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FISHERIES RESEARCH SERVICES

Scottish Shellfish Farm Production Survey 2006



INTRODUCTION TO THE YEAR 2006 SURVEY

This report is based on the returns of an annual survey questionnaire sent to all registered Scottish shellfish farming companies. The cooperation of the shellfish farming industry is gratefully acknowledged.

Movement and production forms were sent to 173 companies registered as active before the survey. All return forms were received. One 'wild' mussel fishery registered as a shellfish farm has been excluded from this report. During 2006, eight new companies registered and thirteen de-registered.

The survey showed that, of the 173 companies registered at the end of 2006, 71 recorded no sales during that year. These registered companies farmed 327 active sites, of which 156 (48%) placed shellfish on the market. Shellfish production by company and site is presented.

MD Bland
DI Fraser

March 2007

PRODUCTION

The survey indicates that the shellfish species cultivated in Scottish waters in 2006 were:

Common mussel:	<i>Mytilus edulis</i>
Pacific oyster:	<i>Crassostrea gigas</i>
Native oyster:	<i>Ostrea edulis</i>
Scallop:	<i>Pecten maximus</i>
Queen:	<i>Chlamys opercularis</i>

Total production was dominated by mussel and Pacific oyster. Small numbers of queen, native oyster and scallop were also produced. The 2006 production data for each species by region are given in Table 1.

TABLE 1 : Scottish shellfish production survey 2006. Regional production.

Region	Companies	Pacific oyster (000s)		Native oyster (000s)		Mussel (tonnes)		Queen (000s)		Scallop (000s)	
		Table	On-growing	Table	On-growing	Table	On-growing	Table	On-growing	Table	On-growing
Highland	49	150	213	0	0	432	0	108	0	333	37
Orkney	11	10	0	0	0	4	0	0	0	0	0
Shetland	38	3	0	0	0	2,284	16	0	0	0	0
Strathclyde	59	2,973	1,472	300	0	1,015	52	1,402	0	4	0
Western Isles	16	2	0	0	0	484	0	0	0	0	0
Scotland	173	3,138	1,685	300	0	4,219	68	1,510	0	337	37
Weight (tonnes)		251		24		4,219 68		60		40	

NB: This report only lists those regions from which questionnaires were received.

Conversion to weight used the following assumptions: individual oysters averaged 80g; individual scallops averaged 120g; individual queens averaged 40g.

Table = Sales directly for human consumption; On-growing = Sales to other companies for on-growing.

Table production by species is illustrated in Figure 1, while trends in production for the table market and on-growing in Scotland are presented in Table 2.

There was no significant change in mussel production from 2005 to 2006, markets were maintained and demand remained high. The greatest contribution in regional production was from Shetland, accounting for 2,284 tonnes. Strathclyde produced 1,015 tonnes which, combined with that of Shetland, accounted for 78% of the total production in Scotland. Pacific oyster production increased by 2%, markets were maintained and demand remained high. Ninety-five percent of Pacific oyster were produced in the Strathclyde region. Queen production increased by 5%. Native oyster production increased by 85%, which accounts for a small percentage of total oyster production, targeting a niche market. Production of farmed scallops increased more than three-fold during the year.

Ten Several Orders have been granted for scallop fisheries, nine for commercial companies and one for research and development (Figure 2, see page 5). Seven of these Orders were in Highland region, two in Strathclyde and one in Shetland. The size of the Orders ranged from 6.5 hectares (ha) to as much as 97.4 ha. Reports from industry indicated a strong market for scallops and queens throughout the year.

FIGURE 1 : Table production by species 1997-2006.

