

**SCOTTISH  
NATURAL  
HERITAGE**



**Sanday  
Special Area of Conservation**

**Advice under Regulation 33(2)**  
of The Conservation (Natural Habitats, &c.) Regulations 1994  
(as amended)

30 March 2006

## About this Package:

Section 1 of this document provides a general introduction and Sections 2 and 3 fulfil Scottish Natural Heritage's duties under Regulation 33(2) of The Conservation (Natural Habitats, &c.) Regulations 1994 (Habitats Regulations) (as amended by The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2004). This requires that SNH advises other relevant authorities as to the conservation objectives of the site (see Section 2) and any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species, in so far as such disturbance could be significant, for which the site has been designated (see Section 3).

Annexes A and B provide supplementary, non-statutory information. Annex A gives information on the sensitivity and vulnerability of the qualifying interests: 'Common seal *Phoca vitulina*'; 'Mudflats and sandflats not covered by sea water at low tide'; 'Reefs'; and 'Sandbanks which are slightly covered by sea water all the time'. Annex B gives some indication as to the extent, distribution, structure, function and processes that affect the qualifying interests. It should be noted that this is indicative and not definitive, and as more site information is gathered these sections may be updated.

Sanday was designated by Scottish Ministers as a Special Area of Conservation (SAC) on 17<sup>th</sup> March 2005. This site is also referred to as a 'European site' (Regulation 10(1)). A 'European marine site' is a 'European site' which is wholly or in part marine (Regulation 2(1)) and is hereafter referred to as a marine SAC.

Although the following statutory information is for the benefit of relevant authorities (see below for explanation of their role), it can also be used by other competent authorities when assessing plans or projects.

## 1 Introduction

### 1.1 Background

The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended by The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2004), commonly referred to as the Habitats Regulations, transpose the EC Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive) into domestic legislation. Regulation 33(2) gives Scottish Natural Heritage a statutory responsibility to advise other relevant authorities as to the conservation objectives for marine SACs in Scotland, and any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species for which the site has been designated.

This document presents the Regulation 33 advice, plus supporting information, for the Sanday SAC to assist relevant and competent authorities, local interest groups and individuals in considering management of the site. This advice, plus supporting information, will also help to determine the scope and nature of any “appropriate assessment”, which the Habitats Directive requires to be undertaken for proposed plans and projects that are not connected to the conservation management of the site and are considered likely to have a significant effect. Where necessary Scottish Natural Heritage will also provide more detailed advice to relevant, and other competent, authorities to inform assessment of the implications of any such plans or projects.

### 1.2 Relevant and competent authorities

Within the context of a marine SAC, a relevant authority is a body or authority that has a function in relation to land or waters within or adjacent to the site (Regulation 5) and include: a nature conservation body; a local authority; water undertakers; a navigation authority; a harbour authority; a lighthouse authority; a river purification board (SEPA); a district salmon fishery board; and a local fisheries committee. All *relevant authorities* are *competent authorities*.

A competent authority is defined in Regulation 6 as “any Minister, government department, public or statutory undertaker, public body of any description or person holding a public office”. In the context of a plan or project, the *competent authority* is the authority with the power or duty to determine whether or not the proposal can proceed.

### 1.3 The role of relevant authorities

The Habitats Regulations require relevant authorities to exercise their functions so as to secure compliance with the Habitats Directive. A management scheme may be drawn up for each marine SAC by the relevant authorities as described under Regulation 34. For marine SACs with overlapping interests, a single management scheme may be developed.

Where a management scheme is in place the relevant authorities must ensure that all plans for the area integrate with it. Such plans may include shoreline

management plans, Sites of Special Scientific Interest (SSSI) management plans, local Biodiversity Action Plans (BAPs) and sustainable development strategies for estuaries. This must occur to ensure that only a single management scheme is produced through which all relevant authorities exercise their duties under the Habitats Regulations.

