



SEA AND INLAND
FISHERIES

REPORT FOR
1971

AN ROINN TALMHAIOCHTA AGUS IASCAIGH
(Department of Agriculture and Fisheries)
FO-ROINN IASCAIGH
(Fisheries Division)

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
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REPORT


OF THE
MINISTER FOR AGRICULTURE AND FISHERIES

ON THE

SEA AND INLAND FISHERIES

FOR THE YEAR

1971.

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PART I.

SEA FISHERIES.

In 1971 the total value of sea-fish landings was £4,238,374. This was once again a record figure which exceeded that for 1970 by £326,910. The biggest increase occurred in landings of shellfish, which rose in value from £1,102,071 in 1970 to £1,308,323. The value of demersal fish at £1,589,636 was £161,273 or 11% above that for 1970, while the total value of pelagic fish landings at £1,340,415 represented a decrease of £40,615 or 3%.

The weights and values of annual landings of sea-fish (excluding shellfish) since 1962 are set out in the following table:—

TABLE 1

Year	Cwt.	£
1971	1,191,822	2,930,051
1970	1,325,129	2,809,393
1969	1,074,922	2,105,002
1968	836,156	1,668,751
1967	833,649	1,636,149
1966	626,316	1,454,175
1965	562,677	1,269,111
1964	487,871	1,084,442
1963	399,280	1,059,827
1962	441,149	1,169,201

Details of quantities and values of the different varieties of sea-fish and shellfish landed in 1970 and 1971 are given in Appendix No. 1. The average price per cwt. obtained for each variety of sea-fish (other than shellfish) from 1964 onwards is shown in Appendix No. 2.

As in previous years, imports of small quantities of white fish, mainly plaice, were permitted when supplies from home landings fell short of home market demand.

The leading fishing ports in 1971 in order of value of fish landed were: Killybegs, Dunmore East, Howth, Kilmore Quay, Galway/Aran Islands, Castletownbere, Skerries. As compared with the corresponding order of importance in 1970 there was no change in the first three places. Kilmore Quay, however, moved into fourth place replacing Cobh in that position, while Skerries moved into seventh place.

DEMERSAL FISHERY.—At 406,705 cwt. the total landings of demersal fish represented a substantial increase of 104,731 cwt. or 35% over 1970. The landings of haddock at 118,841 cwt. were nearly double the 1970 catch (61,375 cwt) of that species. Worthwhile increases were recorded also in the catches of cod and whiting. On the other hand the most significant decrease occurred in the landings of pollack which dropped from 18,703 cwt. in 1970 to 12,491 cwt. in 1971. Haddock replaced whiting as the variety caught in greatest quantity and was followed by whiting, cod, plaice and ray/skate in that order.

The total value of the demersal fish catch increased by 11% from £1,428,363 in 1970 to £1,589,636 in 1971. Cod was first in terms of cash earnings, followed by haddock, plaice and whiting. These four varieties contributed 73% of the total value of the demersal fish catch; ray/skate, soles and pollock were next.

Increases in average prices were achieved in most varieties, exceptions being haddock, megrims, whiting, sprats and plaice, in that order.

The overall average price of all demersal fish landed in 1971 was £3.91 per cwt. as compared with £4.73 per cwt. in 1970. This decrease can be attributed largely to the fact that the important varieties of haddock and whiting, which represented 53% of the total catch, suffered a significant decrease in average price.

The weights, total value and average value of landings of demersal fish over the past ten years are shown in the following table:

TABLE 2

Year	Quantity	Value	Average Value per cwt.
	cwt.	£	£
1971	406,705	1,589,636	3.91
1970	301,974	1,428,363	4.73
1969	314,470	1,253,885	3.99
1968	313,241	1,111,747	3.55
1967	313,438	1,079,794	3.45
1966	272,491	995,703	3.65
1965	282,192	959,362	3.40
1964	267,155	876,310	3.28
1963	210,318	829,367	3.94
1962	230,110	866,547	3.77

PELAGIC FISHERY.—The total pelagic catch of 785,117 cwt. was 238,038 cwt. or 23% less than the figure for 1970. Landings of mack-

erel and sprats showed increases of 196% and 1% respectively while landings of herring fell by 31%. The total value of the catch was £1,340,415 representing a decrease of 2.9% on the 1970 figure of £1,381,030.

Herrings.—Landings of herring amounted to 615,124 cwt. valued at £1,162,826 compared with 894,677 cwt. valued at £1,275,442 in 1970.

The 1970/71 winter herring fishery off the south coast, based mainly at the ports of Dunmore East and Cobh, began in the week ended 14th November, 1970 and ended on the 4th February, 1971. Eighty boats, seven more than in the 1969/70 season, took part in the fishery and landed a total of 387,856 cwt, the highest landing yet recorded. Landings from the fishery during January and February, 1971 amounted to 116,277 cwt. The weather, which prior to Christmas had been reasonably favourable, deteriorated during January and brought fishing to a standstill on a number of occasions. This factor, together with the disappearance of the shoals in early February, closed the fishing season earlier than in the previous four seasons. The majority of herrings caught were again taken by boats using paired midwater gear, and the number of pairs engaged in this type of fishing was 29 compared with 23 pairs during the 1969/70 season. One notable feature about the landings was the decline in the catches made by boats using bottom trawls.

The 1971/72 winter herring fishery off the south coast began in the week ended 30th October, 1971. Landings during the period up to 31st December, 1971 amounted to 97,366 cwt. as compared with 271,579 cwt. and 153,905 cwt. in the corresponding periods of 1970 and 1969 respectively. The decrease in landings in November and December 1971 was particularly apparent at Dunmore East, while, on the other hand, there was a considerable rise in the landings made at Cobh over the whole season. The demand continued to be buoyant throughout the year and to a certain extent the higher prices paid compensated for the decline in landings in November and December 1971.

The 1970/71 winter herring season off the north-west and west coasts continued until mid-February 1971. A total of 176,060 cwt. was landed during this period. The overall landings for the north-western area were higher than a year earlier. Landings were made at Killybegs, Burtonport and Sligo. Although the main herring fishery off the north-west coast covered the period October 1970 to February 1971, a substantial quantity of herrings was landed during the period March to September 1971. The 1971/72 winter season commenced in October 1971. Landings for the period October to 31st December, 1971 were substantially higher than for the corresponding period in 1970.

Herrings continued to be landed at Galway and Rossaveal. Landings showed a considerable increase on the previous seasons when the fleet consisted of local fishing boats. The increased fishing effort and the use of paired mid-water trawls by boats from other ports enabled greatly increased numbers of herrings to be landed on a more regular basis over a longer period.

Good catches of herrings were also made in the Irish Sea. A high proportion of the catch was landed at Mornington for conversion to fishmeal and fish oil.

The autumn herring fishery carried out by boats mainly from Castle-townbere, Dingle and Schull opened in the third week of August and continued until mid-October. Herrings were generally scarce throughout the period and weather conditions were unfavourable on a number of occasions.

The greater part of the total landings of herring were frozen whole or rough packed and barrelled for export, while smaller quantities were exported fresh or cured in more sophisticated ways. Herrings were exported to many countries including Netherlands, United Kingdom, Federal Republic of Germany, Norway, Belgium, France, Poland, Sweden and Israel. Exports of fresh, chilled or frozen herring amounted to 184,855 cwt. valued at £779,966 as compared with 258,404 cwt. valued at £618,031 in 1970. The quantity exported in cured and marinated forms was 300,952 cwt. valued at £974,176 as compared with 294,281 cwt. valued at £718,575 in 1970.

The following table shows the quantity, total value and unit value of herrings landed in each of the past ten years.

TABLE 3

Year	Quantity	Value	Average Value per cwt.
	cwt.	£	£
1971	615,124	1,162,826	1.89
1970	894,677	1,275,442	1.43
1969	682,238	783,973	1.15
1968	452,160	496,753	1.10
1967	465,606	499,280	1.07
1966	293,300	399,312	1.36
1965	210,555	251,521	1.20
1964	160,929	155,440	0.97
1963	165,696	193,068	1.17
1962	187,534	260,463	1.39

Sprats.—Landings of sprats increased from 107,795 cwt. in 1970 to 108,867 cwt. while the value of the catch declined by 9% from £65,947 in 1970 to £59,825. Most of the catch was disposed of for fishmeal production.

Mackerel.—Landings of mackerel amounted to 61,126 cwt. valued at £117,764 which represented a very large increase on 1970 when 20,683 cwt. valued at £39,641 were landed. The bigger landings were due mainly to good catches made by boats using midwater trawls. Considerable quantities of mackerel were frozen whole for export to the Continent. The average price was £1.93 per cwt. which compares with £1.92 per cwt. in 1970.

The chief landing centres for mackerel were:—Killybegs, Castle-townbere, Dingle, Valentia/Cahirciveen, Howth and Mornington.

Statistics of mackerel landings over the past ten years are given in the following table:—

TABLE 4

Year	Quantity	Value	Average Value per cwt.
	cwt.	£	£
1971	61,126	117,764	1.93
1970	20,683	39,641	1.92
1969	31,801	45,352	1.43
1968	42,590	48,526	1.14
1967	44,196	51,163	1.16
1966	29,645	46,389	1.57
1965	40,213	45,853	1.14
1964	26,308	38,891	1.48
1963	14,980	33,753	2.25
1962	16,475	39,297	2.38

SHELLFISH.—The value of the shellfish catch which reached the new record figure of £1,308,323 represented an increase of £206,252 over 1970. The principal increases were in scallops (+£96,381), periwinkles (+£18,957), and crawfish (+£44,091). Total landings for 'Queen' scallops to 31st December, 1971 were valued at £53,724. On the other hand the quantity and value of Dublin Bay Prawns declined somewhat.

Values of shellfish landings over the past ten years were:

TABLE 5.

Year	£
1971	1,308,323
1970	1,102,071
1969	890,548
1968	735,030
1967	516,623
1966	579,161
1965	431,262
1964	420,114
1963	353,863
1962	329,794

EXPORTS.—At £5,629,869 exports of fish and fishery products, including both sea fish products and freshwater fish products (see Part II of this Report) also established a new record. Exports of sea fish products at £4,215,210 were £860,418 up on 1970. Herrings and shellfish were mainly responsible for this substantial increase. Details of the exports are given in Appendix No. 4.

PERSONNEL AND VESSELS.—The overall number of men engaged in sea fishing continued to increase in 1971. The number engaged full-time rose from 1,964 in 1970 to 2,094 in 1971 while the number of part-time fishermen decreased from 3,897 to 3,707.

There was also an increase in the number of boats engaged in fishing in 1971, the total being 2,065 compared with 2,010 in 1970. The number of motor fishing vessels over 25 gross tons, which are responsible for most of the wet fish catch rose from 246 in 1970 to 275 in 1971. There was also an increase in the number of motor vessels of 25 tons gross and under, which rose from 689 in 1970 to 701 in 1971.

Further details are given in Appendix No. 7.

TRAINING OF FISHERMEN.—The scheme for training boys as fishermen was continued in 1971. The period of training extends over twelve months, five months of which are spent at a shore course provided in temporary school premises at Moville, Co. Donegal, and for the remainder of the period practical fishing experience is acquired by the trainees working aboard selected fishing vessels. A group of 22 boys commenced training under the scheme on 1st February, 1971, and at the end of the year were completing the practical side of the course. A second group of seventeen boys commenced their training at Moville on 1st September, 1971 and the course was still in progress at the end of the year.

Seven fishermen were selected to participate in the course provided in co-operation with the Galway Vocational Education Committee towards equipping experienced fishermen to qualify as skippers and six of them were subsequently successful in obtaining Certificates of Competency under the Merchant Shipping Acts. Since its inception in 1958 the scheme has assisted 98 fishermen in obtaining their certificates. For fishermen who do not find the Galway course convenient, An Bord Iascaigh Mhara continued in 1971 to provide port courses at selected centres and, as a result, Certificates of Competency under the Merchant Shipping Acts were awarded to a further 31 fishermen.

AN BORD IASCAIGH MHARA.—The Board received from the Fisheries Vote 1970/71, a grant of £635,000 in aid of current and capital development and administration. Repayable advances totalling £630,000 were also made to the Board from the Central Fund mainly for the provision of boats and gear.

During 1971 there was a substantial growth in exports, over 50% of which now go to EEC member countries with a further 43% to Great Britain. Working in close association with fishermen's trading co-operatives and individual exporters, the Board carried out an extensive programme of market research and investigation work abroad aimed at the continued expansion of seafood and shellfish exports. Concentration of activity was on the Continent where the marketing emphasis was on the diversification of Irish fish exports into the most remunerative outlets.

Work on the preparation of Irish Standard Specifications for fish and fish products in conjunction with the Institute for Industrial Research and Standards continued. A programme of inspection of fish processing factories was commenced in co-operation with the Institute with a view to raising standards in the industry. Assistance

was given to several firms to improve their production techniques. Development work on items of new equipment for the industry was also sponsored.

The major promotional project undertaken in the fishing industry during the year was the organisation of World Fishing Exhibition in Dublin and in conjunction with it, a Seafood Exhibition cum Festival was presented at Dun Laoghaire under the sponsorship of the Fishing Industry Development Committee.

During the year ended 31st March, 1971 the Board assisted Irish fishermen in acquiring 62 new and 18 second-hand boats. Financial assistance was also given to fishery co-operatives and coastal fish distributors towards the cost of providing new or improved distribution facilities at fishing ports. Grants were also made available to investors in pilot fish farming projects.

SEA FISHERIES PROTECTION.—Protection of the exclusive fishery limits involving regular patrols by vessels of the Naval Service of the Department of Defence was maintained in 1971. Prosecutions were instituted against the skippers of two foreign vessels who had been arrested for illegally entering and fishing inside our exclusive fishery limits. Convictions on both counts were secured in the two cases resulting in payment of fines and forfeiture of fish and gear. In the conduct of these cases and in the enforcement of fishery protection measures generally, the co-operation of the Garda Síochána was readily available.

EXPLORATORY VESSELS.—During the year the Department's exploratory fishing vessels, *Cú Feasa* and *Cú na Mara*, continued to assist in a variety of fishery research projects, including experimental fishing for nephrops, scallops, mussels, shrimps and crawfish. A plaice survey was undertaken by the *Cú Feasa* in the Irish Sea. Exploratory fishing for herrings off Galway was carried out by *Cú Feasa* and *Cú na Mara* jointly. Both vessels were at Dun Laoghaire during the World Fishing Exhibition.

MARINE WORKS.—During the year an area of land was compulsorily acquired for development works at the northern end of Killybegs Fishery Harbour Centre and tenders were invited for a new landing pier and servicing quay in the area. An investigation was started into the practicability of building additional quay space at the Black Rock berthage area and the installation of a new and improved lighting system on the Town Pier was also begun. At Castletownbere Fishery Harbour Centre, Dinish Island was acquired. The building of a fish auction hall and port offices on the mainland wharf was well advanced during the year and development works on Dinish Island, including the island wharf, the boat lifting system and repair yard were begun. Development works neared completion at Dunmore East harbour with the placing of a contract by the Office of Public Works for the building of a fish auction hall, port offices, and a harbour master's house.

