



SEA AND INLAND
FISHERIES

REPORT FOR
1969

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

DUBLIN:
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REPORT
OF THE
MINISTER FOR AGRICULTURE AND FISHERIES
ON THE
SEA AND INLAND FISHERIES
FOR THE YEAR
1969.

PART I.

SEA FISHERIES

The total value of sea-fish in 1969 was £2,995,550. This was once again a record figure which exceeded that for the previous year by £591,769. While all sectors of the sea-fishing industry shared in the increase, the most noteworthy increase was recorded in landings of pelagic fish, the value of which rose from £557,004 to £851,117. Shellfish gained £155,518 to reach £890,548 and the catch of demersal fish rose by £142,138 to reach £1,253,885.

The weights and values of annual landings of sea-fish (excluding shellfish) since 1960 are set out in the following table:

TABLE 1.

| Year | Cwt. | £ |
|------|-----------|-----------|
| 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 |
| 1961 | 516,207 | 1,079,556 |
| 1960 | 688,421 | 1,271,980 |

Details of quantities and values of the several varieties of sea-fish and shellfish landed in 1968 and 1969 are given in Appendix No. 1. The average price per cwt. obtained for each variety of sea-fish (other than shellfish) from 1962 onwards is shown in Appendix No. 2.

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

The leading fishing ports in 1969 in order of value of fish landed were: Killybegs, Dunmore East, Howth, Cobh, Castletownbere, Dun Laoghaire and Skerries. As compared with the corresponding order of importance in 1968 Dunmore and Howth once again exchanged places. Cobh which in recent years has become an important landing place for herring took fourth position from Castletownbere and with Skerries replaced Dingle and Greencastle.

DEMERSAL FISHERY.—While there was only a marginal increase (1,229 cwt.) in total landings, the landings of haddock at 41,134 cwt. was about double the 1968 catch of that species. Significant increases were also recorded in the catches of ray/skate and pollack. Plaice dropped, however, from the record catch of 42,720 cwt. in 1968 to 38,286 cwt. but was still higher than in any other previous year. The whiting catch also dropped somewhat but still continued to be the variety caught in greatest quantity and was followed by cod, haddock, plaice and ray/skate.

The total value of the demersal catch increased from £1,111,747 in 1968 to £1,253,885 in 1969 or by 13%. Increases in average prices of virtually all varieties were achieved, the exceptions being turbot, haddock and pollack. Despite the large increase in haddock landings, the fall in price at first sale was only marginal. Plaice was again first in terms of cash earnings followed by cod, whiting and haddock. These four varieties contributed 71% of the total value of the demersal catch. Ray/skate, soles and pollack were next in order of value.

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

TABLE 2.

| Year | Quantity | Value | Average Value per cwt. |
|------|----------|-----------|------------------------|
| | cwt. | £ | s. d. |
| 1969 | 314,470 | 1,253,885 | 79 9 |
| 1968 | 313,241 | 1,111,747 | 71 0 |
| 1967 | 313,438 | 1,079,794 | 68 11 |
| 1966 | 272,491 | 995,703 | 73 0 |
| 1965 | 282,192 | 959,362 | 68 0 |
| 1964 | 267,155 | 876,310 | 65 7 |
| 1963 | 210,318 | 829,367 | 78 10 |
| 1962 | 230,110 | 866,547 | 75 4 |
| 1961 | 212,703 | 820,911 | 77 2 |
| 1960 | 233,785 | 818,828 | 70 1 |

PELAGIC FISHERY.—The pelagic catch at 760,452 cwt. was 237,537 cwt. or 45% greater than in 1968. The main increase was in the herring catch but sprats also contributed to the increase. At the same time the value of the catch at £851,117 represented an increase of 53%. This in effect means that despite the large increase in landings, demand continued to be buoyant and unit prices increased.

Herrings:—While the 1968/69 herring season off the south-east coast was disappointing up to the end of 1968 due mainly to adverse weather and the absence of shoals from inshore waters, landings of herrings increased substantially and fishing during January and February 1969 was exceptionally heavy. During these months landings from the fishery amounted to 185,000 cwt. compared with 120,000 cwt. in the corresponding period of 1968. As a result the total landings for the 1968/69 season were the greatest on record. Fifty-nine boats took part in the fishery and the majority of the catch was taken by paired mid-water trawls and bottom trawls. The 1969/70 season opened in mid-November. The weather prior to Christmas, 1969 was very favourable to fishing and good catches were made particularly in December. Landings up to the end of the year amounted to 154,000 cwt. compared with 62,300 cwt. and 106,000 cwt. in the corresponding periods of 1968 and 1967 respectively. Catches were again made over a wide area, but almost all the landings were made at Dunmore East and Cobh. Total landings of herrings for the fishery for the year 1969 amounted to 339,000 cwt. as compared with 182,000 cwt. in 1968 and 184,000 cwt. in 1967.

The 1968/69 winter herring fishery off the Donegal, North Mayo and Sligo coasts concluded at the end of January, 1969. Landings of herrings continued, however, to be made at Killybegs during the Spring and Summer months. The 1969/70 winter season began in October but, due mainly to unfavourable weather conditions in the Stags of Broadhaven area, landings in the October to December period were lower than in the previous year. Catches were made over a wide area with landings at Killybegs, Sligo and Burtonport. The total landings of herrings from this fishery in 1969 amounted to 234,000 cwt. as compared with 264,000 cwt. in 1968 and 241,000 cwt. in 1967.

Good catches of herring were also made in the Irish Sea, particularly during November, and landings totalling 72,000 cwt. were made at Mornington for conversion to fishmeal and fish oil.

The small Autumn fishery off the south-west coast continued in 1969 but as in previous years was hampered by weather conditions and landings at 10,700 cwt. were comparatively small.

As most of the herring catch is exported in fresh or processed form, the increased landings in 1969 were reflected in an increased volume of exports. Exports of fresh, chilled or frozen herring amounted to 181,636 cwt. valued at £292,822 as compared with 152,257 cwt. valued at £228,071 in 1968. Exports in cured and marinated form

also increased very substantially—from 193,275 cwt. valued at £348,648 in 1968 to 312,208 cwt. valued at £582,599 in 1969.

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. | |
|-------------|----------|---------|------------------------|----|
| | | | s. | d. |
| | cwt. | £ | | |
| 1969 | 682,238 | 783,973 | 23 | 0 |
| 1968 | 452,160 | 496,753 | 22 | 0 |
| 1967 | 465,606 | 499,280 | 21 | 5 |
| 1966 | 293,300 | 399,312 | 27 | 3 |
| 1965 | 210,555 | 251,521 | 23 | 11 |
| 1964 | 160,929 | 155,440 | 19 | 4 |
| 1963 | 165,696 | 193,068 | 23 | 4 |
| 1962 | 187,534 | 260,463 | 27 | 9 |
| 1961 | 250,078 | 209,710 | 16 | 9 |
| 1960 | 417,414 | 394,945 | 18 | 11 |

Sprats:—Sprat landings have been of little consequence up to recent years because of lack of outlets. With the gradual build-up of outlets by way of mink and trout farms and fishmeal factories, landings are now expanding and reached 46,413 cwt. (£21,792) in 1969 as compared with 28,117 cwt. (£11,694) in 1968 and 9,728 cwt. (£5,619) in 1967. The bulk of the 1969 catch was landed at Mornington.

Mackerel:—Landings of mackerel again declined—31,801 cwt. in 1969 as against 42,590 cwt. in 1968 and 44,196 cwt. in 1967—but apart from 1965 were higher than in any other year between 1961 and 1966. The average prices of 28/6d. per cwt. showed an increase of 5/9d. per cwt. on 1968. Much of the catch is disposed of for reduction to fishmeal, which accounts for the relatively low average price. The chief landing centres were Castletownbere, Killybegs, Dingle, Howth, Valentia/Cahiriveen and Union Hall.

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

TABLE 4.

| Year | Quantity | Value | Average Value per cwt. | |
|-------------|----------|--------|------------------------|----|
| | | | s. | d. |
| | cwt. | £ | | |
| 1969 | 31,801 | 45,352 | 28 | 6 |
| 1968 | 42,590 | 48,526 | 22 | 9 |
| 1967 | 44,196 | 51,163 | 23 | 2 |
| 1966 | 29,645 | 46,389 | 31 | 4 |
| 1965 | 40,213 | 45,853 | 22 | 10 |
| 1964 | 26,308 | 38,891 | 29 | 7 |
| 1963 | 14,980 | 33,753 | 45 | 1 |
| 1962 | 16,475 | 39,297 | 47 | 8 |
| 1961 | 24,007 | 38,238 | 31 | 10 |
| 1960 | 37,125 | 58,144 | 31 | 4 |

SHELLFISH.—At £890,548 the value of the shellfish catch exceeded the record figure of 1968 by £155,518. Generally prices exceeded or were up to the levels reached in 1968. Spectacular increases were recorded in the numbers (1,191,571) and value (£38,531) of crabs, as a result of the development of new processing outlets in recent years. Landings of lobsters, oysters and mussels also increased but on the other hand the catches of crawfish, scallops and Dublin Bay prawns showed a slight reduction as compared with 1968. Despite this, however, fishermen's earnings from all these varieties, with the exception of scallops, continued to increase because of the higher price levels.

Values of shellfish landings over the past ten years were:—

TABLE 5.

| | | £ |
|------|-----|---------|
| 1969 | ... | 890,548 |
| 1968 | ... | 735,030 |
| 1967 | ... | 516,623 |
| 1966 | ... | 579,161 |
| 1965 | ... | 431,262 |
| 1964 | ... | 420,114 |
| 1963 | ... | 353,863 |
| 1962 | ... | 329,794 |
| 1961 | ... | 277,686 |
| 1960 | ... | 339,625 |

EXPORTS.—At £3,557,527 exports of fish and fishery products, including both sea-fish products and freshwater fish products (see Part II of this Report) again established a record value, being £880,004 (33%) greater than in 1968. Exports of sea-fish products were valued at £2,299,637 which was over £½ million up on 1968. This substantial increase was attributable mainly to the increase in the landings of herring and also to the increased value of the shellfish catch. Details of the exports are given in Appendix No. 4.

PERSONNEL AND VESSELS.—The gradual increase in recent years in the numbers of men engaged in sea-fishing continued in 1969. The total number of men engaged full-time increased from 1,687 in 1968 to 1,821 in 1969. Simultaneously the part-time fishermen's numbers increased from 3,756 to 3,810.

The increase in employment is reflected in the number of boats in operation, the total number involved being 1,911 in 1969 as compared with 1,820 in 1968. The build-up in the fleet of motor fishing vessels over 25 tons gross, which take much the greater part of the wet-fish catch, was maintained. The number of boats in this class at the end of the year was 210 as compared with 192 in the previous year. The fleet of motor vessels of 25 tons gross and under also continued to expand—from 569 in 1968 to 645 in 1969.

Further details are given in Appendix No. 7.

TRAINING OF FISHERMEN.—The scheme for training boys as fishermen was revised in 1969. The period of training was increased to twelve months comprising seven months on board selected fishing vessels during which the trainee acquires practical fishing experience and five months attending a residential shore course at Moville, Co. Donegal, during which instruction is given in such subjects as seamanship, navigation, net-mending and cookery. A group of 25 boys commenced training under the scheme on 1st February, 1969, and at the end of the year were completing the practical side of the course aboard selected fishing vessels. A second group of 20 boys commenced their training at Moville on 1st September, 1969 and the course was still in progress at the end of the year.

Seven fishermen were selected to participate in the shore course provided in co-operation with the Galway Vocational Education Committee towards equipping experienced fishermen to qualify as skippers and all the fishermen concerned were subsequently successful in obtaining Certificates of Competency under the Merchant Shipping Acts. Since its inception in 1958 the scheme has assisted 87 fishermen in obtaining such certificates. For fishermen who do not find the Galway course convenient, An Bord Iascaigh Mhara continued in 1969 to provide port courses at selected centres and as a result Certificates of Competency under the Merchant Shipping Acts were awarded to a further 11 fishermen.

AN BORD IASCAIGH MHARA.—The Board received from the Fisheries Vote, 1968/69, a grant of £467,000 in aid of current and capital development and administration. Repayable advances totalling £346,000 were also made to the Board from the Central Fund mainly for the provision of boats and gear.

Market investigations and consequent export development generally carried out by the Board contributed to a growing diversification of outlets for an increasing catch of fish and were reflected in a substantial increase in total seafood exports. During 1969 the value of the fishery exports for the first time ever exceeded the £3 million mark. An Export Market Information Bulletin service was introduced for exporters providing up-to-date practical information on prices and trends in foreign markets, together with details of any Tariffs and Quota restrictions operating.

Two new ice plants, at Castletownbere and Howth, were provided during the year to meet the increased demand for ice arising out of the Ministerial Regulations for the handling and distribution of fresh demersal fish. Ice plants have now been provided at all the major fishing ports.

During the year ended 31st March, 1969 the Board assisted Irish fishermen in acquiring 50 new and 21 second-hand boats. Advisers on fishing techniques were engaged during the year and visits by

demonstrator vessels from more advanced European fishing nations were organised in a selected number of ports to help skippers in their choice of vessels.

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 1969. Prosecutions were instituted against the skippers of three foreign vessels who had been arrested for fishing inside the limits and convictions were secured in all cases resulting in fines and forfeitures of fish and gear. An appeal by one of the skippers against his conviction was still pending at the end of the year. The skipper of one other foreign vessel was arrested for unlawfully entering within the exclusive fishery limits. Following prosecution a conviction was secured and a fine imposed. 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 exploratory vessels, Cú Feasa and Cú na Mara, continued to assist in a variety of fishery research projects, including experimental fishing for nephrops, scallops and industrial species. The Cú Feasa was also engaged in assisting fishermen to locate shoals of herring off the south-east and south coasts.

MARINE WORKS.—During the year development work was continued at the major fishery harbours schemes at Killybegs, Castletownbere and Dunmore East.

On 5th November, the Minister made an Order under the Fishery Harbour Centres Act, 1968 declaring and defining the area of the Killybegs Fishery Harbour Centre. The Order, which came into force on 10th November, 1969 transferred to the Minister the management control and operation of Killybegs Harbour, Co. Donegal and all the property of the existing managing authority in the fishery harbour centre and all the rights and liabilities of that authority in or relating to the centre.

In August, 1969 notice of the Minister's proposal to make a similar Order in regard to Castletownbere Fishery Harbour Centre was published in *Iris Oifigiúil*, and in national and other newspapers.

Improvement works were completed during the year at Ballyoonan Quay, Co. Louth; Garnish, Co. Cork; Brandon Bay, Dooaghs (Dooks) and Cuanna, Co. Kerry; Portach, Co. Galway; Saleen and Portacloy, Co. Mayo; and at Burtonport, Bunaninver, Lehardan, Inch Fort, An Uaig (Malin Beg) and Portmore, Co. Donegal.

Substantial harbour improvement schemes were in progress during the year at Skerries, Co. Dublin; Kilmore Quay, Co. Wexford; Reen.

