1		2263	1049	4228	
	2			4854	3266	
	3		6121	3256	2845	
	4		5024	4309	4125	
	5		5178		500	

TABLE 7b. (Continued). Catch-per-unit-effort (kg/hour trawled) at West Greenland by Greenland trawlers above 150 GRT, 1973–85 (calculated from Table 7a). "-" = no fishing. 0 = fishing but no catch reported.

Year	Month	CPUE (Kg/hr)				
		1F	1E	1D	1C	1B
1981	6		3441	1582		
	7		737	824		
	8					
	9					
	10		409	830	500	
	11		667	2975		
	12		5128	2378	2894	
1982	1			3233	3255	
	2		5512	2246	1809	
	3		1525	828	1300	
	4		3133	1013		
	5		4412	4536	4636	
	6		7696	3328	2410	
	7		1696	2071		
	8	714	1773	1606		
	9	333	974	991	713	649
	10		435	965	1270	
	11		3607	1758	1408	1817
	12		2255	1320	270	
1983	1		2971	2004	407	
	2		619	771	167	
	3	1000	1590	717		
	4		2334	3362	0	
	5		1672	1896		
	6		2688	1789	769	
	7		2249	1116	1129	
	8	982	2060	1366	1373	
	9		362	189	748	
	10		63	325		
	11		884	907	154	
	12		388	250		
1984	1		1393	454		
	2	1060	1274	0		
	3	458	297	167		
	4		577			
	5					
	6		2000			
	7		0	0		
	8		1819	2337		
	9	100	298	363		20
	10	44	206	66		
	11		182	424		
	12		200	471		
1985	1	1400	569	36		
	2					
	3					
	4	1333	1347	0		
	5	0	682	517		
	6		720	448		

TABLE 7b. (Continued). Catch-per-unit-effort (kg/hour trawled) at West Greenland by Greenland trawlers above 150 GRT, 1973–85 (calculated from Table 7a). "-" = no fishing. 0 = fishing but no catch reported.

Year	Month	CPUE (Kg/hr)				
		1F	1E	1D	1C	1B
1985	7		277	514		
	8	0	776			
	9		337	0		
	10	0	0	0		
	11					
	12		1802	1000		

TABLE 8a. Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Division and month, 1952–95 (1992–95 no catch).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1952	1								0
	2	245		242					487
	3								0
	4								0
	5		502	1256	672			9627	12057
	6			4621	193			29209	34023
	7	212		3568		261		41849	45890
	8	1077		1682	215			53109	56083
	9	7971		2055	1916			18107	30049
	10	16057		1968				5660	23685
	11	6801	205	2350					9356
	12	5542		446					5988
	NK							99927	99927
	Total	37905	707	18188	2996	261	0	257488	317545
1953	1	7490		356				1507	9353
	2	362		2600				183	3145
	3								0
	4	166		1153	234				1553
	5	120		4403	3881	5			8409
	6	386	207	16183	4867	923	247	330	23143
	7	1127	191	8762	941	14633	1195	344	27193
	8	5134	194	1289	142	29534	1101	301	37695
	9	6198		620	237	1451	1892	23	10421
	10	1511		1460			111		3082
	11	1553	340	2089	309				4291
	12	1195							1195
	NK							95537	95537
	Total	25242	932	38915	10611	46546	4546	98225	225017
1954	1	316							316
	2								0
	3								0
	4			7	87				94
	5		31	16651	3762			1175	21619
	6		202	57688	8301	266		1513	67970
	7	6	130	8673	4061	36481		486	49837
	8	1705	150	4420	872	30966	1681	1219	41013
	9	4221	205	1828	649	15759	1119	136	23917
	10	3571	9	2270	285	13459	11	223	19828
	11	2598		18	175	375		164	3330
	12	1990						231	2221
	NK	943						55032	55975
	Total	15350	727	91555	18192	97306	2811	60179	286120
1955	1			164					164
	2			317					317
	3			316					316
	4		2		53				55
	5	6	2035	26852	5352			24	34269
	6	159	1500	45559	16871	1187		2973	68249
	7		6	5322	4411	17272	122	1897	29030

TABLE 8a. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Division and month, 1952–95 (1992–95 no catch).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1955	8	887	6	5065	4447	16302	236	2358	29301
	9	1537	202	2925	905	12068	383	1302	19322
	10	1056	2	42	29	2885	32	694	4740
	11	449		579	746	392			2166
	12	561		186	15				762
	NK							59240	59240
	Total	4655	3753	87327	32829	50106	773	68488	247931
<hr/>									
1956	1			12					12
	2								0
	3	328							328
	4	5		187	31				223
	5	413	6662	28958	5977	103		8765	50878
	6	801	1963	66745	24563	237		175	94484
	7	9	4	16808	4636	14215	7	21	35700
	8	1203		11328	1419	23039	8	6	37003
	9	596	35	1676	815	10079		7	13208
	10	829	57	2030	916	8061		20	11913
	11	738		511	71	277			1597
	12								0
	NK							57271	57271
Total	4922	8721	128255	38428	56011	15	66265	302617	
<hr/>									
1957	1								0
	2								0
	3	141							141
	4	140	34	30					204
	5	1946	22706	12471	2210	13		4028	43374
	6	5634	4893	25937	20596	2638		3957	63655
	7	10	1269	6072	1584	20668		9003	38606
	8	418	29	5247	6030	20225		5100	37049
	9	1972	91	8311	1382	8492		3158	23406
	10	1500	71	3883	768	6539		2784	15545
	11	1263		155	24			4835	6277
	12	3293							3293
	NK							14492	14492
Total	16317	29093	62106	32594	58575	0	47357	246042	
<hr/>									
1958	1	5068							5068
	2	2221		181				271	2673
	3			683					683
	4	2180	109	292				98	2679
	5	7591	10624	11416	13100	3		2880	45614
	6	1305	9831	32720	20960	967		5742	71525
	7	1006	266	15794	1149	13834		10753	42802
	8	1062	223	5090	3242	24447	110	11633	45807
	9	814	166	5254	1904	9103	57	10642	27940
	10	978	405	1637	719	7272	1	1749	12761
	11	1413						5293	6706
	12	3127							3127
	NK							26734	26734
Total	26765	21624	73067	41074	55626	168	75795	294119	

TABLE 8a. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Division and month, 1952–95 (1992–95 no catch).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1959	1	2077		1172					3249
	2	1445							1445
	3			190					190
	4		92	1606	49				1747
	5	426	8109	5872	794	4118		2897	22216
	6	988	3855	9511	2880	18429		1558	37221
	7	752	34	6153	3091	14758	426	17009	42223
	8	9	25	2406	3292	15085	560	6598	27975
	9	130	47	1985	130	18343		9533	30168
	10	672	25	942	712	3571		6073	11995
	11	706	31	1	6			787	1531
	12	964	342	416					1722
	NK	2840						23143	25983
	Total	11009	12560	30254	10954	74304	986	67598	207665
1960	1	162	218	553	168				1101
	2	157		174					331
	3								0
	4	1800	1485	1365	268				4918
	5	2959	6237	2081	1043	1570		1066	14956
	6	477	6342	15222	5372	3736		9134	40283
	7	9	1685	9378	2738	18186		11700	43696
	8	211		3540	3126	21382	6	11995	40260
	9	821	112	2347	1898	11349	19	6683	23229
	10	784	317	445	3245	1926	10	8066	14793
	11	1797		90				6947	8834
	12	708		720	627	499		21	2575
	NK			24	8			20819	20851
	Total	9885	16396	35939	18493	58648	35	76431	215827
1961	1	891	526	3769	2089	253			7528
	2	1376	154						1530
	3	1617	184	406	2304				4511
	4	300	890	2218	8145	354			11907
	5	2879	2574	4012	3904	4039		135	17543
	6	2065	3820	18088	7189	7584		4916	43662
	7	2441	3156	20853	4921	17057	9	8758	57195
	8	502	2909	11797	7637	22498		19363	64706
	9	394	534	6558	2730	15723	3	6602	32544
	10	521	941	817	1721	6797		6408	17205
	11	534	141	1905	656	1774	318	11944	17272
	12	1098	202	458	2055	1939	173		5925
	NK							32098	32098
	Total	14618	16031	70881	43351	78018	503	90224	313626
1962	1	2190	731	1836	4653	3138		1264	13812
	2	413	505	815	14212	1137		751	17833
	3	1163	2293	3181	15304	207		239	22387
	4	382	1938	1384	4204	1245			9153
	5	2782	2891	2897	1880	2873		951	14274
	6	2033	4892	15535	4067	6162		20310	52999
	7	1333	6419	11652	6841	24915	9	13037	64206

TABLE 8a. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Division and month, 1952–95 (1992–95 no catch).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1962	8	1380	3136	7912	4785	36563	144	11126	65046
	9	535	394	3393	2353	19721	198	18008	44602
	10	1757	976	3632	3582	12082	666	8952	31647
	11	1387	579	5377	6787	6916		8194	29240
	12	1934	582	358	6712	7429		9858	26873
	NK							33206	33206
	Total	17289	25336	57972	75380	122388	1017	125896	425278
1963	1	1548	480	602	10026	5353		864	18873
	2	884	459	2608	16679	47		656	21333
	3	1007	6913	1274	12201				21395
	4	831	5199	2810	5125	30			13995
	5	1731	6232	6796	3311	473		1237	19780
	6	1413	16793	27915	4376	3691		22439	76627
	7	3033	6694	13205	6762	14853		10524	55071
	8	695	1868	8625	3887	19110		6102	40287
	9	890	477	5313	1418	7975		11768	27841
	10	1233	873	3747	2494	6129		5187	19663
	11	1320	131	1899	2908	7438	66	9123	22885
	12	1105	251	1785	3955	5137		9886	22119
	NK	750						44867	45617
	Total	16440	46370	76579	73142	70236	66	122653	405486
1964	1	821	664	4500	12805	708		6213	25711
	2	1019	2099	2438	5013	3076		3723	17368
	3	876	4429	2799	3263			332	11699
	4	1214	3148	1309	586	133			6390
	5	1086	5133	15138	2082			359	23798
	6	2774	9982	26515	12346	5070	24	4465	61176
	7	3225	5318	22890	6636	7090	72		45231
	8	875	776	2437	3176	12276			19540
	9	402	934	2846	791	8694			13667
	10	426	529	385	383	5873			7596
	11	422	25	229	622	3331			4629
	12	704	250	1450	1399	2798			6601
	NK							84346	84346
	Total	13844	33287	82936	49102	49049	96	99438	327752
1965	1	265	59	2549	9689	5189		1896	19647
	2	583	386	1956	5446	84			8455
	3	267	928	632	1384	164			3375
	4	1011	2295	1506	2609				7421
	5	2029	4284	19632	4393	1994		228	32560
	6	2629	2039	18215	6434	4950		6123	40390
	7	1192	2893	11206	5999	17250		14492	53032
	8	1451	488	5164	4871	19674	62	14384	46094
	9	1583	767	2979	1157	12353		2890	21729
	10	1365	599	2389	2945	9408	323	8261	25290
	11	1809	730	1712	7933	6867		9873	28924
	12	818	126	3096	13957	2998		7310	28305
	NK							27173	27173
	Total	15002	15594	71036	66817	80931	385	92630	342395

