# SEA Environmental Baseline

## Appendix III

SHETLAND ISLANDS COUNCIL

SHETLAND Local Development Plan

# Contents

# Introduction

The Environmental Assessment (Scotland) Act 2005 ('the Act') requires that information be provided on the current state of the environment and how it might evolve if LDP2 were not implemented.

Baseline data helps to identify the issues on which the SEA should focus and provides a benchmark against which to assess performance.

The baseline is presented using a topic-based approach, which reflects the issues set out within Schedule 3 of the *Act*:

- Biodiversity, Flora and Fauna
- Population and Human Health
- Soil
- Water
- Air
- Material Assets
- Climatic Factors
- Cultural Heritage
- Landscape

The baseline looks to present data to demonstrate trends over time, where possible, while also providing a narrative explanation. Whilst some issues may be considered under a number of topics in this report they are only recorded in a single chapter to avoid duplication.

The purpose of this environmental baseline is to bring together background information, statistics and trends for Shetland. This will support the Strategic Environmental Assessment of the second Local Development Plan for Shetland

This report aims to provide a baseline of the current state Shetland in terms of the environment, the economy and social issues in an accessible way. It includes the most up-to-date information available up to December 2020. Changes and trends, both and existing can them be compared against this. This will feed into identifying areas for action and issues for assessment as part of the LDP2 process. It is also recognised that as the report seeks to present a rounded picture of Shetland's environment it is likely to include some indicators which land use planning is unlikely to influence.

# Topic 1: Biodiversity, Flora and Fauna

Shetland's geographic location, its hugely diverse geology and the pervasive influence of the sea have combined to create richness in flora and fauna within a relatively confined area. The islands' geological journey has resulted in a landscape dominated by low hills and deep inlets where no spot is more than 3 miles from the sea.

Seabirds and sea mammals are important components of the biodiversity of the islands. Shetland is home to one tenth of the total seabird population of Britain, in excess of 750,000 birds from 22 species. The waters around Shetland are home to a diverse range of fish, shellfish and mammals. Shetland is also important for its peatland and the number of breeding waders and other ground nesting birds that are present.

## Protected Areas

Protected areas represent the very best of Scotland's landscapes, geology, habitats and species. Their protection and management will help to ensure that they remain in good health for all to enjoy, both now and for future generations. Many areas of Shetland are designated to meet the needs of international directives and treaties, national legislation and policies as well as more local needs and interests.

### Table 1.1 – Designated Sites in Shetland

| Designation | Number of Sites | Total Area Covered in Hectares |
|---|---|---|
| Special Protection Areas | 15 | 423,733 |
| Special Areas of Conservation (Pobie Bank Reef, a marine SAC partly within Shetland Inshore Waters has not been included) | 12 | 15,345* |
| Ramsar Wetlands of International Importance | 1 | 5,470 |
| Sites of Special Scientific Interest | 78 | 19,931 |
| National Scenic Area (details under Topic 9, Landscape) | 1 | 41,833 |
| National Nature Reserves | 2 | 1,322 |
| Marine Protected Areas (Nature Conservation and Demonstration and Research) | 3 | 38,897 |
| Marine Consultation Areas | 4 | 540 |
| Protected Seal Haul-out Sites | 43 | 15,133 |
| Local Nature Conservation Sites | 49 | 1,264 |

***Table 1.1*** indicates the range of statutory and non-statutory sites designated within Shetland including international, national, and local designations. It should be noted, however, many sites have multiple designations, while others overlap and their total areas may include marine and / or terrestrial habitats. Therefore the total areas designated can't be added together to provide a total.

# International Designations

## European Sites Network

The European sites network is a network of sites which are considered the best for wildlife in Europe. There are two types of European site in Shetland, namely Special Areas of Conservation (SAC) and Special Protection Areas (SPA). While these sites were originally classified under European Directives they were transposed into UK law under The Conservation (Natural Habitats, &c.) Regulations 1994 - commonly referred to as the Habitats Regulations. These Regulations require the UK to achieve the aims of the European Directives and therefore European sites (and European Protected Species (EPS)) continue to have the same degree of protection under domestic legislation as they did when the UK was a member of the EU.

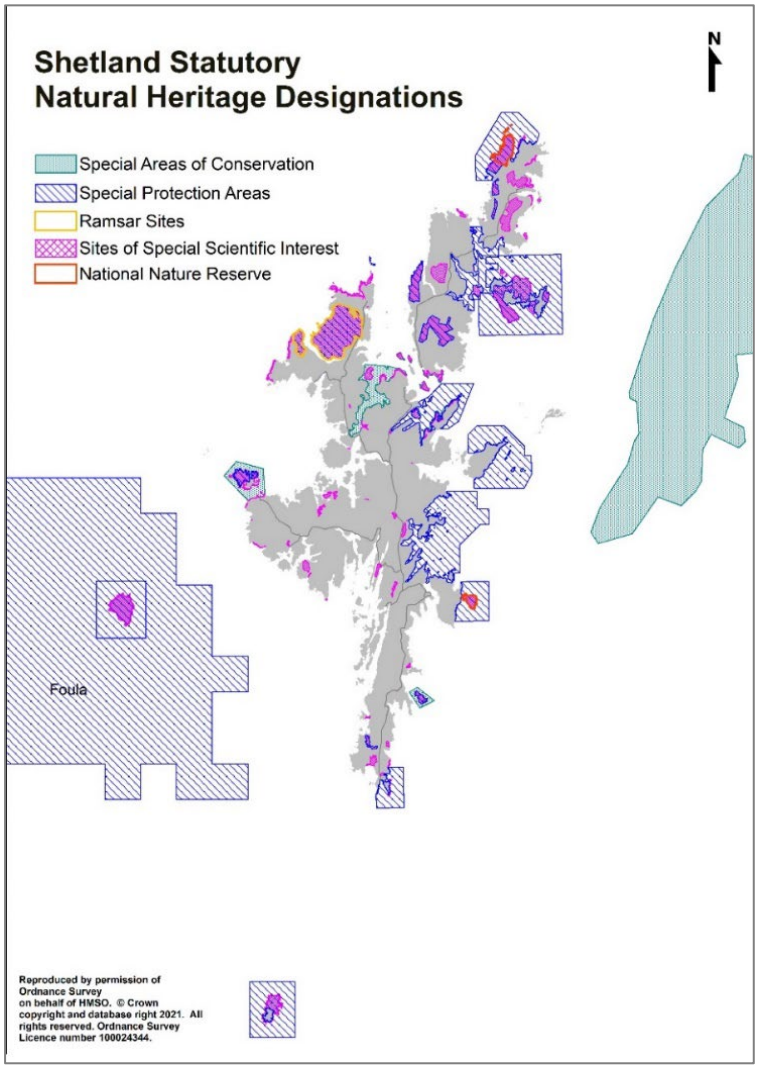
## SPAs

These sites were classified in accordance with Article 4 of the EC Directive on the conservation of Wild Birds (79/409/EEC) also known as the Birds Directive which came into force in April 1979. In the UK, sites are protected under The Conservation (Natural Habitats, &c.) Regulations 1994. They are classified for rare and vulnerable birds (as listed on Annex I of the Directive), and for regularly occurring migratory species. 11 of these Annex I species nest in Shetland, with a number of other species occurring as migrant or wintering birds.

There are 15 SPAs in Shetland, including three marine SPAs that were officially designated on the 3rd December 2020. The location of these can be viewed in ***Figure 1*** *on* page 6***.*** The SPAs, their name, qualifying feature and condition are listed in ***Table 1.2***. Over 50% of the qualifying features are in unfavourable condition with the most common reason being changes in prey species populations (mainly the decline in sandeels) this could be linked to many factors including global warming, natural changes or fisheries management.

Three new marine SPAs were formally designated in December 2020, as these are important foraging areas for birds breeding in Shetland they have been included in the baseline as they could be impacted by LDP2.

## Figure 1.1 Statutory Natural Heritage Designations in Shetland




*Source: NatureScot – (https://www.nature.scot/information-hub/snhi-data-services).*

## Table 1.2 – Special Protection Areas in Shetland

| Site Code | Name | Qualifying Feature | Total Area (ha) | Summary Condition | Pressures | Last Visit Date |
|---|---|---|---|---|---|---|
| 10483 | Bluemull and Colgrave Sounds* | Red-throated diver (*Gavia stellata*), breeding | 3823.27 | Not assessed | None | N/A |
| 10482 | East Mainland Coast, Shetland* | Red-throated diver (*Gavia stellata*), breeding | 23333.23 | Not assessed | None | N/A |
| | | Great northern diver (*Gavia immer*), non-breeding | | Not assessed | None | N/A |
| | | Long-tailed duck (*Clangula hyemalis*), non-breeding | | Not assessed | None | N/A |
| | | Red-breasted merganser (*Mergus serrator*), non-breeding | | Not assessed | None | N/A |
| | | Slavonian grebe (*Podiceps auritus*), non-breeding | | Not assessed | None | N/A |
| 8496 | Fair Isle | Arctic skua (*Stercorarius parasiticus*), breeding | 6825.1 | Unfavourable | Invasive Species, Game / fisheries management | 01/06/2016 |
| | | Arctic tern (*Sterna paradisaea*), breeding | | Unfavourable | | 01/06/2016 |
| | | Fair Isle wren (*Troglodytes troglodytes fridariensis*), breeding | | Favourable | | 30/06/2012 |
| | | Fulmar (*Fulmarus glacialis*), breeding | | Favourable | | 01/06/2016 |
| | | Gannet (*Morus bassanus*), breeding | | Favourable | | 01/06/2014 |
| | | Great skua (*Stercorarius skua*), breeding | | Favourable | | 01/06/2016 |
| | | Guillemot (*Uria aalge*), breeding | | Unfavourable | | 01/06/2016 |
| | | Kittiwake (*Rissa tridactyla*), breeding | | Unfavourable | | 01/06/2016 |

| Site Code | Name | Qualifying Feature | Total Area (ha) | Summary Condition | Pressures | Last Visit Date |
|---|---|---|---|---|---|---|
| | | Puffin (*Fratercula arctica*), breeding | | Unfavourable | | 01/04/2015 |
| | | Razorbill (*Alca torda*), breeding | | Unfavourable | | 01/06/2015 |
| | | Seabird assemblage, breeding | | Unfavourable | | 01/06/2016 |
| | | Shag (*Phalacrocorax aristotelis*), breeding | | Unfavourable | | 01/06/2013 |
| 8498 | Fetlar | Arctic skua (*Stercorarius parasiticus*), breeding | 16964.69 | Unfavourable | Inter-specific competition | 21/06/2017 |
| | | Arctic tern (*Sterna paradisaea*), breeding | | Favourable | | 30/06/2002 |
| | | Dunlin (*Calidris alpina schinzii*), breeding | | Favourable | | 30/06/2003 |
| | | Fulmar (*Fulmarus glacialis*), breeding | | Unfavourable | | 26/06/2016 |
| | | Great skua (*Stercorarius skua*), breeding | | Favourable | | 21/06/2017 |
| | | Red-necked phalarope (*Phalaropus lobatus*), breeding | | Favourable | | 31/07/2014 |
| | | Seabird assemblage, breeding | | Favourable | | 30/06/2002 |
| | | Whimbrel (*Numenius phaeopus*), breeding | | Favourable | | 30/06/2002 |
| 8504 | Foula | Arctic skua (*Stercorarius parasiticus*), breeding | 7985.49 | Unfavourable | Game/fisheries management, Natural Event | 01/06/2015 |
| | | Arctic tern (*Sterna paradisaea*), breeding | | Unfavourable | | 22/07/2016 |
| | | Fulmar (*Fulmarus glacialis*), breeding | | Unfavourable | | 24/06/2015 |
| | | Great skua (*Stercorarius skua*), breeding | | Favourable | | 05/06/2015 |

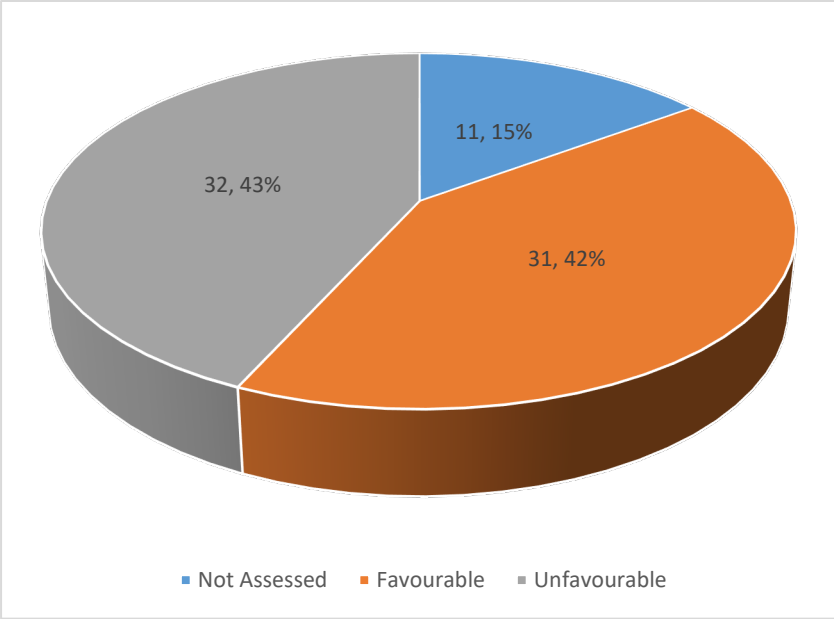
| Site Code | Name | Qualifying Feature | Total Area (ha) | Summary Condition | Pressures | Last Visit Date |
|---|---|---|---|---|---|---|
| | | Guillemot (*Uria aalge*), breeding | | Unfavourable | | 24/06/2015 |
| | | Kittiwake (*Rissa tridactyla*), breeding | | Unfavourable | | 24/06/2015 |
| | | Leach's petrel (*Oceanodroma leucorhoa*), breeding | | Unfavourable | | 22/09/2001 |
| | | Puffin (*Fratercula arctica*), breeding | | Unfavourable | | 06/05/2016 |
| | | Razorbill (*Alca torda*), breeding | | Unfavourable | | 24/06/2015 |
| | | Red-throated diver (*Gavia stellata*), breeding | | Favourable | | 28/08/2013 |
| | | Seabird assemblage, breeding | | Unfavourable | | 01/06/2016 |
| | | Shag (*Phalacrocorax aristotelis*), breeding | | Unfavourable | | 24/06/2015 |
| 8512 | Hermaness, Saxa Vord and Valla Field | Fulmar (*Fulmarus glacialis*), breeding | 6832.36 | Favourable | None | 20/07/2016 |
| | | Gannet (*Morus bassanus*), breeding | | Favourable | | 24/10/2014 |
| | | Great skua (*Stercorarius skua*), breeding | | Favourable | | 25/06/2013 |
| | | Guillemot (*Uria aalge*), breeding | | Favourable | | 20/06/2000 |
| | | Kittiwake (*Rissa tridactyla*), breeding | | Unfavourable | | 26/06/2009 |
| | | Puffin (*Fratercula arctica*), breeding | | Favourable | | 30/06/2002 |
| | | Red-throated diver (*Gavia stellata*), breeding | | Unfavourable | | 02/07/2013 |
| | | Seabird assemblage, breeding | | Favourable | | 24/06/2004 |

| Site Code | Name | Qualifying Feature | Total Area (ha) | Summary Condition | Pressures | Last Visit Date |
|---|---|---|---|---|---|---|
| | | Shag (*Phalacrocorax aristotelis*), breeding | | Unfavourable | | 30/06/2002 |
| 8543 | Lochs of Spiggie and Brow | Whooper swan (*Cygnus cygnus*), non-breeding | 140.66 | Unfavourable | None | 04/02/2016 |
| 8551 | Mousa | Arctic tern (*Sterna paradisaea*), breeding | 196.85 | Unfavourable | Recreation/Disturbance, Natural Event | 01/06/2015 |
| | | Storm petrel (*Hydrobates pelagicus*), breeding | | Favourable | | 25/07/2008 |
| 8561 | Noss | Fulmar (*Fulmarus glacialis*), breeding | 3338.38 | Favourable | Climate Change, Natural Event | 26/06/2016 |
| | | Gannet (*Morus bassanus*), breeding | | Favourable | | 01/06/2014 |
| | | Great skua (*Stercorarius skua*), breeding | | Favourable | | 13/08/2013 |
| | | Guillemot (*Uria aalge*), breeding | | Unfavourable | | 23/06/2015 |
| | | Kittiwake (*Rissa tridactyla*), breeding | | Unfavourable | | 23/06/2015 |
| | | Puffin (*Fratercula arctica*), breeding | | Unfavourable | | 27/05/2007 |
| | | Seabird assemblage, breeding | | Favourable | | 23/06/2001 |
| 8563 | Otterswick and Graveland | Red-throated diver (*Gavia stellata*), breeding | 2239.59 | Favourable | None | 30/06/2006 |
| 8564 | Papa Stour | Arctic tern (*Sterna paradisaea*), breeding | 569.6 | Unfavourable | None | 19/06/2015 |
| | | Ringed plover (*Charadrius hiaticula*), breeding | | Favourable | | 19/06/2015 |

| Site Code | Name | Qualifying Feature | Total Area (ha) | Summary Condition | Pressures | Last Visit Date |
|---|---|---|---|---|---|---|
| 8568 | Ramna Stacks and Gruney | Leach's petrel (*Oceanodroma leucorhoa*), breeding | 11.66 | Favourable | None | 08/06/2004 |
| 8572 | Ronas Hill - North Roe and Tingon | Great skua (*Stercorarius skua*), breeding | 5474.35 | Favourable | Over-grazing | 14/06/2017 |
| | | Merlin (*Falco columbarius*), breeding | | Favourable | | 08/05/2014 |
| | | Red-throated diver (*Gavia stellata*), breeding | | Favourable | | 05/06/2014 |
| 10489 | Seas off Foula** | Arctic skua (*Stercorarius parasiticus*), breeding | 341215.5 | Not Assessed | None | N/A |
| | | Atlantic puffin (*Fratercula arctica*), breeding | | Not Assessed | None | N/A |
| | | Guillemot (*Uria aalge*), breeding and non-breeding | | Not Assessed | None | N/A |
| | | Fulmar (*Fulmarus glacialis*), breeding and non-breeding | | Not Assessed | None | N/A |
| | | Great skua (*Stercorarius skua*), breeding and non-breeding | | Not Assessed | None | N/A |
| 8582 | Sumburgh Head | Arctic tern (*Sterna paradisaea*), breeding | 2478.91 | Unfavourable | Natural Event, Game/fisheries management | 10/06/2001 |
| | | Fulmar (*Fulmarus glacialis*), breeding | | Favourable | | 14/06/2017 |
| | | Guillemot (*Uria aalge*), breeding | | Unfavourable | | 06/06/2007 |
| | | Kittiwake (*Rissa tridactyla*), breeding | | Unfavourable | | 07/06/2007 |
| | | Seabird assemblage, breeding | | Favourable | | 27/06/2001 |

*Source: NatureScot – (https://sitelink.nature.scot/home) – data manually extracted from each site overview page.*
**these Marine Scotland (inshore) sites were designated on the 3rd Dec 2020 and therefore no site condition monitoring has been undertaken.*
*** this UK Offshore waters (Scotland) site was designated on the 3rd Dec 2020 and therefore no site condition monitoring has been undertaken.*

Figure 1.2 Condition of SPA Designated Features




*Source: NatureScot – https://sitelink.nature.scot/home - data manually extracted from each site overview page.*

## SACs

SACs were designated under the EC Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, known as the Habitats Directive. In the UK, sites are protected under The Conservation (Natural Habitats, &c.) Regulations 1994, due to the presence of one or more habitats or species listed in the Directive and management plans are written to ensure 'favourable conservation status.' Article 3 of the Directive requires the establishment of a European network of important high-quality conservation sites that will make a significant contribution to conserving the 189 habitat types and 788 species identified in Annexes I and II of the Directive (as amended). The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds). As set out above the Habitats Regulations commit the UK to the delivery of Article 3.

There are 12 SACs in Shetland, the location of which can be viewed in ***Figure 1.1***. The SACs, their name, qualifying feature and condition are listed in ***Table 1.3***. SACs in Shetland are mainly designated for upland habitat or marine interest and over 80% of designated features are in favourable condition. The most commonly identified pressure on the interest feature is over-grazing.

There is a marine SAC, Pobie Bank Reef, located approximately 20km east of Shetland as shown in Figure 1. It is not considered that LDP2 could have any impact on this site and it is therefore excluded from the Environmental Baseline and the SEA.

