

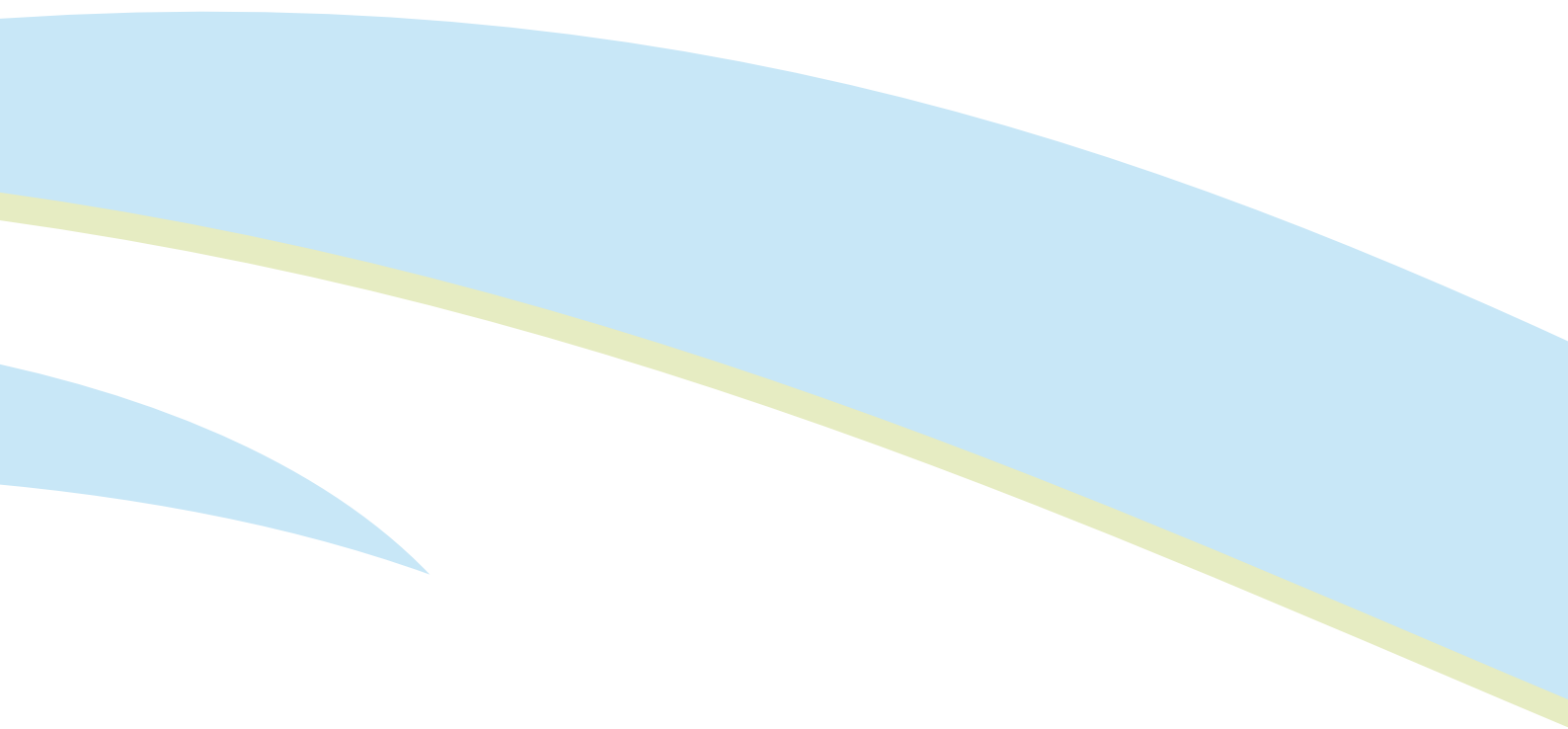
Scottish Shellfish Farm Production Survey

2011 REPORT



marinescotland
science

SCOTTISH SHELLFISH FARM PRODUCTION SURVEY 2011



Written and compiled by : AS Mayes, DI Fraser

Designed by : KD Mutch, Marine Scotland Communications Team

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The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

