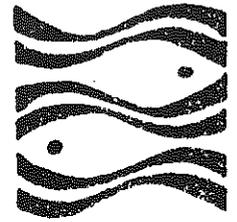


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THE SEA TROUT YEAR 1984

By

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Fisheries Leaflet Number 127

Summary

Climatic conditions favourable to sea trout production continued their decline in 1984 and the indicators are now at their lowest since records commenced in 1948. The exodus of juvenile trout was poor and the age composition of landings in the Waterville fishery suggests finnock were not well represented in the summer catches. The reduced descent of juveniles to the sea and an upward tendency in the mean smolt age of newly recruited fish combine to reduce the prospects for specimen sea trout in the short term. In 1984 seven of these fish were reported, corroborating the reported cyclical trends in their production.

All indicators of the rod catch suggest that a reduction in landings took place in 1984, from 1983. The average weight of individual sea trout taken was higher than in the previous year, due to a relatively poor finnock run. The ratio of sea trout to salmon fishing days was far higher than in the previous three years. Whether it represents a genuine switch in interest to the smaller species should be investigated in future years. A scrutiny of licence returns indicates, for the second year, that late season licences yield a high proportion of the total sea trout catch.

Licence returns from commercial engines are difficult to interpret. Both drift and draft, however, suggest reduced landings from 1983, of both salmon and trout.

EXPLOITATION OF SEA TROUT IN 1984

Several indicators to the sea trout catch are examined and reviewed and compared with similar statistics in preceding years. The emphasis in this exercise is on obtaining consistency and agreement among the various statistics which should not be interpreted as absolute figures of yield.

Fishery District Figures

The estimates of total catch were requested on a fishery district basis at the end of the 1984 season from the Regional Fisheries Boards and such information as has been received is given in Table 1. As is generally the case statistics are not available from every fishery district. In keeping with previous years the figures should be interpreted as a single observer's estimate of the numbers of fish captured in the area with which he has greatest familiarity. Although the returns should be regarded as indications of catch rather than accurate totals they should be comparable with similar data collected in the previous year. Overall the trend in Table 1 is a decrease in catch over the previous year's of more than 13%.

Rod and line returns

Angling returns from the 1984 season received by the Department by early April 1985 amounted to 683. The results of their scrutiny are set out in Table 2 where they are expressed in lb, this being the unit most commonly used and best appreciated by fishermen. Elsewhere in the Leaflet the metric system is used.

The weight of sea trout recorded per licence returned from the 1983 season was 4.89 lb or a decrease of 28.2% over the previous year. Both rod and line figures and district inspectors' estimates registered a reduction in yield. The weight of sea trout captured per rod day also disimproved. In previous years the number of licenced rod days devoted to sea trout was consistently in the region of one in three, the other two being spent in the pursuit of salmon. In 1984 there was a sharp departure from this, four times as much effort being lavished on sea trout as on salmon. Whether this is an artefact of the particular licenses sent in to the Department or whether it represents a new trend in game fishing remains to be confirmed.

Interpretation of angling returns

Deriving accurate catch figures from small numbers of anglers' returns is complicated by a number of factors. Several studies report that only the more successful anglers make returns and there are indications that the sub-total reported by these may constitute a very large proportion of the total catch. Hence extrapolation of total catch from small numbers of returns is likely to overestimate the yield of a particular fishery. The method of arriving at estimates of catch used in this series of leaflets is to obtain an average yield from the total number of licences scrutinised and multiply this by the total number sold. The advantage of this kind of figure is its comparability with similar estimates in the earlier years of the century. To demonstrate the kind of variation which can occur however the characteristics of information contained in four types of angling licence are shown in Table 3.

Comparison with a similar presentation in 1983 shows that the yield of migratory salmonids to the rod fishery declined from 1983 to 1984. The late season licences for sea trout produced heavy landings, out of proportion with their cost; 1984 was the second season in which this pattern emerged. It is likely to have been partly caused by the summer drought, the fish being captured in greatest numbers when the weather broke later on in the year. The overall impression of the data in Table 3 supports the other indicators of angling performance and is in agreement with the reported decline in catches by all methods.

Drift and draft net catches

Drift and draft net returns have been analysed in the same way over a four year period for comparison (Table 4). Unfortunately, as for 1983, the licence returns did not come in representatively from all fishery regions; 60% of the draft net reports came from the Eastern region where the capture of sea trout by small meshed nets is widely practised as an end in itself.