#### **1.4 Responsibilities under other conservation designations**

Other designations within or adjacent to the Sanday marine SAC are: East Sanday Coast SSSI; East Sanday Coast Special Protection Area; East Sanday Coast Ramsar site. The obligations of relevant, and other competent authorities and organisations under such designations and legislation are not affected by the advice contained in this document.

#### **1.5 Conservation objectives**

Section 2 of this document contains the conservation objectives for the Sanday marine SAC, a site which consists entirely of marine qualifying interests. The conservation objectives have been developed to ensure that the obligations of the Habitats Directive are met.

#### **1.6 Advice as to operations**

The operations, set out in Section 3, are those which SNH advise may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated. This does not necessarily mean that the operations are *presently* ongoing or, if they are, that they are at levels incompatible with the conservation objectives.

#### **1.7 Plans and projects**

The Habitats Regulations require that, where an authority concludes that a development proposal is unconnected with the nature conservation management of a Natura site and is likely to have a significant effect on that site, it must undertake an appropriate assessment of the implications for the qualifying interests for which the area has been designated.

#### **1.8 Review of Consents**

Competent authorities are required by the Habitats Regulations to undertake a review of all consents and permissions for activities affecting the site as soon as reasonably practicable after it becomes a European site. This will have implications for discharge and other consents, which will need to be reviewed in the light of the conservation objectives.

## **2 Statutory advice given by SNH under Regulation 33(2) Conservation Objectives**

### **2.1 Introduction**

This section provides conservation objectives, which have been developed by SNH in agreement with the Scottish Executive and are to be provided to the relevant authorities in fulfilment of the requirements under Regulation 33(2) of The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended by The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2004).

The conservation objectives ensure that the obligations of the Habitats Directive are met; that is, there should not be deterioration or significant disturbance of the qualifying interest. This will also ensure that the integrity of the site is maintained and that it makes a full contribution to achieving favourable conservation status for its qualifying interests.

The Sanday marine SAC has been designated for the species 'Common seal *Phoca vitulina*', which is listed on Annex II of the Habitats Directive, as well as for the Annex I habitats 'Mudflats and sandflats not covered by sea water at low tide', 'Reefs' and 'Sandbanks which are slightly covered by sea water all the time'.

The Sanday SAC consists entirely of marine qualifying interests.

**The conservation objectives for the Sanday marine SAC are as follows:**

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| To avoid deterioration of the habitats of qualifying species ( <b>Common seal <i>Phoca vitulina</i></b> ) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for the qualifying interest. |
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| To ensure for the qualifying species that the following are maintained in the long term: |
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- |  |
|--|
| <ul style="list-style-type: none"> <li>• Population of the species as a viable component of the site</li> <li>• Distribution of the species within site</li> <li>• Distribution and extent of habitats supporting the species</li> <li>• Structure, function and supporting processes of habitats supporting the species</li> <li>• No significant disturbance of the species</li> </ul> |
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| To avoid deterioration of the qualifying habitats ( <b>Mudflats and sandflats not covered by seawater at low tide, Sandbanks which are slightly covered by seawater all the time and Reefs</b> ) thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying interests. |
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| To ensure for the qualifying habitats that the following are maintained in the long term: |
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- |  |
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| <ul style="list-style-type: none"> <li>• Extent of the habitat on site</li> <li>• Distribution of the habitat within site</li> <li>• Structure and function of the habitat</li> <li>• Processes supporting the habitat</li> <li>• Distribution of typical species of the habitat</li> <li>• Viability of typical species as components of the habitat</li> <li>• No significant disturbance of typical species of the habitat</li> </ul> |
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### **3 Statutory advice given by SNH under Regulation 33(2) Operations**

The following advice as to operations to be considered by relevant authorities is provided by SNH with respect to the Sanday marine SAC in fulfilment of the requirements under Regulation 33(2)(b) of The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended by The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2004). The advice identifies those operations, either on or affecting the SAC, which may cause deterioration of the marine natural habitats or the habitats of species, or disturbance of species, for which the site has been designated. These include operations that may not be currently affecting the Sanday marine SAC.