## Table 1.3 – Special Areas of Conservation in Shetland

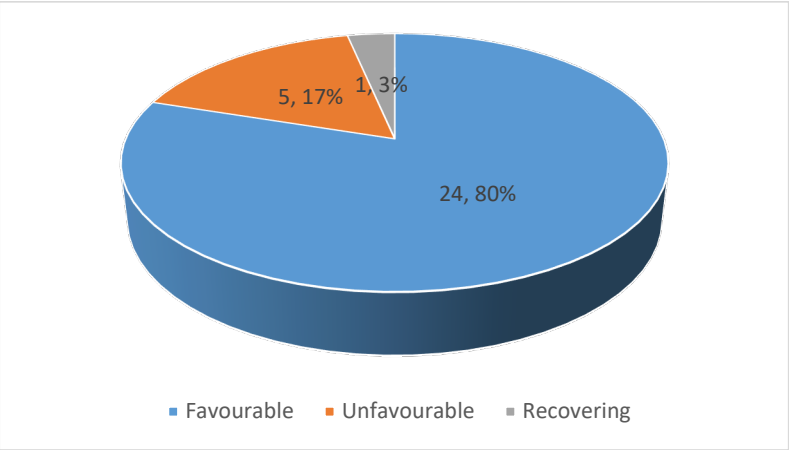
| Site Code | Name | Qualifying Feature | Feature Category | Total Area (ha) | Summary Condition | Pressures | Last Visit Date |
|---|---|---|---|---|---|---|---|
| 8249 | East Mires and Lumbister | Blanket bog | Upland habitat | 619.54 | Favourable | None identified | 20/09/2012 |
| 8253 | Fair Isle | Dry heaths | Upland habitat | 561.05 | Favourable | Over-grazing | 30/07/2014 |
| | | Vegetated sea cliffs | Coast | | Favourable | | 30/07/2014 |
| 8270 | Hascosay | Blanket bog | Upland habitat | 164.19 | Favourable | Dumping/spreading/ storage of materials | 02/09/2009 |
| | | Otter (*Lutra lutra*) | Mammals (except marine) | | Unfavourable | | 07/06/2012 |
| 8279 | Keen of Hamar | Base-rich scree | Upland habitat | 39.87 | Favourable | None identified | 24/07/2014 |
| | | Dry heaths | Upland habitat | | Favourable | | 07/10/2010 |
| | | Grasslands on soils rich in heavy metals | Upland habitat | | Favourable | | 24/07/2014 |
| 8333 | Mousa | Harbour seal (*Phoca vitulina*) | Marine (including marine mammals) | 529.74 | Unfavourable | None identified | 18/08/2009 |
| | | Reefs | Marine (including marine mammals) | | Favourable | | 20/08/2008 |
| | | Sea caves | Marine (including marine mammals) | | Favourable | | 18/08/2008 |

| Site Code | Name | Qualifying Feature | Feature Category | Total Area (ha) | Summary Condition | Pressures | Last Visit Date |
|---|---|---|---|---|---|---|---|
| 8338 | North Fetlar | Base-rich fens | Upland habitat | 1585.18 | Favourable | None identified | 04/10/2012 |
| | | Dry heaths | Upland habitat | | Favourable | | 02/09/2005 |
| 8345 | Papa Stour | Reefs | Marine (including marine mammals) | 2072.9 | Favourable | None identified | 15/08/2003 |
| | | Sea caves | Marine (including marine mammals) | | Favourable | | 07/08/2003 |
| 8370 | Ronas Hill - North Roe | Acid peat-stained lakes and ponds | Freshwater habitats | 4903.57 | Favourable | Trampling, Natural Event, Over-grazing | 03/08/2004 |
| | | Acidic scree | Upland habitat | | Favourable | | 27/07/2015 |
| | | Alpine and subalpine heaths | Upland habitat | | Favourable | | 27/07/2015 |
| | | Blanket bog | Upland habitat | | Unfavourable | | 12/09/2012 |
| | | Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels | Freshwater habitats | | Favourable | | 03/08/2004 |
| | | Dry heaths | Upland habitat | | Recovering | | 21/08/2006 |
| | | Wet heathland with cross-leaved heath | Upland habitat | | Favourable | | 21/08/2006 |

| Site Code | Name | Qualifying Feature | Feature Category | Total Area (ha) | Summary Condition | Pressures | Last Visit Date |
|---|---|---|---|---|---|---|---|
| 8388 | Sullom Voe | Lagoons Reefs<br>Shallow inlets and bays | Marine (including marine mammals) | 2691.43 | Favourable | None identified | 17/09/2004 |
| | | | Marine (including marine mammals) | | Favourable | | 19/09/2004 |
| | | | Marine (including marine mammals) | | Favourable | | 19/09/2004 |
| 8393 | The Vadills | Lagoons | Marine (including marine mammals) | 62.42 | Favourable | None identified | 14/08/2003 |
| 8395 | Tingon | Acid peat-stained lakes and ponds | Freshwater habitats | 570.78 | Favourable | None identified | 08/08/2010 |
| | | Blanket bog | Upland habitat | | Favourable | | 25/07/2001 |
| 8409 | Yell Sound Coast | Harbour seal (*Phoca vitulina*) | Marine (including marine mammals) | 1544.44 | Unfavourable | Other | 18/08/2009 |
| | | Otter (*Lutra lutra*) | Mammals (except marine) | | Unfavourable | | 05/06/2012 |

*Source: NatureScot – (https://sitelink.nature.scot/home) - data manually extracted from each site* overview page.

## Figure 1.3 Condition of SAC Designated Features




*Source: NatureScot – (https://sitelink.nature.scot/home) - data manually extracted from each site overview page.*

## Ramsar Convention

Shetland is home to one site that has been designated under the '*Convention on Wetlands and Waders of International Importance*' signed in 1971 in Ramsar, Iran. The designation recognises the fundamental ecological functions of this area as well as its economic, cultural, scientific, and recreational value. Under the Convention wetland is defined as:

"areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, or brackish or salt, including areas of marine water the depth of which as low tide does not exceed six metres. [wetlands] may incorporate riparian and coastal zones adjacent to wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within the wetlands"

## Table 1.4 – Shetland Ramsar Site

| | |
|---|---|
| **Site Code** | 8453 |
| **Name** | Ronas Hill – North Roe and Tingon |
| **Qualifying Feature** | Criterion 1 - Blanket Bog,<br>Criterion 2 – Common or Harbour Seal (*Phoca vitulina*), otter (*Lutra lutra*) and the arctic water flea (*Eurycercus glacialis*) |
| **Total Area (ha)** | 5470.3 |
| **Summary Condition** | Unfavourable |
| **Pressures** | Natural Event, Over-grazing and Trampling |
| **Last Visit Date** | 12/09/2012 |

*Source: NatureScot – (https://sitelink.nature.scot/home) - data manually extracted from each site overview page.*

The location of the site can be viewed in ***Figure 1.1*** and details can be found in ***Table 1.4***.

# National Designations

National designations cover a range of different types of protected area, including Natural Nature Reserves (NNR) and Sites of Special Scientific Interest (SSSI), both of which are located within the Shetland. Shetland is also home to a number of non-statutory protected sites, such as Local Nature Conservation Sites.

## National Nature Reserves (NNRs)

NNRs are statutory nature reserves designed under Part III of the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981. They are managed to conserve their habitats or to provide special opportunities for scientific study of the habitats, communities and species represented within them. People are encouraged to enjoy NNRs and so many have some form of visitor facilities that are designed to ensure recreational activities are not pursued without heed for the wildlife and habitat that exists there. There are 2 NNRs in Shetland holding two of Britain's largest seabird colonies.

Noss NNR covers the entire island of Noss to the east of Bressay, an area of 344 hectares. It is accessed by boat and has a visitor centre which is normally open seasonally. Hermaness NNR lies in the north-west of the Island of Unst, including the stacks around Muckle Flugga the most northerly point in the UK. Covering an area of 965 hectares Hermaness is managed for cliff and moorland nesting bird species. The location of the NNRs can be viewed in ***Figure 1.1***. Both these sites are also designated as SPAs and SSSIs.

## Sites of Special Scientific Interest (SSSI)

SSSIs are designated under the Wildlife and Countryside Act (1981) as amended by the Nature Conservation (Scotland) Act 2004. Sites are designated due to the presence of important flora, fauna, geological or geomorphological features (or a combination of these features), many are also designated as European sites.

There are 78 SSSIs in Shetland covering nearly 14% of the land area, with site details set in ***Table 1.5*** below. The location of these can be viewed in ***Figure 1.1.*** Just over half of the sites are designated for geological or geomorphological reasons. There are various pressures on SSSIs including invasive species, water management and inter specific competition but the most common is over grazing. Overall just over 60% of SSSIs are in favourable or recovering condition while just over a third are in unfavourable condition. The remainder have at least one interest feature in unfavourable condition. Of the features in unfavourable condition the vast majority (> 75%) are birds, the bulk of which are seabird interest features.

## Table 1.5 – Sites of Special Scientific Interest in Shetland

| Site Code | Name | Feature | Total Area (ha) | Interest | Summary Condition | Pressures | Visit Date |
|---|---|---|---|---|---|---|---|
| 10240 | Aith Meadows and Burn of Aith | Fen Meadow | 25.17 | Lowland grassland | Favourable Declining | No pro-active management | 01/07/2009 |
| | | Lowland neutral grassland | | Lowland grassland | Favourable Declining | No pro-active management | 25/06/2014 |
| | | Quaternary of Scotland | | Earth sciences | Favourable | Flood defence/coastal defence works | 05/09/2007 |
| 144 | Balta | Coastal Geomorphology | 16.23 | Earth sciences | Favourable | No negative pressures | 17/13/2017 |
| 256 | Breckon | Bog orchid (Hammarbya paludosa) | 58.75 | Vascular plants | Favourable | No negative pressures | 15/08/2014 |
| | | Eutrophic loch | | Freshwater habitats | Favourable | No negative pressures | 10/08/2010 |
| | | Machair | | Coast | Favourable | No negative pressures | 19/07/2016 |
| | | Maritime cliff | | Coast | Favourable | No negative pressures | 19/07/2016 |
| | | Sand dunes | | Coast | Favourable | No negative pressures | 19/07/2016 |
| 276 | Burn of Lunklet | Vascular Plant Assemblage | 1.42 | Vascular plants | Favourable | Over-grazing | 05/08/2002 |
| 277 | Burn of Valayre | Scrub | 5.49 | Woodland | Unfavourable | Over-grazing | 26/09/2013 |

| Site Code | Name | Feature | Total Area (ha) | Interest | Summary Condition | Pressures | Visit Date |
|---|---|---|---|---|---|---|---|
| 347 | Catfirth | Scrub | 0.13 | Woodland | Unfavourable Recovering | Maintenance Activities | 20/09/2006 |
| 367 | Clothister Hill Quarry | Mineralogy of Scotland | 6.84 | Earth Sciences | Favourable | No negative pressures | 11/02/2003 |
| 475 | Crussa Field and the Heogs | Arctic skua (*Stercorarius parasiticus*), breeding | 468.97 | Birds | Unfavourable | No negative pressures | 31/07/2012 |
| | | Breeding bird assemblage | | Birds | Favourable | No negative pressures | 31/07/2012 |
| | | Calaminarian grassland and serpentine heath | | Upland Habitat | Partially Destroyed | Mineral Extraction | 05/08/2014 |
| | | Mineralogy of Scotland | | Earth Sciences | Favourable | Water Management | 03/02/2004 |
| | | Vascular plant assemblage | | Vascular Plants | Unfavourable | No negative pressures | 15/09/2014 |
| | | Whimbrel (*Numenius phaeopus*), breeding | | Birds | Unfavourable | No negative pressures | 31/07/2012 |
| 481 | Culswick Marsh | Valley Fen | 6.45 | Wetlands | Favourable | No negative pressures | 13/07/2017 |
| 486 | Dales Voe | Saltmarsh | 5.63 | Coast | Favourable | Under Grazing | 11/09/2012 |
| 492 | Dalsetter | Arctic Tern, (*Sterna paradisaea*) breeding | 33.88 | Birds | Unfavourable | No negative pressures | 19/06/2012 |
| | | Subalpine dry heath | | Upland Habitat | Favourable | No negative pressures | 19/06/2012 |

| Site Code | Name | Feature | Total Area (ha) | Interest | Summary Condition | Pressures | Visit Date |
|---|---|---|---|---|---|---|---|
| 587 | East Mires and Lumbister | Blanket Bog | 620.32 | Upland Habitat | Favourable | No negative pressures | 20/09/2012 |
| | | Breeding bird assemblage | | Birds | Favourable | No negative pressures | 24/07/2009 |
| 590 | Easter Loch | Whooper Swan (*Cygnus cygnus*), non-breeding | 5.82 | Birds | Unfavourable | No negative pressures | 02/12/2012 |
| 592 | Easter Rova Head | Non-marine Devonian | 3.35 | Earth Sciences | Favourable | No negative pressures | 16/08/2002 |
| 615 | Eshaness Coast | Old Red Sandstone Igneous | 43.08 | Earth Sciences | Favourable | No negative pressures | 31/08/2000 |
| 620 | Fair Isle | Arctic skua (*Stercorarius parasiticus*), breeding | 561.34 | Birds | Unfavourable | Invasive Species | 01/06/2016 |
| | | Fulmar (*Fulmarus glacialis*), breeding | | Birds | Favourable | No negative pressures | 01/06/2016 |
| | | Great skua (*Stercorarius skua*), breeding | | Birds | Favourable | Game / fisheries management | 01/06/2016 |
| | | Guillemot (*Uria aalge*), breeding | | Birds | Unfavourable | No negative pressures | 01/06/2016 |
| | | Kittiwake (*Rissa tridactyla*), breeding | | Birds | Unfavourable | Invasive Species | 01/06/2016 |
| | | Moorland juniper | | Upland habitat | Favourable | No negative pressures | 25/09/2007 |
| | | Palaeozoic Palaeobotany | | Earth sciences | Favourable | Other | 05/04/2004 |
| | | Razorbill (*Alca torda*), breeding | | Birds | Unfavourable | No negative pressures | 01/06/2015 |

| Site Code | Name | Feature | Total Area (ha) | Interest | Summary Condition | Pressures | Visit Date |
|---|---|---|---|---|---|---|---|
| | | Seabird colony, breeding | | Birds | Unfavourable | No negative pressures | 01/06/2016 |
| | | Shag (*Phalacrocorax aristotelis*), breeding | | Birds | Unfavourable | No negative pressures | 01/06/2013 |
| 633 | Fidlar Geo to Watsness | Non-marine Devonian | 18.42 | Earth sciences | Favourable | No negative pressures | 22/06/2004 |
| 655 | Foula | Arctic skua (*Stercorarius parasiticus*), breeding | 1322.3 | Birds | Unfavourable | Overgrazing, trampling | 01/06/2015 |
| | | Blanket bog | | Upland habitat | Unfavourable | No negative pressures | 16/09/2012 |
| | | Fulmar (*Fulmarus glacialis*), breeding | | Birds | Unfavourable | No negative pressures | 24/06/2015 |
| | | Great skua (*Stercorarius skua*), breeding | | Birds | Favourable | No negative pressures | 05/06/2015 |
| | | Guillemot (*Uria aalge*), breeding | | Birds | Unfavourable | No negative pressures | 24/06/2015 |
| | | Kittiwake (*Rissa tridactyla*), breeding | | Birds | Unfavourable | Other | 24/06/2015 |
| | | Leach's petrel (*Oceanodroma leucorhoa*), breeding | | Birds | Unfavourable | No negative pressures | 23/06/2003 |
| | | Puffin (*Fratercula arctica*), breeding | | Birds | Unfavourable | No negative pressures | 06/05/2016 |
| | | Razorbill (*Alca torda*), breeding | | Birds | Unfavourable | No negative pressures | 24/06/2015 |
| | | Seabird colony, breeding | | Birds | Unfavourable | No negative pressures | 01/06/2016 |

| Site Code | Name | Feature | Total Area (ha) | Interest | Summary Condition | Pressures | Visit Date |
|---|---|---|---|---|---|---|---|
| | | Shag (*Phalacrocorax aristotelis*), breeding | | Birds | Unfavourable | No negative pressures | 24/06/2015 |
| | | Storm petrel (*Hydrobates pelagicus*), breeding | | Birds | Unfavourable | Other | 23/09/2001 |
| 656 | Foula Coast | Coastal Geomorphology of Scotland | 223.32 | Earth Sciences | Favourable | No negative pressures | 07/04/2004 |
| 661 | Fugla Ness - North Roe | Quaternary of Scotland | 0.56 | Earth Sciences | Favourable | Natural Event | 11/03/2008 |
| 663 | Funzie | Caledonian Structures of Shetland | 6.02 | Earth Sciences | Favourable | No negative pressures | 31/08/2000 |
| 8110 | Graveland | Red-throated diver (Gavia stellata), breeding | 853.09 | Birds | Unfavourable | No negative pressures | 08/06/2018 |
| 755 | Gutcher | Moine | 1.53 | Earth Sciences | Favourable | Development with planning permission, other activity | 08/01/2003 |
| 759 | Ham Ness | Ordovician Igneous | 30.66 | Earth Sciences | Favourable | No negative pressures | 19/05/2015 |
| 767 | Hascosay | Blanket bog | 164.92 | Upland habitat | Favourable | Dumping / storage of materials | 02/09/2009 |
| | | Dunlin (*Calidris alpina schinzii*), breeding | | Birds | Favourable | No negative pressures | 29/06/2002 |
| | | Moine | | Earth sciences | Favourable | No negative pressures | 02/09/2009 |

| Site Code | Name | Feature | Total Area (ha) | Interest | Summary Condition | Pressures | Visit Date |
|---|---|---|---|---|---|---|---|
| 776 | Hermaness | Fulmar (*Fulmarus glacialis*), breeding | 978.3 | Birds | Favourable | No negative pressures | 25/06/2016 |
| | | Gannet (*Morus bassanus*), breeding | | Birds | Favourable | No negative pressures | 24/07/2014 |
| | | Great skua (*Stercorarius skua*), breeding | | Birds | Favourable | No negative pressures | 25/06/2013 |
| | | Guillemot (*Uria aalge*), breeding | | Birds | Unfavourable | No negative pressures | 15/06/2015 |
| | | Mineralogy of Scotland | | Earth sciences | Favourable | No negative pressures | 18/07/2012 |
| | | Puffin (*Fratercula arctica*), breeding | | Birds | Unfavourable | Inter-specific competition / Invasive species (feral cats) | 28/06/2017 |
| | | Seabird colony, breeding | | Birds | Unfavourable | Inter-specific competition / Invasive species (feral cats) | 24/05/2017 |
| 782 | Hill of Colvadale and Sobul | Arctic sandwort (*Arenaria norvegica*) | 809.18 | Vascular plants | Favourable | No negative pressures | 17/10/2014 |
| | | Arctic skua (*Stercorarius parasiticus*), breeding | | Birds | Unfavourable | No negative pressures | 26/06/2015 |
| | | Breeding bird assemblage | | Birds | Favourable | No negative pressures | 30/06/2007 |
| | | Calaminarian grassland and serpentine heath | | Upland habitat | Favourable | Development | 19/08/2006 |
| | | Whimbrel (*Numenius phaeopus*), breeding | | Birds | Unfavourable | No negative pressures | 30/06/2007 |

| Site Code | Name | Feature | Total Area (ha) | Interest | Summary Condition | Pressures | Visit Date |
|---|---|---|---|---|---|---|---|
| 827 | Keen of Hamar | Calaminarian grassland and serpentine heath | 49.65 | Upland habitat | Favourable | No proactive management | 24/07/2014 |
| | | Mineralogy of Scotland | | Earth sciences | Favourable | No negative pressures | 29/07/2003 |
| | | Vascular plant assemblage | | Vascular plants | Favourable | To be identified | 05/08/2014 |
| 901 | Lamb Hoga | Arctic skua (*Stercorarius parasiticus*), breeding | 800.93 | Birds | Unfavourable | Inter-specific competition | 21/06/2017 |
| | | Breeding bird assemblage | | Birds | Favourable | No negative pressures | 11/07/2013 |
| | | Great skua (*Stercorarius skua*), breeding | | Birds | Favourable | No negative pressures | 21/06/2017 |
| | | Manx shearwater (*Puffinus puffinus*), breeding | | Birds | Unfavourable | No negative pressures | 25/05/2018 |
| | | Storm petrel (*Hydrobates pelagicus*), breeding | | Birds | Favourable | No negative pressures | 08/08/2003 |
| 913 | Laxo Burn | Vascular plant assemblage | 0.57 | Vascular plants | Favourable | Invasive Species | 27/06/2012 |
| 1028 | Loch of Clousta | Tall herb ledge | 47.25 | Upland habitat | Favourable | Over-grazing | 07/08/2012 |
| 1030 | Loch of Girlsta | Arctic charr (*Salvelinus alpinus*) | 99.23 | Fish | Unfavourable | No negative pressures | 17/07/2017 |
| | | Mesotrophic loch | | Freshwater habitats | Unfavourable Recovering | Water Management | 25/10/2007 |

