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The Northern Ireland Lobster Fishery 1954-1973

by

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INTRODUCTION

This paper describes the present state of the Northern Ireland fishery for lobster Homarus gammarus and analyses the catch and effort statistics obtained by the Fisheries Branch of the Department of Agriculture from 1954 to 1973 inclusively. The aim is to provide comparable information to reviews of the lobster fisheries of Eire and England and Wales, described by Gibson (1969) and Edwards (1973) respectively.

Lobsters were the fourth most valuable shellfish landed in Northern Ireland in 1973, the recorded landings being 22 tonnes, worth £27,473 at first sale. This represents 2.8% of the total value of all shellfish landed that year, following Norway lobster Nephrops norvegicus (87.2%), queen scallop Chlamys operularis (5.1%) and scallops Pecten maximus (3.3%). The major fishery for Nephrops, which first developed in the 1950's and has increased almost annually since, has contributed on average over 80% of the total value of annual shellfish landings from 1962. Queen Scallops, first landed in significant quantities in 1970, have also added considerably to shellfish earnings. Thus lobsters and scallops, formerly the most valuable shellfish landed by Northern Ireland fishermen using small boats operating mainly inshore, have been reduced in relative value by the development of two major fisheries pursued further offshore by larger vessels.

FISHING AREAS

The coastal waters of Northern Ireland are within the I.C.E.S. divisions VIIa, the Irish Sea and VIa, the west coastal district of Scotland, as shown in Fig. 1. Geographically the coastline borders the north-west Irish Sea, the west side of the North Channel and the north-east Atlantic Ocean. Fishing takes place within latitudes 54° and 56° north and longitudes 5° and 7° west. Fishery statistics are recorded separately for the east and north coasts (Fig. 1).

FISHING METHODS

The majority of the lobsters landed in Northern Ireland are caught close inshore in baited traps which are usually set within about 2 kilometres (1 mile) of the coast. Fishing is intense within the 18 metre (10 fathom) contour, but less so out to 37 m. (20 fa.). Deep water fishing of previously unexploited lobster stocks to 183 m. (100 fa.). commenced in 1972 off Co. Antrim, but has remained on a small scale.

The present fishery is pursued by the small boats of the Northern Ireland fleet. These are between 6 and 9 m. (20-30 ft.) in length and normally catch shellfish, salmon Salmo salar, herring Clupea harengus, mackerel Scombrus scombrus and some varieties of demersal fish such as whiting Merlangus merlangus, coalfish Pollachius virens and cod Gadus morhua. There are at present about 140 small boats and their operators are mostly part-time fishermen. Traditional methods and attitudes still dominate the lobster fishery and only in recent years has there been an indication of expansion to larger, better equipped boats among a small number of fishermen.

There has been little variation to date in the type of trap used to fish lobsters in Northern Ireland waters. The Scottish creel is by far the most popular, with many local variations on this design depending mainly on the types of ground fished. A small number of wooden barrel pots of the French crawfish design are used off Rathlin Island for deep water lobster fishing, otherwise very few different designs of traps are favoured except by some spare-time fishermen. Most professional fishermen manufacture their own creels. Traps are usually fished singly close inshore and in small fleets from 2 to 12 traps in deeper water. The number of traps fished per boat depends on the size of the vessel and the number of crew, the hauling method (hand or mechanical), the depth fished and the time of year. As the average size of Northern Ireland lobster boats is small (about 8 m., 25 ft.), the number of traps fished per boat varies between 50 and 100 throughout the main season with a few of the larger vessels fishing up to a maximum of 200 traps each.

Bait is normally fish and the type varies according to availability e.g. mackerel, whiting, flats (small plaice Pleuronectes platessa, dabs Limanda limanda) and pollack Pollachius pollachius are popular. The flat fish may be partially dried while the round fish is usually salted, both for convenience and to reduce the by-catch of edible crabs Cancer pagurus, which prefer fresh bait. There is a poor market for crabs in Northern Ireland and fishermen consider them a nuisance in their

traps as they eat the bait and occasionally damage lobsters. Therefore a mixed fishery for crabs and lobsters does not exist at present.