Substantial harbour improvement works were completed during the year at Darby's Point, Co. Mayo; Skerries, Co. Dublin and Kilmore Quay, Co. Wexford. Improvement works were also completed at Fenit and Cuas Baile Mór Thoir, Co. Kerry; Glinsk, Co. Galway; Blacksod Quay, Co. Mayo; Doobeg, Port an Duin, Port a Ghlais, Scoltnalinga, Poolawaddy and Rannagh, Co. Donegal.

As a requisite preliminary to improvement works, boring surveys were carried out at Reen (Ballinskelligs), Cahirciveen and Portmagee, Co. Kerry.

Works in progress at the end of the year included the improvement of landing facilities at Reen Pier, Co. Cork; Dingle and Beltra, Co. Kerry; Kilbaha and Carrigaholt, Co. Clare; Cleggan, Sruffaun, Bealcarra, Moyrus, Co. Galway; Porturlin and Killala, Co. Mayo, and Ballysaggart, Co. Donegal.

During the year navigation lights were erected at Achill Sound, Co. Mayo and Cora Pointe, Co. Galway. Work was in progress on the erection of navigation lights at Tullaghan Bay, Co. Mayo. Approval was given for the erection of navigational lights at Pollacheeny, Co. Sligo and at Owey Sound, Co. Donegal and for the erection of a lighted beacon on Bone Rock in Killala Bay, Co. Mayo, conditional on the local authorities contributing towards the costs involved and accepting responsibility for the maintenance of the works when completed.

Arrangements were being made at the end of the year to have improvement works carried out at Dooneen, Co. Kerry; White Strand and Kilkee, Co. Clare; Rossaveal, Emlaghmore, Roundstone, Furnais North, Coolacloy, Sruthain Bui (Lettermore), Seana Comh Mheas, Doleen, Caladh O Dheas, Caladh Mór, Co. Galway; Doega, Portahaulia and Rinroe, Co. Mayo; Movice, Ballywhooriskey, Burtonport, Inishboffin and Portaleen, Co. Donegal.

The Survey Teams set up to make an appraisal of the landing facilities required to meet the present and expected needs of the fishing industry on the coasts of County Cork and North Kerry completed the field work and commenced the preparation of their reports and recommendations. Arrangements were also in hand at the end of the year to have a similar survey carried out on the coast of County Waterford.

EUROPEAN ECONOMIC COMMUNITY.—Negotiations on Ireland's application for membership of the EEC continued throughout 1971 and the bulk of the matters arising in the negotiations had been settled by the end of the year.

As indicated in the 1970 Report, strong concern was expressed during the negotiations as to the adverse effects on the Irish fishing industry of the implementation of the Community's policy of common access to our fishery waters. After protracted negotiations a satisfactory arrangement was reached on this issue. The arrangement, which will be subject to review after a ten year period, reserves exclusively for Irish fishermen the waters stretching from the coast to a line six

miles seaward of the baselines around our entire coastline. In addition, the existing regime is also being retained in the six to twelve mile zone from Lough Foyle to Cork Harbour for all species of fish and from Carlingford Lough to Carnsore Point for shellfish. While the arrangements negotiated are subject to review after ten years, they are not just transitional ones which will automatically lapse at the end of that period. The review is open-ended and when it takes place we will be in a position to ensure that our national interests in the fishery sector will be safeguarded.

Special arrangements will apply to the marketing of fish during a five year transitional period. Irish prices for varieties of fish such as herring, cod, black pollack, haddock, whiting, mackerel, and plaice will be gradually brought into line with the common level of EEC prices, which are generally higher than those received by our fishermen at present. Price differences existing in member countries will be balanced out during the transitional period by means of compensatory amounts on intra-Community trade. This arrangement will provide protection against imports when our quantitative restrictions on fresh, chilled and frozen fish are abolished on 1st February, 1973. As an added protection for home landed fish, the Government has imposed import duties on fresh, chilled and frozen fish at rates equivalent to the common tariff of the EEC. There was no duty previously on whole fish and only a small duty on fish fillets in this category. The duties on imports of fish and fishery products from member countries and the import duties on our fish and fishery products entering other member countries will be progressively abolished in intra-Community trade during the transitional period. Duties on imports from non-member countries will be maintained at or gradually brought to the level of the Common Customs Tariff of the Community. Ireland's duty-free access for fish into the United Kingdom will not be affected.

The EEC fishery Regulations will come into operation in Ireland on 1st February, 1973, subject to the special terms provided for in the Treaty of Accession. The first stage of the alignment of fish prices will take place on that date and the first stage in the harmonisation of customs duties will take place on 1st July, 1973.

SCIENTIFIC INVESTIGATIONS.—Full details of the investigations made in 1971 are published in *Sea Fisheries Bulletin* (No. 9) 1972. Two *Fishery Leaflets* were published during the year (see page 66).

Investigations into the herring stocks on the south, south-west and north-west coasts were made during the year and reports on the stocks on the south and south-west were circulated to persons interested. One of the Assistant Inspectors of Fisheries contributed a paper on Irish herrings to the annual meeting of the Pelagic Fish (Northern) Committee of the International Council for the Exploration of the Sea in Helsinki, Finland, in September 1971. The fat content of herrings from selected areas was determined from time to time and the results conveyed to the trade.

Because of the renewed interest in sprats for freezing and canning, samples were examined during the year,

A survey of the abundance and distribution of the eggs of plaice in the north-west Irish Sea was made in the spring of 1971 and the *Cú Feasa* was used to obtain samples upon which to determine the relationship between weight and length of adult plaice.

Analyses of catch and effort data from the lobster fishery provided by fishermen were undertaken during the year. The usual annual lobster trap census was also undertaken. Lobsters from many parts of Ireland were measured, sexed and the state of maturity determined at a storage pound in County Kerry. Advice was given to members of the public interested in setting up lobster pounds in Ireland.

During 1971 work was re-started on the crawfish (*Palinurus elephas*). One of the Assistant Inspectors of Fisheries visited all the storage pounds where crawfish are held and examined crawfish contained therein. A "disease" which was noted was investigated and diagnosed as probably of bacterial origin, the primary cause being injury to the tail. Attempts were made during the year to find the phyllosoma larvae of crawfish, but without success. Routine measurements of crawfish were made at various ports on the south and west coasts during the summer. The rather high mortalities in crawfish reported from some areas were investigated and the causes isolated. A trial tagging scheme was undertaken early in the year with a view to determining the suitability of a variety of tags.

A small scale crab tagging scheme using suture tags was undertaken in the Killala/Donegal Bay area.

Work on the Dublin Bay Prawn (*Nephrops norvegicus*) was continued during 1971. The commercial catches were sampled and research vessel surveys into the stocks in the Irish Sea were made. A tin tow-net survey for larval stages was also undertaken. For the first time sub-aqua diving surveys were made in the Irish Sea. The laboratory studies on *Nephrops* and the rearing of their larvae were continued during the year.

Work aimed at improving the oyster stocks in Tralee Bay was continued in 1971. Spat settlement, which proved to be excellent, was monitored during the year. Observations on the growth and survival of young oysters were continued. Experiments were also conducted into the attractiveness of collectors painted with an aqueous extract of whole oyster. Collectors painted with such extract were shown to be much more attractive for spat settlement than untreated collectors.

During 1971 surveys were made in West Cork in an attempt to identify areas with potential for mussel cultivation. Transplantations of mussels in several areas were kept under observation. Monthly monitoring of mussels from many areas was undertaken during 1971. A comprehensive survey of parasites of mussels was undertaken during the year and a paper on the subject was in course of preparation at the end of the year.

Investigations were continued in 1971 into the stocks of scallops

(*Pecten maximus*) at various places around the Irish coasts, including the beds off Co. Wexford which were discovered in 1964 but not exploited until 1971. Surveys to discover new beds of scallops were undertaken along the south coast in April and May when small quantities of scallops were found over a large area.

In June exploratory investigations were undertaken for the smaller Queen or Queen scallop (*Chlamys opercularis*) in the Galway Bay area as a result of which a fishery for this species was established. A *Fishery Leaflet* (No. 32) dealing with the east coast Queen fishery in 1970 has been published.

Preliminary investigations of the cockle stocks in Dundalk and Dungarvan Bays were undertaken in October and November. The stocks of imported disease-free second generation hatchery reared American Hard Shelled Clams (*Mercenaria mercenaria*) were kept under observation during the year. A third importation of this species was made during the year.

During the year samples of fish landed for industrial purposes on the east coast were examined with a view to ascertaining what proportion, if any, of protected species under the regulations of the North-East Atlantic Fisheries Commission was present.

Some interesting and rare fish were identified in 1971 from various parts of the Irish coast. They included the first recorded specimen of the thin-lipped mullet (*Iiza ramana*) from Killala Bay and the following species:

- a. Six gilled shark (*Hexanchus griseus*).
- b. Undulate ray (*Raia undulata*)
- c. Painted ray (*Raia microcellata*)
- d. White skate (*Raia alba*)
- e. Opah or moonfish (*Lampris guttatus*)
- f. Deal fish (*Trachipterus arcticus*)
- g. Black bream (*Spondyliosoma cantharus*)
- h. Red-band or red-snake fish (*Cepola rubescens*)
- i. Leopard-spotted goby (*Gobius (Zebrus) forsteri*)
- j. Reticulated dragonet (*Callionymus reticulatus*)
- k. Portrush barrel-fish (*Schedophilus medusophagus*)
- l. Pearlfish (*Echiodon drummondi*)
- m. Red fish or Norway haddock (*Sebastes marinus marinus*)
- n. Norway top knot (*Phrynorhombus norvegicus*)
- o. *Arnoglossus thori* (Eggs only)
- p. File or trigger-fish (*Balistes carolinensis*) and
- q. Sun-fish (*Mola mola*).

ENGINEERING

Fishing Ports and Landing Places.—In continuation of the arrangements made to make an appraisal of the landing facilities required to meet the present and expected needs of the fishing industry, a further survey team was set up to examine and make recommendations on fishing ports and landing places in North Kerry. This survey commenced in June and was completed in November; preparation of the report was well in hands by the end of the year. The survey of the County Cork coast, commenced in June 1970, was completed in 1971. Its report was also well in hands by the end of the year.

As in former years, the teams engaged in these surveys acted under the chairmanship of Mr. S. O Mealláin, Consultant to the Department. Membership consisted of a representative from each of the following bodies, viz. Department of Agriculture and Fisheries, Office of Public Works, Roinn na Gaeltachta (for Co. Cork), An Bord Iascaigh Mhara, the County Council of the county concerned and Bord Fáilte.

Bye-laws, Licences, Orders and Definitions.—Maps were prepared in connection with various bye-laws, orders, licences and other statutory instruments.

Marine Pollution.—The water quality monitoring survey of Cork Harbour area was continued during the year in collaboration with Cork Corporation, the Pfizer Chemical Corporation, and University College, Cork. Six surveys were carried out during the year, as compared with two in 1970, and arrangements were initiated to carry out the survey of conditions at neap tide and spring tide every two months commencing in January.

Actual and prospective discharges of large quantities of effluent into tidal estuaries were kept under review. Prompt action was taken in one case to ensure that malfunctioning of equipment was rectified and conditions inimical to fish life averted.

TECHNOLOGY

Fish Quality Regulations.—The Fish Quality Officers were active in ensuring compliance with the Demersal Fish (Handling, Storage and Transport) Regulations, 1967. In 17 cases it was found necessary to institute legal proceedings for contraventions of the Regulations. Convictions were secured in 13 of these cases, the remaining 4 not having been heard by the end of the year.

An exhibition to explain to the public the importance of the work of the Fish Quality Officer and the benefit that could accrue to the fishermen from compliance with the Demersal Fish (Handling, Storage and Transport) Regulations, 1967, was mounted as part of the Department's General Exhibit at the Royal Dublin Society's Spring Show. The exhibition was illustrated by photographs and charts, together with a display of various species of marine fish kindly made available by the Fishing Industry Development Committee. It attracted the interest of many visitors to the Show.

Arising out of the cessation of operation of one major firm engaged in the manufacture and supply of ice, an ad hoc Committee, under the chairmanship of the Inspector and Engineer, was set up by the Department to explore ways and means of improving the supply of ice. The Committee consisted of representatives of the Department of Agriculture and Fisheries, An Bord Iascaigh Mhara and the Dublin Fish Market Wholesalers Association, and met at regular intervals with beneficial results.

Fishery Products—Export Control.—In November, 1971 the Parliamentary Secretary to the Minister for Agriculture and Fisheries made an Order under the Agricultural and Fishery Products (Regulation of Export) Act, 1947, prohibiting as from 1st April, 1972, except under licence, the export of certain frozen fishery products. The fishery products concerned were those from which the Institute for Industrial Research and Standards had formulated standard specifications. Export licences for those products will be granted by the Department only to applicants who are licensed by the Institute to use its Standard Mark on the fishery products concerned.

Standards for Fishery Products.—The Inspector and Engineer continued to act as Chairman of the Working Group comprising representatives of the Department of Agriculture and Fisheries, An Bord Iascaigh Mhara, the Institute for Industrial Research and Standards and members of the Fish Trade to advise the Institute for Industrial Research and Standards on the formulation of Standards for fishery products.

National Codex Alimentarius Committee.—The Sub-Committee on Fish and Fishery Products continued to advise The National Codex Committee on Codex matters of importance to Ireland arising in the formulation of the International Codex Standard for Fish and Fishery Products. The Sub-Committee, under the chairmanship of the Inspector and Engineer, consisted of representatives of the Department of Agriculture and Fisheries, the Institute for Industrial Research and Standards, An Bord Iascaigh Mhara, the State Laboratory and the Confederation of Irish Industries.

Marine Works.—Many proposals for development work aimed at the improvement of fishery harbours and fish landing places were examined and recommended for implementation where considered desirable.

Decca Navigation Chain.—In May a contract was signed with the Decca Navigator Company Ltd., London, for the installation of an electronic navigation system to cover the north-west, west and south coasts of Ireland. When installed, there will be full Decca coverage along the whole of the Irish coastline.

Electrified Nephrops Trawl.—Field tests of the electrified nephrops trawl had to be suspended temporarily during this year as pre-occupation with other work did not allow of this matter being brought further. Nevertheless, some further development work was carried out by the Department's Consultant in electronic equipment and its adaptation for use in fishing for other species.

INTERNATIONAL AND OTHER CONFERENCES

1. **INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA.**—This Council was founded in 1902 to co-ordinate fisheries research in the North Atlantic and its dependent seas. The Department's Inspector and Scientific Adviser and the Inspector on the sea fisheries side attended the annual meeting of the Council which took place in Helsinki from 27th September to 6th October, 1971. Papers were contributed by members of the Department's staff to the Shellfish and Benthos Committee of which the Inspector on the sea fisheries side is currently chairman, and to the Pelagic Fish (Northern) Committee.

