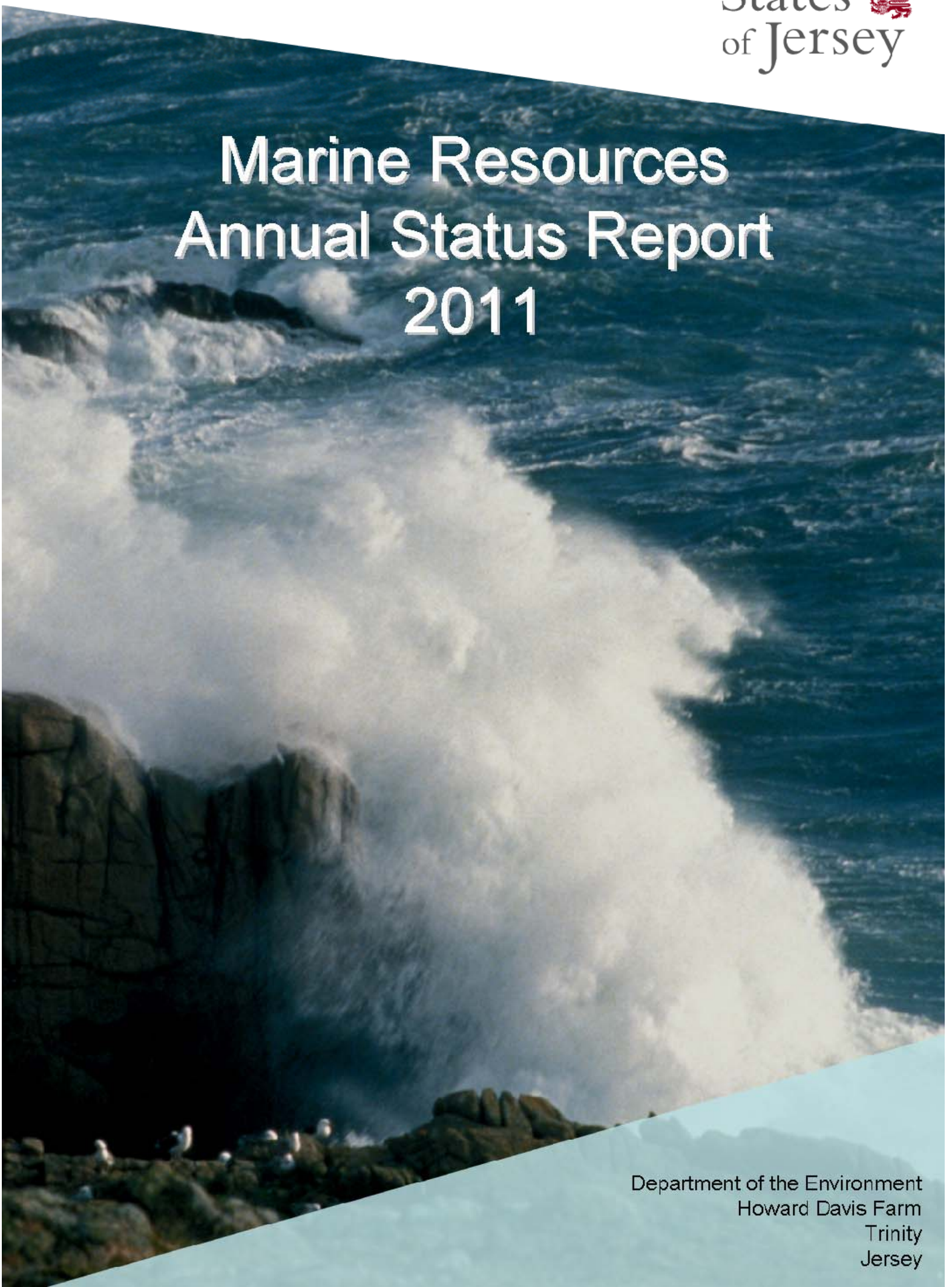
States of Jersey

# Marine Resources Annual Status Report 2011



Department of the Environment
Howard Davis Farm
Trinity
Jersey

# Preface

This Annual Report published by the Marine Resources Section of the Environment Department is different in format from previous years. The section's role and responsibilities have changed significantly and this report reflects these changes.

The report sets out the current status of the marine environment and details the monitoring, research and management programmes that the Department is currently engaged in.

This new format will fulfil reporting requirements under various International agreements and obligations. It also provides an annual update on the marine aspects of the "State of Jersey" report.

Mike Smith
Marine Resources Section Leader

## Contents

## Tables



## Figures

# 1. Jersey’s territorial waters

Jersey's territorial waters stretch out to 12 nautical miles or to the median line between France and Guernsey and cover almost 2,000 square kilometres. This is a surface area of over seventeen times greater than its territorial land mass at high water of 117 square kilometres. Our coastal and marine areas are of outstanding scenic, historic and cultural value boosting Jersey's image both at home and abroad and feature regularly in tourism marketing material.

Jersey’s coastline is 90km long at high water mark, not including the offshore reefs. The length of sea edge is an important influence on the Island’s character and perceptions of character. On spring tides the difference between low and high tide can be as much as 12m. The south, south-east and west coast have a very shallow, gently sloping shore profile which means that a very large intertidal area is exposed at low tide and the Island almost doubles in size to about 200 square kilometres. By contrast the north and south west coasts are characterised by steep granite cliffs and coastal heath. Both the inland character of Jersey and its marine environment are very much influenced by the great variation in aspect and exposure of its coastal edges.

Jersey’s coastal zone is an area of increasingly intense activity, where complex interactions take place between physical, biological, social, cultural and economic activities. Jersey’s location at the confluence of the cold and warm temperature marine biogeographical region together with the warming influence of the Gulf Stream results in important groups of animal and plants associated with the warmer waters of southern Europe, as well as species associated with the cold, northern waters of the UK.

The overall extent and character of the rocky reefs and intertidal sediment flats on the south east coast is not found anywhere else in Europe. At low tide an extensive and biologically rich area of 3,210 hectares is exposed. The steep rocky coast, granite rocky platform and beach coast comprise the Jersey shoreline and are equally important, although better studied than the subtidal environment of predominantly tideswept sands and gravels. Large reef systems surround Les Écréhous and the Paternosters and extensive areas of shallow water with mixed sediment habitat stretch southeast from the Violet Bank. Of special interest is the submerged Plateau des Minquiers, an area of water shallower than 10m covering 100 square kilometres.

The international importance of Jersey’s coastal waters is recognised by the fact that almost 190 square kilometres of inter-tidal habitat, spread across Jersey’s south-east coast and offshore reefs, are designated as wetlands of international importance under the Ramsar Convention.

The seas around Jersey are very productive. This is reflected in the economic importance of fishing and aquaculture. The fishing industry plays a significant role in Island life and the maintenance of the marine habitat is vital in safeguarding nursery grounds and feeding areas for commercial species. Whilst on a different scale to the

finance industry our marine and coastal areas support approximately 180 jobs directly related to fishing and aquaculture activities and more in associated industries.

Jersey is also rich in coastal and marine sites of cultural, archaeological and historical significance including one of the most important Palaeolithic sites in the British Isles at La Cotte de St Brelade; peat beds and remains of a Neolithic forest sealed beneath inter-tidal sands; and a rich density and diversity of coastal fortifications with excellent examples of Tudor, Napoleonic and Second World War structures.

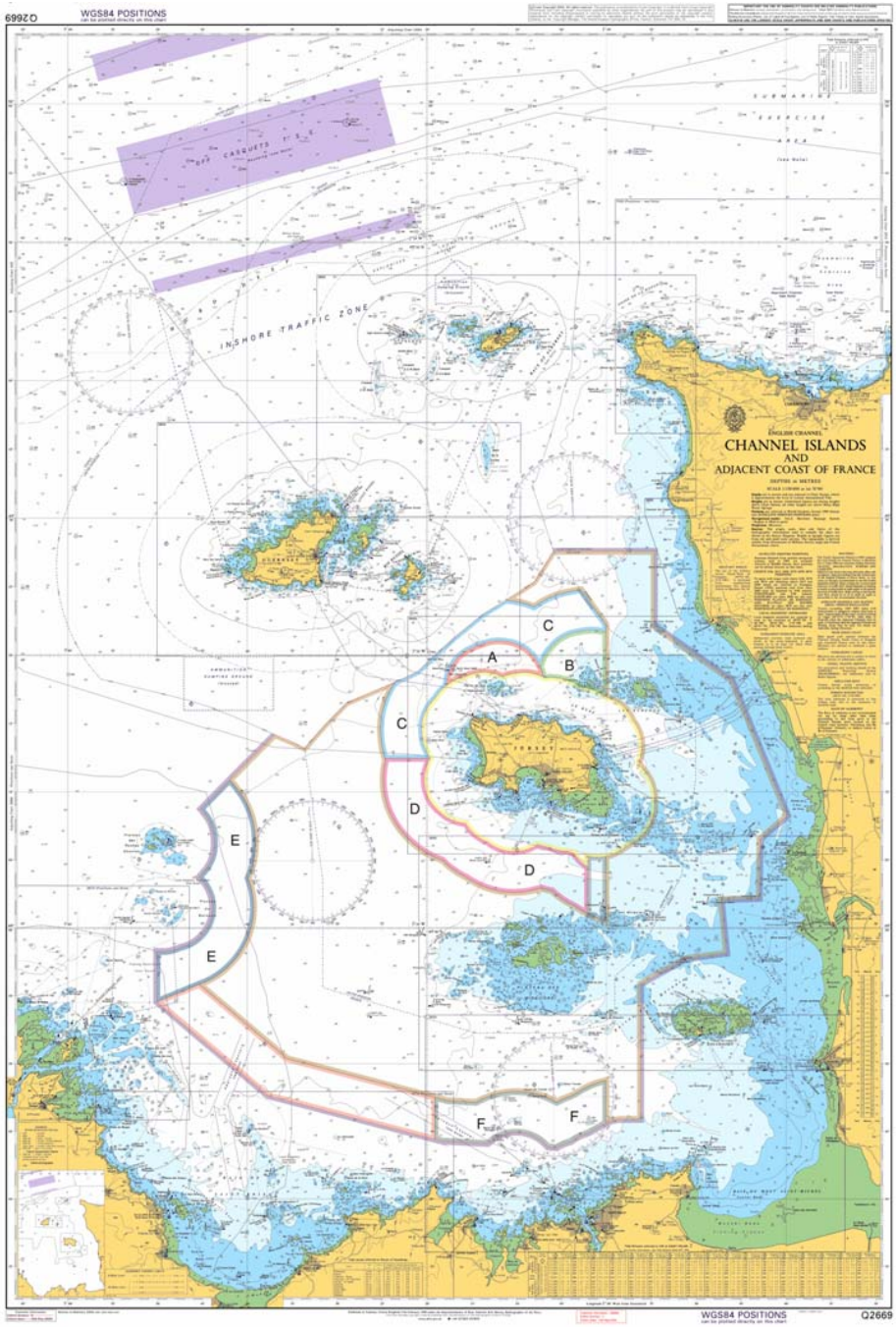



**Figure 1.** Normano-Breton Gulf (including fishing zones)(not for navigation)

# 2. Use of living resources

## 2.1. Capture fishing

### 2.1.1. Fishing vessel licensing

Any fishing vessel exploiting stock in local waters on a commercial basis requires a fishing licence. The Jersey fishing vessel licensing system is aligned directly with that of the UK and as such contributes to the stabilisation of fishing effort at a European wide level.