Problems associated with the interpretation of commercial catch returns revolve around their variation from one district to another. To illustrate this details of landings by draft and drift net in two districts are set out in Table 5.

Specimen sea trout

Seven specimen sea trout were reported captured in 1984, one more than in the previous year. These figures continue to corroborate the theory that specimen trout are produced in cyclical fashion and that conditions favouring their production last occurred in the mid 1970s.

SEA TROUT STOCKS IN 1983

Climatic conditions

According to the criteria on which the environment for sea trout development is evaluated (the number of days annually on which the dry bulb temperature reaches or exceeds 5.6°C at the Shannon synoptic weather station) the unfavourable trend of recent years continued in 1984 (Fig. 1). The number of "growing days" - at 210 - was a further reduction on that recorded the previous year (240). The accumulated growing days for the three years 1982 - 1984 inclusive totalled 683, the lowest reading since 1948 when collection of data at Shannon commenced. A similar statistic for 1973-1975 inclusive was 983 growing days so that there has been a reduction of 300 days between 1975 and 1984 (a reduction of 31%). The mid-seventies were good years for sea trout production, a large juvenile exodus taking place then. The shorter growing seasons of more recent years have resulted in an erratic but generally lower output of juveniles from freshwater. Their divided return to freshwater as sea run fish occurs over a period and these figures are, in turn, depressed.

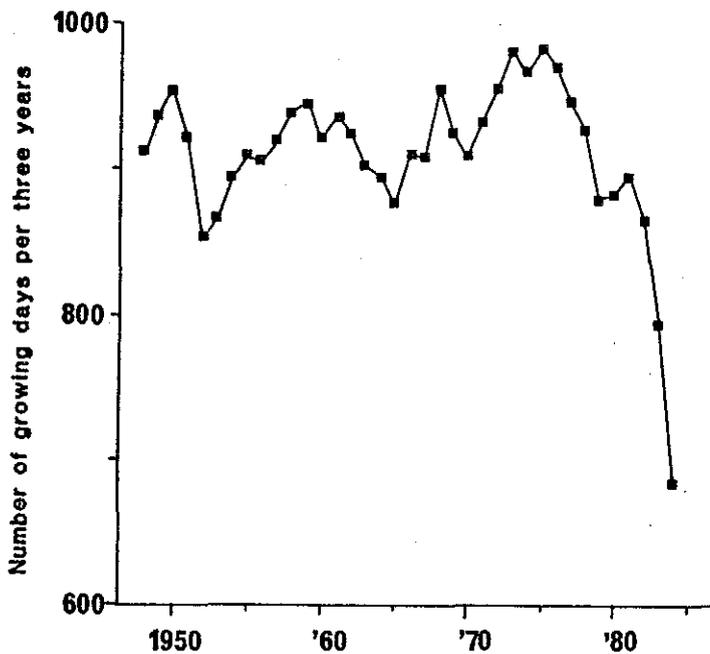


Fig 1 Accumulated "growing days" per three years at the Shannon Synoptic Station, 1948-1984.

Migrations at Burrishoole, Co. Mayo

As in previous reports in this series, data on the migrations of sea trout at Burrishoole were kindly provided by the Salmon Research Trust of Ireland. The total recorded escapement, at 1325 sea run fish, was close to that occurring in 1982. The exodus of juveniles (silvered smolts and autumn descending brown trout) was a further reduction on earlier years (Fig. 2).

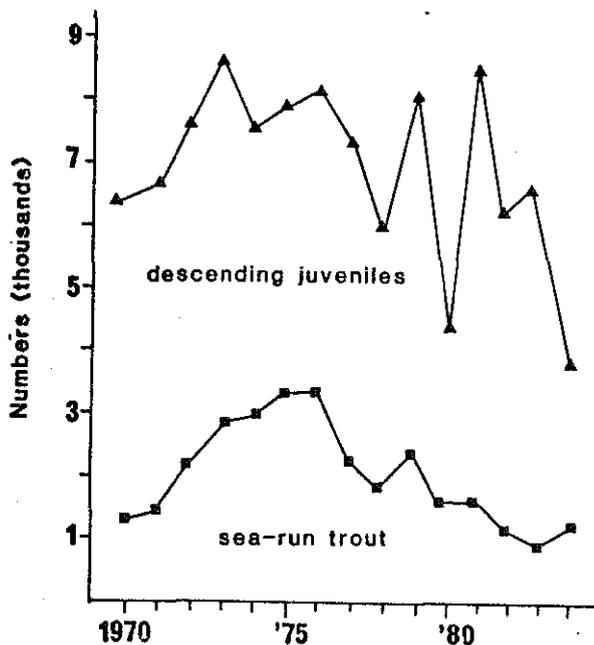


Fig 2 Trout migrations at the Salmon Research Trust, Newport, Co. Mayo 1970-1984.