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CONTENTS

II	CONTACT DETAILS
1	INTRODUCTION TO THE YEAR 2011 SURVEY
2	PRODUCTION
5	SITES AND BUSINESSES
9	EMPLOYMENT
10	HEALTH INFLUENCES ON THE INDUSTRY
11	SUMMARY
12	GLOSSARY
13	APPENDIX 1
20	APPENDIX 2

// CONTACT DETAILS

Fish Health Inspectorate
Marine Scotland
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

E: ms.fishhealth@scotland.gsi.gov.uk

T: +44 (0)1224 295255

S/B: +44 (0)1224 876544

F: +44 (0)1224 295620

w: <http://www.scotland.gov.uk/marinescotland>

// INTRODUCTION TO THE YEAR 2011 SURVEY

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

Production survey questionnaires were sent to 154 businesses registered as active during 2011 (*see Appendix 1, p.13*). All return forms were received. During 2011, six businesses became authorised and sixteen business had their authorisations revoked.

The survey showed that, of the 153 businesses authorised at the end of 2011 and included in this report, 68 recorded no sales during that year. These 153 authorised businesses farmed 335 active sites, of which 161 (48%) placed shellfish on the market. Shellfish production by business and site is presented.

AS Mayes
DI Fraser

Marine Scotland Science
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

April 2012

// PRODUCTION

The survey indicates that the shellfish species cultivated in Scottish waters in 2011 were:

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

Production was dominated by mussel and Pacific oyster, although small quantities of scallop, queen scallop (queen) and native oyster were also produced. The 2011 production data for each species by region are given in Table 1.

TABLE 1
SCOTTISH SHELLFISH PRODUCTION BY REGION, 2011.

Region	Businesses	Mussel		Pacific oyster		Native oyster		Queen		Scallop	
		(tonnes)		(000s)		(000s)		(000s)		(000s)	
		Tonnes Table	tonnes on-growing	000s Table	000s on-growing	000s Table	000s on-growing	000s Table	000s on-growing	000s Table	000s on-growing
Highland	46	692	75	461	1,360	0	0	2	0	78	104
Orkney	5	0	0	0	0	0	0	0	0	0	0
Shetland	29	4,567	178	25	0	0	0	0	0	0	0
Strathclyde	56	736	3	2,635	40	350	1	25	0	0	0
Western Isles	17	1,001	26	15	0	0	0	0	0	0	0
All Scotland	153	6,996	282	3,136	1,400	350	1	27	0	78	104
Weight (tonnes)		6,996	282	251		28		1		9	

NB: THIS REPORT LISTS REGIONS WITH ACTIVE AUTHORISED 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 (see page 4), while trends in production for the table market and on-growing in Scotland are presented in Table 2.

TABLE 2
TRENDS IN PRODUCTION DATA FOR THE TABLE AND ON-GROWING 2002-2011.

For the table	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	% change 10-11
Pacific oyster (000s)	3,114	3,488	3,586	3,070	3,138	2,603	3,093	2,900	3,008	3,136	+4
Native oyster (000s)	191	161	105	162	300	273	250	490	350	350	0
Queen (000s)	472	1,124	1,118	1,441	1,510	384	687	138	184	27	-85
Scallop (000s)	323	180	85	100	87	15	15	35	64	78	+22
Mussel (tonnes)	3,236	3,632	4,223	4,135	4,219	4,806	5,869	6,302	7,199	6,996	-3

For on-growing	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Pacific oyster (000s)	1,578	2,640	2,510	1,467	1,685	945	26	45	1,633	1,400
Native oyster (000s)	0	0	0	0	0	10	0	0	300	1
Queen (000s)	320	0	600	0	0	0	0	30	0	0
Scallop (000s)	147	86	80	382	287	45	0	0	0	104
Mussel (tonnes)	4	38	61	20	68	44	30	391	175	282

Mussel production decreased by 3% from the 2010 total and survey responses attribute the cause of the decrease to include: environmental effects such as variation of spat settlement in time and place in recent years; the detection of toxins which hampered sales, and several businesses which ceased trading (see figure 1). The greatest contribution in regional mussel production was from Shetland, accounting for 4,567 tonnes or 65% of Scotland's total. Pacific oyster production increased by 4% from 2010. The Strathclyde region produced about 84% of Scotland's farmed Pacific oysters. Queen production fell by 85% since 2010, a contributing factor was reported as poor spat settlement, while production of farmed scallops increased by 22%, continuing to target niche markets. Native oyster production remained the same accounting for a small percentage of total oyster production, however, demand for this species continues to be high.

