

# Scottish Shellfish Farm Production Survey



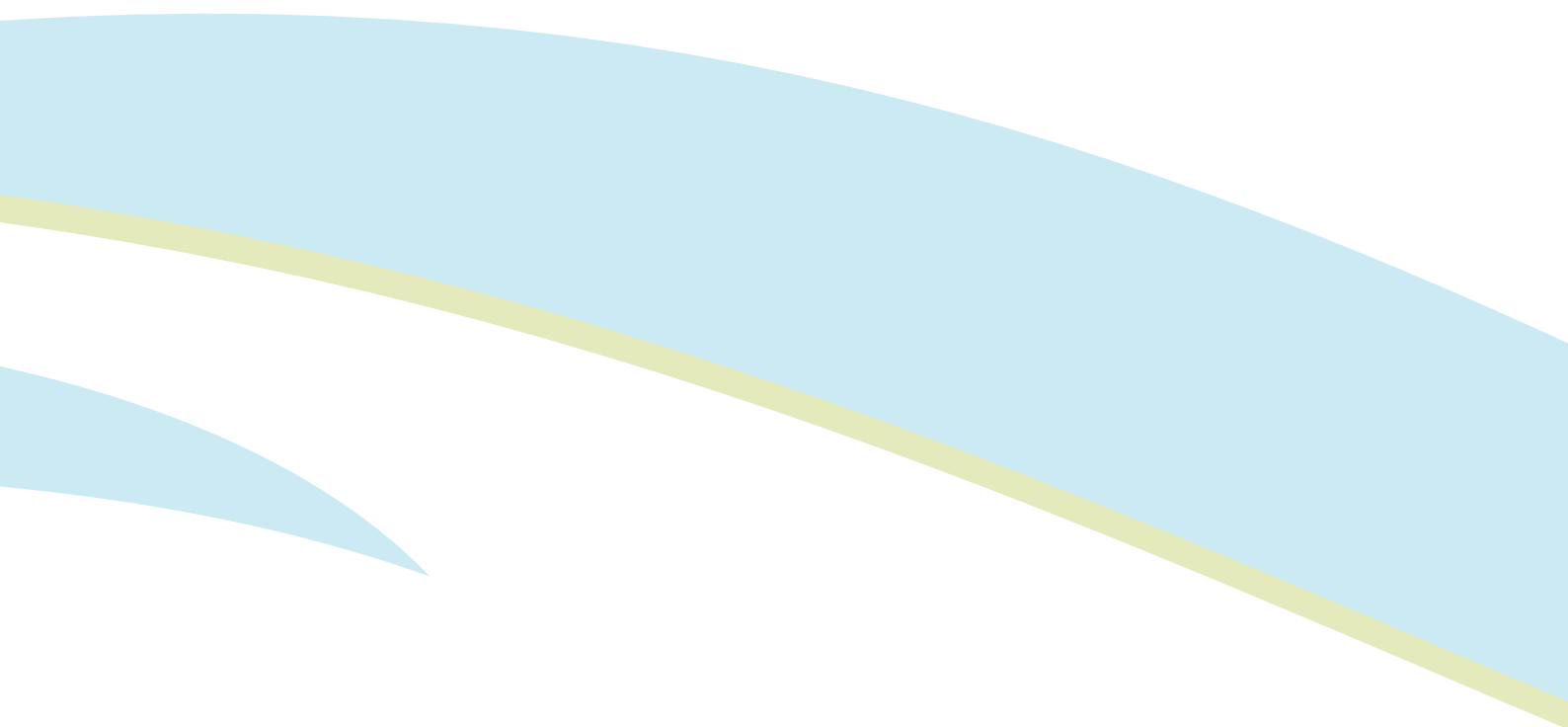
2009 report



marine scotland  
science



# SCOTTISH SHELLFISH FARM PRODUCTION SURVEY 2009



**Written and compiled by : AS Mayes and DI Fraser**

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## // INTRODUCTION TO THE YEAR 2009 SURVEY

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

Production survey questionnaires were sent to 169 businesses registered as active during 2009 (*see* Appendix 1, p.12). All return forms were received. One 'wild' mussel fishery registered as a shellfish farm has been excluded from this report. During 2009, seven businesses registered and seven de-registered.

The survey showed that, of the 168 businesses registered at the end of 2009 and included in this report, 72 recorded no sales during that year. These 168 registered businesses farmed 319 active sites, of which 150 (47%) placed shellfish on the market. Shellfish production by company and site is presented. Data from previous years have been reassessed and updated where necessary.

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**May 2010**

## // PRODUCTION

The survey indicates that the shellfish species cultivated in Scottish waters in 2009 were:

Mussel:	<i>Mytilus spp.</i>
Pacific oyster:	<i>Crassostrea gigas</i>
Native oyster:	<i>Ostrea edulis</i>
Queen:	<i>Chlamys opercularis</i>
Scallop	<i>Pecten maximus</i>

Production was dominated by mussel and Pacific oyster. Small quantities of queen scallop (queen), native oyster and king scallop (scallop) were also produced. The 2009 production data for each species by region are given in Table 1.

TABLE 1 : SCOTTISH SHELLFISH PRODUCTION BY REGION, 2009.

