

SALMON AND TROUT FARMING IN SCOTLAND
REPORT OF RESULTS OF DAFS ANNUAL SURVEY 1981

Responses to a Departmental questionnaire from all known Scottish fish farming companies have been summarised in the following paragraphs which indicate the present state of rainbow trout and Atlantic salmon farming in Scotland. Similar but shorter questionnaires were sent out in 1979 and 1980. The co-operation of the fish farming industry in completing these questionnaires is welcome.

Rainbow trout

Returns were received from 63 companies operating 84 farm sites predominantly in the central and southern areas of Scotland. Trout production has increased from 1279 tonnes in 1979 to 1717 tonnes in 1980 and 2261 tonnes in 1981 - an increase of approximately 32% between 1980 and 1981. The tonnage used for restocking, 100 tonnes, represented a 25% increase on that recorded in 1980.

Some 23.7 million ova were laid down for hatching in 1981, 15 million (63%) from UK farms and 8.66 million (37%) from foreign sources. The Scottish industry itself produced 19.8 million eggs, some of which were sold outside Scotland and some of which were destroyed for lack of sales. The recorded buying in of 5.85 million fry/fingerlings must represent a significant portion of future production. Until a longer series of detailed annual returns are available it is not easy to predict what production will be achieved. However if 50-60% of ova are assumed to survive to market size and the present apparent trade pattern of purchase and sale of fry/fingerlings remains the same, approximately 2700 tonnes of production might be expected in 1982/83.

Trade in fry/fingerlings was significant, the 1.5 million difference between those sold and bought suggest that Scottish farmers are net suppliers. The figures also indicate a considerable degree of specialisation within the industry between farms rearing fry and fingerlings and those fattening market-sized fish and also some significant movements of live fish around the country.

Pond systems continue to contribute the largest proportion of table fish production having increased their tonnage by 32% from 601 tonnes in 1980 to 819.5 tonnes in 1981. Freshwater cage production increased by 52% from 470 tonnes in 1980 to 721 tonnes in 1981 and this is now the second most important production system in terms of both the number of sites and tonnage produced.

Twenty-one new sites were recorded in 1981, some of which contributed to production figures. Forty-seven sites, including all those newly established, produced less than 10 tonnes each whereas the 5 biggest farms produced approximately 800 tonnes or 35% of the total production.

Total manpower employed in Scottish trout farming was 202 of whom 66 were part time staff.

Atlantic salmon

Returns were received from 32 companies operating 27 freshwater and 35 sea sites. Atlantic salmon production increased from 598 tonnes in 1980 to 1133 tonnes in 1981 of which 81.5% was reported as salmon and 19.5% as grilse.

In 1979 834,000 smolts were placed in sea water producing 923 tonnes of salmon in 1981, ie on average one smolt gave an estimated 1.11 kg of two sea winter salmon. To obtain the total weight of fish per smolt it is necessary to add the estimated

1980 grilse weight estimated at 125 tonnes, ie on average one 1979 smolt gave an estimated 1.26 kg of salmon. This compares with a recent claimed conversion rate in Norwegian fish farms of an average of 2.5 kg per smolt. The longer established companies operating in Scotland claim that considerable operational experience is necessary before higher conversion rates can be achieved.

In fact not all smolts placed in sea water survive to harvesting. Based on the foregoing figures and an estimated mean weight at harvest of 3 kg then 404,000 (of which 96,000 were grilse) fish were harvested or 48% of the 834,000 smolts placed in sea water in 1979. The fate of the remainder is unknown. Experience suggests losses are large in the first six months after transfer to sea water compared with losses in the second sea year. Losses of smolts may be attributed to a variety of causes including inability to tolerate sea water salinity, infectious disease, escape, predation and accidents.

Carrying these assumptions forward the estimated total 1982 production is calculated at 1759 tonnes (229 tonnes grilse). This figures is likely to be low if the industry's view that sea water survival is improving continuously is correct. Allowance has been made for an improved grilse conversion rate of 1.4.

The number of smolts placed in sea water in 1981 was 1.539 million, a 10% increase on last year when a 60% increase on the 1979 figure was recorded. This compares with a reported total of six million in Norway for 1981. The number of smolts traded was 498,000, some 32% of the total placed in sea water. This suggests approximately 2 out of 3 smolts were produced by companies with their own smolt production units for their own sea sites.

Any estimate of the 1982 smolt production must be viewed with considerable caution because the ratio of one year (S1) to two year (S2) smolts for the industry as a whole is unknown. Reports vary from 1:5 to 9:1 but in future the ratio may favour the S1 fraction as producers become more experienced. The recorded 1981 S1 numbers were 846,000, and using a ratio of 2:3, the number of S2 smolts in 1982 may be 1,269,000. The S1 smolts in 1982 will be derived from the 8.5 million eggs laid down. Advice from the industry suggests that 1 egg in 3 may survive to reach smolting which gives an estimate of 2.8 million smolts from the 1981 eggs. If the ratio of 2:3 for S1 to S2 smolt production is used 1.08 million S1 smolts may be produced in 1982 which added to the S2s gives an estimated total of 2,349,000 smolts for 1982.

Of the eggs laid down in 1981, 52% were from Scottish farmed sources, 29% from Scottish wild fish and 19% from Norwegian sources.

Total manpower employed in Scottish salmon farming was 261 of whom 56 were part time.

Production of salmon and grilse was reported at 21 sites. No production was recorded at 14 other sites where staff are employed but at which some production is expected in 1982. Approximately 65% of total production of salmon and grilse was from 5 sites. Smolt production was recorded at 20 out of 27 sites whereas ova for hatching were laid down at all sites. Comparison of ova laid down to smolts produced at sites indicates most units plan to increase smolt production; therefore the anticipated increase in smolt production will come from both new sites and significant increases at existing sites.

DAFS

April 1982

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ASDSFB	CEC
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