Summary of Catch Statistics by Subarea and Assessment Unit for the Northern Labrador Arctic Charr Fishery in 1985

by

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Abstract

Catch and effort statistics for the northern Labrador Arctic charr fishery in 1985 are summarized. Total northern Labrador landings of 141 t were 5% lower than 1984 landings and 26% below the previous 10-year mean of 190 t. Factors contributing to decreased catches in 1985 were similar to those affecting the fishery in 1983 and 1984 and were: reduced effort, overall decreased abundance of charr in the region, heavy ice conditions which have prevented fishermen from setting gear and also damaged and destroyed gear, and the lack of a consistent fishery in the northern subareas. Results of tagging programs are summarized and used to support the grouping of various subareas into assessment units.

Résumé

Ce texte présente un sommaire des statistiques relatives aux prises et à l'effort de pêche de l'omble chevalier dans la partie nord du Labrador arctique en 1985. Les débarquements totaux pour le nord du Labrador se chiffrent à 141 t, soit 5 % de moins qu'en 1984 et 26 % de moins que la moyenne des 10 années antérieures (190 t). Les facteurs qui ont contribué à cette baisse sont du même ordre que ceux qui ont affecté la pêche en 1983 et en 1984, à savoir : effort de pêche réduit, diminution générale des stocks d'ombles dans la région, glaces abondantes qui ont empêché les pêcheurs d'installer leurs engins ou ont endommagé ou détruit des engins, et absence d'une pêche régulière dans les sous-zones du nord. Le texte résume les résultats des programmes d'étiquetage utilisés pour justifier le regroupement de diverses sous-zones en unités d'évaluation.

Introduction

Continuous records of commercial landings of anadromous Arctic charr (Salvelinus alpinus) from the northern Labrador coast are available since 1944. Catch statistics from the Nain and Makkovik regions and from subareas within the Nain Fishing Region (Fig. 1) exist since 1974. From 1977 to 1982 more than 200 t y^{-1} of Arctic charr were caught in northern Labrador but during the past three years (1983-1985) annual landings have averaged only 156 t. The highest landings on record were 252 t in 1981, while the lowest during the past 30 years was 54 t in 1975.

The purpose of this paper is threefold. First, it summarizes catch statistics for the 1985 fishery and updates previous reports (Dempson 1982; LeDrew and Dempson 1982; Dempson et al. 1985) which have examined landings in the commercial fishery. Second, it provides a summary of tag recapture information which is used to identify assessment unit groupings within the Nain Fishing Region. Finally, it examines several factors which may have influenced landings in the commercial fishery during 1985.

Methods

Information on the commercial landings of Arctic charr in Labrador was obtained from Economics Branch of the Department of Fisheries and Oceans. Purchase slips, prepared by Economics, were issued to buyers and were filled out at the time of catch receipt. Information requested included the name of the fisherman, license number, area where fish were caught, date, number of nets used, weight of fish landed and total number of fish caught. Landed catches were converted to round weight (in kilograms) using the conversion factor: gutted head-on weight x 1.22 = round weight (Dempson 1984a). Catch per unit effort estimates were derived following the method initiated by Coady and Best (1976) and are expressed in terms of kilograms per man-weeks fished.

Estimates of ice concentration along the northern Labrador coast were obtained from ice charts produced by Atmospheric Environment Service, Ice Forecasting Central, Ottawa. The area of ice was determined by week within the area defined between 55°N and 60°N latitude inside of a line running northwest from 55°00'N, 59°00'W to 60°00'N, 63°00'W (Fig. 1).

Results and Discussion

Total Northern Labrador Landings

Figure 2 illustrates the commercial landings of Arctic charr from 1944 to 1985. Also illustrated are the landings from the Nain and Makkovik Fishing Regions from 1974 to 1985. On average over the past 10 years, the Nain Region has produced about 85% of the total northern Labrador charr catch. Landings in 1985 totaled 141 t and were 5% lower than the previous year and 26% below the previous 10-year mean (190 t, 1975-1984). Individually, landings in the Nain Region of 107 t were 13% lower than in the previous year. Charr landings in the Makkovik region in 1985 were 34 t and were 37% higher than in 1984. This

increase was partly due to a catch of 7 t of Arctic charr from the Postville area during the spring (Table 1).

Fishing effort in the Nain Fishing Region in 1985 also decreased by 13% from 1984 with overall abundance (CUE) the same as in 1984.