Region	Businesses	Mussel		Pacific oyster		Native oyster		Queen		Scallop	
		(tonnes)		(000s)		(000s)		(000s)		(000s)	
		Tonnes Table	000s on-growing	000s Table	000s on-growing	000s Table	000s on-growing	000s Table	000s on-growing	000s Table	000s on-growing
Highland	49	718	0	302	0	0	0	10	0	35	0
Orkney	8	0	0	0	0	0	0	0	0	0	0
Shetland	34	3,698	138	0	25	0	0	0	0	0	0
Strathclyde	51	931	2	2,593	20	490	0	128	30	0	0
Western Isles	16	955	35	5	0	0	0	0	0	0	0
All Scotland	158	6,302	175	2,900	45	490	0	138	30	35	0
Weight (tonnes)		6,302	175	232		39		6		4	

NB: THIS REPORT LISTS REGIONS WITH ACTIVE REGISTERED SHELLFISH FARMS.

CONVERSION TO WEIGHT USED THE FOLLOWING ASSUMPTIONS (BASED ON INDUSTRY FIGURES): INDIVIDUAL OYSTERS AVERAGED 80g; INDIVIDUAL SCALLOPS AVERAGED 120g; INDIVIDUAL QUEENS AVERAGED 40g. TABLE = SALES DIRECTLY FOR HUMAN CONSUMPTION; ON-GROWING = SALES TO OTHER BUSINESSES 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.

Mussel production increased by 7% from 2008 to 2009, showing a continued increasing trend. The greatest contribution in regional mussel production was from Shetland, accounting for 3,698 tonnes or 59% of Scotland's total. Pacific oyster production decreased by 6% from 2008. This reduction was partly due to two of Scotland's largest producers changing their production strategy in 2009. Eighty-nine percent of the Pacific oysters were produced in the Strathclyde region. Queen production decreased by 80% on the 2008 total, reportedly due to poor spat settlement. Production of farmed



scallops showed a significant increase of 133% on the previous years' total; continuing to target a small niche market. This follows disappointing production in 2007 and 2008 reportedly as result of poor spat recruitment. Native oyster production almost doubled on the 2008 total to 490 tonnes, highest production for over ten years. Native oyster production continues to account for a small percentage of the total oyster production, and targets a niche market.

Eleven Several Orders remain in place for fisheries, two of which include native oyster (Fig. 2, see page 6). Seven of these Orders were in Highland region, two in Strathclyde and two in Shetland. The size of the Orders measure from 18m<sup>2</sup> up to 31 ha.

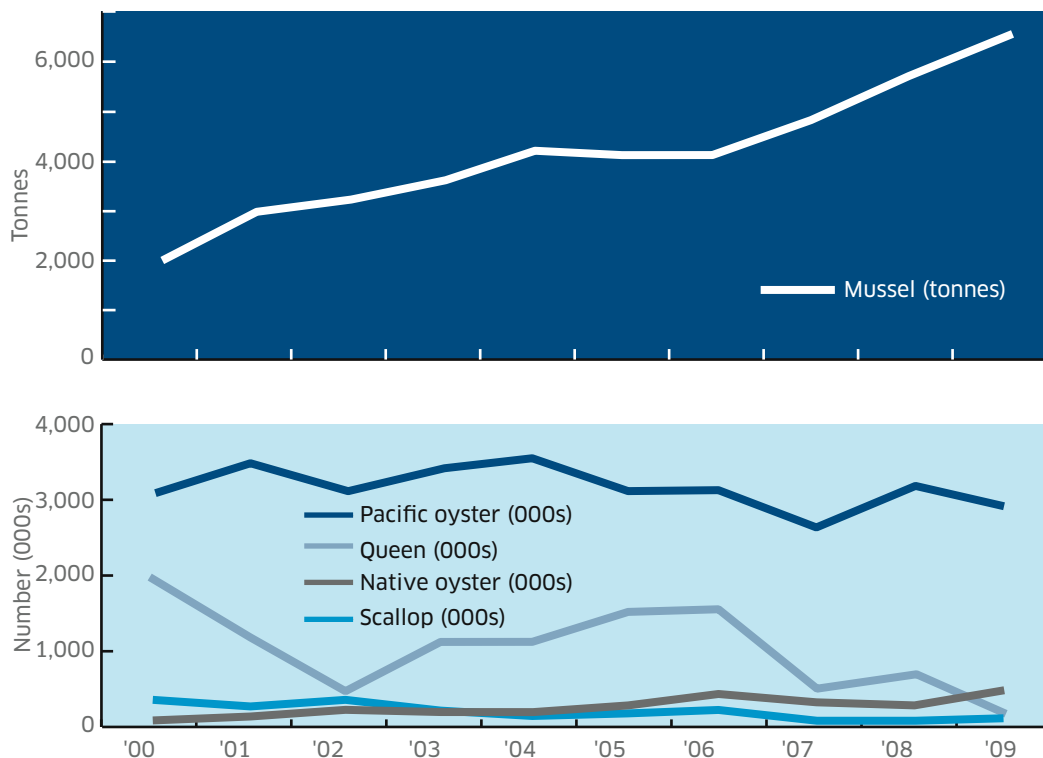


FIGURE 1  
TABLE PRODUCTION BY SPECIES 2000-2009.

