

**DEPARTMENT OF AGRICULTURE**  
**PRIMARY MARINE LAB.**  
**SALMON AND TROUT FARM 1984 IN SCOTLAND**  
**REPORT OF DATA ANNUAL SURVEY FOR 1983**  
**ABERDEEN**

Responses to a Departmental questionnaire from all known Scottish salmon and rainbow trout farming companies are summarised in the following paragraphs and attached tables 1-4. The cooperation of the fish farming industry in completing these questionnaires is gratefully acknowledged.

#### Rainbow Trout

Returns received from 63 companies (65 in 1982) operating 82 farm sites (85 in 1982) predominantly in the central and southern areas of Scotland show that trout production reached 2009 tonnes, compared with 1918 tonnes in 1982, of which some 147 tonnes (132 tonnes in 1983) were used for restocking angling waters.

Comparison by system of production between 1982 and 1983 showed that freshwater cage production increased by 16% and pond production by 27% whereas sea water cage and tank production dropped by 46% and 36% respectively.

The returns show that some 41 (65%) companies produced less than 25 tonnes each. Those companies are widely distributed throughout Scotland and are believed to be selling to local markets. Their total production of 316 tonnes represented 16% of the total Scottish production. Six companies produced more than 100 tonnes each and at 988 tonnes this represented some 48% of total Scottish production.

Buying of fry/fingerlings was up by 25% to 6.4 millions which may reflect an increase in freshwater cage farming and a trend towards greater specialization within the industry. Sales of 5.8 million fry/fingerlings were the first recorded instance of a net insufficiency of Scottish supplies.

A total of 11.2 million ova were laid down for hatching in 1983 comprising 4.9 million from UK sources and 6.3 million from foreign sources. The total represents only 54% of ova laid down in 1982 and indicates that trout production will probably not expand significantly in 1984. Ova production in Scotland dropped to 14.1 million compared with 20.6 million in 1982.

Total manpower employed was 192 (2 less than in 1982) of whom 74 were part-time staff.

#### Atlantic Salmon

Returns received from 49 companies (41 in 1982), operating 41 freshwater and 62 seawater sites (37 and 46 respectively in 1982), showed that production was 2536 tonnes (2,152 in 1982) of which 1689 tonnes (67% were salmon and 847 tonnes were grilse (1557 (72%) and 595 tonnes respectively in 1982). The mean weights of salmon and grilse were 2.82 and 1.73 kg respectively. The grilse fraction can be significant to at least some members of the industry. The calculations at table 4 indicate that the 1981 smolt intake achieved an overall 61.6% survival and that 36.8% of smolts were harvested as grilse. Based on these figures the 1982 and 1983 smolt intakes indicate that production of less than 3,000 and greater than 4,500 tonnes could be achieved in 1984 and 1985 respectively. The overall survival of the 1981 smolts at 61.6% is a significant improvement over last year's estimate of 52% and may reflect greater overall improvement in sea farm management.

RAINBOW TROUT SURVEY 1983

No. of sites	STAFF Full time	Part time	Total	Eggs Produced on site	UK source	Foreign	Total												
82	118	74	192	14,150,000	4,927,000	6,285,000	11,212,000												
<p>FRY/FINGERLINGS</p> <table border="1"> <thead> <tr> <th>Bought</th> <th>Sold</th> <th>PRODUCTION (TONNES) Table</th> <th>Restock</th> <th>Total</th> <th>No of companies</th> </tr> </thead> <tbody> <tr> <td>6,404,000</td> <td>5,803,000</td> <td>1982</td> <td>147</td> <td>2009</td> <td>63</td> </tr> </tbody> </table>								Bought	Sold	PRODUCTION (TONNES) Table	Restock	Total	No of companies	6,404,000	5,803,000	1982	147	2009	63
Bought	Sold	PRODUCTION (TONNES) Table	Restock	Total	No of companies														
6,404,000	5,803,000	1982	147	2009	63														

TABLE 2

## Analysis of Rainbow Trout Farm Sites by Site System and Scale of Production

Systems	Production (tonnes)						Totals		
		0	< 10	10-25	26-50	51-100	<100	No sites	Tonnes
Ponds		1	12	5	6	3	2	29	828
Tanks		14	7	6	0	2	0	29	265
Freshwater Cages		1	4	4	2	1	4	16	843
Seawater Cages		2	1	5	0	0	0	8	73

ATLANTIC SALMON SURVEY 1983

STAFF	Part Time		Total	NO OF SITES		EGGS		Wild	Foreign	Total
	Full Time			Freshwater	Seawater	Farmed				
283	89	41	372	62	11,842,000	1,476,000	1,596,000	14,914,000		
SMOLTS INTO SEAWATER										
S1			Total		S2	Total				
2,337,070	569,070	883,980	2,906,240		174,500	1,058,480				
SMOLTS SOLD .										
PRODUCTION										
Grilse	Nos.	Salmon	Nos.	Total tonnes	Total numbers	No of companies				
847	490,801	1689	599,252	2536	1,090,053	49				