| Site Code | Name | Feature | Total Area (ha) | Interest | Summary Condition | Pressures | Visit Date |
|---|---|---|---|---|---|---|---|
| 1084 | Lochs of Kirkigarth and Bardister | Mesotrophic loch | 16.42 | Freshwater habitats | Favourable | Trampling and water management | 21/08/2016 |
| 1085 | Lochs of Spiggie and Brow | Basin fen | 141.49 | Wetlands | Unfavourable | Invasive Species and under-grazing | 05/09/2013 |
| | | Eutrophic loch | | Freshwater habitats | Favourable | No negative pressures | 20/08/2012 |
| | | Whooper swan (*Cygnus cygnus*), non-breeding | | Birds | Unfavourable | No negative pressures | 04/02/2016 |
| 1086 | Lochs of Tingwall and Asta | Mesotrophic loch | 65.27 | Freshwater habitats | Favourable Declining | Water Quality | 21/08/2016 |
| 1111 | Lunda Wick | Mineralogy of Scotland | 1.13 | Earth sciences | Favourable | No negative pressures | 11/03/2014 |
| 1146 | Melby | Non-marine Devonian | 6.81 | Earth sciences | Favourable | No negative pressures | 18/04/2014 |
| | | Silurian - Devonian Chordata | | | Favourable | No negative pressures | 18/04/2014 |
| 1204 | Mousa | Arctic tern (*Sterna paradisaea*), breeding | 197.97 | Birds | Unfavourable | Recreation / disturbance | 01/06/2015 |
| | | Black guillemot (*Cepphus grylle*), breeding | | Birds | Unfavourable | Climate Change, Natural Event, Other | 01/05/2017 |

| Site Code | Name | Feature | Total Area (ha) | Interest | Summary Condition | Pressures | Visit Date |
|---|---|---|---|---|---|---|---|
| | | Harbour seal (*Phoca vitulina*) | | Marine (including marine mammals) | Unfavourable | No negative pressures | 18/08/2009 |
| | | Storm petrel (*Hydrobates pelagicus*), breeding | | Birds | Favourable | No negative pressures | 31/07/2015 |
| 1208 | Muckle Roe Meadows | Lowland neutral grassland | 2.36 | Lowland grassland | Favourable | Under-grazing | 28/07/2004 |
| | | Vascular plant assemblage | | Vascular plants | Favourable | No negative pressures | 28/07/2004 |
| 1216 | Ness of Clousta - The Brigs | Old Red Sandstone Igneous | 69.37 | Earth sciences | Favourable | No negative pressures | 13/12/2012 |
| 1217 | Ness of Cullivoe | Moine | 11.07 | Earth sciences | Favourable | No negative pressures | 15/01/2013 |
| 1234 | North Fetlar | Arctic skua (*Stercorarius parasiticus*), breeding | 1637.04 | Birds | Unfavourable | Inter-specific competition | 21/06/2017 |
| | | Arctic tern (*Sterna paradisaea*), breeding | | Birds | Unfavourable | No negative pressures | 21/06/2017 |
| | | Breeding bird assemblage | | Birds | Favourable | No negative pressures | 24/07/2009 |
| | | Calaminarian grassland and serpentine heath | | Upland habitat | Favourable | No negative pressures | 04/10/2012 |

| Site Code | Name | Feature | Total Area (ha) | Interest | Summary Condition | Pressures | Visit Date |
|---|---|---|---|---|---|---|---|
| | | Great skua (*Stercorarius skua*), breeding | | Birds | Favourable | No negative pressures | 21/06/2017 |
| | | Grey seal (*Halichoerus grypus*) | | Marine (including marine mammals) | Unfavourable | No negative pressures | 10/11/2010 |
| | | Harbour seal (*Phoca vitulina*) | | Marine (including marine mammals) | Unfavourable | No negative pressures | 13/08/2009 |
| | | Red-necked phalarope (*Phalaropus lobatus*), breeding | | Birds | Favourable | No negative pressures | 31/07/2014 |
| | | Whimbrel (*Numenius phaeopus*), breeding | | Birds | Unfavourable | Inter-specific competition | 12/06/2007 |
| 1239 | North Roe Meadow | Vascular plant assemblage | 1.24 | Vascular plants | Unfavourable | Agricultural Operations, over-grazing, under-grazing | 13/08/2013 |
| 1242 | North Sandwick | Moine | 6.07 | Earth sciences | Favourable | No negative pressures | 15/01/2013 |
| 1247 | Norwick | Caledonian Structures of Shetland | 5.8 | Earth sciences | Favourable | No negative pressures | 23/03/2017 |
| 1248 | Norwick Meadows | Sand dunes | 24.72 | Coast | Unfavourable Recovering | Invasive species, under-grazing | 29/07/2016 |
| | | Valley fen | | Wetlands | Unfavourable | Invasive species, over-grazing | 27/07/2017 |

| Site Code | Name | Feature | Total Area (ha) | Interest | Summary Condition | Pressures | Visit Date |
|---|---|---|---|---|---|---|---|
| 1249 | Noss | Arctic skua (*Stercorarius parasiticus*), breeding | 343.83 | Birds | Unfavourable | Game / fisheries management, inter-specific competition, natural event | 02/09/2014 |
| | | Gannet (*Morus bassanus*), breeding | | Birds | Favourable | No negative pressures | 30/06/2014 |
| | | Great skua (*Stercorarius skua*), breeding | | Birds | Favourable | No negative pressures | 13/08/2013 |
| | | Guillemot (*Uria aalge*), breeding | | Birds | Unfavourable | No negative pressures | 23/06/2015 |
| | | Kittiwake (*Rissa tridactyla*), breeding | | Birds | Unfavourable | Climate Change | 23/06/2015 |
| | | Seabird colony, breeding | | Birds | Unfavourable | No negative pressures | 01/05/2017 |
| 8109 | Otterswick | Red-throated diver (*Gavia stellata*), breeding | 1388.32 | Birds | Unfavourable | Over-grazing | 12/06/2018 |
| 1267 | Papa Stour | Arctic skua (*Stercorarius parasiticus*), breeding | 629.48 | Birds | Unfavourable | No negative pressures | 19/06/2015 |
| | | Arctic tern (*Sterna paradisaea*), breeding | | Birds | Unfavourable | No negative pressures | 19/06/2015 |
| | | Coastal Geomorphology of Scotland | | Earth sciences | Favourable | No negative pressures | 26/06/2013 |

| Site Code | Name | Feature | Total Area (ha) | Interest | Summary Condition | Pressures | Visit Date |
|---|---|---|---|---|---|---|---|
| | | Maritime cliff | | Coast | Unfavourable Recovering[1] | Over-grazing | 01/08/2002 |
| | | Ringed plover (*Charadrius hiaticula*), breeding | | Birds | Favourable | No negative pressures | 30/05/2007 |
| | | Rocky shore | | Marine (including marine mammals) | Favourable | Other | 15/08/2003 |
| | | Silurian - Devonian Chordata | | Earth sciences | Favourable | No negative pressures | 26/06/2013 |
| 1302 | Pool of Virkie | Mudflats | 22.96 | Marine (including marine mammals) | Favourable | Water Quality | 05/10/2006 |
| 1318 | Quendale | Machair | 142.76 | Coast | Unfavourable | Invasive species, over-grazing, under grazing | 30/08/2018 |
| | | Machair loch | | Freshwater habitats | Unfavourable | Water Quality | 12/08/2010 |
| | | Sand dunes | | Coast | Unfavourable | Invasive species, over-grazing, under grazing | 30/08/2018 |
| 1319 | Qui Ness to Pund Stacks | Ordovician Igneous | 2.12 | Earth sciences | Favourable | No negative pressures | 27/10/2004 |

[1] Management measures are in place to improve the feature to Favourable condition.

| Site Code | Name | Feature | Total Area (ha) | Interest | Summary Condition | Pressures | Visit Date |
|---|---|---|---|---|---|---|---|
| 1323 | Quoys of Garth | Quaternary of Scotland | 0.04 | Earth sciences | Favourable | Water management | 27/10/2004 |
| 1328 | Ramna Stacks and Gruney | Guillemot (*Uria aalge*), breeding | 11.67 | Birds | Unfavourable | No negative pressures | 29/06/2018 |
| | | Leach's petrel (*Oceanodroma leucorhoa*), breeding | | Birds | Unfavourable | No negative pressures | 29/06/2018 |
| | | Seabird colony, breeding | | Birds | Unfavourable | No negative pressures | 29/06/2018 |
| 1370 | Ronas Hill - North Roe | Arctic water flea (*Eurycercus glacialis*) | 4900.94 | Invertebrates | Favourable | No negative pressures | 16/08/2016 |
| | | Blanket bog | | Upland habitat | Unfavourable Recovering | Over-grazing | 06/09/2007 |
| | | Breeding bird assemblage | | Birds | Favourable | Grazing - other | 05/09/2002 |
| | | Montane assemblage | | Upland habitat | Favourable | No negative pressures | 21/08/2006 |
| | | Quaternary of Scotland | | Earth sciences | Favourable | Recreation / disturbance | 13/05/2015 |
| | | Red-throated diver (*Gavia stellata*), breeding | | Birds | Favourable Declining | Over-grazing | 05/06/2014 |
| | | Scrub | | Woodland | Favourable | No negative pressures | 28/09/2016 |
| 1684 | Sandness Coast | Rocky shore | 11.1 | Marine (including marine mammals) | Favourable | No negative pressures | 13/08/2003 |

| Site Code | Name | Feature | Total Area (ha) | Interest | Summary Condition | Pressures | Visit Date |
|---|---|---|---|---|---|---|---|
| 1406 | Sandwater | Mesotrophic loch | 36.8 | Freshwater Habitats | Favourable | Over-grazing | 04/08/2004 |
| | | Open water transition fen | | Wetlands | Favourable | No negative pressures | 26/07/2004 |
| 1408 | Saxa Vord | Fulmar (*Fulmarus glacialis*), breeding | 55.47 | Birds | Favourable | No negative pressures | 20/07/2016 |
| | | Guillemot (*Uria aalge*), breeding | | Birds | Unfavourable | No negative pressures | 11/06/2017 |
| | | Seabird colony, breeding | | Birds | Favourable | No negative pressures | 11/02/2017 |
| 1415 | Sel Ayre | Quaternary of Scotland | 0.94 | Earth sciences | Favourable | No negative pressures | 22/06/2004 |
| 1434 | Skelda Ness | Mineralogy of Scotland | 2.93 | Earth sciences | Favourable | Extraction | 27/02/2007 |
| 1437 | Skeo Taing to Clugan | Ordovician Igneous | 12.97 | Earth sciences | Favourable | No negative pressures | 17/03/2017 |
| 1458 | South Whiteness | Saltmarsh | 81.87 | Coast | Favourable | No negative pressures | 08/10/2013 |
| | | Shetland mouse-ear-hawkweed (*Pilosella flagellaris* ssp *bicapitata*) | | Vascular plants | Favourable | Over-grazing | 05/07/2004 |
| 1475 | St Ninian's Tombolo | Coastal Geomorphology of Scotland | 12.36 | Earth sciences | Favourable | Agricultural Operations, over-grazing, other | 22/07/2002 |
| 1508 | Sumburgh Head | Guillemot (*Uria aalge*), breeding | 39.03 | Birds | Unfavourable | No negative pressures | 14/06/2017 |
| | | Puffin (*Fratercula arctica*), breeding | | Birds | Unfavourable | Climate change | 04/05/2017 |

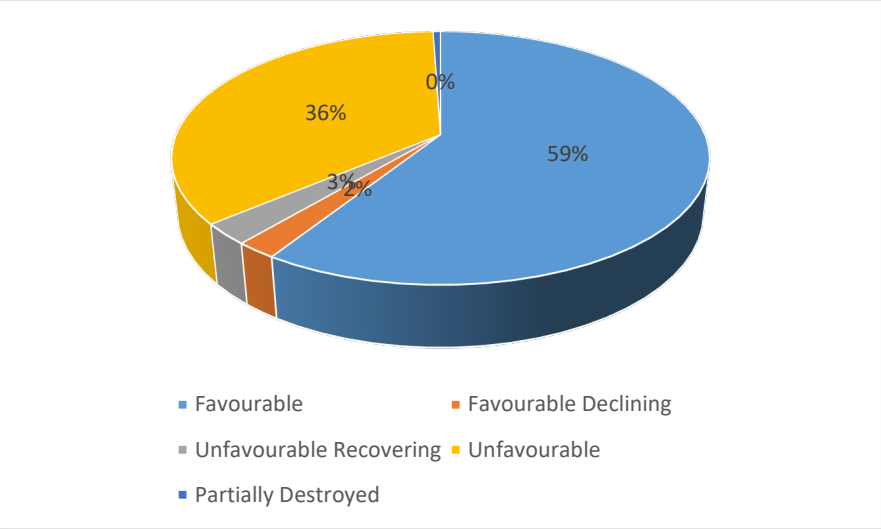
| Site Code | Name | Feature | Total Area (ha) | Interest | Summary Condition | Pressures | Visit Date |
|---|---|---|---|---|---|---|---|
| | | Seabird colony, breeding | | Birds | Unfavourable | Other | 11/06/2018 |
| | | Shag (*Phalacrocorax aristotelis*), breeding | | Birds | Unfavourable | Natural event | 29/05/2007 |
| | | Silurian - Devonian Chordata | | Earth sciences | Favourable | No negative pressures | 16/07/2006 |
| 1528 | The Ayres of Swinister | Coastal Geomorphology of Scotland | 27.08 | Earth sciences | Favourable | Dumping / storage of materials | 12/12/2006 |
| 1530 | The Cletts, Exnaboe | Non-marine Devonian | 13.27 | Earth sciences | Favourable | Other | 05/09/2007 |
| | | Silurian - Devonian Chordata | | Earth sciences | Favourable | Other | 05/09/2007 |
| 1315 | The Punds to Wick of Hagdale | Ordovician Igneous | 8.27 | Earth sciences | Favourable | No negative pressures | 26/06/2003 |
| 1679 | The Vadills | Egg wrack (*Ascophyllum nodosum ecad mackaii*) | 19.69 | Non-vascular plants | Favourable | No negative pressures | 14/08/2003 |
| | | Saline lagoon | | Marine (including marine mammals) | Favourable | No negative pressures | 14/08/2003 |
| | | Tidal rapids | | Marine (including marine mammals) | Favourable | No negative pressures | 14/08/2003 |
| 1539 | Tingon | Blanket bog | 569.3 | Upland habitat | Favourable | No negative pressures | 25/07/2001 |

| Site Code | Name | Feature | Total Area (ha) | Interest | Summary Condition | Pressures | Visit Date |
|---|---|---|---|---|---|---|---|
| | | Breeding bird assemblage | | Birds | Favourable | No negative pressures | 20/05/2009 |
| | | Red-throated diver (*Gavia stellata*), breeding | | Birds | Favourable | Other | 09/06/2014 |
| | | Whimbrel (*Numenius phaeopus*), breeding | | Birds | Unfavourable | No negative pressures | 24/05/2013 |
| 1563 | Tressa Ness to Colbinstoft | Ordovician Igneous | 13.41 | Earth sciences | Favourable | No negative pressures | 23/11/2006 |
| 1564 | Trona Mires | Arctic tern (*Sterna paradisaea*), breeding | 151.94 | Birds | Unfavourable | No negative pressures | 10/06/2016 |
| | | Basin fen | | Wetlands | Favourable | No negative pressures | 05/09/2012 |
| | | Breeding bird assemblage | | Birds | Favourable | No negative pressures | 09/07/2015 |
| | | Maritime cliff | | Coast | Favourable | No negative pressures | 05/09/2012 |
| | | Red-necked phalarope (*Phalaropus lobatus*), breeding | | Birds | Favourable | No negative pressures | 31/07/2014 |
| 1586 | Uyea - North Roe Coast | Moine | 247.77 | Earth sciences | Favourable | Other | 13/12/2006 |
| 8108 | Valla Field | Great skua (*Stercorarius skua*), breeding | 629.2 | Birds | Favourable | No negative pressures | 11/06/2013 |

| Site Code | Name | Feature | Total Area (ha) | Interest | Summary Condition | Pressures | Visit Date |
|---|---|---|---|---|---|---|---|
| | | Mineralogy of Scotland | | Earth sciences | Favourable | No negative pressures | 21/01/2007 |
| | | Red-throated diver (*Gavia stellata*), breeding | | Birds | Favourable | No negative pressures | 02/07/2013 |
| 1589 | Villians of Hamnavoe | Coastal Geomorphology of Scotland | 54.4 | Earth sciences | Favourable | No negative pressures | 23/01/2013 |
| 1590 | Virva | Ordovician Igneous | 1.17 | Earth sciences | Favourable | No negative pressures | 31/08/2000 |
| 1591 | Voxter Voe and Valayre Quarry | Moine | 23.67 | Earth sciences | Favourable | No negative pressures | 11/02/2002 |
| 1594 | Ward of Culswick | Arctic skua (*Stercorarius parasiticus*), breeding | 151.39 | Birds | Unfavourable | No negative pressures | 03/06/2016 |
| | | Whimbrel (*Numenius phaeopus*), breeding | | Birds | Unfavourable | No pro-active management | 02/06/2004 |
| 1686 | Yell Sound Coast | Otter (Lutra lutra) | 868.79 | Mammals (except marine) | Unfavourable | Game / fisheries management | 05/06/2012 |

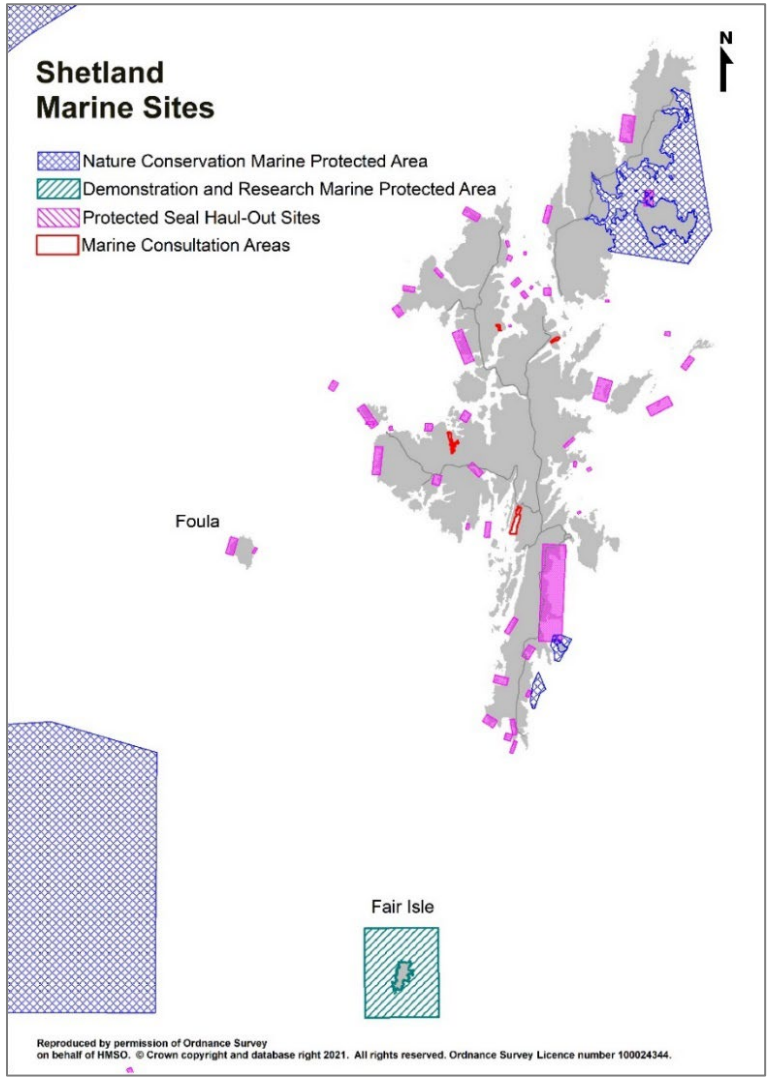
*Source: NatureScot – (https://sitelink.nature.scot/home) - data manually extracted from site overview page.*

## Figure 1.6 Condition of SSSI Interest Features




*Source: NatureScot – (https://sitelink.nature.scot/home) - data manually extracted from site overview page.*

## Figure 1.7 Nature Conservation Marine Sites in Shetland (not including SACs or SPAs)




*Source: Marine Scotland – (https://marine.gov.scot/).*

## Marine Protected Areas (MPAs)

MPAs are recognised globally as one way to support our marine environment. A well-managed network of MPAs will protect important marine habitats and species, deliver benefits for our marine environments, support coastal communities, help sustain marine industries, and provide for recreational uses. Developing a network of MPAs in Scotland is part of a wider strategy to achieve the Government's commitment to a 'clean, healthy, safe, productive and biologically diverse marine and coastal environment that meets the long term needs of people and nature'. MPAs include marine SACs and the marine parts of SPAs and SSSIs.

In addition there are areas designated as MPAs under the Marine (Scotland) Act 2010. There are two Nature Conservation MPAs (NCMPAs) in Shetland designated to conserve important marine, wildlife, habitats and geodiversity and a Demonstration and Research MPA (DRMPAs) around Fair Isle designated for the purposes of both demonstration of sustainable methods of marine management or exploitation and research into such matters. At the current time this is the only Demonstration and Research MPA in Scottish waters. The location of these can be viewed in ***Figure 1.2***. The MPAs, their name and features are listed in ***Table 6.1.*** There are also two Historic MPAs (HMPAs) and these are included under Topic 8.