TABLE 2

TRENDS IN PRODUCTION DATA FOR THE TABLE AND ON-GROWING 2000-2009.

For the table	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	% change 08-09
Pacific oyster (000s)	3,088	3,483	3,114	3,488	3,586	3,070	3,138	2,603	3,093	2,900	-6
Native oyster (000s)	51	103	191	161	105	162	300	273	250	490	+96
Queen (000s)	2,084	1,182	472	1,124	1,118	1,441	1,510	384	687	138	-80
Scallop (000s)	323	236	323	180	85	100	87	15	15	35	+133
Mussel (tonnes)	2,003	2,988	3,236	3,632	4,223	4,135	4,219	4,806	5,869	6,302	+7

For on-growing	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Pacific oyster (000s)	1,315	881	1,578	2,640	2,510	1,467	1,685	945	26	45
Native oyster (000s)	3	0	0	0	0	0	0	10	0	0
Queen (000s)	0	200	320	0	600	0	0	0	0	30
Scallop (000s)	9	485	147	86	80	382	287	45	0	0
Mussel (tonnes)	0	33	4	38	61	20	68	44	30	391

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 was around £0.41 per shell; native oyster, £0.27 per shell; scallop, £0.50 per shell; queen's sold for approximately £0.09 per shell; and mussel's for £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:	£6.3 million	Pacific oyster:	£1.2 million
Native oyster:	£0.13 million	Scallop:	£0.02 million
Queen:	£0.01 million		

The total value at first sale for all species was estimated to be in the region of £7.66 million.

## // SITES AND BUSINESSES

The numbers of registered and active businesses 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 sites produced shellfish for sale in 2009, a decrease of 1% since 2008.

TABLE 3  
REGISTERED AND ACTIVE BUSINESSES 2000-2009.

		Number of Businesses									
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Registered		407	423	437	448	466	478	484	495	497	505
Active		176	173	183	178	175	183	173	170	168	168

TABLE 4  
ACTIVE AND PRODUCING FARM SITES BY REGION 2009.

	Region					
	Highland	Orkney	Shetland	Strathclyde	Western Isles	All Scotland
Sites						
Active	77	9	109	83	41	319
Producing	31	1	50	45	23	150

ACTIVE = GROWING AND PLACING ON THE MARKET. PRODUCING = PLACING ON THE MARKET FOR THE TABLE AND ON-GROWING

FIGURE 2  
 REGIONAL DISTRIBUTION OF ACTIVE SHELLFISH SITES IN 2009 (NUMBER PRODUCING GIVEN IN BRACKETS) AND  
 NUMBER OF PRODUCING BUSINESSES BY AREA/SPECIES.

