

SALMON AND TROUT FARMING IN SCOTLAND  
REPORT OF DAFS ANNUAL SURVEY FOR 1986

**FOR  
REFERENCE ONLY**

Responses to a Departmental questionnaire from Scottish rainbow trout and salmon farming companies are summarised in the following paragraphs and attached Tables 1-6. The cooperation of the fish farming industry in completing these questionnaires is gratefully acknowledged.

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**RAINBOW TROUT**

1. Returns received by 59 companies (62 in 1985) operating 77 farm sites (86 in 1985) predominantly in the central and southern areas of Scotland show that trout production was 2,317 tonnes (2,256 tonnes in 1985) of which 207 (141 tonnes in 1985) were used for restocking angling waters. Some 593 tonnes of production were fish greater in weight than 1lb.

Comparison by system of production showed that ponds produced 731.5 tonnes (920 tonnes in 1985) of which 51.5 tonnes were fish greater than 1lb; freshwater tanks produced 307 tonnes (150 tonnes in 1985) of which 62 tonnes were fish greater than 1lb; freshwater cages produced 1,022.4 tonnes (1,105 tonnes in 1985) of which 234.6 tonnes were fish greater than 1lb; seawater cages and raceways produced 246.5 tonnes (81 tonnes in 1985) of which 244.8 tonnes were fish greater than 1lb.

Purchase and sales of fry/fingerlings were respectively 7.13 and 7.01 millions compared to 7.47 and 8.95 millions in 1985. Of the purchased fry/fingerlings 3.47 million were "all female" and 1.06 million were triploid females ie sterile.

A total of 23.03 million ova were laid down for hatching in 1986 (18.01 million in 1985) comprising 9.24 million from UK sources, the rest imported under licence for foreign sources. Of these ova some 5.05 million were "all female" and 1.75 million triploid females.

Total manpower employed was 223 (190 in 1985) of whom 80 were part time.

## ATLANTIC SALMON - SMOLTS

Returns were received from 57 companies operating 111 sites in Scotland of which 45 were cage sites and 66 tank sites. Production was 7.03 million smolts (5.59 million in 1985) of which 6.47 million were S1's and 0.56 million were S2's. Some 2.56 million (36%) were sold. Anticipated production of smolts in 1987 is 15.12 million and from these existing farms 21.7 million in 1988. English production of smolts is estimated by HIDB at 0.41 and 0.66 million respectively in 1987 and 1988. Movements of fry and parr into and out of sites were 14.32 and 15.06 million respectively.

Numbers of ova laid down in 1986 were 38.65 million (16.15 million in 1985) of which 31.96 million were from Scottish farmed broodstock, 4.926 million were from Scottish wild fish (1.31 million in 1985) and 1.75 million were from Norwegian sources (2.47 million in 1985). It was estimated that 58.57 million ova will be produced for hatching in 1987.

Total manpower employed was 288 (171 in 1985) of whom 196 were full time and 92 part time.

## ATLANTIC SALMON PRODUCTION

Returns received from 113 companies operating 168 seawater sites (128 in 1985) showed that production was 10,337.4 tonnes (6,921 tonnes in 1985). The return showed that 4,349.8 tonnes comprising 1,167,790 fish (av wt 3.72kg) were from the 1984 smolt intake. Of the 1984 smolt intake of 3.628 million, 86.5% contributed to production 54.3% in 1985 and 32.2% in 1986. The 1985 smolt intake produced 5,987.6 tonnes comprising 2,408,639 fish (av wt 2.49kg) of which 2,345.5 tonnes comprising 1,089,519 fish (av wt 2.15kg) were harvested by 31 August and 3,642.1 tonnes comprising 1,319,120 fish (av wt 2.76kg) were estimated to be harvested between September and December. Of the 1985 smolt intake of 5.5856 million some 43% have now been harvested. Some 11 sites reared fish in shore based tanks or raceways using pumped seawater the remaining 157 sites used cages. Brood fish were produced in 38 sites. Salmon production in the Western and Northern Isles was 14% and 16% respectively of the Scottish total. Based on past performance figures, the 1986 numbers of smolts to sea and the 1987 estimate of smolt production it is estimated that in 1987 the tonnage will be about 16,000 and in 1988 in excess of 25,000 tonnes. Significant smolt production

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(16.8% in 1987) is centred in the Western Isles but very little (0.81% in 1987) in the Northern Isles.

The companies reported placing 6,590,050 smolts in seawater (the Scottish smolt producers claimed 7.03 million) of which 6.12 million were S1's and 0.47 million were S2's. Within the total of smolts put to sea 179,200 were from English sources.

Total manpower employed was 733 of which 527 were employed full time and 206 part time.