The Waterville Collection

Sampling of the anglers' catch from Lough Currane was undertaken in 1984 by Fergal Nolan of Regional Technical College Galway during the months of July and August. The prolonged summer drought was inimical to angling and 88 sea run trout made up the sample, a sample size almost identical to that of the previous year.

The sea age distribution frequency of the catch (Fig. 3) differed from the previous year's. In 1984 finnock made up 71% of the catch; the majority of the remaining sea trout were aged one sea winter. These two age categories, finnock and one sea winter fish, are by far of greatest value in the summer fishery and much of the interest in the Waterville work derives from their relative proportions in the anglers' catch.

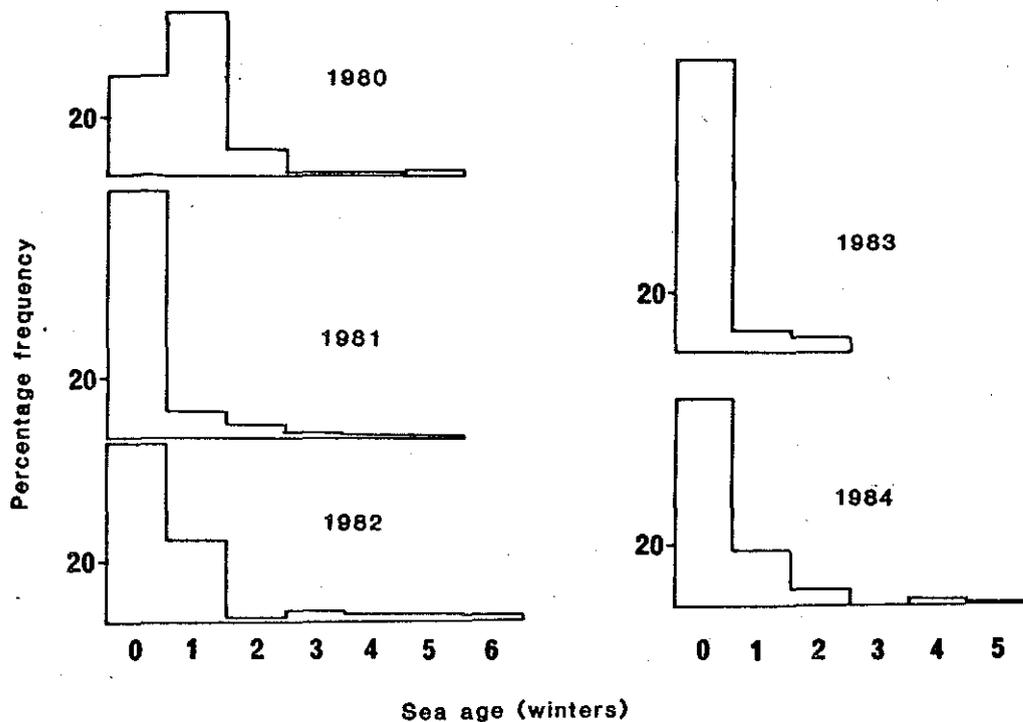


Fig.3 Sea age composition of the Waterville summer catch, 1980-1984

The average weight of individual sea trout in 1984 was 484g, as against 358g the previous year and in 1984 11.6% of the sample were previous spawners. The five years during which sampling has taken place in Waterville, is revealing a pattern in which good finnock years appear to alternate. In the intervening summers the catch contains a higher than otherwise proportion of one sea winter fish, deriving from the heavy smolt exodus of the year before. A similar phenomenon - the numbers of juvenile trout descending seawards coinciding with larger finnock numbers - has been recorded at Burrishoole in Co. Mayo. Further corroborative observations will be necessary to establish whether these phenomena are genuine or apparent.

The mean smolt age among finnock was 2.28 years in 1984, confirming that the decline tentatively identified in 1983 has continued. This trend is contrary to expectation and suggests that at a time of declining growing conditions (with which conditions a reduction in migrating juvenile numbers has been associated) the mean smolt age may fluctuate, possibly in response to the density of juveniles in the nursery streams.