As of the 31st December 2011 the Jersey based fleet comprised of 162 licensed fishing vessels, 93 of which were shellfish qualified. This included 16 Class A (over 10 metre) licences and 146 Class B (10 metre and under) licences. These licences equate to a fleet size of 717 gross tonnes, 13008 kW and 9193 Vessel Capacity Units (VCU's). There has been little change in the structure of the fleet in terms of numbers of vessels.

**Table 1**. Number and Vessel Capacity Units (VCUs) of licensed vessels.

| | 2000 | | 2001 | | 2002 | | 2003 | |
|---|---|---|---|---|---|---|---|---|
| **Size** | **Nos.** | **VCU** | **Nos.** | **VCU** | **Nos.** | **VCU** | **Nos.** | **VCU** |
| **>10m** | 29 | 6,105 | 25 | 5,574 | 24 | 5,328 | 26 | 5,535 |
| **6-10m** | 66 | 4,453 | 68 | 4,608 | 65 | 4,371 | 65 | 4,472 |
| **<6m** | 128 | 2,874 | 120 | 2,809 | 123 | 2,826 | 119 | 2,747 |
| **Total** | **223** | **13,432** | **213** | **12,991** | **212** | **12,525** | **210** | **12,754** |

| | 2004 | | 2005 | | 2006 | | 2007 | |
|---|---|---|---|---|---|---|---|---|
| **Size** | **Nos.** | **VCU** | **Nos.** | **Nos.** | **Nos.** | **VCU** | **Nos.** | **VCU** |
| **>10m** | 21 | 4,066 | 19 | 21 | 21 | 3,390 | 21 | 3,641 |
| **6-10m** | 65 | 4,251 | 60 | 61 | 61 | 3,958 | 61 | 4,176 |
| **<6m** | 112 | 2,579 | 105 | 89 | 89 | 2,335 | 89 | 2,037 |
| **Total** | **198** | **10,896** | **184** | **171** | **171** | **9,683** | **171** | **9,854** |

| | 2008 | | 2009 | | 2010 | | 2011 | |
|---|---|---|---|---|---|---|---|---|
| **Size** | **Nos.** | **VCU** | **Nos.** | **VCU** | **Nos.** | **VCU** | **Nos.** | **VCU** |
| **>10m** | 17 | 3,069 | 17 | 2,984 | 17 | 2,974 | 16 | 2,858 |
| **6-10m** | 58 | 4,059 | 60 | 4,231 | 61 | 4,330 | 62 | 4,382 |
| **<6m** | 88 | 2,081 | 87 | 2,084 | 82 | 1,913 | 84 | 1,953 |
| **Total** | **163** | **9,209** | **164** | **9,299** | **160** | **9,217** | **162** | **9,193** |

**Licence Transactions**

During the year 15 Jersey Fishing Boat Licences including 7 Additional (Piggy Back) Jersey Fishing Boat Licences were issued. 13 licence entitlements, including 2 entitlements transferred from Guernsey were issued.

A total of 12 licence entitlements were used, 8 to licence vessels in Jersey while 4 transferred to the UK licensing system and used to licence vessels in the UK.
Two licence entitlements transferred from Guernsey to Jersey however no licence entitlements were transferred from the UK to Jersey, Jersey fisherman preferring to take advantage of reciprocal licensing arrangements and keep their main licence on the UK licensing system while applying for a Jersey Additional (piggy back) Licence to fish in Jersey Waters.
As of the 31st December 2011 there were 22 valid Jersey licence entitlements (including 2 disaggregated entitlements) on the Jersey licensing system, 8 of which were shellfish qualified.

**Table 2.** Fate of fishing vessel licences

| | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** |
|---|---|---|---|---|---|---|---|---|
| Jersey Fishing Boat Licences Issued | 20 | 17 | 17 | 13 | 21 | 15 | 9 | 8 |
| Jersey Additional (Piggy Back) Licences Issued | 1 | 2 | 7 | 4 | 0 | 4 | 7 | 7 |
| **Total Licences Issued** | **21** | **19** | **24** | **17** | **21** | **19** | **16** | **15** |
| | | | | | | | | |
| Entitlements Imported - Guernsey | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 2 |
| Entitlements Imported - UK | 3 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| Jersey Disaggregated Entitlements Issued | - | - | - | - | - | - | 6 | 0 |
| **Jersey Licence Entitlements Issued** | **35** | **30** | **30** | **24** | **26** | **16** | **19** | **13** |
| | | | | | | | | |
| Entitlements Used - Jersey | 22 | 15 | 20 | 16 | 22 | 14 | 10 | 8 |
| Disaggregated Entitlements Used – Jersey | - | - | - | - | - | - | 4 | 0 |
| Entitlements Exported - Guernsey | 7 | 4 | 3 | 1 | 2 | 1 | 0 | 0 |
| Entitlements Exported - UK | 8 | 2 | 6 | 7 | 8 | 9 | 5 | 4 |
| Entitlements Lost | 3 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| **Entitlements Used – Total** | **38** | **22** | **29** | **24** | **33** | **24** | **19** | **12** |
| | | | | | | | | |
| **Valid Jersey Entitlements 31 December** | **14** | **25** | **28** | **26** | **19** | **12** | **20** | **22** |

### 2.1.2. Landings

Lobster and Brown Crab landings have again increased in 2011. However there was a decrease in Scallop, Spider Crab and Whelk landings compared to 2010 (Table 3). Lobster landings saw a record high of just over 257 tonnes, with landings per unit effort increasing by 9.2% to average 14.12 kg per 100 pots over the year. (Table 5). In contrast Spider Crab Landings per unit effort have decreased by 20.16%. This decrease is most likely due to the reduction in netting and shift in metiers, rather than any change in stock numbers. Whelk landings have decreased upon 2010's figures, yet are still higher than 2009's landings and comparable to landings in 2008. Again this is possibly due to changes in metier and changes in whelk fishing effort, with the Department's independent whelk population research, still showing a concerning decline in stock numbers (Section 2.3.1).

**Table 3**. Quantity of shellfish landed by the Jersey fleet (kg)

| Species | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|
| **Brown crab** | 437,650 | 348,990 | 412,239 | 480,844 | 360,872 | 408,873 | 433,845 |
| **Crawfish** | 267 | 500 | 170 | 142 | 138 | 0 | 5 |
| **Lobster** | 138,843 | 131,296 | 154,704 | 162,560 | 177,087 | 225,494 | 257,112 |
| **Scallop**[1, 2] | 227,565 | 303,723 | 371,837 | 330,997 | 362,528 | 401,475 | 285,273 |
| **Spider crab** | 163,413 | 129,291 | 105,734 | 178,692 | 177,158 | 173,298 | 144,475 |
| **Whelk** | 442,355 | 621,011 | 545,395 | 297,742 | 104,995 | 497,410 | 244,480 |
| **Others**[3] | 4,710 | 5,132 | 2,047 | 2,400 | 2,249 | 4,657 | 5,731 |
| **Total** | **1,368,626** | **1,502,528** | **1,592,126** | **1,453,377** | **1,180,976** | **1,711,207** | **1,370,921** |

Notes

1. 2007 onwards includes dredged and commercial dived.
2. 2010 contained 1,020 kg of Queen Scallops for the first time.
3. Others include prawn, velvet crab, cuttlefish, squid, praire, amande.

In the wetfish sector, 2011 had a significant increase in Anglerfish landings, increasing from just 62 kg to 748 kg, approaching the six year high of 2006's landings (Table 4). Bass landings have slightly increased upon 2009 and 2010's landings (from 11.6 to 13.8 and then 16.3 tonnes, respectively), they are still lower than landings from 2004 to 2008 (approximately 30 to 18 tonnes) (Table 4). Sea Bream landings have also increased upon 2009 and 2010's landings, however this is most likely due to a change in fishing location by a single large vessel. There have also been significant increases in Pollack and Turbot landings. Pollack has increased from around 6 tonnes to 16.5 tonnes, and Turbot from 788 kg to just over 2 tonne. Overall the wetfish sector landings have increased by around 20 tonnes from 2010's landings of 106.6 tonnes to 126.2 tonnes.

