ANNUAL REPORT FOR 1980 ON THE PRODUCTION OF THE SCOTTISH SALMON AND TROUT FARMING INDUSTRY

A postal survey of salmonid fish farm production in Scotland was conducted in November 1980 by the Fisheries Division of DAFS. A 100% reply was eventually achieved, about 60% of farms returning the questionnaire unsolicited, the remainder after further requests. The results are shown in Tables 1 and 2.

SALMON

Table 1 shows salmon production was 598 tons compared to 520 tons in 1979, up by 15%. This increase is disappointing when viewed against the record of five new sea sites in 1978, and three in 1979. The five new sites recorded in 1980 will not begin producing until 1981. The reasons for this shortfall are due to several factors including an acute shortage of smolts in recent years, storm damage, seal and bird predation, furunculosis, plankton induced mortalities and a pancreas disease of unknown cause. An additional problem encountered in 1980 was vibriosis.

Total smolt production (Table 1) was 1,418,000 compared to 834,000 in 1979, an increase of 70%. These figures give considerable cause for optimism that the industry's production will grow significantly in 1981 and 1982 over the 1980 figures. No over-all published figures are available for relating smolt numbers to expected tonnage of salmon in Scottish waters but the following are offered for guidance. Losses in the first sea year commonly range from 10-40%, the grilse fraction maturing after one year at sea may be 30%, some 5% loss should be anticipated in the second sea year and the average size of fish after two sea years may be 3kg. Using these figures the 1980 smolts should produce between 1,700 and 2,500 tons of salmon and the 1979 smolts some 1,000 to 1,500 tons with grilse adding to the over-all tonnage each year. These estimates suggest significant increases in production in 1981 and 82 over previous years. Smolt production based on existing production, verbal estimates of the maximum capacity of existing units and for new units under construction, exceeds the 1980 production figure by 2-3 times. How soon this may be achieved may depend as much on market forces as management skills.

The staff employed were 152 full-time and 31 part-time. In view of the current rapid growth of the industry, comparison of manpower to production is not considered meaningful.

The development of three pumped seawater tank sites, exclusively in Argyll, is a novel development in Scottish salmon farming. The performance of these capital intensive sites is awaited with interest.

Apart from mortality, the industry is living with maturity problems in smolt production and has to accept a significant grilse fraction. Additionally a chronic shortage of eggs caused by the erratic supply of wild eggs has been compounded by finding IPN virus in one major river source of wild salmon, resulting in withdrawal of that egg supply. In view of expanding future egg requirements in the industry it is inevitable that the bulk of egg supplies must come from farmed brood stocks, a fact salmon farmers must recognise if they have not done so already.

Salmon farming is growing rapidly and as might be expected with a species one stage removed from the wild, and with an evolving technology, the industry is experiencing some technical problems. However, it appears to be developing solutions and gaining confidence in the process.

TROUT

Table 2 shows that a total tonnage of 1,717 tons of trout were produced, up by 35% from the 1979 figure of 1,279 tons. Production was sub-divided by recognising five principal systems of cultivation and classifying each site by the major system employed. Pond production rose from 565 in 1979 to 601 tons, and tank production from 377 to 548 tons the latter because of new capacity. Freshwater cage production increased from 178 to 470 tons; the 2.6 times increase arising mostly from expanding production at existing sites. Sea cage production dropped from 97 to 86 tons. Some 74 tons were used for restocking.

Trout production employed 113 full-time staff and 54 part-time. If we assume the part-timers were employed for $\frac{1}{2}$ a day five days per week then the total staff component is 140 man years which gives a ratio of one man per 12.3 tons per year, a production per man about half that of many continental countries. This low production per man is undoubtedly caused in part by the small production of many sites, 32 producing less than 20 tons.

It is notionally assumed that tank, pond and raceway sites are now utilising most of the available water and therefore little increase in production can be expected from this sector. The freshwater cage sites may expand production further but there are indications that some of the existing sites are near maximum capacity, suggesting growth will not be as rapid in this sector in 1981 compared to 1980. Cage production in sea-water is not expected to increase significantly because of several adverse operating factors including poor survival, limited returns from pan-sized fish and the general interest in developing good sea cage sites for salmon farming.

No exceptional or widespread infectious-disease problems were recognised as occurring during the year.

In conclusion it seems that continued growth in rainbow trout production will depend on the development of new sites.

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RAINBOW TROUT FARMING :

TYPE and NUMBERS of FARM SITES and THEIR PRODUCTION in 1980

Annual Production (tons)	>200	101-200	81-100	61-80	41-60	21-40	5-20	<5	New Farms	Total Farms	Production Type of Sit
'pe and Numbers of Farm Sites											
ned or Earth Pond	-	1	-	2	2	3	8	3	-	19	601
anks	-	1	-	-	2	5	6	6	-	20	548
eshwater Cages	1	-	1	2	-	-	2	2	3	11	470
:awater Cages	-	-	-	-	-	1	3	1	1	6	86
aceways	-	-	-	-	-	-	1	-	-	1	12
Totals	1	2	1	4	4	9	20	12	4	*57	1717**

There are 4 more farm sites wholly or mostly producing eggs, fry and fingerlings for on-growing on other farms.

*74 tons of the total was supplied by 23 farms for restocking

Staff employed: Full time 113 Part time 54

ATLANTIC SALMON FARMING: TYPE and NUMBERS of FARM SITES and THEIR PRODUCTION in 1980

FRESHWATER PRODUCTION of SMOLTS							New Farms	Total
Smolts / Site (,000's)	>150	101-150	51-100	26-50	10-25	<10		1418
No of Sites	2	4	4	0	5	5	3	23

SEAWATER PRODUCTION of SALMON and GRILSE							New Farms	Total
Tons / Site	>200	101-200	51-100	26-50	10-25	<10		598
No of Sites	0	1	5	*5	1	**5	5	22

* 2 farms in this category use pumped sea water otherwise all others use floating cages

** 1 farm in this category also uses pumped sea water

Staff employed: Full time 152 Part time 31