## Table 1.6 – Nature Conservation and Demonstration and Research Marine Protected Areas in Shetland

| Site Code | Name | Type | Feature Category | Feature / Objectives | Total Area (ha) |
|---|---|---|---|---|---|
| 10409 | Fetlar to Haroldswick | Nature Conservation MPA | Biodiversity | Black guillemot (*Cepphus grille*) | 21556.85 |
| | | | | Circalittoral sand and coarse sediment communities | |
| | | | | Horse mussel (*Modiolus modiolus*) beds | |
| | | | | Kelp and seaweed communities on sublittoral sediment | |
| | | | | Maerl beds | |
| | | | | Shallow tide-swept coarse sands with burrowing bivalves | |
| | | | Geodiversity | Marine Geomorphology of the Scottish Shelf Seabed | |
| 10410 | Mousa to Boddam | Nature Conservation MPA | Biodiversity | Sand eels (*Ammodytes marinus / Ammodytes tobianus*) | 1308.41 |
| | | | Geodiversity | Marine Geomorphology of the Scottish Shelf Seabed | |
| 10499 | Fair Isle | Demonstration & Research MPA | Objective | To conduct robust research on population decline of seabirds | 16032 |
| | | | Objective | To demonstrate the social and economic value of a healthy marine environment to the Fair Isle community and others | |

*Source: NatureScot – (https://sitelink.nature.scot/home) – data manually extracted from site overview page.*

### Seal Haul-Out Sites

The protection of Seals (Designated Seal Haul-out Sites) (Scotland) Order 2014 under section 117 of Marine (Scotland) Act 2010 introduces additional protection for seals at designated haul-out sites. These are locations on land where seals come ashore to rest, moult or breed. Harassing a seal (intentionally or recklessly) at a haul-out site is an offence. This offers protection to seals on land, where they are at their most vulnerable.

There are 46 designated seal haul out sites around the coast of Shetland. The majority of the sites are designated as general haul out sites for both grey (*Halichoerus grypus*) and harbour (or common) seals (*Phoca vitulina*) but four sites; Uyea, Ronas Voe, Papa Stour and Dale are identified specifically as breeding colony seal haul outs for grey seals (*Halichoerus grypus*).

## Non-Statutory Designations

### Marine Consultation Areas

Shetland also has 4 Marine Consultation Areas (MCAs) again shown in ***Figure 2***. These Areas are identified by NatureScot as deserving particular distinction in respect of the quality and sensitivity of the marine environment within them. Their selection encourages coastal communities and management bodies to be aware of marine conservation issues in the area.  MCAs are listed in ***Table 7.1***. Two of these sites are fully within areas which have been designated as SACs, SPAs and / or SSSIs however, Whiteness Voe and the northern section of Brindister Voe and the Vadills are not covered by any other designation.

## Table 1.7 – Marine Consultation Areas in Shetland

| Site | Description |
|---|---|
| Brindister Voe and the Vadills | Brindister Voe includes communities representative of Shetland voes in general. The Vadills comprises the most complex and least disturbed lagoon system in Shetland, unique in the British Isles |
| Swinister Voe and the Houb of Fora Ness | Swinister Voe is included because of its rich lower shore fauna and flora. The Houb contains communities characteristic of shallow, submerged, extremely sheltered conditions. The gravel rapids community is probably the best such example in Shetland |
| The Houb, Fugla Ness | The site contains extensive areas of sediment shores, (unusual in Shetland), as well as more widespread boulder/shingle shores |
| Whiteness Voe | The bay at the head of the Voe is of high scientific interest because it contains the best-developed bed of eel grass in Shetland and because the rich sediments include both widely occurring and rare communities and species |

Source: Marine Scotland – (https://marine.gov.scot/) – data manually extracted.

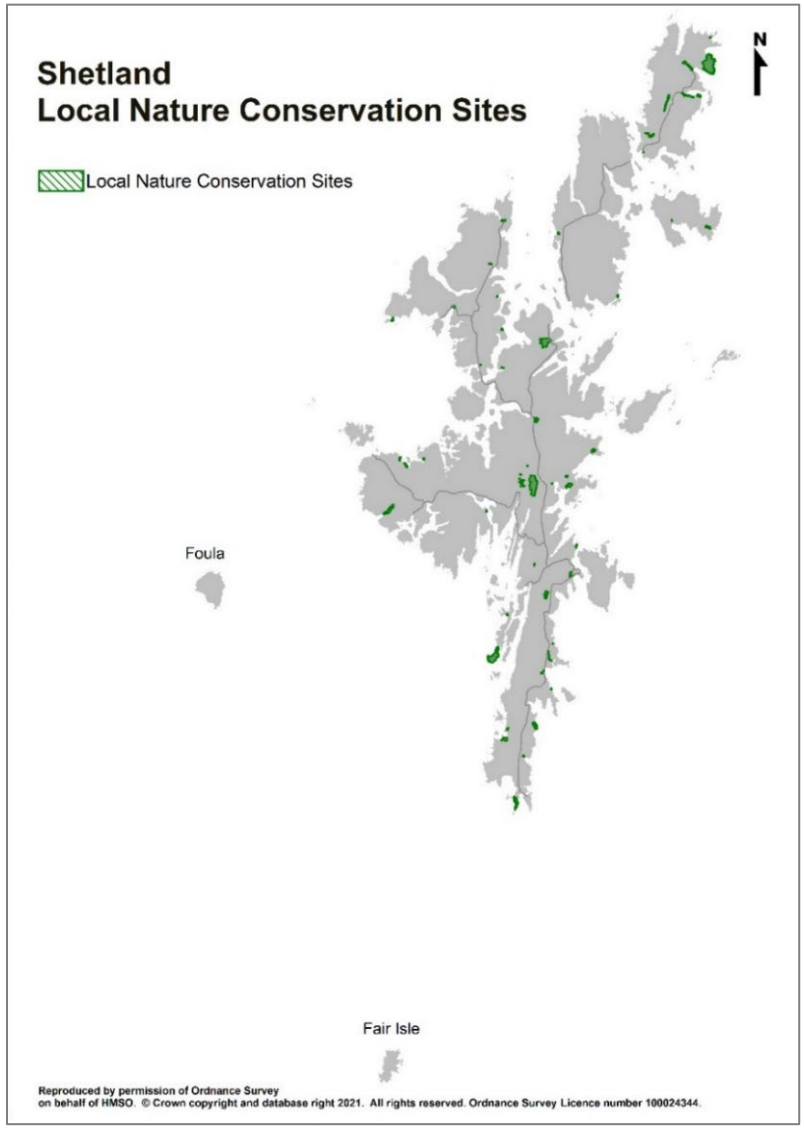
## Local Nature Conservation Sites (LNCS)

LNCS are non-statutory sites, identified by Shetlands Islands Council as having biodiversity and / or geodiversity features of interest significant at a Shetland level. LNCS are not statutory designations but receive protection through planning policy. They help to highlight sites with important natural heritage to developers and the Council. There are currently 49 LNCS in Shetland they were adopted as Supplementary Guidance to the first LDP in 2015, with another 4 sites that have been surveyed and recorded as important but not yet formally adopted. The location of the LNCS is shown in ***Figure 1.8*** and information on the individual sites is in ***Table 1.8***. Of the 49 sites 40 have been designated for nature conservation interest while the remaining 9 were designated for geological interest.

Although not strictly designated sites there are a number of RSPB Scotland Nature Reserves in Shetland including 4 public sites; Sumburgh Head, Mousa, Fetlar and Loch of Spiggie. These all encompass areas of statutory designation, with Sumburgh Head designated as a SPA and SSSI, Mousa a SPA, SAC and SSSI, Fetlar a SPA and SSSI and the Loch of Spiggie a SPA and SSSI.

All of the reserves are known for their outstanding bird life, specifically; Sumburgh Head for its seabird colonies, Mousa for its Storm Petrels, Fetlar for the Red necked phalarope and Loch of Spiggie for Whooper Swans. RSPB Scotland also has a number of private management agreements on undesignated sites for conservation management of the land.

Figure 1.8 Local Nature Conservation Sites in Shetland




*Source: SIC*

## Table 1.8 Local Nature Conservation Sites in Shetland

| Site Name | Primary Interest | Summary Condition | Comment | Visit Date |
|---|---|---|---|---|
| Scousburgh Beach | Habitat | Favourable | | 2019 |
| Scatness | Geology* | Favourable | some fly-tipping | 2019 |
| Burn of Laxdale | Species | Favourable | meadow ploughed | 2017 |
| Loch of Voe | Species | **Unfavourable** | Key interest feature, *Potamogeton alpinus* not found in 2014, 2016 or 2017. Possibly extinct? No clear reason why. | 2017 |
| Boddam Voe | Species | Favourable following recent management | Illegal fly-tipping resulting in eutrophication and increase in competitive vegetation. Now cleared. | 2017 |
| Burn of Ukinsetter | Species | Favourable | but the endemic hawkweed, *Hieracium difficile* is in decline | 2017 |
| Levenwick Marshes | Species | Favourable | | 2016 |
| Burn of Northdale | Species | Favourable | | 2016 |
| Long Ayre & The Wadill | Species | Favourable | | 2019 |
| Ollaberry Meadow | Habitat | **Unfavourable** | Over-grazing | 2017 |
| Semblister | Species | Favourable | but the endemic hawkweed *Hieracium amaurostictum* is in decline | 2017 |
| Baltasound | Species | Favourable | | 2016 |
| Burn of Mailand | Species | Favourable | | 2016 |
| Haroldwick Mires | Species | Favourable | Recovered after drainage | 2018 |
| Lochs of Bordastubble & Stourhoull | Species | Favourable | | 2019 |
| Skeo Taing | Habitat | Favourable | some parts of site under-grazed and possible eutrophication | 2018 |
| Burn of Setter | Species | Favourable | | 2019 |
| Voe of Snarraness | Species | Favourable | Two of the endemic hawkweeds (*Hieracium northroense* & *Hieracium zetlandicum*) in decline | 2017 |
| West Burrafirth | Species | Favourable | | 2018 |
| Clickimin Loch | Habitat | **Unfavourable** | poor water quality | 2018 |
| Loch of Kirkabister | Species | Favourable | water levels still low following drainage | 2019 |
| Leebitten Intertidal | Habitat | Favourable | | 2016 |
| Kettlaness | Species | Favourable | | 2019 |
| Ladies Hole | Species | Favourable | | 2016 |

| | | | | |
|---|---|---|---|---|
| Stenness | Geology* | Favourable | | 2018 |
| Wick of Skaw | Geology | Favourable | | 2016 |
| Belmont Quarry | Geology | Favourable | | 2016 |
| West Sandwick | Habitat | Favourable | silage being fed on site | 2018 |
| Haggrister quarry | Geology | Favourable | | 2016 |
| Meal Beach | Species | **Unfavourable** | part of site requires grazing | 2019 |
| Rerwick Reed Bed | Habitat | Favourable | | 2019 |
| Lang Lochs | Habitat | Favourable | peatland restoration site | 2019 |
| Loch of Benston | Species | **Unfavourable** | Wildfowl numbers have decreased since housing erected close to loch in 2014. Further housing proposed. | 2018 |
| Burn of Twa Roes | Species | Favourable | | 2018 |
| Glums Meadow | Habitat | Favourable | | 2018 |
| Bousta Cliffs | Species | Favourable | Two of the endemic hawkweeds (*Hieracium* species) in decline | 2017 |
| Loch & Mires of Funzie | Species | Favourable | | 2019 |
| Kergord | Habitat | Favourable | | 2019 |
| Voxter Wood | Habitat | Favourable | low conservation value | 2016 |
| Tingwall Meadow | Habitat | Favourable | Requires grazing management | 2018 |
| Bordigarth | Species | Favourable | Whimbrel (*Numenius phaeopus*) population declining | 2017 |
| Skuron | Species | Favourable | Whimbrel (*Numenius phaeopus*) population declining | 2017 |
| Catfirth | Species | **Unfavourable** | under-grazing, no fruiting fungi for 4 years. | 2017 |
| Grunna Water | Species | Favourable | | 2019 |
| Catpund | Geology* | Favourable | | 2016 |
| Maggie Kettle's Loch | Geology | Favourable | | 2016 |
| South Bight Rova Head | Geology | Favourable | | 2016 |
| Clibberswick Cross Geo | Geology | Favourable | | 2016 |
| Hill of Clibberswick | Species | Favourable | | 2016 |

*Source: SIC*

At the time of selection all sites were considered to be in favourable condition. When site documentation was completed in 2016 part of this process included an updated assessment of site condition – either favourable or unfavourable. Monitoring of sites commenced in 2017 and continued through 2018 and 2019; it is proposed to monitor the majority of sites on a five-yearly cycle, although a different monitoring cycle has been agreed for some sites.

It should be noted that the decision as to whether to assess an LNCS as favourable or unfavourable is made based on whether the site is capable of maintaining the features of key interest, rather than whether those key interests themselves are assessed as being in favourable condition or not. Therefore a site where the agricultural management was having an adverse impact on the key interest(s) of the site would result in an assessment of unfavourable. Conversely, a site where the management was appropriate to maintain the key interest(s), but, those key interest(s) were in decline because of factors operating outwith the site, may still be assessed as being in favourable condition. This is an important point as it explains what might otherwise appear to be inconsistencies between the use of the terms favourable and unfavourable in the ***Table 1.8*** above.

Six (12.2%) of the 49 LNCS are in unfavourable condition, while the rest are in favourable condition key features at 8 of them are in unfavourable condition. Although there are no obvious signs of negative management having adverse impacts of any of these (three endemic hawkweed sites, one invertebrate site and four sites with Schedule 1 breeding birds.

# Important Species and Habitats

## Protected Species

It will be important to consider the effects of any proposals on species that benefit from legal protection. European protected species are given a high level of protection under Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora. This is transposed into UK law by The Conservation (Natural Habitats &c) Regulations 1994.

Species that are protected under this legislation and present in Shetland or its inshore waters include otter and cetaceans. Since 1980, eighteen species of cetacean have been recorded along the coast or in nearshore waters (within 60 km of the coast). Of these, eight species (29% of the UK cetacean fauna) are either present throughout the year or recorded annually as seasonal visitors, these include the humpback whale (*Megaptera novaeangliae*), minke whale (*Balaenoptera acutorostrata*), long-finned pilot whale (*Globicephala melas*), killer whale (*Orcinus orca*), risso's dolphin (*Grampus griseus*), white-beaked dolphin (*Lagenorhynchus albirostris*), Atlantic white-sided dolphin (*Lagenorhynchus acutus*) and harbour porpoise (*Phocoena phocoena*).

It is illegal to disturb any of these species without a license from the Scottish Government. It order for a licence to be granted the applicant must demonstrate that the licensable purpose relates to one set out in regulation 44(2) of the Conservation (Natural Habitats &c.) Regulations 1994 (as amended), demonstrate that no reasonable alternative exists and that proposals would not be detrimental to maintaining the species at favourable conservation status. Scottish Planning Policy requires that the presence (or potential presence) of a legally protected species is factored into the planning and design of development proposals and

that any impacts on protected species are fully considered prior to the determination of planning applications.

A number of animal and plant species are protected under the Wildlife and Countryside Act 1981 as amended by the Nature Conservation (Scotland) Act 2004. Species protected under the Wildlife and Countryside Act 1981 which occur in Shetland are shown in ***Table 1.9***. The birds listed under schedule 1 are those which regularly nest in Shetland, a number of species which have very infrequent recorded nesting attempts, such as common scoter (*Melenitta nigra*), ruff (*Philomachus pugnax*) and Slavonian grebe (*Podiceps auritus*) are not included. Of the species listed some are relatively rare and restricted in their distribution across Shetland, such as fresh water pearl mussel (*Margaritifera margaritifera*) while others, such as the otter (*Lutra lutra)*, are widespread and relatively common.

The EU Birds Directive also requires steps to be taken to protect birds outwith designated sites. Article 4.4 requires Member States to strive to avoid pollution or deterioration of the habitat of species listed in Annex 1 of the Directive. While EU Directives no longer have legal standing in the UK following Brexit, the Conservation (Natural Habitats, &c.) Regulations, usually referred to as the Habitats Regulations, are UK legislation and still apply and these require the UK to achieve the aims of the EU Birds Directive. ***Table 1.10*** lists the Annex 1 species which regularly nest in Shetland. Short-eared owl (*Asio flammeus*) is on Annex 1 but the only breeding record for Shetland is from 2019 so it is not included in the table. Several other Annex 1 species occur as migrant or wintering birds (e.g. brambling (*Fringilla montifringilla*) and long-tailed duck (*Clangula hyemalis*)). The SEA must therefore consider the effects of LDP2 on the habitat of Annex 1 species outwith designated sites both for breeding and wintering habitat of the species regularly found in Shetland

## Table 1.9 – Nationally Protected Species occurring in Shetland

| Wildlife & Countryside Act 1981 (as amended) | Species |
|---|---|
| Schedule 1 – Breeding Birds | 1. Black-tailed Godwit (*Limosa limosa*)[1]<br>2. Greenshank (*Tringa nebularia*)[2]<br>3. Leach's petrel (*Oceanodroma leucorhoa*)<br>4. Merlin (*Falco columbarius*)<br>5. Peregrine falcon (*Falco peregrinus*)[3]<br>6. Red-necked phalarope (*Phalaropus lobatus*)<br>7. Red-throated diver (*Gavia stellata*)<br>8. Whooper swan (*Cygnus cygnus*)<br>9. Whimbrel (*Numenius phaeopus*) |
| Schedule 5 - other animals | • Basking Shark (*Cetorhinus maximus*)<br>• Cetaceans (all species of dolphin, porpoise and whale)<br>• Freshwater pearl mussel (*Margaritifera margaritifera*)<br>• Mountain Hare (*Lepus timidus*)<br>• Otter (*Lutra lutra*) |
| Schedule 8 - plants | • North Roe hawkweed (*Hieracium northroense*)<br>• Norwegian sandwort (*Arenaria norvegica*)<br>• Shetland Hawkweed (*Hieracium zetlandicum*)<br>• Weak-leaved hawkweed (*Hieracium attenuatifolium*) |

*[1] Used to breed regularly and still seen annually in breeding areas and could easily start breeding again. (SRBC, Pers Comm)*
*[2]Believed to breed annually on North Roe plateau but this has not been confirmed. (SRBC, Pers Comm)*
*[3]Bred annually until the recently. Still regularly recorded summering and could start to breed again. (SRBC, Pers Comm)*

## Table 1.10 – Birds Directive Annex 1 Species nesting in Shetland

| Annex 1 Species nesting in Shetland |
|---|
| • Arctic Tern (*Sterna paradisaea*)<br>• Common tern (*Sterna hirundo*)<br>• Dunlin (*Calidris alpine schinzii*)<br>• Golden Plover (*Pluvialis apricaria*)<br>• Leach's petrel (*Oceanodroma leucorhoa*)<br>• Merlin (*Falco columbarius*)<br>• Peregrine falcon (*Falco peregrinus*)<br>• Red-necked phalarope (*Phalaropus lobatus*)<br>• Red-throated diver (*Gavia stellata*)<br>• Storm petrel (*Hydrobates pelagicus*)<br>• Whooper swan (*Cygnus cygnus*)<br>• Wren (Fair Isle subspecies) (*Troglodytes troglodytes fridariensis*) |

### Priority Habitats and Species

The Nature Conservation (Scotland) Act 2004 places an obligation on all public bodies to further the conservation of biodiversity, particularly in respect of habitats and species listed in the Scottish biodiversity List (SBL). The SBL is a list of flora, fauna and habitats considered by the Scottish Ministers to be of principal importance for biodiversity conservation in Scotland. The list includes many species and habitats, both terrestrial and marine, which occur in Shetland. More information on the list and the various categories for action can be found at https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy/scottish-biodiversity-list.

As part of the '*Living Shetland draft Local Biodiversity Action Plan'*, priority habitats and species have been identified. Priority habitats include roadside verges, machair, herb-rich meadows, wet meadows and arable crops. In some cases, habitat action plans have been developed. ***Table 1.11*** lists the priority species for which specific action plans have been developed.

## Table 1.11 – Species Action Plans for Shetland

| Species Action Plans | Species/Habitats Action Plans |
|---|---|
| Arable Birds | Arable Plants |
| Arctic Char (*Salvelinus alpinus*) | Breeding waders |
| Bumblebees | Eider Duck (*Somateria mollissima*) |
| Freshwater | Harbour Porpoise (*Phocoena phocoena*) |
| Hawkweeds | Merlin (*Falco columbarius*) |
| Oysterplant (*Mertensia maritima*) | Red-necked phalarope (*Phalaropus lobatus*) |
| Red-throated diver (*Gavia stellata*) | Skylark (*Alauda arvensis*) |
| Strandline | Ungrazed Areas |
| Woodlands | Source: SIC |

# Current Monitoring

Since 2008 SIC have contracted the Shetland Amenity Trust (SAT) to undertake monitoring of various biodiversity indicators. The selection of appropriate biodiversity indicators was selected on the basis of existing monitoring programmes determined due to funding restrictions. It is important to note that the trends identified have not been subject to rigorous statistical analyses.

These biodiversity indicators currently cover rare plants, seabirds, waders, birds, songbirds, Otters and Grey Seals. The species selected are either rare in a national context (plants) or present in Shetland in nationally important numbers (all others).

