

## AGRICULTURE AND FISHERIES

THEME 5 - 14/2000

#### **FISHERIES**

Introduction

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# **EEA Aquaculture Production** in 1998

#### David Cross

#### Introduction

Aquaculture production in the EEA has continued to increase in the last 15 years (see Figure 1). In 1998 (the latest year for which full data are available) the EEA aquaculture production was 1.75 million tonnes (see Table 1), 12% of the total fisheries production and a 12% increase on the 1997 production. 1.34 million tonnes, 76% of the total and a 12% increase on 1997, was produced in the 15 EU Member States.

The value of the aquaculture production in 1998 was 3 349 million Eur, a 7% increase on 1997. The 15 EU Member States' production was 2 324 million Eur, 69% of the EEA total and a 6% increase on 1997.

In 1998 the EEA aquaculture production was 4.4% of the world production of 39.4 million tonnes. Aquaculture production is very much concentrated in Asia with China producing 27.1 million tonnes, 69% of the world total.

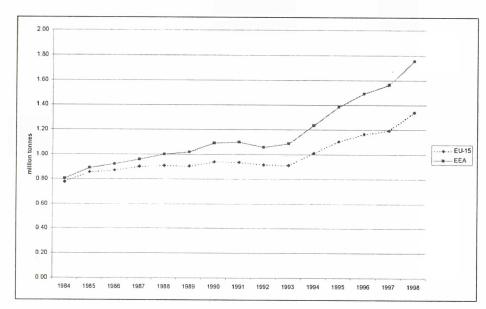


Figure 1: Aquaculture production, 1984-98

#### Production by species group

In 1998, 887 thousand tonnes or 51% of the EEA aquaculture production was of fish species with molluscs accounting for most of the rest (see table 2). Crustaceans made a negligible contribution to the total. Only 54% of the fish production was in the EU. However the EU was responsible for 97% of the mollusc production by volume. EU fish production in 1998 was 7% higher than in 1997, mollusc production was 18% higher.

Fish accounted for 77% of the value of the EEA aquaculture production, the disparity between the contribution of fish to the total volume and value being due to the higher unit value of fish compared with that of molluscs (2 932 Eur/tonne for fish and 863 Eur/tonne for molluscs). The value of both fish and mollusc production in 1998 was 7% higher than in 1997.

Quantity (tonnes live weight)

	All products		Fish		Crustaceans		Molluscs	
	1997	1998	1997	1998	1997	1998	1997	1998
EU-15	1 192 718	1 339 573	456 258	474 930	763	496	730 634	861 085
Α	3 021	2 911	3 018	2 908	3	3	-	-
В	846	846	846	846	-	-	-	-
D	59 433	67 020	37 028	35 732	-	-	22 405	31 288
DK	38 908	42 368	38 908	42 364	-	-	-	4
E	239 504	315 674	37 069	41 364	473	350	201 961	273 960
F	287 332	273 570	70 615	64 502	255	106	216 400	208 900
FIN	16 426	16 024	16 426	16 024	-	-	_	-
GR	48 838	59 926	37 715	45 321	5	3	11 118	14 602
ı	218 719	249 625	70 700	68 600	19	25	143 000	178 000
IRL	36 854	40 355	16 542	17 155	-	-	20 312	23 200
NL	98 210	120 024	3 732	4 385	-	-	94 478	115 639
Р	8 073	8 115	3 011	3 209	o	0	5 062	4 906
s	6 709	5 504	5 276	5 040	8	9	1 425	455
UK	129 845	137 611	115 372	127 480	0	0	14 473	10 131
ISL	3 663	3 868	3 663	3 867		-	0	1
NOR	367 298	409 031	366 796	408 595	-	-	502	436
EEA	1 563 679	1 752 472	826 717	887 392	763	496	731 136	861 522

Value (000 Eur)