#### **Operations (in alphabetical order)**

##### **Aquaculture**

Finfish farming  
Shellfish farming

##### **Coastal Development**

Agriculture  
Civil engineering  
Lighthouse maintenance

##### **Fishing**

Mobile gear: Dredging  
Static gear: Creel / Pot fishing

##### **Gathering / Harvesting**

Harvesting of seaweed subtidally  
Intertidal collection of shellfish  
Intertidal gathering of cast seaweed

##### **Marine Development**

Extraction of intertidal material

##### **Recreational Activities**

Boat anchorages  
Boat moorings  
Charter / recreational vessels  
Other recreational activities  
Scuba diving and snorkelling  
Sea kayaking

##### **Scientific Research**

Scientific research

## Annex A

### Non-statutory advice given by SNH

### Sensitivity and Vulnerability of the Sanday SAC 'Common seal *Phoca vitulina*', 'Reefs', 'Sandbanks which are slightly covered by sea water all the time' and 'Mudflats and sandflats not covered by sea water at low tide' to activities listed in Section 3

The comments below are general and should not be considered to be definitive. They are made without prejudice to any comments SNH may provide or any assessment that may be required for specific proposals to be considered by a relevant authority. The level of any impact will depend on the location and intensity of the relevant activity. This advice is provided to assist and focus the relevant authorities in their consideration of the management of these operations.

NB. References to deterioration in the comments section below should be taken to mean *deterioration of all the qualifying interests*. If specific qualifying interests are particularly at risk they may be referred to individually where relevant.

| Operations         | Comments  |
|--------------------|---|
| <b>Aquaculture</b> |   |
| Finfish farming    | <p><b>Seals:</b> Finfish farming has the potential to cause disturbance, injury or mortality to seals through entanglement in anti-predator nets or nets used to re-capture escaped fish, shooting (legal only outwith the close season) to protect fish farm stock from seal damage, or using acoustic deterrent devices (ADDs). Chemical treatments associated with finfish farming have the potential to adversely affect seals.</p> <p>Boat activity associated with finfish farming has the potential to cause disturbance to seals, particularly during breeding and pupping (late May to end June) and moulting (August) seasons.</p> <p><b>Habitats:</b> Finfish farming has the potential to cause deterioration of qualifying habitats and communities through changes in water quality, smothering from waste material and physical disturbance from mooring systems. There is potential for accidental introduction of new non-native species and increasing the spread of existing non-native plants and animals (e.g. <i>Caprella mutica</i> Japanese skeleton shrimp), which are already widely distributed in the UK. Invasive species have the potential to cause deterioration of the qualifying interests by altering community structure and quality.</p> |
| Shellfish farming  | <p><b>Seals:</b> Shellfish farming has the potential to cause disturbance, injury or mortality to seals through entanglement in anti-predator nets. Use of ADDs or other predator control methods (eg. sonic canon, boat chasing) to prevent grazing by eiders has the potential to cause disturbance to seals.</p> <p>Boat activity associated with shellfish farming has the potential to cause disturbance to seals, particularly during breeding and pupping and moulting seasons.</p>  |