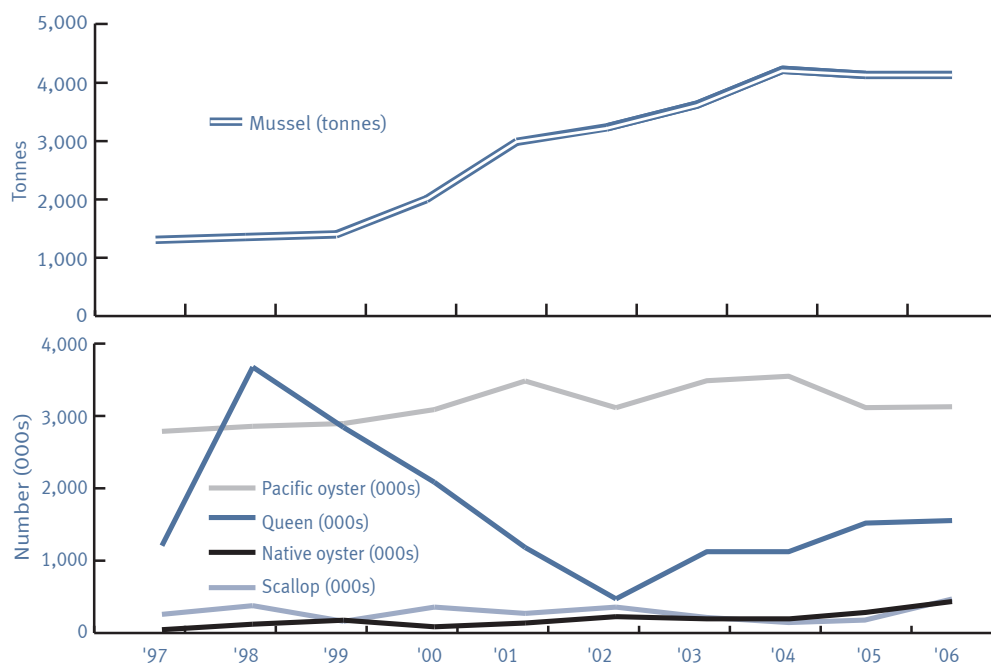


TABLE 2 : Trends in production data for the table and on-growing 1997-2006.

For the table	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	% increase 05-06
Pacific oyster (000s)	2,787	2,857	2,895	3,088	3,483	3,114	3,488	3,586	3,070	3,138	2
Native oyster (000s)	11	87	142	51	103	191	161	105	162	300	85
Scallop (000s)	223	343	127	323	236	323	180	85	100	337	337
Queen (000s)	1,207	3,676	2,842	2,084	1,182	472	1,124	1,118	1,441	1,510	5
Mussel (tonnes)	1,307	1,355	1,400	2,003	2,988	3,236	3,632	4,223	4,135	4,219	2

For on-growing	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Pacific oyster (000s)	1,264	750	502	1,315	881	1,578	2,640	2,510	1,467	1,685
Native oyster (000s)	55	154	1	3	0	0	0	0	0	0
Scallop (000s)	647	49	86	9	485	147	86	80	382	37
Queen (000s)	3,050	0	13	0	200	320	0	600	0	0
Mussel (tonnes)	30	0	3	0	33	4	38	61	20	68

Prices of farmed shellfish fluctuated throughout the year. The value at first sale of the species cultivated was estimated based on the following figures. The price of Pacific oyster varied between £0.21 per shell; native oyster, £0.35 per shell; scallop £0.45 (small), £0.65 - 70 (medium), and up to £1.20 (large), queen sold for approximately £0.07 per shell; and mussel between £800-£1,000 per tonne. The approximate value of the table trade based on these prices and the production figures given in Table 1 is:

Mussel:	£4.2 million	Pacific oyster:	£0.7 million
Native oyster:	£0.1 million	Scallop:	£0.3 million
Queen:	£0.1 million		

The total value at first sale for all species was estimated to be in the region of £5.4 million.

SITES AND COMPANIES

The numbers of registered and active companies and sites are presented in Tables 3 and 4. Many sites held stock not yet ready for market, others were fallow, and some were positioned in remote areas where cost-effective production and marketing of shellfish proved difficult.

Historically, production data have been collected by company. However, since 2002, data have been collected for both company and site, enabling the provision of more accurate site information. One hundred and fifty-six sites were shown to have produced shellfish for sale, an increase of less than 2% since 2005.

TABLE 3 : Registered and active companies 1997-2006.

		Number of Companies									
		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Registered		366	377	386	407	423	437	448	466	478	484
Active		170	171	151	176	173	183	178	175	183	173

TABLE 4 : Active and producing farm sites by region 2006.

		Region					Total
		Highland	Orkney	Shetland	Strathclyde	Western Isles	
<i>Sites</i>							
Active		73	12	107	99	36	327
Producing		32	3	47	58	16	156

Active = growing and placing on the market; Producing = placing on the market for the table and on-growing

FIGURE 2 : A map of Scotland showing the regional distribution of shellfish production sites in 2006, and producing companies by area/species.



Table 5 shows the number of companies by region and by species: a) in production, b) in on-growing and c) showing no production. Many companies cultivate more than one species on site, a practice made possible by similar cultivation techniques. For example, scallop are grown together with queen, Pacific oyster with native oyster, and mussel with Pacific oyster.