**Table 4**. Quantity of wetfish landed by the Jersey fleet (kg)

| Species | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|
| **Angler** | 492 | 757 | 262 | 240 | 233 | 62 | 748 |
| **Brill** | 4,009 | 1,877 | 2,435 | 2,997 | 2,135 | 2,985 | 4,127 |
| **Bass** | 22,193 | 30,952 | 18,085 | 18,564 | 11,649 | 13,831 | 16,379 |
| **Cod** | 56 | 235 | 46 | 198 | 135 | 214 | 242 |
| **Conger** | 14,384 | 21,024 | 17,314 | 7,179 | 3,170 | 3,023 | 3,256 |
| **Dogfish** | 16,181 | 20,544 | 8,211 | 10,133 | 4,596 | 13,278 | 12,580 |
| **Gurnard/Latchet** | 1,570 | 1,911 | 1,570 | 2,085 | 104 | 413 | 85 |
| **Horse mackerel** | 1,136 | 1,100 | 63 | 3 | 226 | 3 | 0 |
| **John Dory** | 153 | 182 | 14 | 9 | 11 | 9 | 11 |
| **Ling** | 134 | 214 | 176 | 159 | 0 | 112 | 475 |
| **Mackerel** | 9,189 | 8,270 | 5,516 | 7,004 | 6,511 | 5,744 | 6,050 |
| **Mullet -grey** | 7,030 | 6,205 | 561 | 1,470 | 1,194 | 2,529 | 2,202 |
| **Mullet -red** | 1,691 | 1,268 | 900 | 372 | 248 | 195 | 430 |
| **Plaice** | 1,763 | 2,284 | 930 | 2,722 | 2,651 | 2,411 | 3,831 |
| **Pollack** | 8,454 | 6,374 | 2,690 | 7,334 | 7,915 | 6,657 | 16,553 |
| **Sea Bream**[1] | 36,043 | 7,378 | 3,066 | 4,215 | 3,158 | 10,428 | 17,904 |
| **Skate/Ray** | 53,461 | 59,643 | 49,801 | 79,961 | 22,699 | 37,390 | 34,611 |
| **Sole** | 17,048 | 3,814 | 1,807 | 2,194 | 1,344 | 1,463 | 1,630 |
| **Tope** | 2,280 | 2,295 | 1,593 | 747 | 187 | 30 | 270 |
| **Turbot** | 3,245 | 896 | 436 | 400 | 646 | 788 | 2,004 |
| **Other Species**[2] | 1,038 | 1,865 | 2,124 | 2,586 | 3,352 | 5,096 | 2,813 |
| **Total** | **203,093** | **180,493** | **117,600** | **150,572** | **68,771** | **106,661** | **126,201** |

Notes
1. Figures for some years include catches from outside Jersey Waters
2. Other species included flounder, pouts, rockfish, sandeel, sand sole, shark, smooth hound, trigger fish, whiting and wrasse.

### 2.1.3. Landing Per Unit Effort

**Table 5**. Landings per unit effort (LPUE) for selected shellfish species

| Species | Quantity landed (kg) | Nos. of pot lifts[1] | LPUE (kg per 100 pots) | % change from 2010 |
|---|---|---|---|---|
| **Brown crab** | 433,845 | 1,820,376 | 23.83 | 1.62 |
| **Lobster** | 257,112 | 1,820,376 | 14.12 | 9.20 |
| **Spider crab** | 144,475 | 1,820,376 | 7.94 | -20.16 |

Notes
1. Pot lifts include parlour pots, inkwell, creels, D pots

## 2.2. Mariculture

Despite the industry continuing to suffer from the Oyster Herpes virus and associated mortality of 50-80%, production of Pacific Oyster in 2011 increased to a record high of 972 tonnes (Table 6). Mussel production dropped significantly from 201 tonnes in 2010 to just 89 tonnes in 2011. There was no significant change in King Scallop production by aquaculture, which remains at around 2.4 tonnes.
There were no new Aquaculture concessions awarded in 2011.
In 2011 the Marine Resources Section also contracted an independent review of Oyster Herpes virus literature. The report produced by Anna Dimond and titled; "Ostreid herpesvirus – 1 µvar in the Pacific oyster, *Crassostrea gigas*", is available from the Marine Resources Section upon request.

**Table 6**. Farmed shellfish production (area in hectares; production in kg)

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|---|
| **Intertidal area[1]** | 54.5 | 62.65 | 62.88 | 62.88 | 68 | 68.76 | 68.76 | 68.76 |
| **Subtidal area** | 100 | 166 | 166 | 166 | 166 | 166 | 166 | 166 |
| **Pacific Oyster** | 720,768 | 579,915 | 651,148 | 737,395 | 829,952 | 903,000 | 628,760 | 972,000 |
| **King Scallop** | 3,571 | 8,484 | 2,540 | 4,100 | 8,841 | 2,571 | 2,462 | 2,493 |
| **Mussels** | 25,000 | 50,000 | 117,500 | 50,000 | 117,000 | 101,000 | 201,278 | 89,205 |
| **Total** | **749,339** | **638,399** | **771,188** | **791,495** | **955,793** | **1,006,571** | **832,500** | **1,063,698** |

Note
1. Area pre 2004 relates to actual area farmed. 2005 onwards relates to total concession area granted.

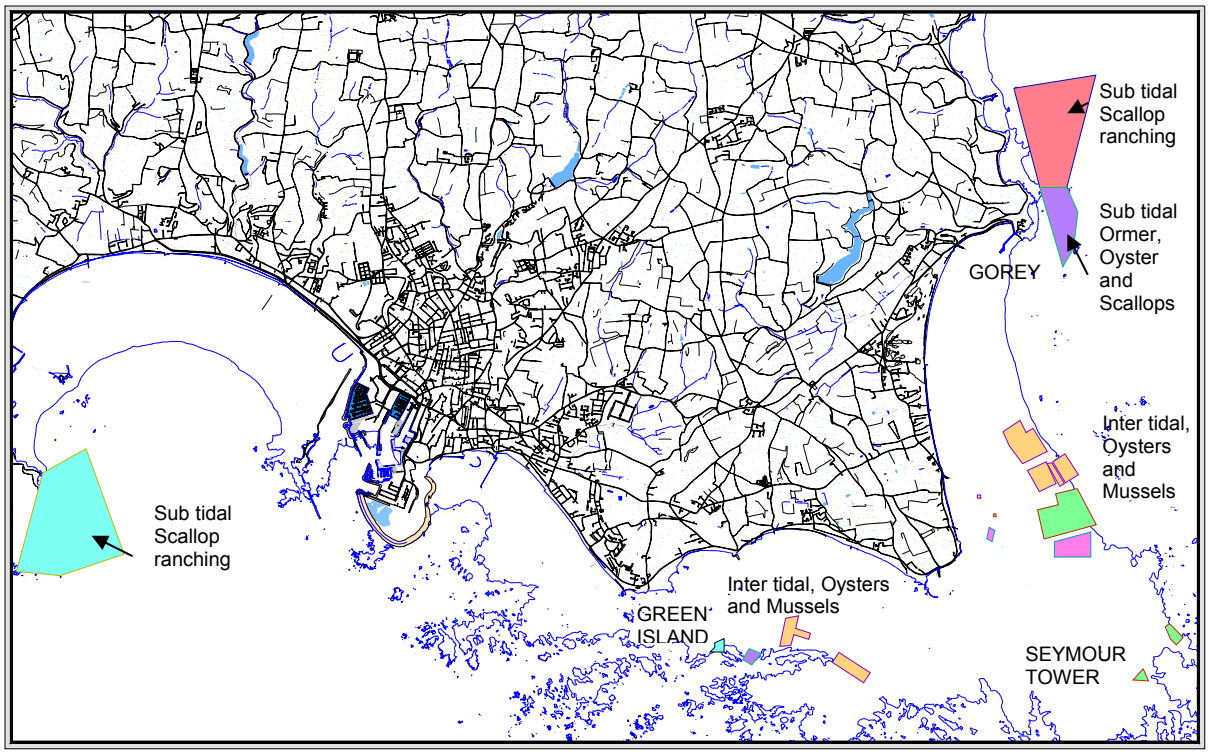



**Figure 2**. Aquaculture concessions as of December 2011

## 2.3. Research and development programme

### 2.3.1. Whelk

The annual study of whelk (*Buccinum undatum*) catch per unit effort (CPUE) was conducted in February 2011. The same study sites and methodology were used as in preceding years.

Overall, the CPUE in 2011 was 1.46 kg per pot (Fig. 6). This was a decrease on the CPUE recorded in 2010 (1.89 kg) and the lowest total CPUE on record since 1996. The same trend was observed with respect to the large fraction of the catch with a CPUE of 1.20 kg in 2011 compared with a CPUE of 1.61 kg in 2010, again the lowest on record for the large (above minimum landing size) portion of the catch.
The CPUE for the smaller fraction of the catch was also the lowest on record at 0.26 kg. Overall there is still a trend of decline in the stock ($R^2$=0.69), with no significant improvement on catches from the last fourteen years (Fig. 7).