TABLE 8a. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Division and month, 1952–95 (1992–95 no catch).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1966	1	109	32	620	3166	97			4024
	2	247	380	2744	245				3616
	3	938	193	2346	5994			1	9472
	4	333	833	5204	4953		9	18	11350
	5	16	6191	10915	8652	7145	3	1113	34035
	6	311	7210	19361	10219	13329		8506	58936
	7	1409	2016	10542	3376	21029		17120	55492
	8	3965	836	5422	4255	28955		9057	52490
	9	6930	840	3072	1069	14066		4289	30266
	10	2278	233	797	422	7236		3719	14685
	11	333	90	265	332	2237		12236	15493
	12	1900	725	1306	874	5401		8946	19152
	NK							30119	30119
	Total	18769	19579	62594	43557	99495	12	95124	339130
1967	1	445	176	5294	1350	500			7765
	2	453	288	9297	7274				17312
	3	840	4556	7976	5639			1569	20580
	4	595	4732	7080	2584			1423	16414
	5	964	9533	26063	18143	3122	35	536	58396
	6	1760	7840	25169	14181	14615		7933	71498
	7	1889	2302	19321	5888	15498		13220	58118
	8	1350	740	10220	4251	14648		12769	43978
	9	1800	1727	5774	1522	5760	326	4816	21725
	10	587	1837	2526	378	4052		1862	11242
	11	722	252	591	2295	154		10451	14465
	12	782	113	3207	14765	263		11055	30185
	NK							30277	30277
	Total	12187	34096	122518	78270	58612	361	95911	401955
1968	1	483	598	4386	9394	17			14878
	2	1262	1058	3482	12694				18496
	3	1417	283	6072	7732			2080	17584
	4	860	4542	9062	4677			1491	20632
	5	2970	13427	15614	24755	625		441	57832
	6	1543	26156	24315	21361	684	842	7628	82529
	7	627	12882	14807	3229	1736		12663	45944
	8	1769	979	5274	1624	4072	39	6561	20318
	9	2763	1141	6560	2096	4951		2544	20055
	10	1055		1118	3	165		7491	9832
	11	803	486	2876	257	48		814	5284
	12	810	31	1254	1814	35		4093	8037
	NK		8					51455	51463
	Total	16362	61591	94820	89636	12333	881	97261	372884
1969	1	443	368	2290	548				3649
	2	1470	126	1666	1540			100	4902
	3	404	47	191	84			778	1504
	4	294	7858	8103	2215	51			18521
	5	1134	13516	20298	11357	6	170	1	46482
	6	1162	6802	7589	7485	124	207	928	24297
	7	3281	6404	8001	3320	195		4358	25559

TABLE 8a. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Division and month, 1952–95 (1992–95 no catch).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1969	8	1193	5211	6348	3601	3191		1930	21474
	9		550	3304	571	2797	42	3045	10309
	10	111	450	4095	245	1088		2960	8949
	11	891	280	2172	167	200		1072	4782
	12	1124	36	688	7		71	3172	5098
	NK			370				15138	15508
	Total	11507	41648	65115	31140	7652	490	33482	191034
<hr/>									
1970	1	141							141
	2	278	255	486	252				1271
	3	1109	463	296					1868
	4	359	383	427	392		168		1729
	5	4785	6775	5075	6296	14			22945
	6	3550	3036	1440	2310				10336
	7	805	6248	3549	195	231	110		11138
	8	425	5205	3596	1185	1253			11664
	9	512	415	2750	753	897			5327
	10	385	174	3021	282	566			4428
	11	1586	216	2320	1571	758			6451
	12	1584	45	536	8				2173
	NK							14026	14026
	Total	15519	23215	23496	13244	3719	278	14026	93497
<hr/>									
1971	1	154	22	280					456
	2	2038	577	756	289				3660
	3	226	381	203					810
	4	1500	2909	565	1702	2			6678
	5	976	1683	2559	9321	4			14543
	6	7011	1138	2654	3349				14152
	7	4158	807	2196	833	187			8181
	8	1406	431	3568	3007	464			8876
	9	2120	328	2293	3200	309	39		8289
	10	431	245	2850	1592	506			5624
	11	186	158	2456	3294	149			6243
	12	309	264		51				624
	NK		145	808	2201			20460	23614
	Total	20515	9088	21188	28839	1621	39	20460	101750
<hr/>									
1972	1	270	22	687	9721				10700
	2	688	113	191	6938				7930
	3	263	412	907	3047				4629
	4	329	319	491	6918				8057
	5	1073	1606	2474	2006	16			7175
	6	236	638	578	374				1826
	7	23	87	3617	2301	412			6440
	8		1	1652	1714	2022			5389
	9	103	819	462	88	78			1550
	10	5	98	1059	662	390			2214
	11	43	126	3284	4018	115			7586
	12	514	853	855	219				2441
	NK	849	1928	2442	4730			11331	21280
	Total	4396	7022	18699	42736	3033	0	11331	87217

TABLE 8a. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Division and month, 1952–95 (1992–95 no catch).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1973	1	384	286	75	2455				3200
	2	344	358	121	4738			57	5618
	3	497	660	722	1321			2	3202
	4	606	1128	118	78			28	1958
	5	223	773	1034	412			105	2547
	6	30	991	3086	226	336		189	4858
	7	120	251	1812	2144	1608			5935
	8	69	41	576	1026	245		11	1968
	9	5	134	509	448	49			1145
	10	26	652	2101	789	5		202	3775
	11	7	923	2486	2098	6		273	5793
	12	61	11	184	220			253	729
	NK	14	2143	2189	153				4499
	Total	2386	8351	15013	16108	2249	0	1120	45227
1974	1	129	45		18				192
	2	30	472	30	46				578
	3		346		15				361
	4		362		54				416
	5	103	553	633	609				1898
	6	3	931	2281	2741	92			6048
	7	11	167	2346	1190	743			4457
	8	227	265	735	38	52			1317
	9	112	6	125	781		36		1060
	10	4	41	2384	649	222			3300
	11	11	61	1238	1257	319			2886
	12			135	514	2			651
	NK	164	1868	1777	1129				4938
	Total	794	5117	11684	9041	1430	36	0	28102
1975	1	181	83	1	13				278
	2	248	190	67	30				535
	3	417	491	193	4260				5361
	4	603	735	282	674				2294
	5	715	767	155	151				1788
	6	340	488	1955	1110	14			3907
	7		120	1091	439	6			1656
	8		148	1046	664	4			1862
	9	38	36	777	240	1			1092
	10	31	234	973	146	4			1388
	11	79	101	673	676				1529
	12	391	158	659	342				1550
	NK		2089	3240	24	2			5355
	Total	3043	5640	11112	8769	31	0	0	28595
1976	1	595	278	218	332	6			1429
	2	341	35	96	46	5			523
	3	415	294	78	99				886
	4	391	369	336	26	9			1131
	5	16	431	58					505
	6	153	25	6					184
	7	3	15	471	104				593

TABLE 8a. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Division and month, 1952–95 (1992–95 no catch).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1976	8	7		194	603	222			1026
	9	94		2184	565	2			2845
	10	135	22	228	168				553
	11	165	11	234	434	28			872
	12	501	1369	1092	35				2997
	NK	57	912	2312	9	170			3460
	Total	2873	3761	7507	2421	442	0	0	17004
<hr/>									
1977	1	475	779	2406	1055				4715
	2	340	426	1394	176				2336
	3	375	349	925	208				1857
	4	346	530						876
	5	135	174	1400	6				1715
	6	54	761	104	527	298	127		1871
	7	43							43
	8	11				3			14
	9	10							10
	10	27	2	23					52
	11	42		50					92
	12	24	26	123	22				195
	NK								0
Total	1882	3047	6425	1994	301	127	0	13776	
<hr/>									
1978	1	214	69	24					307
	2	38	85	31	27				181
	3	11	64	61	21				157
	4	48	123	83					254
	5		94	23	5				122
	6	26	12	2					40
	7								0
	8								0
	9								0
	10								0
	11								0
	12								0
	NK								0
Total	337	447	224	53	0	0	0	1061	
<hr/>									
1979	1	34	41	105	16				196
	2	17	41	75	35				168
	3	6	2	24	15				47
	4	88	93	9					190
	5	200	39	1					240
	6	135	22	7					164
	7	2	10	8					20
	8	9	3	1					13
	9								0
	10	3	16	8					27
	11		1	48	14				63
	12	13	136	154	52				355
	NK	6		16		16			38
Total	513	404	456	132	16	0	0	1521	

TABLE 8a. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Division and month, 1952–95 (1992–95 no catch).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1980	1	52	223	54	196				525
	2	64	50	10	9				133
	3	3	2						5
	4		2	1					3
	5	4							4
	6	3							3
	7	30							30
	8	66	12		19				97
	9	47	4		7				58
	10	26	9		8				43
	11	39	22						61
	12	24	10		28				62
	NK								0
	Total	358	334	65	267	0	0	0	1024
<hr/>									
1981	1	22	22		22				66
	2	1							1
	3	1							1
	4	4							4
	5								0
	6								0
	7								0
	8								0
	9		10						10
	10	20	46		11				77
	11	107	41		2				150
	12	64	8						72
	NK	36							36
	Total	255	127	0	35	0	0	0	417
<hr/>									
1982	1	11							11
	2	9							9
	3								0
	4	8							8
	5	13	5						18
	6	2							2
	7								0
	8	3							3
	9	3	104	3					110
	10	126	284	1441	66				1917
	11		416	1791	2054				4261
	12	506	955	339					1800
	NK								0
	Total	681	1764	3574	2120	0	0	0	8139
<hr/>									
1983	1	987	2084	181					3252
	2	574	637	8					1219
	3	345	53						398
	4	72							72
	5	1169	290						1459
	6	161	261	151	12				585
	7	3	44	45					92

