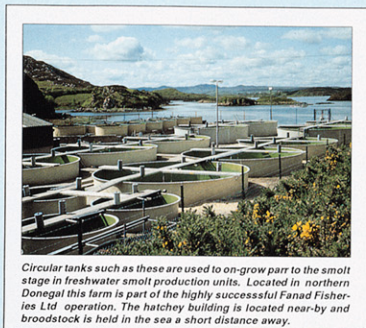


# Farming the Atlantic Salmon

The Atlantic salmon is the "king of fish" in folklore and legend and its sleek outline graces our coinage. For over a dozen years now its cultivation has been practiced full-cycle, bringing to fruition the dreams and hopes of the nineteenth century Irish innovators. The world's first commercially operated salmon hatchery, commenced in Co. Galway in 1852, and the first-ever attempt to cultivate this species in sea-cages was undertaken in Co. Dublin two years later. Now the farming of *Salmo salar*, together with its relative the rainbow trout, *Salmo gairdneri*, employs a thousand people directly at sites all over the country, giving rise to a quality product which is enjoyed at home and abroad.



Circular tanks such as these are used to on-grow parr to the smolt stage in freshwater smolt production units. Located in northern Donegal this farm is part of the highly successful Fanad Fisheries Ltd operation. The hatchery building is located near-by and broodstock is held in the sea a short distance away.

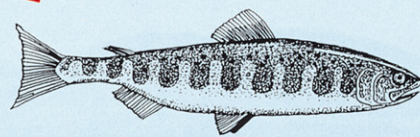


Sturdy Irish-made Wavemaster cages are used here in this western bay to grow salmon smolts right through to commercial size, usually within an 18 month time-span. Large numbers of cages with flexible collars are also in use in the more exposed areas, which characterise Irish salmon farming.

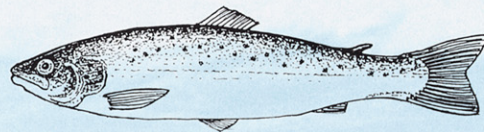
As the fry eats and gains weight, it develops the distinctive markings of a freshwater salmon, weighing in at about a gramme, it is now termed parr.



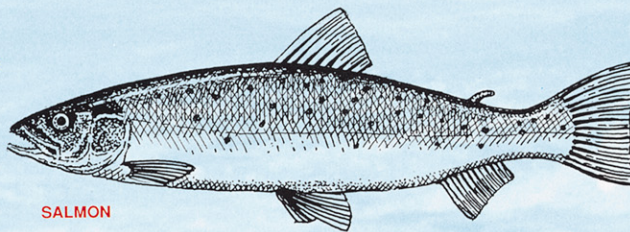
FRY



PARR



SMOLT



SALMON

Grise are salmon which become sexually mature after one Winter in the sea. Physiological changes, render them unsuitable for further cultivation. Much of the fish used in Irish aquaculture has its genetic origin in Norway, where selective breeding has been going on for almost twenty years. The main difference between these and native stock is the high level of two sea Winter fish, ( fish that spend two winters in the sea before maturation) for which there is greater market demand and a higher price.



AQUACULTURE POSTER NO. 1

ALEVIN



When the egg opens, a small fish called an alevin emerges, bearing its own yolk sac, containing food reserves. This stage lasts for up to 290 degree days.

After the yolk sac has been absorbed, the alevin is weaned onto a formulated diet provided by the farmer. This first feeding stage is the test of good husbandry in the hatchery, as the little fish need to be coaxed along to learn the feeding reflex. The alevins are moved from trays to be held in feeding tanks with gently flowing water. Here, housed in subdued light conditions, they learn to search for food.

EGG



In salmon farming the cycle begins with the careful selection of top quality fish for broodstock. Fertilization takes place in the hatchery by gently squeezing the eggs from the female fish and mixing them with the milt, which is pressed out of the males. The fertilised eggs are then incubated indoors for a period of 490 degree days, ( this is the product of the daily water temperature, multiplied by the number of days necessary to give the number 490, ie 49 days at 10 degrees C).

Great effort is taken to ensure that as many of these parr as possible survive to become smolts; the sea going stage of the life cycle. This involves maintaining a healthy environment for the fish in the large outdoor tanks in which they are now held.

Most of the surviving parr will become smolts in the second Spring (S1s.) Some delay a further year (S2s.) The latter are not as desirable from the cultivation point of view.

In fish farming smolts are transported in specially aerated tanks (or by helicopter) to the sea farm.

They reach the sea at a weight of 50 gm or more. By harvest time, one to two years later, they will have reached a size of two to six kg.

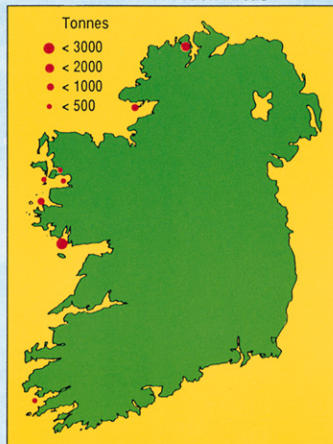
Ireland is famous for smoked salmon and the advent of farming has allowed us to produce more of it on a year 'round basis. Fat content of fish can be programmed exactly to the smokers requirement, by selecting the feeding regime on the farm.



Quality can give the edge in a competitive marketplace. BIM launched a new quality control manual for salmon farming, in conjunction with the Irish Salmon Growers' Association this year. (1990)



## Salmon Production Areas



## Employment 1992

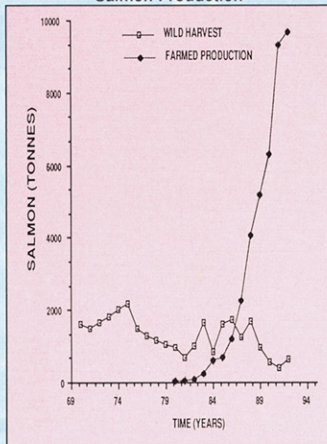
An Official survey conducted in early 1992 by BIM, with the assistance of Udarás na Gaeltachta, revealed direct employment levels in salmon and trout farming as follows

Full - time jobs .....	580
Part - time jobs.....	364
<b>Total Employment .....</b>	<b>944</b>

For each full-time job in farming the Economic and Social Research Institute estimates 1.11 full-time equivalent jobs are produced in the service sector

The nearly 10,000 tonnes of salmon produced in 1992 resulted in farm gate earnings of nearly Ir£40m and significant export earnings.

## Salmon Production



## B.I.M and Aquaculture

BIM is the development agency for the Irish seafood industry. The Aquaculture and Planning Division offers financial, technical and economic services to salmon farming.

The Market Development Division promotes farmed salmon generically, together with other fish and seafood at prestigious international food fairs; the BIM Paris office arranges in-store promotions and other trade development activity. Training courses are also provided on aquaculture.

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