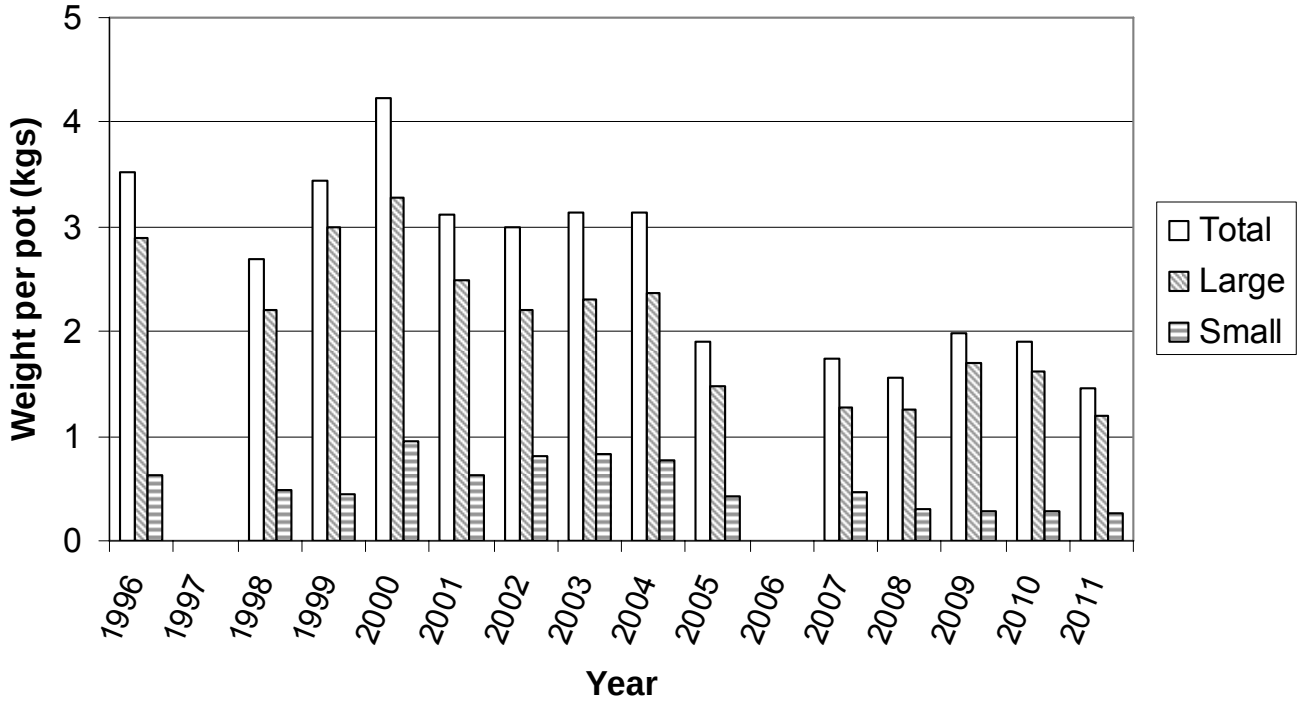



**Figure 3**. Average CPUE of Whelks (Total, large fraction, small fraction)

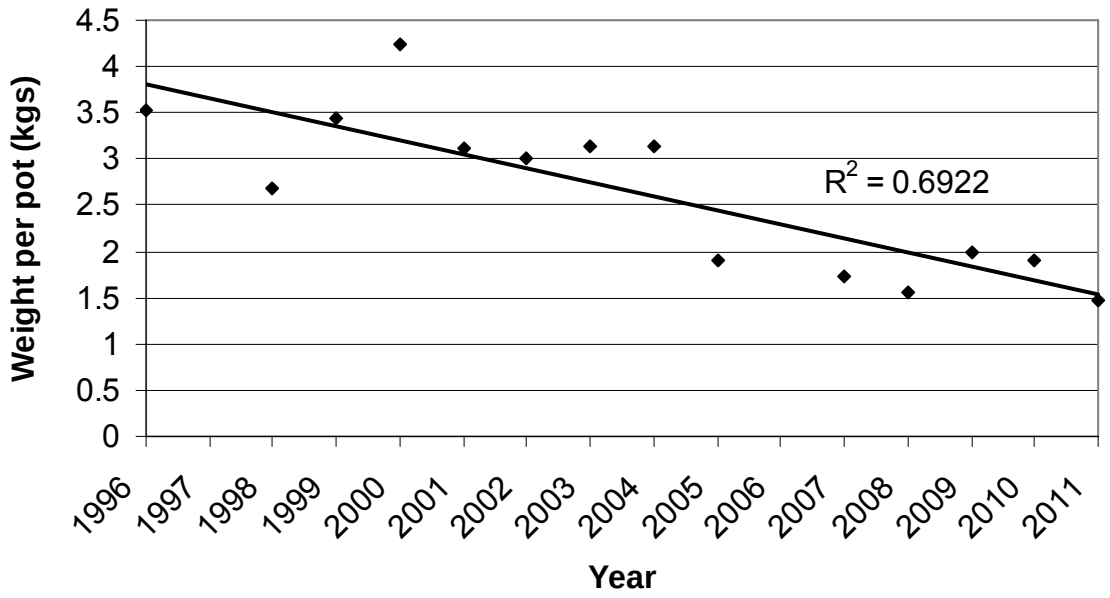



**Figure 4**. Comparison of total catch for all surveys (1996-2010) with linear trend line fitted.

### 2.3.2. Lobster

Since 2004, an annual study has been conducted by the Department to monitor changes in the number and structure of the Lobster population in Jersey waters. Each year the same equipment and sites are used, to allow comparison over time. The lobster pots used differ from commercial pots, to allow the capture and assessment of juvenile lobsters.

In 2011, there was a total of 335 lobsters caught for 180 pots hauled, compared to 192 caught in 2010 for the same amount of pot lifts. This increase in caught lobster, is reflected in Figure* which depicts the Catch per Unit Effort (CPUE) figures for sized and undersized lobsters over the last eight years of research. Of the 335 lobsters caught in 2011, 99 lobsters (29.6%) were sized above the minimum landing size of 87mm length carapace. This is again an increase on 2010, where only 28.1% of the catch was sized, and is the largest proportion of sized to undersized catch recorded since the research projected started in 2004.

**Table 7**. Catch Per Unit Effort (CPUE) of lobster (kg per 100 pots).

| Year | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | **2011** |
|---|---|---|---|---|---|---|---|---|
| Average CPUE Sized (kg/100 Pots) | 7.3 | 8.6 | 6.3 | 12.3 | 10 | 31 | 18.2 | **27.5** |
| Average CPUE Under-sized (kg/100 Pots) | 26.7 | 32.6 | 32.3 | 31.6 | 27.4 | 89.8 | 28.2 | **49.1** |

The frequency distributions of lobster carapace lengths are also assessed and monitored to help analyse the structure of the lobster population. The frequency distribution has again improved on 2009 and 2010's data. There is a larger proportion of lobsters caught, found over the 87mm minimum landing size (MLS) (Figure*). However the frequency distribution of the catch continues to show a distinct change at 87mm, the minimum landing size. This suggests that the fishery is still fully exploited and relies heavily on recruiting lobsters close to the minimum size.

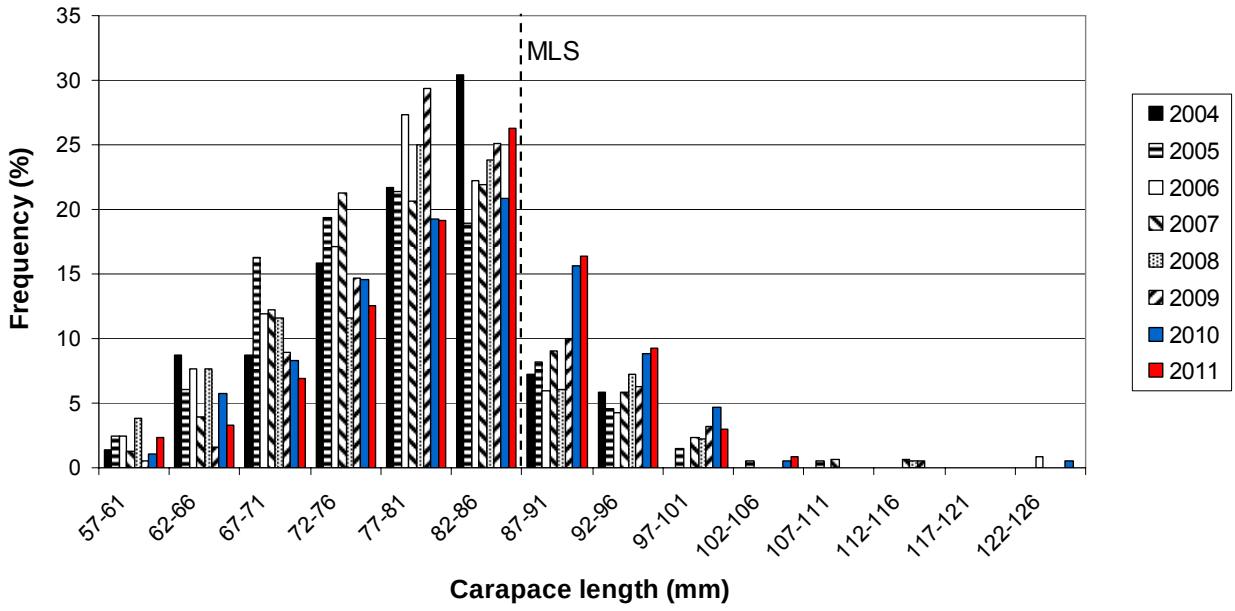
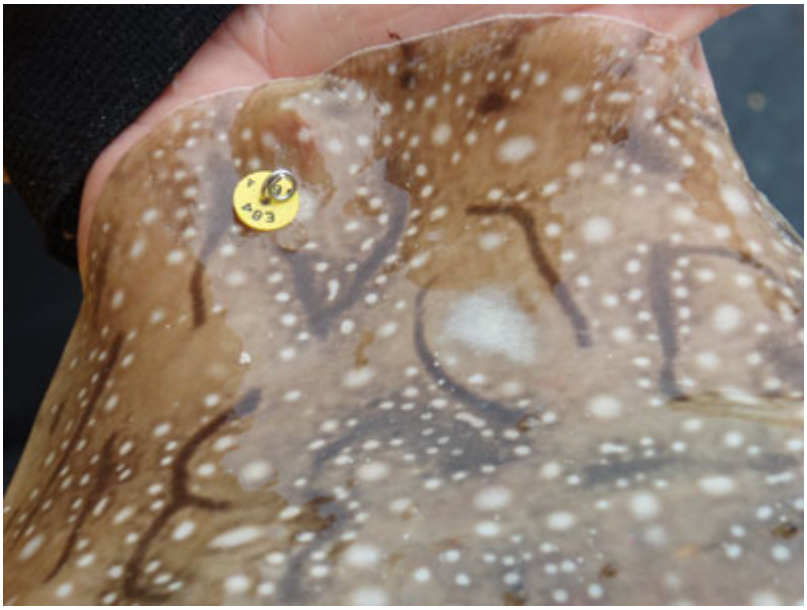



**Figure 5.** Length frequency distribution of lobster

### 2.3.3. Ray

The tagging of rays continued throughout 2011 by project partners and the Department. By the end of 2011 1173 rays had been tagged (244 blonde, 793 small-eyed, 126 undulates and 10 thornbacks). In total 188 recaptures were reported. Information from these recaptures add to our understanding of ray species biology and habitat use, which in turn contributes to the management of these stocks.
A small sample of nine small-eyed and one undulate were also internally tagged as part of other study using acoustic transmitters which will provide additional detailed information on the long term movement of these species (see chapter 6 for further details).