Summary of Tagging Results for Identification of Stock Units

A total of 7,566 Arctic charr have been tagged and released in the northern Labrador area of which 1,842 (24.3%) have been subsequently recaptured from known fishing areas (Table 2). On the basis of the distribution of actual tag recoveries a number of assessment units have been proposed. The Voisey assessment unit consists of the Voisey Bay and Antons subareas (Fig. 1) where 83% of the recaptures have occurred from charr tagged and released in Voisey Bay. These areas were considered as one assessment unit last year on the basis of tag recapture information and similar mean age and length distributions of the catches (Dempson and LeDrew 1985).

The Nain assessment unit consists of Anaktalik Bay, Nain Bay, Tikkoatokak Bay and Webb Bay for the inshore zone, and the outer coast island areas of Dog Island and Black Island for the offshore zone (Fig. 1). Of the charr tagged and released within these subareas, 97% of the recaptures have occurred from within the proposed assessment unit.

The number of tag recaptures of charr tagged in Okak Bay is small (N=33) and precludes any firm confidence in identifying assessment unit boundaries. However, using the areas defined in Table 2, 94% of the recaptures of tags applied to charr in Okak Bay have been recovered within the region and 82% recovered within the Okak Bay and Cutthroat subareas.

Two other assessment units have been designated: Hebron, where 94% of the tag recoveries of charr tagged and released in the Hebron area have occurred, (including tags recovered in Ikarut River), and Saglek where 88% of the tag recoveries of charr tagged and released in the Saglek area have been obtained (Table 2). The total number of recaptures of Saglek fish, however, is also small (N=33).

Results of the tagging experiments indicated little intermixing of populations from widely distributed areas over the approximately 300 km length of coastline (Antons to Saglek Fiord) in which tagging studies were carried out. Only 1.3% of Arctic charr tagged in the Voisey or Nain assessment unit areas have been recaptured north of Black Island and less than 0.2% recaptured south of Antons. Similarly, less than 1% of charr tagged in the Okak, Hebron or Saglek subareas have been recaptured south of the Kiglapait subarea. Intermixing of local and adjacent populations does occur at sea, but there appears to be a tendency for movement and mixing to occur more in the offshore island or outer coastal areas than does interchange among inside bays. In any case the vast majority of tag recoveries from the proposed assessment units have occurred within the same units.

Analyses of morphological characteristics and differences in growth and age at maturation have been found in charr from Voisey Bay, Tikkoatokak Bay,

Okak Bay and Hebron Fiord (Dempson 1984b; Dempson and Misra 1984) which support separation of assessment units based on tagging information.

In past assessments a method was used to apportion most of the offshore catches from the Dog Island and Black Island area back into respective inshore areas on the basis of tagging information. This technique had the advantage of being able to take into account, for assessment purposes, the increasing losses of charr in the offshore areas. Ideally, tagging would have to be conducted in each subarea each year. Since this was not possible, average values over several years were used and then updated each year. By arranging assessment units as proposed above, this technique would no longer be necessary. Nor would a constant proportion of charr from 'other' areas contributing to the offshore catches have to be assumed. Catch and effort data from the entire assessment unit could now be considered where previously only effort from the inshore areas was utilized in tuning cohort analyses.

Catch and Effort Data - Nain Fishing Region Assessment Unit Summary

Appendix 1 provides a summary of catch and effort statistics for all subareas within the Nain fishing region from 1974-85.

Table 3 summarizes cumulative catch data for the Voisey, Nain and Okak stock units for the three time periods 1977-79, 1980-82 and 1983-85. As indicated in the table, there has been an increasing proportion of the catch taken in the offshore zone for the Voisey and Nain assessment units during the latter period. Since 1977 the Voisey assessment unit has averaged 14% of the total catch within the Nain Fishing Region, while the Nain and Okak assessment units have contributed 36% and 26% respectively. In this paper catch statistic summaries for the Okak assessment unit include the subareas of Okak Bay and Cutthroat only.

Table 4 summarizes catch and effort data for the Voisey, Nain, and Okak assessment units, from 1974-85. With respect to the Voisey assessment unit, highest catches occurred during the late 1970s as did the highest catch per unit of effort (CUE). Since 1979 both catch and CUE have varied with the lowest CUE in 1984. Abundance appeared to be up in 1985 while effort was the lowest since 1976. The majority of the catch in 1985 was obtained from the Antons subarea where catch per unit effort was up substantially over the past year.

Landings in the Nain assessment unit increased by about 6% over 1984 with a slight increase in effort. Catch per unit effort was also slightly higher than the previous year but has been relatively constant for the past three years. Increases in catch per unit effort were observed in the Anaktalik and Tikkoatokak subareas within the inshore zone, and both offshore subareas. The Black Island subarea recorded its highest CUE while the Dog Island subarea equaled its highest value recorded in 1983. The quota for the Anaktalik subarea was achieved although only 71% of the TAC for Tikkoatokak-Nain Bay was obtained. The surplus of catch over the TAC indicated in Table 4 for 1985 reflects the inclusion of landings from the nonregulated subareas within the Nain assessment unit (Webbs Bay, Dog Island, Black Island).