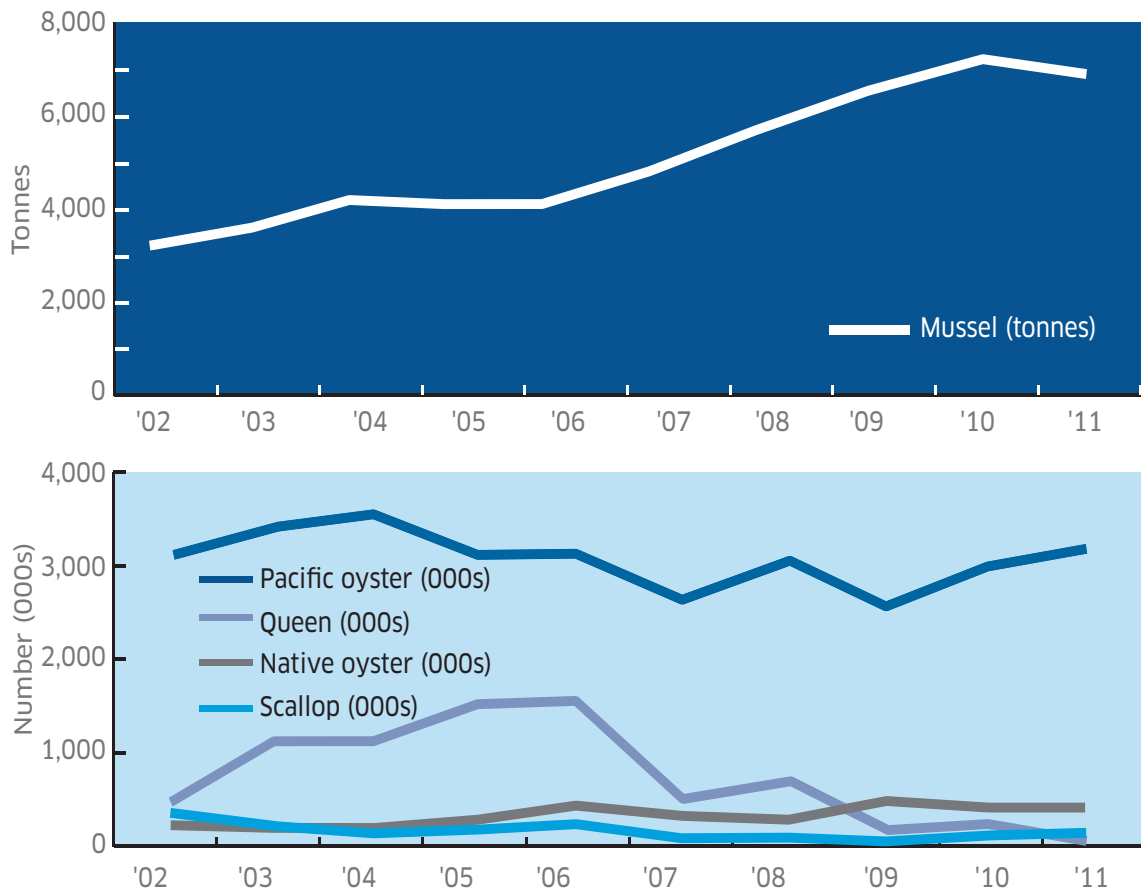


FIGURE 1
TABLE PRODUCTION BY SPECIES 2002-2011.

Prices of farmed shellfish fluctuated throughout the year. Their value at first sale was estimated from the following figures (Supplied by industry. These vary with demand, level of production and geographical area of origin). The price of Pacific oyster was around £0.40 per shell; native oyster, £0.40 per shell; scallop, £1.15 per shell; queen scallop sold for approximately £0.10 per shell; and mussels from £900 to more than £1,700 per tonne. The value of the table trade is estimated from the production figures shown in Table 1 (see page 2).

Mussel:	£8.3 million	Pacific oyster:	£1.25 million
Native oyster:	£0.14 million	Scallop:	£0.09 million
Queen:	£0.003 million		

The 2011 total value, at first sale for all species, was estimated at £9.8 million up from £8.3 million in 2010.