TABLE 8a. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Division and month, 1952–95 (1992–95 no catch).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1983	8	91	186	96					373
	9	38	57	16					111
	10	1	1	274	2				278
	11	2	113	757					872
	12	1006	972	188					2166
	NK	67	434	532	141				1174
	Total	4516	5132	2248	155	0	0	0	12051
<hr/>									
1984	1	234	64	6					304
	2	44	87						131
	3	789	320	8					1117
	4	1084	672	9					1765
	5	302	100	61					463
	6	63	10						73
	7								0
	8	51	360	1653					2064
	9	33	568	256					857
	10	1	4						5
	11	19	86	135					240
	12	278	813	849					1940
	NK								0
	Total	2898	3084	2977	0	0	0	0	8959
<hr/>									
1985	1	829	324						1153
	2	727							727
	3	239	20						259
	4	3							3
	5								0
	6								0
	7			1					1
	8	1	1						2
	9		1						1
	10	3	1	1					5
	11	1	17	1					19
	12	13	39	3					55
	NK								0
	Total	1816	403	6	0	0	0	0	2225
<hr/>									
1986	1	1							1
	2		12						12
	3	7							7
	4	4							4
	5								0
	6			2					2
	7	1	4						5
	8								0
	9		1						1
	10		5						5
	11	1	6						7
	12	10							10
	NK								0
	Total	24	28	2	0	0	0	0	54

TABLE 8a. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Division and month, 1952–95 (1992–95 no catch).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1987	1								0
	2								0
	3								0
	4	1							1
	5								0
	6			1					1
	7								0
	8	8	14	2					24
	9								0
	10	9							9
	11								0
	12	25	29						54
	NK								0
	Total	43	43	3	0	0	0	0	89
<hr/>									
1988	1	1046	353						1399
	2	231	434						665
	3	9	319						328
	4	31	402	59					492
	5		235						235
	6								0
	7		366	15					381
	8	1	235	327					563
	9	3	575	772					1350
	10	47	79	504	34				664
	11	86	7	211					304
	12	488	319	330					1137
	NK	3000							3000
	Total	4942	3324	2218	34	0	0	0	10518
<hr/>									
1989	1	1863	2862	687					5412
	2	1616	2314						3930
	3	126	1211	16					1353
	4	1901	2077						3978
	5								0
	6		603					1	604
	7		729	583				1	1313
	8	30	50						80
	9								0
	10								0
	11								0
	12	2	2						4
	NK	2741							2741
	Total	8279	9848	1286	0	0	0	2	19415
<hr/>									
1990	1	1694	461						2155
	2	430							430
	3	384	41						425
	4	97	1730	75					1902
	5	63	836		2				901
	6		441						441

TABLE 8a. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Division and month, 1952–95 (1992–95 no catch).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1990	7		1264	226					1490
	8	1561	700						2261
	9								0
	10	4	2						6
	11	40							40
	12	94							94
	NK								0
	Total	4367	5475	301	2	0	0	0	10145
<hr/>									
1991	1	95							95
	2								0
	3								0
	4								0
	5								0
	6		1						1
	7		1						1
	8								0
	9								0
	10								0
	11								0
	12								0
	NK								0
	Total	95	2	0	0	0	0	0	97

TABLE 8b. Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Divisions and month, 1952–91 in per thousand of the annual total (see Table 8a).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1952	1	0	0	0	0	0		0	0
	2	1	0	1	0	0		0	2
	3	0	0	0	0	0		0	0
	4	0	0	0	0	0		0	0
	5	0	2	4	2	0		30	38
	6	0	0	15	1	0		92	107
	7	1	0	11	0	1		132	145
	8	3	0	5	1	0		167	177
	9	25	0	6	6	0		57	95
	10	51	0	6	0	0		18	75
	11	21	1	7	0	0		0	29
	12	17	0	1	0	0		0	19
	NK	0	0	0	0	0		315	315
	Total	119	2	57	9	1	0	811	1000
<hr/>									
1953	1	33	0	2	0	0	0	7	42
	2	2	0	12	0	0	0	1	14
	3	0	0	0	0	0	0	0	0
	4	1	0	5	1	0	0	0	7
	5	1	0	20	17	0	0	0	37
	6	2	1	72	22	4	1	1	103

TABLE 8b. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Divisions and month, 1952–91 in per thousand of the annual total (see Table 8a).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1953	7	5	1	39	4	65	5	2	121
	8	23	1	6	1	131	5	1	168
	9	28	0	3	1	6	8	0	46
	10	7	0	6	0	0	0	0	14
	11	7	2	9	1	0	0	0	19
	12	5	0	0	0	0	0	0	5
	NK	0	0	0	0	0	0	425	425
	Total	112	4	173	47	207	20	437	1000
1954	1	1	0	0	0	0	0	0	1
	2	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
	5	0	0	58	13	0	0	4	76
	6	0	1	202	29	1	0	5	238
	7	0	0	30	14	128	0	2	174
	8	6	1	15	3	108	6	4	143
	9	15	1	6	2	55	4	0	84
	10	12	0	8	1	47	0	1	69
	11	9	0	0	1	1	0	1	12
	12	7	0	0	0	0	0	1	8
	NK	3	0	0	0	0	0	192	196
	Total	54	3	320	64	340	10	210	1000
1955	1	0	0	1	0	0	0	0	1
	2	0	0	1	0	0	0	0	1
	3	0	0	1	0	0	0	0	1
	4	0	0	0	0	0	0	0	0
	5	0	8	108	22	0	0	0	138
	6	1	6	184	68	5	0	12	275
	7	0	0	21	18	70	0	8	117
	8	4	0	20	18	66	1	10	118
	9	6	1	12	4	49	2	5	78
	10	4	0	0	0	12	0	3	19
	11	2	0	2	3	2	0	0	9
	12	2	0	1	0	0	0	0	3
	NK	0	0	0	0	0	0	239	239
	Total	19	15	352	132	202	3	276	1000
1956	1	0	0	0	0	0		0	0
	2	0	0	0	0	0		0	0
	3	1	0	0	0	0		0	1
	4	0	0	1	0	0		0	1
	5	1	22	96	20	0		29	168
	6	3	6	221	81	1		1	312
	7	0	0	56	15	47		0	118
	8	4	0	37	5	76		0	122
	9	2	0	6	3	33		0	44
	10	3	0	7	3	27		0	39
	11	2	0	2	0	1		0	5
	12	0	0	0	0	0		0	0
	NK	0	0	0	0	0		189	189
	Total	16	29	424	127	185	0	219	1000

TABLE 8b. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Divisions and month, 1952–91 in per thousand of the annual total (see Table 8a).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1957	1	0	0	0	0	0		0	0
	2	0	0	0	0	0		0	0
	3	1	0	0	0	0		0	1
	4	1	0	0	0	0		0	1
	5	8	92	51	9	0		16	176
	6	23	20	105	84	11		16	259
	7	0	5	25	6	84		37	157
	8	2	0	21	25	82		21	151
	9	8	0	34	6	35		13	95
	10	6	0	16	3	27		11	63
	11	5	0	1	0	0		20	26
	12	13	0	0	0	0		0	13
	NK	0	0	0	0	0		59	59
	Total	66	118	252	132	238	0	192	1000
1958	1	17	0	0	0	0		0	17
	2	8	0	1	0	0		1	9
	3	0	0	2	0	0		0	2
	4	7	0	1	0	0		0	9
	5	26	36	39	45	0		10	155
	6	4	33	111	71	3		20	243
	7	3	1	54	4	47		37	146
	8	4	1	17	11	83		40	156
	9	3	1	18	6	31		36	95
	10	3	1	6	2	25		6	43
	11	5	0	0	0	0		18	23
	12	11	0	0	0	0		0	11
	NK	0	0	0	0	0		91	91
	Total	91	74	248	140	189	1	258	1000
1959	1	10	0	6	0	0	0	0	16
	2	7	0	0	0	0	0	0	7
	3	0	0	1	0	0	0	0	1
	4	0	0	8	0	0	0	0	8
	5	2	39	28	4	20	0	14	107
	6	5	19	46	14	89	0	8	179
	7	4	0	30	15	71	2	82	203
	8	0	0	12	16	73	3	32	135
	9	1	0	10	1	88	0	46	145
	10	3	0	5	3	17	0	29	58
	11	3	0	0	0	0	0	4	7
	12	5	2	2	0	0	0	0	8
	NK	14	0	0	0	0	0	111	125
	Total	53	60	146	53	358	5	326	1000
1960	1	1	1	3	1	0		0	5
	2	1	0	1	0	0		0	2
	3	0	0	0	0	0		0	0
	4	8	7	6	1	0		0	23
	5	14	29	10	5	7		5	69
	6	2	29	71	25	17		42	187
	7	0	8	43	13	84		54	202

TABLE 8b. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Divisions and month, 1952–91 in per thousand of the annual total (see Table 8a).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1960	8	1	0	16	14	99		56	187
	9	4	1	11	9	53		31	108
	10	4	1	2	15	9		37	69
	11	8	0	0	0	0		32	41
	12	3	0	3	3	2		0	12
	NK	0	0	0	0	0		96	97
	Total	46	76	167	86	272	0	354	1000
1961	1	3	2	12	7	1	0	0	24
	2	4	0	0	0	0	0	0	5
	3	5	1	1	7	0	0	0	14
	4	1	3	7	26	1	0	0	38
	5	9	8	13	12	13	0	0	56
	6	7	12	58	23	24	0	16	139
	7	8	10	66	16	54	0	28	182
	8	2	9	38	24	72	0	62	206
	9	1	2	21	9	50	0	21	104
	10	2	3	3	5	22	0	20	55
	11	2	0	6	2	6	1	38	55
	12	4	1	1	7	6	1	0	19
	NK	0	0	0	0	0	0	102	102
	Total	47	51	226	138	249	2	288	1000
1962	1	5	2	4	11	7	0	3	32
	2	1	1	2	33	3	0	2	42
	3	3	5	7	36	0	0	1	53
	4	1	5	3	10	3	0	0	22
	5	7	7	7	4	7	0	2	34
	6	5	12	37	10	14	0	48	125
	7	3	15	27	16	59	0	31	151
	8	3	7	19	11	86	0	26	153
	9	1	1	8	6	46	0	42	105
	10	4	2	9	8	28	2	21	74
	11	3	1	13	16	16	0	19	69
	12	5	1	1	16	17	0	23	63
	NK	0	0	0	0	0	0	78	78
	Total	41	60	136	177	288	2	296	1000
1963	1	4	1	1	25	13		2	47
	2	2	1	6	41	0		2	53
	3	2	17	3	30	0		0	53
	4	2	13	7	13	0		0	35
	5	4	15	17	8	1		3	49
	6	3	41	69	11	9		55	189
	7	7	17	33	17	37		26	136
	8	2	5	21	10	47		15	99
	9	2	1	13	3	20		29	69
	10	3	2	9	6	15		13	48
	11	3	0	5	7	18		22	56
	12	3	1	4	10	13		24	55
	NK	2	0	0	0	0		111	112
	Total	41	114	189	180	173	0	302	1000