Co. Cork; and at Killala, Co. Mayo. Arrangements were being made at the end of the year to have improvement works carried out at Rossaveel, Co. Galway; Darby's Point, Co. Mayo and at Dingle, Co. Kerry. Other marine improvement works were also in progress at Dun Laoghaire, Co. Dublin; Fenit and Cromane, Co. Kerry; Kilkieran, Kilonan (Aran Islands) and Barrett's Quay, Co. Galway; and at Magheraroarty and Rannagh, Co. Donegal. Work was also in hand on the erection of beacons at Tullaghan Bay and navigation lights at Achill Sound, Co. Mayo.

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 Donegal and Sligo coasts completed their task. Arrangements to have a similar survey made of the Clare coast were in hand at the end of the year.

SCIENTIFIC INVESTIGATIONS.—Fuller details of these investigations made in 1969 are given in the *Sea Fisheries Bulletin* (No. 7) 1969, already published. Two issues of *Irish Fisheries Investigations*, Series B (Marine) and nine *Fishery Leaflets* on marine topics were published during the year (see page 59).

Investigations into the herring stocks on the south, south-west and north-west coasts were carried on during the year. Reports on the herring stocks on the south and north-west coasts were circulated to interested persons in the trade. One of the Assistant Inspectors of Fisheries presented two papers to the Pelagic Fish (Northern) Committee of the International Council for the Exploration of the Sea at its annual meeting. The fat content of herrings from selected areas was determined from time to time and the results were made available to interested parties.

A survey of plaice eggs and larvae in the Irish Sea was undertaken in the spring of 1969 and at the close of the period under review a start was made on the preparation of a report on the plaice work done in the previous four years.

Catch and effort data from the lobster fishery, provided by fishermen, were analysed during the year and a census of the boats and types of gear was undertaken. The results of these studies were published in the *Fishery Leaflet* series. The number of fishermen who furnished details of their catch and effort was disappointingly small. It is hoped that fishermen will realise that it is in their own long term interest to collaborate in the scheme which is aimed at the proper management of the lobster fishery. Large numbers of lobsters were measured with the aid of students at Dunmore East, Co. Waterford and Waterville, Co. Kerry. Advice was given to members of the public who were interested in setting up lobster ponds in Ireland.

Work on the Dublin Bay prawn (*Nephrops norvegicus*) intensified during the year. Apart from sampling of the commercial catch, trawl and townet surveys were undertaken during the year and a laboratory study on the rearing of larvae was started in the spring. Research vessel trawl surveys were aimed at mapping the stock density and length range of *Nephrops* in the areas which had been indicated previously as areas of greatest density.

Work aimed at improving the oyster beds in Tralee Bay was continued during the year. About 100 tons of mussel shell were put on the beds and due to good weather and high temperatures an exceptional heavy spatfall was experienced. Experiments were continued with the use of plastic sheets for spat settlement and these gave encouraging results. Routine observations on settlement, growth and survival of oyster spat in various parts of Tralee Bay were continued.

The mussel beds in Castlemaine Harbour were kept under observation during the year. The heavy spatfall of the previous year had been mainly in an area unsuitable for mussel culture and 4,000 tons of seed were transported by a power dredger to more suitable areas. Similarly, at Wexford, seed mussels were transported to better fattening grounds. Experimental raft culture of mussels was again undertaken with success in Kinsale Harbour but with no success in Wexford or Cork Harbour.

During the year work was continued on scallops and samples of the commercial catch from the Dunmanus, Bantry and Castletownbere Haven areas were examined for growth, maturity and meat yield. Surveys were also carried out on the east coast and one small stock of scallops was discovered, sufficient to support a moderate commercial fishery. A survey of Bantry Bay and Castletownbere Haven areas was made in November, 1969 using the Department's research vessel, the *Cú na Mara*.

The American hard shell clam (*Mercenaria mercenaria*) was introduced into a number of localities during the year. The stock used was second generation disease free clams from the Ministry of Agriculture, Fisheries and Food Hatchery, at Conway, North Wales. The growth and development of the planted clams were kept under observation during the year.

Two officers made studies during the year of marine pollution problems, one in relation to the mussel beds in Wexford Harbour and the other on methods to disperse oil at sea.

During the year samples of fish landed for industrial purposes on the east coast were examined to determine the amount of young fish of "protected" species present in the catches.

A number of rare or interesting fishes were recorded from Irish waters in 1969 as follows:—

- a. Mako shark (*Isurus oxyrinchus*)
- b. Undulate ray (*Raia undulata*)
- c. Painted ray (*Raia microocellata*)
- d. White skate (*Raia alba*)
- e. Sandy ray (*Raia circularis*)
- f. Great silver smelt (*Argentina silus*)
- g. Straight-nose pipe fish (*Nerophis ophidion*)
- h. Greater fork-beard (*Phycis blennoides*)
- i. Deal fish (*Trachipterus articus*)
- j. Boar fish (*Capros aper*)
- k. Ray's bream (*Brama brama*)
- l. Red-band or red-snake fish (*Cepola rubescens*)
- m. Spotted dragonet (*Callionymus maculatus*)
- n. Bluemouth (*Helicolenus dactylopterus*)
- o. Piper (*Trigla lyra*)
- p. Streaked gurnard (*Trigloporus lastoriza*)
- q. File or trigger fish (*Balistes carolinensis*)
- r. Puffer fish (*Lagocephelus lagocephelus*)

In addition to these species, the first specimen ever recorded of the comber (*Serranus cabrilla*) was landed at Ballycotton in August.

During the year officers of the Department identified specimens of fish in relation to claims for "specimen" status for the Irish Specimen Fish Committee.

INTERNATIONAL AND OTHER CONFERENCES.

(1) INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA.—

This Council, founded in 1902 to coordinate fisheries research in the North Atlantic and its adjacent seas, held its annual meeting in Dublin from 29th September to 8th October under the Presidency of the Department's Inspector and Scientific Adviser, who completed his three-year term of office as President of the Council on 31st October, 1969. This country's delegates were the Inspectors of Fisheries on both the marine and freshwater sides of the Department. Papers were contributed to the Pelagic Fish (Northern) and Shellfish and Benthos Committees of the Council by members of the Department's staff.

The Department's Inspector on the sea fisheries side was elected chairman of the Shellfish and Benthos Committee for a term of three years.

Prior to the main meeting, the Council, in conjunction with other international organisations, organised a symposium on "Physical Variability in the North Atlantic" in University College, Dublin and another in Trinity College, Dublin on "Biochemical and Serological Identification of Fish Stocks".

During the year one of the Assistant Inspectors of Fisheries attended a special course on acoustical methods for identifying fish species organised by the Council in conjunction with F.A.O. and another Assistant Inspector of Fisheries took part in a Working Party concerned with stock densities in herrings off, *inter alia*, the Irish coasts.

In his capacity as President, the Department's Inspector and Scientific Adviser represented the Council at meetings of I.O.C. (Inter-Governmental Oceanographic Commission) in Paris in June and September and attended the Jubilee celebrations of the International Council for the Exploration of the Mediterranean held in Madrid in October.

(2) NORTH-EAST ATLANTIC FISHERIES COMMISSION.—This Commission, established under the terms of the International Fisheries Convention of London of 1959, held its seventh annual meeting in London in May, 1969. Ireland was represented, as usual, by the Assistant Secretary in charge of Fisheries and the Department's Inspector and Scientific Adviser who is Vice-Chairman of the Commission's Regional Committee 2 and the Standing Committee on Infractions. Plans were formulated for a number of conservation measures, including a ban on high seas fishing for salmon and for a scheme of international control.

(3) CHALLENGER SOCIETY.—This Society was founded early in this century to promote the study of oceanography and to provide a forum for a discussion of problems related to the seas. The Department's Inspector and Scientific Adviser attended the annual meeting of the Society in London and presented a paper on *The Irish basking shark fishery*.

(4) MEETING IN LONDON TO DISCUSS RESEARCH IN THE IRISH SEA.—The Department's Inspector and Scientific Adviser attended a meeting in January organised by the Royal Society of London at its headquarters to discuss research problems in the marine field in the Irish Sea and took part in the discussions on a number of problems of direct interest to this country.

(5) MARINE SCIENCE ASSOCIATION OF IRELAND.—For a number of years past an informal meeting of persons engaged in marine biological problems of Irish interest have been held in different centres. In April,

1969 the fourth meeting of the Group was held in the Science Buildings of University College, Dublin, at Belfield, under the chairmanship of Prof. C. F. Humphries. The meeting was attended by members of the scientific staff of the Department.

(6) **FOURTH EUROPEAN SYMPOSIUM ON MARINE BIOLOGY.**—One of the Assistant Inspectors of Fisheries attended at this symposium which was held in Bangor, North Wales in September. A number of the topics discussed were of interest as they impinged on the research work being done by the Department.

(7) **CODEX ALIMENTARIUS COMMITTEE ON FISH AND FISHERY PRODUCTS.**—The Inspector and Engineer attended as a delegate the meeting of the Committee on Fish and Fishery Products of the Codex Alimentarius Commission at Bergen, Norway, in October, 1969 in connection with the preparation of draft standards for various fishery products.

(8) **F.A.O. TECHNICAL CONFERENCE ON FISH INSPECTION AND QUALITY CONTROL.**—The Inspector and Engineer attended the Conference on this subject held in Halifax, Canada, in July 1969 in the course of which he was invited to act on an Ad Hoc Working Group on Inspection Programme Development which was set up in response to a request by participants from developing countries for assistance in establishing training programmes and fish inspection services.

(9) **COMMITTEE OF FISHERIES OF F.A.O. (COFI).**—The Assistant Secretary in charge of fisheries attended as an observer at the fourth session of the Committee on Fisheries held in Rome in June, 1969. Among the matters discussed were international co-operation, marine pollution, safety of fishermen and fishing vessels and fishery education and training.

(10) **ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT.**—The Department continued to participate in the work of the Fisheries Committee of this Organisation and was represented at meetings held in Paris in May and November, 1969. The work of the Committee includes an annual review of fisheries in member countries.

ENGINEERING.

Fishing Ports and Landing Places:—The Committee set up in 1968 to examine and make recommendations on fishing ports and landing places in County Donegal completed the assignment and submitted the Report to the Minister. A similar team was set up in 1969 to undertake a like assignment for County Sligo and this task was completed and the Report was submitted to the Minister. Both of these Teams acted under the Chairmanship of Mr. S. O Mealláin, Consultant to the Department. Membership of the Teams otherwise consisted of a representative from each of the following bodies: Department of Agriculture and Fisheries, Office of Public Works, Roinn na Gaeltachta, the County Council of the county concerned and An Bord Iascaigh Mhara.

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

TECHNOLOGY.

Fish Quality Regulations:—The Fish Quality Officers recruited in 1968 to ensure compliance with the Demersal Fish (Handling, Storage and Transport) Regulations, 1967, were active in carrying out this task. In general, the approach adopted was one of encouraging the fishermen and fish trade to comply with the Regulations but in nine cases it was found necessary to institute legal proceedings. Convictions were secured in five of these cases, the remaining four not having been heard by the end of the year. There has been a very marked improvement in the quality of the fish both delivered at the market and exhibited for sale in the retail shops. In particular, the requirement of icing of the fish is being well complied with.

Work on the construction of a prototype of an instrument for using electricity to improve *Nephrops* trawling was completed and by the end of the year the instrument was ready for sea trials.

Development work was commenced on an instrument for obtaining a deep sample of the sea bottom in which *Nephrops* burrow. Such samples are required for investigation purposes in order to fill in a gap in the scientific knowledge of the behaviour of the species.

Marine Pollution:—Proposals for a number of major industrial projects involving the discharge of large quantities of effluent into tidal estuaries were investigated in the interest of the preservation of fish life and requirements were specified to ensure this.

LEGISLATION.—Particulars of Statutory Instruments relating to sea fisheries made during the year are included in appendix No. 22.

PART II.

INLAND FISHERIES

In 1969 the catch of salmon and grilse by all methods amounted to 3,403,849 lb valued at £1,107,788 compared with 2,702,248 lb valued at £669,428 for the preceding year. This is the highest catch recorded since the collection of statistics was started in 1927. The total number of salmon taken by all methods was 484,186 compared with 403,027 fish in 1968. The overall average weight of salmon and grilse in 1969 was 7.03 lb as against 6.75 lb for 1968. This increase in average weight was due in the main to the high average weight of the grilse during the season. Weather conditions favoured netting during the main grilse run but angling was adversely affected by the drought conditions which prevailed throughout a considerable part of the season. The rod catch in consequence was rather low amounting to 23,815 fish, weighing 182,248 lb and valued at £60,786 compared with 33,749 fish weighing 251,432 lb and valued at £81,645. The catch of sea trout amounting to 127,272 lb and valued at £23,864 was slightly up on that for 1968 when the comparable figures were 124,679 lb valued £22,982. Having regard to all the factors the catch of sea trout must be considered as satisfactory. Full details of the catches of salmon and sea trout taken in the years 1967 to 1969 inclusive and given in Appendix 11. The catches made in that part of the Foyle Fisheries Commission area, formerly comprising the Moville Fishery District, are not included in Appendix 11.

For the second year running many Irish rivers were very low in the summer period due to prolonged droughts which in some areas extended for many weeks and even months. As a direct consequence of this the rod and line catch was low as stated earlier. In a few areas the presence of Ulcerative Dermal Necrosis (UDN) in salmon was also responsible for a slight reduction in catches but the incidence of the disease was much lower than in the preceding years and virtually disappeared from most rivers in the summer period. Reports indicate that despite the low water conditions earlier in the season spawning in most areas was not unsatisfactory.

Appendix No. 12 gives the catch of salmon and grilse for each Fishery District for the three years 1967, 1968 and 1969 inclusive. The catch of salmon in 1968 (by weight) was distributed as follows:—

| | | |
|---|-----|-------|
| Drift nets | ... | 49.3% |
| Draft nets | ... | 35.4% |
| Stake nets and other commercial methods | ... | 9.9% |
| Rod and line | ... | 5.4% |

The proportion of fish taken by drift nets in 1969 was the highest on record and showed a considerable increase on that for the two previous years.

The total number of angling licences for salmon and sea trout was 10,746, a rise of 884 on that of 1968, despite the poor angling conditions. The average catch per licence was 2.2 fish weighing 16.9 lb and valued at £5.13.0 which was understandably well below those of both 1967 and 1968. The rod-caught average at 7.7 lb was a little higher than in both 1967 and 1968. The highest average weight of the rod catch was for the Drogheda Fishery District (12.2 lb) in which few grilse are ever taken on rod and line, most of the catch being made up now of small spring and small summer fish (2 and 2+ sea winters) which run early in the season. In the West of Ireland, however, because of the almost total reliance on grilse the average weight was low.