The absence of fisheries in the Hebron and Saglek Fiords in 1985 resulted in an increase in both catch and effort in the Okak and Cutthroat subareas. CUE, however, decreased in Okak Bay to levels recorded in 1979 and 1983. The TAC for the Okak Bay subarea was virtually achieved with 25 of 27 t landed. An additional 8.5 t were landed in the nonregulated Cutthroat subarea.

The Labrador Inuit Association conducted a trial fishery in the Nachvak Fiord in 1985 where 6 t of charr were landed. Catch per unit effort was high and catches were successfully transported back to the Nain fish plant, a distance of about 300 km. This was the first time since 1969 that the Nachvak area had been commercially fished.

Spring Trout Fishery - Postville

A trial commercial fishery for sea-run brook charr Salvelinus fontinalis was undertaken in the Postville area from June 17 to July 6 in 1985. Twenty-one fishermen were involved. Applying the same conversion factor as used for Arctic charr, approximately 1.7 t of brook charr (N=2501) were purchased by Torngat Fish Producers Cooperative. In contrast, the fishery also obtained 6.8 t (N=4907) of Arctic charr. The majority of the catch of both species was landed during the week of June 25 to July 1, although the greatest catch per unit effort (expressed in terms of kg per gear unit) was during the week June 18-24 (Table 5). In general, the fishery harvested about four times the amount (biomass) of Arctic charr than brook charr.

Factors Contributing to Commercial Landings in 1985

Similar to what occurred in 1983 and 1984, an overall decrease in effort was partially responsible for the decline in charr landings in the Nain fishing region in 1985. Catch per unit effort was still below values obtained prior to 1983 suggesting that abundance of charr available to the fishery was lower than that during the late 1970s and early 1980s.

Additional sources of employment in the community of Nain during 1984 and 1985 have caused a reduction in the numbers of fishermen actively involved in the commercial fishery. While some new entrants have occurred there were approximately 25 people not fishing in 1985 that did regularly fish sometime during the past 3 years.

Table 6 summarizes the coastal area of ice concentration by week from 1979 to 1985 between 55° and 60° latitude. Values differ from those previously used (Dempson et al. 1985) because a different series of ice charts was used, more restricted area boundaries and use of standardized weeks. For the past three years the northern Labrador region has been affected by heavy ice conditions well into the month of July. The area of ice is negatively correlated with the total northern Labrador charr landings ($r = -0.76$, $P = 0.05$) and highly correlated with charr landings from the Nain stock unit ($r = -0.94$, $P = 0.002$). Atlantic salmon landings from the Nain fishing region are also negatively correlated with the area of ice ($r = -0.98$, $P = 0.001$). The Nain region in 1985 recorded its lowest catch of salmon (14.6 t) since information on landings from the two fishing regions (Nain and Makkovik) have been available.

The results of a survey questionnaire, conducted with 84 fishermen from the Nain region, indicated that 78% of those surveyed believed that ice conditions have affected their landings during the past several years. Fifty-one percent indicated that they have, at some time, been prevented from setting nets. Thirty-six percent reported that they have had nets destroyed or damaged during the past several years owing to extreme ice conditions.

In summary, the same factors responsible for decreased landings in 1983 and 1984 appear again responsible in 1985.

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Table 1. Summary of northern Labrador Arctic charr landings (kg round) by fishing region, 1974-85.

	Nain Fishing Region				Makkovik Fishing Region			
Year	Catch	No. of fishermen	Fathoms of gear licensed	Catch as % of total	Catch	No. of fishermen	Fathoms of gear licensed	Total catch
1974	120,414			81	28,133			148,547
1975	44,118			82	9,542			53,660
1976	134,898	101	-	90	15,645			150,543
1977	186,165	128	-	88	24,205			210,370
1978	213,915	131	21,340	86	34,387	149	29,300	248,302
1979	175,263	142	21,320	82	37,693	110	21,225	212,956
1980	167,991	128	23,960	83	35,561	154	30,635	203,552
1981	231,221	122	21,700	92	20,733	154	30,990	251,954
1982	203,012	118	23,600	84	39,163	141	28,200	242,175
1983	149,732	119	24,400	84	29,100	148	29,600	178,832
1984	123,045	115	23,000	83	24,792	147	29,400	147,837
1985	107,120	95	19,000	76	33,945*	132	26,400	141,065

*Includes 6,788 from spring fishery in Postville area.