FISHING SEASON

Ninety per cent of the total annual landings (based on data from 1967 to 1973) occur from June to October inclusively. The peak landings are concentrated into a slightly shorter season on the east coast than on the north coast as shown in Fig. 2. The length of the fishing season is much affected by weather as the boats are small and only a few are capable of fishing throughout the winter, thus from November to May landings are at a low level. Other seasonal fishing activities may reduce lobster fishing effort temporarily, such as drift netting for herring on the east coast and for salmon on the north coast.

LANDINGS AND EFFORT

Landings and their first sale values are presented in this paper for the twenty-year period 1954-1973, shown in Table 1 together with average values. However, data on fishing effort is only available in detail for the period 1965-1973 from ten out of a total of nineteen ports returning information. This effort data represents 65% by weight of the total recorded landings over the above nine year period and it has been assumed that it is typical of the whole fishery.

Figs. 3(a) and 3(b) show the landings and values of Table 1 in histogram form with the twenty-year means for 1954-1973 included. Over this period an average weight of 16.7 tonnes of lobster was landed annually. Landings were noticeably above this level in 1959 (28 tonnes) and again in 1972 and 1973 (23 tonnes and 22 tonnes respectively). The average value of lobsters has increased from £301/tonne in 1954 to £1,248/tonne in 1973 as shown in Table 1. Fig. 4 shows the relative percentages of the total Northern Ireland lobster landings from the east and north coasts annually from 1954 to 1973 and Table 2 gives the annual landings separately for these coasts.

Over the period 1965-1973, data returned from the selected ports showed a rise in fishing effort from 70,462 traps lifted in 1965 to 172,498 traps lifted in 1973. The corresponding catch-per-unit-effort (expressed as Kg. lobster 100 traps lifted) decreased from 13.1 to 7.0 although a temporary recovery, noticeable on both east and north coasts, occurred in 1971 and 1972 (10.8 and 10.1) as shown in Fig. 5. The decline in catch-per-unit-effort over this nine year period was found to be statistically significant ($P < 0.01$). The remainder of this section

describes catches and effort for the east and north coasts separately.

East Coast (VIIa)

The east coast fishery (Fig. 1) takes in the coast north to 55°N. The coastline is low lying and considerably less exposed than the north coast, with three main ports and numerous small, sheltered harbours. Extensive rocky shoals occur, but beyond about 27 m. (15 fa.) sand and mud substrates predominate.

A noticeable change in the proportional landings from the east and north coasts occurred after 1963 (Fig. 4), dropping on the east coast with a corresponding increase for the north coast. The average east coast landings decreased by 39% from 11.6 tonnes 1954-1963 to 7.1 tonnes 1964 to 1973. Without detailed knowledge of fishing effort in the earlier years it is difficult to explain this change. Fishing effort from the seven selected ports on this coast rose from 44,682 traps lifted in 1965 to 106,151 traps lifted in 1973, with the corresponding catch-per-unit-effort (Kg. lobster/100 traps lifted) decreasing from 10.2 to 5.9. This decrease not found to be statistically significant.

North Coast (VIa)

The north coast fishery extends from 55°N. to approximately 7°W. (Fig. 1). It is mostly an exposed Atlantic shore similar to the west coast of Scotland but lacking the fiords of that area. It has extensive areas of cliff interspersed with sandy bays and has small ports with exposed harbours. The substrate is rocky inshore with extensive areas of sand offshore, broken by areas of rock and stones. Deep water ($>$ 183 m., 100 fa.) occurs close to the north and west of Rathlin Island and offshore in the North Channel.

The average landing increased by 37% from 6.2 tonnes 1954-1963 to 8.5 tonnes 1964-1973. Fishing effort from the three selected ports on this coast increased from 25,780 traps lifted in 1965 to 66,347 traps lifted in 1973, while the corresponding catch-per-unit-effort (Kg. lobster/100 traps lifted) decreased from 18.2 to 8.9. This decrease was found to be statistically significant ($P < 0.001$). The level of catch-per-unit-effort on this coast was considerably greater than on the east coast (Fig. 5).