	All products		Fish		Crustaceans		Molluscs	
	1997	1998	1997	1998	1997	1998	1997	1998
EU-15	2 194 795	2 324 697	1 491 563	1 577 038	6 869	3 359	694 805	743 372
Α	10 160	13 736	10 074	13 649	87	86	-[	-
В	3 351	3 389	3 351	3 389	-	-	-	-
D	89 117	71 300	77 669	61 771	-	-	11 447	9 528
DK	118 520	135 903	118 520	135 892	-	-	-	11
Ε	222 429	251 727	108 297	121 647	1 874	842	112 258	129 237
F	555 987	543 918	238 594	232 569	4 425	1 875	312 965	309 472
FIN	42 232	44 551	42 232	44 551	-	-	-	-
GR	217 443	245 294	213 416	239 803	52	29	3 976	5 462
[I	358 721	420 251	220 544	246 874	256	334	136 366	172 118
IRL	67 902	72 649	52 553	55 236	-	-	15 349	17 413
NL	72 676	78 106	21 365	23 260		-	51 312	54 846
Р	42 357	45 470	16 748	19 310	o	0	25 608	26 161
s	17 286	16 391	16 485	15 793	175	192	626	406
uĸ	376 613	382 012	351 716	363 293	0	0	24 897	18 719
ISL	12 702	13 889	12 702	13 876	-	-	o	13
NOR	927 501	1 011 141	927 014	1 010 856	-	-	487	285
EEA	3 134 998	3 349 727	2 431 279	2 601 769	6 869	3 359	695 292	743 671

Table 1: EEA aquaculture production, 1997-1998

The unit value of fish production increased in 1998 by 1.5% compared with 1997 (see table 1). Hovever, in the same period the unit value of mollusc production decreased by 9.3%.

	1997	1998
Fish	2 941	2 932
Molluscs	951	863

Table 2: Unit values of EEA aquaculture products (Eur/tonne)

#### **Production by country**

The largest aqualture producer in the EEA in Norway, both in terms of the volume (409 thousand tonnes, 23% of the EEA total) and value (1 011 million Eur, 30% of the total). This production is comprised almost solely of fish (predominently Atlantic salmon).

In terms of volume of production Norway is followed by Spain (316 thousand tonnes, 18% of the total), France (274 thousand tonnes, 16% of the total) and Italy (250 thousand tonnes, 14% of the total). However these three countries depend relatively heavily on mollusc production. At least 40% by volume of their production is of molluscs and, because of the lower unit value of these products, their contribution to the total value of the EEA production is significantly lower (5% for Spain, 11% for France and 8% for Italy).

Countries concentrating largely on fish production as opposed to mollusc production make a significantly greater contribution to the value of EEA production than might be immediately apparent from the volume of production. For example 96% of the UK's aquaculture production is of fish: the UK's contribution to the total EEA aquaculture production is only 8% but the its contribution by value is 11%.

Code	English name	Scientific name	EEA		EU		Unit value
			tonnes	1000 Eur	tonnes	1000 Eur	Eur/tonne
Fish							
SAL	Atlantic salmon	Salmo salar	490 624	1 252 205	127 346	351 242	2 552
TRR	Rainbow trout	Oncorhynchus mykiss	279 577	745 592	232 319	629 858	2 666
SBG	Gilthead seabream	Sparus aurata	35 105	202 049	35 105	202 049	5 755
BSS	European seabass	Dicentrarchus labrax	28 882	189 120	28 870	189 034	6 548
FCP	Common carp	Cyprinus carpio	17 833	35 369	17 833	35 369	1 983
ELE	European eel	Anguilla anguilla	9 588	80 162	9 588	80 162	8 360
Molluscs						/	
MUS	Blue mussel	Mytilus edulis	483 765	220 573	483 498	220 288	455
MSM	Mediterranean mussel	Mytilus galloprovincalis	154 535	90 332	154 535	90 332	584
OYG	Pacific cupped oyster	Crassostrea gigas	149 784	223 314	149 784	223 314	1 490
TPS	Carpet shells	Tapes spp.	48 000	98 647	48 000	98 647	2 055
OYF	European flat oyster	Ostra edulis	5 640	22 532	5 640	22 532	3 995
CTG	Grooved carpet shells	Ruditapes decussatus	4 852	41 639	4 852	41 639	8 581

Table 3: Major species in EEA aquaculture, 1998

#### Major species in EEA aquaculture

Two species, the Atlantic salmon (Salmo salar) and the Rainbow trout (Oncorhynchus mykiss) accounted for 87% by volume and 77% by value of the fish reared in 1998 (see Table 3).



The EEA production of Atlantic salmon in 1998 was 491 thousand tonnes, an 8% increase over that for 1997. In fact the production has increased annually from 1984 with the 1998 EEA production being 18 fold that of 1984 (see Graph 2). In terms of the total salmon production (that is from catches and aquaculture) the EEA aquaculture production was only about 4 times that from catches in 1984 whereas currently it is 119 fold that of the catches.