TABLE 5 : Number of companies by region and by species 2006.

a) Production for the table

	Region					Total
	Highland	Orkney	Shetland	Strathclyde	Western Isles	
Pacific oyster	6	1	2	19	1	29
Native oyster	0	0	0	1	0	1
Scallop	4	0	0	3	0	7
Queen	2	0	0	2	0	4
Mussel	14	2	24	13	8	61
Total	26	3	26	38	9	102

b) Production for on-growing to other producers

	Region					Total
	Highland	Orkney	Shetland	Strathclyde	Western Isles	
Pacific oyster	2	0	0	6	0	8
Native oyster	0	0	0	0	0	0
Scallop	2	0	0	0	0	2
Queen	0	0	0	0	0	0
Mussel	0	0	2	4	0	6
Total	4	0	2	10	0	16

c) No production but actively on-growing

	Region					Total
	Highland	Orkney	Shetland	Strathclyde	Western Isles	
Pacific oyster	7	2	7	10	1	27
Native oyster	4	1	1	3	0	9
Scallop	7	4	3	4	1	19
Queen	1	2	1	2	1	7
Mussel	16	4	6	8	6	40
Total	35	13	18	27	9	102

NB: A company may produce more than one species

Company production levels by species are shown in Table 6. There were 14 companies producing more than 100 tonnes of mussels, this number did not change from 2005 to 2006. Those fourteen companies produced 65% of the total mussel production in Scotland. The number of companies producing mussels has increased by one since 2005. Ten companies produced more than 100,000 Pacific oysters. This remains unchanged from 2005. These ten companies' production accounted for 85% of the Scottish total.

TABLE 6: Company production levels by species 2006.

Species	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100	Total
Pacific oyster (000s)	11	0	0	1	1	3	0	3	0	0	10	29
Native oyster (000s)	0	0	0	0	0	0	0	0	0	0	1	1
Scallop (000s)	4	1	0	0	0	1	0	0	0	0	1	7
Queen (000s)	1	0	0	1	0	0	0	1	0	0	1	4
Mussel (tonnes)	16	5	5	7	3	4	1	3	1	2	14	61
Total	32	6	5	9	4	8	1	7	1	2	27	102

EMPLOYMENT

The industry employed 160 full-time, 240 part-time and casual workers during 2006. This represented little change from the previous year. The regional breakdown of employment is given in Table 7.

TABLE 7: Regional employment 2006.

Region	Companies	Staff		
		Full-time	Part-time	Casual
Highland	49	23	37	19
Orkney	11	4	7	3
Shetland	38	49	64	23
Strathclyde	59	71	36	31
Western Isles	16	13	16	4
All Scotland	173	160	160	80

HEALTH INFLUENCES ON THE INDUSTRY

In accordance with EC Directive 91/67, native oyster were sampled from nine sites for the notifiable diseases bonamiasis (causative agent, protozoan parasite *Bonamia ostreae*) and marteiliasis (causative agent, protozoan parasite *Marteilia refringens*). Native oyster is a species known to be susceptible to these shellfish diseases. One site in Loch Sunart tested positive for *Bonamia ostreae* in 2006, and movement restrictions were placed on the waters of Loch Sunart, which became an area excluded from the list of approved zones for the disease bonamiasis. Approved Zone status continued to protect the health of both wild and farmed native oyster stocks for the remainder of Scotland's waters.

In accordance with EC Council Directive 95/70, minimum Community measures for the control of certain diseases affecting bivalve molluscs were maintained. A third of all shellfish sites are visited annually by Fisheries Research Services (FRS) Fish Health Inspectorate in accordance with the requirements of the Directive. On these visits, facilities, stock health, movement records and registration details are checked. It is the responsibility of farmers to inform FRS of any abnormal or unexplained shellfish mortality on their sites.

Reported mortalities were attributed to predation by eider ducks, crabs, starfish and oyster catchers. Losses were also reported due to storm damage, plankton blooms, warm weather and mechanical grading.

SUMMARY

- Mussel and Pacific oyster are the main species produced in terms of value and tonnage. There was little change in the production of mussel and Pacific oyster;
- There has been an increase in the production of native oyster, queen and scallop, however, scale of production remained low;
- Scallop production increased more than three-fold in 2006;
- Employment levels showed little change from the previous year;
- Surveillance for the shellfish diseases bonamiasis and marteiliasis was maintained during the year. One site in Loch Sunart tested positive for *Bonamia ostreae*, and movement restrictions were placed on the waters of Loch Sunart, which became an area excluded from the list of approved zones for the disease bonamiasis.
- For shellfish health purposes, one third of all shellfish sites was inspected by FRS Fish Health Inspectorate during 2006;
- The industry continued to be dominated by small producers, although there was a continued trend toward large companies contributing significantly to the annual production of all species;
- The market for all species was buoyant throughout the year.

GLOSSARY

Active sites	Farms in a production growing cycle which may contain stock or be fallow
Inactive sites	Farms not in a production cycle, without stock and not to be used by the company again
Several Order	An area of the seabed severed from the public right to fish, in order to conserve or enhance named shellfish stocks