DISCUSSION

As stated above, weather can be a major factor influencing catches. The peak landings in 1959 (Table 1 and Fig. 3(a)) were almost certainly due to exceptionally good summer fishing conditions, but no figures are available on relative abundance of lobster that year.

From 8th August 1966 the minimum legal size limit on lobsters was increased from 8 inches (203 mm.) to 9 inches (230 mm.) total length. Following this increase in size limit the landings of lobsters appear to have decreased and remained well below average until 1972 (Fig. 3 (a)). Landings in 1972 and 1973 were at their highest level since the peak year of 1959. This may be partly due to increased fishing effort, but it is interesting to note that this increase occurred six years after the increase in the minimum size limit. Gibson (1967) considered that most lobsters take six years from hatching to recruitment into a commercial fishery at 9 in. (230 mm). Therefore, it is possible that some of these increased catches in 1972 and 1973 were the progeny of adult and fecund lobsters which survived as a result of the increase in the size limit in 1966.

The landing of berried females has never been prohibited. Due to flexibility of the abdomen a lobster may be stretched up to 6 mm. (0.25 in.) and overall length is not an absolute measurement. Data has therefore been collected on the relation between carapace length (a more accurate measure of lobster size) to total length in the event of a change to this method.

Comparatively lightly fished stocks of lobsters occur from 18-37 m. (10-20 fa.) and further offshore (Watson 1973). Spare-time lobster fishing activities, concentrated in shallow water, appear to be increasing but accurate data on this type of fishing is difficult to obtain at present, as these fishermen do not declare their catches. Professional lobster fishermen are reluctant to rotate their traps because of this extra fishing effort, with the result that the inshore lobster stocks within 18 m. (10 fa.) are showing signs of depletion, while those to 37 m. (20 fa.) are not being fully utilised. Few boats are equipped to fish further offshore.

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SUMMARY

The Northern Ireland lobster fishery is described, giving details of fishing areas, methods and seasons. Statistics of landings (from 1954) and fishing effort (from 1965) to 1973 are analysed and the present state of the fishery is summarised, based on these data.

Annual landings over the period reviewed were variable averaging 17 tonnes. The number of traps fished each year since 1965 appears to have increased and catch-per-unit-effort over the same period has decreased.

Table 1. Recorded landings of lobsters in Northern Ireland, 1954-1973, with first sale values and average values.

Year	Landings		Value	Average value	
	Cwt	Tonnes	£	£/Cwt	£/Tonne
1954	354	18	5,425	15	301
1955	335	17	5,062	15	298
1956	374	19	5,632	15	296
1957	413	21	6,684	15	318
1958	335	17	6,035	18	355
1959	551	28	9,309	17	333
1960	236	12	6,784	29	565
1961	354	18	8,865	25	493
1962	256	13	7,106	28	545
1963	295	15	8,828	30	589
1964	335	17	9,262	28	545
1965	354	18	11,686	33	649
1966	295	15	9,427	32	629
1967	217	11	9,118	42	829
1968	236	12	8,604	36	717
1969	236	12	12,858	54	1,072
1970	256	13	12,745	50	980
1971	256	13	13,986	55	1,076
1972	453	23	21,877	48	951
1973	433	22	27,473	63	1,243

Table 2. Recorded landings of lobsters in Northern Ireland, 1954-1973, from the east and north coasts separately.

Year	Landings			
	East coast		North coast	
	Cwt	Tonnes	Cwt	Tonnes
1954	236	12	118	6
1955	118	6	217	11
1956	256	13	118	6
1957	276	14	138	7
1958	197	10	138	7
1959	374	19	177	9
1960	177	9	59	3
1961	217	11	138	7
1962	197	10	59	3
1963	236	12	59	3
1964	197	10	138	7
1965	157	8	197	10
1966	138	7	157	8
1967	79	4	138	7
1968	59	3	177	9
1969	79	4	157	8
1970	118	6	138	7
1971	118	6	138	7
1972	256	13	197	10
1973	197	10	236	12

