

ANADROMOUS AND CATADROMOUS FISH COMMITTEE.

C.M. 1971/M.11.



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SOME OBSERVATIONS ON CO-OPERATIVE RESEARCH REPORT

SERIES A No. 24.

THIRD REPORT OF THE ICES/ICNAF JOINT WORKING
PARTY ON NORTH ATLANTIC SALMON, DECEMBER 1970.

BY THE DIRECTOR

THE ATLANTIC SALMON RESEARCH TRUST LTD.

INTRODUCTION.

In its Third Report the ICES/ICNAF Joint Working Party states (para 13) that the return rates from natural smolts are likely to be a better guide to the national contributions to the West Greenland stock than that provided from hatchery reared smolts; it goes on to remark (para 14) that it is evident that more detailed evaluation of smolt tag returns in the countries concerned is urgently needed.

The Report also states (para 25) that in assessing total salmon yields the Working Party's conclusions are based on an assumption that the exploitation at West Greenland has not reduced spawning stocks to an extent as to cause a direct reduction in the number of smolts and subsequent recruitment of salmon, but it then states that too few data are available for the validity of this assumption to be tested: accordingly it stresses the need for studies on the relationship between adult stock size and smolt production and the subsequent recruitment of grilse and older salmon, particularly in the light of an indicated reduction in the quantities of two or more sea-winter salmon entering the river systems in Europe and North America in 1968 and 1969.

This paper endeavours in a small way to shed further light on these matters: it is appreciated that the Third Report of the ICES/ICNAF Joint Working Party may now have been superseded by the Report for 1971, but nevertheless it is believed that the following comments and suggestions will be found to remain relevant to the subject of these Reports.

WEST GREENLAND FISHERY AND HOME-WATER CATCHES.

It is generally accepted, and confirmed by the Third Report, that the salmon stock in the above Fishery consists of fish which would spend two or more winters at sea. It is therefore important that in any assessment of the possible effects of this fishery on home-water catches the grilse element be excluded from figures under evaluation. Now that information to enable this to be done is largely provided by Table 9 it is submitted that the relationship between this fishery and the directly comparable home-water catches of salmon of two or more sea-winters is best illustrated graphically. Similar considerations apply to the Norwegian sea fishery and Norway's

home-water catches, and as an example the attached graphs (Nos. 1 and 2) are drawn directly from the statistics and information given in Tables 1, 7 and 9:

1. Atlantic Salmon Catches (excluding grilse) - Overall, Home-water and Highseas totals.
2. Atlantic Salmon Catches (excluding grilse) - Home-water catches in major salmon producing countries

COMPOSITION OF WEST GREENLAND STOCK.

There has been significant progress in establishing that the Canadian and U.K. salmon populations consist of identifiable strains distinctively related to the geographical areas of their origin; developments indicate that it may be possible to identify genetically particular strains with particular river systems, and that these different strains will be found to have different characteristics.

In the light of these latest discoveries it would not appear sufficient just to establish the "nationality" of the West Greenland stock for the purpose of assessing the relationship between the West Greenland fishing, spawning stocks in the contributing countries and subsequent recruitment of salmon: it now appears to be a reasonable assumption that, while Canada, and the United Kingdom and Ireland are the major producing countries for the West Greenland stock, it may not be all rivers in these countries which make up the total but only some. Thus the West Greenland stock, and catch, should be evaluated in relation to the stock of individual rivers in the major producing countries and not to the overall level of home-water catches. Clearly this first demands detailed identification of the various components making up the West Greenland stock; the developments referred to above may in time provide a more practical method of doing this, but in the meantime it is strongly urged that a large scale experiment of tagging natural smolts be carried out in 1972, to be complementary to the experiment of tagging adult salmon already planned for the West Greenland area in 1973: only by thus establishing the source of the annual recruitment to the West Greenland stock can

the complete picture of the relationship between breeding grounds and feeding grounds be provided, and a permissible rate of exploitation be properly judged.

Directly relevant to this matter is the need for more detailed analysis of existing information on tag returns from natural smolts. Table 2 of the Third Report gives the overall picture on a "national" basis, but the figures therein, in brackets, for "returns for thousand tagged" from West Greenland bear little relation to those obtained by turning from the general to the particular and examining tag returns on a river-by-river basis. Illustrative of this are the statistics obtained from the tagging of natural smolts on the River Dee in Scotland since 1967 of which details are given in the table below. A similar example can be cited from Canada, where in one experiment in which 20,000 smolts were tagged in 4 rivers, 45.7% of the total adult recaptures were taken off West Greenland.