Table 2. Percentage distribution of tag recoveries by assessment unit of Arctic charr tagged and released in various subareas of northern Labrador.

Tagging location Assessment unit Subarea	No. tagged	Length (mm) Mean	Length (mm) Range	No. recaptured[a]	Percent recapture by assessment unit: Voisey Inshore	Voisey Offshore	Voisey Total	Nain Inshore	Nain Offshore[b]	Nain Total	Okak Inshore	Okak Offshore[c]	Okak Total	Hebron	Saglek	Other
LABRADOR																
Voisey																
Voisey Bay	331	507	360-650	75	55	28	83	10	7	17			0	0	0	0
Nain																
Anaktalik Bay	187	481	319-680	47	0	2	2	77	19	96	0	2		0	0	0
Nain Bay	1213	451	193-670	379	1	2	3	67	29	96	< 1	< 1		0	0	< 1
Fraser River	829	470	230-670	233	0	1	1	87	11	98	0	< 1		0	0	0
Tikkoatokak Bay	1272	498	180-775	556	1	2	3	75	21	96	< 1	1		0	0	0
Webb Bay	84	485	345-645	30		0	0	97	3	100	0	0		0	0	0
Offshore	122	446	276-573	23	0	4	4	30	57	87	0	9		0	0	0
Total	3707	473	180-775	1268	< 1	2	2	75	22	97	< 1	1		0	0	< 1
Okak																
Okak Bay	370	474	270-688	33			0	0	6	6	61	33	94	0	0	0
Hebron																
Hebron Fiord	411	497	300-660	64			0	0	0		3	6		88	0	3
Ikarut R. (adults)	1045	467	300-725	281			0	0	< 1		1	3		94	0	1
Ikarut R. (juveniles)	1054	199	16-295	55			0	0	0		0	0		100	0	0
River H-3	331	378	125-710	33			0	0	0		0	6		91	0	3
Total	2841	361	116-725	433			0	0	< 1		1	3	4	94	0	1
Saglek																
Saglek Fiord	317	487	230-690	33			0	0	0		0	0		9	88	3

[a] Includes only recaptures for which area of recovery was known.
[b] Offshore area includes Dog Island and Black Island.
[c] Offshore area includes Kiglapaits, Tasiuyak, Cutthroat and Mugford.

Table 3. Summary of cumulative catches of Arctic charr by assessment unit for the three time periods 1977-79, 1980-82 and 1983-85.

	Assessment units																
	Voisey				Nain				Okak				Other				
	1977-79	1980-82	1983-85	Sub-total	1977-79	1980-82	1983-85	Sub-total	1977-79	1980-82	1983-85	Sub-total	1977-79	1980-82	1983-85	Sub-total	Grand Total
Inshore	78.0	35.6	12.5	126.1	199.5	147.8	80.6	427.9	89.9	37.5	69.3	196.7	45.0	154.4	34.2	233.6	984.3
Offshore[1]	25.5	22.5	50.4	98.4	20.9	51.7	52.1	124.7	74.4	95.4	32.1	202.0	41.9	57.3	48.6	147.8	572.9
Total	103.5	58.1	62.9	224.5	220.4	199.5	132.7	552.6	164.3	132.9	101.4	398.7	86.9	211.7	82.8	381.4	1,557.2
% Offshore	24.6	38.7	80.1	43.8	9.5	25.9	39.2	22.5	45.3	71.8	31.6	50.7	48.2	27.0	58.7	38.8	36.8
Stock unit as % of Grand Total	18.0	9.7	16.6	14.4	38.3	33.1	34.9	35.5	28.6	22.1	26.7	25.6	15.1	35.1	21.8	24.5	

[1]Offshore zone for Voisey assessment unit refers to the Antons subarea.
Offshore zone for Nain assessment unit refers to Dog Island and Black Island.
Offshore zone for Okak assessment unit refers to the Cutthroat subarea.

Table 4. Catch and effort statistics for the Voisey, Nain and Okak assessment units from 1974 to 1985.