TABLE 8b. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Divisions and month, 1952–91 in per thousand of the annual total (see Table 8a).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1964	1	3	2	14	39	2		19	78
	2	3	6	7	15	9		11	53
	3	3	14	9	10	0		1	36
	4	4	10	4	2	0		0	19
	5	3	16	46	6	0		1	73
	6	8	30	81	38	15		14	187
	7	10	16	70	20	22		0	138
	8	3	2	7	10	37		0	60
	9	1	3	9	2	27		0	42
	10	1	2	1	1	18		0	23
	11	1	0	1	2	10		0	14
	12	2	1	4	4	9		0	20
	NK	0	0	0	0	0		257	257
	Total	42	102	253	150	150	0	303	1000
1965	1	1	0	7	28	15	0	6	57
	2	2	1	6	16	0	0	0	25
	3	1	3	2	4	0	0	0	10
	4	3	7	4	8	0	0	0	22
	5	6	13	57	13	6	0	1	95
	6	8	6	53	19	14	0	18	118
	7	3	8	33	18	50	0	42	155
	8	4	1	15	14	57	0	42	135
	9	5	2	9	3	36	0	8	63
	10	4	2	7	9	27	1	24	74
	11	5	2	5	23	20	0	29	84
	12	2	0	9	41	9	0	21	83
	NK	0	0	0	0	0	0	79	79
	Total	44	46	207	195	236	1	271	1000
1966	1	0	0	2	9	0		0	12
	2	1	1	8	1	0		0	11
	3	3	1	7	18	0		0	28
	4	1	2	15	15	0		0	33
	5	0	18	32	26	21		3	100
	6	1	21	57	30	39		25	174
	7	4	6	31	10	62		50	164
	8	12	2	16	13	85		27	155
	9	20	2	9	3	41		13	89
	10	7	1	2	1	21		11	43
	11	1	0	1	1	7		36	46
	12	6	2	4	3	16		26	56
	NK	0	0	0	0	0		89	89
	Total	55	58	185	128	293	0	280	1000
1967	1	1	0	13	3	1	0	0	19
	2	1	1	23	18	0	0	0	43
	3	2	11	20	14	0	0	4	51
	4	1	12	18	6	0	0	4	41
	5	2	24	65	45	8	0	1	145
	6	4	20	63	35	36	0	20	178
	7	5	6	48	15	39	0	33	145

TABLE 8b. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Divisions and month, 1952–91 in per thousand of the annual total (see Table 8a).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1967	8	3	2	25	11	36	0	32	109
	9	4	4	14	4	14	1	12	54
	10	1	5	6	1	10	0	5	28
	11	2	1	1	6	0	0	26	36
	12	2	0	8	37	1	0	28	75
	NK	0	0	0	0	0	0	75	75
	Total	30	85	305	195	146	1	239	1000
1968	1	1	2	12	25	0	0	0	40
	2	3	3	9	34	0	0	0	50
	3	4	1	16	21	0	0	6	47
	4	2	12	24	13	0	0	4	55
	5	8	36	42	66	2	0	1	155
	6	4	70	65	57	2	2	20	221
	7	2	35	40	9	5	0	34	123
	8	5	3	14	4	11	0	18	54
	9	7	3	18	6	13	0	7	54
	10	3	0	3	0	0	0	20	26
	11	2	1	8	1	0	0	2	14
	12	2	0	3	5	0	0	11	22
	NK	0	0	0	0	0	0	138	138
	Total	44	165	254	240	33	2	261	1000
1969	1	2	2	12	3	0	0	0	19
	2	8	1	9	8	0	0	1	26
	3	2	0	1	0	0	0	4	8
	4	2	41	42	12	0	0	0	97
	5	6	71	106	59	0	1	0	243
	6	6	36	40	39	1	1	5	127
	7	17	34	42	17	1	0	23	134
	8	6	27	33	19	17	0	10	112
	9	0	3	17	3	15	0	16	54
	10	1	2	21	1	6	0	15	47
	11	5	1	11	1	1	0	6	25
	12	6	0	4	0	0	0	17	27
	NK	0	0	2	0	0	0	79	81
	Total	60	218	341	163	40	3	175	1000
1970	1	2	0	0	0	0	0	0	2
	2	3	3	5	3	0	0	0	14
	3	12	5	3	0	0	0	0	20
	4	4	4	5	4	0	2	0	18
	5	51	72	54	67	0	0	0	245
	6	38	32	15	25	0	0	0	111
	7	9	67	38	2	2	1	0	119
	8	5	56	38	13	13	0	0	125
	9	5	4	29	8	10	0	0	57
	10	4	2	32	3	6	0	0	47
	11	17	2	25	17	8	0	0	69
	12	17	0	6	0	0	0	0	23
	NK	0	0	0	0	0	0	150	150
	Total	166	248	251	142	40	3	150	1000

TABLE 8b. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Divisions and month, 1952–91 in per thousand of the annual total (see Table 8a).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1971	1	2	0	3	0	0		0	4
	2	20	6	7	3	0		0	36
	3	2	4	2	0	0		0	8
	4	15	29	6	17	0		0	66
	5	10	17	25	92	0		0	143
	6	69	11	26	33	0		0	139
	7	41	8	22	8	2		0	80
	8	14	4	35	30	5		0	87
	9	21	3	23	31	3		0	81
	10	4	2	28	16	5		0	55
	11	2	2	24	32	1		0	61
	12	3	3	0	1	0		0	6
	NK	0	1	8	22	0		201	232
Total		202	89	208	283	16	0	201	1000
1972	1	3	0	8	111	0		0	123
	2	8	1	2	80	0		0	91
	3	3	5	10	35	0		0	53
	4	4	4	6	79	0		0	92
	5	12	18	28	23	0		0	82
	6	3	7	7	4	0		0	21
	7	0	1	41	26	5		0	74
	8	0	0	19	20	23		0	62
	9	1	9	5	1	1		0	18
	10	0	1	12	8	4		0	25
	11	0	1	38	46	1		0	87
	12	6	10	10	3	0		0	28
	NK	10	22	28	54	0		130	244
Total		50	81	214	490	35	0	130	1000
1973	1	8	6	2	54	0		0	71
	2	8	8	3	105	0		1	124
	3	11	15	16	29	0		0	71
	4	13	25	3	2	0		1	43
	5	5	17	23	9	0		2	56
	6	1	22	68	5	7		4	107
	7	3	6	40	47	36		0	131
	8	2	1	13	23	5		0	44
	9	0	3	11	10	1		0	25
	10	1	14	46	17	0		4	83
	11	0	20	55	46	0		6	128
	12	1	0	4	5	0		6	16
	NK	0	47	48	3	0		0	99
Total		53	185	332	356	50	0	25	1000
1974	1	5	2	0	1	0	0	0	7
	2	1	17	1	2	0	0	0	21
	3	0	12	0	1	0	0	0	13
	4	0	13	0	2	0	0	0	15
	5	4	20	23	22	0	0	0	68
	6	0	33	81	98	3	0	0	215
	7	0	6	83	42	26	0	0	159

TABLE 8b. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Divisions and month, 1952–91 in per thousand of the annual total (see Table 8a).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1974	8	8	9	26	1	2	0	0	47
	9	4	0	4	28	0	1	0	38
	10	0	1	85	23	8	0	0	117
	11	0	2	44	45	11	0	0	103
	12	0	0	5	18	0	0	0	23
	NK	6	66	63	40	0	0	0	176
	Total	28	182	416	322	51	1	0	1000
1975	1	6	3	0	0	0		0	10
	2	9	7	2	1	0		0	19
	3	15	17	7	149	0		0	187
	4	21	26	10	24	0		0	80
	5	25	27	5	5	0		0	63
	6	12	17	68	39	0		0	137
	7	0	4	38	15	0		0	58
	8	0	5	37	23	0		0	65
	9	1	1	27	8	0		0	38
	10	1	8	34	5	0		0	49
	11	3	4	24	24	0		0	53
	12	14	6	23	12	0		0	54
	NK	0	73	113	1	0		0	187
	Total	106	197	389	307	1	0	0	1000
1976	1	35	16	13	20	0			84
	2	20	2	6	3	0			31
	3	24	17	5	6	0			52
	4	23	22	20	2	1			67
	5	1	25	3	0	0			30
	6	9	1	0	0	0			11
	7	0	1	28	6	0			35
	8	0	0	11	35	13			60
	9	6	0	128	33	0			167
	10	8	1	13	10	0			33
	11	10	1	14	26	2			51
	12	29	81	64	2	0			176
	NK	3	54	136	1	10			203
	Total	169	221	441	142	26	0	0	1000
1977	1	34	57	175	77	0			342
	2	25	31	101	13	0			170
	3	27	25	67	15	0			135
	4	25	38	0	0	0			64
	5	10	13	102	0	0			124
	6	4	55	8	38	22			136
	7	3	0	0	0	0			3
	8	1	0	0	0	0			1
	9	1	0	0	0	0			1
	10	2	0	2	0	0			4
	11	3	0	4	0	0			7
	12	2	2	9	2	0			14
	NK	0	0	0	0	0			0
	Total	137	221	466	145	22	9	0	1000