**Rare Plants** – A total of 60 species of rare plant have been identified and are monitored on a rolling, five-year schedule, with approximately 12 species covered each year. Each species is rated as 'favourable' (increasing or stable) or 'unfavourable' (in decline). Where a species is judged to be in decline, or a site holding a key species is at risk, discussions may be undertaken with relevant bodies to try to resolve the issues in order to safeguard that plant/site's future.

## Table 1.12 Rare Plant Status in 2019

| Species | Status | Last Survey | Comment |
|---|---|---|---|
| *Hammarbya paludosa* | Favourable | 2016 | Stable, four new colonies found. |
| *Carex aquatilis* | Favourable | 2015 | Stable |
| *Sparganium natans* | **unfavourable** | 2018 | Not located 2017 or 2018 |
| *Salicornia europaea* | Favourable | 2015 | Stable |
| *Suaeda maritima* | Favourable | 2015 | Stable |
| *Asplenium viride* | Favourable | 2015 | Stable |
| *Arenaria norvegica ssp. Norvegica* | Favourable | 2015 | Stable |
| *Cerastium nigrescens* | Favourable | 2015 | Stable after decline |
| *Arabis petraea* | Favourable | 2015 | Stable, increase in places |
| *Juncus triglumis* | **Unfavourable** | 2018 | Possible decrease and then not located in 2018 |
| *Gymnadenia conopsea* | Favourable | 2017 | Lower count in 2017 after high counts in 2015 & 2016 |
| *Carex diandra* | Favourable | 2015 | Stable |
| *Hieracium lissolepium* | **Unfavourable** | 2017 | Searched for in 2017 and 2018 Probably extinct |
| *Gentianella amarella ssp. septentrionalis* | Favourable | 2016 | Stable, mixed fortunes at key colonies |
| *Odonitites vernus ssp. littoralis* | Favourable | 2016 | Doing well at most sites. New sub-colonies found but some small colonies lost |

| | | | |
|---|---|---|---|
| *Carex maritima* | Favourable | 2018 | Stable. |
| *Pilosella flagellaris ssp. bicapitata* | Favourable | 2016 | Stable |
| *Sedum anglicum* | Favourable | 2016 | Stable |
| *Briza media* | Favourable | 2018 | Stable |
| *Orchis mascula* | Favourable | 2016 | Stable, a good year |
| *Papaver dubium* | **Unfavourable** | 2016 | Decline |
| *Viola arvensis* | **Unfavourable** | 2016 | No recent records |
| *Arctium nemorosum* | Favourable | 2018 | Recent decline but located at two new sites in 2018 |
| *Euphorbia helioscopia* | Favourable | 2016 | Stable |
| *Gnaphalium sylvaticum* | **Unfavourable** | 2016 | Decline, but hanging on |
| *Osmunda regalis* | Favourable | 2018 | Stable. Located at 6 of 7 sites checked in 2018 and doing well at 5 of these. |
| *Betula pubescens ssp. carp* | Favourable | 2018 | Stable |
| *Corylus avellana* | Favourable | 2018 | Only one specimen left |
| *Malus sylvestris* | Favourable | 2017 | Remaining specimen flourishing |
| *Salix lapponum* | Favourable | 2018 | Doing well at only site |
| *Populus tremula* | Favourable | 2018 | Flourishing at some sites |
| *Hieracium difficile* | **Unfavourable** | 2018 | Declining |
| *H. attenuatifolium* | Favourable | 2016 | Stable |
| *H. amaurostictum* | Favourable | 2017 | Recovery after decline |
| *H. scottii* | Favourable | 2017 | Decline |
| *H. northroense* | **Unfavourable** | 2010 | Decline |
| *Loiseleuria procumbens* | Favourable | 2019 | Stable |
| *Alchemilla alpina* | Favourable | 2019 | Stable |
| *Saussurea alpina* | Favourable | 2018 | Present at all three sites |
| *Juncus trifidus* | Favourable | 2016 | Stable |
| *Luzula spicata* | Favourable | 2016 | Stable, new site found |
| *Melampyrum pratense* | Favourable | 2019 | Stable, doing well |
| *Drosera anglica* | Favourable | 2018 | Stable |
| *Cornus suecica* | Favourable | 2018 | Stable at its three sites, new sub colony found on Foula. |

| | | | |
|---|---|---|---|
| *Lycopodium clavatum* | Favourable | 2018 | Stable. Present at 6 of 8 sites checked, refound at another and 3 new sites. |
| *Atriplex littoralis* | Favourable | 2017 | Slight decrease in extent |
| *Geranium robertianum* | Favourable | 2018 | Recovery following management and translocation |
| *Mertensia maritima* | Favourable | 2018 | Stable. Located at 10 sites in 2018. |
| *Nymphaea alba ssp. occidenatlis* | Favourable | 2019 | Stable, doing well at native sites |
| *Elatine hexandra* | Favourable? | 2016 | Assumed stable |
| *Subularia aquatica* | Favourable? | 2016 | Assumed stable |
| *Myriophyllum spicatum* | Favourable? | 2014 | possible decline |
| *Potomageton rutilus* | Favourable | 2016 | Stable |
| *Potamogeton alpinus* | **Unfavourable** | 2017 | Not found 2014, 16 or 17 |
| *Potamogeton freisii* | Favourable | 2015 | Possibly increasing, new sites |
| *Berula erecta* | Favourable | 2019 | Stable |
| *Eleocharis acicularis* | Favourable? | 2017 | Stable |
| *Bolboschoenus maritimus* | Favourable | 2019 | Stable, doing well |
| *Catabrosa aquatica* | Favourable | 2015 | Stable |
| *Sparganium erectum* | **Unfavourable** | 2019 | Increasing at translocated site, extinct at native site. |

Of the 60 species monitored, 50 (83.3%) are assessed as being in favourable condition and 10 as in unfavourable condition; five of these have not been recorded during recent searches. One species extinct at its native sites is doing well at a site to which it was translocated.

**Sea Birds** – Nine species of seabird were selected as Shetland holds nationally important breeding populations (> 1% UK total) and they are currently subject to existing monitoring schemes. Monitoring of these species is generally undertaken at selected monitoring (sample) sites on an annual basis, with occasional Shetland-wide surveys for some species. Monitoring sites include Special Protection Areas (SPAs) or sample plots at other colonies.

Each species is rated as ‘favourable’ or ‘unfavourable’. If the breeding population at monitored sites has not fallen to a level 20% below that recorded in 2010, or the most up-to-date survey prior to this date, then the species is considered to be in favourable condition. If the population drops below this mark, the species is considered to be unfavourable. In determining current population levels for these species at monitored sites, a five-year rolling mean (FYRM) is used.

Although some of seabird species are showing some signs of a recovery, at least at some colonies, it is important to note that their populations are at much lower levels than the 1980s/1990s.

## Table 1.13 Seabirds in Shetland 2019

| Species | Status | Comment |
|---|---|---|
| Fulmar (*Fulmarus glacialis*) | Favourable | 2019 was another better year and numbers now just 5% lower at monitored plots since 2010 (based on FYRM) |
| Gannet (*Morus bassanus*) | Favourable | Census on Noss indicates 16% increase since 2014 and corresponding increase of 17% on Fair isle over same period. Suggests sustained increase in population |
| Shag (*Phalacrocorax aristotelis*) | **Unfavourable** | The slight recovery at large colony on Foula noted in 2018 was also shown at several other stretches of coastline but population still ca. 40% fewer than in 2010 |
| Arctic Skua (*Stercorarius parasiticus*) | **Unfavourable** | Decline continues – over 60% decline at monitored plots since 2010. |
| Great Skua (*Stercorarius skua*) | Favourable | Large colonies appear stable with indications that smaller colonies continue to increase. |
| Kittiwake (*Rissa tridactyla*) | **Unfavourable** | Some signs that long term decrease may be arrested but population still a fraction of that present in 2010, and significant decline has been evident since the early 1980s. |
| Arctic Tern (*Sterna paradisaea*) | **Unfavourable** | 2018 and 2019 appeared to be better years, although we still await collation of data from Shetland-wide survey. Still considerably fewer than 2010 at monitored colonies. |
| Guillemot (*Uria aalge*) | Favourable | Sustained increased in attendance at monitored plots in last five years means FYRM now within 10% of that for 2006-10. Colony count at Sumburgh Head highest this decade |
| Black Guillemot (*Cepphus grille*) | Favourable | Population appears to be relatively stable |

Although some of Shetland's seabird species are showing some signs of a recovery, at least at some colonies, it is important to note that their populations are at much lower levels than the 1980s/1990s. Populations of our 'true' seabird species are generally being impacted by factors outwith local control. Notably an increase in sea temperature which is having knock on effects on the food chain, reducing the availability of sandeels.

**Red-throated Diver (*Gavia stellata*)** – Shetland holds approximately one third of the UK's breeding population of Red-throated Divers. The species' breeding population and breeding success is monitored at a series of sample sites on an annual basis. This species will be considered 'unfavourable' if the breeding population decreases to 10% below the levels recorded in 2010, across all monitored sites. Scored as favourable at the 2019 monitoring after a poor year previously.

**Common Eider (*Somateria mollissima*)** – Shetland holds approximately 5% of the UK's breeding population of Eiders. Eiders in Shetland are however, recognised as being a genetically distinct and separate from the rest of the UK population. The species is best monitored by undertaking counts of moulting birds around Shetland in late summer. The species will be considered unfavourable if the moulting population recorded in the 2009 Shetland-wide census decreases by 20%.

Although 2019 count was not quite complete it suggested a further decrease in the Shetland-wide population. The 2019 count was around 37% lower than that in 2009 and therefore remains unfavourable.

**Wading Birds** – Eight species of wader, were selected, as with seabirds, Shetland holds nationally important breeding populations (> 1% UK total) of these species. Six of the species are covered by Shetland Breeding Bird Survey (BBS) and are rated as 'favourable' or 'unfavourable'. If the FYRM number of pairs per square does not decrease by more than 20% from the mean number of breeding pairs per monitored square for the period 2002 – 2006, then the species is considered to be in favourable condition. If this index does drop by more than 20%, the species is considered to be unfavourable. Two species are monitored differently, the number of male Red-necked Phalaropes (*Phalaropus lobatus*) is monitored annually at all breeding sites by the RSPB. The species will be considered to be in unfavourable status if the number of males recorded decreases from 2008 levels by more than 20%. While whimbrel (*Numenius phaeopus*) are currently monitored on an ad hoc basis at sample sites. The species is currently in unfavourable status, having declined from 480 pairs in the early 1990s to approximately 300 in 2010. To gain favourable conservation status, the population at monitored sites should increase to 10% above the levels in 2010-2013.

The survey results suggest a recovery in some wader populations in the last 3-5 years. Although more detailed statistical analysis would be required to confirm the significance of this.

### Table 1.14 Wading Birds in Shetland 2019

| Species | Status | Comment (comments based on FYRM) |
|---|---|---|
| Oystercatcher (*Haematopus ostralegus*) | Favourable | Seems stable after possible decline in 2000s; 11% below 2002-2006 baseline. |
| Golden Plover (*Pluvialis apricaria*) | **Unfavourable** | BBS suggests decline since early 2000s, although apparently stable in last few years. Still over 35% lower than 2002-2006 baseline. Note though, species not well represented in survey due to limited sampling of favoured habitat |
| Lapwing (Vanellus vanellus) | **Unfavourable** | The fourth better year in succession but still 23% less than 2002-2006 baseline |
| Snipe (*Gallinago gallinago*) | Favourable | Suggestion of recovery in last five years bringing total close to 2002-2006 baseline |
| Curlew (*Numenius arquata*) | Favourable | BBS suggests stable after decline, now less than 10% lower than 2002-2006 baseline |

| | | |
|---|---|---|
| Redshank (*Tringa totanus*) | Favourable | BBS suggests population recovering, after decline, now just 7.5% lower than 2002-2006 baseline |
| Whimbrel (*Numenius phaeopus*) | **Unfavourable** | BBS suggests 80% decline since 2002-2006 but sample size very small. Significant decreases at two LNCS in last 5 years also suggests decline. |
| Red-necked Phalarope (*Phalaropus lobatus*) | Favourable | Although 2019 was not as good as recent years the number of breeding males was still well above levels in the 2000s. |

**Song Birds** – The seven species of songbird were selected because Shetland holds nationally important breeding populations (> 1% UK total), with the exception of Blackbird (*Turdus merula*), which was chosen because it is used as a national indicator. In addition, the Fair Isle subspecies of Wren is monitored annually by Fair Isle Bird Observatory (FIBO).

These species are monitored annually through Shetland's Breeding Bird Survey. Each of the six species covered by BBS is rated as 'favourable' or 'unfavourable'. If the FYRM number of breeding pairs per square does not decrease by more than 20% from the mean number of breeding pairs per monitored square for the period 2002 – 2006, then the species will be considered to be in favourable condition. This same system applies to the Fair Isle Wren (*Troglodytes troglodytes fridariensis*), but the whole population is monitored every year.

## Table 1.15 Songbirds in Shetland 2019

| Species | Status | Comment |
|---|---|---|
| Skylark ((*Alauda arvensis*)) | Favourable | Seems stable after suggested decline in mid 2000s; now 18% below 2002-2006 baseline |
| Rock Pipit (*Anthus petrosus*) | **Unfavourable** | Suggestion of slight recovery in last 4-5 years, but BBS indices still 40% lower than 2002-2006 baseline. |
| Fair Isle Wren (*Troglodytes troglodytes fridariensis*) | Favourable | Population continues to fare well. |
| Shetland Wren (*Troglodytes troglodytes zetlandicus*) | Favourable | Recovery complete after severe winter in 2009/10 and highest number of pairs per square recorded in 2019; now nearly 30% higher than 2002-2006 baseline. |
| Wheatear (*Oenanthe oenanthe*) | **Unfavourable** | Appears to be in decline, BBS suggests around 30% decline since 2002-2006 baseline |
| Twite (*Carduelis flavirostris*) | Favourable | BBS suggests population stable, but sample size too small to draw meaningful conclusions |
| Starling (*Sturnus vulgaris*) | Favourable | BBS suggests population higher than 2002-2006 baseline |

| | | |
|---|---|---|
| Blackbird (*Turdus merula*) | Favourable | Increase continues and population over 50% higher than 2002-2006 baseline, probably due to increase in gardens. |

The majority of songbirds (6 out of 8) are in a favourable status.

**European Otter (*Lutra lutra*)** – Six stretches of coast are surveyed for active holts on an annual basis. The species is considered to be in favourable conservation status if the FYRM number of active holts at monitored sites does not drop by more than 20% from the mean number recorded between 2010-2014. The most recent data (SAT, 2020) suggests that the population is likely to be stable.

**Grey Seal (*Halichoerus grypus*)** – Shetland holds approximately 2% of the UK grey seal population and around 10% of the UK common/harbour seal population.

Pupping productivity of Grey Seals is monitored annually (usually involving 3 visits) along selected stretches of coastline by NatureScot, with assistance from other organisations. Grey seals are assumed to be in favourable conservation status if the FYRM number of pups, along monitored coastlines, does not fall by more than 20% from the mean 2004-2008 levels. The number of pups recorded is either stable or showing a slight decline, however, there is a suggestion that there is a general decline in the number of pups at some monitored sites.

**Harbour (or common) Seals (*Phoca vitulina*)** are monitored periodically by the Sea Mammal Research Unit (SMRU). This involves aerial survey counts of moulting animals. The latest survey results suggest that following a steep decline the Shetland population seems to have stabilised at 3100 (Morris, C.D., Duck, C.D. and Thompson, D. 2021. Aerial surveys of seals in Scotland during the harbour seal moult, 2016-2019, NatureScot Research Report 1256). The decline in Shetland is the second highest of any area in Scotland. Between the initial August counts (1996-1997) and the second (2000-2006) numbers reduced by 50%, however, numbers have remained stable over the subsequent 3 census counts. Although there is variation across the region with some areas (e.g. Mousa) continuing to see a decline. Nationally Shetland supported around 20% of the Scottish population at the time of the first census while today it only supports around 12% of the Scottish population.

## Key Messages

There are a number of designated sites across Shetland, from local to national and international importance. Unfortunately a significant number of the designated sites (or at least one of their interest features) are in unfavourable condition due to variety of pressures. For land based sites the most common of these is over-grazing. For SPAs (sites designated for protection of birds) the most common pressures include natural events, game and fisheries management and climate change. Given the importance of Shetland for seabird populations this is a key concern.

The presence of some species in Shetland is highly significant in a national context, for example over 90% of the UK population of breeding red-necked phalaropes and whimbrel is present in Shetland. While coastal cliffs provide important nesting sites for breeding seabirds. Shetland is home to one tenth of the total seabird population of Britain; in excess of 750,000 birds from 22 species. Although as the current seabird census is currently ongoing and as there is evidence that a number of species may be being impacted by climate change and other factors the current number of seabirds may be significantly

less than this. As identified earlier a lot of the seabird interest features for the SSSIs are in unfavourable condition.

The varied coastline of Shetland supports diverse habitats and species. Voes (inlets/sea lochs) provide shelter and muddy conditions exist at the heads of some of the longer voes, which are inhabited by species such as cockles and lugworms. In deep water, reefs are formed from large horse mussels. There is a range of priority marine features present. Sandeels, which are an important food source for Shetland's many seabirds, mammals, and commercial fish stocks are supported by finite offshore supplies of sand. There is potential for additional pressure on both species and habitats in the future from climate change.

Shetland's coastal waters support diverse marine ecosystems and the land is dominated by moorland, upland heaths and freshwater. Large areas of both land and sea are designated including internationally important sites, particularly for birds.

Although not generally a problem at this time globally invasive non-native species have been identified as being a key driver of biodiversity loss. Islands can be particularly susceptible to the impacts of invasive species. Therefore it is important that biosecurity measures are in place to prevent the introduction of these species and measures are in place to prevent further movement of those species already present, especially to remote offshore islands where they can have significant impacts on ground nesting birds.

The biodiversity monitoring shows that overall half the indicators (Rare Plants, Songbirds and Sea Mammals) are scored as green while the other three (LNCS, Waders, Seabirds – inc. red-throated diver and eider) are scored as red which is the same as 2017 and 2018 but a negative change from 2016 when four of the indicators were rated green. This suggests that there is an ongoing decline of biodiversity across Shetland which is likely to be similar to the situation across much of Scotland.

The policies set out in LDP2 are likely to have a direct immediate impact on natural heritage. Given the ambition to grow the population as well as growing key industries such as energy, aquaculture, fisheries and tourism, it is also likely to have a long term impact. It is critical that LDP2 delivers truly sustainable development and contributes to the restoration of our natural environment.

# Topic 2: Population and Human Health

This topic relates to the demographics and generic socio-economic issues. In terms of area Shetland is the 11th largest of the 32 Local Authorities in Scotland, however, it has the second smallest population. It is also the most geographically distant Local Authority and this along with the low overall population, its age class structure and distribution can lead to various issues.

## Population

The population of Shetland increased sharply between the census years of 1971 and 1981. A population which had been in decline, and was recorded in 1971 at 17,327, increased to 22,768 by 1981, in response to much increased economic activity generated from North Sea oil activity. Population figures have been relatively stable in the last twenty years, from the census figure of 21,988 in 2001 to the latest Mid-Year Population Estimate of 22,920 in 2019, but the most recent Mid-Year Population Estimates have shown signs of incremental decline.

Although the population is predicted to remain fairly stable and be around 22,824 in 2028, Shetland is also predicted to continue to have the 2nd lowest population of any Local Authority in Scotland. There are slightly more males than females in Shetland which is the opposite of the national situation and for every other Local Authority**.**

There is a trend towards centralisation of the population towards the capital, Lerwick and 41% of the population now live in and around Lerwick, although this has slowed in recent years. Depopulation is most pronounced in the more remote islands. The rest of Shetland's population is concentrated small towns and villages and hamlets, both on the mainland and across the inhabited islands although there are large rural and coastal areas that are sparsely populated. Overall Shetland has a low population density of 16 people per $km^2$, well below the national average of 70 people per $km^2$.

The structure of the population is also changing, with the proportion of working age residents standing at 61.2% in 2019, a percentage change of -4% since 2009. Net migration has also been negative for the last few years and stood at -3.93 per 1,000 residents in 2019 meaning that there are less working age residents and recruitment can be a problem for a number of sectors, especially in public services such as education, health and social care. However, the percentage of people aged 15 and under is slightly above the national average of 17% and currently stands at 18%, although this is a percentage change of -6% since 2009. Shetland also has issues with an aging population, with 20.4% of the population currently aged 65 or over, a percentage change of 27% from mid-2009, which will lead to an increasing demand for support services.

With births currently slightly exceeding deaths, the main driver of population change is currently net mitigation away from Shetland, although Natural Change is expected to become negative during the lifetime of the plan. The latest population trends from the National Records of Scotland (https://www.nrscotland.gov.uk/files/statistics/council-area-data-sheets/shetland-islands-council-profile.html#population_estimates) is for the population to continue to decrease slightly to 22,824 by 2028, this contrasts with a projected population increase of 1.8% for Scotland. The population dynamics are also expected to change with the 0 to 15 year age group projected to see the largest percentage decrease (-9.2%) and the 75 and over age group the largest percentage increase (+35.1%). Although in terms of actual numbers the 45 to 64 age group is projected to remain the same.