Tagged Undulate Ray (Photo MR)

# 3. Other uses and impacts

## 3.1. Microbial contamination

### 3.1.1. Bathing water

Monitoring of bathing water quality started in 1992, with 16 of the most popular beaches monitored weekly between May and Spetember. In 2011 all bathing waters passed the imperative standard and 93.75% passed the stringent Guideline standard[1].

### 3.1.2. Mariculture

**Table 8**. Shellfish Production Classification Areas Grading (as of December 2011)
* Provisional grading

| Production Area | Species | Grade |
|---|---|---|
| Green Island | *C. gigas* | B |
| | *O. edulis* | B* |
| Le Hocq | *C. gigas* | B |
| | *M. edulis* | B |
| La Hurel holding bed | *C. gigas* | B |
| | *M. edulis* | B |
| La Hurel main bed north | *C. gigas* | B |
| | *M. edulis* | B |
| La Hurel main bed south | *C. gigas* | B |
| Seymour Tower | *C.gigas* | A |

[1] For further information please see www.gov.je

## 3.2. Deposits in the sea

Deposits in the sea are controlled under the Food and Environment Protection Act 1985 (Jersey) Order 1987. The following licences were issued during 2011.

**Deposit of material**

| | |
|---|---|
| Licence Number | 2011/01 |
| Date Issued | 31 May 2011 |
| Project Title | St Aubin's Harbour Approach |
| Project Description | Removal and deposit of material at harbour entrance |

**Burial at sea**

| | |
|---|---|
| Licence Number | 11/01 |
| Date Issued | 05 October 2011 |
| Location | South of Jersey |

**Construction**

Whilst no licences were issued in 2011, work to widen the promenade to allow movement of emergency vehicles under licence 2010/01, was satisfactorily completed in 2011.

## 3.3. Non indigenous species

Non indigenous species can have a significant impact on a number of aspects of marine ecosystems including competition and biodiversity loss. The main routes for unintended importations include ballast waters, fouling on ships hulls and aquaculture. Some non-indigenous species have also been imported intentionally for aquaculture production, such as *Crassostrea gigas.*
Eradication of non indigenous species in the marine environment once established is considered virtually impossible due to logistic and resource issues.

**Table 9.** Non Indigenous Species

| Species Name | First record | Vector | Probable Impact |
|---|---|---|---|
| *Janua brasiliensis* | 1987 | ● | |
| *Elminius modestus* | 1983 | ● | ● ● |
| *Urocryptella diogeni* | 1952 | | |
| *Hemigrapsus sanguineus* | 2009 | ● ● | ● ● |
| *Crepidula fornicata* | 1974 | ● | ● ● |
| *Urosalpinx cinerea* | 1983 | | |
| *Crassostrea gigas* | 1982 | ● | ● ● ● |
| *Tapes philippinarum* | 2009 | ● | ● |
| *Bugula stolonifera* | 2009 | ● | ● ● |
| *Watersipora subtorquata* | 2009 | | |
| *Styela clava* | 2009 | ● | ● ● |
| *Undaria pinnatifida* | 2009 | | ● ● |
| *Sargassum muticum* | 1980 | ● ● | ● ● ● |
| *Asparagopsis armata* | 2005 | ● | |
| *Grateloupia filicina* | 1865 | | |
| *Grateloupia subpectinata* | 2011 | ● | |
| *Polyopes lancifolius* | 2011 | ● | |
| *Antithamnionella ternifolia* | 2011 | | |
| *Polysiphonia harveyi* | 1994 | | |
| *Codium fragile fragile* | 1983 | ● ● | ● ● ● |
| *Codium fragile atlanticum* | 2011 | | |

Data supplied by Dr P Chamber

**KEY**

| **Vector** | |
|---|---|
| ● | Fouling |
| ● | Ballast Water |
| ● | Secondary Spread |
| ● | Importation for aquaculture |
| ● | Aquaculture |

| **Probable Impact** | |
|---|---|
| ● | Competition |
| ● | Habitat modification |
| ● | Biodiversity loss |

# 4. Hazardous substances

## 4.1. Heavy metals

The monitoring programme commenced in July 1993 to assess whether any contamination of the marine biota was occurring from the Waterfront reclamation site. Two benthic mollusc species; the common limpet (*Patella vulgata*), an algal browser; the slipper limpet (*Crepidula fornicata), a filter feeder* and a serrated seaweed (*Fucus serratus)* were used as bio-monitors. All three species were present in large numbers around Jersey's coast. Common limpet and seaweed samples are taken from five locations around the coast and slipper limpet samples from four location and Les Ecrehous reef. The programme has now been extended to include a full suite of samples from all the offshore reefs.

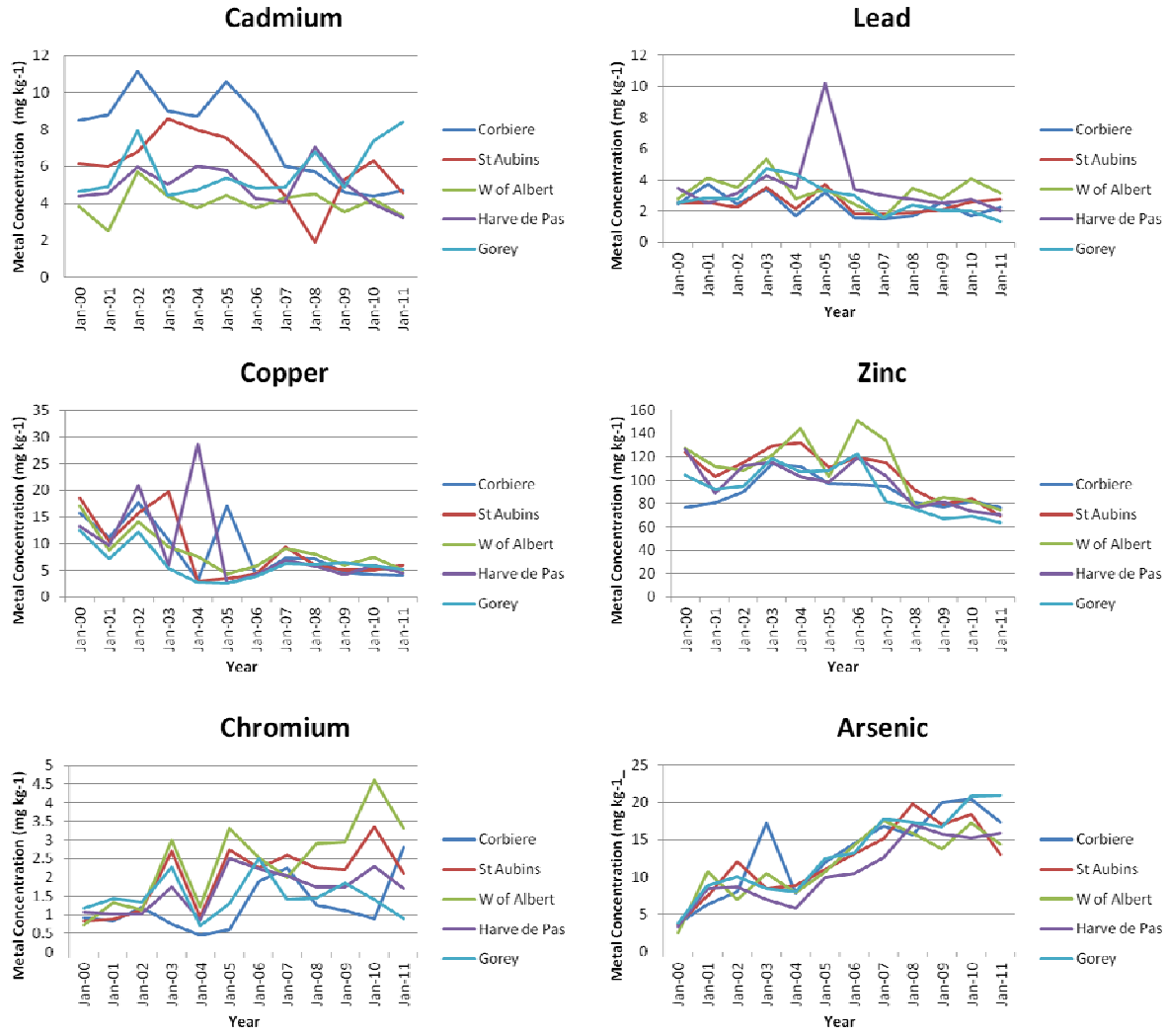



**Figure 6.** Metal concentrations in Common Limpet, *Patella vulgata.*

Whilst there is variation between metals, analysis shows that there is general correlation between sites indicating that trends are consistent around the locations sampled and therefore not indicative of a point source of these metals. However further analysis and study is required to assess some trends in the data. For example, the levels of arsenic have increased steadily over the years at all locations in both common limpet and seaweed and in recent years in slipper limpet. It is hoped the inclusion of remote offshore sites at the reefs will assist in this work.