The Inspector also attended a meeting in London in May, 1971, of the Council's Working Group concerned with the introduction of non-indigenous species within the Council's area and one of the Assistant Inspectors attended a meeting of another Working Group on Gear and Behaviour Methodology.

2. **NORTH EAST ATLANTIC FISHERIES COMMISSION.**—This Commission, established under the terms of the International Fisheries Convention of London of 1959, held its ninth meeting in London in May, 1971. Ireland was represented by its permanent delegates, the Department's Assistant Secretary in charge of Fisheries and the Department's Inspector and Scientific Adviser, who acted during the year as chairman of Regional Committee 2 and of the Inspections Committee. Arrangements were made for relaxing for a further period the regulations with respect to fishing for whiting in part of the Irish Sea by vessels based on and landing in the area. Restrictions were imposed on the use of purse seines in the Celtic Sea area for herrings.

The Parliamentary Secretary to the Minister for Agriculture and Fisheries and the Inspector and Scientific Adviser acted as Commissioners, with the Department's Principal on the sea fisheries side as Adviser, at an Extraordinary meeting of the Commission held in Moscow from 14th to 16th December, 1971, for the purpose of discussing problems relating to the fisheries of the North-East Atlantic area and its associated seas. The Inspector and Scientific Adviser attended the special meeting on North Sea herring problems held in the same city in advance of the extraordinary meeting.

3. **Challenger Society.**—This Society holds joint meetings with Marine Laboratories as part of its programme to encourage the study of oceanography. Two of the Assistant Inspectors attended one such meeting in Dunstaffnage, Oban, Scotland, from 15th to 17th September, 1971, at which a wide range of subjects was discussed.

4. **Herring Research Group.**—This Group, sponsored by the British National Environmental Research Council, held a meeting in Aberdeen on 24th and 25th June, 1971, which was attended by the Assistant Inspector in charge of herring investigations. A wide range of subjects connected with herring researches was discussed.

5. **Irish Specimen Fish Committee.**—The Department's representatives on this Committee are the Inspector and Scientific Adviser who is

currently Chairman and the Inspector on the sea fisheries side. The Committee's Chairman and Honorary Secretary presented the awards of record medals, badges and certificates for specimen fish during the year at functions organised in Dublin, London and Birmingham, and also at the VISMA Exhibition in Rotterdam in March, 1971.

6. **Codex Alimentarius Committee on Fish and Fishery Products.**—The Department's Inspector and Engineer attended as a delegate at the annual meeting of the Committee on Fish and Fishery Products of the Codex Alimentarius Commission at Bergen, Norway, in October 1971 in connection with the preparation of Draft International Standards for various fishery products.

7. **National Committee for Geodesy and Geophysics.**—The Inspector and Engineer continued to act as the Department's representative on this Committee and participated in the work of a study group on oceanographic observations set up by the Committee to formulate and implement a programme of work for Ireland as its contribution to the Integrated Global Ocean Station System and, in particular, to consider how a start could be made in the orderly collection of basic oceanographic data from coastal waters around Ireland.

8. **Symposium on the Development of the Marine Resources of Ireland.**—This Symposium, organised by the Institute for Industrial Research and Standards on behalf of the National Science Council, was attended by the Inspector and Engineer and by an Engineer.

LEGISLATION

Particulars of Statutory Instruments relating to Sea Fisheries made during the year are included in Appendix No. 22.

PART II
INLAND FISHERIES

Full details of the catches of salmon, trout and eels in the various Fishery Districts during 1971 are given in Appendices 11 to 17 to this report. The catches made in part of the Foyle Fisheries Commission area, formerly the Merville Fishery District, are not included in Appendix 11 but are referred to in a special section of this report on page 33. In 1971 the catch of salmon and grilse by all methods amounted to 3,292,819 lb valued at £1,317,124, compared with 3,510,748 lb valued at £1,228,762 for 1970. The total number of salmon recorded was 466,361 compared with 496,597 for 1970. The overall average weight at 7.06 lb was close to that (7.07 lb) for 1970, and in the continuing scarcity of salmon (fish which have spent two or more years feeding in the sea), was due to the high average weight of the main or grilse component of the stocks. Weather conditions for the third year running tended to favour netting during the grilse run and angling was adversely affected by drought conditions for much of the season. In consequence of this and the continued scarcity of the earlier running salmon the rod catch was low (as given in Appendix 12) amounting to 16,963 fish weighing 133,568 lb and valued at £53,427 compared with 17,890 fish, weighing 136,849 lb valued at £47,895 for 1970.

Appendix 12 gives the catch of salmon and grilse for each Fishery District for the three years 1969, 1970 and 1971, inclusive. In 1971 the catch of salmon (by weight) was distributed as follows:—

Drift nets	...	50.14%
Draft nets	...	35.80%
Stake nets and other commercial methods	...	10.00%
Rod and line	...	4.06%

The proportion of fish taken by drift nets was slightly higher than in 1969 and 1970.

The total number of licences of all kinds for angling with salmon and sea trout was 10,769, a fall of 677 on the figure for 1970. The average catch of salmon and grilse per licence was 1.58 fish weighing 12.40 lb and valued at £4.96, which was about the same level as in 1970 but well below the figures for the years 1967 to 1969 inclusive. The average weight of the rod catches at 7.9 lb was somewhat higher than that in both 1969 and 1970. The highest average weight (11.3 lb) of fish taken on the rod was recorded for the Drogheda Fishery District in which a few grilse are taken by this method, most of the catches being made up of small spring (2 sea winters) and small summer fish (2+ sea winters). Catches on rod and line in the Dundalk Fishery District also had a high average weight (10.4 lb) indicating reliance on salmon rather than grilse, whereas the remaining districts had lower average weights due to the high proportion of grilse in the catches.

The Corporation of Dublin Wholesale Fish Market in 1971 handled 135,967 salmon and grilse weighing 984,647 lb compared with 118,756 fish weighing 863,039 lb in 1970. In 1971, this market handled 26% (both by number and weight) of all salmon and grilse taken in the country outside the Foyle area.

Appendix 13 gives details of the catch of sea trout in the various Fishery Districts. The total catch of sea trout amounting to 87,872 lb and valued at £33,390 was lower than that for 1970 when 106,951 lb valued at £26,738 were caught. As explained in previous reports there is little specific commercial fishing for sea trout and most sea trout taken in this country are obtained on rod and line or as a by-product of commercial salmon fishing. The sea trout catch was distributed as follows:—

Rod and line	...	61.9%
Draft nets	...	33.9%
Drift nets and other commercial methods	...	4.2%

The catch of sea trout on rod and line was 54,379 lb or about 10% less than in 1970 when the catch by this method was 60,650 lb. The average catch of sea trout per licence gives a poor indication of the abundance of this species for many fishery districts in which sea trout are highly localised; and few anglers out of all licensed to fish for salmon and sea trout do actually and definitely fish for sea trout. However, in the Connemara Fishery District, in which many anglers do specifically fish for sea trout the average catch per licence was 23.8 fish weighing 23.8 lb.

As mentioned earlier drought conditions prevailed in many rivers for a considerable part of the grilse runs and escapement into fresh water was accordingly difficult. As a consequence in many rivers the spawning stocks were much smaller than had been the case for some previous years. Reports from the Boards of Conservators and from other sources indicate that runs of smolts to the sea in 1971 were satisfactory, even in rivers which had been previously adversely affected by Ulcerative Dermal Necrosis (UDN).

Ulcerative Dermal Necrosis (UDN) continued to affect salmon and to a very much lesser extent brown trout and sea trout during 1971 but the incidence generally appears to have been much less severe than in previous years. Outbreaks of disease were still somewhat serious in the Rivers Blackwater, Lee and Bandon and a very high proportion of the affected fish reported came from those rivers. Despite the presence of the disease substantial numbers of clean healthy fish were taken on rod and line from the Rivers Blackwater and Bandon. The effect of the disease on brown trout was much less in 1971 than in the previous two years and no reports were received of other species of freshwater fishes being affected. In the 1970/71 season quantities of salmon ova were imported for restocking rivers to offset UDN as follows:—

Norway	...	277,000 ova
Scotland	...	310,000 ova

In addition 38,000 sea trout ova were imported from Scotland for the same purpose.

As indicated in Appendix No. 14 the returns for the capture of eels are not complete. The total returned at 203,485 lb was down on that for 1970 by about 20%. Although the returns are incomplete they are thought to reflect the reduced catches of eels in the main run of silver eels to the sea in the autumn and early winter when low water conditions adversely affected the running capacity of eels.

INLAND FISHERIES COMMISSION

The Commission appointed by the Minister in June 1970 to examine all aspects of inland fisheries (i.e. those for salmon, trout, eels and coarse fish) including their tenure, development, management, administration, optimum utilisation and anti-pollution measures and to make recommendations, held a number of meetings during the year. They issued an interim report relating to regulation of drift net fishing for salmon at sea which contained recommendations as to the form such measures might take. The report was published in order to stimulate discussion on the recommendations and persons who wished to furnish comments on the contents of the report were invited to forward them to the Department before January, 1972.

BOARDS OF CONSERVATORS.—Details of receipts and expenditure of Boards of Conservators in the fishery year ended 30th September, 1971 are given in Appendix No. 18.

EMPLOYMENT IN THE INDUSTRY.—Exclusive of persons employed on the marketing and transport of fish a total of some 6,582 persons found either whole-time or part-time employment in inland fisheries during the year. The figure includes 4,512 persons estimated as engaged in netting for salmon under common law right, 438 employed by Boards of Conservators on protection of fisheries over the open and close seasons, 800 engaged in netting in the Foyle area or employed in that area on protection work, 150 engaged in development work on behalf of the Inland Fisheries Trust Inc. and the remainder employed by proprietors of commercial salmon fisheries, by sport fishery owners or by angling associations.

INSTRUMENTS OF CAPTURE.—The total number of fishing licences of all kinds issued during the year was 12,975.

The totals in recent years were:—

1970	...	13,666
1969	...	12,808
1968	...	11,796
1967	...	12,626
1966	...	13,809
1965	...	14,647
1964	...	13,598
1963	...	11,343
1962	...	10,479
1961	...	9,980
1960	...	10,059

The number of the various classes of licences issued in each fishery district during the year and the rates of licence duty are given in Appendices Nos. 19 and 20 respectively.

EXPORTS OF FRESHWATER FISH.—Salmon:—The total quantity of salmon exported in fresh, chilled, frozen and smoked forms was 21,571 cwt. compared with 23,170 cwt. in 1970. Total value of these exports rose from £1,217,079 in 1970 to a new record figure of £1,361,685. Details for the two years are as follows:—

	1971		1970	
	cwt.	£	cwt.	£
Fresh, chilled and frozen salmon ...	20,831	1,282,851	22,287	1,099,835
Smoked salmon ...	740	78,834	883	117,244

Of the total quantity of fresh, chilled and frozen salmon exported in 1971, 13,179 cwt. went to Great Britain, 3,961 cwt. to France, 2,117 cwt. to the Six Counties, 782 cwt. to Spain, 181 cwt. to the Federal Republic of Germany, and 180 cwt. to the Netherlands; smaller quantities went to Belgium, Switzerland, Denmark, Sweden, Republic of South Africa, Bahamas, Barbados, Cyprus, Canary Islands, Luxembourg, Saudi Arabia and U.S.A. The smoked salmon was exported mainly to Great Britain (312 cwt.), U.S.A. (152 cwt.), Republic of South Africa (73 cwt.), Switzerland (43 cwt.), Federal Republic of Germany (30 cwt.) and Six Counties (27 cwt.). The average export price of fresh, chilled or frozen salmon was £61.58 per cwt. as compared with £49.35 in 1970. The foregoing figures include landings of salmon in County Donegal from waters in the area administered by the Foyle Fisheries Commission.

Licences to export salmon under the Agricultural and Fishery (Regulation of Export) Act, 1947 (Export of Salmon) Order, 1954 (S.I. No. 275 of 1954) were issued to 97 persons or firms during the year.

Rainbow Trout.—Exports of rainbow trout in 1971 amounted to 1,882 cwt. valued at £55,198 as compared with 900 cwt. valued at £25,270 in 1970.

Eels.—Exports of eels in 1971 amounted to 2,297 cwt. valued at £76,610 as compared with 4,325 cwt. valued at £120,772 in 1970.

DEVELOPMENT OF EEL FISHING.—Work (reported upon briefly in "Scientific Investigations") continued during the year on eel stocks and eel fishing techniques. There are indications that the information gained from the investigations will be of value in the development of the country's eel fishing potential. Thirty seven eel fishing authorisations were issued to persons for the operation of eel fishing engines, some on new sites, others on sites where eel fishing carried out in previous years had lapsed.

ARTIFICIAL PROPAGATION.—Details of salmon, sea trout and brown trout ova produced at the various hatcheries are given at Appendix No. 23.

The output of salmon ova in the 1970/71 spawning season amounted to 3,186,000. 490,000 salmon ova/fry were distributed from the Department's hatchery at Glenties, Co. Donegal.

Imports of ova by the Department from suitable disease-free sources abroad were as follows:—

<i>Salmon Ova</i>		<i>Sea Trout Ova</i>	
Norway	... 276,600	Scotland	... 38,000
Scotland	... 310,000		

This ova was used to supplement home supplies for the re-stocking of rivers which have been affected by UDN disease.

The produce of Cong Hatchery as reared to under-yearling stage was for distribution as follows:—

100,000—River Moy and Tributaries
50,000—Clare Galway River
50,000—Erne System.

SCIENTIFIC INVESTIGATIONS.—During 1971 considerable attention was paid to the fluctuations in and composition of the salmon stocks in the various rivers. Sets of scales of salmon were collected from the major salmon fisheries in the country and statistics relating to the monthly catches were also collected in order to estimate, *inter alia*, the numbers of salmon (two or more years feeding in the sea) and grilse (less than two years feeding in the sea) in the different rivers. This work showed that the decline in spring fish (two or three years feeding in the sea) was more marked than in previous years for those rivers for which monthly catch figures were available. The grilse, whilst apparently somewhat scarcer than in 1970, were still about average for the ten-year period 1962 to 1971, inclusive.

One noticeable feature of the salmon stocks in 1971, as in 1970, was the dearth of previously spawned fish, due it is thought, in many cases to the adverse effect of Ulcerative Dermal Necrosis (UDN) on the spent fish. The salmon and grilse runs in the River Erne were low which was not entirely unexpected since the 1967/68 spawning season from which the runs of 1971 were mainly derived, was a poor one.

In the summer of 1971, 206 salmon and grilse taken in drift nets off the coast of Donegal were tagged and released. Only 13 tags (6.3%) were returned to the Department. This was a disappointing low percentage recapture, compared with 12.2% in previous experiments. Three long distance recaptures were recorded, one from the Welsh Dee, a second from the River Lledr, a tributary of the River Conway in North Wales and a third from the River Cashen in County Kerry.

There was a dearth of kelts for tagging and only 142 were tagged by the Department's staff. Two clean fish were recaptured from kelts tagged at Glenties, Co. Donegal.