Yearly Recaptures

<u>Year.</u>	<u>Total tagged</u>		<u>Home Waters</u>	<u>Greenland</u>	<u>Greenland share of Recaptures</u>
1967	2058	1968	7	10	59%
		1969	16	0	0%
		1970	<u>2</u>	<u>0</u>	<u>0%</u>
			25	10	28.5%

1968	1440	1969	2	3	60%
		1970	<u>9</u>	<u>1</u>	<u>11%</u>
			11	4	27%

1969	2734	1970	6	14	70%
		1971	<u>12</u>	<u>0</u>	<u>0%</u>
		(to date)	18	14	44%

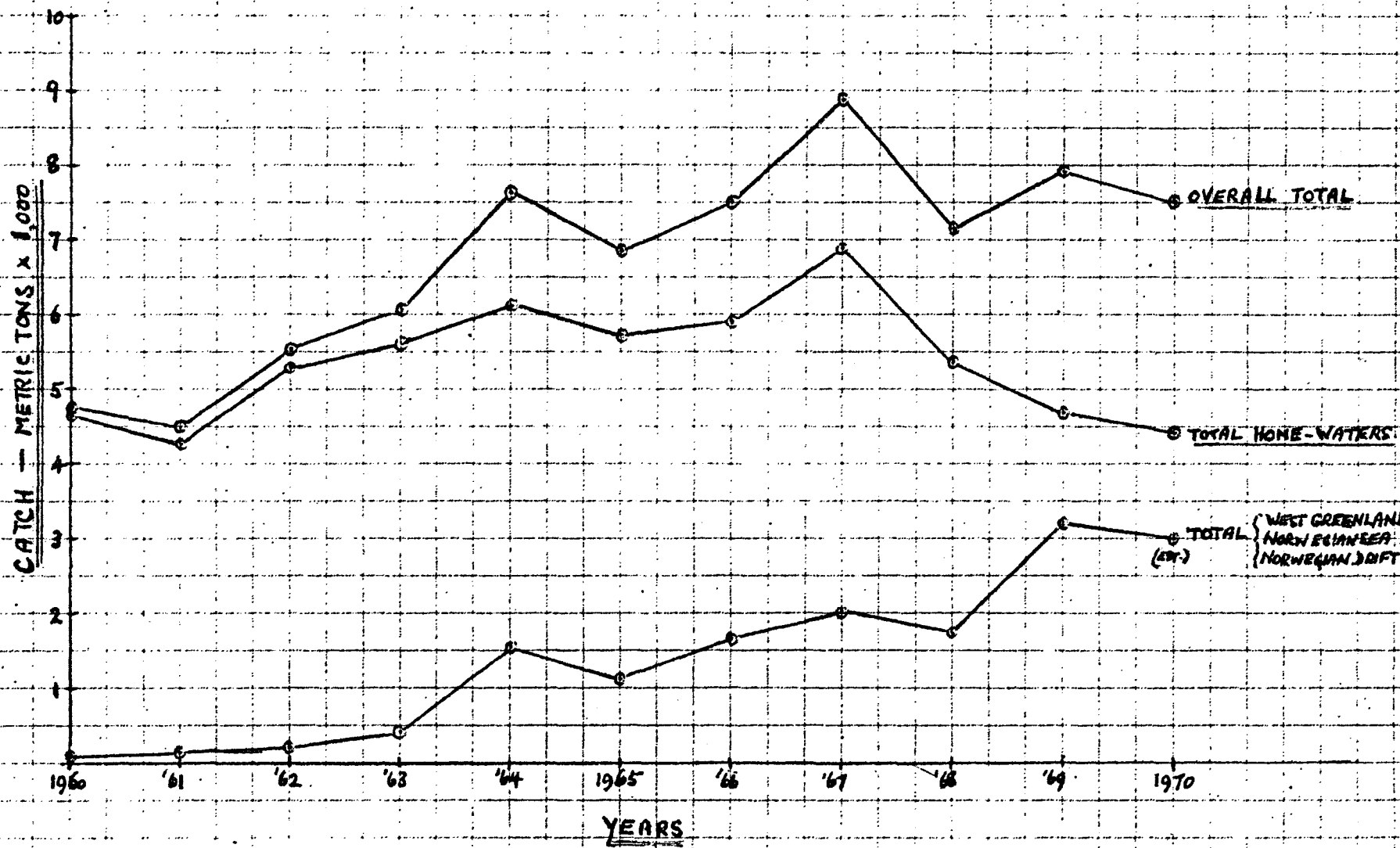
1970	2453	1971 (to date)	3	-	-

Assuming the smolts tagged in the Dee are a representative sample of the river's annual contribution to grilse and older salmon stocks, it would appear that a significantly high proportion of the recruitment is caught off Greenland. It is

suggested that there is need for further investigation to .
establish whether there is any correlation between this and the
marked decline in the annual catch of salmon (both net and rod)
in the Dee since 1963, which is illustrated in the attached
Graph No.3; it should be noted that the run in the Dee is
primarily of two or more winters-at-sea fish.