## Housing Deprivation and Health

The relationship between the availability of good quality housing and the health and well-being of people is now well recognised (National Housing Federation, 2014; Parliamentary Office of Science and Technology, 2011).

Children growing up in poor quality housing or insecure accommodation are more likely to be exposed to avoidable health risks such as damp, cold, accidents, community safety concerns etc. Growing older in poor quality, unaffordable or inappropriate housing has a negative impact on quality of life and the maintenance of independence in retirement (The Housing and Ageing Alliance, 2013).

According to the Scottish House Condition Survey: 2017 – 2019[2] Shetland, like many other island and rural local authorities has high levels of the least energy efficient dwellings and low levels of the most efficient. This poor energy efficiency coupled with the inclement weather and high cost of fuel means that a large proportion of households are in fuel poverty. Around 22% of households in Shetland are in extreme Fuel Poverty, significantly above the Scottish average is 12%. A household is determined to be in extreme fuel poverty if a household is in fuel poverty if, in order to maintain a satisfactory heating regime, total fuel costs necessary for the home are more than 20% of the household's adjusted net income (after housing costs), and if after deducting fuel costs, benefits received for a care need or disability and childcare costs, the household's remaining adjusted net income is insufficient to maintain an acceptable standard of living. The remaining adjusted net income must be at least 90% of the UK Minimum Income Standard to be considered an acceptable standard of living, with an additional amount added for households in remote rural, remote small town and island areas. While the percentage of households in Shetland identified as being in fuel poverty (the definition is as above except that a household would have to spend 10% of its adjusted net income on total fuel costs to maintain a satisfactory heating regime is also above the national average of 25% at 31%. The (adjusted median) fuel poverty gap – the annual amount required to move the household out of fuel poverty - in Shetland is the 2nd largest in Scotland at £1,400 and over twice the national average. Nationally fuel poverty is recognised as being a more significant issue in island and rural communities. This would indicate that many houses are not adequately heated.

Research shows that housing deprivation and poverty can have an impact on health and the incidence of chronic Illness. Shetland has the highest rate of failure (65%) to meet the Scottish Housing Quality Standard of any Local Authority in Scotland, the national average is 41%.

## Deprivation, Cost of Living, Income and Employment

Unemployment is generally low in Shetland with a claimant rate of 1.5% of 16-64 year olds, however this is likely to have increase due to Corona virus. In Shetland the average median income is higher than

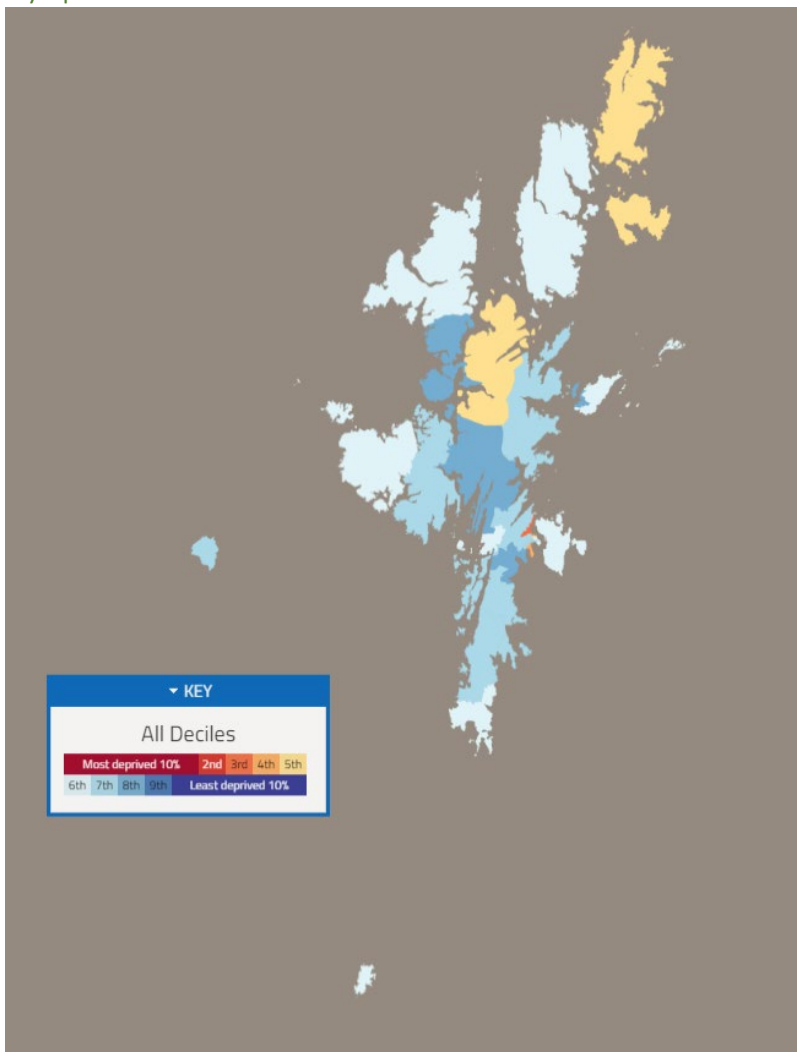
[2] https://www.gov.scot/publications/scottish-house-condition-survey-local-authority-analysis-2017-2019/

the Scottish average although there is variation across the islands. Although there is low levels of deprivation with no areas among the 20% most deprived in Scotland this does not mean that there are not issues (SIMD, 2020).

The cost of living is 20-60% higher in Shetland than the UK average, with household energy boils over twice the national average. As a result 46% of households do not earn enough to have an acceptable standard of living (Shetland Partnership annual Report 2019/2020). While poverty rates in Scotland continue to improve rates in Shetland remain static or are worsening as highlighted by increased reliance on emergency food bank provision. This is likely to be exacerbated by Coronavirus. As such it is likely that more households are experiencing greater levels of poverty than the statistics show.

In Shetland the percentage of children living in relative poverty (http://www.healthscotland.scot/media/2607/child-poverty-scales-and-trends.pdf), after housing costs is the lowest for any local authority in Scotland at 11%. While the percentage of children living in families with limited material resources is the sixth lowest at 13%. This figure is based on the national average cost of living and the national average income, after housing i.e. relative poverty is classified as living in a household with an equivalised (adjusted to take into account household need (based on size and composition)) income below 60%

Figure 2.1 Levels of deprivation in Shetland in SIMD 2020 by quintile




*Source: Scottish Government (https://www.gov.scot/collections/scottish-index-of-multiple-deprivation-2020/)*

of the median income sin that year. The real rate of child poverty may be masked by this and could in fact be higher than the rate shows.

## Table 2.1 Gross Weekly Wage

| Gross Weekly Pay – Full Time Workers (£)(MEDIAN) | | | | |
|---|---|---|---|---|
| | 2014 | 2016 | 2018 | 2020 |
| Shetland | 519.4 | 649.6 | 647.6 | 636.0 |
| Highland | 487.9 | 529.0 | 548.6 | 562.0 |
| Scotland | 518.2 | 536.6 | 563.2 | 591.4 |
| Great Britain | 520.8 | 541.0 | 569.0 | 586.0 |

Source: Office for National Statistics – Annual Survey of Hours and Earnings (https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/).

The Shetland Islands Council Economic Development Strategy 2018 – 2022 identifies that while economic activity is very strong, with high employment and a productive business base there are challenges including:

- The high cost of living
- Continued reduction in public service budgets
- An aging population
- Lack of available labour, with a number of sectors already reporting problems in recruiting and retaining staff.
- Decline in full-time equivalent employment of 4.8% between 2011 and 2017.
- Uncertainty over the UK exit from the EU.

Economic performance has historically been strong and Shetland had the fifth highest Gross Value Added per head of Scottish local authorities, behind only Aberdeenshire and the country's three main cities. Employment in Shetland is generally well paid, which helps counter the additional cost of living, however, the median value does not mean that there is not an issue with low wages.

With Employment remaining high, the most recent data indicates that the unemployment is at 1.9% (June 2020), below the national and UK averages of 3.4% and 3.9% respectively (Office for National Statistics, nomis[3], official labour market statistics). Shetland has the highest rate of economic activity in Scotland and the lowest out-of-work benefit claimant count.

[3] Source: Office for National Statistics, Nomis is the repository.

## Table 2.2 Unemployment Levels in Shetland, Scotland and Great Britain

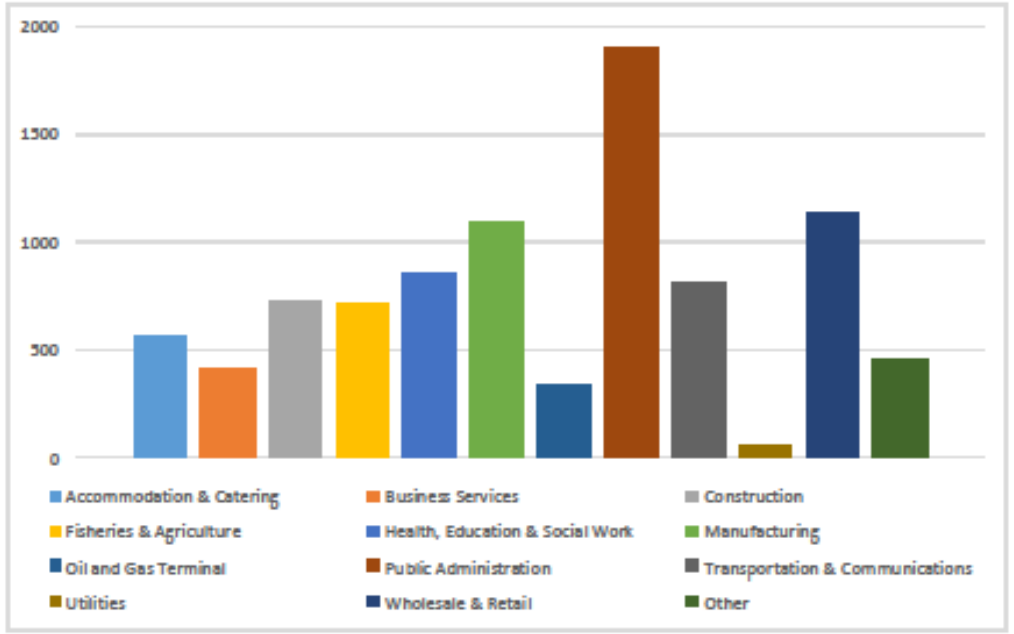
| Unemployment (%) | | | |
|---|---|---|---|
| | **Shetland** | **Scotland** | **Great Britain** |
| 2006[1] | 1.5 | 2.7 | 2.4 |
| 2010[1] | 1.4 | 4.0 | 3.6 |
| 2014[1] | 0.7 | 2.8 | 2.5 |
| 2017[1] | 2.3 | 4.2 | 4.3 |
| 2020[2] | 1.9 | 3.4 | 3.9 |

[1]Source – Shetland in Statistics 2017

[2]Source – Office for National Statistics – (https://www.nomisweb.co.uk/)

While there have been impacts from the global outbreak of Covid-19. In March 2021 Shetland had the joint lowest furlough figures for the UK (along with Orkney) at a 9% 'take-up' rate of eligible employment furloughed, compared with 15% for the UK as a whole - although the impacts of the outbreak are likely to felt locally (and nationally) for a considerable time.

## Figure 2.2 Employment by Sector




Source: Shetland Employment Survey 2017

This shows that the largest sector in terms of Full Time Equivalent (FTEs) employment is Public Administration which accounts for 21% of all FTE jobs (1,901 FTEs) followed by Wholesale and Retail with 12.5% or 1,129 FTEs followed by Construction, engineering and health.

# Health and Healthy Lifestyles

Life expectancy in Shetland is higher than the Scottish average for both males and females. The Healthy Life Expectancy of a person (how long they can expect to live in good health) in Shetland is higher than the Scottish average for men but it is the lowest of any local authority in Scotland for women.

## Table 2.3 – Life Expectancy and Healthy Life Expectancy

| Life Expectancy, Scotland | | Life Expectancy, Shetland | |
|---|---|---|---|
| **Male** | **Female** | **Male** | **Female** |
| 77.0 | 81.1 | 79.5 | 83.4 |
| **Healthy Life Expectancy, Scotland** | | **Healthy Life Expectancy, Shetland** | |
| **Male** | **Female** | **Male** | **Female** |
| 61.9 | 62.2 | 67.5 | 58.4 |

*Source: National Records of Scotland - (https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/life-expectancy).*

The following data provides a wider overview of the proportions of people who are in good and poor health.

The leading cause of death for males in Shetland was heart disease which is also the situation nationally. While for females dementia and Alzheimer's disease was the leading cause of death, again mirroring the national picture. However, it is important to note that this is based on a very limited sample size, due to the small population.

## Table 2.4 – Health Statistics for Shetland

| Health Issue | Statistics for Shetland |
|---|---|
| Percentage of Adults with good or very good general health (self-assessed) | 85.6 (%) |
| Percentage of popn. with a long-term health condition | 28.2 (%) |
| Carers | 8.7 (%) |

*Source: Scottish Census (2011) (https://www.scotlandscensus.gov.uk/search-the-census#/)*

### Table 2.5 – All Heart Diseases and Cerebrovascular Standardised Mortality Rate per 100,000 of Population

| Year | Standardised Mortality Rate per 100,000 of Population | |
|---|---|---|
| | All Heart Diseases | Cerebrovascular Disease |
| 2010 | 164.2 | 104.8 |
| 2011 | 149.6 | 63.8 |
| 2012 | 109.7 | 74.7 |
| 2013 | 162.4 | 117.8 |
| 2014 | 162.4 | 87.8 |
| 2015 | 221.5 | 66.9 |
| 2016 | 161.8 | 107.5 |
| 2017 | 130.5 | 63.3 |
| 2018 | 169.7 | 49.5 |
| 2019 | 97.1 | 20.6 |

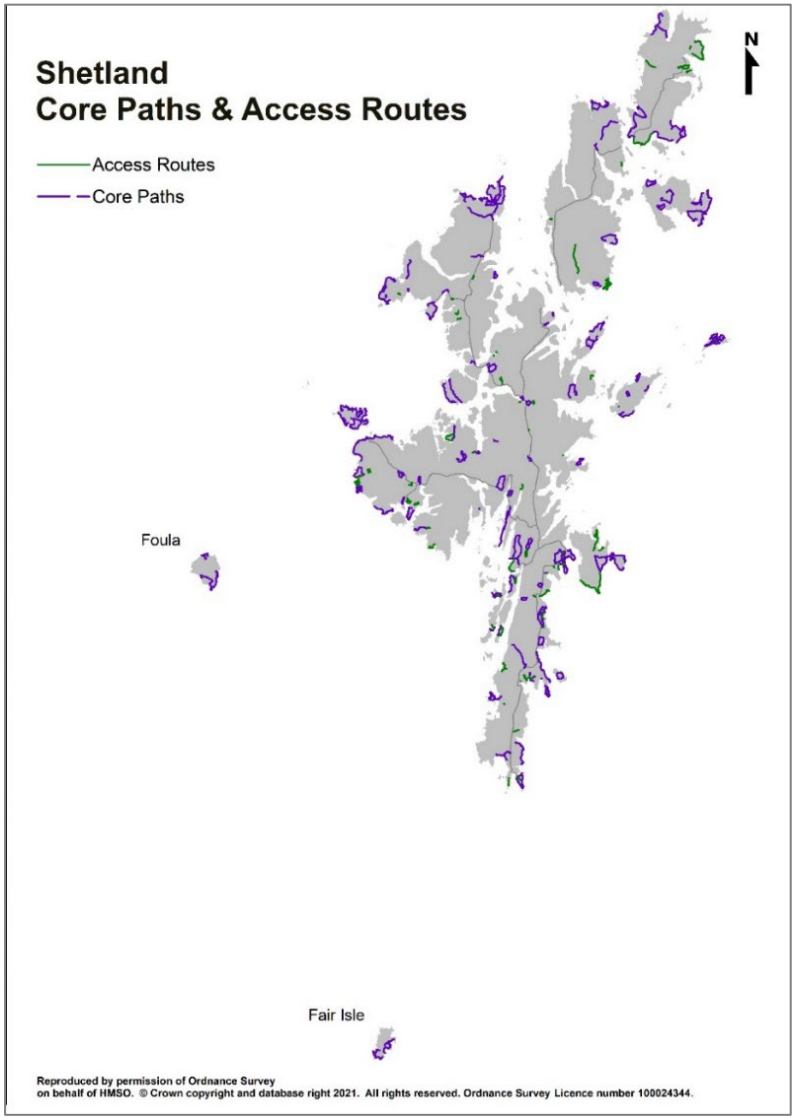
*Source: Public Health Scotland (https://beta.isdscotland.org/topics/heart-disease-and-stroke/.)*

## Core Paths, Open Space and Active Travel

Shetland is renowned for its magnificent open countryside, its rich moorlands, combined with its hills, landscapes and coastline, provides Shetland with a unique advantage to other parts of the country. Heritage features strongly in Shetlands character with many designated heritage sites and assets. Parks, amenity green spaces, core paths and the wider countryside and coast provide an important accessible resource for the community. At least some of this network is accessible to everyone in Shetland within a fifteen minute walk.

There is an SIC adopted core path network which is shown in F***igure 2.2*** of 102 routes extending to approximately 460km of paths suitable for non-motorised access was adopted in 2009. There are a further 59 access routes covering another 60km. Although there are currently no long distance trails through Shetland it is the long term aim of the Shetland Outdoor Access Forum to create the Shetland Way running along the spine of Shetland from Sumburgh in the south to Hermaness in the north with links to settlements and facilities.

Figure 2.3 Core Paths and Access Routes in Shetland




*Source: SIC*

A core paths plan is a frame work of routes that is sufficient for the purpose of giving the public reasonable access throughout Shetland and to satisfy the basic path needs of local people and visitors for recreation exercise and transit. The Shetland core paths plan was adopted in 2009 and comprises many different types of paths, ranging from natural ground to constructed paths. As a whole the core paths network caters for all types of users – walkers, cyclists, horse riders, people with disabilities etc. but not every route is suitable for all user groups. Core paths and access routes have a strong recreational focus and do not generally provide active travel routes. There is a significant amount of work required to form this into a coherent network offering transit opportunities.

Shetland covers a fairly large geographic areas, with a small number of population centres and a large number of small dispersed settlements. These are often single isolated dwellings.

As well as Shetland having some great spaces to use and enjoy, there are some areas that are under used, lay vacant or are not used to their full potential. In addition, due to the geographical nature and sparse development, accessibility can also a major issue for most when accessing types of open spaces across Shetland. There is a requirement to complete an Open Space Audit in Shetland and develop an Open Space Strategy to identify any specific issues and possible solutions.

Active travel means making a journey using a mode of transport which involves physical activity such as walking, wheeling, cycling and scooting including travel to and from places where live to where we work, learn, visit and play. However, car ownership (per household) in

Shetland is one of the highest in Scotland at 74% and the dispersed population over a large area and multiple islands is a major factor in the current high level of car use. However, data from the 2011 census shows that while average commuting distances in Shetland are similar to those in Scotland and a high proportion of commutes under 2 km the majority of journeys are by car. The percentage of children walking or cycling to school is also much lower than the national average. While this in part reflects the rural remote nature of Shetland and the northern climate there is potential for more active travel in a number of localities. The vision for the Shetland Active Travel Strategy is to ensure that "walking and cycling are attractive and realistic travel choices for short journeys in Shetland".

Public transport options within the region tend to be limited, especially in more rural areas with a limited bus service and no train lines. This means that there is a continued reliance on car ownership and use. An ongoing issue which limits the participation in Active Travel is the lack of suitable network of cycleways and footpaths.

## Key Messages

The population of Shetland is declining, with this being more acute in the outer islands and rural areas as the population centralises towards the main town of Lerwick. The population is ageing at a faster rate than the rest of Scotland leaving a marked decline in the percentage of the working age population, again particularly in outer islands and more rural areas. This trend is set to continue with employment and education opportunities a key factor as well as the high cost of living and limited service availability.

The Shetland Islands Council undertook a 'Place Standard' exercise in 2016 where over 900 people provided feedback on what is positive about where they live and what needs the most improvement. The top 3 priorities requiring most improvement were identified as:

- public transport;
- work and local economy; and,
- housing and community. (in remote areas the 3rd highest priority for improvement was facilities and amenities).

Rural depopulation and an ageing population makes Shetland increasingly fragile with a high *Old Age Dependency Ratio*. Essential posts such as medics and teachers are increasingly difficult to fill and many other local services are delivered by volunteers as appropriate. This may become more challenging if the population continues to decline and age.

Life expectancy and health are generally positive in Shetland and levels of wellbeing are high. The high cost of living, however, may result in more people living in poverty and associated health impacts of this especially considering the longstanding issue of fuel poverty.