In January 1971 about 2,400 pre-smolts were tagged at the Parteen Rearing Station on the River Shannon. These smolts were of mixed

origin, some being derived from native Shannon stock and some from Canadian ova imported earlier. Of the 821 pre-smolts tagged in the River Boyne in November 1969 four were recaptured in West Greenland from July to August, as fish in their second sea year.

A salmon tagged off West Greenland in September, 1970 was recaptured at Dunmore East, Co. Waterford in May 1971 and a second fish tagged off the Faroes in March 1971 was recaptured in the River Clady, Co. Donegal on rod and line in July 1971. A sea trout tagged in North Wales was recaptured in the Irish Sea, off Arklow in August 1971. Two members of the scientific staff who act as Ireland's representatives on the Joint Working Party on North Atlantic salmon, established by the International Council for the Exploration of the Sea and the International Commission for the North West Atlantic Fisheries provided information to the Working Party on the characteristics and fluctuations in the runs of Irish salmon in recent years.

Scientific work on the River Boyne aimed at assessing the effects of drainage schemes on the stocks of salmon and trout was continued during 1971. Biological data was collected from tributaries already drained and those unaffected so far by drainage operations. The age composition of migrating smolts in the River Blackwater, a tributary of the River Boyne was also undertaken.

Early in 1971 summer fyke net trials were made monthly in Lough Key, on the Shannon system, to determine when eels became active after the winter hibernation. Eels from the South Sloblands in Co. Wexford, where commercial fyke netting had started, were sampled with a view to estimating the effects on stocks of fishing for yellow or immature eels. Samples of eels were also collected from the estuary of the River Shannon where commercial fishing had commenced. Examination of the material collected revealed that the eels in this region were fast growing. At the close of the year a report on the scientific work carried out on eels since 1965 was in an advanced state of preparation.

Work was continued during the year on the productivity as regards salmon and trout of certain waters in the Owenea system and a paper on the ecology of juvenile salmon and brown trout of the river and its Glen and Stracashel tributaries was prepared during the year for publication in *IRISH FISHERIES INVESTIGATIONS, SERIES A (FRESHWATER)*. In connection with this work an analysis of the runs of salmon and sea trout smolts was made. Information was also collected on the characteristics of the adult salmon run by means of scale samples and weight and length data. The development of Lough Ea, as a salmon nursery area was postponed pending collection of material on the stocks of sea trout in the lake.

Surveys of a number of small trout lakes in the neighbourhood of Glencolumbkille, Co. Donegal, were made during the year to ascertain their angling potentiality.

In some of these lakes the trout were very small but numerous. Due to their windswept nature and hidden rock shoals some of the lakes would be very difficult to fish from boats: however some could be

fished from the shore. Intensive angling would reduce the numbers of fish leaving more food for the remaining stocks and enable them to grow to a larger size.

Regular visits were paid by the scientific staff of the Department to the various fish farms and investigations were carried out into survival rates at hatchery and during early feeding. Generally survival to the fingerling stage was good. The last in the series of feeding trials initiated at the Glen of Aherlow farm in 1967 was concluded in June 1971. Comparisons were made between a home manufactured pellet and a much more expensive imported pellet with a somewhat better conversion rate. It was concluded that the home manufactured pellet was overall a better economic proposition than the imported one. Some information was also collected on a third pellet, with a coloured pigment additive, which was used to improve the colour of the flesh of the fish. As there is insufficient demand for trout with pink coloured flesh the cost of the pellet containing pigment rules out its widespread use at present.

During the year the rivers adjoining four fish farms were electro-fished, above and below the outlets of each farm for a distance of 1 to 1½ miles to ascertain what effect, if any, the escapement of rainbow trout had on the stocks of wild fish. Whilst a few rainbow trout were caught, they were small in size and probably rather recent escapees. In any case they formed a very small proportion of the total stock and in two cases spot checks carried out much further downstream failed to produce any rainbow trout at all. It would, therefore, appear that whilst some rainbow trout do escape they are not detrimental to the stocks of wild salmon and trout.

An investigation was conducted during the summer months into the effect of fish farm effluents on the receiving waters at the Dingle and Glen of Aherlow fish farms. The results indicate that whilst there was slight deterioration in the water quality as a result of the discharge of the effluents no serious pollution of the receiving water was being caused. Similarly the effect on the invertebrate fauna in the receiving waters was minimal.

Work was continued during the year on Ulcerative Dermal Necrosis (UDN) at the Veterinary Research Laboratory of the Department and in the Zoology Department of University College, Cork and the Botany Department of University College, Dublin. Investigations of the incoming populations of disease affected rivers suggest that, with the exception of two rivers, the number of returning adults has not been unduly affected by the presence of disease. Renewed investigations were also carried out into the susceptibility of rainbow trout to UDN in the field and in the laboratory. Previous work (Carbery and Strickland 1968) had indicated that the species was resistant to infection. Present work points to rainbow trout being susceptible when sexually active. Further research is to be carried out on this subject.

The viability and growth rate of salmon fry derived from ova imported from Norway were investigated during the year and shown to be similar to those from home produced stock. Salmon rearing in the Cong station was adversely affected in the summer of 1971 by very

low water conditions, which resulted in the 6 metre rearing ponds being rendered ineffective so that the fingerlings had to be transferred to the large brood stock pond early in July. This resulted in a very poor growth rate due, it is thought, to over crowding.

The scientific staff of the Fisheries Division continued to examine sets of scales and to identify specimens of freshwater fish on behalf of the Irish Specimen Fish Committee and for the public generally. The staff advised members of the public on the management of freshwater fisheries generally. During the year biological surveys were made, *inter alia*, of the River Bonnet and its associated tributaries and the River Moy to select the most suitable areas for restocking. Members of the Department's staff also contributed papers to a number of scientific organisations as indicated elsewhere (page 66).

A member of the scientific staff acts as Director of Research for the Salmon Research Trust of Ireland and as scientific adviser to the Foyle Fisheries Commission. Collaboration with staff of the Commission on research work on the salmon of the River Foyle was continued.

Three holders of Departmental studentships undertook research on freshwater fisheries or associated topics as follows:—

- a. A study of the eye proteins and haemoglobins of different hybrids, mainly of freshwater fishes.
- b. Studies of the fauna and physico/chemical characteristics of Loughs Dan (County Wicklow) and Sillen (County Cavan) and
- c. Studies of the zoobenthos of Lough Corrib with particular reference to the food organisms for eels.

In addition a project dealing with the emission of silt from sand and gravel washing plants was undertaken by Final Year Engineering Students of University College, Cork, under the guidance of one of the Department's Engineers, who also contributed suggestions and guidance to other students and graduate engineers at University College, Cork, engaged on projects related to Fisheries and Sanitary Engineering.

ENGINEERING.—*Salmon Disease Investigations*:—The electronic fish counting installation incorporated in the weir at Bandon, Co. Cork, to monitor the run of salmon in furtherance of the project to establish, if possible, the extent of mortality in salmon due to UDN was kept under observation and adjustments were made to ensure efficiency in operation.

An unused fishing crib in the Ballina Salmon Weir, was converted for use as a salmon holding pen by kind permission of the Moy Fishery Company. The work was carried out to the design of Fisheries Division by the Office of Public Works. It is proposed to investigate if salmon caught commercially in the adjoining salmon trap could be retained there for a period until they become "water hardened"; they would then be transferred to holding ponds at salmon hatcheries and retained there until the Autumn of the year by which time, if they survived, they should be suitable to provide ova for use in the rearing of fish for the stocking of rivers affected by UDN disease.

Hydro-Electric Development.—The various hydro-electric installations continued to be kept under observation and the effects of their operation on fish life observed.

It was reported in 1970 that the Electricity Supply Board had agreed to expand the existing hatchery at Carrigadrohid and to build a smolt rearing station for 150,000 smolts which would be expected to yield a return of some 8,000 to 10,000 adult salmon per annum. This decision led to consultations between the Electricity Supply Board and the Cork Board of Fishery Conservators, The Inland Fisheries Trust, various local interests, including Anglers Clubs and the Macroom Chamber of Commerce. Arising out of this it was agreed that the Inniscarra or lower reservoir of the E.S.B. River Lee Hydro-Electric development would be developed solely as a trout fishery and that the Carrigadrohid or upper reservoir would be developed as a coarse fishery mainly for pike and perch, with the lower section of river from Inniscarra Dam to Cork Harbour being reserved for the salmon fishing interest.

Arterial Drainage.—Work continues on the major arterial drainage schemes for the catchments of the River Moy, Corrib-Headford and River Boyne and this was kept under observation and regular consultations took place with the officers of the Office of Public Works to ensure that all practicable steps were taken to safeguard fishery interests.

During the year, the plans for the salmon rearing installation in which underyearling salmon will be raised for re-stocking the River Boyne system were re-designed to adapt the proposal to new site conditions arising from a change in the scheme of drainage and final agreement was reached with the Office of Public Works to undertake the construction of the installation at Virginia, Co. Cavan, in accordance with the plans prepared by Fisheries Division.

During the year, observations of the effects on fishery interests of drainage schemes carried out in former years were continued and in general, insofar as the salmon fishing interest is concerned, the information collected suggested that the ill-effects would not appear to be as serious as has been popularly believed.

Post-drainage investigations were carried out on tributary systems of the River Moy, in particular, the Bunree, Gweestian, Pollagh, Glone and Trimoge Rivers and a programme of rehabilitation work as necessary is being drawn up for these rivers.

Investigations were carried out on rivers which had undergone drainage and on others which were unaffected by drainage to compare flow conditions during drought periods and, in general, no significant difference could be established.

Following on representations by the Connaught Angling Federation, investigations were carried out in collaboration with the Inland Fisheries Trust about the incidence of weed growth and silting in lower Lough Corrib which, it was alleged, was due to drainage operations.

Following notification by the Office of Public Works that arterial drainage schemes were mooted for a number of additional river catchments, a pre-drainage survey of fishery interests was undertaken in the Dunkellin River, the Cornamona River and the tributary streams of Loughs Mask and Carra. As the Inland Fisheries Trust is engaged in fishery development work in these lakes it was invited to undertake the pre-drainage survey of the fishery interests to be preserved in the tributaries of both Mask and Carra.

Work continued on the survey of the coarse fishing interest in the lake system in the upper reaches of the River Erne. On the recommendations of the Fisheries Division, the Inland Fisheries Trust was invited by the Office of Public Works to undertake this work. Arising out of this survey, a report has been prepared by the Inland Fisheries Trust detailing the works necessary to preserve the coarse fishery interest and this has been approved by the Department and forwarded to the Office of Public Works for implementation if and when the scheme is executed.

Plans were prepared for the rehabilitation of the salmon traps at Blackcastle on the River Boyne to provide the parent fish to supply the hatchery at Virginia with salmon ova for the rearing of the young fish for restocking purposes.

Investigation of Fish Movements.—The counting of smolts on the River Corrib began on the 2nd April and continued until the 5th June when the main run ended. In all 77,560 smolts were counted and released from the trap at the Galway Sluice Barrage. The count for 1970 was 14,700. The maximum number of smolts taken from the trap in one day was 10,000 on the 3rd May. The total catch was very much greater than that of 1970 but still somewhat less than that of 1969 when 85,947 smolts were captured and released.

Electronic Fish Counters.—The adult counting installations installed on the Corrib, Bunree, Liffey, Inagh, Bandon and Blackwater Rivers were maintained in operation during the year.

The numbers of fish recorded by these instruments are summarised as follows:—

River	Location	Total Count	Daily Maximum	Date
Corrib	Galway	4,813	462	6 June, 1971
*Bunree	Downhill	446	48	12 Dec., 1971
Liffey	Islandbridge	204	13	6 Sept., 1971
*Inagh	Ennistymon	446	55	3 Dec., 1971
Blackwater	Clondulane	3,289	306	16 Oct., 1971
Bandon	Bandon Weir	2,264	204	26 July, 1971

* The Ennistymon counter was out of order from 10 July to 16 September.

* The Downhill counter was out of order from 8 May to 19 September.

New salmon and sea trout counting installations were designed for installation on the River Boyne at Blackcastle Hatchery Weir and on the River Lennon at Kelly's Weir, Ramelton. The installation on the River Boyne is being undertaken by the Office of Public Works on behalf of Fisheries Division and was largely completed by the end of the year. Counting was scheduled to commence in Spring, 1972.

The installation on the River Lennon is jointly sponsored by Fisheries Division, Bord Fáilte and the Letterkenny Board of Fishery Conservators. The construction and installation was scheduled for operation in summer 1972.

Proposals for the erection of a fish counting installation on the River Roughty were also investigated on behalf of Bord Fáilte and the Kenmare Anglers Association.

The existing smolt trapping and counting installation in the Glen River adjoining Glenties Salmon Hatchery was maintained; experimental electrical smolt and eel traps were installed.

Fish Culture Installations.—Unusual drought conditions created difficulties in the operation of the salmon hatchery and rearing station at Cong, Co. Mayo, but nevertheless, 200,000 salmon were reared for distribution as yearlings in 1972. Investigations are proceeding on measures to be taken to augment the water supply to this installation.

River Improvement Schemes.—At the request and at the expense of Bord Fáilte, a scheme of improvement works was drawn up for the spawning streams of Kiltoorish Lake in Co. Donegal to be carried out by the local angling association under the supervision of one of the Department's Supervisors.

A wooden foot bridge used by anglers while fishing the State owned fishery on the River Owenea in Co. Donegal which was due for renewal was replaced by a tubular steel foot bridge designed by one of the Engineers. The erection of the new bridge and demolition of the old structure was carried out by a firm of Civil Engineering Contractors.

A survey was made of the Behy River at the request of the local angling association and discussions took place and suggestions put forward for a possible scheme of improvements.

At the request of Bord Fáilte, preliminary investigations were undertaken of a number of river systems and reports supplied on the feasibility of carrying out suggested improvement schemes.

Eel Fishery Development.—Arrangements were set in hand for trapping silver eels at one of the Shannon embankment sluice flaps at Clenagh, Co. Clare. A portal was designed to fit the sluice outlet by means of which the nets could be held in position and lifted as necessary.

As in former years, a number of eel fishery installations in existence or projected were investigated and the owners advised on desirable

improvements to increase their efficiency or otherwise to ensure that the structures complied with the Fisheries laws.

The Report of the consultation on eel fishing gear and techniques which was convened and presided over by the Inspector and Engineer at the request of the European Inland Fisheries Commission and held in Bundesforschungsanstalt für Fischerei, Hamburg, in October, 1970, was edited by that officer, prepared for publication by the European Inland Fisheries Advisory Commission duly appearing as EIFAC Technical Paper No. 14. This document now provides a comprehensive review of current practices followed in the principal countries engaged in eel fishing in Europe.

Application of Electricity to Inland Fisheries.—Research and development work on the application of electricity to inland fisheries was continued by the Department's Consultant at the State Salmon Hatchery at Glenties, Co. Donegal, in association with the Inspector and Engineer.

Electric Barriers.—An electric barrier was installed and operated successfully at the mouth of the Trimbleston River to prevent the entry of salmon into a spawning tributary which was undergoing drainage operations. The design was of similar geometry to that described in previous reports about the barrier at Cork Waterworks Weir, but it incorporated two novel features, viz.