The sea trout catch of 127,272 lb was distributed as follows:—

| | | |
|--------------------------|-----|-------|
| Rod and line | ... | 56.2% |
| Draft nets | ... | 36.8% |
| Drift nets | ... | 6.2% |
| Other commercial methods | ... | 0.8% |

It is perhaps as well to point out that generally there is little commercial fishing for sea trout and most sea trout in nets, etc. are captured as a bye-catch of salmon fishing.

The actual weight of the catch of sea trout or rod and line was 72,017 lb or slightly greater than in 1968 when the catch by this method was 69,584 lb. As explained in previous reports the average catch of sea trout per licence gives a poor indication of the abundance of this species in the different fishery district because in many areas only a few anglers, out of all licensed to fish for salmon and sea trout, do actually and specifically fish for sea trout. Information for some of the western Districts does, however, give some idea of the potentialities. In the Connemara Fishery District, for example, the average catch was 6.2 fish weighing 6.2 lb a figure well below that for previous years.

The Corporation of Dublin Wholesale Fish Market in 1969 handled 156,131 salmon and grilse weighing 1,103,368 lb as compared with 130,581 fish weighing 894,979 lb in 1968. In 1969, therefore, this market handled 38.7% by number and 32.4% by weight of all the fish taken in the country outside the Foyle area.

Ulcerative Dermal Necrosis (UDN) continued to affect salmon and, to a lesser extent, brown trout and sea trout during the year. In general, however, the incidence of disease in 1969 was at a much lower level than in previous years, although outbreaks were serious, particularly in the Blackwater, Lee and Bandon Rivers as regards salmon. Approximately 50% of all the diseased fish reported were removed from these rivers. Two rivers flowing into Kenmare Bay and the River Erne were also adversely affected. During the spawning season brown trout in some of the tributaries of Lough Corrib were

seriously affected and a few smaller outbreaks occurred in spawning trout elsewhere. Only a small number of sea trout were reported as being affected during the year.

Investigations into the disease were continued by the staffs of the Veterinary Research Laboratory at Abbotstown, Co. Dublin and of the Fisheries Division of the Department. Following successful reproduction of the disease by the inoculation of bacteria free filtrates into healthy salmon and sea trout seral transmission of the disease was attempted to elucidate the role of a possible virus in the aetiology of the disease but without success. Other methods of investigation were also attempted but so far have given no positive results. Investigations into the blood cells and proteins of diseased and healthy fish were continued by a lecturer in the Zoology Department of University College, Cork and on the fungoid aspects of the disease by a lecturer in the Botany Department of University College, Dublin. Diseases of fish, other than UDN, which appeared to a minor extent during the year were investigated by the Veterinary Research Laboratory.

Reports from the various Boards of Conservators and others indicate that the runs of salmon smolts to the sea in 1969 were up to average, and again in rivers badly affected by UDN in previous years the smolt runs appeared to be as satisfactory as those in unaffected rivers.

In the 1968/69 spawning season 730,000 salmon ova were obtained from Iceland for restocking rivers to offset UDN disease. The salmon ova were particularly small and some difficulty was experienced in handling the fry. An officer of the Department made a further visit to Iceland to make preparations for supplies of ova for the 1969/70 season.

BOARDS OF CONSERVATORS.—Details of receipts and expenditure of Boards of Conservators in the fishery year ended 30th September, 1969 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 6,036 persons found either whole-time or part-time employment in inland fisheries during the year. The figure includes 3,677 persons estimated as engaged in netting for salmon under common law right, 501 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 as ghillies or on protection work, 148 engaged in development work on behalf of the Inland Fisheries Trust Inc. and the remainder employed by proprietors of commercial salmon fisheries, by fishery owners or by angling associations.

INSTRUMENTS OF CAPTURE.—The total number of fishing licences of all kinds issued during the year was 12,808 representing

a total increase of 1,012 (divided as to 884 for rods and 128 for other engines) on the figure for 1968. The totals in recent years were:—

| | | |
|------|-----|--------|
| 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 numbers 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:—Notwithstanding the large increase in the salmon catch, exports of salmon fell slightly due to increased home consumption. The total quantity of salmon exported in fresh, chilled, frozen and smoked forms was 20,101 cwt. as compared with 20,330 cwt. in 1969. Export prices rose considerably, however, and the total value of salmon exports increased from £808,628 in 1968 to the record figure of £1,172,694. The details for the two years are as follows:—

| | 1969 | | 1968 | |
|----------------------------------|--------|-----------|--------|---------|
| | cwt. | £ | cwt. | £ |
| Fresh, chilled and frozen salmon | 19,351 | 1,087,650 | 19,847 | 755,339 |
| Smoked salmon ... | 750 | 85,044 | 483 | 53,283 |

Of the total quantity of fresh, chilled and frozen salmon exported in 1969, 12,726 cwt. went to Great Britain, 3,499 cwt. to France, 2,025 cwt. to the Six Counties, 471 cwt. to Sweden and 251 cwt. to the Netherlands; smaller quantities went to the Federal Republic of Germany, Switzerland, Belgium, Lebanon, Spain, the Bahamas, the Republic of South Africa and Denmark. The smoked salmon was exported mainly to Great Britain (195 cwt.), the Federal Republic of Germany (169 cwt.), Switzerland (149 cwt.), the U.S.A. (110 cwt.) and Belgium (58 cwt.). The average export price of fresh, chilled or frozen salmon was £56.4.2 per cwt. as compared with £38.1.2 per cwt. in 1968. 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 Agriculture and Fishery Products (Regulation of Export) Act, 1947 (Export of Salmon) Order, 1954 (S.I. No. 275 of 1954) were issued to 98 persons or firms during the year.

Rainbow Trout:—Exports of rainbow trout in 1969 amounted to 1,222 cwt. valued at £28,444 as compared with 860 cwt. valued at £16,000 in 1968.

Eels:—Exports of eels amounted to 2,368 cwt. valued at £56,752 as compared with 2,851 cwt. valued at £68,000 in 1968.

DEVELOPMENT OF EEL FISHING.—Work continued during the year on the investigation of eel stocks. Every endeavour was made to encourage and develop eel fishing. Twenty-eight eel fishing authorisations were issued to persons for the operation of eel fishing engines either on new sites or on sites where eel fishing had been formerly carried on but subsequently abandoned.

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 1968/69 spawning season amounted to 2,775,000. 120,000 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:—Iceland 730,000, Canada 150,000, Sweden, 30,000. This ova was used to supplement home supplies for the re-stocking of rivers which had been affected by UDN disease.

The produce of Cong Hatchery was reared to the underyearling stage and was distributed as follows:

| | | | |
|--------|----------------|----|----------------------------|
| 50,000 | underyearlings | to | River Moy and tributaries |
| 10,000 | " | " | River Deel and tributaries |
| 20,000 | " | " | the Corrib System. |

Some 3 million brown trout fry, summerlings and fingerlings were reared by the Inland Fisheries Trust Inc. in their fish farms and rearing stations in 1969. The bulk of this output was released in waters under development and 317,000 were sold to angling interests and clubs. 33,250 rainbow trout fingerlings were raised and stocked in various lakes and in addition 100,000 eyed ova were sold, chiefly to commercial fish farmers.

SCIENTIFIC INVESTIGATIONS.—Further details of the work done in the freshwater field have been given in the *Inland Fisheries Bulletin* (No. 7). A single issue of *Irish Fisheries Investigations, Series A (Freshwater)* was published during the year.

Investigations of the salmon stocks in a number of Irish rivers were made by members of the Department's staff. These investigations are important in relation to the changes in the character of the salmon runs into Irish rivers to which much attention has been devoted in recent years. Particular attention was paid in 1967 to the Rivers

Erne, Moy and Shannon and an officer of the Department collaborated with the Foyle Fisheries Commission in investigating fish weighing 8 lb and upwards in that river.

No clean salmon were tagged in 1969. Only a small number of kelts (320), compared with earlier years, were tagged in 1969. Eleven recaptures were made from these tagged kelts, seven in the Corrib system, two along the Donegal coast, one still as a kelt, and two in the Shannon. An account of the kelt tagging experiments carried out in the years 1961 to 1967 was published during the year (page 59).

In January, 1969, 5,000 hatchery reared smolts were tagged at the Electricity Supply Board's rearing station at Parteen on the Shannon and a further 134 two-year-old salmon and 65 yearling salmon were tagged at the Cong rearing station. No recaptures, which is not unexpected, have been made so far from their taggings.

An appraisal of the "Floy" tag of American invention for possible use on juvenile salmon was started during the year. This tag is attached by means of a special gun and initial work showed negligible mortalities with both wild and hatchery reared salmon parr and pre-smolts held in captivity after tagging. An experimental batch of 820 salmon parr ranging from 10.0-17.0 cw were marked with "Floy" tags in the River Boyne in September, 1969.

Investigations to ascertain the effects of drainage on the salmon stocks of the River Boyne were made during the year and work on the age composition of migrating smolts in the River Blackwater, an important tributary of the River Boyne, was continued in 1969.

During 1969 a number of lakes were selected for experimental eel fishing with fyke nets. The lakes studied were the southern parts of Loughs Corrib, Derg and Ree, the eastern side of Lough Mask and the whole of Lough Carra. Some netting was also carried out in the River Corrib. The results obtained suggested that small scale fyke netting might be worthwhile in some areas but a study of the lengths and age composition of the eels showed that there was a serious risk of over-fishing. Consequently fishing for yellow eels cannot be developed on a long term basis to any great extent. As the present work on eels indicates the possible need for a programme of restocking with elvers, investigations were started on the elver runs at Glenties, Co. Donegal and at the Aaslegh Falls on the River Erriff in County Mayo. A survey by electro-fishing of the River Erriff confirmed the widely accepted view that the stocks of eels in this river system were poor and that there was little hope of developing a profitable eel fishery in this or similar waters. An account of the research on eels made in 1968 was published during the year (see page 59).

Work on the fish and aquatic fauna of the Owenea system in County Donegal was continued, the aim being to compare the "standing crop" of juvenile salmon, brown trout and eels in two tributaries of the river. A knowledge of the standing crop of such waters is of importance for the proper management of rivers.

Field work on the water quality of the Rivers Blackwater and Martin terminated in July, 1969 and at the close of the period under review a full report was being prepared for inclusion in the *Irish Fisheries Investigations Series A. (Freshwater)*. This work was done by two Junior Fellows especially appointed for the task.

Officers of the Department provided material for a study by a lecturer in the Zoology Department of University College, Dublin, of the parasites of salmon at all stages of its life history. The background of this work was to ascertain if a "biological tag" could be found to identify salmon on the high seas, with particular reference to the West Greenland fishery. So far some interesting information has been compiled but further work is necessary.

Investigations into rainbow trout production at the various fish farms were continued during the year and considerable information has now been compiled on the mortalities in different stages of life, the growth rate and other factors of trout production. Comparative tests were made with a pellet of home manufacture, compared with an imported pellet. The results indicated that provided the quality of the home produced pellet is maintained it is much cheaper to use, in relation to the conversion rates obtained, than the imported pellet.

Studies on the freshwater crayfish in 1969 were limited in extent to taking fortnightly samples from two lakes in Counties Meath and Westmeath. An account of the work done on this species was published in the *Irish Fisheries Investigations/Series A (Freshwater)* No. 6.

Mention has already been made of the investigations on the River Foyle. During the early part of 1969 sets of scales from selected salmon collected by the Foyle Fisheries Commission during the previous year were examined by the staff of the Department. The results of the reading of these scales indicate that a considerable proportion of these fish were grilse (i.e. had spent less than two years feeding in the sea) and not salmon (i.e. two years or more feeding in the sea). A report on this work and one giving the results of the salmon tagging experiments in the estuary of the River Foyle in 1968 were published during the year (see page 60).

Char are rare fish in most waters in Ireland at the present time. A new locality, Dhulough on the Bundorragha River system in County Mayo, for the char was recorded during the year. A report on the distribution of Irish char, on the basis of the work done earlier, was compiled during the year for inclusion in *Irish Fisheries Investigations Series A. (Freshwater)* No. 6.

Investigations into salmon disease and pesticide residues in Irish freshwater fishes were continued during the year. Following the successful reproduction of UDN by inoculation of bacteria-free filtrates into healthy salmon and sea trout, seral transmission of the disease was attempted to elucidate the role of a possible virus in the aetiology of the disease but without success. Work with cell cultures likewise gave no results. An outbreak of skeletal myopathy in rainbow trout fry, investigated during the year, appeared to be due to a

vitamin deficiency. Serum protein changes resulting from UDN and the fungal aspects of the disease were investigated in the Zoology Department of University College, Cork and the Botany Department of University College, Dublin, respectively.

During the year scientific officers of the Department kept under observation establishments rearing salmon for restocking purposes.

A survey of certain nursery streams of the River Lee system was made in the spring of 1969 and estimates were made of the number of smolts in them. These streams were well stocked with migrating smolts which had been derived from unfed fry and 4 month old parr planted two years earlier. An effort was made to discover the fate of these smolts and it is believed their predation by brown trout in the reservoirs is very high. Only a few land locked smolts in these reservoirs were examined during the year.

Graduates holding Studentships in Fisheries Science conducted investigations during the year as follows:—

1. Pesticide residues in Irish freshwater fishes, and
2. the nature of the proteins in fish hybrids.

A graduate, who had held a Studentship in Fisheries Science, submitted his final report on the chironomid fauna of selected Irish waters at the close of the period under review.

The staff of the Fisheries Division continued to give advice in fishery management problems to the general public and to read scales and identify fish for the Irish Specimen Fish Committee of which two members of the Department's staff are members. Arising out of the reading of the scales of "specimen" brown trout from Lough Mask, the Department's Inspector and Scientific Adviser prepared a paper for publication in the *Salmon and Trout Magazine* (see page 60).

The Department's Inspector and Scientific Adviser continued to act as scientific adviser to the Foyle Fisheries Commission and as Director of Research to the Salmon Research Trust of Ireland, Inc.

ENGINEERING.—*Salmon Disease Investigation Installations:*—Installations needed by this Department's Veterinary Research Officers for research into fish disease, especially UDN, were maintained in working order throughout the year. Because of problems which arose in previous years of maintaining a suitable uncontaminated water supply at the site at Abbotstown, a borehole was drilled, but the quality of the ground water was found to be unsuitable because of the presence of hydrogen sulphide.

As in previous years, liaison was maintained with other workers on the salmon disease at various University Faculties and advice given on the design and maintenance of research facilities. A fibre glass fish transportation tank with built-in water aeration and recirculation units was designed by the Inspector and Engineer and supplied for use in the transport of fish.

In furtherance of the proposal to monitor the run of salmon in a river system with a view to establishing, if possible, the mortality in salmon due to UDN, the River Bandon in Cork was selected for this purpose and a denil type fish pass incorporating an electronic fish counter was designed by one of the Engineers and was incorporated in the weir at Bandon.