// SITES AND BUSINESSES

The numbers of authorised, active businesses and sites in operation 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 business. However, since 2002, data have been collected for both business and site, enabling the provision of more accurate site information. In 2011, 161 sites produced shellfish for sale, an increase of 10% since 2010.

TABLE 3
AUTHORISED AND ACTIVE BUSINESSES 2002-2011.

Number of Businesses										
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Active	183	178	175	183	173	170	168	168	164	153

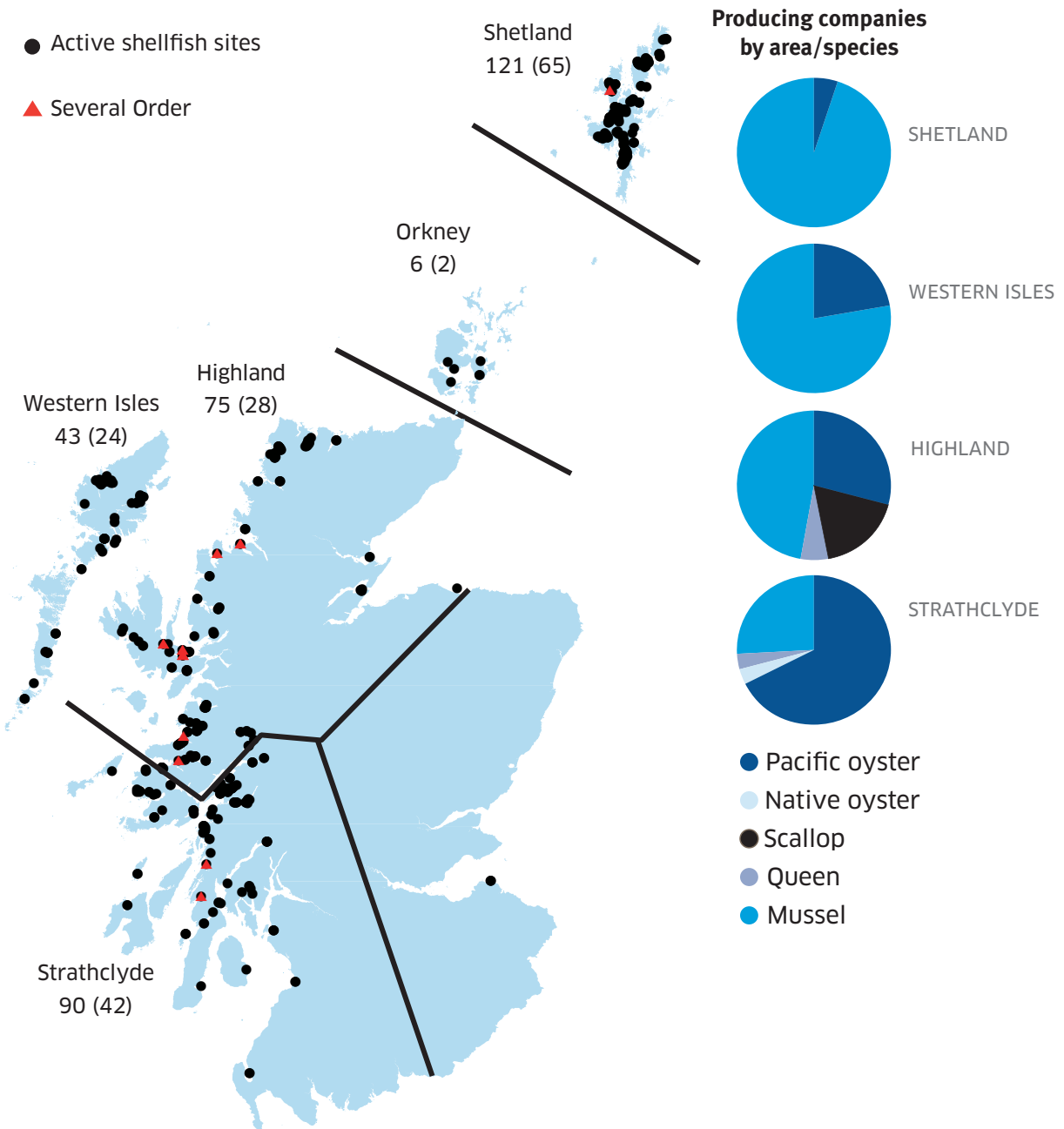
TABLE 4
ACTIVE AND PRODUCING FARM SITES BY REGION 2011.