- (a) suspension of the vertical electrodes from a pair of catenaries;
- (b) automatic trash release to make the barrier self-cleansing.

A barrier of the type already described in previous reports as being installed at Glencullin Bridge on the Glencullin River, a tributary of Carrowmore Lake, Co. Mayo, was used in Blackcastle Hatchery Weir on the River Boyne to deter fish from crossing the weir except through the fish pass where the automatic salmon counter is installed. Several fishery authorities outside the State sought advice on the design and installation of electric barriers and this was supplied where possible.

Electronic Salmon Counters.—Designs were prepared for the installation of electronic salmon and sea trout counters of the water-bridge type on the Rivers Boyne and Lennon and the work placed in hands.

The Department's Consultant continued to work on the development and improvement of salmon counters of the water-bridge type and on the testing and developing of the wide gap muscle-action-potential counter.

A prototype of the new type of automatic/counting device code named PET (Programme Electronic Trap) was built and operated at Glenties Research Station during the 1971 smolt migration. The working principle is that downstream migrants, smolts, eels and brown trout, are guided by electro-kinesis to a trap sited in mid-stream where they are held for counting, tagging and release.

Encouraging results are recorded with the prototype and an improved model has been built for testing during the 1972 smolt run.

Fish Passes.—Inspections and preliminary surveys were carried out at a number of sites where fish passes are required to facilitate salmon movements.

Work was completed on the design of a fish pass for installation in one of the opes in the diversion weir downstream of Cork Waterworks Weir. Designs for the alteration of existing fish passes at Kelly's Weir, River Lennon, Co. Donegal; Blackcastle Hatchery Weir, River Boyne, Co. Meath were prepared to permit the incorporation of electronic fish counting units. Work was resumed on the design of a fish pass for Kilkenny Woolen Mills Weir and a design was put in hands for a fish pass on the Dolla River. The Office of Public Works completed the construction of a fish pass on the Ballynalty Stream, a tributary of the River Corrib in the Corrib/Headford catchment in accordance with the design of this Department. A preliminary fish pass design was prepared for the Oughterard Waterfall on the Owenriffé River.

At the request of the Wexford Board of Fishery Conservators, designs were prepared for alterations carried out to the fish passes on the River Slaney at Rathvilly and Tullow and the work was executed by the Board of Conservators with the guidance of the Department's engineers.

With the co-operation and assistance of the Cork Board of Fishery Conservators detailed investigations of fish movements at Ballincollig Weir on the River Lee were continued to assess the extent to which fish movements across the weir might be hampered by alterations which had been carried out to the weir structure and if necessary to design remedial works. No evidence of a serious hold up of fish movement could be established up to July, 1971 when further changes were affected and it became necessary to commence the investigation afresh to assess the effects of the new flow conditions arising therefrom.

Rainbow Trout Fish Farming.—Existing fish farm units were kept under observation and engineering advice provided where requested as regards improvements in existing installations and advice was supplied to inquiries about the suitability of sites being considered for development for fish farming purposes.

Polluting Effluents.—Problems of pollution arising from domestic, industrial and agricultural sources, were very much aggravated during this year due to the unusual drought conditions which persisted throughout the year in continuation of those of the previous year so that adverse effects were very noticeable and came in for much comment. Possibly for this reason in addition to that arising from greatly accelerated developments generally, many applications for licences authorising the discharge of deleterious effluent in accordance with Section 171 of the Fisheries (Consolidation) Act, 1959, were received during the year and were dealt with.

Water Abstraction.—The ever growing demand for water to supply domestic and industrial needs resulted in a very marked increase

during the year in the number of cases notified of proposals to abstract water from rivers with requests for advice on measures necessary to prevent injury to fishery interests.

An Engineer from Fisheries Division was appointed to act on a technical project Committee set up by Kerry Co. Council to study plans for major impoundment and abstraction of water from the River Feale.

A Seminar entitled "Lessons of the Pollution Survey" conducted by the Institute of Chemistry of Ireland was attended by one of the Engineers.

The Water Pollution Research Autumn Lectures 1971 dealing with "Some Advances on Water Pollution Control" held at the Water Pollution Research Laboratory, Stevenage, England, were attended by one of the Engineers.

Bye-Laws, Licences, Orders and Definitions.—Maps were prepared in connection with various bye-laws, orders, licences and other Statutory Instruments and specialist advice was supplied to various Boards of Conservators in connection with the setting out of Defined Mouths and Half Mile Sanctuary Limits for a number of river systems.

Miscellaneous.—The Inspector and Engineer continued to act as Fisheries Engineering Consultant to the Salmon Research Trust of Ireland Incorporated and to the Foyle Fisheries Commission. He also continued to act as Council Member of the Inland Fisheries Trust Incorporated.

UNESCO Hydrological Decade, National Committee for Ireland.—The Inspector and Engineer continued to act as departmental representative on this Committee and participated in its working through the year.

FOYLE FISHERIES COMMISSION

The Annual Report of the Foyle Fisheries Commission for the year ended 30th September, 1971, gives detailed information on the Commission's activities during the year.

Although the water and weather conditions were favourable to counting of redds, the result showed spawning down on last year but nevertheless better than 1969. Because of low water conditions catches were considerably smaller than in 1970. The catch of salmon and grilse by commercial engines was 83,911 compared with 113,649 in 1970 and the rod catch of both salmon and sea trout was 2,021 compared with 3,057 in 1970.

The total catch of 10,347 salmon and grilse in the commercial fishery operated by the Commission on its own account (the Londonderry Stretch) was the lowest since 1961 (8,767). The commercial fishery yielded the Commission a profit of £18,251 (compared with £15,567 in 1970) but because of an increased deficiency on its con-

servancy operations (£26,255 compared with £21,419 in 1970) the Commission had an overall deficit of £8,004 on its year's workings. This deficit wiped out the balance remaining in the Commission's accumulated revenue account and subventions of £3,000 each were made to the Commission by the two Departments.

Current indications are that deficits on current account are likely to be a feature of the Commission's operations for some time to come and that further Exchequer subventions will be necessary but against this must be set the fact that a total of £46,200 representing surplus funds has been surrendered to the two Exchequers in equal shares by the Commission since its establishment in 1952.

The Accounts for the year and particulars of the regulations made by the Commission during the year are included as appendices to the Annual Report of the Commission.

INLAND FISHERIES TRUST INCORPORATED

The Annual Report of Inland Fisheries Trust for 1971 gives a review of the work carried out by the Trust during the year. The Grant-in-Aid paid to the Trust in the financial year 1971/72 was £220,000 as in the previous year.

Survey, development, improvement and maintenance work on lake and river trout fisheries continued during the year. Some 2,000,000 fry, fingerling and yearling trout were released in waters being developed by the Trust. Predator control operations continued and some 23 tons of pike and 42 tons of perch were removed from trout waters.

Survey and development of coarse fishing waters also continued. Surveys were made of 22 waters at 13 centres; further development work was undertaken on 52 waters at 26 centres as well as maintenance work on fisheries developed in previous years.

With the aid of the survey boat "Finola" investigations and surveys of sea angling grounds on the west coast were carried out.

One section of the Report deals with the question of pollution and how this has affected Trust waters in recent years.

SALMON RESEARCH TRUST OF IRELAND INCORPORATED

The Annual Report of the Salmon Research Trust gives a detailed account of the work carried out by the Trust in 1971.

With the successful operation of the newly completed fish trapping installation at the Salmon Leap, 1971 was the first year in which it was possible to make complete estimates of survival rates from smolts to adult fish and of the survival rate of kelts from the previous year's count of spawning escapement.

Investigations into rearing and breeding techniques continued during the year. A warmed water installation was built at the Hatchery under the sponsorship of the Atlantic Salmon Research Trust Ltd.

The Trust has undertaken to operate a training course in general salmon culture techniques, following an agreement with the Atlantic Salmon Research Trust. The first two trainees attended the initial period of the course in 1971.

Work on a biological and hydrographic survey of Lough Feeagh was completed, the results being presented as an Appendix to the Report.

MANAGEMENT OF STATE FISHERIES

128 State-owned fisheries—in the main vested in the Land Commission—were managed by Fisheries Division in 1971. Rents received during the year amounted to £3,866 compared with £3,806 in 1970.

Twenty-two of these fisheries which fell due for re-letting were advertised during the year.

ECONOMIC EVALUATION OF INLAND FISHERIES

The studies begun in 1969 on the economic aspects of Inland Fisheries continued in 1971.

The final report on coarse fishing, brown trout and sea angling was presented during the year and is being studied by the Sponsors (Bord Failte).

Work on the survey of salmon fishing being carried out by the Economic and Social Research Institute on behalf of Fisheries Division was well advanced at the end of the year.

INTERNATIONAL AND OTHER CONFERENCES

1. *International Council for the Exploration of the Sea*

As mentioned on page 18 this Council held its annual conference in Helsinki, Finland from 27th September to 6th October, 1971. The Department's Inspector of Fisheries and Scientific Adviser and the Inspector of Fisheries on the sea fisheries side attended on behalf of Ireland. Papers were contributed by the Inspector of Fisheries on the inland fisheries side on the runs of Irish salmon and by one of the Assistant Inspectors on eels. After the main scientific meeting one of this country's delegates took part in a tour to the centre of Finland to inspect a number of fish farms at which rainbow trout were reared for the table and also to a fishing village on one of the islands in the Gulf of Finland from which salmon long lining takes place in the summer and early autumn. The Department's Inspector of Fisheries and

Scientific Adviser and the Inspector of Fisheries on the inland fisheries side took part in the Joint Working Party on North Atlantic Salmon established by the Council and the International Commission for the North-west Atlantic Fisheries which held its annual meeting from 28th March to 2nd April, 1971 in Pitlochry, Perthshire, Scotland.

2. *North East Atlantic Fisheries Commission*

As also mentioned on page 18 this Commission held its annual meeting in London from 3rd to 8th May, 1971. The Assistant Secretary in charge of Fisheries and the Inspector of Fisheries and Scientific Adviser attended as representatives of this country. The question of fishing for salmon on the "high seas" was raised and a prohibition on such fishing in an area, outside the exclusive fishery limits, around Great Britain and Ireland was agreed by a majority vote of the nations participating in the work of the Commission.

3. *Salmon Research Group*

This Group, sponsored by the British Natural Environmental Research Council (NERC) provides a forum for discussion of problems relating to salmon and salmonid fishes generally. During the year two meetings of the Group were held, the first in Chester on 29th April, 1971, when the question of "Salmon and trout in the nursery streams" was discussed and the second in London on 29th November, 1971 when papers on brown trout, char, rainbow trout and brook trout were presented. The Department's Inspector of Fisheries and Scientific Adviser attended both meetings and the first was attended by three of the Assistant Inspectors of Fisheries and the second by the Inspector of Fisheries on the Inland Fisheries side. Papers were presented by the Department's representatives on both occasions.

4. *Symposium Organised by the Fisheries Society of the British Isles*

The symposium on "Diseases of Fish" organised by this Society on 20th, 21st May, 1971, was attended by the Assistant Inspector of Fisheries responsible for fish farms. Papers covering many aspects of fish disease were presented, including those on Ulcerative Dermal Necrosis (UDN).

5. *Informal Freshwater Research Group*

This informal group established about ten years ago provides a forum for the discussion of freshwater research problems in Ireland. The Inspector of Fisheries on the freshwater side, one of the Department's Engineers and the Assistant Inspectors attended the annual meeting at Killaloe, organised by the Fisheries Biologist of the Electricity Supply Board. The installations of the E.S.B. were inspected and the programme of development discussed. Representatives were present from Belfast and Coleraine.

6. *International Atlantic Salmon Foundation*

The Department's Inspector of Fisheries and Scientific Adviser attended a meeting of the International Advisory Council of this Foundation in St. Andrew's, N.B. Canada from 7th/9th June, 1971,

at the expense of the Foundation. One of the main topics for discussion was the international symposium on salmon arranged for September, 1972, at the headquarters of the Foundation in St. Andrews. Arrangements were made for the Department's Inspector of Fisheries and Scientific Adviser to act as chairman at one of the sessions on Ecology at the symposium.

7. *Irish Specimen Fish Committee*

The Department's Inspector of Fisheries and Scientific Adviser, who is currently Chairman, and the Inspector of Fisheries on the sea fisheries side are members of the Irish Specimen Fish Committee. The former prepared a report on specimen brown trout taken in Irish waters since the inception of the Committee in 1955. The Chairman and Honorary Secretary presented the record medals, badges and certificates at functions organised in 1971 in Dublin, London, Birmingham and Rotterdam.

LEGISLATION

Particulars of Statutory Instruments relating to Inland Fisheries made during the year are included in Appendix No. 22.

JOHN FAHEY,
Parliamentary Secretary
To The Minister For Agriculture
and Fisheries.

11th December, 1972.

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APPENDIX No. 1

Quantity and Value of Sea Fish (excluding Salmon) returned as landed in 1970 and 1971

Kinds of Fish	QUANTITY		VALUE	
	1971	1970	1971	1970
	cwt.	cwt.	£	£
Soles	3,240	3,483	87,122	90,084
Brill	2,251	2,543	27,461	28,537
Turbot	2,771	2,220	32,124	23,814
Plaice	32,454	32,580	302,760	304,554
Dabs	3,225	3,947	11,681	13,740
Megrims	1,892	2,787	6,347	10,927
Other Flat Fish	3,499	4,457	14,248	18,008
Ray/Skate	28,787	29,233	176,534	165,221
Cod	67,313	54,161	335,117	267,970
Haddock	118,841	61,375	322,959	230,934
Hake	729	951	4,813	6,095
Whiting	96,897	77,568	195,290	198,120
Pollack	12,491	18,703	38,470	50,615
Other Round Fish	32,315	7,966	34,710	19,744
Total Demersal	406,705	301,974	1,589,636	1,428,363
Herrings	615,124	894,677	1,162,826	1,275,442
Mackerel	61,126	20,683	117,764	39,641
Sprats	108,867	107,795	59,825	65,947
Total Pelagic	785,117	1,023,155	1,340,415	1,381,030
TOTAL WET FISH	1,191,822	1,325,129	2,930,051	2,809,393
	Nos.	Nos.		
Lobsters	503,700	494,957	344,767	329,030
Crawfish	189,740	155,344	235,109	191,018
Crabs	1,940,948	1,264,821	64,000	48,069
Escallops	2,392,449	322,719	111,001	14,620
Oysters	2,939,620	1,619,381	74,835	51,205
	cwt.	cwt.		
Dublin Bay Prawns	34,924	39,839	231,164	251,976
Mussels	90,430	66,383	60,709	42,460
Periwinkles	35,258	35,279	112,934	93,977
Other Shellfish	* 27,361	31,342	73,804	79,716
Total Value Shellfish	—	—	1,308,323	1,102,071
TOTAL VALUE ALL FISH	—	—	4,238,374	3,911,464

* This figure includes landings of 21,499 cwt. of queen scallops valued at £53,724.