Hydro-Electric Development:—The various hydro-electric installations were kept under observation and the effects of their operation on fish life observed. The arrangements made in 1966 to expedite the safe passage downstream of smolts at Iniscarra dam on the River Lee were once more implemented in the 1969 season but the count of smolts obtained in this way was disappointing. The number counted in 1969 was 700 compared with 1,600 in 1968, 500 in 1967, 1,200 in 1966 and 17,000 in 1965 (all figures rounded to the nearest 100). Similar facilities for counting smolts descending through the fish pass at Carrigadrohid were installed but only 1,000 smolts were counted.

As 1969 was the final year of a five year period of investigation of the problems of the River Lee salmon stocks agreed upon in an effort to ascertain the reasons for the continued decline and to remedy these if possible, it is now apparent that more drastic measures will be required to remedy the situation and discussions to this end were initiated with representatives of the Electricity Supply Board.

Thermal Power Stations:—Attention continued to be paid to the possible effects on fishery interests of the construction and operation of the thermal power stations at Great Island, Pigeon House and Tarbert. At Great Island power station the problem of small fish being drawn into the intake screens was studied and measures to mitigate the problem were discussed by the Department's Engineers with the Electricity Supply Board Engineers who implemented them.

Arterial Drainage:—Work continued on the major schemes on the Rivers Moy, Inny and Deel and work commenced on the major scheme in the River Boyne catchment. These works were kept under constant supervision and there were consultations with the Office of Public Works to ensure that all practicable steps will be taken to safeguard the fishery interest. In the case of the River Boyne, agreement was reached with the Office of Public Works for the construction of a salmon rearing installation in which underyearling salmon will be produced and released into each sub-catchment on the completion of drainage.

The fishery interest of the proposed River Maigue catchment drainage scheme received particular attention and suitable remedial measures were agreed with the Office of Public Works.

There were consultations with the Office of Public Works about the various other drainage schemes planned or in progress. Post-drainage investigations were carried out on the Clare River and its tributaries and on the Rivers Maigue and Ouvane.

The survey of the coarse fishing interest of the lake system in the upper reaches of the River Erne for which a drainage scheme is being designed, was continued by the Inland Fisheries Trust Inc. in collaboration with this Department.

Investigation of Fish Movements:—Counting of smolts on the River Corrib began on the 23rd March and continued until the 16th June when the main run ended. In all, 85,947 smolts were counted and released from the trap at the Galway Sluice barrage. The count for 1968 was 74,000. The greatest daily count was 8,000, as against 16,000 in 1968. The figure of 8,000 was recorded on two days—30th April and 5th May. A Histogram of the run has been prepared and records have also been kept of the number of fish of other species counted and released from this smolt trap.

Alterations were made to the trapping and counting installation at Galway Sluice Barrage to improve the efficiency and ease the problem of counting and releasing the smolts without injury.

The adult salmon counting installations were maintained on the Corrib, Bunree, Liffey, Inagh and Blackwater Rivers and a new installation was built on the River Bandon. This was incorporated in a denil fish pass built for the purpose at Bandon weir to this Department's design by the Office of Public Works and incorporates this Department's standard electronic counting system as supplied by Marine Electrics, Killybegs.

The runs recorded in these instruments are summarised as follows:

| River | Location | Total Count | Daily Max. | Date |
|------------|--------------|-------------|------------|------------|
| Corrib | Galway | 15,269 | 1,349 | 25. 6.1969 |
| Bunree | Downhill | 336 | 48 | 2.12.1969 |
| Liffey | Islandbridge | 576 | 66 | 2. 8.1969 |
| *Inagh | Ennistymon | 31 | 9 | 9. 5.1969 |
| Blackwater | Clondulane | 5,337 | 437 | 22. 6.1969 |
| †Bandon | Bandon Weir | 18 | 6 | 20.12.1969 |

* The Ennistymon counter was working only intermittently from mid-July, due mainly to mechanical disorders in the underwater gear arising from heavy loads of debris entering the fish pass.

† The count at Bandon began on the 14th December.

Further information was collected on the relation between fish movement and such factors as river flows, water temperatures and time of day with a view to publication in due course.

A major fish counting installation for both upstream and downstream migrating fish was designed by the Inspector and Engineer for

the Salmon Research Trust of Ireland, Inc. Construction work commenced at The Leap, Furnace, Co. Mayo, in late March and was substantially completed by the end of the year under the supervision of one of the Department's Engineers. The installation incorporates a denil type fish pass and trapping installation which will enable a complete count to be made of adult fish moving upstream from Lough Furnace to Lough Feagh. Likewise a horizontal grid type smolt trap is incorporated in this structure by means of which it will be possible to record all fish moving downstream.

Work was begun on the construction of a smolt trapping and counting installation at the outlet from Lough Ea, on the Owenea River in Co. Donegal. The work was interrupted by high river flows, but it will be resumed as soon as conditions allow and is expected to be completed in time for the 1970 smolt migration.

Improvements were made at the existing smolt trap at Glenties where a deeper channel was cut through the rock in the river bed below the trap to increase the trap's efficiency by making it less susceptible to backwater during periods of high flow in the river.

Fish Culture Installations:—The salmon hatchery and rearing station at Cong, Co. Mayo, operated successfully during the season and in addition to salmon produce distributed as indicated in Appendix No. 23, 25,000 brown trout underyearlings were reared to the yearling stages for planting in the Corrib system.

A design was prepared by one of the Engineers for a salmon striping and incubation station at Glencullin Bridge on the River Glencullin which is a tributary to Carrowmore Lake. This will be an adjunct to the novel electric fish barrier which has been provided at this site.

A design was also prepared for a salmon holding pen in the fishing weir at Ballina on the River Moy. This work involves the conversion of an unused section of the Moy Fishery Company's salmon weir which will be carried out by the Office of Public Works under the supervision of this Department.

River Improvement Schemes:—A large number of proposals for river improvement schemes were investigated during the year by this Department's Supervisors under the guidance of the Engineers. Improvement works were carried out on the Owengarve, Palmerstown and Argideen rivers. Many angling clubs were advised on means of improving their fishing waters and surveys for possible improvements were made on the tributaries of Lough Melvin, the Owenamarve, the Drumcliffe, the Fountainstown, the Feoghanagh and the Clydagh or Flesk Rivers.

A footbridge was designed to replace the existing one across the State owned fishery on the River Owenea in County Donegal. The bridge was constructed from mild-steel hollow section at the Office of Public Works Central Engineering Workshops and will be installed in 1970.

Eel Fishery Development:—There were consultations between the Engineers of the Department and the Electricity Supply Board on the development of the River Shannon eel fisheries by trapping elvers in various non-productive rivers and tributaries for planting throughout the River Shannon system.

Experiments were carried out at the Department's field laboratory at Glenties on trapping elvers by mechanical and electrical means. One of the Department's Engineers carried out a study tour of German eel fishing methods to further our knowledge of development and exploitation techniques.

Fish Passes:—Inspections and preliminary surveys were carried out at a number of sites where fish passes may help to facilitate salmon movement. As already reported, a denil fish pass was built on the River Bandon at Bandon Weir. At the request of the Foyle Fisheries Commission, the Inspector and Engineer carried out an investigation of the facilities for the passage of fish at Sion Mills Weir. Particular attention was paid to a weir on the River Slaney about which many complaints have been received as an obstruction to fish movements. A fish pass to this Department's design was constructed by the Waterford Board of Fishery Conservators in a weir at Mhuine Bheag.

Application of Electricity to Inland Fisheries:—At the State Salmon Hatchery at Glenties, Co. Donegal, research and development work was continued by this Department's Consultant under the guidance of the Inspector and Engineer.

Electric Barriers:—The barriers at Cork Waterworks tail race and at Glencullin Bridge were again installed and proved successful in performance. A further barrier consisting of two electrodes spaced apart on the downstream apron was installed on the Stracashel Weir at Glenties, Co. Donegal, for seasonal use in the capture of sea trout and salmon for the State Hatchery at Glenties.

Electronic Salmon Counters:—A salmon counter was installed at the new fish pass at Bandon and existing counters were serviced. Work on the development of electronic counters for all purposes was continued. A new type of counter which is activated by the electrical output from the muscle-action of moving fish was developed by the Department's Consultant after much applied research and experiment. A high degree of success has been attained in laboratory tank experiments and full-scale river trials will take place early in 1970. This type of counter differs from conventional design as it does not require that the fish should pass through a counting tube in a narrow passage. Performance predictions are that it will work in rivers up to 60 feet wide or more.

Polluting Effluents:—Problems of pollution arising from domestic, industrial and agricultural sources were dealt with. Proposals for the erection of new industries were carefully studied to ensure that their functioning will not be detrimental to the welfare of fish populations. There were many applications for Section 171 licences permitting the

discharge of effluent intrinsically deleterious but rendered innocuous by the receiving water. Each applicant was dealt with on its merits. Three major proposals for the discharge of effluent into tidal waters were investigated in considerable detail and suitable measures for mitigating the effect of these on the fishery interest were discussed with the proposers.

Water Quality Investigations:—Work was completed on the hydro-metric investigations which form an important part of the water quality research project for the Rivers Blackwater and Martin and a summary of the data will be appended to the paper prepared by the Research Fellows. The students from University College, Cork, working under the guidance of Professor Dooge, completed their investigations in connection with this survey and submitted most useful reports.

Miscellaneous:—The Inspector and Engineer continued to act as Fisheries Engineering Consultant to The Salmon Research Trust of Ireland Incorporated. In this capacity, he supervised the construction of the installation for the capture of adult salmon on their migration upstream and smolts on their passage downstream, by a firm of civil engineering contractors. He also acted as Council Member of the Inland Fisheries Trust Inc. and as a member of the Supervisory Group on Methods of Excluding Fish from Water Intakes of the Natural Environment Research Council of Britain. He attended a number of meetings of this Body held in London.

He continued to act as Fisheries Consultant to the Foyle Fisheries Commission.

One of the Engineers attended a meeting of The Fish Counters Working Group of the Natural Environment Research Council of Britain at Dumfries and Tongland, Dumfrieshire, Scotland, to review a comparative river study of salmon counters; and one engineer attended as Discussion Leader at the European Inland Fisheries Advisory Commission Conference of the Standardisation of Terminology and Testing Methods for Electrical Fishing and Electrical Fish Screens at Gizycko, Poland.

Visitors:—Dr. B. Carlin, Director of the Swedish Salmon Research Institute, accompanied by Mr. E. T. Thorenessen, visited the fish disease installation at Abbotstown Veterinary Research Laboratory as also did Mr. W. Carter, Director, Quebec Salmon Council, Quebec.

Mr. J. Hellawell of the British Freshwater Biological Association accompanied by Mr. Hugh Braithwaite of the Electrical Engineering Department, Birmingham University, carried out a study tour of our salmon counting installations on behalf of the N.E.R.C. Working Group on salmon counters, and there was an exchange of views on the line of development being followed in Britain as compared with that being followed in Ireland.

FOYLE FISHERIES COMMISSION.—The Annual Report of the

Foyle Fisheries Commission for the year ended 30th September, 1969 gives detailed information on the Commission's activities during the year.

The effects of drought conditions were noticeable in the runs of salmon which showed a considerable reduction on the 1968 figures. The catch by commercial engines (106,901) was down on the 1968 figure (122,129).

As might be expected, because of the drought and low water conditions, the number of redds counted was less than average (7,652 as compared with 15,499 in 1968) and this was a cause of some concern especially in regard to the Mourne System and Rivers Dennett, Faughan and Roe.

The Report records the considerable assistance received by the Commission's fishery protection staff from voluntary river watchers who were members of the Porthall Fishermen's Co-operative Society. The Commission's activities for the control of water pollution are set out in the Report.

Particulars of the Regulations made by the Commission in the year are included in Appendix No. 22.

INLAND FISHERIES TRUST INCORPORATED.—The Annual Report of the Inland Fisheries Trust Incorporated for 1969 outlines the progress made by the Trust during the year. The Grant-in-Aid was increased to £200,000 compared with £180,000 in 1968.

Trout fishery improvement and development work now extends to some 150,000 acres of lakes and over 1,000 miles of rivers. Over 3,000,000 trout fry, summerlings and fingerlings were released in waters where natural production was inadequate; and, to control predators, 27½ tons of pike and 40 tons of perch were removed from waters being developed as brown trout fisheries.

The most intensive effort to date was carried out on coarse fishing waters; surveys were made of 97 waters at 28 centres and improvement work was carried out on 43 waters at 18 centres as well as maintenance of earlier improvement works.

A sustained programme of surveying and charting sea-angling grounds was carried out with particular reference to the west coast and early and late season fishing.

SALMON RESEARCH TRUST OF IRELAND INCORPORATED.—The Salmon Research Trust Annual Report gives a detailed account of the work carried out by the Trust during 1969.

Investigations into breeding and rearing salmon of known ancestry, feeding and rearing experiments and experiments in the preservation of salmon milt continued during the year.

Summaries of the research work carried out by the Trust on the effect of peat silt on fish life are published as Appendices to the Trust's Annual Report.

A fish trapping installation was being erected at the Salmon Leap, Furnace, Co. Mayo. When completed this will result in complete control of all fish movement into and out of the Burnishoole river system. An extension was made to the hatchery at the same site.

MANAGEMENT OF STATE FISHERIES.—One hundred and twenty-four State-owned fisheries were managed by Fisheries Division in 1969 and the amount received in rents during the year was £3,954 compared with £4,155 in 1968.

ECONOMIC EVALUATION OF SPORT FISHING.—Following agreement between Bord Fáilte Éireann and Fisheries Division an economic evaluation of sport fishing was initiated in 1969. Bord Fáilte Éireann are responsible for financing and undertaking evaluation of brown trout, coarse fishing and sea angling and Fisheries Division are responsible for financing the work on evaluation of salmon fishing. The survey of salmon fishing is being undertaken by the Economic and Social Research Institute on behalf of the Fisheries Division.

Preliminary progress reports were prepared and the survey will continue in 1970.

INTERNATIONAL AND OTHER CONFERENCES

(1) INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA.—

As mentioned earlier this Council held its annual meeting in Dublin from 29 September to 8 October. The Department's Inspector and Scientific Adviser read a paper to the Anadromous and Catadromous Fish Committee and the Department's Inspector of Fisheries on the freshwater side attended meetings of the Joint Working Party on North Atlantic Salmon organised by the Council and the International Commission for the North-West Atlantic Fisheries (ICNAF) in Copenhagen in May and at the annual meeting in Dublin later in the year.

(2) **NORTH EAST ATLANTIC FISHERIES COMMISSION.**—This Commission at its meeting in London considered the need for a ban on fishing for salmon on the high seas outside national fishery limits. Ireland voted for the proposal to ban this form of fishing which was adopted by eleven to three with one country abstaining. The ban did not, however, enter into effect because of objections from Denmark, Germany and Sweden.

(3) **SALMON RESEARCH GROUP.**—This Group, which operates under the sponsorship of the British Natural Environmental Research Council, held a meeting attended by a number of members of the Department's staff, at Killaloe in March when the subject for discussion was "Smolt rearing and tagging". The Group also visited the

smolt rearing installations of the Electricity Supply Board at Parteen on the River Shannon. The Department's Inspector and Scientific Adviser, who is a full member of the Group, also attended meetings in Portballintrae, County Antrim and in London.