TABLE 8b. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Divisions and month, 1952–91 in per thousand of the annual total (see Table 8a).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1978	1	202	65	23	0				289
	2	36	80	29	25				171
	3	10	60	57	20				148
	4	45	116	78	0				239
	5	0	89	22	5				115
	6	25	11	2	0				38
	7	0	0	0	0				0
	8	0	0	0	0				0
	9	0	0	0	0				0
	10	0	0	0	0				0
	11	0	0	0	0				0
	12	0	0	0	0				0
	NK	0	0	0	0				0
	Total	318	421	211	50	0	0	0	1000
1979	1	22	27	69	11	0			129
	2	11	27	49	23	0			110
	3	4	1	16	10	0			31
	4	58	61	6	0	0			125
	5	131	26	1	0	0			158
	6	89	14	5	0	0			108
	7	1	7	5	0	0			13
	8	6	2	1	0	0			9
	9	0	0	0	0	0			0
	10	2	11	5	0	0			18
	11	0	1	32	9	0			41
	12	9	89	101	34	0			233
	NK	4	0	11	0	11			25
	Total	337	266	300	87	11	0	0	1000
1980	1	51	218	53	191				513
	2	63	49	10	9				130
	3	3	2	0	0				5
	4	0	2	1	0				3
	5	4	0	0	0				4
	6	3	0	0	0				3
	7	29	0	0	0				29
	8	64	12	0	19				95
	9	46	4	0	7				57
	10	25	9	0	8				42
	11	38	21	0	0				60
	12	23	10	0	27				61
	NK	0	0	0	0				0
	Total	350	326	63	261	0	0	0	1000
1981	1	53	53	0	53				158
	2	2	0	0	0				2
	3	2	0	0	0				2
	4	10	0	0	0				10
	5	0	0	0	0				0
	6	0	0	0	0				0
	7	0	0	0	0				0

TABLE 8b. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Divisions and month, 1952–91 in per thousand of the annual total (see Table 8a).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1981	8	0	0	0	0				0
	9	0	24	0	0				24
	10	48	110	0	26				185
	11	257	98	0	5				360
	12	153	19	0	0				173
	NK	86	0	0	0				86
	Total	612	305	0	84	0	0	0	1000
1982	1	1	0	0	0				1
	2	1	0	0	0				1
	3	0	0	0	0				0
	4	1	0	0	0				1
	5	2	1	0	0				2
	6	0	0	0	0				0
	7	0	0	0	0				0
	8	0	0	0	0				0
	9	0	13	0	0				14
	10	15	35	177	8				236
	11	0	51	220	252				524
	12	62	117	42	0				221
	NK	0	0	0	0				0
	Total	84	217	439	260	0	0	0	1000
1983	1	82	173	15	0				270
	2	48	53	1	0				101
	3	29	4	0	0				33
	4	6	0	0	0				6
	5	97	24	0	0				121
	6	13	22	13	1				49
	7	0	4	4	0				8
	8	8	15	8	0				31
	9	3	5	1	0				9
	10	0	0	23	0				23
	11	0	9	63	0				72
	12	83	81	16	0				180
	NK	6	36	44	12				97
	Total	375	426	187	13	0	0	0	1000
1984	1	26	7	1					34
	2	5	10	0					15
	3	88	36	1					125
	4	121	75	1					197
	5	34	11	7					52
	6	7	1	0					8
	7	0	0	0					0
	8	6	40	185					230
	9	4	63	29					96
	10	0	0	0					1
	11	2	10	15					27
	12	31	91	95					217
	NK	0	0	0					0
	Total	323	344	332	0	0	0	0	1000

TABLE 8b. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Divisions and month, 1952–91 in per thousand of the annual total (see Table 8a).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1985	1	373	146	0					518
	2	327	0	0					327
	3	107	9	0					116
	4	1	0	0					1
	5	0	0	0					0
	6	0	0	0					0
	7	0	0	0					0
	8	0	0	0					1
	9	0	0	0					0
	10	1	0	0					2
	11	0	8	0					9
	12	6	18	1					25
	NK	0	0	0					0
	Total	816	181	3	0	0	0	0	1000
<hr/>									
1986	1	19	0	0					19
	2	0	222	0					222
	3	130	0	0					130
	4	74	0	0					74
	5	0	0	0					0
	6	0	0	37					37
	7	19	74	0					93
	8	0	0	0					0
	9	0	19	0					19
	10	0	93	0					93
	11	19	111	0					130
	12	185	0	0					185
	NK	0	0	0					0
	Total	444	519	37	0	0	0	0	1000
<hr/>									
1987	1	0	0	0					0
	2	0	0	0					0
	3	0	0	0					0
	4	11	0	0					11
	5	0	0	0					0
	6	0	0	11					11
	7	0	0	0					0
	8	90	157	22					270
	9	0	0	0					0
	10	101	0	0					101
	11	0	0	0					0
	12	281	326	0					607
	NK	0	0	0					0
	Total	483	483	34	0	0	0	0	1000
<hr/>									
1988	1	99	34	0	0				133
	2	22	41	0	0				63
	3	1	30	0	0				31
	4	3	38	6	0				47
	5	0	22	0	0				22
	6	0	0	0	0				0
	7	0	35	1	0				36

TABLE 8b. (Continued). Annual nominal catches of cod at West Greenland by non-Greenlandic vessels above 150 GRT by NAFO Divisions and month, 1952–91 in per thousand of the annual total (see Table 8a).

Year	Month	Div. 1F	1E	1D	1C	1B	1A	1NK	Total
1988	8	0	22	31	0				54
	9	0	55	73	0				128
	10	4	8	48	3				63
	11	8	1	20	0				29
	12	46	30	31	0				108
	NK	285	0	0	0				285
	Total	470	316	211	3	0	0	0	1000
<hr/>									
1989	1	96	147	35					279
	2	83	119	0					202
	3	6	62	1					70
	4	98	107	0					205
	5	0	0	0					0
	6	0	31	0					31
	7	0	38	30					68
	8	2	3	0					4
	9	0	0	0					0
	10	0	0	0					0
	11	0	0	0					0
	12	0	0	0					0
	NK	141	0	0					141
	Total	426	507	66	0	0	0	0	1000
<hr/>									
1990	1	167	45	0					212
	2	42	0	0					42
	3	38	4	0					42
	4	10	171	7					187
	5	6	82	0					89
	6	0	43	0					43
	7	0	125	22					147
	8	154	69	0					223
	9	0	0	0					0
	10	0	0	0					1
	11	4	0	0					4
	12	9	0	0					9
	NK	0	0	0					0
	Total	430	540	30	0	0	0	0	1000
<hr/>									
1991	1	979	0						979
	2	0	0					0	
	3	0	0						0
	4	0	0						0
	5	0	0						0
	6	0	10						10
	7	0	10						10
	8	0	0						0
	9	0	0						0
	10	0	0						0
	11	0	0						0
	12	0	0						0
	NK	0	0						0
	Total	979	21	0	0	0	0	0	1000

TABLE 9. Comparison between scientific advice, regulatory measures (TAC) and actual catches of cod at Greenland. From Horsted (1991) and ICES (Anon., 1997).

Year	Catch corresponding to advice		TAC set		Estimated inshore catch	Nominal catch offshore + inshore		
	West Greenl.	East Greenl.	West	East		West ²	East ²	Total ²
1974	TAC 80		107 (12) ¹			48	6	54
1975	55 ($F_{0.1}$)		60 (9) ¹			48	6	54
1976	45 or lower		45.1 (9) ¹			33	13	46
1977	0		21			38/73	9/18	47/91
1978	lowest possible		7			39/73	8/21	47/94
1979	26		7			48/99	9/34	57/133
1980	49–54 ^{3,6}		20 ⁷ + inshore			47/54	11/12	58/66
1981	40 ⁶		62			53	10/16	63/69
1982	62 ⁶		62			56	21/27	77/83
1983	52–56 ⁴		62			58	13	71
1984	49 ⁷		68.5			33	9	42
1985	22.4–37.1 ^{5,6}		28.3			15	2	17
1986	9.3 ⁶		12.5			7	5	12
1987	5.8 ⁶		12.5	11.5	8	12	7	19
1988	33 ⁶	10	53 ⁹	11.5	23	60/63	12/9	72/72
1989	13.5 ⁶	5	90	15	39	109/92	16/15	125/107
1990	112		110	15	30	69	34	103
1991			90	25	115	22	20	42
1992			66	17.25	83.25	6	11	17
1993			66	17.25	83.25	2	1	3
1994		0	66	17.25	83.25	2	+	3
1995		0	66	17.35	83.25	2	+	3

¹ For some years the agreed TAC includes an estimate of inshore fisheries. For such years the inshore catch expected when the TAC was agreed is given in parenthesis. The difference between the agreed TAC and the estimated inshore catch was allocated amongst participants in the fishery.

² When two values occur the right hand figures are estimates used by NAFO or ICES for their assessments.

³ Range due to range in estimates of the 1973 year-class when recruiting to the spawning stock.

⁴ Range due to estimates of the 1979 year-class.

⁵ Range due to range in emigration rate and survey stock estimate.

⁶ The $F_{0.1}$ is shown but several options were analyzed and for the years 1986–89 a more cautious approach than the $F_{0.1}$ option was advised.

⁷ No TAC was set but catches were limited to Greenlandic fishery and to by-catches. Greenland's catch was 37 000 tons and 46 000 tons for 1978 and 1979, respectively.

⁸ The TAC of 20 000 tons was for areas outside baseline only.

⁹ Initially (in December 1987) 40 000 tons; raised in 1988.

V. Fisheries Regulations and Management

V. Fisheries Regulations and Management

Fishing is influenced by many factors, some of which are dictated by nature, other by man. Fisheries management in its broad sense influences decisions on any aspect of the fishery (vessels, fish plants, fishing operations). Here, however, only such fisheries regulations, which influence methods, time and place of the operations, will be considered.

1. Notes on the Legal Background

The legal situation around fisheries regulations in Greenland waters has been rather complicated but needs to be understood to follow the development of regulations. Horsted (1991) reviewed the situation after the Danish constitution in 1953 changed Greenland's status from colony to an integral part of the Kingdom of Denmark. Greenland then got a local parliament (Landsrådet) for decisions on local matters, whereas laws and rules for the fishing zone and its resources were set by the Danish government through the Ministry for Greenland.

After a referendum Denmark joined the European Economic Community (EEC, now the European Union, EU) in 1973. Greenland had to follow Denmark according to the new constitution. Greenland was also an integrated part of Denmark in relation to the fisheries Commissions of the North Atlantic (ICNAF, now NAFO, and NEAFC) and is still so.