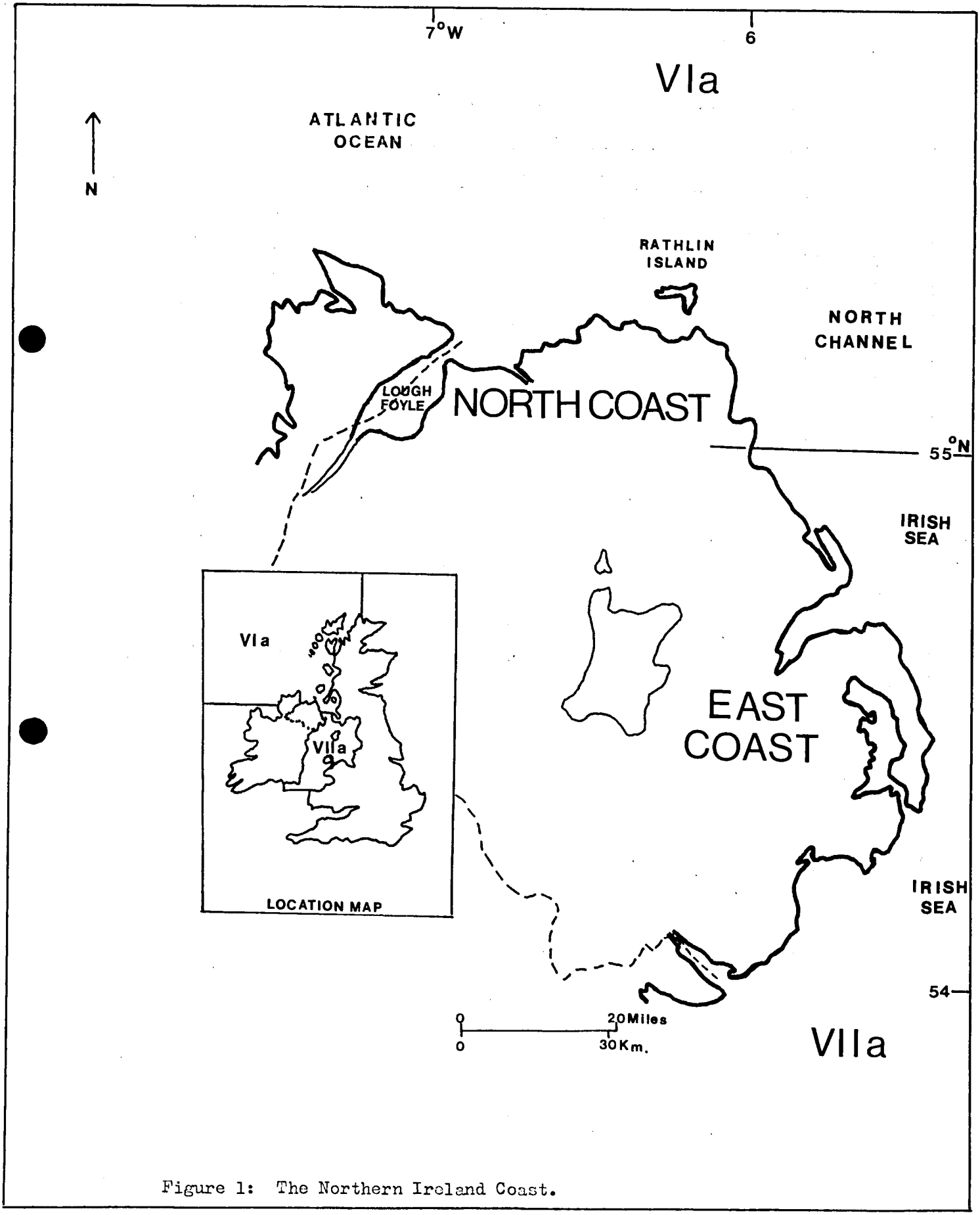

Figure 1: The Northern Ireland Coast.