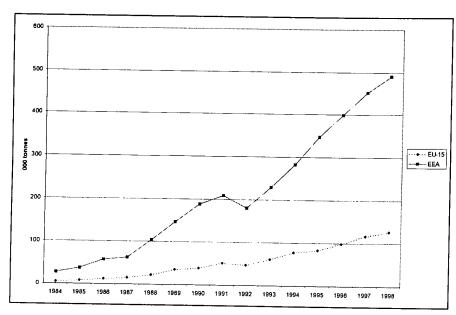


Figure 2: Salmon production (tonnes), 1984-98

The major EEA producer of Atlantic salmon in 1998 was Norway (361 thousand tonnes or 73% of the total EEA production) with the United Kingdom (111 thousand tonnes or 23% of the total) being the only other country to make a significant contribution to the total (see Table 3).

In 1998 the EEA production of Rainbow trout was 280 thousand tonnes with the EU Member States contributing 232 thousand tonnes (83%) to the total. This species is one of the most widely cultivated species in the EU with all Member States being involved and with 5 of them (Denmark, Germany, Spain, France and Italy) each contributing more than 10% to the EU total. The EU production has remained relatively stable at between 200 - 240 thousand tonnes per year since 1990. Only in Norway of the EEA countries has the production increased significantly, from 3.8 thousand tonnes in 1990 to 46.9 thousand tonnes in 1998.

The next most important species, both in terms of volume and value of the production in 1998 was the Gilthead seabream (*Sparus aurata*). The 1998 EEA production of 35.1 thousand tonnes was a 26% increase on that for 1997. Indeed the production has increased by over 32% per year since 1990 when the EEA production was only 3.1 thousand tonnes. The major contribution to the 1998 production came from Greece (22.0 thousand tonnes or 63% of the total) with minor contributions from Italy, France, Spain and Portugal. This species is of particular interest because of its relatively high unit value: 5.8 thousand Eur/tonne in 1998 compared with, for example 2.6 thousand Eur/tonne for Atlantic salmon.

The production of the European seabass (*Dicentrarchus labrax*) shows a very similar picture to that for the Gilthead seabream with the production in 1998 (29 thousand tonnes) being a 26% increase on that for 1997 (23 thousand tonnes) and an average annual increase in production of about 36% since 1990 when the EEA production was 3.3 thousand tonnes. Again the major producing country was Greece with a production of 18.4 thousand tonnes (64% of the total) in 1998 and at 6.5 thousand Eur/tonne the fish has a relatively high unit value.

Common carp (*Cyprinus carpio*) is the species with the longest tradition of being farmed in Europe. In 1998 the EEA production was 17.8 thousand tonnes, a decrease of 7% over that for 1997. In fact production has decreased by 30% from that in 1990 (25.4 thousand tonnes). This was almost entirely due to the production in Germany falling from 19.1 thousand tonnes in 1990 to 10.7 thousand tonnes in 1998. Production in the remaining major producer country, France, has increased slightly over the period, from 4.5 thousand tonnes in 1990 to 5.7 thousand tonnes in 1998 but this has had very little effect on the decline in the total EEA production of the species.



The European eel (*Anguilla anguilla*) is another species with a long tradition of being farmed in Europe. In 1998 the EEA production was 9.6 million tonnes, an increase of 22% on the 1997 figure, due almost entirely an increase in the Danish production. Italy, with a production of 3.2 thousand tonnes in 1998, is the single largest producer of eels. However its production has remained relatively steady since 1990 and the the 41% increase in the total EEA production over the periof is due to a steady increase in the Dutch production and the latest rapid rise in the Danish production. Eel production is particularly important in that the species has a very high unit value (8.4 thousand Eur/tonne in 1998).

The molluscan species of major importance in EEA aquaculture are of three general groups, the mussels, the oysters and the carpet shells. The mussels are the more important in terms of the volume of production but the greater unit value of the oysters more or less equates the two groups in terms of the value the production.

In 1998 the EEA production of the Blue mussel (*Mytilus edulis*) was 484 thousand tonnes, a 24% increase on the 1997 production. However the early 1990's was a period of low mussel production and the current production is now returning to the level prior to 1990. In 1998 the major producer was Spain with 261 thousand tonnes, 54% of the total, followed by the Netherlands with 113 thousand tonnes (23% of the total).

The production of the Mediterranean mussel (*Mytilus provincialis*) was 155 thousand tonnes in 1998, a 24% increase on that for 1997. In fact production has been increasing relatively steadily since separate data for aquaculture production have been compiled (that is, since 1984). The major producer country was Italy with 130 thousand tonnes (84%) of the total, followed by Greece (15 thousand tonnes) and France (10 thousand tonnes).