From January 1977 the fishing zone round Greenland was extended from 12 to 200 naut. miles (or to limits agreed to with neighbouring nations; not all questions settled yet). The resources in the Exclusive Economic Zone (EEZ) were then regarded as EEC resources, and TACs and other regulations were set by the EEC Council of Ministers.

By 1 May 1979 the Greenland Home Rule Act came into effect whereby Greenland got authority in relation to Denmark for management of the living resources in Greenland waters; except that Greenland was still a member of the EEC and had its voice there through the Danish Ministry of Foreign Affairs. However, a subsequent referendum showed that Greenland still opposed membership of the EEC. After long negotiations and necessary changes of Danish, Greenlandic and EEC laws and rules, Greenland officially withdrew from EEC on 1 February 1985. Since then Greenland has had complete autonomy over resources in its EEZ, and the Greenland Minister for Fisheries issues the laws and regulations governing management of the resources.

Greenland's membership at NAFO is a matter of foreign affairs, and representation as an individual member of NAFO comes as Denmark in respect of the Faroe Islands and Greenland. On the other hand, Denmark's voice in NAFO is through the EEC (now EU).

After withdrawal from the EEC, Greenland has had some fisheries agreements with the EEC/EU, including fishing rights at Greenland for the latter. These agreements so far have been made for 5-year periods.

2. Management

Cod fishing in Greenland waters was a free fishery for many earlier years. It is, however, noted that foreign fishing nations were not allowed to fish within the national fisheries territorial boundary. The boundary was originally 3 naut. miles, 12 naut. miles in 1964 and from 1977 has been 200 naut. miles except with special rights for Faroese and Danish fishermen outside the 3 naut. mile boundary. No trawling of groundfish, such as cod, was allowed inside the 3 naut. miles boundary and with a few exceptions that still holds.

Minimum mesh sizes (130 mm) in trawls were set through ICNAF effective from 1969, and a domestic rule of minimum size for landed cod of 42 cm was set at the same time. The latter was changed to 40 cm in 1973. None of these regulations have influenced fisheries performance directly, except that a very high proportion of undersized fish in catches by especially stationary pound nets may have required the fishermen to move the nets to other localities or give up that method for a while.

The first quota regulation of West Greenland cod (an overall TAC) was agreed by ICNAF in 1973 and came into force in 1974. Since then, that fishery has been regulated by TACs allocated amongst ICNAF/NAFO members. In ICNAF times, the TAC calculation included an estimate of non-members unregulated catches. Table 9 lists recommended TACs, agreed (set) TACs and total nominal catch for each of the years 1974–95 for West as well as for East Greenland.

Horsted (1991) commented on this table for the years 1974–90 and found that it seems to indicate that TAC was never really a limiting factor for fishing, except in the years 1986–87. For more recent years the discrepancy between advised TACs and set TACs reflects that the 5-year fisheries agreement between Greenland and the EU on EU fishing allowance in Greenland waters, was negotiated before the actual stock situation for each year was assessed. Therefore, it could be claimed that stock situation has influenced fishing performance more than have fisheries regulations, except when certain methods in certain areas were restricted (e.g. no inshore groundfish trawling permitted).

VI. Summary

VI. Summary

The commercial cod fishery at Greenland in this century started in 1911 by Greenland fishermen using hand- and long-lines from small boats, mainly rowing boats. Until 1924 Greenland was the only participant, and annual catches in that period did not reach 1 000 tons. Nations other than Greenland came into the picture from 1924, first Norway, followed in 1925 by the Faroe Islands and the UK, by France in 1928 and Portugal in 1931. During the pre-World War II period all were fishing with hand- and/or long-lines except in 1935–36 the UK had noteworthy catches (up to 5 600 tons) taken by trawlers, and Portugal some few hundred tons during 1936–39. Pre-war catches peaked with 130 000 tons in 1936, but only in two of the other pre-war years (1931 and 1937) did total catch exceed the 100 000 tons. World War II stopped foreign fishing at Greenland except for Portugal (the Faroe Islands fished in 1940). Greenland's own annual reported catches during the war remained at the 20 000 tons level, while the total catch may have been two-three times that.

The post-World War II period soon saw the pre-war participants the Faroe Islands, France, Norway and the UK back at West Greenland. Portugal was there already, and Spain joined from 1946. These nations evidently had their fishing fleets ready to operate, probably with a very hampered UK fleet. However, by 1949 UK landings by trawlers reached the 20 000 tons level, and by 1953 a total of 105 UK trawlers landed 34 000 tons of cod, many of them making more than one trip to Greenland. They were nearly all steam side trawlers built after the war.

The 1950–60s were characterized by a continuation of the traditional nations fishing with increasing numbers of trawlers, and by newcomers from Europe. Iceland from 1948, Italy from 1950 (Italy, however, never played a big role), the FRG from 1952, the GDR from 1958, Poland with limited effort in the 1960s, and the USSR also with limited effort so far as cod at Greenland was concerned from 1959 to 1974. These newcomers used trawlers only. Especially the FRG rapidly built up a fleet of modern diesel-powered trawlers, gradually substituting side trawlers with stern trawlers, which were highly efficient even in bad weather. The trawlers permitted fishing throughout the year.

By the end of the 1960s it became clear that the cod resource was decreasing due to less favourable environmental conditions influencing recruitment coupled with the high rate of exploitation. The resulting lower catch rates generally meant less interest in the fishery. The localized Greenland fleet of small boats had no other choice than to fish in Greenland waters, but partly switched to shrimp fishing and for a shorter period to seasonal salmon fishing. Greenland also built large trawlers, and these had the effect that Greenland's catch remained relatively high during the 1970–80s. FRG also continued fishing for cod but with much less effort than in the 1950–60s. Other nations generally phased out their cod fishing in Greenland waters in the late-1970s, influenced also by the international regulations and extension of fisheries territories.

At East Greenland the cod fishing activity and the catches were much lower than those at West Greenland. Greenland itself has only a very small local population there, and the Greenland trawlers were not going there unless fishing was thought to be much better than at the west coast to compensate the extra sailing. The major nations fishing at East Greenland after World War II were FRG, UK and Iceland.

Seen over the total period from 1910–95, Table 4 illustrates the output of the resource for each nation. It shows that the total output of the resource (West plus East) during the period was about 10 million tons. The coastal state Greenland took about 15% of that total.

Portugal with 2.1 million tons was outstanding. So was Germany, especially since nearly its whole catch of 1.8 million tons (including 125 000 tons by GDR 1958–72) was taken after World War II. These contrast with catches by Greenland, Faroe Islands and France, which are "traditional" participants, with an output of 1.2–1.5 million tons each followed by Norway recording about 900 000 tons, while UK, Spain and Iceland have some 100 000 tons each. Italy, Denmark, USSR, Poland, USA, Canada and Japan complete the list, the latter three with catches below 1 000 tons each.

VII. Acknowledgements

VII. Acknowledgements

The work on this paper started in 1992 after the NAFO Scientific Council Standing Committee on Publications (STACPUB) in 1991 had proposed to invite me to review the fishery, biology and assessment of the West Greenland cod stock after 1949. Although retired since October 1992, I found myself so heavily engaged in work on archiving materials on fisheries research in Greenland waters in the present century, that the work on this cod publication was delayed very much. I extend my sincere appreciation to STACPUB and the NAFO Secretariat for the considerations extended to me. I admire and I am thankful for the patience shown to me, and deeply indebted for editorial and technical help by T. Amaratunga.

I thank the former Greenland Fisheries Research Institute (GFRI), now integrated into The Greenland Institute of Natural Resources and its director, Klaus Høyer Nygaard for providing necessary office facilities in the first four years after my retirement, and I am deeply indebted to Hanne K. Petersen, director of the Department of Arctic Environment under the National Environmental Research Institute (the department until September 1987, was a part of GFRI) for supplying office facilities after the former institute was moved to Greenland in 1996. I thank employees of both institutes for valuable assistance in various matters, not the least for guidance and assistance by Per Kannevorff in computer work. The Greenland student Nikoline Hansen assisted in setting up Tables and Figures.

I would like to repeat here my great appreciation for valuable comments by international colleagues on the statistics first set up (Horsted, MS 1994), *viz.* to:

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and to Jens Fynbo, former director of the Royal Greenland Trade Department, Copenhagen

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NOTICE

SYMPOSIUM

Deep-sea Fisheries Symposium

Hosted by the Scientific Council of the
Northwest Atlantic Fisheries Organization

12–14 September 2001
Varadero, Cuba

CALL FOR PAPERS

The Scientific Council of NAFO is pleased to announce this Symposium to be held in conjunction with the NAFO 23rd Annual Meeting in Varadero, Cuba, co-sponsored by NAFO, the International Council for the Exploration of the Sea (ICES), and the Commonwealth Scientific and Industrial Research Organization (CSIRO). The Symposium will be co-convened by J. A. Moore (NAFO – USA), J. D. M. Gordon (ICES – UK), T. Koslow (CSIRO – Australia), and organized by the NAFO Secretariat.

Deep-sea fishery resources are increasingly exploited in various places around the world. A worldwide trend exists towards increasing exploitation of deepwater fishery resources. This has raised a number of issues concerning both the biology and management of these resources. The purpose of this Symposium will be to discuss the available biological information and the issues in the management of deepwater fisheries. The Symposium will address deepwater resources around the world, those resources being ones typically fished at depths greater than 300 meters. Topics include the following:

- Age, growth and reproduction of target species
- Life histories and estimates of production
- Identification of stocks and environments
- Impacts of fisheries on the target populations
- By-catch and impacts of fisheries on habitats
- Techniques and methods used in deepwater fisheries
- Deep-sea crustacean and cephalopod fisheries
- Policy and management of deep-sea resources, especially in international waters
- Sustainability of deep-sea fisheries

Structure:

The Symposium will be convened for three days. Papers will be presented in non-overlapping thematic sessions, and posters will be displayed throughout the meeting. Oral presentations will be 30 minutes, including a question period. On the last day, a session will be devoted to summarizing the major themes and conclusions of the Symposium.

Written work shall be presented in English and the meeting will be conducted in English.

Venue:

The Symposium will be held in Varadero, Cuba. Information on venue, hotels and other accommodation will be made available shortly.

Participation:

The Symposium is open to scientists, managers, policy-makers and all those with an interest in deep-sea fisheries. Those who may wish to attend the Symposium or contribute papers or posters are invited to contact the co-conveners or the NAFO Secretariat. There is no Symposium fee.