(4) INTERNATIONAL COMMISSION FOR THE NORTH WEST ATLANTIC FISHERIES.—This Commission which has responsibility for regulating the fisheries on the western (American) side of the Atlantic held its annual meeting in Poland at Jablonna near Warsaw from 1st to 6th June. As it was considering the question of the ban on salmon fishing on the high seas outside national fisheries limits it was decided to accept the Commission's invitation to send an observer. The Department's Inspector and Scientific Adviser took part in the meeting in observer capacity and took part in the discussions of the Commission.

(5) INLAND FISHERIES RESEARCH GROUP.—This informal group which meets annually to discuss freshwater research problems, held its 1969 meeting in the Veterinary Research Laboratories at Stormont, Belfast in April. Two members of the Department's scientific staff read papers and others took part in the discussions ranging over many topics.

(6) FOURTH BRITISH COARSE FISH CONFERENCE.—This conference organised by the University of Liverpool and the National Angling Council and held in March was attended by two of the Assistant Inspectors of Fisheries and the Department's Inspector and Scientific Adviser took the chair at one of the sessions. A number of papers of interest to the Department were read and the Department's staff took part in the discussions which ensued.

(7) SALMON AND TROUT ASSOCIATION.—This Association holds annual conferences at which subjects connected with salmon and trout are discussed. The 1969 meeting held in November was attended by the Department's Inspector and Scientific Adviser in his capacity as Director of Research of the Salmon Research Trust of Ireland Incorporated.

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.

10 March, 1971.

**APPENDICES TO THE REPORT ON SEA AND INLAND
FISHERIES FOR THE YEAR 1969.**

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APPENDIX No. 1

Quantity and Value of Sea Fish (excluding Salmon) returned as landed in 1968 and 1969

| Kinds of Fish | QUANTITY | | VALUE | |
|-----------------------|--------------|--------------|-----------|-----------|
| | 1969 | 1968 | 1969 | 1968 |
| Soles | cwt. 3,474 | cwt. 3,069 | £ 79,527 | £ 67,145 |
| Brill | 2,290 | 1,708 | 22,298 | 16,627 |
| Turbot | 1,647 | 1,611 | 16,445 | 16,118 |
| Plaice | 38,286 | 42,720 | 304,084 | 308,286 |
| Dabs | 3,364 | 3,322 | 9,768 | 8,311 |
| Megrims | 2,768 | 4,638 | 8,766 | 13,143 |
| Other Flat Fish | 4,831 | 5,009 | 16,449 | 15,564 |
| Ray/Skate | 28,740 | 26,972 | 130,813 | 117,624 |
| Cod | 52,696 | 62,531 | 229,977 | 210,064 |
| Haddock | 41,134 | 21,463 | 145,790 | 77,951 |
| Hake | 1,459 | 1,490 | 10,169 | 10,341 |
| Whiting | 97,256 | 106,667 | 211,965 | 198,791 |
| Pollack | 17,947 | 12,912 | 42,060 | 30,750 |
| Other Round Fish | 18,578 | 19,129 | 25,774 | 21,032 |
| Total Demersal | 314,470 | 313,241 | 1,253,885 | 1,111,747 |
| Herrings | 682,238 | 452,160 | 783,973 | 496,753 |
| Pilchards | 31,801 | 48 | 45,352 | 31 |
| Mackerel | 46,413 | 28,117 | 21,792 | 48,526 |
| Sprats | ... | ... | ... | 11,694 |
| Total Pelagic | 760,452 | 522,915 | 851,117 | 557,004 |
| TOTAL WET FISH | 1,074,922 | 836,156 | 2,105,002 | 1,668,751 |
| Lobsters | Nos. 577,340 | Nos. 508,766 | 336,978 | 291,642 |
| Crawfish | 113,747 | 124,648 | 133,429 | 132,006 |
| Crabs | 1,191,571 | 349,418 | 38,531 | 10,572 |
| Escallops | 294,905 | 300,472 | 10,951 | 11,317 |
| Oysters | 2,650,754 | 1,540,122 | 75,802 | 34,103 |
| Dublin Bay Prawns | 27,014 | 29,393 | 145,885 | 119,013 |
| Mussels | 52,684 | 47,867 | 31,879 | 25,193 |
| Periwinkles | 40,786 | 45,269 | 101,170 | 97,941 |
| Other Shellfish | 4,570 | 7,881 | 15,923 | 13,243 |
| Total Value Shellfish | ... | ... | 890,548 | 735,030 |
| TOTAL VALUE ALL FISH | ... | ... | 2,995,550 | 2,403,781 |

APPENDIX No. 2

Comparison of the Average Price per cwt. of various kinds of Sea Fish for the years 1962—1969

| | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 |
|-----------|---------|----------|----------|----------|---------|---------|---------|----------|
| | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. |
| Soles | 16 9 2 | 17 15 4 | 18 14 7 | 22 11 1 | 23 4 11 | 21 10 3 | 21 17 7 | 22 17 10 |
| Brill | 10 4 4 | 11 0 11 | 10 15 10 | 10 13 10 | 10 17 4 | 10 1 8 | 9 14 8 | 9 14 9 |
| Turbot | 10 0 8 | 10 13 11 | 10 0 11 | 10 7 3 | 10 13 9 | 9 15 11 | 10 0 1 | 9 19 8 |
| Plaice | 8 18 11 | 7 14 10 | 7 7 2 | 7 12 5 | 7 18 4 | 7 15 1 | 7 4 4 | 7 18 10 |
| Dabs | 2 13 3 | 2 13 11 | 2 10 4 | 2 14 3 | 2 12 6 | 2 12 3 | 2 10 0 | 2 18 1 |
| Megrims | 3 6 6 | 2 17 4 | 2 10 11 | 3 8 0 | 3 16 0 | 3 2 10 | 2 16 8 | 3 3 4 |
| Ray/Skate | 3 11 10 | 3 13 7 | 3 13 2 | 4 1 7 | 4 0 5 | 4 3 2 | 4 7 3 | 4 11 0 |
| Cod | 6 12 1 | 5 13 3 | 3 17 4 | 4 1 8 | 3 18 11 | 3 12 5 | 3 7 2 | 4 7 3 |
| Haddock | 6 7 1 | 3 13 4 | 2 9 3 | 3 1 11 | 3 13 0 | 3 14 9 | 3 12 7 | 3 10 11 |
| Hake | 7 17 11 | 7 8 2 | 5 19 4 | 6 12 1 | 10 4 1 | 9 2 4 | 6 18 10 | 6 19 5 |
| Whiting | 1 19 4 | 2 1 1 | 1 17 1 | 1 19 1 | 2 3 5 | 1 19 1 | 1 17 3 | 2 3 7 |
| Pollack | 3 3 2 | 3 10 5 | 3 4 4 | 2 11 10 | 2 13 5 | 2 7 2 | 2 7 8 | 2 6 10 |
| Herrings | 1 7 9 | 1 3 4 | 0 19 4 | 1 3 11 | 1 7 3 | 1 1 5 | 1 2 0 | 1 3 0 |
| Pilchards | 0 8 7 | 3 12 10 | 2 14 3 | 4 0 6 | 0 11 0 | 0 8 7 | 0 12 11 | — |
| Mackerel | 2 7 8 | 2 5 1 | 1 9 7 | 1 2 10 | 1 11 4 | 1 3 2 | 1 2 9 | 1 8 6 |
| Sprats | 0 7 2 | 0 8 8 | 0 8 3 | 0 8 3 | 0 8 3 | 0 11 7 | 0 8 4 | 9 5 |

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 1969

| Port | Total Value | Demersal | Pelagic | Shellfish |
|---------------------------------|-------------|----------|---------|-----------|
| | £ | £ | £ | £ |
| 1. Killybegs ... | 384,098 | 224,136 | 159,358 | 604 |
| 2. Dunmore East ... | 308,106 | 12,579 | 273,144 | 22,383 |
| 3. Howth ... | 305,226 | 278,477 | 4,494 | 22,255 |
| 4. Cobh ... | 213,287 | 3,430 | 208,655 | 1,202 |
| 5. Castletownbere ... | 166,390 | 98,606 | 28,055 | 39,729 |
| 6. Dun Laoghaire ... | 122,988 | 117,608 | 919 | 4,461 |
| 7. Skerries ... | 104,952 | 51,147 | 515 | 53,290 |
| 8. Kilmore Quay ... | 92,268 | 47,492 | 1,098 | 43,678 |
| 9. Burtonport ... | 79,604 | 30,076 | 35,668 | 13,860 |
| 10. Greencastle ... | 71,441 | 67,804 | — | 3,637 |
| 11. Galway ... | 70,723 | 52,100 | 4,535 | 14,088 |
| 12. Dingle ... | 67,857 | 42,452 | 9,189 | 16,216 |
| 13. Mornington ... | 59,907 | 2,961 | 56,064 | 882 |
| 14. Fenit ... | 56,888 | — | — | 56,888 |
| 15. Carna ... | 55,349 | 230 | 70 | 55,049 |
| 16. Sligo ... | 46,675 | — | 46,675 | — |
| 17. Achill ... | 39,639 | 20,439 | — | 19,200 |
| 18. Clifden/ Cleggan ... | 39,376 | 227 | 150 | 38,999 |
| 19. Union Hall ... | 35,131 | 25,847 | 1,787 | 7,497 |
| 20. Valentia Harbour ... | 34,950 | 16,416 | 2,543 | 15,991 |
| 21. Balbriggan ... | 33,616 | 17,266 | 6 | 16,344 |
| 22. Schull ... | 30,658 | 5,113 | 986 | 24,259 |
| 23. Clogherhead ... | 29,737 | 26,669 | 1,296 | 1,772 |
| 24. Rossmore/ Rosscahill ... | 25,902 | — | — | 25,902 |

APPENDIX No. 4

Imports and Exports of Fish and Fishery Products in 1969 (as compared with 1968)

| | Quantity | | Value | |
|--|----------------|----------------|------------------|------------------|
| | 1969 | 1968 | 1969 | 1968 |
| | cwt. | cwt. | £ | £ |
| I.—IMPORTS : | | | | |
| Fish, fresh, chilled or frozen | 17,444 | 7,336 | 118,674 | 79,312 |
| Fish, cured, not in airtight containers | 34,990 | 32,523 | 277,743 | 236,793 |
| Fish and fish preparations in airtight containers | 29,579 | 26,072 | 873,800 | 744,857 |
| Other fish and fish preparations | 28,701 | 20,508 | 593,046 | 402,301 |
| TOTALS | 110,714 | 86,439 | 1,863,263 | 1,463,263 |
| II.—EXPORTS : | | | | |
| Fish, fresh, chilled or frozen: | | | | |
| Salmon | 19,351 | 19,847 | 1,087,650 | 755,339 |
| Herrings | 181,636 | 152,257 | 292,822 | 228,071 |
| Freshwater Eels | 2,368 | 2,856 | 56,752 | 68,298 |
| Other Fish | 14,884 | 22,388 | 155,506 | 172,808 |
| Fish dried, salted or smoked not in airtight containers | 306,317 | 194,348 | 637,567 | 407,391 |
| Shellfish fresh, chilled, frozen salted or dried | 89,637 | 94,468 | 1,089,971 | 901,727 |
| Other fish and fish preparations | 16,079 | 6,607 | 237,259 | 143,939 |
| TOTALS | 630,272 | 492,771 | 3,557,527 | 2,677,573 |

APPENDIX No. 5

HERRING FISHING, 1969

| County | Ports at which more than 500 cwt. were landed | Total Quantity cwt. | Value £ |
|-----------|--|---------------------------|------------|
| Louth | — | 362 | 239 |
| Meath | Mornington | 72,719 | 35,114 |
| Dublin | Howth | 1,398 | 1,981 |
| Wicklow | — | 400 | 620 |
| Wexford | Cahore | 2,010 | 3,150 |
| Waterford | Dunmore East | 195,437 | 273,841 |
| Cork | Youghal, Cobh, Kinsale, Union Hall, Castletown- bere, Durrus | 171,529 | 228,573 |
| Kerry | Dingle | 1,374 | 2,801 |
| Clare | — | 100 | 250 |
| Galway | Galway | 2,752 | 3,985 |
| Mayo | — | | |
| Sligo | Sligo | 64,250 | 46,675 |
| Donegal | Killybegs, Burtonport | 169,907 | 186,744 |
| | TOTALS | 682,238 | 783,973 |

APPENDIX No. 6

MACKEREL FISHING, 1969

| County | Ports at which more than 250 cwt. were landed | Total Quantity cwt. | Value £ |
|-----------|--|---------------------------|---------------|
| Louth | — | 120 | 292 |
| Dublin | Howth, Dun Laoghaire | 1,848 | 3,953 |
| Wicklow | — | 255 | 620 |
| Wexford | Kilmore Quay | 762 | 1,638 |
| Waterford | — | 509 | 1,213 |
| Cork | Union Hall, Schull, Castle- townbere | 6,036 | 13,136 |
| Kerry | Valentia Harbour, Dingle, Ballinskalligs | 5,866 | 10,694 |
| Clare | — | 630 | 1,350 |
| Galway | — | 530 | 1,420 |
| Mayo | — | 620 | 1,340 |
| Sligo | — | 40 | 90 |
| Donegal | Killybegs | 14,585 | 9,606 |
| | TOTALS | 31,801 | 45,352 |

APPENDIX No. 7

REGIONAL DISTRIBUTION AND CLASSIFICATION OF FISHING CRAFT AND OF PERSONNEL ENGAGED IN FISHING IN 1969

| 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 | 495 | 144 | 7 | 21 | 52 | 6 | — | 22 | 35 | 1 |
| | Partially Laid-up | 223 | 67 | — | — | — | — | — | 8 | 40 | 19 |
| | TOTALS | 718 | 214 | 7 | 21 | 55 | 6 | — | 30 | 75 | 20 |
| SOUTH (Carnsore Point to Loop Head) | Solely | 509 | 169 | 2 | 18 | 50 | 3 | 11 | 66 | 19 | — |
| | Partially Laid-up | 816 | 331 | — | — | — | — | 3 | 79 | 172 | 77 |
| | TOTALS | 1,325 | 501 | 2 | 18 | 50 | 3 | 14 | 146 | 191 | 77 |
| WEST (Loop Head to Erris Head) | Solely | 259 | 340 | — | 3 | 15 | 5 | 2 | 146 | 137 | 32 |
| | Partially Laid-up | 1,386 | 262 | — | — | — | — | — | 45 | 98 | 119 |
| | TOTALS | 1,645 | 603 | — | 3 | 15 | 5 | 2 | 192 | 235 | 151 |
| NORTH (Erris Head to Moville) | Solely | 558 | 323 | 9 | 9 | 20 | 22 | 8 | 143 | 98 | 14 |
| | Partially Laid-up | 1,385 | 269 | — | — | — | — | — | 74 | 123 | 72 |
| | TOTALS | 1,943 | 593 | 10 | 9 | 20 | 22 | 8 | 217 | 221 | 86 |
| TOTALS (All Coasts) | Solely | 1,821 | 976 | 18 | 51 | 137 | 36 | 21 | 377 | 289 | 47 |
| | Partially Laid-up | 3,810 | 929 | — | — | — | — | — | 206 | 433 | 287 |
| | TOTALS | 5,631 | 1,911 | 19 | 51 | 140 | 36 | 24 | 585 | 722 | 334 |