APPENDIX No. 2

Comparison of the Average Price per cwt. of various kinds of Sea Fish for the years 1964—1971

	1964	1965	1966	1967	1968	1969	1970	1971
Soles	18.73	22.55	23.25	21.51	21.88	22.89	25.86	26.89
Brill	10.79	10.69	10.87	10.08	9.73	9.74	11.22	12.20
Turbot	10.05	10.36	10.69	9.80	10.00	9.98	10.73	11.59
Plaice	7.36	7.62	7.92	7.75	7.22	7.94	9.35	9.33
Dabs	2.52	2.71	2.63	2.61	2.50	2.90	3.48	3.62
Megrims	2.55	3.40	3.80	3.14	2.83	3.17	3.93	3.35
Ray/Skate	3.66	4.08	4.02	4.16	4.36	4.55	5.65	6.13
Cod	3.87	4.08	3.95	3.62	3.36	4.36	4.95	4.98
Haddock	2.46	3.10	3.65	3.74	3.63	3.55	3.76	2.72
Hake	5.97	6.60	10.20	9.12	6.94	6.97	6.41	6.60
Whiting	1.85	1.95	2.17	1.95	1.86	2.18	2.55	2.02
Pollack	3.22	2.59	2.67	2.36	2.38	2.34	2.71	3.08
Herrings	0.97	1.20	1.36	1.07	1.10	1.15	1.43	1.89
Pilchards	2.71	4.03	0.55	0.43	0.65	—	—	—
Mackerel	1.48	1.14	1.57	1.16	1.14	1.43	1.92	1.93
Sprats	0.41	0.41	0.41	0.58	0.42	0.47	0.61	0.55

N.B.—“Average price” as shown in this table represents total value divided by total weight for each kind of fish, year by year. It does not purport to take direct cognizance of any abnormal rise or fall in price attributable to a seasonal glut or shortage of a particular kind of fish.

APPENDIX No. 3

Value of Landings of Sea Fish (excluding Salmon) at ports at which the value of such landings exceeded £25,000 in 1971.

Port	Total Value	Demersal	Pelagic	Shellfish
	£	£	£	£
1. Killybegs ...	842,369	382,766	455,928	3,675
2. Dunmore East ...	483,567	18,273	432,649	32,645
3. Howth ...	331,570	267,211	7,245	57,114
4. Cobh ...	107,849	10,355	95,711	1,783
5. Castletownbere ...	161,716	58,192	63,823	39,701
6. Kilmore Quay ...	253,335	151,930	8,753	92,652
7. Galway/ Aran Islands ...	169,539	49,662	39,679	80,198
8. Dun Laoghaire ...	111,612	102,049	1,488	8,075
9. Mornington ...	126,189	15,746	102,443	8,000
10. Dingle ...	116,670	62,025	30,207	24,438
11. Skerries ...	160,578	61,748	955	97,875
12. Burtonport ...	128,095	80,136	32,429	15,530
13. Greencastle ...	76,007	74,127	—	1,880
14. Carna ...	43,168	418	1,000	41,750
15. Fenit ...	118,540	150	500	117,890
16. Arklow ...	41,894	41,327	567	—
17. Achill ...	41,999	15,731	1,850	24,418
18. Clogherhead ...	65,334	39,270	9,142	16,922
19. Clifden/Cleggan ...	33,668	286	250	33,132
20. Schull ...	57,858	21,106	8,128	28,624
21. Wexford ...	35,693	16,474	90	19,129
22. Valentia Harbour ...	40,497	12,951	636	26,910
23. Rossmore/ Roscahill ...	35,733	—	—	35,733
24. Union Hall ...	50,061	13,273	1,054	35,734
25. Blacksod ...	51,172	—	250	50,922
26. Duncannon ...	27,843	19,693	195	7,955
27. Cromane ...	27,800	—	—	27,800

APPENDIX No. 4

Imports and Exports of Fish and Fishery Products in 1971 (as compared with 1970)

	Quantity		Value	
	1971	1970	1971	1970
	cwt.	cwt.	£	£
I.—IMPORTS :				
Fish, fresh, chilled or frozen: ...	59,712	28,545	141,146	105,582
Fish, cured, not in airtight containers ...	24,375	32,480	293,428	308,811
Fish and fish preparations in airtight containers ...	22,872	23,378	740,145	704,202
Other fish and fish preparations ...	28,632	27,131	689,759	665,717
TOTALS ...	135,591	111,534	1,864,478	1,784,312
II.—EXPORTS :				
Fish, fresh, chilled or frozen:				
Salmon ...	20,831	22,287	1,282,851	1,099,835
Herrings ...	184,855	258,404	779,966	618,031
Freshwater Eels ...	2,297	4,325	76,610	120,772
Other Fish ...	53,217	24,733	460,474	223,708
Fish, dried, salted or smoked not in airtight containers ...	303,043	295,351	1,065,433	839,291
Shellfish, fresh, chilled, frozen, salted or dried	101,328	97,545	1,303,476	1,290,601
Other fish and fish preparations ...	32,801	25,729	661,059	408,431
TOTALS ...	698,372	728,374	5,629,869	4,600,669

APPENDIX No. 5

HERRING FISHING, 1971

County	Ports at which more than 500 cwt. were landed	Total Quantity cwt.	Value £
Louth	Clogherhead	6,319	8,767
Meath	Mornington	65,385	38,509
Dublin	Howth	1,042	2,553
Wicklow	—	437	962
Wexford	Kilmore Quay, Blackwater, Cahore, Morriscastle	6,164	13,912
Waterford	Dunmore East	171,552	432,139
Cork	Cobh, Bantry, Castletownbere, Schull, Gearhies	69,199	156,899
Kerry	Dingle	3,495	8,353
Clare	—	40	100
Galway	Galway	28,509	38,115
Mayo	Achill	1,264	2,348
Sligo	Sligo	2,780	4,050
Donegal	Killybegs, Burtonport, Kincaslough, Teelin	258,938	456,119
	TOTALS	615,124	1,162,826

APPENDIX No. 6

MACKEREL FISHING, 1971

County	Ports at which more than 250 cwt. were landed	Total Quantity cwt.	Value £
Louth	—	185	555
Meath	Mornington	7,158	4,109
Dublin	Skerries, Howth, Dun Laoghaire	2,777	7,248
Wicklow	—	190	570
Wexford	—	607	1,722
Waterford	Helvic, Cobh, Kinsale, Baltimore	865	2,255
Cork	Union Hall, Schull, Castletownbere	17,030	26,046
Kerry	Valentia Harbour, Dingle	11,405	23,300
Clare	—	540	1,345
Galway	Galway, Carna	1,367	3,189
Mayo	—	380	950
Sligo	—	400	980
Donegal	Killybegs	18,222	45,495
	TOTALS	61,126	117,764

APPENDIX No. 7

REGIONAL DISTRIBUTION AND CLASSIFICATION OF FISHING CRAFT AND OF PERSONNEL ENGAGED IN FISHING IN 1971

Coast	How Engaged	Men	Total Vessels	MOTOR VESSELS						Boats propelled by outboard engines, sails or oars	
				Gross Tons						18' Keel and upwards	Less than 18' Keel
				Over 75	51-75	26-50	16-25	11-15	10 and under		
EAST (Omeath to Carnsore Point)	Solely	565	150	10	24	57	5	—	26	26	2
	Partially Laid-up	215	65	1	—	2	—	—	6	43	16
TOTALS		780	218	11	24	59	5	—	32	69	18
SOUTH (Carnsore Point to Loop Head)	Solely	568	210	6	33	35	10	3	114	9	—
	Partially Laid-up	816	357	—	1	2	1	—	61	190	106
TOTALS		1,384	571	6	34	37	11	3	175	199	106
WEST (Loop Head to Erris Head)	Solely	249	362	—	2	18	1	7	165	145	24
	Partially Laid-up	1,271	229	—	—	—	—	—	16	77	136
TOTALS		1,520	593	—	2	18	1	7	183	222	160
NORTH (Erris Head to Moville)	Solely	712	422	17	8	52	5	14	194	126	6
	Partially Laid-up	1,405	246	2	—	5	3	—	63	106	77
TOTALS		2,117	683	19	8	57	8	14	262	232	83
TOTALS (All Coasts)	Solely	2,094	1,144	33	67	162	21	24	499	306	32
	Partially Laid-up	3,707	897	3	1	9	4	—	146	416	335
TOTALS		5,801	2,065	36	68	171	25	24	652	722	367

TRAWLING AND SEINING, 1971

APPENDIX No. 8

Port or Locality	Number of men engaged	Number of boats engaged	Tonnage of Motor Boats			Fishing Period
			Not exceeding 10 tons	Over 10 tons	Over 15 tons	
Clogherhead	30	7	—	—	7	All year.
Balbriggan	22	5	—	—	5	All year.
Skerries	80	15	—	—	15	All year.
Howth	206	38	—	—	38	All year.
Dun Laoghaire	80	16	—	—	16	All year.
Wicklow	5	1	—	—	1	All year.
Arklow	49	11	—	—	11	All year.
Wexford	10	2	—	—	2	All year.
Rosslare	4	1	—	—	1	All year.
Kilmore Quay	71	15	—	—	15	All year.
Duncannon	44	10	—	—	10	All year.
Passage East	6	2	—	—	2	Autumn and Winter
Dunmore East	35	7	—	—	7	All year.
Helwick	10	2	—	—	2	All year.
Youghal	10	3	—	—	3	All year.
Ballycolton	9	3	—	—	3	All year.
Cobh	14	4	—	—	4	All year.
Kinsale	10	2	—	—	2	All year.
Union Hall and Rahen	30	6	—	—	6	All year.
Schull	25	6	—	—	6	All year.
Castletownbere	67	13	—	—	13	All year.
Balinskelligs	10	2	—	—	2	All year.
Valentia	15	3	—	—	3	All year.
Cahirveen and Portmagee	60	12	—	—	12	All year.
Dingle	6	2	—	—	2	All year.
Galway and Aran Islands	63	13	—	—	13	All year.
Rossaveal	5	1	—	—	1	All year.
Cleggan and Inisboffin	7	2	—	—	2	All year.
Achill	24	6	—	—	6	All year.
Kiliala	21	5	—	—	5	All year.
Enniscrone	6	2	—	—	2	Spring, Summer and Autumn
Sligo	15	3	—	—	3	All year.
Killybegs	234	39	—	—	39	All year.
Burtonport	80	13	—	—	13	All year.
Dunfanaghy	4	1	—	—	1	All year.
Buncrana	8	2	—	—	2	All year.
Greencastle	91	20	—	—	20	All year.
TOTALS	1,460	293	15	5	273	

APPENDIX No. 9

STATEMENT OF ACCOUNT IN RESPECT OF REPAYABLE ADVANCES

I. Advances of £408,500 made to the Irish Sea Fisheries Association Ltd. during the period of twenty-one years to 23 April, 1952, for the provision of boats and gear:—

	£
Advances and interest thereon up to 31 March, 1960	566,255
Repayments made to 31 March, 1960	248,281
Amount written off in 1961-62	186,000
Balance of advances to be repaid by a new annuity	131,974
	<u>566,255</u>
Instalments of new annuity to accrue up to 1972 ...	160,433
Repayments of new annuity :	
made to 31 March, 1970	127,006
made during year ended 31 March, 1971	13,369
not accrued at 31 March, 1971	20,058
	<u>160,433</u>

II. Advances of £63,215 made to Irish Sea Fisheries Association Ltd. during the period of five years to 23 April, 1952 for purposes other than boats and gear:—

	£
Total repayments to be made including interest ...	85,973
Repayments:	
made to 31 March, 1970	78,887
made during year ended 31 March, 1971	3,210
not accrued at 31 March, 1971	3,876
	<u>85,973</u>

III. Advances of £3,629,563 made to An Bord Iascaigh Mhara during the period of eighteen years to 31 March, 1971 for the provision of boats and gear and other purposes:—

	£
Repayments of principal :	
made to 31st March, 1970	668,425
made during year ended 31 March, 1971	63,156
Principal written off to 31 March, 1971	481,081
	<u>1,212,662</u>
Total repaid or written off at 31 March, 1971 ...	1,212,662
Balance of principal outstanding at 31 March, 1971	<u>2,416,901</u>

APPENDIX No. 10

COASTAL EXTENT OF FISHERY DISTRICTS AND NAMES OF THE PRINCIPAL RIVERS IN EACH DISTRICT

District	Coastal Extent of District	Principal Rivers
No. 1 Dublin	Most easterly point on Red Island, Skerries, to Wicklow Head.	Liffey Vartry.
No. 2 Wexford	Wicklow Head to Kiln Bay, east of Bannow Bay, Co. Wexford.	Slaney Avoca.
No. 3 Waterford	Kiln Bay, east of Bannow Bay, to Helvick Head, Co. Waterford.	Suir Barrow Nore.
No. 4 Lismore	Helvick Head to Ballycotton Pier, Co. Cork.	Blackwater, Funcheon, Bride, Awbeg.
No. 5 Cork	Ballycotton Pier to Crow Head, Co. Cork.	Lee, Owenboy, Bandon, Argideen, Ilen, Mealagh, Owvane, Coomhola, Glengarraf, Adrigole.
No. 7 Kerry	Crow Head, Co. Cork, to Kerry Head, Co. Kerry.	Roughy, Sheen, Finnihey, Blackwater, Sneem, Laune, Flesk, Maine, Caragh, Currane, Cummeragh, Inny.
No. 8 Limerick	Kerry Head, Co. Kerry, to Hag's Head, Co. Clare.	Shannon, Deel, Fergus, Mulcair, Little and Upper Brosna, Inny, Maigue, Feale.
No. 9 ¹ Galway	Hag's Head to the sea point of the boundary between the townlands of Keeraunagark South and Banraghbaun South, Co. Galway.	Corrib, Claregalway.
No. 9 ² Connemara	The sea point of the boundary between the townlands of Keeraunagark South and Banraghbaun South, Co. Galway, to Slyne Head, Co. Galway.	Ballinahinch, Recess, Cashla, Owengowla, Invermore, Inverbeg, Screebe, Furnace.
No. 10 ¹ Ballinakill	Slyne Head to Pigeon Point, Westport Bay, Co. Mayo.	Culfin, Errif, Bun- dorracha, Dawros, Carrowiskey, Bun- owen (Louisburgh).
No. 10 ² Bangor	Pigeon Point to Benwee Head, Co. Mayo.	Newport, Burrishoole, Owenduff, Owengarve, Owenmore, Glenamoy.
No. 11 Ballina	Benwee Head to Coonamore Point, Co. Sligo.	Moy, Cloonaghmore (Palmerston), Easkey.