These factors are all key to the purpose of LDP2 which will work to address sustainable development to address the declining and ageing population. Opportunities for Active Travel, green corridors and access to open space need to be considered but require further investigation. It is also a stated aim of SIC to retain in, or relocate to, Shetland more young people to live, study and raise families, while older people live active, independent and healthy lives for as long as possible (Corporate Plan, 2020).

# Topic 3: Soils and Geology

## Scotland's Soils

Soil is vital for growing food, protecting out water quality and as a carbon store. Soils across Scotland vary depending on their geology, make-up, climate, location and management.

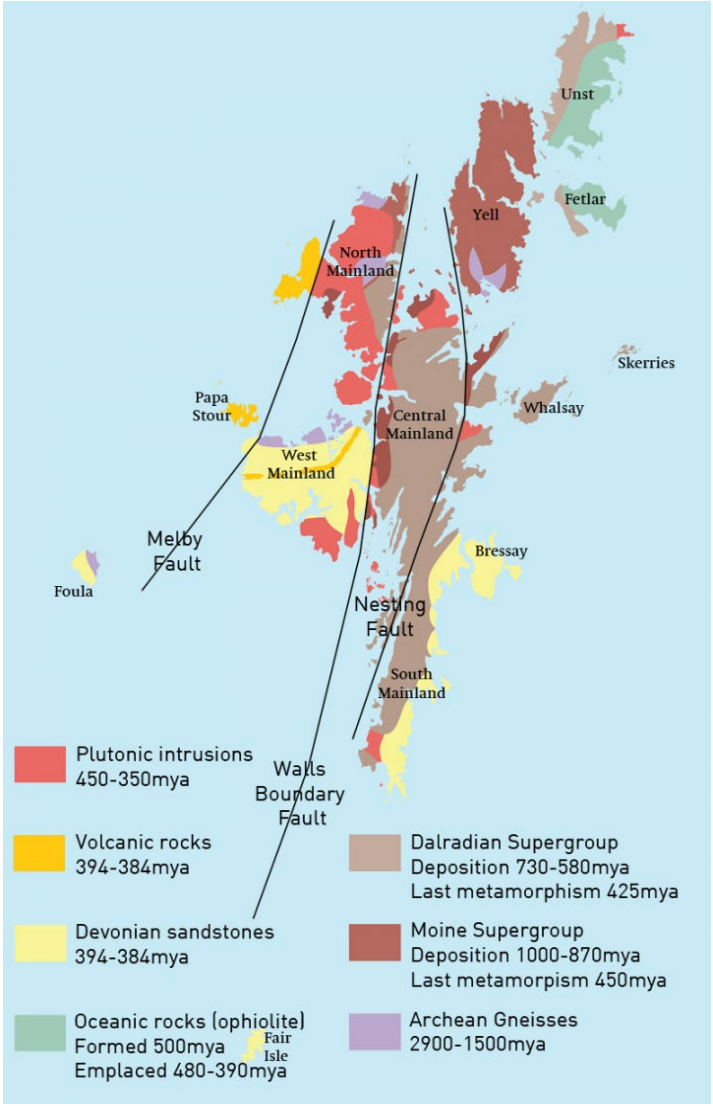
Most of the soils in Scotland have formed since the end of the last ice age, so they are relatively young compared with soils in other parts of the world (Scotland's Soils website).

Soil in Scotland contains a lot of organic matter, living and dead material from plants and animals most of which is organic carbon. This makes our soil a significant carbon store. The high level of carbon matter in our soils is due to our cold and wet climate. This slows down the process by which the organic matter breaks down. The wet climate also washes a lot of elements from the soil leaving them acid rich and nutrient poor.

# Geology of Shetland

The whole of Shetland was established as a UNESCO Geopark in 2009 due to its outstanding geological heritage. The majority of the rocks of Shetland are part of an old, deeply eroded mountain chain called the Caledonian Orogenic Belt which was raised up as a mountain block between 400 and 600 million years ago. This same mountain chain forms most of Norway, Scotland and Northern Ireland. The key geological features of Shetland can be seen in ***Figure 3.1***.

*Figure 3.1 – Geology of Shetland*




*Source: Shetland Amenity Trust*

In the south-eastern and western parts of Shetland, these rocks have been overlain by sedimentary rocks of Old Red Sandstone age. These rocks were laid down and folded during the Devonian era around 400 million years ago. Running north-south through Shetland are several tear faults where clocks of rock have been displaced by movements of the earth's crust. The principal fault of this type is the Walls boundary fault. This fault is thought to be an extension of the Great Glen fault found on mainland Scotland.

Metamorphic schist and gneiss extends from Fitful Head and the Clift Hills of south Mainland, through central Mainland and the coastal portion of north Mainland, east to the islands of Whalsay and Out Skerries and north to the island of Yell and the western parts of Fetlar and Unst. In central Mainland, the metamorphosed-siliceous sedimentary rocks are interspersed with bands of crystalline metamorphosed limestone which have been eroded to form a series of valleys. Superficial deposits of glacial drift, boulder clay and alluvium overlie bedrock in places, particularly in low lying areas, and the higher ground is commonly blanketed with peat. The eastern parts of Unst and Fetlar are characterised by serpentine and gabbro bedrock with a surface layer of shattered rock and glacial drift.

Much of the north Mainland, west of the Walls boundary fault (from Ronas Hill and North Roe plateau to the islands of Muckle Roe), consists of red granite and other igneous rocks. These rocks are overlain with superficial deposits of peat, boulder clay and glacial drifts. The cliffs of Eshaness and the islands of Papa Stour are formed by lavas and tuffs (volcanic ash) of Devonian age. The West Mainland in characterised by folded sandstone of Devonian age, with granite in the extreme south. The area is overlain by peat and areas of boulder clay. The south eastern coastal strip of mainland (from Sumburgh Head northwards to Lerwick), and adjacent islands of Bressay, Mousa and Noss are formed of gently inclined sandstones, flagstones and conglomerates of Devonian age. In places the sandstone is interbedded with limestone and mudstone. These rocks are overlain by significant areas of boulder clay and other glacial drifts. The outlying islands of Fair Isle and Foula are formed predominantly of sandstone.

Shetland is a UNESCO European Geopark, using its exceptional geological heritage to promote sustainable development, particularly in the field of tourism and education. Shetland's earth heritage is therefore potentially of economic importance as well as academic interest. Inappropriate development can be damaging to earth heritage if it destroys or obscures geological features, however, if development is appropriate and sympathetic to its surroundings it can also be beneficial in restoring those sites that have been damaged in the past.

## Geodiversity

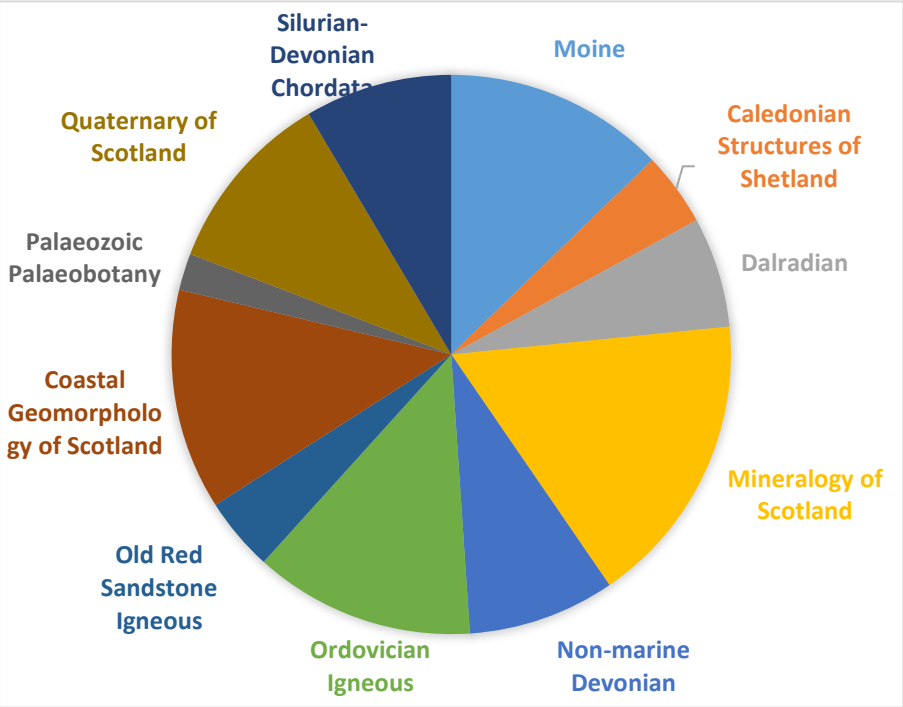
Geodiversity can be defined as, "The variety of rocks, minerals, fossils, landforms, sediments and soils, together with the natural processes which form and alter them" (Bruneau et al. 2011, p.3).

Geodiversity is of scientific, cultural and economic importance as a source of energy and materials and as visitor attractions through landscape. Shetland is a designated UNESCO European Geopark in recognition of its outstanding and diverse geology and there are 33 Geological and 7 Geomorphology SSSIs. There is a strong link between the geology of Shetland and its soils and habitats and therefore its biodiversity.

## Geological Conservation Review Sites

There are 47 Geological Conservation Review (GCR) Sites in Shetland.

### Figure 3.2 – Geological Conservation Review Sites in Shetland




*Source: JNCC. [ARCHIVED CONTENT] GCR Search Results (nationalarchives.gov.uk).*

These sites contain features of national and international importance and the criteria for selection are that they are:

- the finest and/or the most representative features for illustrating a particular aspect of geology or geomorphology.
- A minimum of duplication of interests between sites and
- Sites should be possible to conserve in a practical sense.

Although the majority (44) of these sites in Shetland are designated, at least partly, as SSSIs some, there are 3 'unnotified GCR sites', these have no protective SSSI designation status (either in whole or part).

In addition to the GCR Sites there are 9 LNCS sites identified for geological interest. One of these LNCS includes part of one of the 'un-notified GCR sites'. In order to increase awareness and protection of local geological sites it is proposed to review if new geological LNCS should be proposed for adoption during the lifetime of LDP2.

## Soils of Shetland

The soils of Shetland are a product of a variety of factors, the two most important of which are geology and climate.

### Peat

A significant area of Shetland is covered in peat which has been accumulating at a rate of about 1mm a year for at least 3000 years (Shetland Amenity Trust). NatureScot produced a Carbon and Peatland map in 2016, this a predictive tool which provides an indication on the likely presence of carbon-rich soil, deep peat and priority peatland habitat. This identified that over 527 $km^2$ (36%) of Shetland was considered to be a 'nationally important resource'.

However, only around 11% of this habitat has been formally designated. The location of these habitats in Shetland is shown in ***Figure 3.4***. They provide valuable habitat in their own right and are also important for the carbon they store and in good condition can continue to act as a net carbon sink. The requirement to protect peatland is recognised in Scottish Planning Policy.

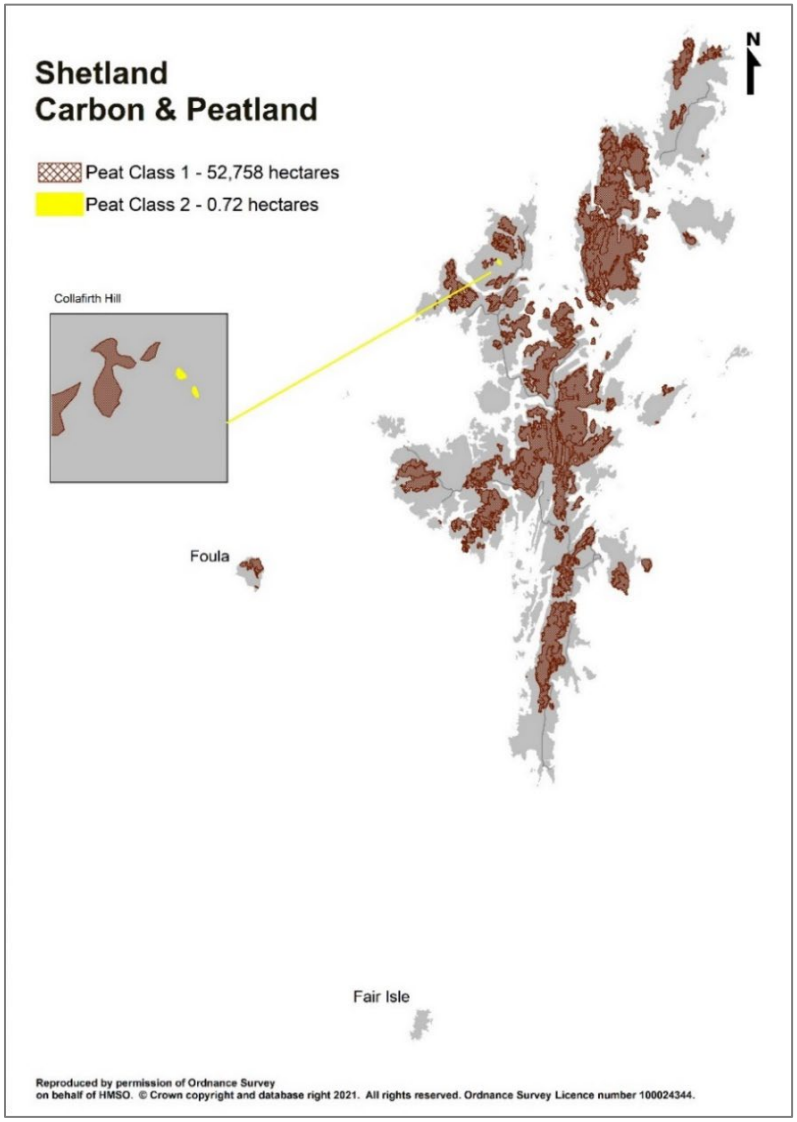
NatureScot have identified Shetland as one of 12 priority assessment areas for peat and estimate that over 70% of Shetland's blanket bog is damaged ( Artz, R. R. E., Donnelly, D., Andersen, R., Mitchell, R., Chapman, S. J., Smith, J., Smith, P., Cummins, R., Balana, B., & Cuthbert, A. (2014). ***Managing and restoring blanket bog to benefit biodiversity and carbon balance – a scoping study***. NatureScot (https://www.nature.scot/naturescot-commissioned-report-562-managing-and-restoring-blanket-bog-benefit-biodiversity-and)). They attribute much of the erosion to sheep grazing and to a much smaller extent domestic peat cutting. Bare peat and channels within it increase the likelihood of erosion both through runoff and to a lesser extent drying out and wind erosion.

The benefits of blanket bog peat include:

- a habitat for wildlife;
- carbon sequestration and storage; and,
- regulating water flow and purifying water.

The Shetland Amenity Trust hosts the local peatland ACTION officer and a number of peatland restoration projects have been undertaken in Shetland while other opportunities for restoration arise have arisen from major construction projects. Although any development on peatland can potentially lead to a loss of peatland and release of stored carbon.

Figure 3.4 – Shetland Carbon and Peatland Map




*Source: Scotland's Environment*

There are currently no active consents for the commercial extraction of peat in Shetland. Although peat continues to be cut for fuel in many parts of Shetland with many crofters having access to peat on their own croft or the right to a 'peat bank' on common grazing land. It is also possible for anyone to rent a peat bank. While widespread, this cutting of peat for domestic use is small scale and not regulated by the planning system.

### Vegetation

Shetland's vegetation is dominated by peatland, heather moorland and montane habitats. Improved rough grassland is concentrated along the coast, around the voes and in the valleys. The best agricultural land available in Shetland – improved, semi-improved and good rough grassland – can be found in the valleys of the central Mainland; along the south and east coasts of the southern Mainland; in eastern regions of Unst and Fetlar; and along the Walls boundary fault. These are the areas of greatest agricultural production.

Shetland's flora is impoverished in comparison to that of mainland Britain. This is largely due to the climate and the islands' isolation. Shetland has the highest average humidity in Britain. This, combined with its salt-laden atmosphere, limits the botanical diversity and the scope for crop growing in the Islands However, it has been identified as one of a 165 Important Plant Areas in UK by the charity Plantlife which describes Shetland as home to many different plant habitats, some of which provide wonderful floristic displays, ranging from cliffs and meadows to arctic-alpine tundra.

Shetland is predominantly treeless and there are no natural or semi-natural woodlands. There are a number plantation woodlands extending to approx. 15ha in total the largest of which are at Kergord in the Weisdale valley. Although these are the most visible trees in Shetland, they are mainly non-native species, often comprised of both coniferous and broadleaved species. The oldest and northerly plantation dates from at least the mid-nineteenth century at Halligarth on Unst and comprises only broadleaved species. There are a number of scattered 'relict' survivors of woodland tree species (native species include alder, aspen, downy birth, rowan and willow) which are of greater ecological importance. These are generally dwarf or stunted in appearance and occur singly or occasionally in small groups, often in exposed situations, on cliff ledges, in ravines, on exposed cliff-faces and on holms in lochs which are inaccessible to grazing animals.

Many islands, such as the Galapagos support many endemic (a plant or animal which is native and restricted to a certain place) species. While this is rare in Shetland, mainly due to the fact that Shetland has only been colonised since the end of the last ice age, around 12,000 years ago and the time required for speciation. There are, however, 22 species and one subspecies of flowering plant which are endemic to Shetland. Of these, 21 are dandelion-like plants and include 18 Hawkweeds and 3 dandelions with Shetland Mouse-ear Hawkweed (*Pilosella flagellaris bicapitata*) being recognised as an endemic subspecies. The other endemic is Shetland Mouse-ear (*Cerastium nigrescens*) – sometimes referred to as Edmondston's Chickweed after Thomas Edmonston who discovered it in 1837 – which is only found on Unst mostly on and around the Keen of Hamar.

## Land Capability for Agriculture

It is estimated that Agriculture contributed about £672 million to the Scottish economy in 2018 (Scottish Government, 2019). It is difficult, however, to value the direct financial contribution that healthy soils

make to our economy. It is now widely acknowledged that the sustainable management of soils, and the protection of soils' ability to deliver a wide range of environmental and ecological services, is essential to achieving sustainable economic growth. The importance of peat and other carbon-rich soils has also been recognised.

Land Capability Classification for Agriculture mapping provides detailed information on soil, climate and relief for those involved in the management of land use and resources. The classification ranks land from 1 to 7 on the basis of its potential productivity and cropping flexibility determined by the extent to which its physical characteristics (soil, climate and relief) impose long-term restrictions on its agricultural use. Land classified from 1 to 3.1 is considered to be prime agricultural land, while land classified as 3.2 to 7 is considered to be non-prime (Soil Survey of Scotland Staff, 1981).

Under the above classification there are no areas of prime agricultural land in Shetland. The percentage of land classified for other land use classes include:

- 3% for mixed agriculture
- 23% improved grassland
- 71% rough grazing

In recent years there has been a decline in agricultural activity. The total land used for tillage in Shetland was almost 437 hectares in 2001. This figure fell to 400 by 2003. ***Table 3.1*** provides information on Agricultural Land Use in Shetland. Intensive sheep farming has increased its dominance of the agricultural economy, particularly over the past 30 years and sheep numbers stood at 278,844 in 2019. Crofting comprises a small percentage of the farmed land on Shetland and is used mainly for rough grazing for sheep, although small scale crofting activities have been widely recognised as having an important role in the care and enhancement of the environment and wildlife habitats.

The amount of land suitable for agriculture in Shetland is limited and as such, fertilisation and reseeding of moorland has been used to increase agricultural productivity. The amount classed as improved or good grassland is also somewhat limited. Farmers have been encouraged to manage land in a more environmentally sensitive manner since Shetland was designated an Environmentally Sensitive Area (under the Agriculture Act 1986) in 1993.

## Table 3.1 – Agricultural Land Use in Shetland

| Agricultural Land Use Practice | Hectares |
|---|---|
| Oats, triticale and mixed grain | **10** |
| Barley | **c** |
| Rape for oilseed and linseed | **c** |
| Potatoes | **12** |
| Stock feeding crops | **160** |
| Vegetables for human consumption | **6** |
| Orchard and soft fruit | **C** |
| All other crops | **11** |

| | |
|---|---|
| Fallow | **55** |
| Total crops and fallow | **314** |
| Grass | **28,159** |
| Sole right grazing | **55,680** |
| Common grazing | **67,255** |
| Total grass and rough grazing | **151,094** |
| Utilised Agricultural Area | **151,408** |

*c data suppressed to prevent disclosure of individual holdings.*

*Source: Scottish Government – (https://www.gov.scot/collections/economic-report-on-scottish-agriculture/)*

## Contaminated, Derelict and Vacant Land

The SIC has a duty to cause its area to be inspected from time to time for the purpose of identifying Contaminated Land as defined in the Environmental Protection Act 1990.

The Environmental Health and Trading Standards Department has the responsibility for contaminated land identification and mitigation within the local authority area, these sites include former uses such as waste disposal sites and former military sites. There are approximately 260 sites in Shetland that have recorded and investigated to determine if they should be classified as contaminated as defined under the Act. The majority of sites have been shown, through the inspection and risk assessment methodology applied, to present no risk by virtue of there being no contaminated land history or there being no demonstrable mechanism for the movement of any contamination present by any defined pathway to a receptor.