	Region					
	Highland	Orkney	Shetland	Strathclyde	Western Isles	All Scotland
Sites						
Active	75	6	121	90	43	335
Producing	28	2	65	42	24	161

ACTIVE = FARMS IN A PRODUCTION GROWING CYCLE WHICH MAY CONTAIN STOCK OR BE FALLOW.
PRODUCING = PLACING ON THE MARKET FOR THE TABLE AND ON-GROWING

NB: A BUSINESS MAY PRODUCE MORE THAN ONE SPECIES AND IN MORE THAN ONE AREA.

FIGURE 2
 REGIONAL DISTRIBUTION OF ACTIVE SHELLFISH SITES IN 2011 (NUMBER PRODUCING GIVEN IN BRACKETS) AND
 NUMBER OF PRODUCING BUSINESSES BY AREA/SPECIES.



Ten Several Orders remain in place for scallop fisheries, two of which include native oyster (Fig. 2). Seven of these Orders are in the Highland region, two in Strathclyde and one in Shetland. The size of the Orders measure from 18m² up to 31 ha.

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 2011.

A) PRODUCTION FOR THE TABLE

	Highland	Orkney	Region Shetland	Strathclyde	Western Isles	All Scotland
Pacific oyster	5	0	1	21	3	30
Native oyster	0	0	0	1	0	1
Scallop	3	0	0	0	0	3
Queen	1	0	0	1	0	2
Mussel	8	0	18	8	6	40
Total	17	0	19	31	9	76

B) PRODUCTION FOR ON-GROWING TO OTHER PRODUCERS

	Highland	Orkney	Region Shetland	Strathclyde	Western Isles	All Scotland
Pacific oyster	3	0	0	2	0	5
Native oyster	0	0	0	1	0	1
Scallop	2	0	0	0	0	2
Queen	0	0	0	0	0	0
Mussel	2	0	3	1	2	8
Total	7	0	3	4	2	16

C) NO PRODUCTION, ACTIVELY ON-GROWING OR FALLOW

	Highland	Orkney	Region Shetland	Strathclyde	Western Isles	All Scotland
Pacific oyster	4	0	2	10	1	17
Native oyster	4	0	1	1	0	6
Scallop	5	0	2	5	1	13
Queen	2	0	0	0	1	3
Mussel	20	3	7	13	7	50
Total	35	3	12	29	10	89

Business production levels by species are shown in Table 6. There were 15 businesses producing more than 100 tonnes of mussels, a decrease of six businesses since 2010. Out of these 15 companies, five produced more than 300 tonnes. These five companies produced 55% of the total mussel production in Scotland. There were four businesses that produced more than 300,000 Pacific oyster, this is one more than the 2010 total. The production of these four businesses' accounted for 58% of the Scottish total.

TABLE 6 : BUSINESS PRODUCTION LEVELS BY SPECIES 2011.

Species	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-200	201-300	>300	Total
Pacific oyster (000s)	12	2	1	0	1	2	1	0	3	1	1	2	4	30
Native Oyster (000s)	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Scallop (000s)	1	0	1	0	1	0	0	0	0	0	0	0	0	3
Queen (000s)	1	0	1	0	0	0	0	0	0	0	0	0	0	2
Mussel (tonnes)	1	5	2	2	3	5	2	0	1	4	9	1	5	40
Total	15	7	5	2	5	7	3	0	4	5	10	3	10	76

// EMPLOYMENT

The industry employed 171 full-time, 172 part-time and casual workers during 2011, a decrease of 15 full-time and 41 part-time and casual employees since 2010. The regional breakdown of employment is given in Table 7. The number of people employed by the shellfish farming industry in Scotland fell by 14%, after 2010 total of 399. This decrease in employment can be attributed to the reduced number of authorised businesses in 2011.

TABLE 7
REGIONAL EMPLOYMENT 2011.