APPENDIX No. 8

TRAWLING AND SEINING, 1969

| Port or Locality | Number of men engaged | Number of boats engaged | Tonnage of Motor Boats | | Fishing Period |
|-------------------------|-----------------------|-------------------------|------------------------|--------------|---------------------------|
| | | | Not exceeding 10 tons | Over 10 tons | |
| Clogherhead | 25 | 6 | — | 6 | All year. |
| Balbriggan | 32 | 7 | — | 7 | All year. |
| Sierres | 45 | 9 | — | 9 | All year. |
| Howth | 175 | 32 | — | 32 | All year. |
| Dun Laoghaire | 86 | 19 | — | 16 | All year. |
| Arklow | 44 | 11 | — | 11 | All year. |
| Wexford | 15 | 3 | — | 3 | All year. |
| Rosslare | 3 | 1 | — | 1 | All year. |
| Kilmore Quay | 79 | 17 | — | 14 | All year. |
| Duncannon | 16 | 5 | — | 2 | All year. |
| Passage East | 6 | 2 | — | — | Autumn and Winter |
| Dunmore East | 30 | 6 | — | 6 | All year. |
| Helwick | 14 | 3 | — | 3 | All year. |
| Youghal | 6 | 2 | — | 2 | Winter. |
| Ballycotton | 13 | 4 | — | 4 | All year. |
| Cobh | 12 | 5 | — | 1 | All year. |
| Kinsale | 12 | 5 | — | — | All year. |
| Union Hall and Raheen | 18 | 3 | — | 3 | All year. |
| Schull | 14 | 2 | — | 2 | All year. |
| Castletownbere | 90 | 13 | — | 15 | All year. |
| Ballskeelligs | 6 | 1 | — | — | All year. |
| Valentia | — | — | — | — | — |
| Cahirveen and Portmagee | 18 | 3 | — | 3 | All year. |
| Dingle | 60 | 12 | — | 12 | All year. |
| Galway and Aran Islands | 65 | 13 | — | 13 | All year. |
| Cleggan and Inisboffin | 7 | 2 | — | — | All year. |
| Achill | 20 | 5 | — | 5 | All year. |
| Killala | 8 | 2 | — | — | Spring, Summer and Autumn |
| Emislerone | 8 | 4 | — | 4 | Spring, Summer and Autumn |
| Sligo | — | — | — | — | — |
| Killybegs | 3 | 2 | — | 2 | All year. |
| Burtonport | 195 | 31 | — | 31 | All year. |
| Dunfanaghy | 48 | 8 | — | 8 | All year. |
| Buncrana | 4 | 1 | — | 1 | All year. |
| Glengad | 8 | 2 | — | 2 | All year. |
| Greencastle | 17 | 5 | — | — | Spring, Summer and Autumn |
| TOTALS | 1,276 | 263 | 30 | 6 | 227 |

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 |
| | | <hr/> 566,255 |
| Instalments of new annuity to accrue up to 1972 | ... .. | 160,433 |
| Repayments of new annuity: | | |
| made to 31 March, 1968 | ... .. | 100,268 |
| made during year ended 31 March, 1969 | ... .. | 13,369 |
| not accrued at 31 March, 1969 | ... .. | 46,796 |
| | | <hr/> 160,433 |
| 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, 1968 | ... .. | 71,482 |
| made during year ended 31 March, 1969 | ... .. | 3,834 |
| not accrued at 31 March, 1969 | ... .. | 10,657 |
| | | <hr/> 85,973 |
| III. Advances of £2,818,563 made to An Bord Iascaigh Mhara during the period of seventeen years to 31 March, 1969, for the provision of boats and gear and other purposes:— | | |
| | | £ |
| Repayments of principal: | | |
| made to 31 March, 1968 | ... .. | 500,267 |
| made during year ended 31 March, 1969 | ... .. | 78,591 |
| Principal written off to 31 March, 1969 | ... .. | 217,584 |
| | | <hr/> 796,442 |
| Total repaid or written off at 31 March, 1969 | ... .. | 796,442 |
| Balance of principal outstanding at 31 March, 1969 | | <hr/> 2,022,121 |

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, Funchion. Bride, Awbeg. |
| No. 5 Cork | Ballycotton Pier to Crow Head, Co. Cork. | Lee, Owenboy, Bandon, Argideen, Ilen, Mealagh, Owvane, Coomhola, Glengarriff, Adrigole. |
| No. 7 Kerry | Crow Head, Co. Cork. to Kerry Head, Co. Kerry. | Roughy, Sheen, Finnihy, 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. 91 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. 92 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. 101 Ballinakil | Slyne Head to Pigeon Point, Westport Bay, Co. Mayo. | Culfn, Errif, Bundo- rragha, Dawros, Carrowniskey, Bun- owen (Louisburgh). |
| No. 102 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 (Crolly), 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 1967, 1968 and 1969 by Instruments of Capture.

| SALMON | | | | | | |
|-----------------------------------|-----------|-----------|-----------|-----------|---------|---------|
| | 1969 | 1968 | 1967 | 1969 | 1968 | 1967 |
| Instruments | lb. | lb. | lb. | £ | £ | £ |
| Total for all engines | 1,403,849 | 2,702,248 | 2,720,930 | 1,107,788 | 699,428 | 665,242 |
| Total for rod and line | 182,248 | 251,432 | 267,809 | 60,786 | 81,645 | 83,929 |
| Total for drift nets | 1,678,482 | 1,040,356 | 1,015,738 | 545,507 | 259,302 | 207,694 |
| Total for draft nets | 1,206,779 | 1,059,227 | 1,071,341 | 392,203 | 260,257 | 266,224 |
| Total for stake nets, weirs, etc. | 336,340 | 351,233 | 366,042 | 109,292 | 98,224 | 107,395 |

| SEA TROUT | | | | | | |
|-----------------------------------|---------|---------|---------|--------|--------|--------|
| | 1969 | 1968 | 1967 | 1969 | 1968 | 1967 |
| Instruments | lb. | lb. | lb. | £ | £ | £ |
| Total for all engines | 127,272 | 124,679 | 128,980 | 23,864 | 22,982 | 21,075 |
| Total for rod and line | 71,555 | 69,584 | 68,078 | 13,417 | 12,541 | 11,497 |
| Total for drift nets | 7,929 | 8,147 | 8,484 | 1,487 | 1,639 | 1,577 |
| Total for draft nets | 46,790 | 45,898 | 51,295 | 8,773 | 8,598 | 7,835 |
| Total for stake nets, weirs, etc. | 998 | 1,050 | 1,123 | 187 | 204 | 166 |

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

APPENDIX No. 12

Quantity and Value of Salmon taken in 1967, 1968 and 1969 by Fishery Districts.

| Fishery District | * | Quantity | | | Value | | |
|------------------|-----|-----------|-----------|-----------|-----------|---------|---------|
| | | 1969 lb. | 1968 lb. | 1967 lb. | 1969 £ | 1968 £ | 1967 £ |
| Dublin | R | 982 | 3,437 | 4,399 | 348 | 1,356 | 1,920 |
| | N | 10,163 | 19,979 | 15,981 | 3,422 | 4,697 | 4,039 |
| Wexford | R | 1,782 | 4,686 | 6,854 | 617 | 2,037 | 2,746 |
| | N | 20,802 | 25,297 | 27,752 | 6,758 | 6,393 | 10,479 |
| Waterford | R | 30,078 | 40,609 | 41,284 | 10,047 | 13,199 | 13,298 |
| | N | 658,087 | 259,843 | 303,342 | 218,869 | 64,821 | 69,612 |
| Lismore | R | 5,905 | 7,190 | 8,920 | 1,989 | 2,396 | 2,399 |
| | N | 277,029 | 133,165 | 169,564 | 91,087 | 34,755 | 48,541 |
| Cork | R | 8,624 | 17,317 | 15,742 | 2,896 | 5,685 | 5,166 |
| | N | 150,674 | 60,730 | 71,030 | 48,754 | 15,249 | 19,293 |
| Kerry | R | 43,086 | 33,876 | 30,056 | 14,383 | 10,919 | 9,119 |
| | N | 260,042 | 186,355 | 192,726 | 84,531 | 46,768 | 38,746 |
| Limerick | R | 28,927 | 28,412 | 34,094 | 9,341 | 8,970 | 10,195 |
| | N | 381,489 | 280,373 | 312,546 | 120,984 | 71,629 | 80,651 |
| Galway | R | 4,026 | 15,081 | 14,787 | 1,363 | 4,780 | 3,926 |
| | N | 58,217 | 93,269 | 94,916 | 18,948 | 29,559 | 30,169 |
| Connemara | R | 5,036 | 6,761 | 5,974 | 1,700 | 2,141 | 1,484 |
| | N | 1,803 | — | — | 573 | — | — |
| Ballinakill | R | 3,946 | 5,107 | 5,603 | 1,336 | 1,617 | 1,435 |
| | N | 19,127 | 26,885 | 26,190 | 6,242 | 6,783 | 4,415 |
| Bangor | R | 6,216 | 7,532 | 7,859 | 2,093 | 2,358 | 2,290 |
| | N | 57,604 | 109,369 | 52,240 | 18,631 | 25,521 | 10,637 |
| Ballina | R | 14,603 | 21,585 | 25,182 | 4,889 | 6,926 | 7,185 |
| | N | 444,457 | 422,601 | 372,889 | 142,150 | 105,248 | 78,249 |
| Sligo | R | 2,902 | 8,741 | 8,849 | 988 | 2,806 | 2,928 |
| | N | 60,202 | 69,565 | 47,188 | 19,488 | 16,879 | 10,385 |
| Ballyshannon | R | 9,003 | 6,711 | 8,715 | 3,022 | 2,108 | 3,044 |
| | N | 183,047 | 159,259 | 156,559 | 59,012 | 39,270 | 35,630 |
| Letterkenny | R | 8,229 | 15,158 | 15,627 | 2,764 | 3,271 | 4,136 |
| | N | 518,238 | 437,097 | 430,375 | 168,383 | 108,171 | 85,886 |
| Dundalk | R | 1,809 | 8,737 | 10,564 | 624 | 2,703 | 3,269 |
| | N | 49,898 | 56,791 | 66,319 | 16,242 | 14,272 | 18,273 |
| Drogheda | R | 7,094 | 20,762 | 23,300 | 2,386 | 8,373 | 9,389 |
| | N | 70,722 | 110,238 | 113,504 | 22,928 | 27,768 | 36,308 |
| TOTALS | ... | 3,403,849 | 2,702,248 | 2,720,930 | 1,107,788 | 699,428 | 665,242 |

* 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 1967, 1968 and 1969 by Fishery Districts.

| Fishery District | * | Quantity | | | Value | | |
|------------------|-----|----------|----------|----------|--------|--------|--------|
| | | 1969 lb. | 1968 lb. | 1967 lb. | 1969 £ | 1968 £ | 1967 £ |
| Dublin | R | 3,512 | 413 | 529 | 659 | 61 | 77 |
| | N | 1,375 | 5,175 | 4,792 | 257 | 1,099 | 1,009 |
| Wexford | R | 2,087 | 2,304 | 1,754 | 392 | 457 | 258 |
| | N | 4,620 | 7,175 | 7,687 | 866 | 1,361 | 923 |
| Waterford | R | 6,704 | 876 | 870 | 1,259 | 151 | 147 |
| | N | 2,776 | 1,101 | 1,077 | 521 | 218 | 179 |
| Lismore | R | 2,186 | 1,379 | 319 | 411 | 249 | 59 |
| | N | 4,484 | 10,777 | 10,846 | 839 | 2,109 | 2,046 |
| Cork | R | 4,933 | 9,582 | 8,712 | 925 | 1,498 | 1,363 |
| | N | 3,624 | 978 | 788 | 680 | 192 | 154 |
| Kerry | R | 10,462 | 12,564 | 11,364 | 1,959 | 2,821 | 2,423 |
| | N | 4,582 | 613 | 513 | 860 | 134 | 128 |
| Limerick | R | 7,581 | 3,562 | 3,774 | 1,420 | 537 | 596 |
| | N | 7,248 | 24,037 | 29,335 | 1,358 | 4,294 | 4,165 |
| Galway | R | 3,487 | 1,338 | 1,315 | 645 | 230 | 224 |
| | N | 1,578 | 66 | 65 | 296 | 13 | 12 |
| Connemara | R | 3,798 | 9,796 | 8,905 | 713 | 1,836 | 1,360 |
| | N | — | — | — | — | — | — |
| Ballinakill | R | 2,892 | 5,518 | 6,017 | 542 | 880 | 960 |
| | N | 2,117 | 281 | 222 | 398 | 61 | 33 |
| Bangor | R | 3,859 | 6,082 | 6,346 | 723 | 963 | 991 |
| | N | 2,240 | 25 | 19 | 420 | 5 | 3 |
| Ballina | R | 3,758 | 4,691 | 5,361 | 705 | 827 | 945 |
| | N | 2,206 | 828 | 1,225 | 415 | 163 | 191 |
| Sligo | R | 751 | 657 | 513 | 142 | 125 | 86 |
| | N | 659 | 192 | 165 | 124 | 38 | 29 |
| Ballyshannon | R | 1,661 | 1,503 | 1,902 | 312 | 332 | 293 |
| | N | 7,216 | 53 | 58 | 1,352 | 11 | 5 |
| Letterkenny | R | 9,547 | 3,714 | 3,928 | 1,790 | 593 | 588 |
| | N | 2,743 | 1,689 | 1,805 | 515 | 338 | 268 |
| Dundalk | R | 2,062 | 2,112 | 2,546 | 390 | 349 | 420 |
| | N | 2,763 | 913 | 989 | 518 | 183 | 210 |
| Drogheda | R | 2,275 | 3,493 | 3,923 | 430 | 632 | 707 |
| | N | 5,486 | 1,192 | 1,316 | 1,028 | 222 | 223 |
| TOTALS | ... | 127,272 | 124,679 | 128,980 | 23,864 | 22,982 | 21,075 |

* 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 1967, 1968 and 1969 by Fishery Districts.