Assessment unit	Year											
	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Voisey												
Quota[1]						22,500	22,500	16,100	16,100	16,100	16,100	23,400
Catch	29,180	3,727	14,652	24,108	36,991	40,590	19,694	23,810	13,309	25,593	20,873	15,648
Effort			57	75	102	116	82	90	60	80	101	57
C/E			257	321	363	350	240	265	222	320	207	275
Nain												
Quota[2]						61,000	61,000	37,160	43,660	46,000	43,200	30,500
Catch	37,745	33,830	53,313	76,255	73,763	66,844	75,055	65,632	56,317	51,202	38,900	41,158
Effort			196	291	314	336	390	278	235	289	244	252
C/E			272	262	235	199	192	236	240	177	159	163
Okak												
Quota[3]								27,300	27,300	21,000	27,000	27,000
Catch	46,891	5,057	25,338	42,392	76,024	43,261	49,035	47,541	34,171	48,978	18,146	33,261
Effort			148	243	352	283	253	202	186	286	94	208
C/E			171	174	216	153	194	235	184	171	193	160

[1]Quota applied only to Voisey Bay subarea for 1979-84 and to Voisey Bay and Antons for 1985.
[2]Quota applied only to Anaktalik Bay and Tikkoatokak Bay for 1979-83 but includes an offshore component for 1984-85.
[3]Quota applied only to Okak Bay subarea.

Table 5. Summary of catch and catch per unit effort statistics for Arctic charr and brook charr from the spring fishery in the Postville area of Labrador, 1985.

Week	No. of fishermen	Units of gear[1]	Arctic charr			Brook charr		
			N	kg	kg/unit	N	kg	kg/unit
24 June 11-17	1	1	3	4	4	12	8	8
25 June 18-24	12	29	745	1,031	36	554	374	13
26 June 25-1	19	144	3,368	4,659	32	1,495	1,008	7
27 July 2-8	20	102	791	1,094	11	440	297	3
Total		276	4,907	6,788	25	2,501	1,687	6

[1]One unit represents 25 fathoms of net.

Table 6. Summary of the area of ice coverage (square kilometers) along the Labrador coast between 55° and 60° latitude, 1979-85.

Week	Year						
	1979	1980	1981	1982	1983	1984	1985
June 11-17	28,056	43,304	43,304	43,304	43,304	23,380	43,304
June 18-24	35,646	7,590	25,345	43,304	43,304	43,304	43,304
June 25-1	6,370	6,912	13,012	41,745	43,304	34,290	32,632
July 2-8	15,993	0	0	13,893	6,912	32,054	30,785
July 9-15	20,737	0	0	2,711	19,449	31,716	26,475
July 16-22	2,575	0	0	542	22,364	28,869	24,218
July 23-29	1,220	0	0	407	22,228	26,497	14,161
July 30-5	0	0	0	609	11,317	1,694	2,258
Total	110,597	57,806	81,661	146,515	212,182	221,804	217,137