Papers and Posters:

Papers are invited on any of the above listed topics. Papers in other subject areas related to deepwater fisheries will also be considered. Posters will also constitute an important part of the Symposium. Contributions of posters are encouraged, and will be displayed daily throughout the Symposium. Papers and posters will be selected and placed in appropriate sessions on the basis of their relevance to the topics. Authors may submit both posters and papers.

Authors will be sent instructions on the format to follow in preparing their contributions upon receipt and acceptance of their abstracts.

Abstracts:

Abstracts of 250 words or less must be submitted for both posters and oral presentations. Electronic submission of abstracts to one of the co-conveners is acceptable and encouraged, provided all relevant contact information is furnished. All abstracts will be collated according to session and distributed to all participants.

A deadline of **1 March 2001** has been set for the provision of titles and abstracts. Authors will be notified of selected contributions by **15 March 2001**. All papers and posters (prepared in a manuscript format) must be submitted to T. Amaratunga (NAFO Secretariat) by **5 September 2001**.

Publication:

It is anticipated that the proceedings of this Symposium will be published in the *Journal of Northwest Atlantic Fishery Science*. The appointed Editors will review papers submitted to this volume for both content and style. Papers will also be considered from those submitting poster presentations. All authors will receive a complementary copy of the proceedings.

For further information, please contact one of the following. Further details and practical information will be supplied to intended participants.

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N O T I C E

**NAFO Scientific Council announces
a
Symposium
on
Elasmobranch Fisheries
in
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The Symposium will be held in conjunction
with the NAFO 24th Annual Meeting

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Information for Preparing Manuscripts for NAFO Scientific Publications

Introduction

The manuscript should be in English. The sequence of the material should be: title page, Abstract, text including Introduction, Materials and Methods, Results, Discussion and Acknowledgements and References. Number all pages, including the title page, consecutively with arabic numbers in the center of the top margin. There is usually no page limitation or page charge for accepted publications.

Content of Manuscript

Title page

This page should contain the title, followed by the name(s) and address(es) of the author(s) including professional affiliation, and any related footnotes. The title should be limited to what is documented in the manuscript and be as concise as possible. Where necessary the scientific names of species should be included.

Abstract

An informative abstract must be provided, which does not exceed one double-spaced page or about 250 words, the ultimate length being dependent on the size of the manuscript. The abstract should concisely indicate the content and emphasis of the paper. It should begin with the main conclusion from the study and be supported by statements of relevant findings. The scientific names of species where necessary should be included here. It is important that the abstract accurately reflect the contents of the paper because it is often separated from the main body of the paper by abstracting and indexing services.

Text

In general, the text should be organized into Introduction, Materials and Methods, Results, Discussion, Acknowledgements and References. Authors should be guided by the organization of papers that have been published in the NAFO Journal or Studies and by such authorities as the Council of Biological Editors Style Manual (CBE, 9650 Rockville Pike, Bethesda, MD 20814, USA).

The **Introduction** should be limited to the purpose and rationale of the study. The article should begin with a clear description of the subject (include where necessary the scientific names of species), stating the hypothesis and/or defining the problem(s) the research was designed to solve. Define the time of the study, along with literature review and other information limited to what is relevant to the problem.

The **Materials and Methods** should provide the framework for obtaining answers to the problems which concern the purpose of the study. Describe in sufficient detail the materials and methods used so as to enable other scientists to evaluate the work or replicate the work.

The **Results** should answer the questions evolving from the purpose of the study in a comprehensive manner in an orderly and coherent sequence, with illustrative tables and figures. Ensure only relevant information is presented to substantiate the findings. Avoid any confusion between facts and inferences and the restatement of table and figure captions in the text.

The **Discussion** should give the main contributions from the study, with appropriate interpretation of the results focussing on the problem or hypothesis. Compare with those of other authors. Speculation should be limited to what can be supported with reasonable evidence. In the case of short papers, it may be useful to combine Results and Discussion to avoid repetition.

The **Acknowledgements** should be limited to the names of individuals who provided significant scientific and technical support, including reviews, during the preparation of the manuscript, and the names of agencies which provided financial support.

The **References** represents the list of references cited in the text listed alphabetically. Good judgment should be used in the selection of references, which should be restricted largely to significant published literature. Unpublished data and documents, manuscripts in preparation, and manuscripts awaiting acceptance to other journals may be noted in the text as unpublished data or personal communications, with full contact addresses.

Literature references cited in the text must be by author's surname and year of publication, e.g. (Collins, 1960). The surnames of two authors may be used in a citation, but, for more than two authors the citation should be (Collins *et al.*, 1960). The citation of mimeographed manuscript reports and meeting documents should contain the abbreviation "MS", e.g. (Collins *et al.*, MS 1960). All papers referred to in the text must be cited in the References alphabetically by the first author's surname and initials, followed by the initials and surnames of other authors, year of publication, full title of the paper, name of the periodical, volume and/or number, and range of pages. Abbreviations of periodicals should, if possible, follow the "*World List of Aquatic Sciences and Fisheries Serials Titles*", published periodically by FAO (Food and Agriculture Organization of the United Nations). References to monographs should, in addition to the author(s), year and title, contain the name and place of the publisher and the number of pages in the volume. Reference to a paper in a book containing a collection of papers should also contain the page range of the paper, name(s) of editor(s), and actual title of the book. The accuracy of all references and their correspondence with text citations is the responsibility of the author.

Comments on Tables and Figures

All Tables and Figures must be mentioned or discussed in the text. Tables and Figures must be numbered consecutively in arabic numerals, which correspond with the order of presentation in the text. The required position of the Tables and Figures in the text should be indicated in the left margin of the relevant page. Place the originals of Tables and Figures after the list of references.

Tables. Note a well constructed Table can eliminate elaborate text descriptions. Each Table should be carefully constructed to be easily read and understood. Each column and row must be concisely headed, ensuring relevant units of the values are given (usually within parentheses). Each Table should have a complete but concise descriptive heading, and should be on a separate sheet.

Figures. Note any reference to geographic areas relevant to the study should be shown in a Figure (or map) form giving coordinates. These and illustrations and photographs can eliminate elaborate text descriptions.

Each Figure should be carefully constructed and labelled to be easily read and understood. Each vertical and horizontal axis (e.g. x and y axes on a graph or latitude and longitudes on a map) must have a concise header with relevant units (usually within parentheses). Each Figure would have a complete but concise descriptive heading, and should be on a separate sheet.

When preparing figures, consideration should be given to details such as shading and lettering with respect to the effects of reduction in size to a page width (e.g. lettering should not be overbearing or too small). If oversized figures are necessary, only good quality page-size photocopies should be submitted. If the paper contains photographs, ensure they have good contrast whether they are in colour or black and white.

Mathematical equations and formulae must be accurately stated, with clear definitions of the various letters and symbols. If logarithmic expressions are used, the type of function (e.g. \log , \ln , \log_{10} or \log_e) must be clearly indicated.

Manuscript Submission

NOTE: The following are the two major NAFO scientific publications, while the Scientific Council Research Documents (SCR Doc.) and Summary Document (SCS Doc.) are series that are submitted for meeting considerations.

The NAFO Secretariat now prefers to receive manuscript submissions, for any of the above publications in a

computer electronic form. Coloured Tables and Figures are now accepted.

The manuscript submissions may be done by e-mail (with a hard copy and diskette also forwarded by mail), or by mail (one hard copy and diskette). All texts, Tables and Figures should be formatted using Word or WordPerfect (Word is preferred), with each Table and Figure saved in a separate file (eps (preferably), tiff, pct, jpg, bmp or gif).

The Secretariat may request alternative formats as publication technologies develop.

Journal of Northwest Atlantic Fishery Science

The Journal provides a forum for the primary publication of original research papers. While it is intended to be regional in scope, papers of general applicability and methodology, irrespective of region, may be considered. Both practical and theoretical papers are eligible. Space is also provided for notes, letters to the editor and notices.

Such manuscripts are considered for publication with the understanding that the content is unpublished and is not being submitted elsewhere for publication. Each manuscript is assigned to an Associate Editor of the Journals Editorial Board, for scientific editing. Papers are normally sent by the Associate Editors to two referees for appraisal regarding its suitability as a primary article.

NAFO Scientific Council Studies

The Studies publishes papers which are of topical interest and importance to the current and future activities of the Scientific Council, but which are not considered to be sufficiently high quality to meet the standards for primary publication in the Journal. Such papers have usually been presented as research documents at Scientific Council meetings and nominated for publication by the Standing Committee on Publications. These manuscripts are not normally refereed but undergo critical scrutiny by the Studies editor and by an expert familiar with the subject matter selected from the Journal editorial board.

Manuscripts (one hard copy and one copy saved on a computer diskette) being submitted should be addressed to:

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Scientific Publications of the Northwest Atlantic Fisheries Organization

Journal of Northwest Atlantic Fishery Science

The Journal provides an international forum for the primary publication of original research papers on fisheries science in the Northwest Atlantic, with emphasis on environmental, biological, ecological and fishery aspects of the living marine resources and ecosystems. (Scientific publications during ICNAF times are available at the Secretariat).