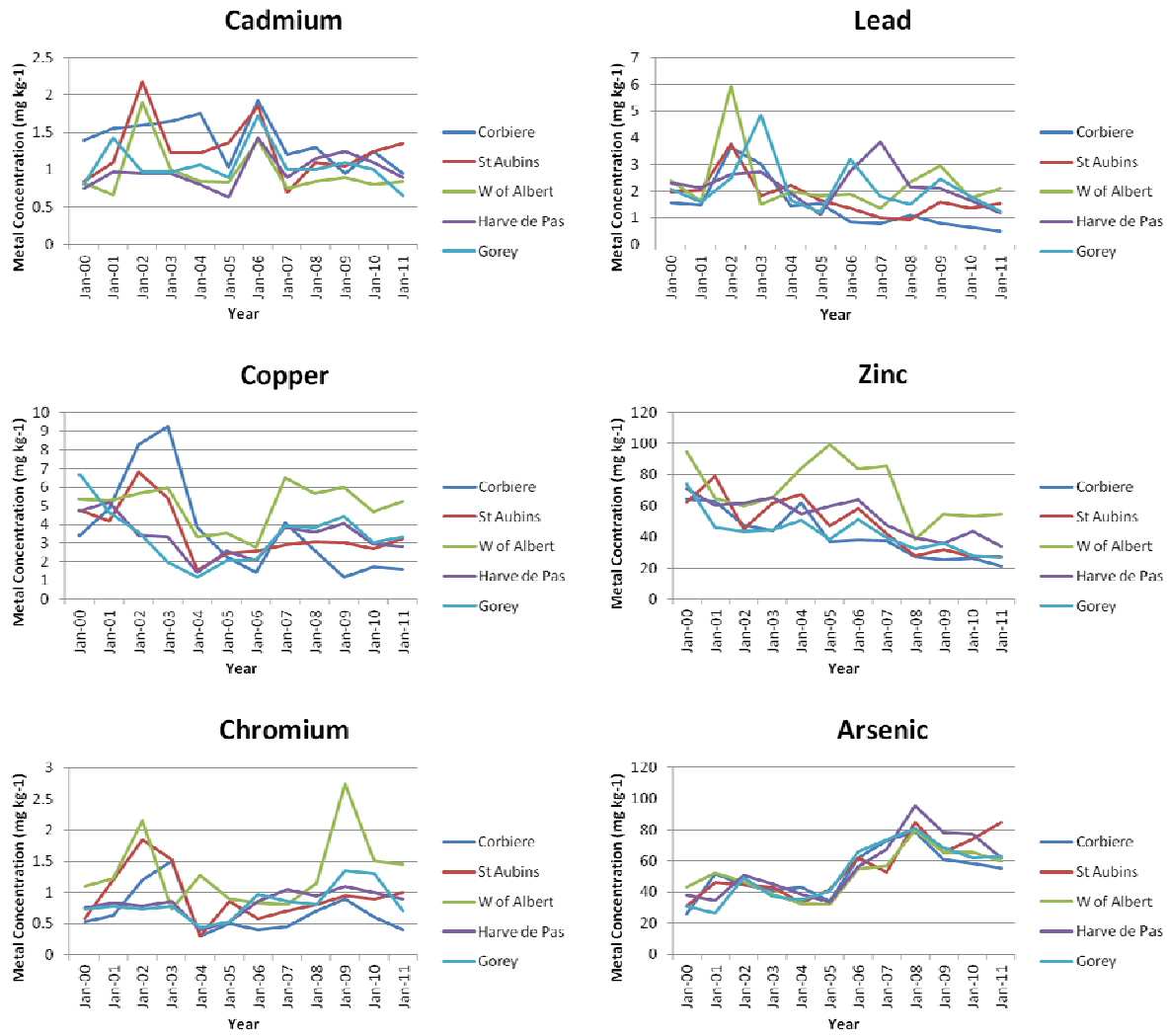



**Figure 7**. Metal concentrations in seaweed, *Fucus serratus*.

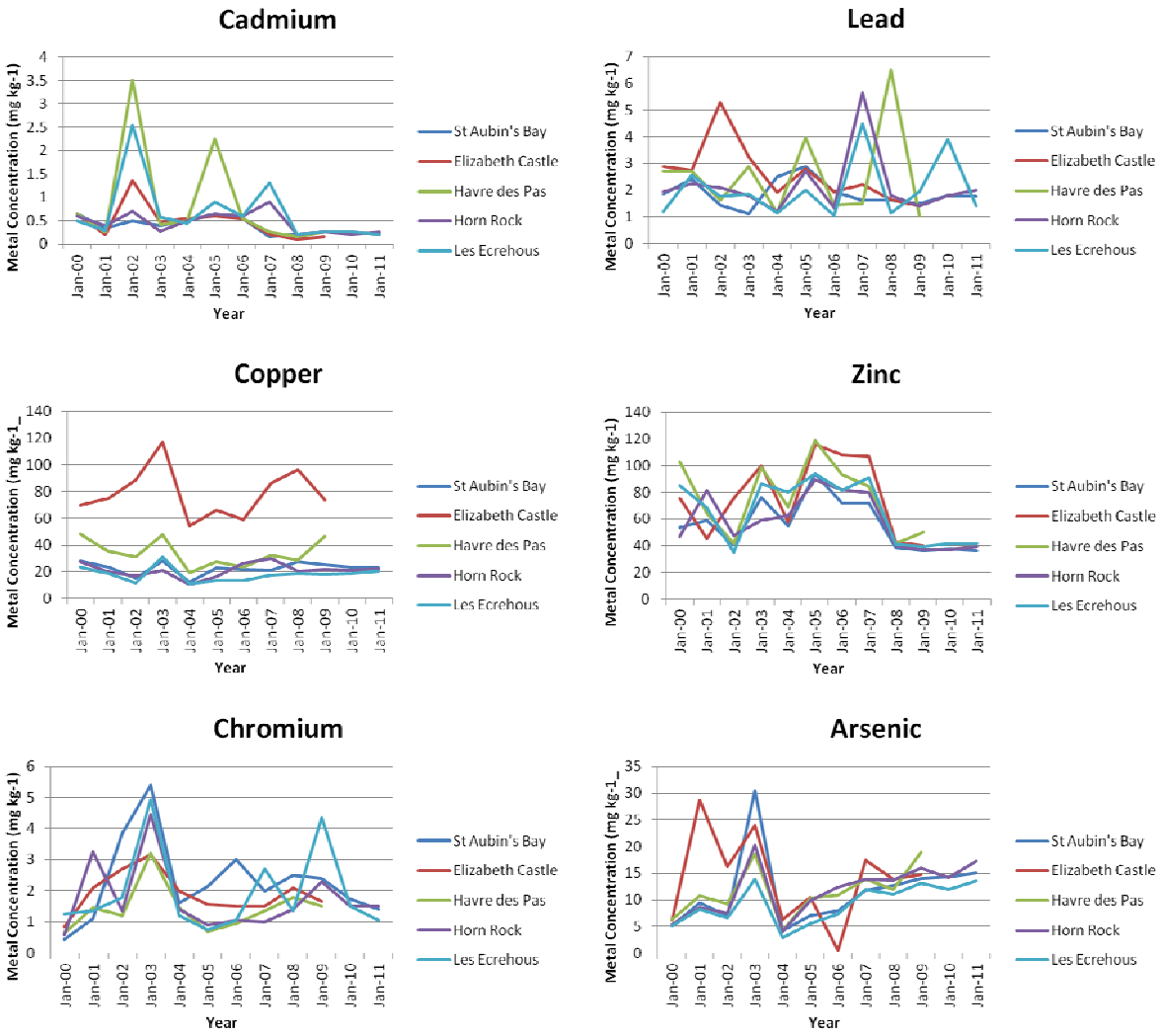



**Figure 8**. Metal concentrations in Slipper limpet, *Crepidula fornicata*.

## 4.2. Organics

There is currently no general monitoring of organic pollutants in the marine environment. Ad-hoc testing of marine biota following scrutiny panel recommendations showed extremely low levels of Polychlorinated Biphenyls (PCBs) and Polybrominated Diphenyl Ethers (PBDEs). An assessment of water quality of St Aubin's Bay, planned for 2012, will assess levels of organic pollutants. There are also a number of marine monitoring programmes that include assessment of certain organic pollutants as part of various regulatory regimes.

## 4.3. Harmful algal blooms

Shellfish and seawater samples are collected and analysed monthly from November to April and bimonthly from May to October. Samples are analysed for three algal biotoxins. In 2011, biotoxins were either not detected or below level that required action or additional samples.

**Table 10**. Algal biotoxin examination from shellfish and seawater samples

| | PSP | | DSP | | ASP | |
|---|---|---|---|---|---|---|
| | Shellfish | Seawater | Shellfish | Seawater | Shellfish | Seawater |
| 2004 | ND | <TP | Negative | <TP | ND | <TP |
| 2005 | ND | <TP | Negative | <TP | < RL | <TP |
| 2006 | ND | <TP | Negative | <TP | < RL | <TP |
| 2007 | ND | <TP | Negative | <TP | < RL | <TP |
| 2008 | ND | <TP | Negative | <TP | < RL | <TP |
| 2009 | ND | <TP | Negative | <TP | <LOQ | <TP |
| 2010 | ND | <TP | Negative | <TP | <LOQ | <TP |
| 2011 | ND | <TP | < RL | <TP | <LOQ | <TP |

**Key**

| | |
|---|---|
| ND | Not Detected |
| <TP | Below Trigger Point for additional sampling |
| < RL | Below Reporting Limit |
| <LOQ | Below Limit of Quantitation |

Royal Bay of Grouville (Photo MR)

# 5. Radioactive substances

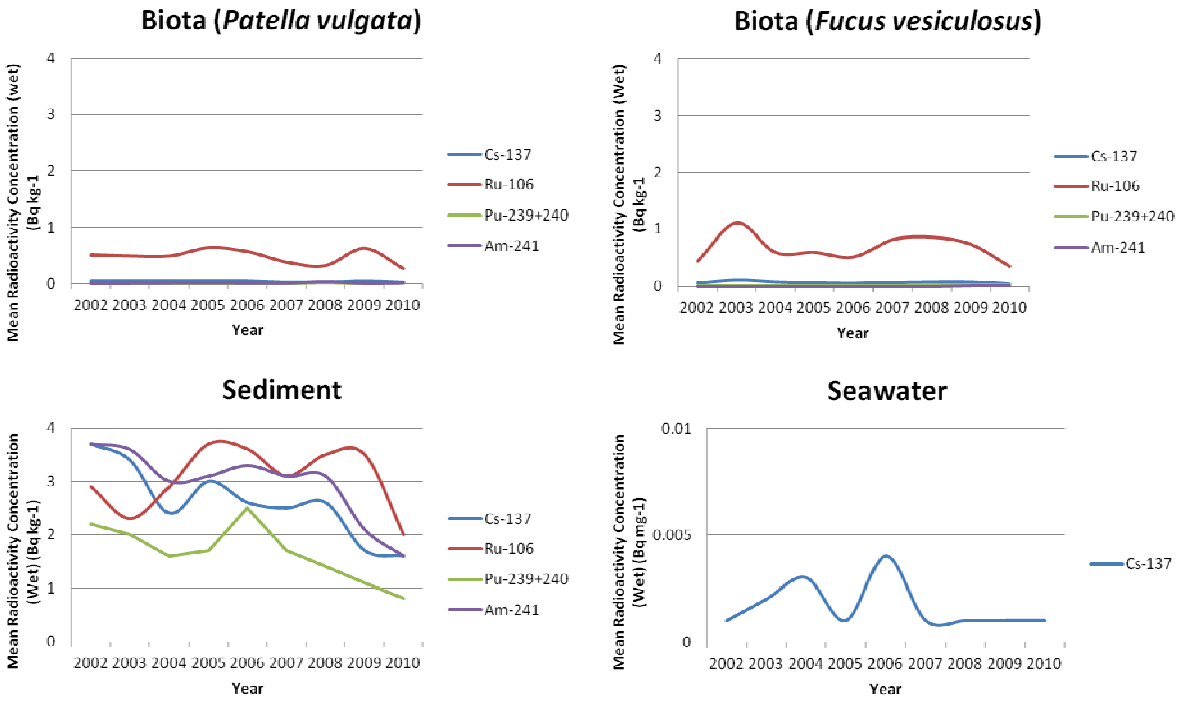



**Figure 9**. Radioactivity in marine environment

Radioactivity in the marine environment is monitored by an annual sampling programme and analysis as part of a UK wide programme. The programme monitors the effects of radioactive discharges from the French reprocessing plant at Cap de la Hague and the power station at Flamanville. It also serves to monitor any effects of the historical disposals of radioactive waste in Hurd Deep. Analysis show that the concentration of artificial radionuclides in the marine environment continue to be of negligible radiological significance. No evidence for significant releases of activity from Hurd Deep was found[2].