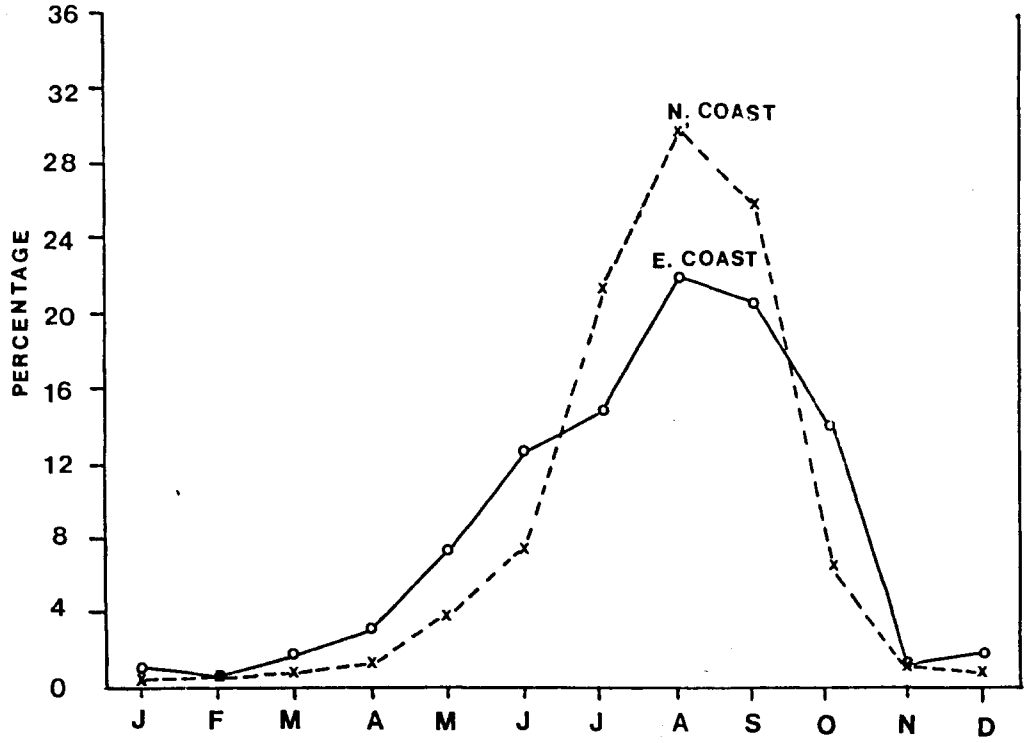

Figure 2: Percentage of the north and east coastlobster catches landed during each month of the year (based on data averaged for the period 1967 - 1973 inclusively).