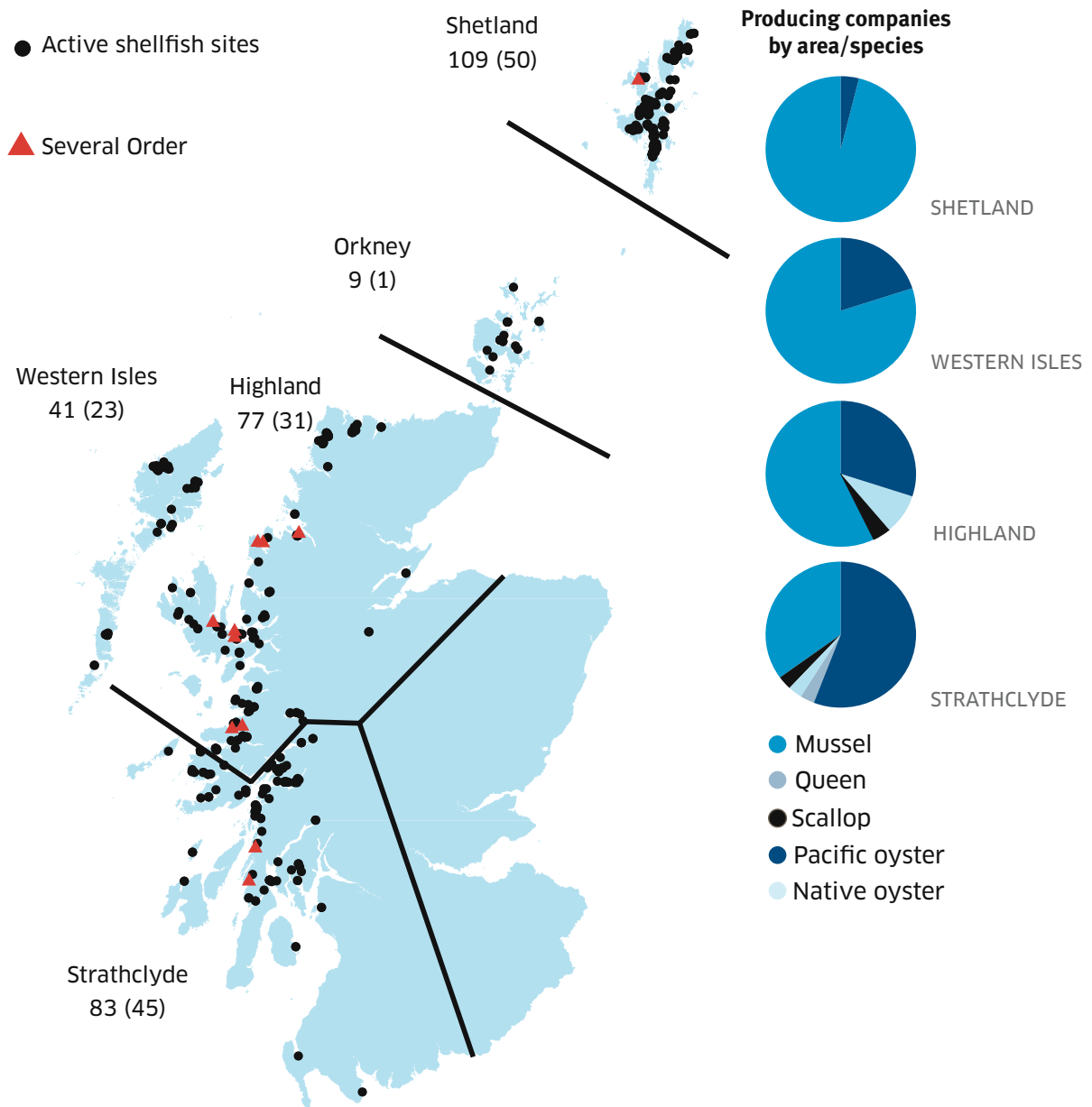


Table 5 depicts the number of businesses by region and by species: A) in table production, B) in on-growing production and C) showing no production. Many businesses cultivate more than one species on site, a practice made possible by similar cultivation techniques. For example, scallop can be grown together with queen, Pacific oyster with native oyster, and mussel with Pacific oyster.

TABLE 5  
NUMBER OF BUSINESSES BY REGION AND BY SPECIES 2009.

A) PRODUCTION FOR THE TABLE

	Highland	Orkney	Region Shetland	Strathclyde	Western Isles	All Scotland
Pacific oyster	7	0	1	18	2	28
Native oyster	0	0	0	1	0	1
Scallop	2	0	0	1	0	3
Queen	1	0	0	1	0	2
Mussel	13	0	22	11	8	54
<b>Total</b>	<b>23</b>	<b>0</b>	<b>23</b>	<b>32</b>	<b>10</b>	<b>88</b>

B) PRODUCTION FOR ON-GROWING TO OTHER PRODUCERS

	Highland	Orkney	Region Shetland	Strathclyde	Western Isles	All Scotland
Pacific oyster	0	0	1	1	0	2
Native oyster	0	0	0	0	0	0
Scallop	0	0	0	0	0	0
Queen	0	0	0	1	0	1
Mussel	1	0	2	1	1	5
<b>Total</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>8</b>

C) NO PRODUCTION, ACTIVELY ON-GROWING OR FALLOW

	Highland	Orkney	Region Shetland	Strathclyde	Western Isles	All Scotland
Pacific oyster	1	1	5	11	1	19
Native oyster	3	0	2	2	0	7
Scallop	5	1	2	2	1	11
Queen	2	1	0	0	1	4
Mussel	21	5	5	8	5	44
<b>Total</b>	<b>32</b>	<b>8</b>	<b>14</b>	<b>23</b>	<b>8</b>	<b>85</b>

NB: A company may produce more than one species and in more than one area.

Company production levels by species are shown in Table 6. There were 17 businesses producing more than 100 tonnes of mussels, a decrease of three businesses since 2008. Those 17 businesses produced 76% of the total mussel production in Scotland. Eight businesses produced more than 100,000 Pacific oyster, this has remained the same since 2008. These eight businesses' production accounted for 74% of the Scottish total.

TABLE 6  
COMPANY PRODUCTION LEVELS BY SPECIES 2009.

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)	8	3	3	1	0	2	0	1	0	2	8	28
Native oyster (000s)	0	0	0	0	0	0	0	0	0	0	1	1
Scallop (000s)	1	0	0	0	0	0	0	0	0	0	1	2
Queen (000s)	2	0	1	0	0	0	0	0	0	0	0	3
Mussel (tonnes)	8	5	4	2	3	4	2	7	1	1	17	54
<b>Total</b>	<b>19</b>	<b>8</b>	<b>8</b>	<b>3</b>	<b>3</b>	<b>6</b>	<b>2</b>	<b>8</b>	<b>1</b>	<b>3</b>	<b>27</b>	<b>88</b>

## // EMPLOYMENT

The industry employed 169 full-time, 176 part-time and casual workers during 2009, an increase of 20 full-time and a decrease of 23 part-time and casual employees since 2008. The regional breakdown of employment is given in Table 7. The number of people employed by the shellfish industry in the Highlands, Orkney and the Western Isles fell by 7%. The number of people employed in Strathclyde stayed the same and employment rose by 2% in Shetland. The total number of people employed in the shellfish industry fell by 1% in 2009 from the 2008 total of 348.

TABLE 7  
REGIONAL EMPLOYMENT 2009.