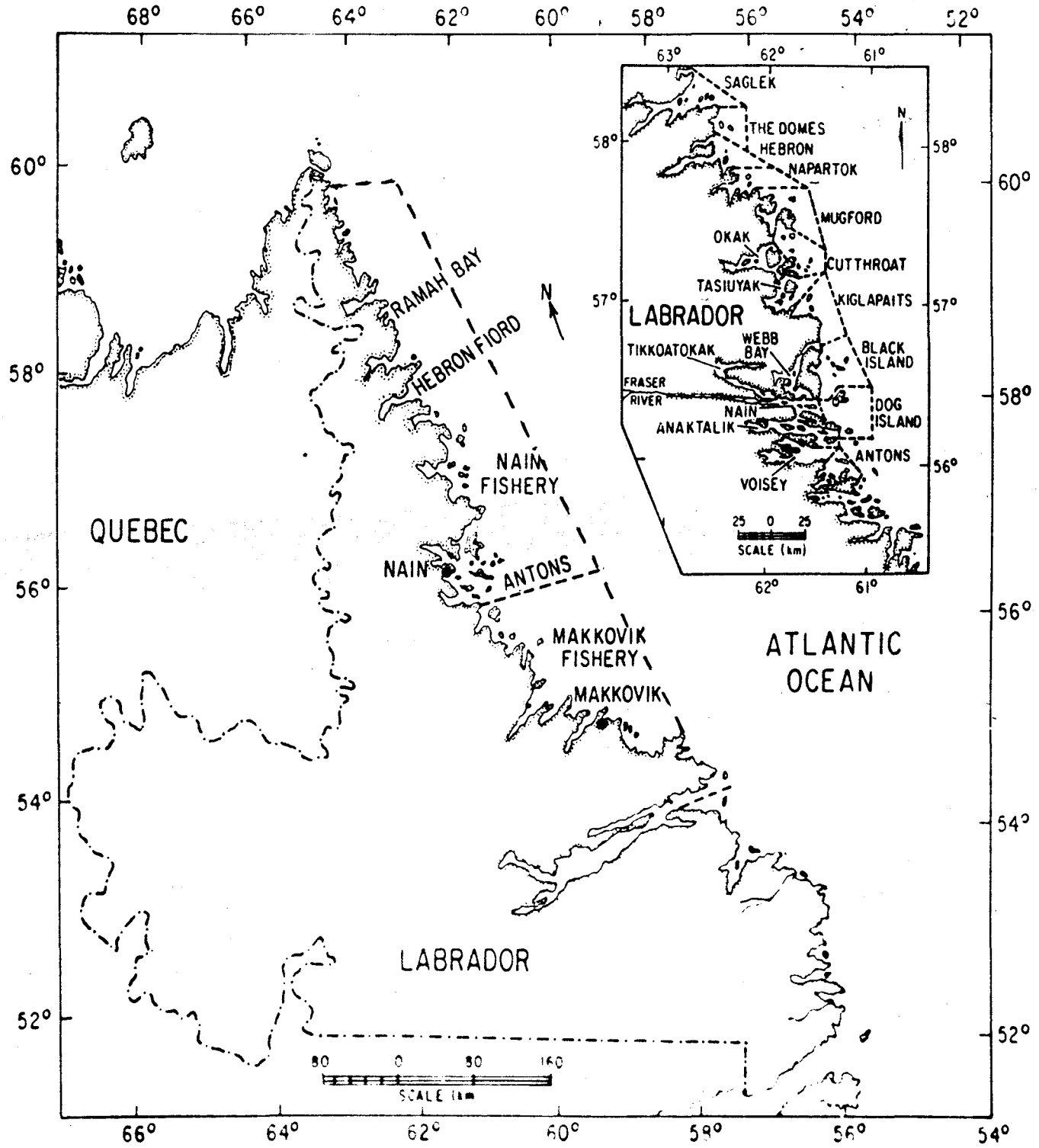

Fig. 1. Location of the Nain and Makkovik Arctic charr fishing regions in northern Labrador, and boundaries from which area of ice was determined. Insert illustrates the location of subareas within the Nain Fishing Region.