Region	Businesses	Staff						Total
		Full-time Male	Full-time Female	Part-time Male	Part-time Female	Casual Male	Casual Female	
Highland	46	21	2	25	7	11	1	67
Orkney	5	3	0	1	0	2	0	6
Shetland	29	55	6	30	16	13	2	122
Strathclyde	56	64	6	28	5	14	1	118
Western Isles	17	13	1	13	2	1	0	30
Scotland	153	156	15	97	30	41	4	343

// HEALTH INFLUENCES ON THE INDUSTRY

In accordance with Council Directive 2006/88/EC, a risk based surveillance programme targeting 139 shellfish site inspections was undertaken during 2011. On these visits, facilities, stock health, bio-security measures plans, movement records and registration details were checked. In addition, native oysters were sampled from nine sites, including four wild beds, for the notifiable diseases bonamiasis (causative agent, protozoan parasite *Bonamia ostreae*) and marteiliasis (causative agent, protozoan parasite *Marteilia refringens*). Results were negative. 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 2011. Movement restrictions in place covering both sea lochs prevent the relaying of native oyster from them (see Appendix 2, p.20 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.

Mortalities were attributed to predation by eider ducks, crabs, starfish, oyster catchers and fouling by a polychaete worm. Reports of high, unexplained shellfish mortalities generated six shellfish diagnosis cases during 2011, at sites holding mussels, native and Pacific oysters. In addition, investigations were undertaken following reports of poor mussel spat settlement during 2010. Results of diagnostic investigations suggested environmental influences, but showed no association with notifiable diseases. 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.13-19).

The results of poor mussel spat settlement investigations, including a questionnaire to industry, indicated that poor spat settlement and mortality was not widespread in Scottish waters, although a major impact on certain individual producers. The causes are associated with environmental variables, guiding industry to consider focussed spat fall monitoring to help predict spat settlement in time and space. Communication among industry, MS policy and scientists is to continue to determine the need and focus for possible research and development.

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 μ var.

Targeted surveillance continued in 2011 on thirteen sites holding the susceptible *Crassostrea gigas*, no evidence of the presence of Oyster Herpes Virus was found in Scottish waters; surveillance is to continue in 2012 under article 43 of Directive 2006/88, testing production areas with the aim of preventing imports from infected areas into Scottish waters.

// SUMMARY

- Mussel and Pacific oysters remain the main species produced in terms of both value and tonnage. Mussel production decreased by 3% while Pacific oyster production increased by 4% during 2011;
- There has been a reduction in queen scallop production, but an increase in scallop production still targeting niche markets;
- Native oyster production remained the same producing 350,000 shells. The sector continues to target a strong niche market;
- Employment levels showed a 14% fall from the previous year, with 343 full, part-time and casual staff being employed during 2011.
- The Scottish shellfish farming industry is estimated to be worth £9.8 million at first sale value.
- Surveillance for the shellfish diseases Bonamiasis and Marteiliasis was maintained in 2011, resulting in no new infected areas. Movement restrictions remain in place for the presence of *Bonamia ostreae* at Loch Sunart and West Loch Tarbet;
- For shellfish health purposes, 139 out of 335 sites were inspected during 2011 as part of a risk based surveillance programme implemented under Council Directive 2006/88/EC;
- A surveillance programme targeting Pacific oyster farm sites continued in 2011, to detect any occurrence of OsHV-1 μ var, no evidence of infection was found from samples taken. Immediate notification of increased mortality on farm sites must be reported to Marine Scotland Science, Fish Health Inspectorate (see Contact details page II).
- The industry is 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
Authorised business	Any shellfish production business authorised under Regulation 6 of the Aquatic Animal Health (Scotland) Regulation 2009 (as amended). See the Marine Scotland website for more details www.scotland.gov.uk/marinescotland
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

marinescotland
science



Ref no: CORR/4040
15 December 2011

Dear Sir/Madam

ANNUAL RETURNS OF SHELLFISH FARM PRODUCTION – 2011

For the year 2011 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 MS.FishHealth@scotland.gsi.gov.uk providing business name, number and correspondent name. FORMS (a) & (b) will then be issued to you electronically for completion and return to MS.FishHealth@scotland.gsi.gov.uk.

The data you supply to Marine Scotland is of great assistance to your industry and 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 2011 which should be available in the spring of 2012.

Marine Scotland is 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. Guidance notes are enclosed.