District	Coastal Extent of District	Principal Rivers
No. 12 Sligo	Coonamore Point to Carrickgarve, Co. Sligo.	Ballisodare, Garavogue (Sligo), Bonet, Drumcliff.
No. 13 Ballyshannon	Carrickgarve to Rossan Point, Co. Donegal.	Erne, Bundrowes, Bunduff, Eske, Eaney Water, Oily, Glen.
No. 14 ¹ Letterkenny	Rossan Point to Malin Head, Co. Donegal.	Owenea, Gweebarra, Gweedore (Crolliy), Clady, Lackagh, Lennon, Crana.
No. 17 ² Dundalk	Carlingford Lough to Clogherhead, Co. Louth.	Fane, Dee, Glyde.
No. 17 ¹ Drogheda	Clogherhead to the most easterly point on Red Island, Skerries, Co. Dublin.	Boyne, Blackwater, Deel.

Note—The area comprised in the former No. 14² or Merville District was, by the Foyle Fisheries Act, 1952, incorporated in the Foyle Area which is administered by the Foyle Fisheries Commission.

APPENDIX No. 11

Quantity and Value of all Salmon and Sea Trout taken in 1969, 1970 and 1971 by Instruments of Capture.

SALMON						
	1971	1970	1969	1971	1970	1969
Instruments	lb.	lb.	lb.	£	£	£
Total for all engines	3,292,819	3,510,748	3,403,849	1,317,127	1,228,762	1,107,788
Total for rod and line	133,568	136,849	182,248	53,427	47,895	60,786
Total for drift nets	1,651,140	1,730,918	1,678,482	660,456	605,821	545,507
Total for draft nets	1,178,829	1,260,986	1,206,779	471,531	441,345	392,203
Total for stake nets, weirs, etc.	329,282	381,748	336,340	131,713	133,701	109,292

SEA TROUT

	1971	1970	1969	1971	1970	1969
Instruments	lb.	lb.	lb.	£	£	£
Total for all engines	87,872	106,951	127,272	33,390	26,738	23,864
Total for rod and line	54,379	60,650	71,555	20,663	15,164	13,417
Total for drift nets	3,515	5,119	7,929	1,336	1,279	1,487
Total for draft nets	29,771	40,308	46,790	11,312	10,077	8,773
Total for stake nets, weirs, etc.	207	874	998	79	218	187

This Appendix does not include returns from the former Merville District.

APPENDIX No. 12

Quantity and Value of Salmon taken in 1969, 1970 and 1971 by Fishery Districts.

Fishery District	*	Quantity			Value		
		1971 lb.	1970 lb.	1969 lb.	1971 £	1970 £	1969 £
Dublin	R	2,773	1,957	982	1,109	685	348
	N	7,193	5,637	10,163	2,877	1,973	3,422
Wexford	R	2,247	3,880	1,782	899	1,358	617
	N	16,755	26,158	20,802	6,702	9,155	6,758
Waterford	R	11,283	12,243	30,078	4,513	4,285	10,047
	N	349,710	593,294	658,087	139,884	207,653	218,869
Lismore	R	5,693	5,739	5,905	2,277	2,009	1,989
	N	264,515	336,234	277,029	105,806	117,682	91,087
Cork	R	9,198	10,859	8,624	3,679	3,801	2,896
	N	187,380	144,422	150,674	74,952	50,548	48,754
Kerry	R	13,088	9,996	43,086	5,235	3,499	14,383
	N	318,091	308,825	260,042	127,237	108,089	84,531
Limerick	R	24,416	24,512	28,927	9,767	8,579	9,341
	N	473,741	374,065	381,489	189,497	130,923	120,984
Galway	R	2,400	2,935	4,026	960	1,024	1,363
	N	87,939	51,554	58,217	35,175	18,044	18,948
Connemara	R	3,492	4,573	5,036	1,397	1,601	1,700
	N	8,718	11,187	1,803	3,487	3,915	573
Ballinakill	R	6,008	3,031	3,946	2,403	1,061	1,336
	N	22,030	26,070	19,127	8,812	9,125	6,242
Bangor	R	9,608	10,860	6,216	3,843	3,801	2,093
	N	103,558	74,050	57,604	41,423	25,918	18,631
Ballina	R	14,800	11,241	14,603	5,920	3,934	4,889
	N	356,082	398,540	444,457	142,433	139,489	142,150
Sligo	R	4,624	4,980	2,902	1,850	1,743	988
	N	52,869	53,656	60,202	21,148	18,780	19,488
Ballyshannon	R	3,273	3,660	9,003	1,309	1,281	3,022
	N	256,182	278,549	183,047	102,472	97,492	59,012
Letterkenny	R	15,292	19,145	8,229	6,117	6,701	2,764
	N	567,038	583,550	518,238	226,815	204,243	168,383
Dundalk	R	1,680	5,249	1,809	672	1,837	624
	N	28,279	48,719	49,898	11,312	17,052	16,242
Drogheda	R	3,693	1,989	7,094	1,477	696	2,386
	N	59,171	59,389	70,722	23,668	20,786	22,928
TOTALS	...	3,292,819	3,510,748	3,403,849	1,317,127	1,228,762	1,107,788

* R indicates capture by means of single rod and line;
N by means of nets, weirs, etc.

APPENDIX No. 13

Quantity and Value of Sea Trout taken in 1969, 1970 and 1971 by Fishery Districts.

Fishery District	*	Quantity			Value		
		1971 lb.	1970 lb.	1969 lb.	1971 £	1970 £	1969 £
Dublin	R	1,665	1,265	3,512	633	316	659
	N	5,605	2,637	1,375	2,130	659	257
Wexford	R	1,957	1,977	2,087	744	494	392
	N	2,247	4,710	4,620	854	1,176	866
Waterford	R	1,547	1,703	6,704	588	426	1,259
	N	181	2,815	2,776	69	704	521
Lismore	R	1,179	2,204	2,186	448	551	411
	N	1,888	4,416	4,484	717	1,104	839
Cork	R	3,466	2,913	4,933	1,317	728	925
	N	1,250	3,589	3,624	475	897	680
Kerry	R	8,072	10,378	10,462	3,067	2,594	1,959
	N	1,185	687	4,582	450	172	860
Limerick	R	7,082	7,634	7,581	2,691	1,909	1,420
	N	11,998	6,997	7,248	4,559	1,749	1,358
Galway	R	909	2,894	3,487	345	724	645
	N	72	650	1,578	27	163	296
Connemara	R	8,555	5,671	3,798	3,251	1,418	713
	N	—	—	—	—	—	—
Ballinakill	R	3,945	2,929	2,892	1,499	732	542
	N	214	1,998	2,117	81	500	398
Bangor	R	1,948	3,901	3,859	740	975	723
	N	400	2,199	2,240	152	550	420
Ballina	R	1,976	3,671	3,758	751	918	705
	N	500	605	2,206	190	151	415
Sligo	R	600	800	751	228	200	142
	N	300	618	659	114	155	124
Ballyshannon	R	995	1,734	1,661	378	433	312
	N	633	7,003	7,216	241	1,750	1,352
Letterkenny	R	3,724	6,429	9,547	1,415	1,607	1,790
	N	3,400	2,817	2,743	1,292	704	515
Dundalk	R	3,638	2,183	2,062	1,382	546	390
	N	1,500	2,663	2,763	570	666	518
Drogheda	R	3,121	2,364	2,275	1,186	593	430
	N	2,120	1,897	5,486	806	474	1,028
TOTALS	...	87,872	106,951	127,272	33,390	26,738	23,864

* R indicates capture by means of single rod and line;
N by means of nets, weirs, etc.

APPENDIX No. 14

Quantity and Value of Eels taken in 1969, 1970 and 1971 by Fishery Districts.

Fishery District	Quantity			Value		
	1971 lb.	1970 lb.	1969 lb.	1971 £	1970 £	1969 £
Dublin ...	—	4,217	3,977	—	1,054	876
Wexford ...	17,902	12,174	11,283	5,013	3,043	2,065
Waterford ...	3,378	4,404	5,103	946	1,101	1,179
Cork ...	—	3,867	4,079	—	967	875
Kerry ...	—	900	442	—	225	96
Limerick ...	68,631	77,280	79,441	19,217	34,000	16,290
Galway ...	60,759	61,409	60,475	17,013	15,352	13,604
Ballina ...	21,226	18,721	21,387	5,943	4,680	4,472
Sligo ...	4,789	16,894	16,449	1,341	4,224	3,403
Ballyshannon	12,291	17,174	16,897	3,441	4,294	3,630
Dundalk ...	3,238	12,680	14,025	907	3,170	2,883
Drogheda ...	13,214	28,653	38,023	3,700	7,163	8,179
TOTALS ...	205,428	258,373	269,568	5,721	79,273	57,552

Note—The catch figures set out above are based on returns which are not complete. This explains any apparent inconsistency between the figures and the official export figures in any particular year.

APPENDIX No. 15

Total Quantity and Value of Salmon, Sea Trout and Eels taken by all Engines in 1969, 1970 and 1971 by Fishery Districts.

Fishery District	Total Weight for District			Total Value for District		
	1971 lb.	1970 lb.	1969 lb.	1971 £	1970 £	1969 £
Dublin ...	17,236	15,713	20,009	6,749	4,687	5,562
Wexford ...	41,108	48,899	40,574	14,212	15,226	10,698
Waterford ...	366,099	614,459	702,667	146,000	214,169	231,875
Lismore ...	273,275	348,593	289,604	109,248	121,346	94,326
Cork ...	201,294	165,650	171,934	80,423	56,941	54,130
Kerry ...	340,436	330,786	318,614	135,989	114,579	101,829
Limerick ...	585,868	490,488	503,224	225,731	177,160	149,393
Galway ...	152,079	119,442	127,783	53,520	35,307	34,856
Connemara ...	20,765	21,431	10,637	8,135	6,934	2,986
Ballinakill ...	32,197	34,028	28,082	12,795	11,418	8,518
Bangor ...	115,514	91,010	69,919	46,158	31,244	21,867
Ballina ...	394,584	432,778	486,267	155,237	149,172	152,631
Sligo ...	63,182	76,948	80,892	24,681	25,102	24,145
Ballyshannon	273,374	308,120	217,569	107,841	105,250	67,328
Letterkenny ...	589,454	611,941	538,757	235,639	213,255	173,452
Dundalk ...	38,335	71,494	70,557	14,843	23,271	20,657
Drogheda ...	81,319	94,292	123,600	30,837	29,712	34,951
TOTALS ...	3,586,119	3,876,072	3,800,689	1,408,038	1,334,773	1,189,204

APPENDIX No. 16

Number, Quantity and Value of Salmon taken by Single Rod and Line in 1969, 1970 and 1971 by Fishery Districts.

Fishery District	No. of Fish			Quantity			Value		
	1971	1970	1969	1971 lb.	1970 lb.	1969 lb.	1971 £	1970 £	1969 £
Dublin ...	427	200	124	2,773	1,957	982	1,109	685	348
Wexford ...	327	485	209	2,247	3,880	1,782	899	1,358	617
Waterford ...	1,472	1,512	3,762	11,283	12,243	30,078	4,513	4,285	10,047
Lismore ...	784	704	760	5,693	5,739	5,905	2,277	2,009	1,989
Cork ...	1,305	1,364	1,148	9,198	10,859	8,624	3,679	3,801	2,896
Kerry ...	1,636	1,277	5,868	13,088	9,996	43,086	5,235	3,499	14,383
Limerick ...	2,724	3,268	4,131	24,416	24,512	28,927	9,767	8,579	9,341
Galway ...	300	387	538	2,400	2,935	4,026	960	1,024	1,363
Connemara ...	566	618	716	3,492	4,573	5,036	1,397	1,601	1,700
Ballinakill ...	751	433	499	6,008	3,031	3,946	2,403	1,061	1,336
Bangor ...	1,201	1,511	784	9,608	10,860	6,216	3,843	3,801	2,093
Ballina ...	1,850	1,541	1,858	14,800	11,241	14,603	5,920	3,934	4,889
Sligo ...	537	600	384	4,624	4,980	2,902	1,850	1,743	988
Ballyshannon	462	475	1,189	3,273	3,660	9,003	1,309	1,281	3,022
Letterkenny ...	2,121	2,580	1,107	15,292	19,145	8,229	6,117	6,701	2,764
Dundalk ...	154	729	157	1,680	5,249	1,809	672	1,837	624
Drogheda ...	346	206	581	3,693	1,989	7,094	1,477	696	2,386
TOTALS ...	16,963	17,890	23,815	133,568	136,849	182,248	53,427	47,895	60,786

APPENDIX No. 17

Number, Quantity and Value of Sea Trout taken by Single Rod and Line in 1969, 1970 and 1971 by Fishery Districts.

Fishery District	No. of Fish			Quantity			Value		
	1971	1970	1969	1971 lb.	1970 lb.	1969 lb.	1971 £	1970 £	1969 £
Dublin ...	1,510	843	3,540	1,665	1,265	3,512	633	316	659
Wexford ...	2,446	1,318	2,115	1,957	1,977	2,087	744	494	392
Waterford ...	1,031	1,135	6,734	1,547	1,703	6,704	588	426	1,259
Lismore ...	935	1,469	2,216	1,179	2,204	2,186	448	551	411
Cork ...	3,018	1,945	4,960	3,466	2,913	4,933	1,317	728	925
Kerry ...	5,956	6,912	10,489	8,072	10,378	10,462	3,067	2,594	1,959
Limerick ...	6,438	5,090	7,610	7,082	7,634	7,581	2,691	1,909	1,420
Galway ...	758	1,929	3,514	909	2,894	3,487	345	724	645
Connemara ...	8,559	3,784	3,813	8,555	5,671	3,798	3,251	1,418	713
Ballinakill ...	4,455	1,953	2,920	3,945	2,929	2,892	1,499	732	542
Bangor ...	2,048	2,600	3,889	1,948	3,901	3,859	740	975	723
Ballina ...	1,529	2,447	3,785	1,976	3,671	3,758	751	918	705
Sligo ...	307	533	778	600	800	751	228	200	142
Ballyshannon	814	1,158	1,688	995	1,734	1,661	378	433	312
Letterkenny ...	2,483	4,286	9,575	3,724	6,429	9,547	1,415	1,607	1,790
Dundalk ...	2,425	1,455	2,089	3,638	2,183	2,062	1,382	546	390
Drogheda ...	2,726	1,576	2,302	3,121	2,364	2,275	1,186	593	430
TOTALS ...	47,438	40,433	72,017	54,379	60,650	71,555	20,663	26,738	13,417