| <b>Aquaculture contd.</b>        |  |
|----------------------------------|--|
| Shellfish farming contd.         | <p><b>Habitats:</b> This activity has the potential to cause deterioration of the qualifying habitats and communities through physical damage (e.g. installation of mooring blocks and continued scouring by riser chains) and changes in community structure caused by smothering from pseudo-faeces (undigested waste products) and debris (including dead shells) falling from the farm. There is also potential for accidental introduction of new non-native species and increasing the spread within the UK of existing non-native plants and animals (e.g. <i>Sargassum muticum</i> Wireweed), through importation or translocation of shellfish stocks. Invasive species have the potential to cause deterioration of the qualifying interests by altering community structure and quality.</p>  |
| <b>Coastal Development</b>       |  |
| Agriculture                      | <p><b>Habitats:</b> Diffuse run-off from agricultural practices has the potential to cause deterioration of qualifying habitats and communities, particularly reefs, through the smothering of qualifying interests, and / or altering water quality through discharge of organic and inorganic pollutants.</p>  |
| Civil engineering                | <p><b>Seals:</b> The construction and maintenance of structures, both within and adjacent to the sea, have the potential to cause disturbance during the breeding, pupping and moulting seasons. This activity also has the potential to cause loss or deterioration of the habitats upon which the seals depend during the same critical periods.</p> <p><b>Habitats:</b> The construction and maintenance of structures, both within and adjacent to the sea have the potential to cause direct loss of qualifying habitats (particularly reefs) and deterioration of adjacent habitats and communities as tidal currents and therefore coastal processes are affected. For example coastal structures such as linear coastal defences or erosion control measures (e.g. gabions) can affect local sediment suspension and deposition patterns and therefore have the potential to cause deterioration of qualifying habitats through smothering. Installation, replacement and maintenance of undersea cables have the potential to cause direct loss of qualifying habitats as well as local deterioration of associated habitats and communities.</p> |
| Lighthouse maintenance           | <p><b>Seals:</b> The use of helicopter for the servicing of the lighthouse has the potential to cause disturbance to seals, particularly during the breeding, pupping and moulting seasons. This would be through noise disturbance and human presence.</p>  |
| <b>Fishing</b>                   |  |
| Mobile gear: Dredging            | <p><b>Habitats:</b> Benthic dredging has the potential to cause deterioration of qualifying seabed habitats and communities through direct contact with dredge gear, and sedimentation when dredging occurs close to the reef qualifying interest.</p>   |
| Static gear: Creel / Pot fishing | <p><b>Seals:</b> Creel / pot fishing has the potential to impact seals as they have been known to attempt to rob creels of their bait, consequently become entangled and subsequently drown.</p> <p><b>Habitats:</b> The use of creels and / or pots in a localised area has the potential to cause deterioration of qualifying habitats and communities (particularly reefs) through direct contact, particularly during their deployment and / or recovery.</p>  |
| <b>Gathering / Harvesting</b>    |  |
| Harvesting of seaweed subtidally | <p><b>Seals:</b> Harvesting of subtidal kelp has the potential to cause disturbance to seals by human presence. In addition, a reduction in the amount of subtidal kelp would lead to increased coastal erosion and a reduction in the foraging areas available to the seals.</p> <p><b>Habitats:</b> Harvesting of seaweed subtidally has the potential to cause deterioration of qualifying habitats and communities (particularly reefs) by physical damage or through the loss of target species, which can cause imbalances in community and ecosystem structures.</p>  |