| Fishery District | Quantity | | | Value | | |
|------------------|-------------|-------------|-------------|-----------|-----------|-----------|
| | 1969 lb. | 1968 lb. | 1967 lb. | 1969 £ | 1968 £ | 1967 £ |
| Dublin ... | 3,977 | 4,643 | 2,853 | 876 | 1,022 | 430 |
| Wexford ... | 11,283 | 24,830 | 11,354 | 2,065 | 4,743 | 1,720 |
| Waterford ... | 5,103 | 6,315 | 5,876 | 1,179 | 1,389 | 822 |
| Lismore ... | — | — | — | — | — | — |
| Cork ... | 4,079 | 25,213 | 937 | 875 | 5,547 | 160 |
| Kerry ... | 442 | 17,817 | 1,523 | 96 | 2,600 | 253 |
| Limerick ... | 79,441 | 114,248 | 192,176 | 16,290 | 25,134 | 47,859 |
| Galway ... | 60,475 | 67,569 | 24,190 | 13,604 | 14,861 | 3,956 |
| Bangor ... | — | — | — | — | — | — |
| Ballina ... | 21,387 | 13,117 | 6,092 | 4,472 | 2,887 | 937 |
| Sligo ... | 16,449 | 7,441 | 8,730 | 3,403 | 1,637 | 1,489 |
| Ballyshannon | 16,897 | 19,249 | 16,876 | 3,630 | 4,235 | 3,041 |
| Letterkenny ... | — | — | 1,700 | — | — | 170 |
| Dundalk ... | 14,025 | 4,696 | 4,885 | 2,883 | 1,030 | 642 |
| Drogheda ... | 38,023 | 9,360 | 19,213 | 8,179 | 2,059 | 3,168 |
| TOTALS ... | 269,568 | 314,498 | 296,405 | 57,552 | 67,144 | 64,647 |

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 1967, 1968 and 1969 by Fishery Districts.

| Fishery District | Total Weight for District | | | Total Value for District | | |
|------------------------|---------------------------|-----------|-----------|--------------------------|---------|---------|
| | 1969 lb. | 1968 lb. | 1967 lb. | 1969 £ | 1968 £ | 1967 £ |
| Dublin ... | 20,009 | 33,647 | 28,554 | 5,562 | 8,235 | 7,475 |
| Wexford ... | 40,574 | 64,292 | 55,401 | 10,698 | 14,991 | 16,126 |
| Waterford ... | 702,667 | 308,744 | 352,449 | 231,875 | 79,778 | 84,058 |
| Lismore ... | 289,604 | 152,511 | 189,649 | 94,326 | 39,509 | 53,045 |
| Cork ... | 171,934 | 113,820 | 97,209 | 54,130 | 28,171 | 26,136 |
| Kerry ... | 318,614 | 251,225 | 436,182 | 101,829 | 63,242 | 50,669 |
| Limerick ... | 503,224 | 450,632 | 571,925 | 149,393 | 110,564 | 143,446 |
| Galway ... | 127,783 | 177,323 | 135,273 | 34,856 | 49,443 | 38,287 |
| Connemara ... | 10,637 | 16,557 | 14,879 | 2,986 | 3,977 | 2,844 |
| Ballinakill ... | 28,082 | 37,791 | 38,032 | 8,518 | 9,341 | 6,843 |
| Bangor ... | 69,919 | 123,008 | 66,464 | 21,867 | 28,847 | 13,921 |
| Ballina ... | 486,267 | 462,822 | 410,749 | 152,631 | 116,051 | 87,507 |
| Sligo ... | 80,892 | 86,326 | 65,445 | 24,145 | 21,485 | 14,917 |
| Ballyshannon | 217,569 | 186,775 | 184,110 | 67,328 | 45,956 | 42,013 |
| Letterkenny ... | 538,757 | 457,658 | 453,435 | 173,452 | 112,373 | 91,048 |
| Dundalk ... | 70,557 | 73,249 | 85,303 | 20,657 | 18,537 | 22,814 |
| Drogheda ... | 123,600 | 145,045 | 161,256 | 34,951 | 39,054 | 49,795 |
| TOTALS ... | 3,800,689 | 3,141,425 | 3,146,315 | 1,189,204 | 789,554 | 750,964 |

APPENDIX No. 16

Number, Quantity and Value of Salmon taken by single Rod and Line
in 1967, 1968 and 1969 by Fishery Districts.

| Fishery District | No. of Fish | | | Quantity | | | Value | | |
|-------------------|---------------|---------------|---------------|----------------|----------------|----------------|---------------|---------------|---------------|
| | 1969 | 1968 | 1967 | 1969 lb. | 1968 lb. | 1967 lb. | 1969 £ | 1968 £ | 1967 £ |
| Dublin ... | 124 | 480 | 494 | 982 | 3,437 | 4,399 | 348 | 1,356 | 1,920 |
| Wexford ... | 209 | 564 | 585 | 1,782 | 4,686 | 6,854 | 617 | 2,037 | 2,746 |
| Waterford ... | 3,762 | 5,256 | 5,332 | 30,078 | 40,609 | 41,284 | 10,047 | 13,199 | 13,298 |
| Lismore ... | 760 | 856 | 1,033 | 5,905 | 7,190 | 8,920 | 1,989 | 2,396 | 2,399 |
| Cork ... | 1,148 | 2,195 | 1,992 | 8,624 | 17,317 | 15,742 | 2,896 | 5,685 | 5,166 |
| Kerry ... | 5,868 | 4,839 | 4,301 | 43,086 | 33,876 | 30,056 | 14,383 | 10,919 | 9,119 |
| Limerick ... | 4,131 | 4,152 | 4,982 | 28,927 | 28,412 | 34,094 | 9,341 | 8,970 | 10,195 |
| Galway ... | 538 | 2,379 | 2,333 | 4,026 | 15,081 | 14,787 | 1,363 | 4,780 | 3,926 |
| Connemara ... | 716 | 1,096 | 905 | 5,036 | 6,761 | 5,974 | 1,700 | 2,141 | 1,484 |
| Ballinakill ... | 499 | 775 | 856 | 3,946 | 5,107 | 5,603 | 1,336 | 1,617 | 1,435 |
| Bangor ... | 784 | 1,069 | 1,116 | 6,216 | 7,532 | 7,859 | 2,093 | 2,358 | 2,290 |
| Ballina ... | 1,858 | 3,308 | 3,859 | 14,603 | 21,585 | 25,182 | 4,889 | 6,926 | 7,185 |
| Sligo ... | 384 | 1,124 | 1,168 | 2,902 | 8,471 | 8,849 | 988 | 2,806 | 2,928 |
| Ballyshannon ... | 1,189 | 869 | 1,117 | 9,003 | 6,711 | 8,715 | 3,022 | 2,108 | 3,044 |
| Letterkenny ... | 1,107 | 2,102 | 2,167 | 8,229 | 15,158 | 15,627 | 2,764 | 3,271 | 4,136 |
| Dundalk ... | 157 | 998 | 1,210 | 1,809 | 8,737 | 10,564 | 624 | 2,703 | 3,269 |
| Drogheda ... | 581 | 1,687 | 1,891 | 7,094 | 20,762 | 23,300 | 2,386 | 8,373 | 9,389 |
| TOTALS ... | 23,815 | 33,749 | 35,341 | 182,248 | 251,432 | 267,809 | 60,786 | 81,645 | 83,929 |

APPENDIX No. 17

Number, Quantity and Value of Sea Trout taken by single Rod and Line in 1967, 1968 and 1969 by Fishery Districts.

| Fishery District | No. of Fish | | | Quantity | | | Value | | |
|------------------------|-------------|--------|--------|----------|----------|----------|--------|--------|--------|
| | 1969 | 1968 | 1967 | 1969 lb. | 1968 lb. | 1967 lb. | 1969 £ | 1968 £ | 1967 £ |
| Dublin ... | 3,540 | 361 | 462 | 3,512 | 413 | 529 | 659 | 61 | 77 |
| Wexford ... | 2,115 | 2,511 | 2,600 | 2,087 | 2,304 | 1,754 | 392 | 457 | 258 |
| Waterford ... | 6,734 | 1,068 | 1,090 | 6,704 | 876 | 870 | 1,259 | 151 | 147 |
| Lismore ... | 2,216 | 1,815 | 453 | 2,186 | 1,379 | 319 | 411 | 249 | 59 |
| Cork ... | 4,960 | 11,947 | 10,867 | 4,933 | 9,582 | 8,712 | 925 | 1,498 | 1,363 |
| Kerry ... | 10,489 | 10,383 | 9,436 | 10,462 | 12,564 | 11,364 | 1,959 | 2,821 | 2,423 |
| Limerick ... | 7,610 | 3,910 | 4,680 | 7,581 | 3,562 | 3,774 | 1,420 | 537 | 596 |
| Galway ... | 3,514 | 1,235 | 1,210 | 3,487 | 1,338 | 1,315 | 645 | 230 | 224 |
| Connemara ... | 3,813 | 10,282 | 9,348 | 3,798 | 9,796 | 8,905 | 713 | 1,836 | 1,360 |
| Ballinakill ... | 2,920 | 5,168 | 5,709 | 2,892 | 5,518 | 6,017 | 542 | 880 | 960 |
| Bangor ... | 3,839 | 5,883 | 6,634 | 3,859 | 6,082 | 6,346 | 723 | 963 | 991 |
| Ballina ... | 3,785 | 4,501 | 5,144 | 3,758 | 4,691 | 5,361 | 705 | 827 | 945 |
| Sligo ... | 778 | 646 | 654 | 751 | 657 | 513 | 142 | 125 | 86 |
| Ballyshannon | 1,688 | 1,455 | 1,842 | 1,661 | 1,503 | 1,902 | 312 | 332 | 293 |
| Letterkenny ... | 9,575 | 3,698 | 3,722 | 9,547 | 3,714 | 3,928 | 1,790 | 593 | 588 |
| Dundalk ... | 2,089 | 1,986 | 2,383 | 2,062 | 2,112 | 2,546 | 390 | 349 | 420 |
| Drogheda ... | 2,302 | 3,331 | 3,743 | 2,275 | 3,493 | 3,923 | 430 | 632 | 707 |
| TOTALS ... | 72,017 | 70,180 | 69,977 | 71,555 | 69,584 | 68,078 | 13,417 | 12,541 | 11,497 |

APPENDIX No. 18

PARTICULARS OF RECEIPTS AND EXPENDITURE BY BOARDS OF CONSERVATORS FOR THE YEAR ENDED 30th SEPTEMBER, 1969.

| Fishery District | Opening Balance | RECEIPTS | | | | | EXPENDITURE | | | | | Closing Balance |
|------------------|-----------------|---------------|---------------|------------------|----------------|----------------|---------------|---------------|--------------|---------------------|-------------------|-----------------|
| | | Licence Duty | Fishery Rate | Grant from Dept. | Misc. Receipts | Total Receipts | Salaries | Water Keepers | Law Costs | Traveling and Misc. | Total Expenditure | |
| | £ | £ | £ | £ | £ | £ | £ | £ | £ | £ | £ | £ |
| Dublin | 88 | 1,873 | 461 | 2,300 | 428 | 5,062 | 2,098 | 930 | 2 | 1,648 | 4,678 | + 296 |
| Wexford | 332 | 1,166 | 2,217 | 2,300 | 72 | 5,755 | 1,097 | 2,428 | | 1,648 | 5,125 | + 298 |
| Waterford | + 3,036 | 3,538 | 3,495 | 12,000 | 823 | 19,856 | 2,318 | 10,617 | 1,592 | 5,113 | 19,640 | + 3,252 |
| Lismore | 875 | 1,036 | 7,931 | 5,500 | 255 | 14,722 | 1,495 | 10,663 | 482 | 2,573 | 15,213 | + 384 |
| Cork | + 89 | 2,012 | 1,319 | 7,000 | 235 | 10,566 | 1,325 | 7,725 | | 2,273 | 11,323 | + 668 |
| Kerry | 852 | 3,019 | 3,991 | 3,500 | 306 | 10,816 | 1,798 | 9,838 | 354 | 2,433 | 14,423 | + 2,755 |
| Limerick | 2,862 | 4,329 | 6,418 | 14,500 | 718 | 25,965 | 2,115 | 13,017 | 164 | 8,069 | 23,365 | + 262 |
| Galway | + 6,474 | 1,412 | 4,349 | 2,000 | 4,494 | 12,255 | 5,292 | 2,432 | | 5,873 | 11,619 | + 7,110 |
| Connemara | 244 | 903 | 3,176 | | 49 | 4,128 | 1,380 | 1,978 | | 913 | 4,271 | + 101 |
| Ballinakill | 97 | 826 | 1,273 | 1,300 | 62 | 3,461 | 632 | 2,175 | | 678 | 3,507 | + 51 |
| Bangor | + 439 | 1,508 | 2,082 | 3,500 | 943 | 8,033 | 4,233 | 1,599 | 13 | 2,372 | 8,217 | + 255 |
| Ballina | 244 | 1,687 | 6,118 | 1,200 | 560 | 9,565 | 4,883 | 1,812 | 403 | 2,593 | 9,691 | + 370 |
| Sligo | + 414 | 607 | 2,000 | 1,800 | 209 | 4,616 | 1,672 | 1,725 | 36 | 1,094 | 4,527 | + 503 |
| Ballyshannon | 35 | 1,863 | 835 | 3,000 | 3,667 | 9,365 | 1,183 | 5,537 | | 2,454 | 9,174 | + 226 |
| Letterkenny | 655 | 3,503 | 2,443 | 2,000 | 1,173 | 9,119 | 1,476 | 5,624 | 85 | 1,695 | 8,880 | + 894 |
| Drogheda | + 1,715 | 1,609 | 2,686 | 2,500 | 24 | 6,819 | 960 | 4,595 | 41 | 1,354 | 6,950 | + 1,584 |
| Dundalk | 65 | 1,000 | 590 | 5,400 | 184 | 5,174 | 928 | 2,173 | 489 | 1,692 | 5,282 | + 173 |
| TOTALS | +11,334 | 31,891 | 51,384 | 67,800 | 14,202 | 165,277 | 32,885 | 84,868 | 3,705 | 44,427 | 165,885 | +10,726 |