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ATLANTIC SALMON CATCHES (EXCLUDING GRILSE)

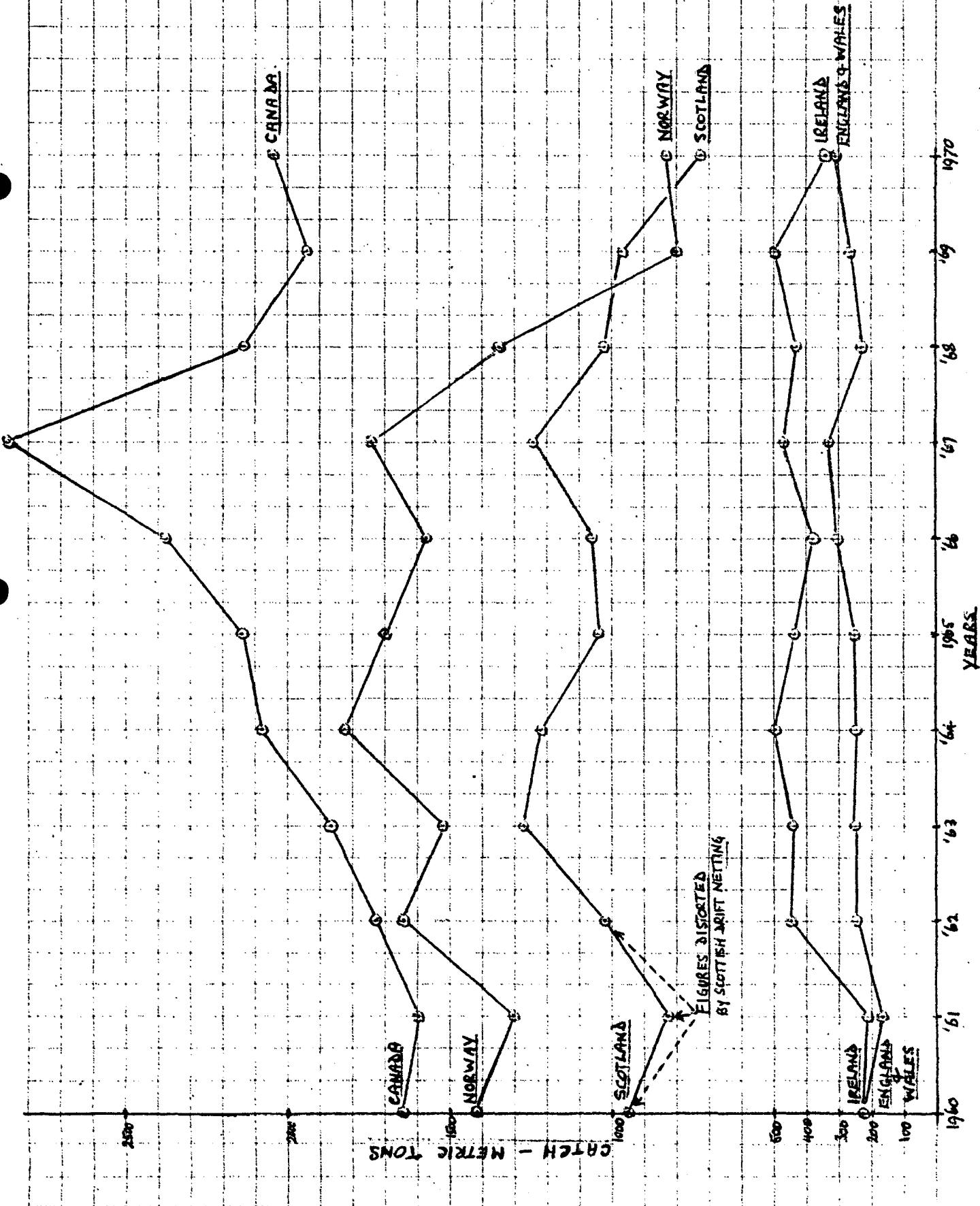


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GRAPH N. 1.

ATLANTIC SALMON CATCHES
(EXCLUDING GRILSE)
HOME-WATER TOTALS

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GRAPH N° 2.



N^{OS} OF FISH

ABERDEENSHIRE DEE - 1953-1970