| <b>Gathering / Harvesting contd.</b> |   |
|--------------------------------------|---|
| Intertidal collection of shellfish   | <p><b>Seals:</b> Collection of shellfish from intertidal areas has the potential to cause disturbance to seals (particularly during breeding, pupping and moulting seasons), mainly caused by intense and prolonged human presence.</p> <p><b>Habitats:</b> Collection of shellfish from intertidal areas has the potential to cause deterioration of qualifying habitats and communities (particularly reefs) through physical damage and disturbance to qualifying habitats (trampling and turning stones), and removal of the target species, which can cause an imbalance of communities and ecosystems.</p>  |
| Intertidal gathering of cast seaweed | <p><b>Seals:</b> Gathering of cast seaweed from intertidal areas has the potential to cause disturbance to seals (particularly during breeding, pupping and moulting seasons), mainly caused by intense and prolonged human presence.</p> <p><b>Habitats:</b> The gathering of cast seaweed has the potential to cause deterioration of intertidal qualifying habitats and communities (particularly reefs) through physical damage and disturbance (trampling). Removal of the target species can cause an imbalance of communities and ecosystems within the intertidal area, which may affect qualifying interests.</p>  |
| <b>Marine Development</b>            |   |
| Extraction of intertidal material    | <p><b>Seals:</b> Extraction of intertidal sand, stone and shingle has the potential to cause disturbance during the breeding, pupping and moulting seasons. This activity also has the potential to cause loss or deterioration of the habitats upon which the seals depend during the same critical periods.</p> <p><b>Habitats:</b> Removal of boulders have the potential to cause deterioration of qualifying interests, particularly reefs, through direct loss of habitats and associated species. Gaining mechanical access to the intertidal areas has the potential to cause deterioration to adjacent habitats through direct loss of intertidal reef, or sedimentation and local deterioration of any of the qualifying habitats and communities.</p>  |
| <b>Recreational Activities</b>       |   |
| Boat anchorages                      | <p><b>Habitats:</b> Anchors and continual scouring by riser chains have the potential to cause deterioration of qualifying habitats and communities through direct contact with the qualifying interests, particularly reefs.</p>   |
| Boat moorings                        | <p><b>Habitats:</b> Moorings and continual scouring by riser chains have the potential to cause deterioration of qualifying habitats and communities through direct contact with the qualifying interests, particularly reefs.</p>  |
| Charter / recreational vessels       | <p><b>Seals:</b> Charter boats, especially on trips specifically designed to visit seal colonies, have the potential to disturb seals (particularly during the sensitive breeding, pupping and moulting periods) if appropriate guidelines for watching seals are not adhered to.</p> <p>Charter and recreational vessels may leave visitors to explore offshore islands or more remote areas that are close to seal haul out sites. Such human presence also has the potential to cause disturbance to seals if guidelines are not adhered to.</p> <p><b>Habitats:</b> Boats have the potential to cause deterioration of qualifying habitats and communities, particularly reefs, through repeated launching and recovery in specific areas, accidental grounding, and accidental fuel spillages.</p> |
| Other recreational activities        | <p><b>Seals:</b> Land-based visitors have the potential to cause disturbance to seals, and deterioration to their associated habitats, if guidelines for watching seals are not adhered to. This is particularly so if visits are unmanaged, in large groups or with dogs, especially during the breeding, pupping or moulting seasons.</p>   |

| <b>Recreational Activities contd.</b> |   |
|---------------------------------------|---|
| Scuba diving and snorkelling          | <p><b>Seals:</b> Recreational diving and snorkelling in specific areas has the potential to cause disturbance to seals, particularly during the breeding, pupping and moulting seasons. The use of RHIBs and hard-boats associated with these activities also have the potential to cause disturbance to seals.</p> <p><b>Habitats:</b> Recreational diving in specific areas has the potential to cause deterioration of qualifying habitats and communities, in particular to erect and fragile reef species.</p> |
| Sea kayaking                          | Sea kayaking and other activities such as canoeing and rowing have the potential to cause disturbance to seals, particularly during the breeding, pupping and moulting seasons. This disturbance will mainly be caused by seals being suddenly alarmed by the proximity of a quiet, approaching boat.   |
| <b>Scientific Research</b>            |   |
| Scientific research                   | <p><b>Seals:</b> Research activities have the potential to cause disturbance to common seals, particularly during the breeding, pupping and moulting seasons.</p> <p><b>Habitats:</b> Research activities have the potential to cause deterioration of qualifying habitats and communities through direct alteration, removal or manipulation of any of the qualifying interests and their associated species.</p>  |

## Annex B

### Non-statutory Advice given by SNH Site account

#### Site description

Sanday is a large, low-lying island situated in the north-east of the Orkney archipelago. The island has a complex coastline characterised by extensive sandy beaches, sheltered inlets and exposed rocky headlands. The coastal waters of Sanday hold the largest colony of common seals at any relatively discrete site in Scotland. Around 1,450 adults haul out on the intertidal reefs to pup, moult and rest. This represents around 17% of the Orkney, 5% of the UK and 2% of the EU populations of the species. During the 1998 breeding survey over 550 pups were observed at the site, accounting for 34% of new-born pups in Orkney. Large breeding colonies are important in maintaining overall population size and are significant as sources of emigration to smaller or newly established groups.