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 a 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 MS.FishHealth@scotland.gsi.gov.uk

Please send returns to me by post, or electronically, before **31st January 2012**.

Yours faithfully,
Andrew Mayes
Fish Health Inspector, Enc

Marine Laboratory, PO Box 101, 375 Victoria Road, Aberdeen AB11 9DB
www.scotland.gov.uk/marinescotland



FORM (a) – BUSINESS PRODUCTION

**SCOTTISH SHELLFISH FARMS PRODUCTION SURVEY 2011
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 2011 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 2011			
	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.

Please state the number of persons employed by your business in 2011

Full time male	Full time female
Part time male	Part time female
Casual male	Casual female

Please detail any accreditation schemes you are a member of:

Was any of your production certified as organic (circle appropriate option)? Yes No

Signature: _____ Date: _____

Thank you for your cooperation. Please return the completed form in the envelope provided, or electronically, by 31 January 2012.

FORM (b) – SITE PRODUCTION, SIZE and MOVEMENTS

SCOTTISH SHELLFISH FARMS PRODUCTION SURVEY 2011

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

Name of **SITE / SITE No:**

SPECIES	ESTIMATED PRODUCTION OF SHELLFISH FOR 2011 (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	SIZE OF PRODUCTION FACILITIES 2011			
	Molluscs			
	On bottom (Lease area in Hectares or m ²)	Off Bottom		Other methods (specify no, type and size)
Total rope length (m) (No. of droppers x length of droppers)		Leasing area containing trestles (m ²) (Lease area in Hectares or m ²)		
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	INPUT TO CAPTURE BASED AQUACULTURE		ESTIMATED PRODUCTION OF SHELLFISH FOR 2011 (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)						

SPECIES	SIZE OF PRODUCTION FACILITIES 2011			
	Crustaceans			
	Ponds (Hectares or m ²)	Enclosures and pens (Hectares or m ²)	Tanks and Raceways (m ³)	Other methods (Specify no, type and size)
Lobsters				
Others (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 on-growing, NOT for the table.

GUIDANCE ON COMPLETION OF THE SURVEY FORMS

BUSINESS PRODUCTION FORM (a)

Please check your business title and address at the top of the page. If you are no longer the correspondent for the business then please notify the Fish Health Inspectorate (FHI, details below) and your details can be changed on our database. If the business is no longer producing shellfish or the lease for the site has been lost or sold, the FHI will have to be informed.

Please provide your total business production next to the relevant species (the individual site production should add up to the total business production form). The weight and number of shells produced should also be stated in the correct column. The 'for the table' column is for shellfish sold for human consumption (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 the column 'for depositing in other waters' should be filled in when shellfish have been partially grown and then sold or transferred to another business for on-growing. Please state the unit of measurement used in your total business production (e.g. kilograms, tonnes etc.). If your business has not produced any shellfish then please put an X next to the species of shellfish that is authorised to be grown on site.

Employment section: please state the number of people employed in the business under the following headings; full time male, full time female, part-time male, part-time female, casual (occasionally employed) male, or casual female.

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).

Please finish the form by signing and dating.

SITE PRODUCTION, SIZE and MOVEMENTS – FORM (b)

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 in a single facility, 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 (if known). You will then be contacted to discuss the possible need for a diagnostic investigation of the case. 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 MS.fishhealth@scotland.gsi.gov.uk
- Please indicate in the box provided on FORM (b), the highest mortality as a percentage (%) 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 if known, 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. If more forms are needed then please contact the Fish Health Inspectorate to acquire more sheets. You have been issued with forms appropriate to the details which we hold for your sites. If you held species in 2011 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 or metres squared (m²) (please specify) 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) in the column titled 'Off Bottom' and subtitled 'Total rope length (m)'.
- Where molluscs are cultured in trestles please record the total extent of the **lease area** in hectares or metres squared (m²) (please specify) in the column titled 'Leasing area containing trestles'
- 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:

Marine Laboratory, PO Box 101, 375 Victoria Road,
Aberdeen AB11 9DB
www.scotland.gov.uk/marinescotland



- For ponds, enclosures and pens, the **bottom area** should be recorded in either hectares or m²
- For tanks and raceways the **volume** should be recorded in m³