APPENDIX No. 18

PARTICULARS OF RECEIPTS AND EXPENDITURE BY BOARDS OF CONSERVATORS FOR THE YEAR ENDED 30th SEPTEMBER, 1971

Fishery District	Opening Balance	RECEIPTS					EXPENDITURE					Closing Balance
		Licence Duty	Fishery Rate	Grant from Salmon Conservancy Fund	Misc. Receipts	Total Receipts	Salaries	Water Keepers	Law Costs	Traveling and Misc.	Total Expenditure	
Dundalk	+ 444	938	930	5,300	8	7,176	1,505	3,382	—	2,101	6,988	+ 632
Drogheda	+ 1,047	1,693	2,679	4,700	32	9,104	1,534	6,184	—	2,452	10,170	- 19
Dublin	+ 271	1,574	333	4,000	772	6,679	3,242	1,269	685	2,006	7,202	- 252
Wexford	+ 1,731	1,209	2,360	2,100	87	5,756	1,638	3,532	120	1,846	7,136	+ 351
Waterford	+ 1,336	3,447	3,670	19,000	381	26,498	3,432	14,998	419	6,864	25,713	+ 2,121
Lismore	- 1,299	1,263	7,881	9,500	1,328	19,972	2,144	12,858	883	4,629	20,514	- 1,841
Cork	- 1,246	2,410	676	13,000	523	16,609	1,644	12,484	87	3,294	17,509	- 2,146
Kerry	- 501	2,309	5,545	8,000	938	16,792	1,747	10,268	8	3,389	15,412	+ 879
Limerick	+ 1,487	4,986	6,163	15,500	959	27,608	3,079	16,001	1,570	9,110	29,760	- 665
Galway	+ 4,445	1,122	5,201	4,200	3,423	13,946	4,699	2,597	17	6,259	13,572	+ 4,819
Connemara	- 366	523	3,319	600	73	4,515	2,821	2,352	8	1,442	6,623	- 2,474
Ballinakill	+ 190	650	1,606	2,700	81	5,037	934	1,916	—	936	3,786	+ 1,441
Bangor	+ 500	1,573	1,902	5,000	839	9,314	1,336	6,474	23	1,618	9,451	+ 363
Ballina	+ 95	1,582	6,567	3,325	650	12,124	1,636	7,174	339	3,586	12,735	- 516
Sligo	+ 1,357	666	2,326	2,000	114	5,106	2,372	2,390	—	1,110	5,872	+ 591
Ballyshannon	+ 254	1,774	1,214	4,700	4,266	11,954	1,775	7,457	72	2,857	12,161	+ 47
Letterkenny	- 593	2,577	2,975	2,800	749	9,101	2,295	10,112	—	2,758	15,165	- 6,657
TOTALS	+ 9,152	30,296	55,347	106,425	15,223	207,291	37,833	121,448	4,231	56,257	219,769	- 3,326

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APPENDIX No. 19

PARTICULARS OF LICENCES ISSUED BY BOARDS OF CONSERVATORS FOR THE YEAR 1971

Fishery District	Annual (all districts)	Annual (district of issue)	Late Season (all districts)	Twenty-one day (all districts)	Seven day (all districts)	Late season (district of issue)	Foyle Area Extension (one district)	Foyle Area Extension (all districts)	Ro Special Local Licences (Tidal Waters) Net	Drift net	Drift net	Pole net	Bag net	Stake net	Head Weir	Box or Crib	Loop net	Snap net	Gap, Eye or Basket for eels	Long line for eels	Oyster Dredge	Eel Trap
Dublin	278	15	43	—	53	4	—	34	—	13	25	—	—	—	—	—	—	—	—	—	—	—
Wexford	94	100	—	—	45	81	—	—	—	71	—	—	—	—	—	—	—	—	—	—	—	—
Waterford	136	541	4	—	95	41	—	—	—	11	200	—	1	3	1	—	—	115	6	—	—	—
Lismore	92	107	3	1	106	—	—	—	—	9	105	—	—	2	—	—	—	14	—	—	—	—
Cork	186	256	22	—	285	128	—	—	—	61	76	—	—	—	—	—	—	—	—	—	—	—
Kerry	177	240	28	6	913	213	—	—	—	75	7	—	2	—	—	3	—	1	—	—	88	—
Limerick	220	789	23	—	271	258	—	—	—	120	76	—	—	4	—	—	—	—	—	—	—	—
Galway	59	47	20	—	175	29	—	—	—	10	22	—	—	—	—	5	—	—	35	4	70	1
Connemara	5	9	8	—	214	124	—	—	—	—	12	—	—	—	—	—	—	—	—	—	—	—
Ballinakill	22	16	25	—	379	65	—	—	—	15	31	—	—	—	—	—	—	—	—	—	—	—
Bangor	54	38	14	—	326	143	—	—	20	11	16	—	1	—	—	—	—	—	—	—	—	—
Ballina	43	184	14	—	291	60	—	—	—	11	91	—	—	—	—	7	—	—	10	3	—	—
Sligo	44	101	3	—	78	11	—	—	—	7	11	—	1	—	—	—	—	—	1	3	—	—
Ballyshannon	31	42	12	—	114	28	7	7	19	81	65	—	—	—	—	2	—	—	15	8	—	—
Letterkenny	97	496	5	—	506	155	82	33	12	54	179	—	—	—	—	2	35	—	2	—	—	15
Drogheda	179	86	9	—	48	61	—	—	—	103	—	—	—	—	—	6	—	—	12	—	—	2
Dundalk	66	79	9	—	15	73	3	16	—	45	—	—	—	—	—	—	—	—	—	—	—	2
TOTALS	1,783	3,146	242	7	3,914	1,474	92	90	21	697	916	—	5	9	1	33	35	130	129	23	159	18

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APPENDIX No. 20

Licence Duties Payable on Fishing Engines.

	£
On each Salmon Rod—Annual (valid all districts) ...	4.00
Do. Salmon Rod—Late Season (valid all districts) ...	3.00
Do. Salmon Rod—Twenty-one day (valid all districts) ...	3.00
Do. Salmon Rod—Seven day (valid all districts) ...	1.00
Do. Salmon Rod—Annual (valid district of issue only) ...	3.00
Do. Salmon Rod—Late Season (valid district of issue only) ...	2.00
Do. Salmon Rod—Foyle area extension (valid all districts) ...	2.50
Do. Salmon Rod—Foyle area extension (valid district of issue only) ...	1.50
On each Draft net ...	4.00
Do. Drift net ...	3.00
Do. Snap net ...	2.50
Do. Bag net ...	10.00
Do. Stake net ...	30.00
Do. Head Weir ...	6.00
Do. Box or Crib ...	10.00
Do. Pole net ...	2.00
Do. Loop net ...	0.50
Do. Gap, Eye, Basket or Coghill Net for Eels ...	2.00
Do. Long line for Eels ...	2.00
Do. Oyster fishing engine ...	2.00

LICENCE DUTIES PAYABLE ON FISHING ENGINES OTHER THAN THOSE MENTIONED ABOVE.

Fishery District	Fyke Net (provisional rates)	Eel Trap	Special Local Licences	
			Rod	Draft Net
	£	£	£	£
1. Dublin ...	0.25	—	—	—
2. Wexford ...	0.25	2.00	—	—
3. Waterford ...	0.25	—	—	—
4. Lismore ...	—	—	—	—
5. Cork ...	—	—	—	—
7. Kerry ...	0.25	—	—	—
8. Limerick ...	—	—	—	—
9. Galway ...	2.00	2.00	—	—
92. Connemara ...	—	—	—	—
101. Ballinakill ...	—	—	—	—
102. Bangor ...	—	—	§3.00	‡25.00
11. Ballina ...	—	—	—	—
12. Sligo ...	—	—	—	—
13. Ballyshannon ...	—	—	—	*40.00
14. Letterkenny ...	—	—	—	‡20.00
			‡3.00	†12.50
171. Drogheda ...	—	2.00	—	—
172. Dundalk ...	—	2.00	—	—

‡ River Lackagh Tidal Waters.

† River Owenea Tidal Waters.

* River Erne Tidal Waters.

§ Owenmore/Owenduff Tidal Waters.

APPENDIX No. 21

PARTICULARS OF PUBLIC INQUIRIES HELD DURING 1971

Date of Inquiry	Where held	Subject Matter	Decision on Report of Inquiry
5th January, 1971	Waterford	The making of a bye-law restricting the length of drift nets used for the capture of salmon in Waterford Harbour outside Spit Passage.	Under consideration.
22nd April, 1971	Ennis, Co. Clare	Application by Mornington Marine Products Ltd., for mussel fishery order.	Under consideration.
10th and 11th August, 1971	Kenmare	Relaxation of the law on fishing for salmon with drift nets in Kenmare Bay.	No change made in the existing bye-law.
12th August, 1971	Goleen, Co. Cork	Application by Celtic Fisheries Ltd., Rock Island, Goleen, Co. Cork for Oyster fishery order.	Under consideration.
14th October, 1971	Killarney	The making of a bye-law governing the maximum size of mesh for draft nets used in the capture of salmon in the Kerry fishery district.	Under consideration.
28th October, 1971	Carrick-on-Barrow, Wellington Bridge, County Wexford	Application by W. F. Furlong, Ballyharty, Kilmore, Co. Wexford for mussel fishery order.	Refused.
3rd November, 1971	Clonakilty, Co. Cork	Application by Ring Fisheries Ltd., Clonakilty, Co. Cork for mussel fishery order.	Under consideration.

APPENDIX No. 22

ABSTRACT OF STATUTORY INSTRUMENTS MADE IN 1971

GENERAL

Monofilament Drift Nets for Salmon Bye-Law No. 551, 1971, dated 3rd March, 1971.

Prohibiting for a period of five years the use of drift nets made from monofilament synthetic material in fishing for salmon.

Purse Seine Prohibition Order, 1971 (S.I. No. 262 of 1971), dated 15th September, 1971.

Prohibiting the use of purse seines for the capture of herrings in certain parts of the Celtic Sea.

Fishery Products (Regulation of Export) Order, 1971, (S.I. No. 314 of 1971), dated 24th November, 1971.

Prohibiting, except under licence, the export of certain frozen fishery products.

Control of Fishing for Salmon at Sea (Amendment) Order, 1971 (S.I. No. 331 of 1971), dated 10th December, 1971.

Substituting a new paragraph 2(a) in lieu of that contained in the Control of Fishing for Salmon at Sea Order, 1970, to establish a "sanctuary area" in which outside national fishery limits, all fishing for salmon is prohibited.

Fishing Nets (Regulation of Mesh) (Amendment) Order, S.I. No. 337, 1971, dated 15th December, 1971.

Extending to 31st December, 1973, the period during which any net covered by Article 5 of the Fishing Nets (Regulation of Mesh) (Amendment) Order, 1965, may be used in certain areas of the Irish Sea.

LOCAL

Ballina District Bye Law No. 552, 1971, dated 1st April, 1971.

Prohibiting the taking, killing or having in possession of salmon or trout of less than 10" in length in the waters of Loch Conn.

Revoking the Ballina District Bye Law No. 479, 1951 in so far as it relates to article 3 of this bye law.

Clarinbridge Oysters Bye Laws No. 553, 1971, dated 4th November, 1971.

Providing that not more than one dredge shall be used from a boat at a particular time in the Clarinbridge oyster beds and that the mouth of any dredge used shall not exceed four feet measured along its longest side.

FOYLE AREA

Regulations made by the Foyle Fisheries Commission with the Approval of the Minister for Agriculture and Fisheries and the Ministry of Agriculture of Northern Ireland.

Foyle Area (Oysters) (Revocation) Regulations, 1971 dated 25th June, 1971.

Revoking the Londonderry District Bye Law dated 25th October, 1878 and such other bye-laws and regulations as govern the taking, laying and planting of oysters in the Foyle Area.

Foyle Area (Rivers Faughan and Roe Angling) Regulations, 1971, dated 25th June, 1971.

Amending the Foyle Area (Rivers Faughan and Roe Angling) Regulations, 1966, by including a prohibition on angling downstream of the Londonderry Development Commission's barrage on the River Faughan in addition to the other prohibitions on angling included in the 1966 regulations.

Foyle Area (Return by Licence Holders) Regulations, 1971, dated 25th June, 1971.

Providing for the submission of "nil" returns where appropriate by both licensed anglers and netmen.

APPENDIX No. 23

OUTPUT AND DISPOSAL OF FISH HATCHERY PRODUCE 1970/71

Hatchery	Output (Ova)			Disposal (,000)	River System Stocked
	Salmon (,000)	Sea Trout (,000)	Brown Trout (,000)		
Parteen ...	670			35 Unfed Fry 35 { Fingerlings Pre smolts Smolts	Shannon and Tributaries
Carrig-adrohid	118			18 Fingerlings 72 Smolts	Lee and Bride
Fanure ...			1.000	260 Fry 250 Summerlings 233 Fingerlings Some retained for rearing to yearling and adult stage.	Various Trust waters in Co.'s Longford Monaghan, Meath, Westmeath, Sligo, Offaly, Cork, Kerry and Clare and sales to Angling Interests.
Mullingar			2.050	270 Ova 716 Fry 180 Summerlings 271 Fingerlings Some retained for rearing to yearling stage.	Sold to E.S.B. and other Angling Interests. Various Trust waters in Co.'s Westmeath, Cavan, Offaly, Longford and Mayo.
Clooncrim			350	40 Summerlings 44 Fingerlings	Various Trust waters in Co.'s Westmeath, Roscommon, Sligo and Monaghan.
Mallow	805				Blackwater and Tributaries.

Hatchery	Output (Ova)			Disposal (,000)	River System Stocked
	Salmon (,000)	Sea Trout (,000)	Brown Trout (,000)		
Screebe	402	40		Salmon ova 100	Waters of Cork Fishery District.
				50	Waters of Dublin Fishery District.
				100	River Feale
				100	Ballisodare
				Remainder to Screebe	
				Sea Trout ova 40	Crumlin Inver Ballynahinch
Cong ...	400			50 Underyearlings	Clare Galway
				100 do.	Moy
				50 do.	Erne
Glenties ...	490			100 ova	Foyle
				160 ..	Waters under control of E.S.B.
				100 ..	Barrow
				100 ..	Erne
				30 ..	Bonet
Burrishoole Fishery No. I. (operated by Salmon Research Trust)	116			Used for research purposes.	
Burrishoole Fishery No. II.	185			150 ova 35 ..	Slaney Waters of Ballina Fishery District.

APPENDIX No. 24

SCIENTIFIC AND OTHER PAPERS, 1971

A. DEPARTMENTAL

i. *Irish Fisheries Investigations Series A (Freshwater)* No. 6 containing

I. A. E. J. Went. The distribution of Irish char (*Salvelinus alpinus*):

II. C. Moriarty. The crayfish, *Astacus pallipes*, of an Irish lake and

III. P. Fitzmaurice. Temperature and oxygen determinations in some Irish lakes.

No. 7 containing

A. E. J. Went and Eileen Twomey. Fluctuations in the characteristics in Irish salmon.

ii. *Fishery Leaflets*.

No. 22 J. P. Hillis. Studies on Dublin Bay prawns (*Nephrops norvegicus*) in the Irish Sea.

No. 27. C. Moriarty. Eel research in 1970.

No. 28. J. P. Molloy. The herring fisheries on the south and south-west coasts, 1970/71.

No. 29. T. D. Kennedy. The herring fisheries on the north-west and west coasts, 1970 and 1971.

B. OTHERS

J. P. Hillis. Sea-birds scavenging at trawlers in Irish waters. *Irish Nat. J.* 17. 129-132.

A. E. J. Went. Interesting fishes from Irish waters in 1970. *Irish Nat. J.* 17. 41-45.

————— Salmon of the Foyle system (1970). *19 Rep. Foyle Fish Com.* App. III.

————— Some notes of specimen brown trout from Irish waters. *Rep. Irish Specimen Fish Committee* (1971).