	Fish		and the second				Mollusc	s		:		
	SAL	TRR	SBG	BSS	FCP	ELE	MUS	MSM	OYG	TPS	OYF	CTG
EU-15	127 346	232 318	35 105	28 870	17 833	9 588	483 498	154 535	149 784	48 000	5 640	4 852
Α	-	1 997	-	-	565	-	-	-	-	-	-	-
В	-	300	-	-	100	125	-	-	-	-	-	-
D	-	25 030	-	2	10 700	-	31 213	-	75	-]	-	_
DК	-	39 696	-	-	-	2 468	-	-	-	-	-	-
Е	798	30 000	4 933	936	-	347	261 062	-	1 043	-	2 545	1 096
F	760	44 730	1 500	3 100	5 655	42	50 000	10 000	143 000	-	2 500	250
FIN	-	15 870	-	-	-	-	-	-	-	-	-	-
GR	11	2 154	21 951	18 469	113	681	-	14 535	-	-	12	-
1	-	48 000	5 500	5 850	700	3 150	-	130 000	-	48 000	0	-
IRL	14 860	2 220	-	-	-	20	18 317	-	4 345	-	340	178
NL	-	51	-	-	-	2 510	113 185	-	-	-	192	-
Р	0	1 251	1 221	513	-	13	310	-	578	-	0	3 325
s	-	4 457	_	-	0	232	455	-	743	-	0	-
UK	110 917	16 563	-	-	0	-	8 956	-	-	-	51	3
					Andre save s							_
ISL	2 742	372	-	12	-	-	-	-	-	-	-	-
NOR	360 536	46 886	-			-	267	-	-	-	-	-
EEA	490 624	279 577	35 105	28 882	17 833	9 588	483 765	154 535	149 784	48 000	5 640	4 852

Table 4: Major species farmed in EEA countries, 1998 (tonnes)



The volume of production of the Pacific cupped oyster at 150 thousand tonnes in 1998 was a little less than a third of that of the Blue mussel but because the unit value of oysters was so much higher (1.5 thousand Eur/tonne compared with 0.5 thousand Eur/tonne for the Blue mussel) the values of the production of the two species were about equal. The volume of production in 1998 was 2% less than in 1997. Indeed over the period for which data are available production has fluctuated in the range from 130 to 150 thousand tonnes without there being any general trend. The major producer of this species is France with, in 1998, 140 thousand tonnes, 93% of the total.

The other oyster species, the European flat oyster (*Ostrea edulis*) has a lower volume of production (5.6 thousand tonnes by the EEA in 1998) but its high unit value (4.0 thousand Eur/tonne) increases the importance of its culture. The 1998 production was 5% above than for 1997 but this is only a step in the process of recovering from low level of production in the early 1990's to the high levels of the mid-1980's. In 1987 the EEA production was 80% above the current level. France and Spain have approximately equal levels of production of these species and between them contribute 89% to the total.

The production of Carpet shells (*Tapes* spp) in 1998 was 48 thousand tonnes, an increase of 20% over that for 1997 but a decrease of 20% over the peak production of 60 thousand tonnes in 1995. This peak was reached with a nearly four-fold increase from the 16.7 tonnes produced in 1990. The reported production of the species is limited to Italy.

The other carpet shells, the Grooved carpet shell (*Ruditapes decussatus*), is produced in smaller quantities (4.9 thousand tonnes in 1998) but it has a high unit value (8.6 thousand Eur/tonne). The production of this species has fluctuated over the period for which data are available (from 1984) with the current production being only 43% of the 11.1 thousand tonnes recorded in 1989. Portual is the major producer of this species (3.3 thousand tonnes, 69% of the total) with Spain (1.1 thousand tonnes, 23% of the total) being the only other country with a significant production.

#### > ESSENTIAL INFORMATION - METHODOLOGICAL NOTES

The statistics on the volume of aquaculture production have ben submitted by the national authorities of the EEA member countries to Eurostat under the terms of Council Regulation (EC) no. 788/96. The data on the value of the production were submitted by the national authorities to FAO on the FISHSTAT AQ questionnaire. The conversion of the value data to Eur was performed by Eurostat.

Eurostat gratefully acknowledges the contribution of FAO to its data-base on aquaculture both from making available the data on the value of the production and for a general control of the data quality.

The volume of the production is recorded in the live weight equivalent of the production. Thus, for example, the volume of the production of mussels and oysters includes the weight of the shells.



### Further information:

Language required: ☐ DE ☐ EN ☐ FR

#### Reference publications

Catalogue No

CD-ROM Fishery Statistics 1950-97 lo CA-27-99-265-3A-Z

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