#### Qualifying marine interests

##### Annex I Habitats:

##### Reefs

Intertidal, shallow subtidal & offshore bedrock reef habitats are located throughout the Sanday marine SAC.

The intertidal reefs are typically composed of ridged bedrock platforms; the associated community composition on south and east-facing rocky headlands is essentially similar throughout the site. The upper shore is afforded some shelter by offshore shallows and typically supports a sparse fucoid community of channel wrack and spiral wrack. The mid-shores are usually moderately exposed to wave action and colonised by a variable mosaic of barnacles, limpets and bladder wrack. The lower shores are typically exposed to wave action; the associated floral community is dominated by red algal turfs, often interspersed amongst serrated wrack *Fucus serratus* or dense swathes of thong-weed *Himantalia elongata*. Kettletoft Bay is a less exposed site and dense coverage of knotted wrack *Ascophyllum nodosum* characterises the mid-shore. Many rock pools occur across the intertidal zone. Deep rock pools on the mid-shore support species-rich algal communities including fucoids and kelps, whereas pools that are partially filled by cobbles and sand are characterised by scour-tolerant algae, for example, sugar kelp *Laminaria saccharina*.

Shallow subtidal reef habitats are characterised by particularly extensive kelp forests, which are colonised by species-rich assemblages of sea squirts, sponges, hydroids and bryozoans. Stipes of the kelp *Laminaria hyperborea* are covered by a dense carpet of red algae. The rock surfaces are generally free of silt and the under-storey community is typically dominated by the sea squirt *Dendrodoa grossularia* and a turf of the red alga *Plocamium cartilagineum*. Crevices in vertical rock faces act as refuges for crabs and brittle stars. At Start Point, large gullies in the reef increase habitat complexity; vertical walls are colonised by the encrusting sponge *Clathrina*

*coriacea* and the sea squirt *D. grossularia*. In the relative shelter of Holm Sound, patches of the bootlace alga *Chorda filum* are interspersed amongst a mixed kelp forest. Amongst the kelp, cobbles and pebbles are colonised by scour-tolerant algae.

Offshore bedrock reefs are heavily silted and typically support a mixed-kelp community of sparse *Laminaria saccharina* interspersed amongst *Laminaria hyperborea*. The kelp is numerically abundant but the plants are fairly small and give the impression of a more 'open' forest. Again, the stipes are covered by red algae and sea squirts. The silted bedrock is colonised by an understory community of robust foliose red algae. Dense carpets of the mussel *Musculus discors* cover sublittoral reefs that are exposed to fast currents in the North Ronaldsay Sound and to the south of Start Point. Also, the dabberlock *Alaria esculenta*, indicative of increased wave exposure, is a notable component of the sublittoral fringe at Start Point. Filter-feeding animals that thrive in strong currents characterise the fauna; these include erect hydroids and bryozoans, and feather stars.

### **Sandbanks which are slightly covered by sea water all the time**

Around Sanday, sublittoral sandbanks are confined to shallow areas of fine sand in Otters Wick and the inshore areas immediately adjacent to open-coast bays. At depths of less than 5 m, clean fine sand in Otters Wick is host to dense patches of the eelgrass *Zostera marina*. The associated fauna includes the lugworm *Arenicola marina*, sabellid polychaete worms and the sand mason *Lanice conchilega*. Three-spined sticklebacks, isopods, crustaceans and hydroids *Obelia geniculata* are usually associated with the eelgrass community. Predators and scavengers present include shore crabs *Carcinus maenas*, hermit crabs *Pagurus bernhardus* and common starfish *Asterias rubens*. In contrast, moderately exposed, medium sand at the entrance to Otters Wick is dominated by amphipods and robust polychaete worms. Polychaete worms, common shrimp *Crangon crangon* and the razor shell *Ensis arcuatus* are typical components of the fauna. Shallow, fine sands to the north of Burness are fairly stable and dominated by lugworms *Arenicola marina* with common shrimps, amphipods and polychaete worms.