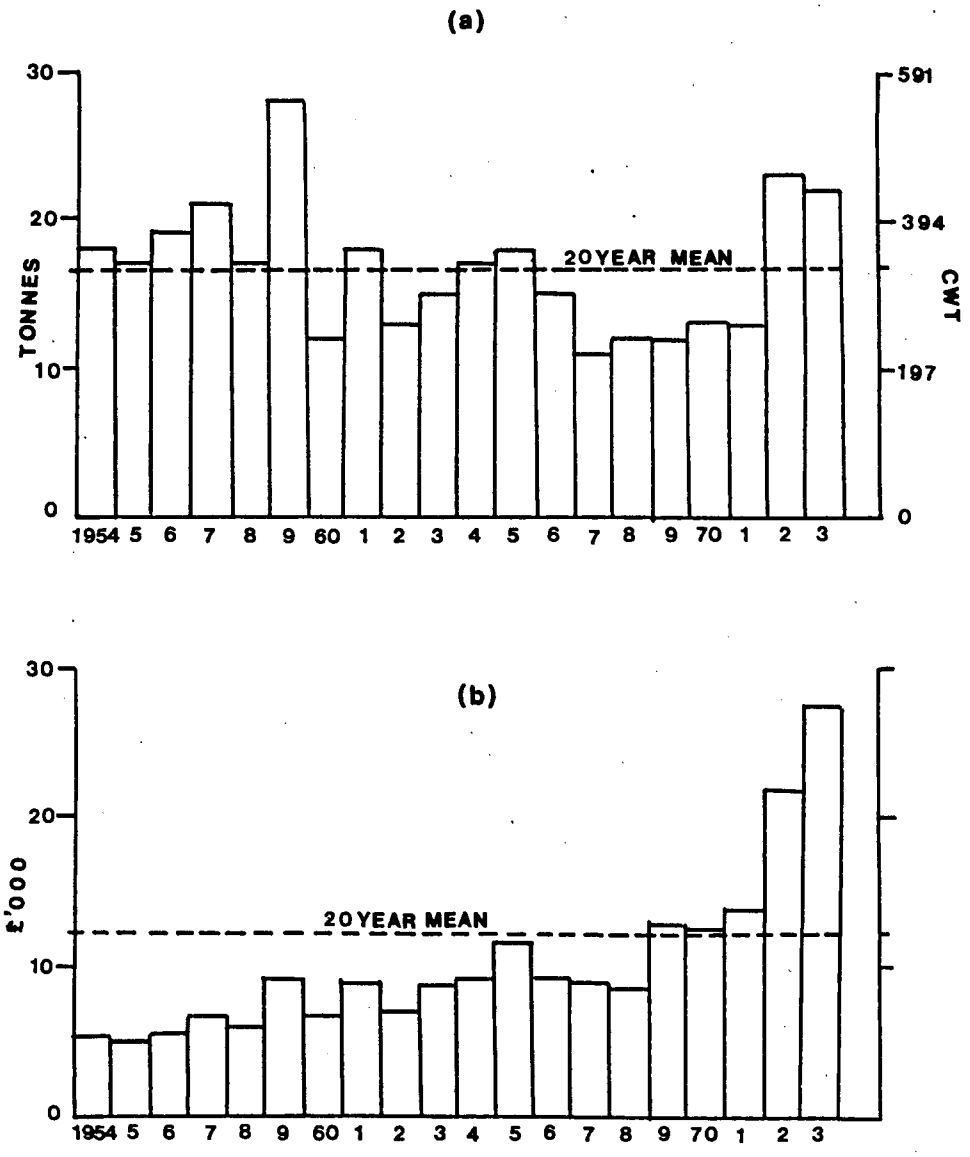

Figure 3 Annual recorded lobster landings (a) and first sale values (b) of lobsters in Northern Ireland, 1954 - 1973.

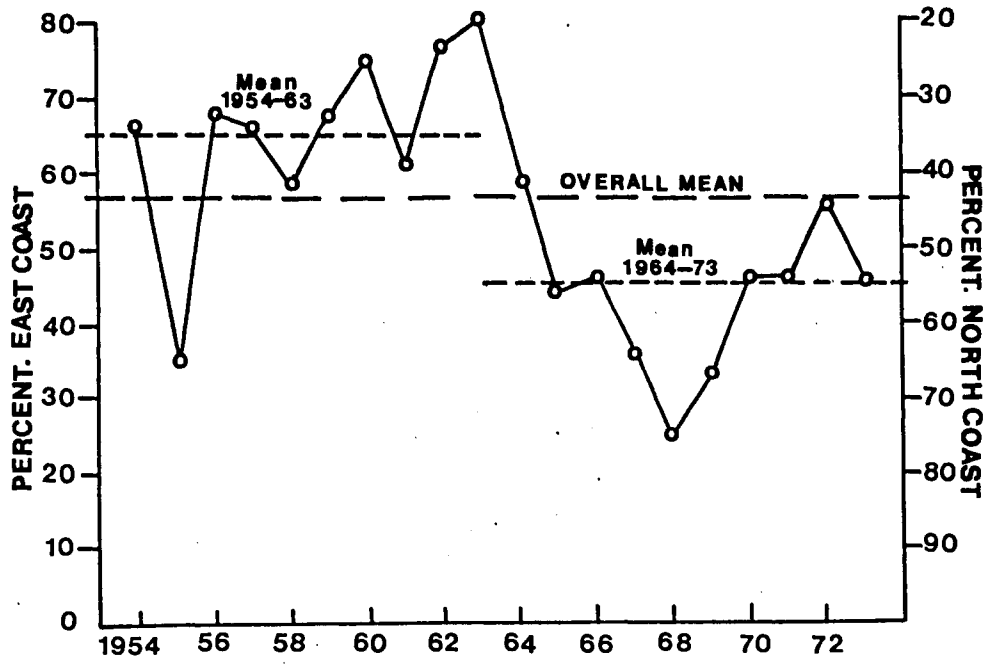

Figure 4: Percentage of the total annual lobster catches (Northern Ireland) from the east and the north coasts, 1954 - 1973.