[2] For further details see CEFAS website (Radioactivity in Food and the Environment 2010 report)

# 6. Protection and conservation of biodiversity and ecosystems

## 6.1. Marine protected areas

Jersey's current Marine Protected Areas (MPAs) network consists of sites designated under the Ramsar Convention (see section 6.2.) and sites protected under the Fisheries Law, the most important of those covered by restrictions on certain types of fishing activity. They are the no mobile gear zones to the south and east and the no dredging zones to the south, east and north[3].
The most significant development during the year was the collaboration between Jersey and France to investigate the feasibility of creating a marine park in the Normano-Breton Gulf. This involved work on various aspects of ecosystems, species and use of the marine environment, culminating in a scientific conference in St Malo. Conference sessions looked at species, ecosystem functions and services, interaction between man and the environment and management systems. The closing session considered the marine park project in detail. Department staff were invited to sit on the Scientific Steering Committee and to speak at the conference. Full proceedings will be published in 2012.Work of the feasibility study will continue in 2012 with a joint internship planned to collate various data sets.


[3] See Fisheries and Marine Resources Annual Report 2010

### 6.1.1. Acoustic tagging project

The Acoustic tagging project continued in 2011 with an additional deployment of receivers and tagged fish. Three additional receivers were placed in St Aubin's Bay and St Brelade's Bay. Ten fish (nine small eyed rays and one undulate ray) were tagged and released during the year. All receivers were also recovered, data downloaded and re-deployed apart from the receiver stationed at the Pointe de But which could not be located.

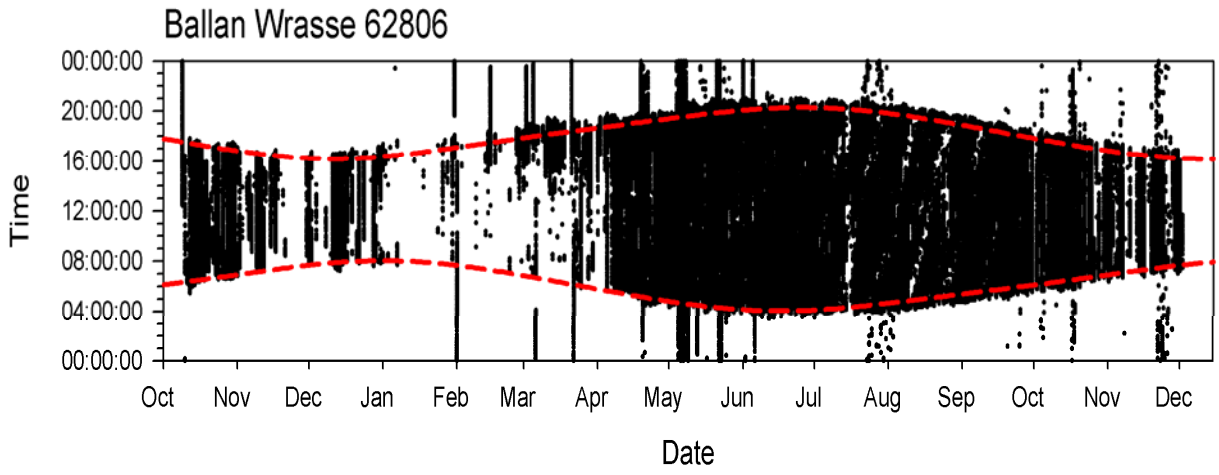



**Figure 10**. Diel detections (black points) of a ballan wrasse (Labrus bergylta) captured inside Portelet Bay in October 2009. Dashed red lines indicate sunrise (lower line) and sunset (upper line) times.

To our knowledge very few studies of this nature exist in Europe and the project represents a significant step forward in our understanding of aspects of biology of these species The project is currently being written up to be published in 2012. It is hoped that the work will continue to develop.

## 6.2. Ramsar

Significant progress was made in the management of Jersey's four Ramsar sites in 2011. The Ramsar Management Authority was created in 2010 and has worked to fulfil Jersey's obligation under the Convention on Wetlands of International Importance, commonly known as the Ramar Convention. The management plan for the South East Coast site was published on World Wetlands Day on the 2nd February. Final drafts of the three remaining management plans, for the offshore reefs of Les Écréhous and Les Dirouilles, Les Minquiers and the Paternosters, were completed by the end of 2011 with a view to publishing the plans early in 2012. Monitoring strategies for all the sites were produced with monitoring implemented where possible. Biota samples were collected and analysed for heavy metals and a habitat map was completed for the Paternosters reef.

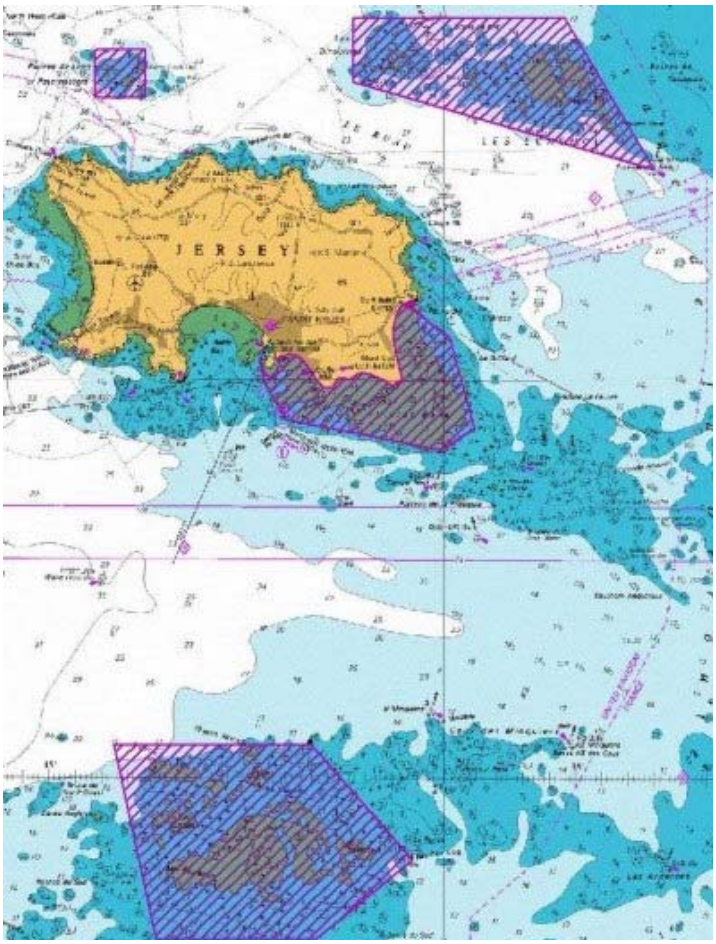



**Figure 11.** Jersey's Ramsar Sites

## 6.3. Cetaceans

Dolphins were sighted on 18 separate occasions in 2011. This was a decrease on 2010's figures, but still higher than most previous years and above the 10 year average (Fig. 10). All sightings were identified as bottlenose dolphins. Sightings occurred mainly to the north, east and south of the Island ranging from Les Écréhous in the north to Les Minquiers in the south. In total 124 adult dolphins and 15 Juveniles were observed. Juveniles represented 12% of sightings in 2011, compared to 9% in 2010, 10% in 2009 and just 3% in 2008.

Pattern and frequency of patrols was reduced in 2011, with days at sea slightly less than in 2010 due to section re-structuring. Grey seals were only sighted on two separate occasions, once at Les Ecréhous and once south of Les Minquiers.