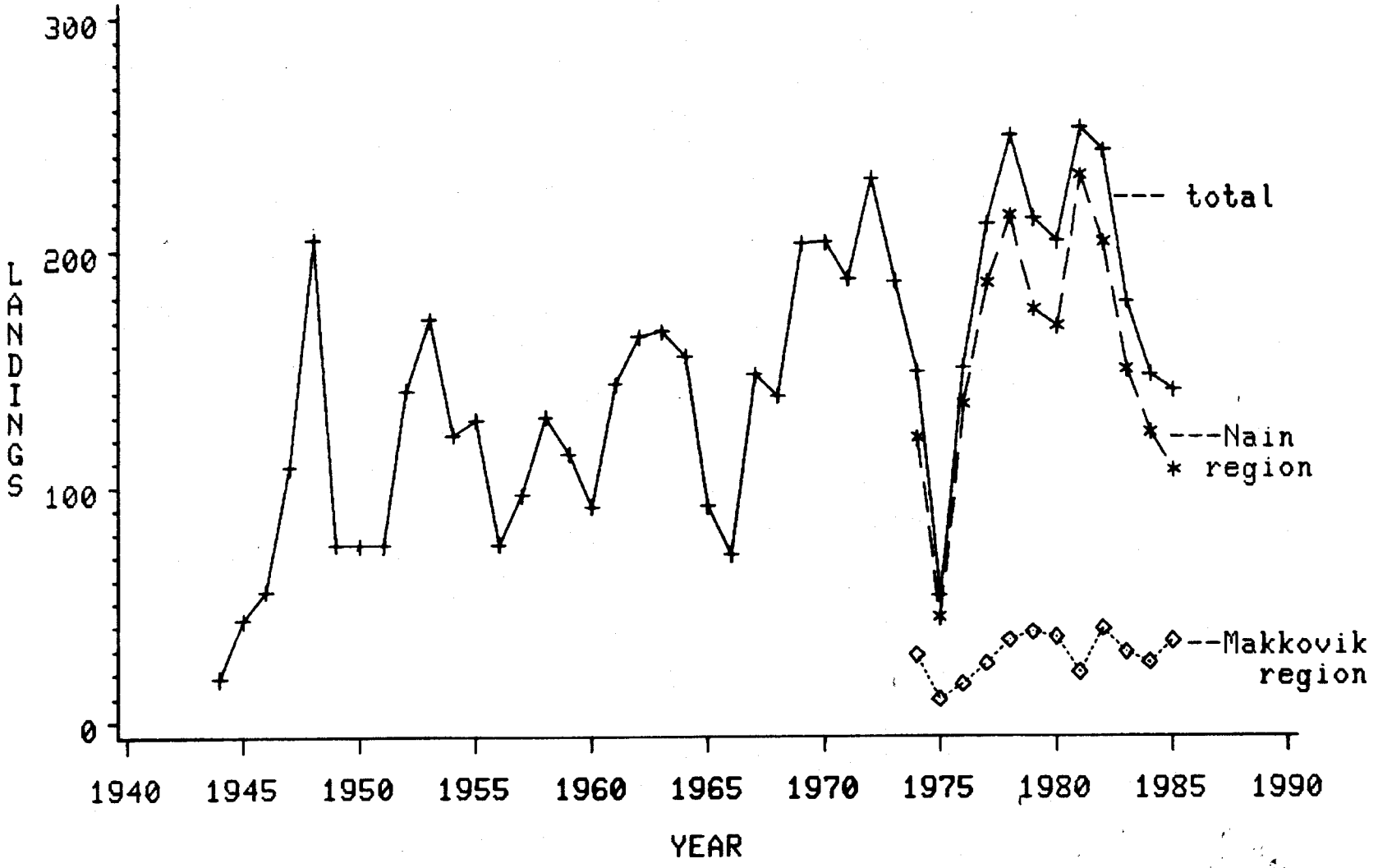

FIG. 2 SUMMARY OF NORTHERN LABRADOR ARCTIC CHARR LANDINGS (METRIC TONNES), 1944–1985

APPENDIX 1. SUMMARY OF ARCTIC CHARR CATCH AND EFFORT STATISTICS FOR INDIVIDUAL SUBAREAS WITHIN THE NAIN FISHING REGION, 1974-1985.

ANTONS	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS												
CATCH (KG)	9135	3489	3172	2111	4011	19371	8460	7870	6191	23062	13099	14212
EFFORT (MAN-WKS)	34	20	6	20	17	63	32	38	24	63	82	51
C/E (KG)	269	174	529	106	236	307	264	207	258	366	160	279
% > 2.3 KG			21.0	24.0	28.0	22.0	14.0	13.0	12.0	9.0	7.4	0.0

VOISEY BAY	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS						22500	22500	16100	16100	16000	16000	23400
CATCH (KG)	20045	238	12232	22488	33597	21880	11557	16325	7688	2953	8113	1435
EFFORT (MAN-WKS)	64	2	45	56	85	59	52	53	38	17	24	6
C/E (KG)	313	119	272	402	395	371	222	308	202	174	338	239
% > 2.3 KG			42.0	35.0	34.0	32.0	17.0	16.0	17.0	16.7	16.4	2.7

ANAKTALIK BAY	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS						21500	21500	8660	8660	11000	6100	8400
CATCH (KG)	7821	2548	14670	21604	13075	14913	8045	9157	10836	2359	3980	7477
EFFORT (MAN-WKS)	28	10	45	63	55	76	53	32	27	24	34	39
C/E (KG)	279	255	326	343	238	196	152	286	401	98	117	192
% > 2.3 KG			36.0	38.0	27.0	20.0	12.0	10.0	11.0	10.9	11.5	4.3

DOG ISLAND	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS												
CATCH (KG)	2659	653	212	2039	386	1440	3048	1516	1105	6858	6666	6882
EFFORT (MAN-WKS)	38	40	11	49	25	61	86	37	38	62	66	62
C/E (KG)	70	16	19	42	15	24	35	41	29	111	101	111
% > 2.3 KG			11.0	9.0	8.0	15.0	11.0	14.0	7.0	7.9	9.8	7.9

NAIN BAY	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS										5000		
CATCH (KG)	12461		3119	8464				5450	185	532	1886	2667
EFFORT (MAN-WKS)	37		10	28				29	1	8	15	32
C/E (KG)	337		312	302				188	85	67	126	83
% > 2.3 KG			16.0	15.0				4.0		2.3	5.7	0.0

APPENDIX 1, CONTINUED

TIKKOATOKAK BAY	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS						39500	39500	28500	35000	35000	26000	12500
CATCH (KG)	9960	27695	31568	39483	55061	37919	42131	28066	28283	16211	8618	6243
EFFORT (MAN-WKS)	28	76	81	94	147	108	130	80	75	65	43	24
C/E (KG)	356	364	390	420	374	351	324	351	377	249	200	260
% > 2.3 KG			19.0	20.0	18.0	14.0	10.0	5.0	7.0	8.2	5.1	0.3

WEBB BAY	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS												
CATCH (KG)	580	833	4550	2516	3472	3035	3008	8100	4607	15055	10476	5143
EFFORT (MAN-WKS)	1	5	15	21	16	9	8	29	27	56	43	35
C/E (KG)	580	167	303	120	217	337	376	279	171	269	244	147
% > 2.3 KG			21.0	19.0	20.0	39.0	39.0	27.0	11.0	5.4	7.2	2.4