The average length of finnock was 29.5cm in 1984; similar measurements presented in Leaflet number 116 show that this statistic does not vary from one year to another.

REPORTS AND PUBLICATIONS RECENTLY AVAILABLE

Fahy, E. (1984)

The sea trout year 1983

Fishery Leaflet No. 123: 15 pp

The predecessor of this leaflet; reviews stocks and catches in 1983.

Fahy, E. (1984)

Have hatcheries a role in sea trout management?

Fishery Leaflet No. 122: 12 pp

Investigates the value of hatcheries in the production of sea trout.

Fahy, E. (1984)

Landings to the Killorglin fishery, Co. Kerry 1869 - 1965

Salmon Net 17: 38-46

Investigations on sea trout production indicated that environmental conditions in fresh water play a highly influential role deciding the characteristics of the sea run fish. The objective of this paper which analyses salmon landings to a Co. Kerry fishery over a period of a century, is to ascertain whether a similar mechanism operates for this species. Conclusions favour a marine regulator for salmon.

Fahy, E. and R. Rudd (1984)

The use of weight-length relationships in sea trout stocks

Salmon and Trout Magazine 228: 56-63

Looks at variation in condition of sea trout from the Atlantic and Irish Sea coasts of Ireland and proposes a basis for classifying British and Irish stocks.

Fahy, E (1984)

Sea trout and their exploitation by draft net from the Feale and Munster Blackwater Rivers, Southern Ireland.

Fisheries Bulletin (Dublin) 8: 8 pp

An investigation of the nature of landings to two draft net fisheries taking sea trout.

Fahy, E. (1984)

Consequences of marine feeding on the growth of sea trout

Sea trout workshop Plas Menai, Wales October 1984

An account of investigations undertaken in 1979 and 1980

Fahy, E. and W.P. Warren (1984)

Long lived sea trout, sea-run ferox?

Salmon and Trout Magazine 227:72-75

Postulates a close genetic relationship between the great lake trout and long lived sea run fish - such as these frequenting the Waterville fishery.

Table 1 Sea trout captures per fishery district as reported by district inspection staff in 1983 and 1984

| <u>Fishery District</u> | <u>1983</u> | <u>1984</u> | <u>% Change</u> |
|-------------------------|-------------|-------------|-----------------|
| Dundalk | | 2 702 | |
| Drogheda | 4 369 | 1 959 | - 55.2 |
| Dublin | 3 850 | 6 509 | + 69.1 |
| Wexford | 2 617 | 3 169 | + 21.1 |
| Waterford | 828 | | |
| Lismore | 722 | | |
| Cork | 436 | 700 | + 60.6 |
| Kerry | 4 557 | 627 | - 86.2 |
| Limerick | 622 | 1 643 | + 164.1 |
| Galway | 700 | | |
| Connemara | 9 248 | 7 961 | - 13.9 |
| Ballinakill | 4 920 | 3 955 | - 19.6 |
| Bangor | | 1 554 | |
| Ballina | | 430 | |
| Sligo | | 106 | |
| | 30 619 | 26 523 | - 13.4 |

Table 2 Details of licensed rod fishing effort and sea trout catch in 1983 and 1984 from 746 licence returns from 1983 and 683 from the 1984 season.