## Analysis of Production in Atlantic Salmon Farming

1981 Smolt intake

1981	Number of smolts	=	1,539,000
1982	Number of grilse from 595 tonnes at an estimated 1.70 kg each	=	349,139
1983	Number of salmon recorded at harvest	=	599,252
∴ % survival =		$\frac{349,139 + 599,252}{1,539,000}$	= 61.2
and grilse %			= 36.8

1982 Smolt intake

1982	Number of smolts	=	1,686,000
1983	Number of grilse recorded	=	490,801
1984	Estimate of salmon assuming 61.2% survival overall	=	547,775

Estimate of salmon tonnage for 1984 at 2.82kg per fish = 1,545 tonnes

1983 Smolt intake

1983	Number of smolts (Estimate of grilse and salmon numbers and tonnages based on 61.6% survival and 36.8% grilse harvest)	=	2,906,240
1984	Estimate of Grilse numbers	=	658,800
1985	Estimate of salmon numbers	=	1,131,433

∴ Estimate of grilse tonnage for 1984 assuming 1.73kg/fish = 1,140 tonnes

∴ Estimate of total farmed Atlantic salmon tonnage for 1984 = 2,685 tonnes

Estimate of salmon tonnage for 1985 assuming 2.82 kg/fish = 3,191 tonnes

An estimate of grilse tonnage for 1985 is not possible but assuming that smolt numbers put in the sea in 1984 are similar to 1983 then the total farmed Atlantic salmon tonnage for 1985 should be not less than 4,331 tonnes.

**SALMON AND TROUT FARMING IN SCOTLAND**  
**REPORT OF DAFS ANNUAL SURVEY FOR 1984**

Responses to a Departmental questionnaire from all known Scottish salmon and rainbow trout farming companies are summarised in the following paragraphs and attached tables 1-4. The cooperation of the fish farming industry in completing these questionnaires is gratefully acknowledged.

Rainbow Trout

Returns received from 56 companies (63 in 1983) operating 76 farm sites (82 in 1983) predominantly in the central and southern areas of Scotland show that trout production reached 2082 tonnes, compared with 2009 tonnes in 1983, of which some 146 tonnes (147 tonnes in 1983) were used for restocking angling waters.

Comparison by system of production between 1983 and 1984 showed that freshwater cage production increased by 11%, pond production by 5% and sea water cage by 19%; tank production dropped by 26%.

The returns show that some 37 companies each produced 25 tonnes or less comprising 18% of the total production. Six companies operating 9 sites produced 988 tonnes or 47% of total Scottish production.

Purchase and sales of fry/fingerlings were both down by 7% and 8% respectively. Sales were less than purchases showing again a net insufficiency of Scottish supplies.

A total of 20.4 million ova were laid down for hatching in 1984 (11.2 million in 1983) comprising 7.6 million from UK sources and 12.8 million from foreign sources.

Total manpower employed was 180 (12 less than in <sup>1983</sup>~~1982~~) of whom 66 were part-time staff.

Atlantic Salmon

Returns received from 67 companies (49 in 1983), operating 46 freshwater and 83 seawater sites (41 and 62 respectively in 1983), showed that production was

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3912 tonnes (2,536 in 1983) of which 2697 tonnes (69%) were salmon and 1215 tonnes were grilse (1689 and 847 tonnes respectively in 1983). The mean weights of salmon and grilse were 2.55 and 1.66 kg respectively.

The lower average weight of fish harvested as salmon reflects harvesting of fish destined to be salmon before or during their second sea winter. The increased number of the 1983 smolt intake so harvested makes estimation of an accurate survival rate and of production in future years very difficult. However production in 1985 is likely to be of the order of 4,800 tonnes.

This increase will to some extent reflect the increase in smolt production by 25% from the previous year. The proportion of S1 smolts was 85% (80.4% in 1983) reflecting a continued increase in efficiency in smolt production. Smolt sales were over 40% of total production compared to 36% in the previous year. A small number were sold to Norway.

The number of ova laid down was 14.9M, the same as in 1983. This may reduce the rate of increase in production in 1986 but a continuing increase in production should be expected then and in later years. The ova used came from own broodstock 59%, other Scottish farmed broodstock 20%, wild fish 6% and imports from Norway 15%.

Table 4 shows that 5 companies produced 2571 tonnes or 66% of the total farmed salmon production whereas 29 companies produced only 49 tonnes or 1.3%. Most of the latter are of recent origin and their production can be expected to increase significantly in future years.

Total manpower employed was 515 (372 in 1983) of whom 128 (89 in 1983) were employed part time.

There were 188 shipments carrying appropriate health certificate of freedom from VHS virus and the agent of Whirling Disease comprising 87 tonnes of chilled salmon carcasses (42 shipments comprising 8 tonnes in 1983) sent to the USA.

DAFS

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