Region	Businesses	Staff						Total
		Full-time Male	Full-time Female	Part-time Male	Part-time Female	Casual Male	Casual Female	
Highland	49	28	2	18	6	15	3	72
Orkney	8	0	0	3	0	1	0	4
Shetland	34	47	7	32	12	8	3	109
Strathclyde	51	60	7	27	5	19	5	123
Western Isles	16	16	2	14	2	2	1	37
<b>Scotland</b>	<b>158</b>	<b>151</b>	<b>18</b>	<b>94</b>	<b>25</b>	<b>45</b>	<b>12</b>	<b>345</b>

## // HEALTH INFLUENCES ON THE INDUSTRY

In accordance with Council Directive 2006/88/EC, a risk based programme of 65 shellfish site inspections was undertaken during 2009. On these visits, facilities, stock health, movement records and registration details were checked. In addition, native oysters were sampled from six 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. Movement restrictions placed due to confirmation of the presence of *Bonamia ostreae* remained in place in Loch Sunart and in West Loch Tarbet during 2009. Movement restrictions in place covering both sea lochs prevent the relaying of native oyster from them (see Appendix 2, p.19 for maps of areas under movement restrictions). Approved Zone status continued to protect the health of both wild and farmed native oyster stocks for the remainder of Scotland's waters.

Reported mortalities were generally low and attributed to predation by eider ducks, crabs, starfish and oyster catchers. Losses were also reported due to storm damage and fouling. It is the responsibility of farmers to inform Marine Scotland of any abnormal or unexplained shellfish mortality on their sites (see guidance on shellfish mortality in Appendix 1, p.12-17)

In March 2010 Commission Regulation No 175/2010 was introduced to implement Council Directive 2006/88/EC as regards measures to control increased mortality in Pacific Oysters (*Crassostrea gigas*), in connection with the detection of Ostreid Herpes Virus OsHV-1  $\mu$ var. A Declaration of a Scottish surveillance programme for 2010 is outlined at [http://www.frs-scotland.gov.uk/Delivery/Information\\_Resources/information\\_resources\\_view\\_document.aspx?contentid=3387](http://www.frs-scotland.gov.uk/Delivery/Information_Resources/information_resources_view_document.aspx?contentid=3387)

Authorised operators farming Pacific oysters must notify Marine Scotland Science, Fish Health Inspectors (FHI) immediately of any unexplained increased mortality on site, prompting an investigation by the FHI. There is no evidence of the presence of Oyster Herpes Virus in Scottish waters to date; surveillance in 2010 will test for the pathogen in Pacific oyster production areas with the aim of controlling imports from infected areas, to uninfected areas within Scottish waters.

## // SUMMARY

- Mussel and Pacific oysters remain the main species produced in terms of both value and tonnage. Mussel production increased by 7% while Pacific oyster production decreased by 6% during 2009;
- There has been an increase in scallop production in 2009, however, production levels remain low. Poor results from spat recruitment have reportedly led to low production in recent years, and this is also associated with the decline in queen scallop production;
- Native oyster production has increased from 250 tonnes to 490 tonnes, again targeting a strong niche market;
- Employment levels showed a 1% decrease from the previous year with 345 full, part-time and casual staff being employed during 2009;
- Surveillance for the shellfish diseases Bonamiasis and Marteiliasis was maintained in 2009. Movement restrictions remain in place for the presence of *Bonamia ostreae* at Loch Sunart and West Loch Tarbet;
- For shellfish health purposes, 65 out of 319 sites were inspected during 2009 as part of risk based surveillance under Council Directive 2006/88/EC;
- A surveillance programme of Pacific Oyster farm sites is to be undertaken in 2010, to detect any occurrence of OsHV-1  $\mu$ var. Immediate notification of increased mortality on farm sites must be reported to Marine Scotland Science, Fish Health Inspectorate.
- The industry was dominated by small producers, although there was a continued and marked trend toward large businesses contributing to the annual production of all species.



## // 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 in the foreseeable future
- Several Order** An area of the seabed severed from the public right to fish, in order to conserve or enhance named shellfish stocks

## // APPENDIX 1

Covering Letter and Guidance Notes

**marine**scotland

T: +44 (0)1224 876544 F: +44 (0)1224 295511  
enquiries@marlab.ac.uk



Ref no; FRS/09/0137

18 December 2009

Dear Sir/Madam

### **ANNUAL RETURNS OF SHELLFISH FARM PRODUCTION - 2009**

For the year 2009 we seek production data from your business and site(s).

I enclose forms requesting information on your shellfish farming enterprise and a self-addressed envelope for their return. Alternatively these forms can be issued electronically upon request by contacting [fishhealth@marlab.ac.uk](mailto:fishhealth@marlab.ac.uk) providing business name, number and correspondent name. FORMS (a) & (b) will then be issued to you electronically for completion and return to [fishhealth@marlab.ac.uk](mailto:fishhealth@marlab.ac.uk).

The data you supply to Marine Scotland is of great assistance to the Scottish Government. It is our intention to continue to publish the data in a summarised form in the SGMD Scottish Shellfish Farms Annual Production Survey 2009 which should be available in the spring of 2010. I should inform you however that Marine Scotland would be obliged to consider any request it receives in relation to this under the Freedom of Information (Scotland) Act 2002 (FOISA) and the Environmental Information (Scotland) Regulations 2004 (EISRs).