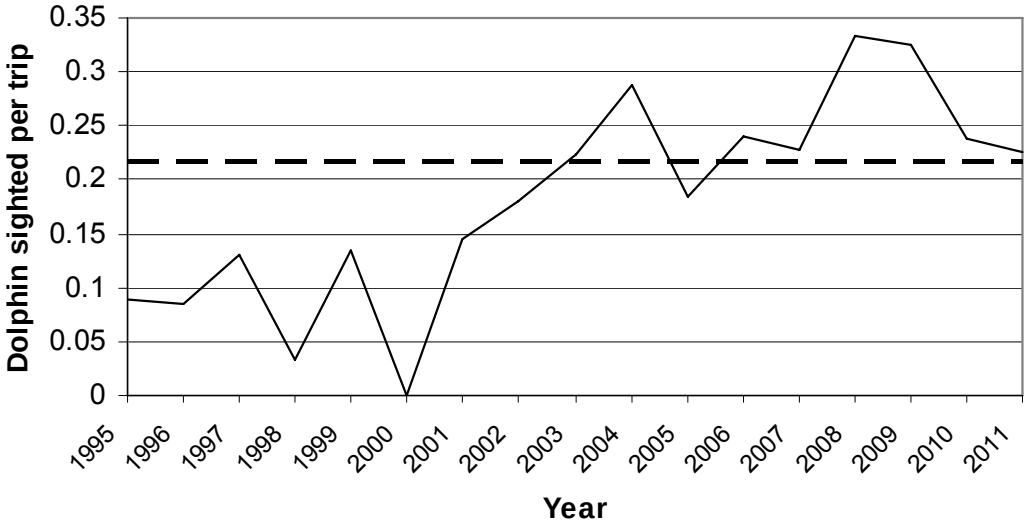



**Figure 12**. Total dolphin sightings from Fisheries Protection Vessels. The dotted line is the 2000-2010, ten year average. (Note Vessel and patrol pattern changed 1997/1998)

**Table 11**. Reported marine mammal strandings

| Date | Location | Species | Comments |
|---|---|---|---|
| 26/10/11 | Corbiere | Grey Seal | Live, newborn pup, sent to UK for veterinary care prior to release |
| 06/11/11 | Bouley Bay | Grey Seal | Dead, new born pup with umbilical, probable drowning |
| 18/12/11 | La Saline, St Ouen | Bottlenose Dolphin | Dead, decomposed, NHM form submitted. |

**Table 12.** ASCOBANS report

| | |
|---|---|
| **A. HABITAT CONSERVATION AND MANAGEMENT** | |
| 1. Direct Interaction with Fisheries | |
| Investigations of methods to reduce bycatch | None reported or observed bycatch |
| Implementation of methods to reduce bycatch | None |
| 2. Reduction of Disturbance | |
| Anthropogenic noise | No investigations undertaken |
| Ship strike incidents | None reported or observed |
| Major incidents affecting significant numbers of cetaceans | None reported or observed |
| Pollution and hazardous substance | No pollution incidents or presence of hazardous substances reported or recorded that impacted on cetaceans. |
| Other forms of disturbance | Some concerns raised due to low level disturbance caused by hand feeding of seals by members of the public. Dealt with by reminding members of the public of Code of Conduct by local media outlets. |
| 3. Marine Protected Areas for small cetaceans | |
| Specific measures for cetaceans | Ramsar Managements Plans prepared (1 published; 3 in final draft) highlighting importance of cetaceans. Monitoring strategy includes monitoring on cetacean activity. |
| **B. SURVEYS AND RESEARCH** | |
| Abundance, distribution and population structure | The marine biology section of the Societe Jersiaise receive and collate information from the public concerning cetacean sightings. This data is available online. Sighting data is also recorded by the States of Jersey Fisheries Protection Vessel. |
| New technology developments | None |
| Other relevant research | Jersey continues to participate in the NHM's strandings programme.<br>Two acoustic receivers have been set by Groupe d'Etude des Cetaces du Cotentin, at Les Minquiers reef as part of a wider study in the Normano-Breton gulf.<br>An aerial survey has also been planned as part of the Marine Park project. This survey will occur in 2012. |

| | |
|---|---|
| **C. USE OF BY CATCH AND STRANDINGS** | |
| Post-Mortem Research Scheme | None undertaken |
| **D. LEGLISATION** | |
| Relevant new legislation, regulation and guidelines | No new leglisation |
| **E. INFORMATION AND EDUCATION** | |
| Any public awareness and education activities | Code of conduct available for fishermen and general public. Code reviewed and updated as necessary. WiSe courses run as required for commercial operators and other interested individuals. |

## 6.4. Critical habitats and species

Under various International Agreements, Jersey is obliged to monitor and assess the status of critical marine habitats and species. For certain species groups specific monitoring programmes are well established (e.g. cetaceans) or part of a wider reporting obligations (e.g. fishing vessel logsheets and landing declarations). Monitoring of critical habitats is undertaken as part as other programmes such as Ramsar monitoring plans or as specific assessments (e.g. seagrass and maerl).

**Table 13**. Critical habitats and species monitoring status

| Species | Listing | Monitoring Status | Key Pressures |
|---|---|---|---|
| **MOLLUSC** | | | |
| Dog Whelk, *Nucella lapillus* | OSPAR | ● | ● |
| Flat Oyster, *Ostrea edulis* | OSPAR | | ● |
| Ocean Quahog, *Arctica islandica* | OSPAR | ● | |
| **FISH** | | | |
| Sea Lamprey, *Petromyzon marinus* | BERN OSPAR, Habitats Directive | ● | ● ● |
| Porbeagle Shark, *Lamna nasus* | OSPAR | ● | ● |
| Basking Shark, *Cetorhinus maximus* | BERN OSPAR | ● | ● ● ● |
| Spiny Dogfish, *Squalus acanthias* | OSPAR | ● | ● |
| Angel Shark, *Squatina squatina* | OSPAR | ● | ● |
| Thornback Ray, *Raja clavata* | OSPAR | ● | ● |
| Spotted Ray, *Raja montagui* | OSPAR | ● | ● |
| European Sturgeon, *Acipenser sturio* | BERN OSPAR Habitats Directive CITES | ● | ● ● |
| European Eel, *Anguilla Anguilla* | OSPAR | ● | ● ● |
| Allis Shad, *Alosa alosa* | BERN OSPAR, Habitats Directive | ● | ● |
| Twait Shad, *Alosa fallax* | BERN | ● | ● |
| Atlantic Salmon, *Salmo salar* | BERN OSPAR, Habitats Directive | ● | ● |
| Short-snouted Seahorse, *Hippocampus hippocampus* | BERN OSPAR CITES | ● | |
| Common Goby, *Pomatoschistus microps* | BERN | ● | |
| Sand Goby, *Pomatoschistus* | BERN | ● | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| *minutus* | | | | | | | | | | |
| Atlantic BlueflN Tuna, *Thunnus thynnus* | OSPAR | ● | | | | ● | | | | |
| **REPTILE** | | | | | | | | | | |
| Loggerhead Turtle, *Caretta caretta* | BERN<br>CMS<br>OSPAR<br>Habitats Directive | ● | | | | ● | ● | ● | ● | |
| Hawksbill Turtle, *Eretmochelys imbricata* | BERN<br>CMS<br>Habitats Directive | ● | | | | ● | ● | ● | ● | |
| Leatherback Turtle, *Dermochelys coriacea* | BERN<br>CMS<br>OSPAR<br>Habitats Directive | ● | | | | ● | ● | ● | ● | |
| **MARINE MAMMAL** | | | | | | | | | | |
| Harbour Seal, *Phoca vitulina* | BERN<br>CMS<br>Habitats Directive | ● | | | | ● | | | | |
| Grey Seal, *Halichoerus grypus* | BERN<br>CMS<br>Habitats Directive | ● | | | | ● | | | | |
| Stripped Dolphin, *Stenella coeruleoalba* | BERN<br>ASCOBANS<br>Habitats Directive<br>CITES | ● | | | | ● | | | | |
| Short-becked Common Dolphin, *Delphinus delphis* | BERN<br>ASCOBANS<br>Habitats Directive<br>CITES | ● | | | | ● | | | | |
| Bottlenose Dolphin, *Tursiops truncates* | BERN<br>ASCOBANS<br>Habitats Directive<br>CITES | ● | | | | ● | | | | |
| Atlantic White-sided Dolphin, *Lagenorhynchus acutus* | BERN<br>ASCOBANS<br>Habitats Directive<br>CITES | ● | | | | ● | | | | |
| White-beaked Dolphin, *Lagenorhynchus albirostris* | BERN<br>ASCOBANS<br>Habitats Directive<br>CITES | ● | | | | ● | | | | |

| | | | |
|---|---|---|---|
| Orca Whale, *Orcinus orca* | BERN<br>ASCOBANS<br>Habitats Directive<br>CITES | ● | ● |
| Grey Seal, *Grampus griseus* | BERN<br>ASCOBANS<br>Habitats Directive<br>CITES | ● | ● |
| Harbour Porpoise, *Phocoena phocoena* | BERN<br>ASCOBANS<br>OSPAR<br>Habitats Directive<br>CITES | ● | ● ● |
| Fin Whale, *Balaenoptera physalus* | BERN<br>Habitats Directive | ● | |
| **ALGAE** | | | |
| Maerl, *Phymatolithon calcareum* | Habitats Directive | ● | ● |
| **FLOWERING PLANT** | | | |
| Shore dock, *Rumex rupestris* | BERN<br>Habitats Directive | ● | ● |
| Seagrass, *Zostera marina* | BERN | ● | ● ● |

| Habitat | Listing | Monitoring Status | Key Pressures |
|---|---|---|---|
| Intertidal mudflats | OSPAR | ● | ● ● |
| Intertidal sandbanks | OSPAR | ● | ● ● |
| Zostera beds | OSPAR | ● | ● ● ● |
| Maerl beds | OSPAR | ● | ● |

**KEY**

| Monitoring Status | |
|---|---|
| ● | Actively Monitored |
| ● | Part of Wider Monitoring Programme |
| ● | Not Monitored |

| Key Pressures | |
|---|---|
| ● | Removal of target or non-target species |
| ● | Oil Pollution |
| ● | Hazardous Substances |
| ● | Ship Strike |
| ● | Anthropogenic Disturbance |
| ● | Habitat Loss or Damage |

# 7. Management

## 7.1. Legislation

Whilst significant ground work on various legislation, including EU regulations, licensing and management of aquatic resources, was undertaken during the year no new legislation was introduced in 2011.

Ministerial Orders were signed to renew mariculture concessions, implement the spider crab closed season and appointment of Fishery Officers

## 7.2. Marine stewardship council accreditation

After several years work the lobster fishery in the Bay of Granville achieved the Marine Stewardship Council accreditation in June. Representatives from the Jersey Fishermen's Association, Comite Regional des Peches Maritime de Basse Normandie and the Department collaborated to achieve this important certification. The accreditation further strengthens the relationship between Jersey and France to manage joint stocks as set out in the Bay of Granville Agreement
It is the first clawed lobster fishery in Europe and one of the few international "cross frontier" fisheries to be certified.
The MSC accreditation requires annual audits which assess the fishery based on the agreed Action Plan. Fishermen and scientists, from Jersey and France, will be working to deliver the plan over the coming year.

## Partner Organisations