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APPENDIX No. 19

PARTICULARS OF LICENCES ISSUED BY BOARDS OF CONSERVATORS FOR THE YEAR 1969

| Fishery District | Salmon Rod | | | | | | | | | Special Local Licences (Tidal Waters) | Draft 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 | Fyke net | |
|------------------|------------------------|----------------------------|-----------------------------|--------------------------------|---------------------------|---------------------------------|-------------------------------------|--------------------------------------|--------------------------|---------------------------------------|------------|-----------|----------|----------|-----------|-----------|-------------|------------|-----------|-----------------------------|--------------------|---------------|----------|----------|----|
| | 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) | | | | | | | | | | | | | | | | | |
| Dublin | 337 | 39 | 28 | | 54 | 7 | | 53 | | 11 | 24 | | | | | | | | | | | | | | 20 |
| Wexford | 87 | 81 | | | 70 | 56 | | | | 11 | 136 | | | 3 | 3 | | | | 123 | 10 | | | | 1 | |
| Waterford | 118 | 618 | 5 | | 155 | 66 | | | | 8 | 62 | | | | 2 | | | | 11 | | | | | | |
| Lismore | 60 | 110 | 13 | | 110 | | | 1 | | 43 | 30 | | | | | | | | | | | | | | |
| Cork | 133 | 212 | 16 | | 242 | 119 | | | | 72 | 4 | | | 2 | | | | | | 2 | | | | | |
| Kerry | 156 | 219 | 7 | | 931 | 210 | | | | 14 | 25 | | | | | | | | | | | | | | |
| Limerick | 228 | 691 | 15 | | 193 | 151 | | | | 125 | 77 | | | 4 | | | | | | 62 | 2 | | | | 10 |
| Galway | 66 | 84 | 30 | | 254 | 50 | | | | 14 | 25 | | | | | | | | | 31 | 9 | | | 2 | 21 |
| Connemara | 8 | 18 | 7 | | 413 | 189 | | | | 1 | 7 | | | | | | | | | | | | | | |
| Ballinakill | 16 | 25 | 11 | | 292 | 76 | | 1 | | 21 | 23 | | | | | | | | | | | | | | |
| Bangor | 45 | 37 | 7 | | 337 | 129 | | | | 11 | 15 | | | 2 | | | | | | | | | | | |
| Ballina | 70 | 203 | 8 | | 223 | 41 | | | | 14 | 89 | | | | | | | | | 20 | 4 | | | | |
| Sligo | 35 | 103 | 8 | | 44 | 11 | | | | 4 | 12 | | | 1 | | | | | | 10 | 10 | | | | |
| Ballyshannon | 52 | 30 | 11 | | 118 | 17 | | 9 | | 22 | 34 | | | | | | | | | 11 | 11 | | | | |
| Letterkenny | 108 | 463 | 15 | | 489 | 142 | 95 | 53 | | 37 | 131 | | | | | | | | | | | | | | |
| Drogheda | 156 | 109 | 6 | 2 | 35 | 47 | | 1 | | 105 | | | | | | | | | | 3 | 4 | | | 16 | |
| Dundalk | 74 | 108 | 5 | | 17 | 69 | 11 | 10 | | 39 | | | | | | | | | | 11 | 1 | | | 2 | 32 |
| TOTALS | 1,749 | 3,150 | 192 | 2 | 3,977 | 1,380 | 112 | 128 | 56 rod 54 net | 665 | 669 | 8 | 9 | 1 | 31 | 37 | 134 | 160 | 42 | 148 | 21 | 83 | | | |

53

10526
10527
10528
10529
10530

APPENDIX No. 20

Licence Duties Payable on Fishing Engines.

| | | | | £ | s. | d. |
|--|-----|-----|-----|----|----|----|
| On each Salmon Rod—Annual (valid all districts) | ... | ... | ... | 4 | 0 | 0 |
| Do. Salmon Rod—Late Season (valid all districts) | ... | ... | ... | 3 | 0 | 0 |
| Do. Salmon Rod—Twenty-one day (valid all districts) | ... | ... | ... | 3 | 0 | 0 |
| Do. Salmon Rod—Seven day (valid all districts) | ... | ... | ... | 1 | 0 | 0 |
| Do. Salmon Rod—Annual (valid district of issue only) | ... | ... | ... | 3 | 0 | 0 |
| Do. Salmon Rod—Late Season (valid district of issue only) | ... | ... | ... | 2 | 0 | 0 |
| Do. Salmon Rod—Foyle area extension (valid all districts) | ... | ... | ... | 2 | 10 | 0 |
| Do. Salmon Rod—Foyle area extension (valid district of issue only) | ... | ... | ... | 1 | 10 | 0 |
| On each Draft net | ... | ... | ... | 4 | 0 | 0 |
| Do. Drift net | ... | ... | ... | 3 | 0 | 0 |
| Do. Snap net | ... | ... | ... | 2 | 10 | 0 |
| Do. Bag net | ... | ... | ... | 10 | 0 | 0 |
| Do. Stake net | ... | ... | ... | 30 | 0 | 0 |
| Do. Head Weir | ... | ... | ... | 6 | 0 | 0 |
| Do. Box or Crib | ... | ... | ... | 10 | 0 | 0 |
| Do. Pole net | ... | ... | ... | 2 | 0 | 0 |
| Do. Loop net | ... | ... | ... | 0 | 10 | 0 |
| Do. Gap, Eye, Basket or Coghill Net for Eels | ... | ... | ... | 2 | 0 | 0 |
| Do. Long line for Eels | ... | ... | ... | 2 | 0 | 0 |
| Do. Oyster fishing engine | ... | ... | ... | 2 | 0 | 0 |

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

| Fishery District | Fyke Net | Eel Trap | Special Local Licences | |
|------------------|----------|----------|------------------------|-----------|
| | | | Rod | Draft Net |
| 1. Dublin | £ s. 0 5 | £ s. 2 0 | £ s. — | £ s. — |
| 2. Wexford | 0 5 | 2 0 | — | — |
| 3. Waterford | — | — | — | — |
| 4. Lismore | — | — | — | — |
| 5. Cork | — | — | — | — |
| 6. Kerry | 0 5 | — | — | — |
| 7. Limerick | — | — | — | — |
| 8. Galway | — | 2 0 | — | — |
| 9. Connemara | — | — | — | — |
| 10. Ballinakill | — | — | — | — |
| 10a. Bangor | — | — | £3 0 | \$25 0 |
| 11. Ballina | — | — | — | — |
| 12. Sligo | — | — | — | — |
| 13. Ballyshannon | — | — | — | *40 0 |
| 14. Letterkeny | — | — | — | †20 0 |
| 17. Drogheda | — | 2 0 | — | †12 10 |
| 17a. Dundalk | — | 2 0 | — | — |

† River Lackagh Tidal Waters.

‡ River Owenea Tidal Waters.

§ Owenmore/Owenduff Tidal Waters.

APPENDIX No. 21

PARTICULARS OF PUBLIC INQUIRIES HELD DURING 1969

| Date of Inquiry | Where held | Subject Matter | Decision on Report of Inquiry |
|----------------------|------------|---|-------------------------------|
| 13th January, 1969 | Dublin | Regulation of fishing for bass | Under consideration. |
| 15th January, 1969 | Waterford | Regulation of fishing for bass | Under consideration. |
| 16th January, 1969 | Cork | Regulation of fishing for bass | Under consideration. |
| 20th January, 1969 | Galway | Regulation of fishing for bass | Under consideration. |
| 9th September, 1969 | Kinsale | Application of Experimental Fisheries Ltd., 1 Pope's Road, Cork, for an oyster fishery order. | Order granted |
| 10th September, 1969 | Tramore | Application of Dr. K. Hickey, 22, John's Hill, Waterford, for an oyster fishery licence. | Under consideration |

APPENDIX No. 22

ABSTRACT OF STATUTORY INSTRUMENTS MADE IN 1969

GENERAL

Fishery Harbour Centres Act, 1968 (Commencement) Order, 1969, dated 30th June, 1969 (S.I. No. 123 of 1969).

Appointing the 1st July, 1969 as the day on which the Fishery Harbour Centres Act, 1968, came into operation.

Sea Fisheries (Rational Exploitation of Fisheries) Order, 1969, dated 15th December, 1969. (S.I. No. 259 of 1969).

Permitting that until 31st December, 1973, ten per cent, by weight, of each total landing or part thereof of sea-fish which is not intended for human consumption may consist of undersized sea-fish and declaring that whiting of 20cm. in length or over shall not be treated as undersized fish for this purpose.

LOCAL

Kilcolgan and Dunkellin River (Angling) Bye-Law No. 545, 1969, dated 7th January, 1969.

Prohibiting angling in which any lure other than artificial fly, prawn, shrimp, or worm on single hook is employed during the period commencing on the 1st day of June and ending on the 31st day of August in each year in prescribed waters of the Kilcolgan and Dunkellin River.

Galway, Connemara and Ballinakill Districts Bye-Law No. 546, 1969, dated 28th May, 1969.

Revoking the bye-law made on the 4th day of June, 1914 (which contained a prohibition on drift netting for salmon or trout in the Galway, Connemara and Ballinakill Districts) and the bye-law made on the 15th of June, 1915 (which restricted netting in parts of the Galway and Connemara Districts).

Prohibiting drift netting for salmon or trout in certain sanctuary areas. Prescribing conditions as to drift nets etc. in the areas where netting is permitted.

Oyster Fishery (Crookhaven) (No. 2) Order, 1963 (Determination) Order, 1969, dated 11th June, 1969.

Determining the Oyster Fishery (Crookhaven) (No. 2) Order, 1963.

which granted the exclusive right of operating an oyster fishery in a part of Crookhaven to Rickard Collins, Rock Island, Goleen, Co. Cork.

Galway, Connemara and Ballinakill Districts Bye-Law No. 547, 1969, dated 16th June, 1969.

Amending Article 5(h) of the Galway, Connemara and Ballinakill District Bye-Law No. 546, 1969 to alter one of the specified sanctuary areas.

Limerick District Bye-Law No. 548, 1969, dated 12th August, 1969.

Prescribing a minimum size of 14 inches for salmon or trout catches in Loughs Sheelin, Derravarragh, Ennel and Owel and a minimum size of 12 inches for salmon or trout catches in the waters of the River Inny between Lough Sheelin and Lough Derravarragh and between Lough Derravarragh and Lough Ree.

Fishery Harbour Centre (Killybegs) Order, 1969, dated 5th November, 1969 (S.I. No. 210 of 1969).

Declaring and Defining the area of Killybegs Fishery Harbour Centre and transferring to the Minister for Agriculture and Fisheries from 10th November, 1969, all the property, rights and liabilities of Killybegs Harbour Commissioners who stand dissolved from that date.

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 (Weekly Close Time) Regulations, 1969.

Prescribing a 60 hour weekly close time for netting for fish in the Foyle Area with exceptions for certain parts of the Area and certain types of netting.

Foyle Area (Suspension of Fishing) Regulations, 1969.

Prohibiting fishing for salmon or trout in certain parts of the Foyle Area during the period from 9th August, 1969, until 31st August, 1969.

APPENDIX No. 23

Distribution of Fish Hatchery Produce 1968/69.

| Hatchery | River system stocked | Salmon 1,000 | Sea Trout 1,000 | Brown Trout 1,000 |
|--|---|-----------------|-----------------------|---|
| Parteen ... | Rivers Newport, Mulcaire, Nenagh, Suck, Inny, Shannon, Lee, Bride, Silver and Liffey. | 1,346 | — | — |
| Lee | Rivers Lee, Bride, Shournagh, Bandon and Ilen. | 9 | — | — |
| Fanure ... | Various Trust Waters in Cos. Offaly, Westmeath, Cavan, Cork, Sligo, Mayo, Kerry and Clare. | — | — | { 602 Summerlings 421 Fingerlings 15.6 Adult fish |
| Mullingar | Various Trust Waters in Cos. Westmeath and Cavan. | — | — | { 1,005 unfed fry 255 Summerlings 409 Fingerlings |
| Clooncrim | Various Trust waters in Cos. Roscommon, Galway, Sligo and Longford. | — | — | { 160 Summerlings 86 Fingerlings |
| Mallow | River Blackwater and tributaries. | 110 | — | — |
| Screebe | 420,000 ova for restocking diseased rivers as follows: River Erne 100,000 River Maigue 100,000 Cummeragh River System 80,000 Foyle System 70,000 River Lee 40,000 River Slaney 30,000 Remainder to the Screebe System. | 495 | — | — |
| Bailisodare | Tributaries of the River Arrow. | 6 | — | — |
| Cong ... | Reared to the underyearling stage and distributed as follows: (a) River Moy and tributaries 50,000 (b) River Deel 10,000 Remainder to the Corrib System. | 182 | — | — |
| Blackcastle | River Boyne and tributaries. | 24 | — | — |
| Glenties ... | 30,000 ova for restocking the Bundrowes System. Remainder to the Owenea System. | 120 | — | — |
| Burrishoole Fishery I. (operated by Salmon Research Trust) | Produce used for research purposes. | 68 | — | — |
| Burrishoole Fishery II. | 415,000 ova for restocking diseased rivers as follows: Rivers Sheen, Roughy and Blackwater in Kenmare area 150,000 River Feale and tributaries 100,000 Waters under control of E.S.B. 150,000 Rivers in Dundalk Fishery District 15,000 | 415 | — | — |

APPENDIX No. 24.

SCIENTIFIC AND OTHER PAPERS, 1969

A. DEPARTMENTAL

i. IRISH FISHERIES INVESTIGATIONS.

Series A. (Freshwater). No. 5 containing

M. Kennedy. Irish pike investigations, spawning and early history, and

A. E. J. Went. Irish kelt tagging experiments, 1961/62 to 1966/67.

Series B. (Marine). No. 5 containing

M. Kennedy and P. Fitzmaurice. Pelagic eggs and young stages of fishes taken on the south coast of Ireland in 1967, and
F. A. Gibson. Age, growth and maturity of Irish lobsters.

No. 6 containing

J. P. Molloy. A review of the Dunmore East Herring Fishery (1962-1968).

ii. BULLETINS.

a. Sea Fisheries No. 6 and

b. Inland Fisheries No. 5

giving details of work in progress in 1968.

iii. FISHERY LEAFLETS.

No. 5. F. A. Gibson. A review of the Irish lobster fishery.

No. 6. D. de G. Griffith. Investigations into the toxicity of Corexit—a new oil dispersant.

No. 7. J. P. Molloy. South coast (Waterford and Cork) herring fishery, 1968/69.

No. 8. C. I. D. Moriarty. Freshwater crayfish, 1968.

No. 9. C. I. D. Moriarty. Eel research in 1968.

No. 10. C. Duggan. Tralee Bay Oyster investigations (1965/68).

No. 11. F. A. Gibson. Lobster trap census, 1968.

No. 12. J. D. Molloy and T. D. Kennedy. The winter herring of the north-west coast of Ireland, 1968-1969.

No. 13. D. de G. Griffith. The Torrey Canyon disaster. A review of methods employed to combat large scale oil pollution.

No. 14. F. A. Gibson. Catch effort and size distribution of the catch in the Irish lobster fishery (1968).

No. 17. F. A. Gibson. The Irish shellfish industry (1948-1967).
(Note: Nos. 15 and 16 only appeared after the close of 1969).

B. OTHERS.

A. E. J. Went. Salmon of the River Foyle (1968) and salmon tagging experiments (1968). *17. Rep. Foyle Fish. Com.*

————— Lough Mask, the lake of big trout and Ulcerative

Dermal Necrosis in the Republic of Ireland in 1968. *Salmon and Trout Mag.* No. 185. March, 1969.

————— Rare fishes taken in Irish waters in 1968. *Irish Nat. J.* 16.

A. E. J. Went and M. Kennedy. *List of Irish fishes*. National Museum, Dublin.

C. J. McGrath; T. J. Beausang; D. F. Murphy; P. J. Sharkey:

Application of Electricity to Freshwater Fishery Management and Development in Ireland. EIFAC. Occasional Paper No. 3. Food and Agricultural Organisation of the United Nations, Rome.