**FORM (a) requests data on production by business.**

**FORM (b) requests data on production, facility size and number of shellfish movements by site(s) and by species. There have been changes to the type of information requested on this form since 2008. Guidance notes regarding these have been provided.**

FORM (b) can accommodate one site return. If your business operates more than one site, extra forms have been provided. Please note that production recorded by business must equal total production recorded by site. If the business has a nil return please place an X against the species registered as cultured, in FORM (a). This data will allow a more accurate reflection of site production both geographically and by species.

Input into capture based aquaculture should be recorded on form (b).

Recording of movements of live shellfish for on-growing (NOT for the table), on or off-site, should be recorded on FORM (b).

Please note that it is your duty to notify competent authority or a veterinarian if you know or suspect that increasing mortality has occurred or is occurring in aquaculture animals in accordance with the Aquatic Animal Health (Scotland) Regulations 2009. **See guidance notes** for reporting of mortality events where appropriate and registration changes.

Thank you for your co-operation. If you have any queries regarding the survey or shellfish registration please do not hesitate to contact me at the address given below, or telephone 01224 295525 or e-mail [fishhealth@marlab.ac.uk](mailto:fishhealth@marlab.ac.uk).

Please send returns to me by post, or electronically, before 31 January 2010.

Yours faithfully

Fish Health Inspector  
Enc

**Marine Scotland Science**  
**Marine Laboratory**  
 PO Box 101  
 Victoria Road  
 Aberdeen AB11 9DB  
 Tel: 01224 295525  
 Fax: 01224 295620  
 E-mail: fishhealth@marlab.ac.uk



**FORM (a) – BUSINESS PRODUCTION**

**SCOTTISH SHELLFISH FARMS PRODUCTION SURVEY 2009  
 ANNUAL PRODUCTION BY BUSINESS**

Please note that the information provided on this form will remain confidential to the Scottish Government and any summary of information will be framed so that particulars concerning any one business or person cannot be ascertained from it. Please use BLOCK LETTERS and write in INK unless completing electronically:

Please indicate estimated production for 2009 of shellfish for:

- A) the table (which should include any shellfish sent for depuration or cleansing, or temporarily held in other waters or tanks etc, prior to consumption or processing), AND
- B) depositing in other waters (ie for restocking or growing-on, including in tanks etc).

Species	Estimated production of shellfish for 2009			
	A) for the table		B) for depositing in other waters	
	Number	Weight*	No	Weight*
Mussels - <i>M. edulis</i>				
Pacific oysters - <i>C. gigas</i>				
Native oysters - <i>O. edulis</i>				
Scallops - <i>P. maximus</i>				
Queens - <i>C. opercularis</i>				
Lobsters				
Other (specify)				

\*Please state unit of measurement, eg tonnes, kilogrammes.

Number of persons employed by your business in 2009

- |    |                |                  |
|----|----------------|------------------|
| 1. | Full time male | Full time female |
| 2. | Part time male | Part time female |
| 3. | Casual male    | Casual female    |

Please detail any accreditation schemes you are a member of;

Was any of your production certified as organic? Yes No

Signature

Date

Thank you for your cooperation. Please return the completed form in the envelope provided, or electronically, by 31 January 2010.

**Marine Scotland**  
**Marine Laboratory**  
 PO Box 101  
 Victoria Road  
 Aberdeen AB11 9DB  
 Tel: 01224 295525  
 Fax: 01224 295620  
 E-mail: fishhealth@marlab.ac.uk



**Form (b) – SITE PRODUCTION/MOVEMENTS**

**SCOTTISH SHELLFISH FARMS PRODUCTION SURVEY 2009**

\*Please state the unit of measurement, e.g. tonnes, kilogrammes.

Name of **SITE / SITE No:** .....

SPECIES	ESTIMATED PRODUCTION OF SHELLFISH FOR 2009 (EXCLUDES NURSERIES AND HATCHERIES)				HIGHEST MORTALITY	
	A) for the table		B) for depositing in other waters		% of facilities type / period	Reason
	No.	Weight*	No.	Weight*		
Mussels – <i>M. edulis</i>						
Pacific oysters – <i>C. gigas</i>						
Native Oysters – <i>O. edulis</i>						
Scallops – <i>P. maximus</i>						
Queens – <i>C. opercularis</i>						
Lobsters						
Other						

Species	<b>Molluscs</b>			
	Size of production facilities 2009			
	On bottom (Lease area in Hectares or m <sup>2</sup> )	Off Bottom		Other methods (specify no, type and size)
Total rope length (m) (No. of droppers x length of droppers)		Leasng area containig trestles (m <sup>2</sup> ) (Lease area in Hectares or m <sup>2</sup> )		
Mussels - <i>M. edulis</i>				
Pacific oysters - <i>C. gigas</i>				
Native oysters - <i>O. edulis</i>				
Scallops - <i>P. maximus</i>				
Queens - <i>C. opercularis</i>				
Other (specify)				

SPECIES	CRUSTACEANS			
	Size of production facilities 2009			
	Ponds (Hectares or m <sup>2</sup> )	Enclosures and pens (Hectares or m <sup>2</sup> )	Tanks and Raceways (m <sup>3</sup> )	Other methods (Specify no, type and size)
Lobsters				
Others (specify)				