| | Ratio of sea trout fishing days to salmon fishing days | | Mean weight (lb) of individual sea trout caught | | Average weight (lb) of sea trout caught per rod day | |
|-------------------------------|--|-------|---|------|---|------|
| | 1983 | 1984 | 1983 | 1984 | 1983 | 1984 |
| Dublin | 0.67 | 0.51 | 1.43 | 1.23 | 0.11 | 0.05 |
| Wexford | 1.10 | 1.03 | 0.71 | 0.68 | 0.58 | 0.43 |
| Waterford | 0.06 | 0.05 | 0.91 | 1.00 | 0.49 | 0.39 |
| Lismore | 0.27 | 1.15 | 0.80 | 0.74 | 0.94 | 1.24 |
| Cork | 0.36 | 9.13 | 0.75 | 0.76 | 0.99 | 1.10 |
| Kerry | 0.95 | 3.10 | 1.49 | 1.37 | 1.44 | 0.73 |
| (Currane) | | 3.95 | 1.50 | 1.50 | 1.67 | 1.10 |
| Limerick | 0.45 | 0.53 | 0.65 | 0.77 | 0.22 | 0.13 |
| Galway | 0.45 | 0.24 | 0.88 | 1.07 | 0.69 | 0.76 |
| Connemara | 3.58 | 13.20 | 0.92 | 1.13 | 2.58 | 3.48 |
| Ballinakill | 1.13 | 4.00 | 0.81 | 0.92 | 1.91 | 1.13 |
| Bangor | 1.01 | 2.30 | 1.09 | 1.00 | 1.05 | 0.82 |
| Ballina | 0.30 | 0.29 | 0.85 | 1.05 | 0.70 | 0.28 |
| Sligo | 0.14 | 1.00 | 0.81 | 1.26 | 0.85 | 0.79 |
| Ballyshannon | 1.42 | 3.50 | 0.95 | 0.96 | 0.21 | 0.27 |
| Letterkenny | 0.80 | 1.80 | 0.70 | 0.87 | 0.33 | 0.24 |
| Dundalk | 0.91 | 10.13 | 1.13 | 1.30 | 1.27 | 0.75 |
| Drogheda | 2.33 | 5.2 | 0.83 | 0.94 | 0.83 | 0.30 |
| Averages from national totals | 0.50 | 1.94 | 0.95 | 0.99 | 0.85 | 0.79 |

Table 3 Characteristics of the salmonid catch reported from four categories of rod licence from the 1984 season

| Recorded | A | B | R | P |
|-------------------|------|------|-----|------|
| <u>Sea trout</u> | | | | |
| Number | 6.0 | 3.9 | 1.4 | 6.5 |
| Weight (lb) | 6.0 | 3.4 | 1.5 | 9.5 |
| Days fishing | 6.1 | 6.4 | 1.5 | 13.9 |
| <u>Salmon</u> | | | | |
| Number | 2.9 | 2.1 | 1.1 | 0.9 |
| Weight (lb) | 20.6 | 14.5 | 7.9 | 5.0 |
| Days fishing | 16.1 | 19.0 | 2.4 | 4.1 |
| Licences returned | 212 | 269 | 84 | 91 |

Categories of licence

- A. Annual, all districts, £15
- B. Annual, one district, £ 7
- R. Seven day, all districts £ 5
- P. Late season, one district £ 5

Table 4 Returns from drift and draft licences for the years 1981 to 1984 inclusive.

| DRIFT NETS | | | | |
|---------------------------------------|------|------|------|------|
| | 1981 | 1982 | 1983 | 1984 |
| Weight of Salmon per licence (lb) | 1015 | 566 | 1340 | 581 |
| Number of Salmon per licence | 377 | 83 | 185 | 92 |
| Mean weight individual Salmon (lb) | 6.91 | 6.78 | 7.24 | 6.32 |
| Weight of Sea trout per licence (lb) | 5.5 | 5.3 | 26.0 | 33.6 |
| Number of Sea trout per licence | 2.0 | 1.6 | 8.4 | 10.2 |
| Sea trout as % weight of Salmon | 0.54 | 0.94 | 1.9 | 5.8 |
| Mean weight individual Sea trout (lb) | 2.72 | 3.36 | 3.08 | 3.38 |
| Number of licences returned | 230 | 138 | 57 | 123 |

| DRAFT NETS | | | | |
|---------------------------------------|------|------|-------|-------|
| Weight of Salmon per licence (lb) | 567 | 362 | 601 | 399 |
| Number of Salmon per licence | 76 | 54 | 92 | 60 |
| Mean weight individual salmon (lb) | 7.42 | 6.74 | 6.55 | 6.63 |
| Weight of Sea trout per licence (lb) | 23.9 | 40.1 | 107.6 | 108.4 |
| Number of Sea trout per licence | 13 | 26 | 74 | 56 |
| Sea trout as % weight Salmon | 4.2 | 11.1 | 17.9 | 27.2 |
| Mean weight individual Sea trout (lb) | 1.80 | 1.55 | 1.45 | 1.95 |
| Number of licences returned | 185 | 222 | 101 | 129 |

Table 5 Numbers of Sea trout per drift and draft net, according to returns from two fishery districts in 1984

| District | Species | Nets | |
|----------|-----------|-------|-------|
| | | Drift | Draft |
| Dublin | Salmon | 11.9 | 9.0 |
| | Sea trout | 149.5 | 307.7 |
| Limerick | Salmon | 56.1 | 27.6 |
| | Sea trout | 0.1 | 97.6 |