BLACK ISLAND	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS												
CATCH (KG)	4264	2101	2725	3389	2966	10632	20051	14413	11602	11028	7913	12750
EFFORT (MAN-WKS)	60	62	48	65	81	92	130	94	79	87	62	68
C/E (KG)	71	34	57	52	37	116	154	153	147	127	128	188
% > 2.3 KG			8.0	10.0	14.0	7.0	6.0	7.0	8.0	4.2	4.8	0.3

KIGLAPAITS	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS												
CATCH (KG)	5131	1504	6089	5435	12097	17606	16543	21911	8326	20625	11431	6184
EFFORT (MAN-WKS)	26	32	59	57	103	120	95	99	34	103	55	41
C/E (KG)	197	47	103	95	117	147	174	221	245	200	208	151
% > 2.3 KG			25.0	25.0	34.0	14.0	18.0	12.0	16.0	11.5	8.7	2.9

TASIUYAK	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS												
CATCH (KG)	1467		281		2280	1837	1137		1060	1259	3423	4724
EFFORT (MAN-WKS)	15		2		9	11	8		6	7	23	36
C/E (KG)	98		141		253	167	142		177	180	149	131
% > 2.3 KG			21.0		71.0	34.0	14.0		11.0	12.9	4.5	6.2

APPENDIX 1, CONTINUED

MUGFORD	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS												
CATCH (KG)			1970	1374	1148	170	513			15		
EFFORT (MAN-WKS)			15	9	7	2	5			1		
C/E (KG)			131	153	164	85	103			15		
% > 2.3 KG			30.0	36.0	32.0	16.0	15.0					

OKAK BAY	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS								27300	27300	21000	27000	27000
CATCH (KG)	34250	2354	17812	27592	36125	26171	17434	11049	9031	30732	13864	24746
EFFORT (MAN-WKS)	105	15	52	107	104	123	65	46	26	147	30	119
C/E (KG)	326	157	343	258	347	213	268	240	347	209	462	208
% > 2.3 KG			29.0	26.0	18.0	11.0	8.0	10.0	7.0	6.5	2.2	0.0

CUTTHROAT	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS												
CATCH (KG)	12641	2703	7526	15488	41146	17803	32397	37263	25699	19043	4570	8515
EFFORT (MAN-WKS)	95	47	103	130	267	161	205	172	164	164	65	106
C/E (KG)	133	58	73	119	154	111	158	217	157	116	70	80
% > 2.3 KG			17.0	25.0	25.0	12.0	12.0	13.0	15.0	10.1	6.9	1.0

NAPARTOK BAY	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS												
CATCH (KG)			28972	28039	8551	2486	752	291	16485			
EFFORT (MAN-WKS)			124	126	50	33	11	3	60			
C/E (KG)			234	223	171	75	68	97	275			
% > 2.3 KG			14.0	22.0	20.0	16.0	13.0	12.0	8.0			

HEBRON FIORD	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS									29072		20000	
CATCH (KG)				5957			2915	39901	37822		19531	
EFFORT (MAN-WKS)				37				106	98		112	
C/E (KG)				161				376	386		174	
% > 2.3 KG				16.0			19.0	34.0	23.0			

APPENDIX 1, CONTINUED

DOMES	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS												
CATCH (KG)								5187	2643		976	
EFFORT (MAN-WKS)								19	14		10	
C/E (KG)								273	189		98	
% > 2.3 KG								36.0	17.0			

SAGLEK FIORD	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS												
CATCH (KG)								24722	23791		5389	
EFFORT (MAN-WKS)								77	118		40	
C/E (KG)								321	202		135	
% > 2.3 KG								18.0	7.0			

RAMAH BAY	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS												
CATCH (KG)									7758		3110	
EFFORT (MAN-WKS)									26		25	
C/E (KG)									298		124	
% > 2.3 KG									20.0			

NACHVAK FIORD	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS												
CATCH (KG)												6142
EFFORT (MAN-WKS)												18
C/E (KG)												341
% > 2.3 KG												4.6

NAIN FISHING REGION --- TOTAL

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
QUOTAS												
CATCH (KG)	120414	44118	134898	186165*	213915	175263	167991	231221	203012	149732	123045	107120
EFFORT (MAN-WKS)	531	309	616	863	966	918	880	914	856	804	729	637
C/E (KG)	227	143	219	216	221	191	191	253	237	186	169	168
% > 2.3 KG			24.0	25.0	25.0	17.0	12.0	16.0	13.0	8.3	5.6	1.5

*Includes 186 kg unaccounted for by area.