SPECIES	INPUT TO CAPTURE BASED AQUACULTURE		ESTIMATED PRODUCTION OF SHELLFISH FOR 2008 (HATCHERIES AND NURSERIES)			
			Transferred to controlled environment for on growing		Released to the wild	
	No.	Weight*	No. Eggs	No. Juveniles	No. Eggs	No. Juveniles
Mussels – <i>M. edulis</i>						
Pacific oysters – <i>C. gigas</i>						
Native oysters – <i>O. edulis</i>						
Scallops – <i>P. maximus</i>						
Queens – <i>C. opercularis</i>						
Lobsters						
Other (specify)						

#### Shellfish movements by site and species

NAME OF SITE/SITE NO			NAME OF SITE/SITE NO			NAME OF SITE/SITE NO			NAME OF SITE/SITE NO		
No of movements			No of movements			No of movements			No of movements		
Species	On-site	Off-site	Species	On-site	Off-site	Species	On-site	Off-site	Species	On-site	Off-site

\*Please record only live shellfish movements on or off-site where they are for ongrowing, NOT for the table.

## GUIDANCE ON COMPLETION OF THE SURVEY FORMS

### BUSINESS PRODUCTION FORM

Accreditation schemes; please include membership to trade associations, quality schemes or organic certification schemes (for example Association of Scottish Shellfish Growers, Tartan Quality Mark, Soil Association).

### SHELLFISH MORTALITY

- It is your duty to notify the competent authority or a veterinarian if you know or suspect that increasing mortality has occurred or is occurring in aquaculture animals in accordance with the Aquatic Animal Health (Scotland) Regulations 2009. This should be interpreted as being where mortality affects 15% or greater of stocks over a short period. It is also a requirement to maintain mortality records detailing the number of any aquaculture animals that have died in each epidemiological unit within the area. Where significant abnormal mortalities occur, our Duty Inspector (DI) should be informed immediately stating suspected cause, copies of movement records should be included in the correspondence. The DI can be contacted by telephone on 01224 295525, by Fax on 01224 295620 or by e-mail at [fishhealth@marlab.ac.uk](mailto:fishhealth@marlab.ac.uk).
- Please indicate in the box provided on FORM (b), the highest mortality as a % of the facility type, for each species registered as cultured. Mortality should be recorded over a defined period of time. Please also indicate the reason for this mortality, in the box provided on FORM (b). Examples are given below.

Example 1 – A mussel farmer has ten long lines and one line suffers total mortality through predation over one month. The highest % mortality recorded would be 10% / 1 month. Reason was eider duck predation.

Example 2 – An oyster farmer has 100 trestles and shellfish from 90 are lost through disease in spring. The highest % mortality recorded would be 90% / 3 months. Reason was suspect notifiable disease eg. Bonamia

Example 3 – A scallop farmer has 50 long lines and one line is destroyed by storm damage during the year. The highest % mortality recorded would be 2% / 12 months. Reason was storm damage.

### FACILITY SIZE

The form can accommodate one site return. If your business operates more than one site, extra forms have been provided. You have been issued with forms appropriate to the details which we hold for your sites. If you held species in 2009 which are not listed on the form please specify these in the row marked 'Other'.

Conversion factors have been supplied overleaf.

### Molluscs

- Where molluscs are cultured on the seabed, or where a Several Order is in place the total extent of the **lease area** should be recorded in hectares in the column titled 'On bottom'.
- Where molluscs are cultured on long lines / rafts please record the **total length** of rope used in metres (= number of droppers x length of droppers used).
- Where molluscs are cultured in trestles please record the total extent of the **lease area** in hectares.

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- If molluscs are cultured by more than one method on a site an entry should be recorded for both methods.
- If utilising types of culturing methods other than those specified please give details of the type, number and size in the column titled 'Other methods'.

### Crustaceans

- On sites holding lobsters, either for release to the wild or for placing on the market, data is required only for those facilities where the animals are **being fed**.
- The size of each type of holding facility being utilised for these purposes should be recorded:
  - For ponds, enclosures and pens, the **bottom area** should be recorded in either hectares or M<sup>2</sup>
  - For tanks and raceways the **volume** should be recorded in M<sup>3</sup>

### 'CAPTURE-BASED AQUACULTURE'

Capture based aquaculture refers to the practice of collecting aquatic animals from the wild for aquaculture purposes prior to placing on the market. For the purposes of this survey this **does not** include the natural settlement of mussel, oyster or scallop spat on long lines or the seabed.

The active capture of animals from the wild which are then held for a period of time prior to being placed on the market should be recorded only **where those animals are being fed**. There is no requirement to record those animals which are intended for release back into the wild or are not being fed.