Shallow, fine sands immediately adjacent to the open-coast bays are usually dominated by an assemblage of polychaetes and amphipods. In the Bay of Lopness, razor shells *Ensis arcuatus*, sand masons *Lanice conchilega* and amphipods are found in moderately exposed sediments, and in the Bay of Sandquoy the faunal community is dominated by lugworms and sand masons. A more diverse faunal community found in shallow sands in Kettletoft Bay reflects a reduction in the degree of exposure to wave action. Here, razor shells and lugworms are abundant and the brown alga *Chorda filum*, sand masons and hermit crabs are typical components of the associated community.

### **Mudflats and sandflats not covered by sea water at low tide**

On the Sanday coast, intertidal sediment flats occur in large, sheltered embayments and sweeping sandy bays. Otters Wick is a large embayment sheltered between the peninsulas of Northwall and Burness on the north coast

of Sanday. Lugworms *Arenicola marina* and spionid polychaete worms are abundant on the mid-shore with common cockles *Cerastoderma edule* and patches of green algae. The lower shore is colonised by a species-rich community including bivalves *C. edule* (cockles), *Mysella bidentata* and *Dosinia lupinus* (smooth artemis), polychaete worms *Arenicola marina* (lugworms), *Nephtys* sp., *Capitella capitata* and *Scoloplos armiger* and various crustaceans, including sand-hoppers.

In sheltered bays, for example Cata Sand and Little Sea, the shores are composed of stable, fine sand and are fringed in places by small areas of saltmarsh. The upper shore of Cata Sand is colonised by lugworms *Arenicola marina*, oligochaete and tubicolous polychaete worms. Green and brown algae may cover the sediment surface on the upper mid-shore. The sheltered lower shores include bivalves such as the Baltic tellin *Macoma balthica*, oligochaete and numerous polychaete worms, and ragworms *Hediste diversicolor* are typical components of the fauna.

The Bay of Sandquoy is very exposed to wave action but localised shelter is provided by offshore shallows. In the upper shores, amphipods are present amongst a strandline of cobbles, soft sand and drift seaweed. The mid- and lower shores are characterised by numerous lugworms and burrowing amphipods. Sty Wick and the Bay of Lopness are composed of coarse, rippled sand and interspersed patches of shingle, and are exposed to wave action. Amphipods occur amongst drift seaweed on the strandline, mid- and lower shores are colonised by a sparse faunal community of burrowing amphipods and polychaete worms. Small polychaete worms and lugworms *Arenicola marina* may be found in fine sand on the lower shore.

### **Annex II Species: Common seal *Phoca vitulina***

Common seals are found in a wide variety of coastal habitats throughout their range. The Sanday marine SAC consistently holds around 1,450 adults, which haul out on seaweed covered tidal ledges around the site (1997, Sea Mammal Research Unit - SMRU). This is equivalent to 89% of the Sanday and 17% of the Orkney populations and represents the largest colony of common seals at any relatively discrete site in Scotland. The seals are usually scattered along the coast in small groups of around fifty animals. Adult common seals can remain very faithful to particular haul-out sites, moving around the same group of favoured locations on a seasonal basis and over a number of years. The largest breeding groups are usually found at Bea Ness on the south coast, Long Taing, Taing of Tor Sker and the Holms of Ire on the north coast and on tidal ledges within Otters Wick. During the 1998 breeding survey over 550 pups were observed at the site, accounting for 34% of new-born pups in Orkney. Large colonies are important in maintaining overall population size and are significant as sources of emigration to smaller or newly established groups.

The data above were used for site evaluation purposes. More recent survey work (SMRU 2001) indicates that the population is slightly down from the 1997 and 1993 figures but still well above any population counts from the 1980's.