Department of Agriculture and  
Fisheries for Scotland

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TABLE 1

**RAINBOW TROUT**

<u>No of Companies</u>	<u>No of sites</u>	<u>Full time</u>	<u>Staff</u> <u>Part time</u>	<u>Total</u>
59	68 freshwater; 9 seawater	143	80	223

Egg Sources and Numbers ('000)

<u>Own broodstock</u>	<u>Other UK farms</u>	<u>Foreign</u>	<u>Total</u>	<u>Monosex</u>	<u>Monosex and triploid</u>
5,486	3,751	13,790	23,027	5,053	1,750

Fry and Finglerings ('000)

<u>Bought</u>	<u>Sold</u>	<u>Monosex</u>	<u>Monosex and Triploid</u>
7,128.6	7,009.6	3,470.5	1,060

Production (tonnes)

<u>Table</u>	<u>Restocking</u>	<u>Total</u>	<u>Fish &gt;1 lb</u>
2,109.9	206.8	2,316.7	593

Use of Vaccines

16 sites

TABLE 2

## ANALYSES OF RAINBOW TROUT FARM SITES BY SYSTEM AND SCALE OF PRODUCTION

System	Production (tonnes)						Totals		% contribution of each system
	0	<10	10-25	26-50	51-100	>100	No of sites	Tonnes	
Ponds	2	6	7	5	3	1	24	731.5	32
Tanks	9	14	3	2	1	1	30	307.3	13
FW cages	2	2	5	0	0	5	14	1022.4	44
SW cages and raceways	0	5	3	0	0	1	9	255.5	11

TABLE 3

## ATLANTIC SALMON SMOLTS

<u>No of Companies</u>	<u>No of sites</u>	<u>Full time</u>	<u>Staff Part time</u>	<u>Total</u>
57	66 tank, 45 cage	196	92	288

Egg Sources and Numbers ('000)

<u>Own broodstock</u>	<u>Other UK farms</u>	<u>UK wild</u>	<u>Foreign</u>	<u>Total 85-6</u>	<u>Estimate 86-7</u>
18,607	13,356	4,925	1,763	38,651	58,573

Movements of Fry and Parr ('000)

<u>In</u>	<u>Out</u>
14,349	15,051

Use of vaccines

3 sites

Smolt Production ('000)

<u>1986</u>					
<u>S1</u>	<u>Produced as S2</u>	<u>Total</u>	<u>S1</u>	<u>Sold S2</u>	<u>Total</u>
6,471.9	557.9	7,029.8	2,307.2	244.3	2,551.5

Estimate 1987

<u>S1</u>	<u>S2</u>	<u>Total</u>	<u>English production</u>
12,657.3	2,461.5	15,118.8	405.0

Estimate 1988

<u>Scotland</u>	<u>England</u>
21,697	655.0

TABLE 4

ATLANTIC SALMON PRODUCTION

<u>No of Companies</u>	<u>No of Sites</u>	<u>Full time</u>	<u>Staff Part time</u>	<u>Total</u>
113	157 cage, 11 tanks	527	206	733

Smolts and Broodfish

S1	S2	Smolts to sea ('000)		Nos broodstock sites
		Total	From England	
6,122	473	6,595	179	38

Production - from the 1984 smolt intake harvested in 1986

Tonnes	Jan-Aug Nos ('000)	Av weight	Tonnes	Sept-Dec Nos ('000)	Av weight
2,345.5	1,089,519	2.15kg	3,642.1	1,319,120	2.76kg

Jan-Dec (totals)

Tonnes	Nos	Av weight
5,987.6	2,408,639	2.49kg

Production - from the 1985 smolt intake harvested in 1986

Tonnes	Nos	Av weight
4,349.8	1,167.79	3.72kg

Total Production in 1986

Tonnes

10,337.4



TABLE 5

## GROUPING OF ATLANTIC SALMON SEA FARM SITES BY THE SCALE OF THEIR PRODUCTION IN 1986

Production (tonnes)									Totals	
	0	<10	10-25	26-50	51-100	101-200	201-300	>300	Sites	Tonnes
No of sites	51	22	29	19	15	13	12	7	168	10,337.4
% Share of production	0	1.2	4.6	6.9	11.2	17.2	28.8	30		

TABLE 6

## SALMON AND SMOLT PRODUCTION IN VARIOUS REGIONS OF SCOTLAND

	Western Isles	Northern Isles	Rest of Scotland	Totals
1986 salmon (tonnes)	1464.8	1636.8	7235.8	10,337.4
1986 smolts (numbers)	877,500 (12.48)	49,500 (0.70)	6,102,800 (86.81)	7,029,800
Estimated 1987 smolts (numbers)	2,544,500 (16.83)	122,000 (0.81)	12,452,300 (82.36)	15,118,800
Estimated 1988 smolts (numbers)	3,050,000 (14.06)	240,000 (1.11)	18,407,000 (84.84)	21,697,000