For example:

- Wild caught oysters held temporarily in depuration facilities **would not** be recorded
- Wild caught lobsters held temporarily in holding facilities and being fed **would** be recorded

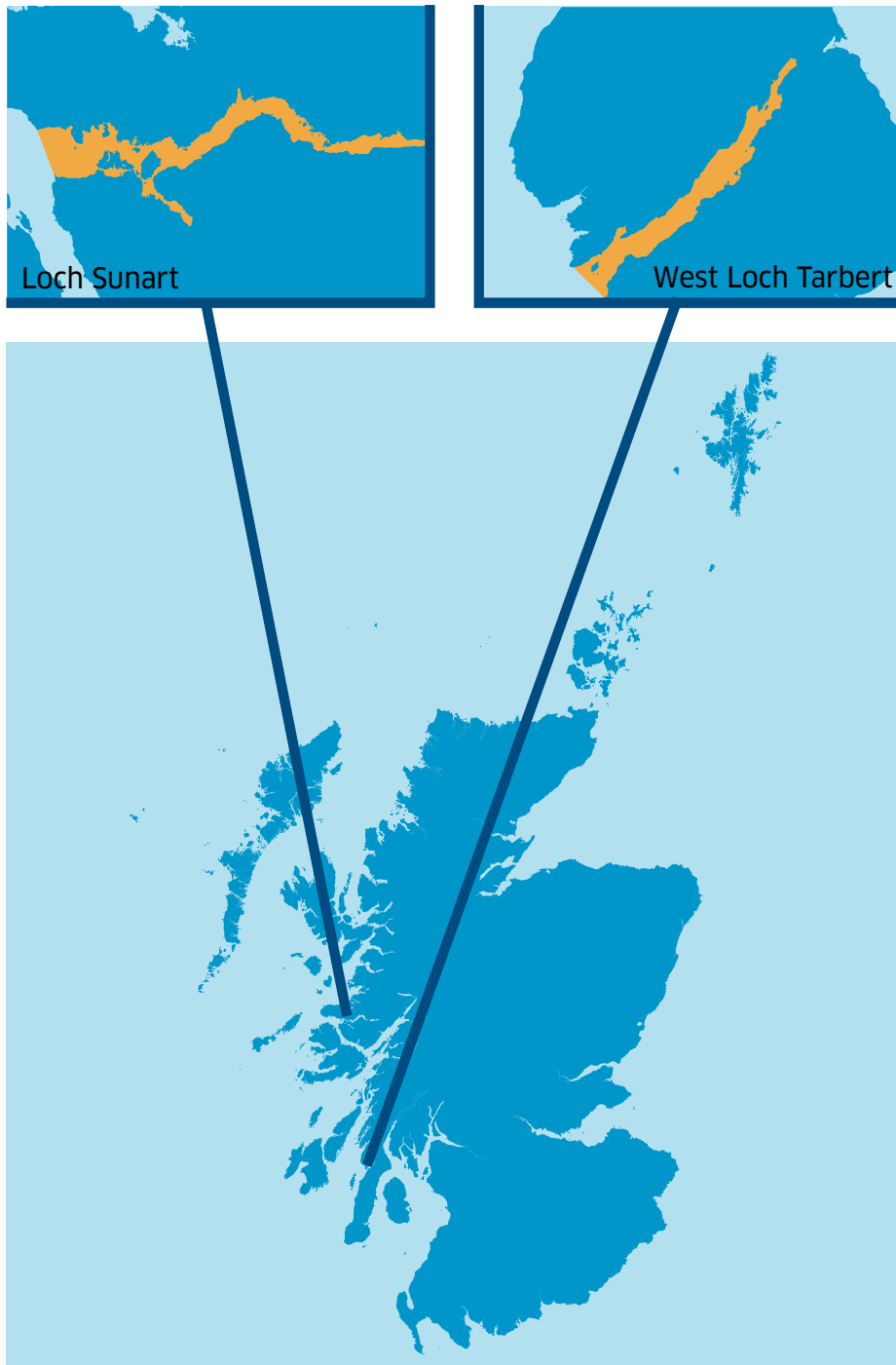
**Note:** Minimum landing sizes for shellfish are laid down in Annex XII of Council Regulation (EC) No. 850/98 for the conservation of fishery resources through technical measures for the protection of juveniles of marine organisms. The minimum size for scallops (*Pecten maximus*) is 100mm and as such it is illegal to retain on board, tranship, land, transport, store, sell, display or offer for sale undersized animals of this species. **Juveniles and spat for relaying must be sourced from aquaculture establishments only.**

### CONVERSIONS

To convert	To	Multiply (X) or divide (/) by
Yards	Metres	X 0.9144
Miles	Kilometres	X 1.609
Acres	Hectares	X 0.4047
Square Metres	Hectares	/ 10000
Cubic feet (ft <sup>3</sup> )	Cubic metres (m <sup>3</sup> )	X 0.0283



## // APPENDIX 2



MAP OF MOVEMENT RESTRICTIONS IN PLACE FOR THE PRESENCE OF *BONAMIA OSTREAE* (DESIGNATED AREAS IN ORANGE).

NOTE: OTHER DESIGNATED AREA ORDERS (DAO) ARE IN PLACE FOR THE PRESENCE OF *BONAMIA OSTREAE* IN THE GREAT BRITAIN ZONE. PLEASE CONTACT THE MSS FISH HEALTH INSPECTORATE IF YOU HAVE ANY QUERIES ABOUT SHELLFISH IMPORT FROM ENGLAND AND WALES.







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[www.scotland.gov.uk](http://www.scotland.gov.uk)

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