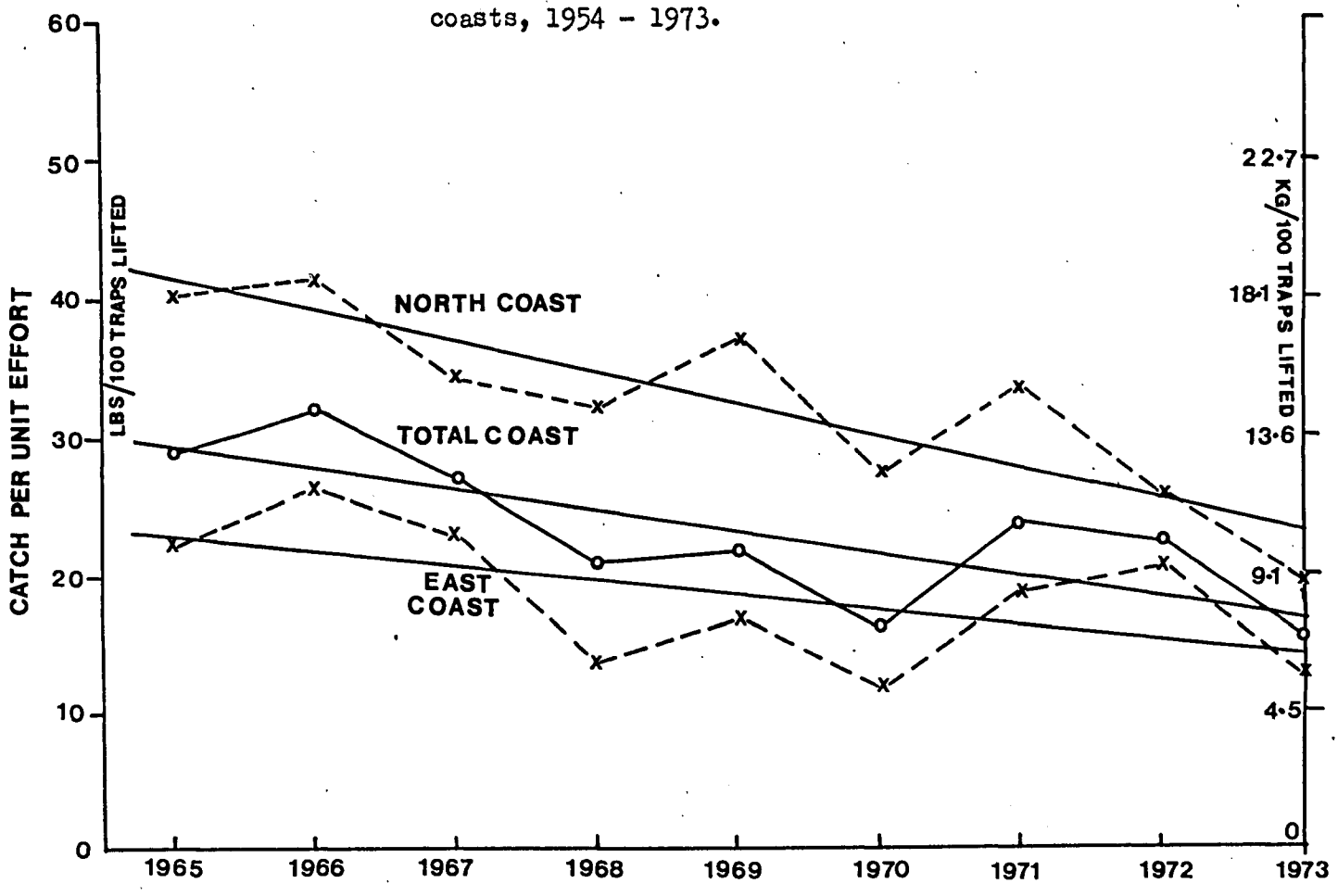

Figure 5: Annual lobster catch-per-unit-effort by Northern Ireland vessels, 1965 - 1973. The regression lines have been fitted by calculation (for significance levels see text).