- Vol. 1 – Miscellaneous papers, (10), December 1980, 112 pp.
- Vol. 2 – Miscellaneous papers, (10), October 1981, 76 pp.
- Vol. 3, No. 1, 2 – Miscellaneous papers, (17), May and December 1982, 180 pp.
- Vol. 4 – Special issue *Guide to the Early Stages of Marine Fishes Occurring in the Western North Atlantic Ocean, Cape Hatteras to the Southern Scotian Shelf*, July 1983, 424 pp.
- Vol. 5, No. 1, 2 – Miscellaneous papers, (26), January and November 1984, 224 pp.
- Vol. 6, No. 1, 2 – Miscellaneous papers, (17), June and December 1985, 179 pp.
- Vol. 7, No. 1, 2 – Miscellaneous papers, (18), December 1986 and December 1987, 177 pp.
- Vol. 8 – Miscellaneous papers, (7), December 1988, 88 pp.
- Vol. 9 – Miscellaneous papers, (13), September and December 1989, 159 pp.
- Vol. 10 – Special issue, (1), *The Delimitation of Fishing Areas in the Northwest Atlantic*, December 1990, 57 pp.
- Vol. 11 – Miscellaneous papers, (7), February 1991, 80 pp.
- Vol. 12 – Miscellaneous papers, (7), January 1992, 84 pp.
- Vol. 13 – Miscellaneous papers, (7), December 1992, 114 pp.
- Vol. 14 – Symposium papers, (12), on *Changes in Biomass, Production and Species Composition of the Fish Populations in the Northwest Atlantic over the Last 30 Years, and Their Possible Causes*, December 1992, 160 pp.
- Vol. 15 – Special issue, (1), *Decapod Crustacean Larvae from Ungava Bay*, December 1993, 170 pp.
- Vol. 16 – Miscellaneous papers, (7), July 1994, 100 pp.
- Vol. 17 – Miscellaneous papers, (6), October 1994, 78 pp.
- Vol. 18 – Miscellaneous papers, (6) (1 Note), April 1996, 115 pp.
- Vol. 19 – Symposium papers, (11), on *Gear Selectivity/Technical Interactions in Mixed Species Fisheries*, September 1996, 145 pp.
- Vol. 20 – Special issue, (1), *North Atlantic Fishery Management Systems: A Comparison of Management Methods and Resource Trends*, September 1996, 143 pp.
- Vol. 21 – Miscellaneous papers, (5), April 1997, 83 pp.
- Vol. 22 – Symposium papers, (25) (1 Note), on *The Role of Marine Mammals in the Ecosystem*, December 1997, 387 pp.
- Vol. 23 – Symposium papers, (16), *What Future for Capture Fisheries*, October 1998, 277 pp.
- Vol. 24 – Miscellaneous papers, (4), November, 1998, 97 pp.
- Vol. 25 – Symposium papers, (17), (2 Notes), on *"Variations in Maturation, Growth, Condition and Spawning Stock Biomass Production in Groundfish"*, October 1999, 233 pp.
- Vol. 26 – Miscellaneous papers, (6), December 2000, 145 pp.
- Vol. 27 – Symposium papers (22) (1 Note), *Pandalid Shrimp Fisheries – Science and Management at the Millennium*, December 2000, 289 pp.
- Vol. 28 – Special issue, (1), *A Review of the Cod Fisheries at Greenland, 1910–1995*, December 2000, 121 pp.

NAFO Scientific Council Studies

This publication includes papers of topical interest and importance to the current and future activities of the Scientific Council.

- No. 1 – Miscellaneous papers, (11), March 1981, 101 pp.
- No. 2 – Manual on *Groundfish Surveys*, December 1981, 56 pp.
- No. 3 – Miscellaneous papers, (8), April 1982, 82 pp.
- No. 4 – Special Session papers, (12), on *Remote-Sensing Applications to Fishery Science*, September 1982, 98 pp.

NAFO Scientific Council Studies (Continued)

- No. 5 – Symposium papers, (12), on *Environmental Conditions in 1970–79*, December 1982, 114 pp.
- No. 6 – Miscellaneous papers, (8), December 1983, 104 pp.
- No. 7 – Miscellaneous papers, (9), August 1984, 98 pp.
- No. 8 – Miscellaneous papers, (12), April 1985, 96 pp.
- No. 9 – Special Session papers, (17), on *Squids*, November 1985, 180 pp.
- No. 10 – Miscellaneous papers, (9), August 1986, 112 pp.
- No. 11 – Miscellaneous papers, (11), March 1987, 127 pp.
- No. 12 – Miscellaneous papers, (8), March 1988, 90 pp.
- No. 13 – Miscellaneous papers, (5), November 1989, 82 pp.
- No. 14 – Miscellaneous papers, (6), May 1990, 74 pp.
- No. 15 – Miscellaneous papers, (7), May 1991, 68 pp.
- No. 16 – Special Session papers, (22), on *Management Under Uncertainties*, November 1991, 190 pp.
- No. 17 – Workbook on *Introduction to Sequential Population Analysis*, February 1993, 98 pp.
- No. 18 – Symposium papers, (18), on *Changes in Abundance and Biology of Cod Stocks and Their Possible Causes*, July 1993, 110 pp.
- No. 19 – Miscellaneous papers, (8), October 1993, 98 pp.
- No. 20 – Miscellaneous papers, (7), February 1994, 114 pp.
- No. 21 – Collections of Papers, (10), Related to *Northern Cod and Seals in NAFO Divisions 2J and 3KL*, December 1994, 165 pp.
- No. 22 – Miscellaneous papers, (6), May 1995, 95 pp.
- No. 23 – Miscellaneous papers, (5), September 1995, 95 pp.
- No. 24 – Symposium papers, (12), on *Impact of Anomalous Oceanographic Conditions at the Beginning of the 1990s in the Northwest Atlantic on the Distribution and Behaviour of Marine Life*, September 1994, 155 pp.
- No. 25 – Collection of Papers, (5), *Flemish Cap Selected Environmental and Other Papers*, July 1996, 91 pp.
- No. 26 – Selected Papers, (11), (2 Notes), on *Harp and Hooded Seals*, December 1996, 129 pp.
- No. 27 – Miscellaneous papers, (5), (1 Note), December 1996, 81 pp.
- No. 28 – Special Session papers, (6), on *Assessment of Groundfish Stocks Based on Bottom Trawl Survey Results*, December 1996, 105 pp.
- No. 29 – Selected Papers, (11), *Selected Studies Related to Assessment of Cod in NAFO Divisions 2J+3KL*, May 1997, 125 pp.
- No. 30 – Miscellaneous papers, (9), December 1997, 117 pp.
- No. 31 – Miscellaneous papers, (8), December 1998, 165 pp.
- No. 32 – Miscellaneous papers, (8), April 1999, 133 pp.
- No. 33 – Miscellaneous papers, (7), May 2000, 135 pp.

NAFO Scientific Council Reports

This publication contains reports of Scientific Council Meetings held through each year since NAFO replaced ICNAF. (The comparable publication during ICNAF was called the *Redbook*).

- 1980 – Reports of seven meetings in 1979 and 1980, Published December 1980, 190 pp.
- 1981 – Reports of four meetings in 1981, Published December 1981, 148 pp.
- 1982 – Reports of two meetings in 1982, Published December 1982, 110 pp.
- 1983 – Reports of three meetings in 1983, Published December 1983, 152 pp.
- 1984 – Reports of three meetings in 1984, Published December 1984, 126 pp.
- 1985 – Reports of three meetings in 1985, Published December 1985, 146 pp.
- 1986 – Reports of three meetings in 1986, Published December 1986, 156 pp.
- 1987 – Reports of three meetings in 1987, Published December 1987, 138 pp.
- 1988 – Reports of two meetings in 1988, Published December 1988, 150 pp.
- 1989 – Reports of two meetings in 1989, Published December 1989, 180 pp.
- 1990 – Reports of two meetings in 1990, Published December 1990, 188 pp.
- 1991 – Reports of two meetings in 1991, Published December 1991, 164 pp.
- 1992 – Reports of four meetings in 1992, Published December 1992, 212 pp.
- 1993 – Reports of three meetings in 1993, Published January 1994, 234 pp.
- 1994 – Reports of four meetings in 1994, Published January 1995, 234 pp.
- 1995 – Reports of three meetings in 1995, Published January 1996, 244 pp.

NAFO Scientific Council Reports (Continued)

- 1996 – Reports of three meetings in 1996, Published January 1997, 226 pp.
- 1997 – Reports of three meetings in 1997, Published January 1998, 274 pp.
- 1998 – Reports of three meetings in 1998, Published January 1999, 257 pp.
- 1999 – Report of four meetings in 1999, Published January 2000, 327 pp.
- 2000 – Report of four meetings in 2000, Published January 2001, 303 pp.

NAFO Statistical Bulletin

This publication replaced *ICNAF Statistical Bulletin* which terminated with Vol. 28 (revised). The volume numbering continues the series as the *NAFO Statistical Bulletin*.

- Vol. 29 – Fishery statistics for 1979, Originally published July 1981; revised edition published November 1984, 290 pp.
- Vol. 30 – Fishery statistics for 1980, Originally published August 1982; revised edition published October 1984, 280 pp.
- Vol. 31 – Fishery statistics for 1981, Originally published September 1983; revised edition published March 1985, 276 pp.
- Vol. 32 – Fishery statistics for 1982, Published December 1984, 284 pp.
- Vol. 33 – Fishery statistics for 1983, Published December 1985, 280 pp.
- Vol. 34 – Fishery statistics for 1984, Published December 1986, 304 pp.
- Vol. 35 – Fishery statistics for 1985, Published December 1987, 322 pp.
- Vol. 36 – Fishery statistics for 1986, Published October 1989, 304 pp.
- Vol. 37 – Fishery statistics for 1987, Published April 1990, 295 pp.
- Vol. 38 – Fishery statistics for 1988, Published February 1991, 307 pp.
- Vol. 39 – Fishery statistics for 1989, Published February 1993, 300 pp.
- Vol. 40 – Fishery statistics for 1990, Published February 1994, 309 pp.
- Vol. 41 – Fishery statistics for 1991, Published February 1995, 318 pp.
- Statistical Bulletin Supplementary Issue, 1960–90, (statistics) Published April 1995, 156 pp.
- Vol. 42 – Fishery statistics for 1992, Published October 1995, 310 pp.
- Vol. 43 – Fishery statistics for 1993, Published December 1997, 329 pp.
- Vol. 44 – Fishery statistics for 1994, Published December 2000, 201 pp.

NAFO List of Fishing Vessels

This triennial publication replaced *ICNAF List of Fishing Vessels* which terminated with the 1977 list in April 1980. The NAFO publication was also discontinued after the 1989 list in January 1992.

- 1980 – List for 1980, Published March 1983, 48 pp.
- 1983 – List for 1983, Published April 1985, 43 pp.
- 1986 – List for 1986, Published July 1988, 48 pp.
- 1989 – List for 1989, Published January 1992, 44 pp.

Inventory of Sampling Data

This publication replaced *ICNAF Inventory of Sampling Data* 1967–1978 which was completed in 1986.

- Inventory of Sampling Data* 1979–1984, Published April 1989, 250 pp.
- Inventory of Sampling Data* 1985–1989, Published March 1993, 265 pp.
- Inventory of Sampling Data* 1990–1994, Published October 1999, 287 pp.

NAFO Index of Meeting Documents

This publication contains lists of all documents along with a subject and author index of the NAFO Scientific Council documents issued during 5-year periods.

- 1979–84 – Index of Meeting Documents, Published March 1985, 146 pp.
 - 1985–89 – Index of Meeting Documents, Published December 1990, 116 pp.
 - 1990–94 – Index of Meeting Documents, Published November 1995, 139 pp.
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