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

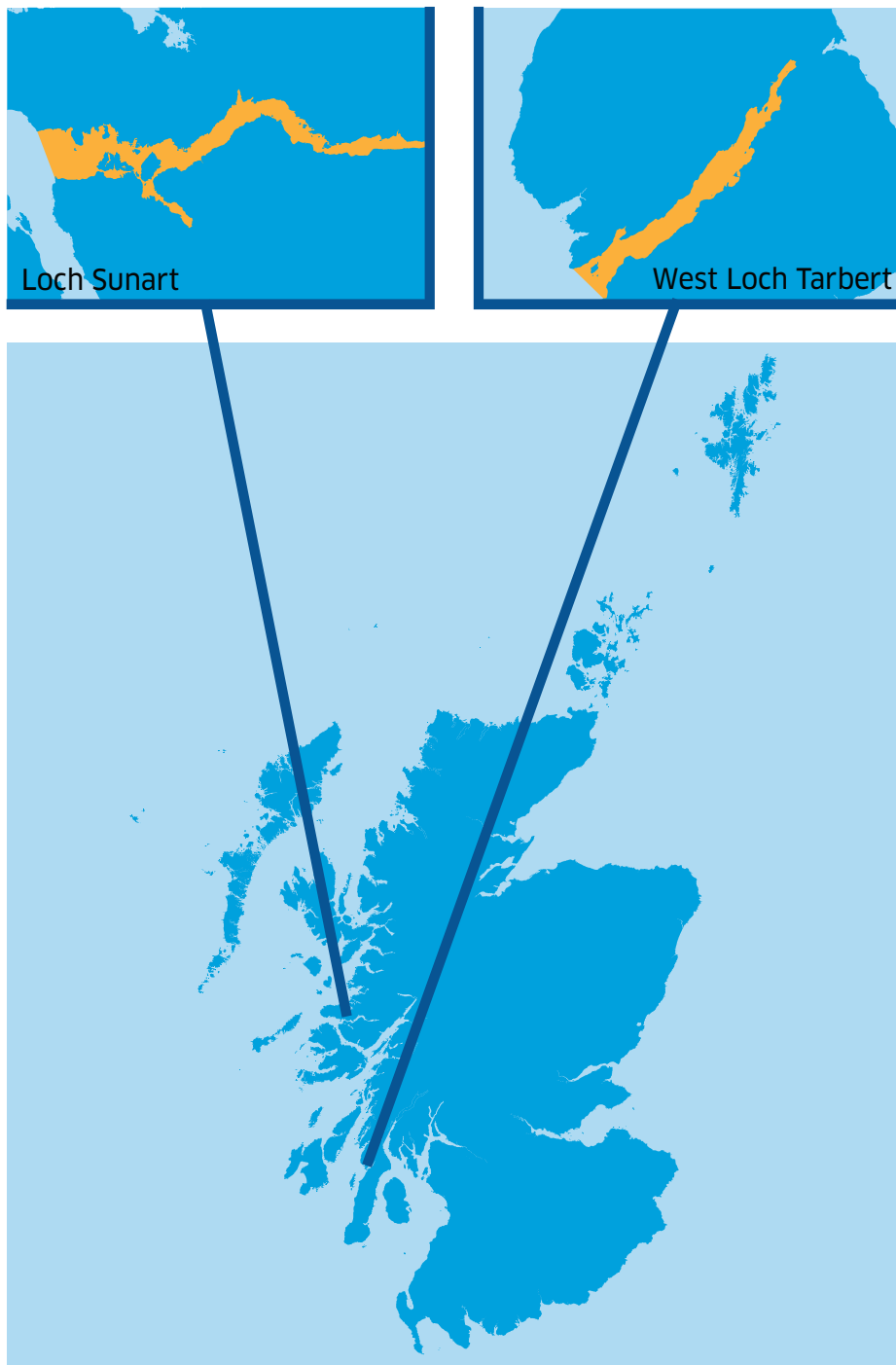
Note: Minimum landing sizes for shellfish are laid down in Annex XII of Council Regulation (EC) No. 850/98 for the conservation of fishery resources through technical measures for the protection of juveniles of marine organisms. The minimum size for scallops (*Pecten maximus*) is 100mm and as such it 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 ³)	Cubic metres (m ³)	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/marinescotland

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