The remaining sites have yielded insufficient information for the Shetland Islands Council to determine whether or not the land appears to be contaminated land. For these sites the perceived risk has been analysed and the resultant action plans ranked in order that further investigation can be carried out to provide the necessary information in order that a determination can be made whether the land falls within the contaminated land definition.

To date there has been no formal remediation of any sites identified, planning is in place to reassess the identified sites and there risk ratings, since the last ground survey in 2009. Under taking a reassessment of the sites based on the identified risk rating will enable the Environmental Health and Trading Standards Department to determine the current condition of all sites and inform the formulation of an action plan for further investigation and remediation of sites where required. The current information set is used by the local planning authority as part of the development management process. Until the reassessment of sites and the risk ratings has been completed it is unknown if there will be any requirement for support through the Local Development Plan, however, at this time it is considered that the majority of sites will pose little or no risk and therefore not need any further investigation meaning it is unlikely to be a significant issue in the future.

The Council has a duty to identify and record areas of vacant and derelict land. As part of this The Council is required to provide figures for the annual Scottish Vacant and Derelict Land Survey, the latest

survey identified just 8 sites covering an area of just over 7 hectares. Suggesting that this is not a significant issue in Shetland. Although there is an opportunity for the planning system to assist in remediating bownfield sites to make them suitable for development.

## Erosion

There are some erosion issues in Shetland, given the rural nature and degraded condition of a lot of the peatland associated with flood and landslip events. Much of the erosion is small scale but has the potential to release large quantities of stored carbon over time. At this time there are limited impacts from coastal erosion. Although only a small proportion of Shetland's coastline has protection or flood defences this may become more of a problem overtime with sea level rise and higher frequency storm events. The Council is in the process of updating its Flood Risk Management Plan to take into account the latest datasets on coastal erosion and potential impacts of global climate change.

## Key Messages

Shetland does not contain any mapped areas of Prime Agricultural Land.  Over half of the soils are peat which perform important ecosystem services, particularly as a carbon sink.  Soil erosion from grazing and natural erosion have left over 70% of blanket bog damaged in Shetland. Therefore protection and restoration of peat and other carbon-rich soils is an important objective of LDP2.

While contaminated land issues are not a significant issue in Shetland there are a small number of sites which may require remediation.

Soil erosion may become more of an issue due to the impacts of climate change.

# Topic 4: Water

"Water plays a significant role in the landscape of Orkney and Shetland. A clean water environment is important to key industries such as wildlife and heritage tourism, beef and dairy farming, fisheries, aquaculture, and production of hill lambs. In the last 30 years, the oil industry has formed a vital part of the economies of Orkney and Shetland and has been carefully monitored and regulated.

More recently, the development of wave and tidal renewable energy has grown in significance, with test sites in several coastal water areas." *(Improving the quality of Scotland's water environment, Orkney and Shetland area management plan 2010–2015)*

## Water Quality

'Improving the quality of Scotland's water environment, Orkney and Shetland area management plan 2010–2015' is a supplementary plan to the Scotland River Basin Management Plan. The purpose of the plan is to maintain and improve the ecological status of the rivers, lochs, estuaries, coastal waters and groundwater areas in Orkney and Shetland. The plan supplements the River basin management plan for the Scotland river basin district, and helps to deliver EU Water Framework Directive requirements. It focuses on local actions for Orkney and Shetland and highlights the opportunities for partnership working to ensure that we all benefit from improvements to the water environment.

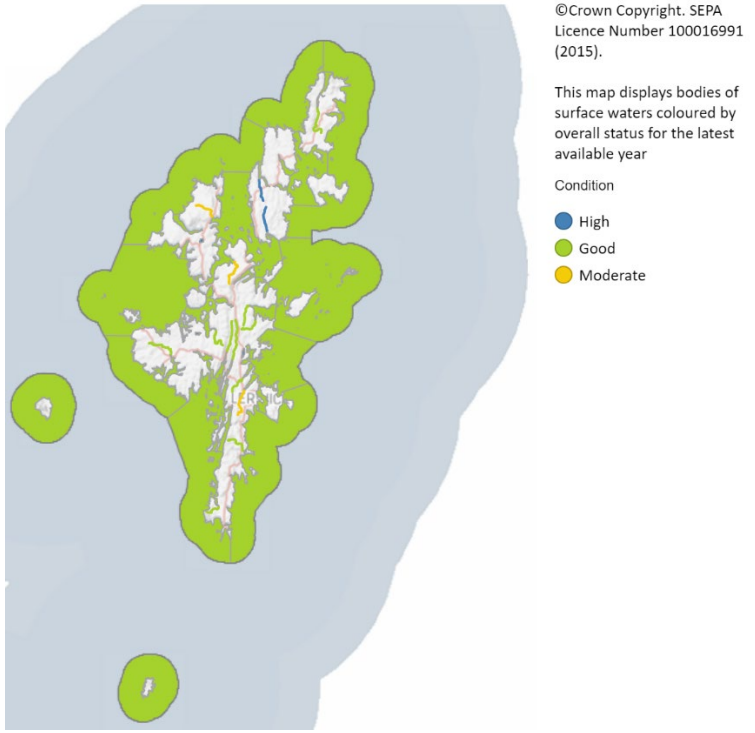
The main water quality issues for Shetland are identified in the plan as:

- diffuse source pollution linked to sewage disposal, farming and marine transport;
- point source pollution from sewage treatment, predominantly affecting coastal waters;
- alterations to beds and banks, primarily relating to agriculture; and,
- water abstraction and flow regulation for drinking water.

SEPA are the responsible authority for monitoring water quality in Scotland under the requirements set out by the Water Framework Directive. The Directive requires all water features in a category (i.e. surface water – rivers, lochs, transitional waters, coastal waters - and groundwater) above a certain size threshold to be defined as water bodies. There are 87 surface waters and 14 ground waters in Shetland. In addition, under the Water Environment and Water Services (Scotland) Act 2003, SEPA has responsibilities relating to the management and protection of river catchments (river basin districts), which includes the ground water resource within those catchments.

The conditions of Scottish rivers has improved significantly over the last 25 years and over 63% of surface water bodies and over 83% of ground water bodies are in good or high condition (*https://www.sepa.org.uk/data-visualisation/water-classification-hub*).

## Figure 5.1 – Shetland surface waterbody classification 2007-2018

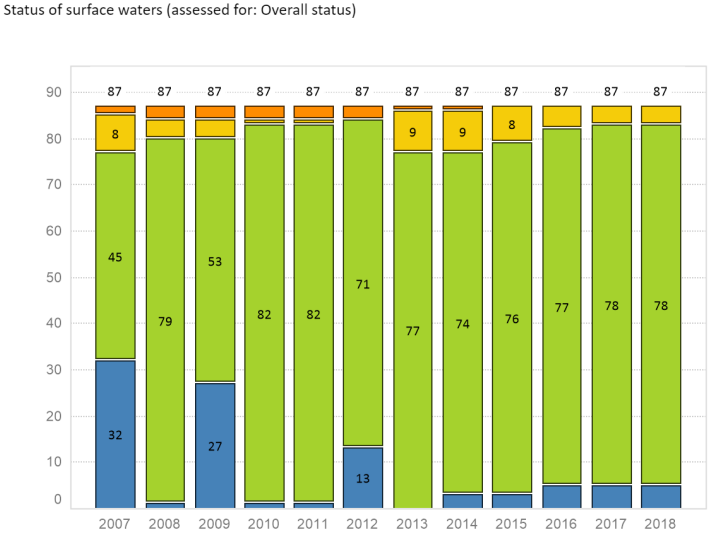



*Source: [https://www.sepa.org.uk/data-visualisation/water-classification-hub/.](https://www.sepa.org.uk/data-visualisation/water-classification-hub/)*

While in Shetland for 2018 the most recent year for which data is available 96% of surface water bodies are in good (78) or excellent condition (5) with only 4 sites in moderate condition and no sites in the lower poor or bad condition, of the sites in moderate condition 3 are due to historical impoundments. As shown in ***Figure 5.1*** these are all on Mainland. The sites in moderate condition are;

- Burn of Roerwater (for ecology and hydrology reasons)
- Burn of Laxobigging (for ecology and fish (including barriers to movement) reasons)
- Burn of Dale / Nuigol Water (fish (including barriers to movement) reasons)
- Loch of Cliff (for overall ecology and physico-chem (specifically total phosphorus) reasons)

## Figure 5.2 – Shetland surface waterbody classification 2007-2018




*Source: SEPA - [https://www.sepa.org.uk/data-visualisation/water-classification-hub/](https://www.sepa.org.uk/data-visualisation/water-classification-hub/) .*

***Figure 5.2*** above shows how waterbody classification is has been fairly stable in Shetland with the majority of sites classified as good, while fewer sites have been identified as in poor or bad condition there

are also fewer sites classified as excellent so it is difficult to identify any long term trends in waterbody classification.

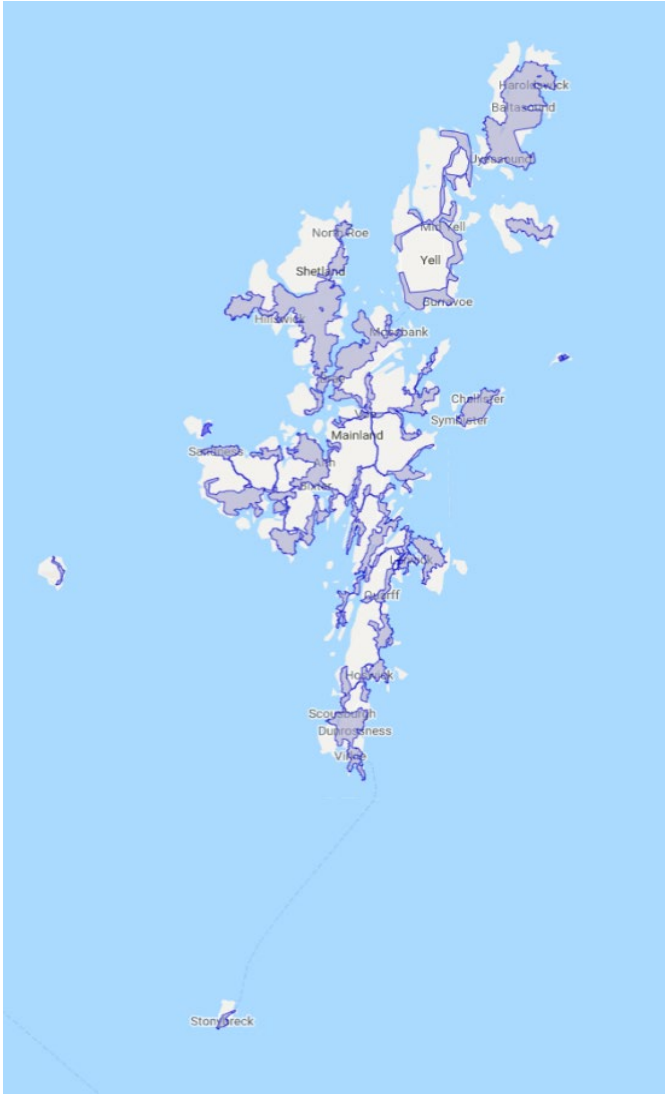
All 14 ground water bodies in Shetland are in good condition. They have been in good condition since 2012.

Water quality has been improving in recent years, although this is lower than the rate for 2012 which saw a high of 97%. **Figure 5.2** provides an overview of these rates from 2012-2018. It is also noted that while the number of waterbodies in good condition has increased the number in high condition has decreased.

## Public Water Supply and Waste Water Treatment

The public water supply is extracted from 18 raw water sources which include springs, boreholes, lochs and burns. There are 30 Drinking Water Protected Areas in Shetland. All are meeting their current standards with none at risk of deterioration. The 18 raw water sources supply 10 Water Treatment Works and an equal number of water supply zones, with a total of 33 treated water storage assets. At present there are no capacity constraints in any of the water supply zones, although this does not mean that this will not become an issue in the future.

Figure 5.3 – Scottish Water's Shetland Supply Area




*Source: Scottish Water – (https://www.scottishwater.co.uk/en/Your-Home/Your-Water/Water-Quality/Water-Quality)*

The quality of potable water is monitored annually by the Drinking Water Quality Regulator for Scotland and is generally high. There is also a low percentage of Private Water Supplies in Shetland with only 57 supplies. These not only provide potable water to domestic properties but can also be important for industry.

There are two types of private water supply, Type A supply more than 50 people, provide 10 or more cubic metres a day or are supplying premises that perform commercial or public activities whilst Type B are for all other forms of domestic service, including those serving single properties. Shetland has 56 Type B supplies and a single Type A supply. These private water supplies supply a total population of 97, which is under 0.5% of the population of Shetland.

There are 80 Waste water Treatment Works in Shetland the largest serving Lerwick has population equivalent (PE) of 15,500, however, 80% the works (64) are septic tanks designed for a PE of between 18 and 250. At this time there are no known quality issues with any of the works although this situation may change in the future.

The dispersed rural nature of the settlement pattern also means that there are a significant number of private Waste water Treatment units in Shetland often serving single dwellings. However, this means that in some areas secondary treatment is also required in order to protect coastal water quality and need to be considered as part of the Local Development Plan process.

## Flooding

The 2020 Strategic Flood Risk Assessment for Shetland identified that the most common occurrences of flooding within Shetland can be categorised as:

- coastal flooding;
- river flooding, flooding originating from a watercourse; and,
- surface water flooding, overflow and surcharging of manmade drainage systems.

Historically, flooding was most common from direct inundation from the sea. However, manmade drainage systems have become a more common source, with current flooding now more likely to involve a combination of causes, with heavy rainfall making a high load on drainage systems, and capacity issues, or outflows restricted by high tides then acting together to result in flooding.

Under the Flood Risk Management (Scotland) Act 2009, SIC has a duty to assess bodies of water and undertake clearance and / or repair as required to reduce flood risk. There are 21 sites in Shetland that receive programmed inspections to identify and address issues before they cause flooding. While programmed watercourse inspections are carried there are also reactive inspections when concerns are reported. There is a schedule of works based on risk, vulnerability and potential impacts which is used to manage clearance and repair works

The Local Flood Risk Management Plan (LFRMP) has been developed to detail the actions adopted to reduce the devastating and costly impact of flooding in the Shetland Local Plan District. This LFRMP supplements the National Flood Risk Management Strategy (the

'Strategy'), which coordinates the efforts of all organisations that tackle flooding, whether it is in our towns, villages or rural areas and whether it is from rivers, the sea or from surface water. The Strategy identifies locations in Shetland where the risk of flooding and benefits of investment are greatest: the Plan also details the prioritised actions that will be delivered with this investment.

The LFRMP details how and when the actions to deliver the goals set in the Strategy are to be delivered in the first six-year planning cycle, from 2016 to 2022. The Plan therefore describes the short-term direction of flood risk management in the Shetland Local Plan District, adding local detail to the information in the Strategy. Three potentially Vulnerable Areas have been identified and 11 actions to reduce flood risk have been identified. Currently there are approximately 30 residential properties and 50 non-residential properties at risk of flooding within the Local plan District.

The Water Environment (Controlled Activities) (Scotland) Regulations 2011 Act makes SUDs drainage a legal requirement for most types of development, while the Council's Local Development Plan policy requires the incorporation of Sustainable Urban Drainage Systems (SuDS) into all new development. SUDs drainage brings benefits in mitigating faster surface water runoff from new hard surfaces, reducing the additional load on drainage systems which may not have excess capacity, and also in controlling and treating the water quality, reducing the silt, hydrocarbon and heavy metal discharges to the wider water environment. Designing using SUDs principles also gives a more direct connection to site scale surface water flood risk as an intrinsic part of the development design, allowing risks to be designed out, rather than worked around.

# Vulnerability to the Effects of Climate Change

The UK Climate Projections website provides the most up-to-date assessment of how the UK climate may change in the future. The site provides predictions for low, medium and high emissions scenarios. The 2018 Briefing Report (updated in 2019) states that sea level around the UK has risen by about 1 millimetre per year in the 20th century; the rate of rise in the 1990s and 2000s has been higher than this.

The UK Climate Projections report on Marine and Coastal projections 2018 identifies the following sea-level projections:

- Sea-level rise will occur for all emission scenarios and at all locations around the UK.
- UK coastal sea level rise (taking vertical land movement into account) for 2100 of approximately 21–76 cm based on a medium emissions scenario (https://www.climatechangepost.com/united-kingdom/coastal-floods/#:~:text=By%202100%20relative%20sea%20level,the%20UK%20coast%20(4).);
- Global sea surface temperatures have increased through the 20th century and continues to rise. The average temperature rise over the last 100 years has been 0.13°C per decade. This trend is projected to continue, with a rise in mean global ocean temperature of between 1°C and 4°C by 2100 depending on greenhouse gas emissions. (https://www.iucn.org/resources/issues-briefs/ocean-warming).
- Risk of coastal flooding from storm surges and high tides will increase as sea levels rise.

Although the relative significance of rainfall-related flooding events has increased, coastal-related flooding is still a highly significant issue and again, climate change is predicted to cause further problems. Mean sea level around the UK has already risen by about 16cm since the start of the 20th century (when corrected for land movements) and this will only increase.

Increases in the frequency and severity of storms are predicted, with coastal water extreme levels forecasted to become 5 to 10 times more likely by the 2050. The combination of the above factors will extend the inward limit of storm driven water and whilst this is not a problem for many areas of Shetland's rocky coastlines, voe heads could be significantly affected due to the funnelling of storm surges. There are no significant rivers in Shetland and therefore even under high emissions scenarios leading to large increases in peak river flows it is unlikely that there would be a significant increase in the number of residential or domestic properties at flood risk from fluvial sources.

Online Flood Maps developed by SEPA indicate that the main risk of flooding in Shetland is coastal. Existing coastal defences will need to be replaced or modified to adapt to the effects of climate change. A study entitled Climate Change: Flooding Occurrences Review (Scottish Executive Central Research Unit 2002) found that within the next century, the effects of climate change could make most of Scotland's coasts below the 5 metre contour more vulnerable to flood risk.

Erosion of beaches from rising sea levels and increased wave action is a current problem which is predicted to become more significant in coming years. Offshore sediment supplies are finite and the potential for natural recharging of these beaches is therefore limited. Human activity such as provision of coastal defences and other physical structures can cause additional erosion.

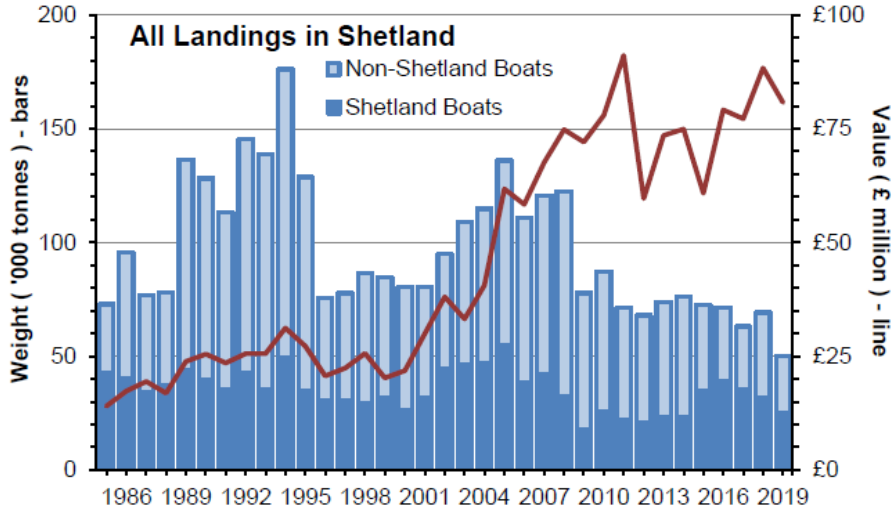
There are predicted to be changes in rainfall patterns in the future caused by climate change with drier summers and wetter winters and the impacts of this on domestic and industrial supplies are unknown at this time. The reliance of Shetland on surface water sources for raw water also means that there could be supply and quality issues.

## Fishing and Aquaculture industries

In 2019, a total of 50,000 tonnes of fish and shellfish was landed in Shetland to a value of £81,000,000 (Source: NAFC Shetland Fisheries Statistics 2019). In a national context, about one-fifth of all the finfish landed in Scotland in 2019 and just under one-sixth of all landings in the UK were made in Shetland. More fish and shellfish were landed in Shetland than in any other UK port, except Peterhead. The fishing industry is comprised of the three sectors listed below:

- pelagic fishery – mackerel, herring, blue whiting and similar species;
- whitefish (or demersal) fishery – haddock, cod, anglerfish, some shellfish (cuttlefish, nephrops & squid); and,
- shellfish fishery – scallops, crabs, lobsters, whelks.

Figure 5.4 – The weight (bars) and value (line) of all fish and shellfish landed in Shetland from 1985 to 2019




*Source: Napier, I.R., 2020, Shetland Fisheries Statistics 2019, NAFC Marine Centre UHI* ((https://www.nafc.uhi.ac.uk/research/statistics/fisheries/)

Aquaculture is an important industry in Shetland with Mussel and Salmon farming being the most common industries. There are 230 registered aquaculture sites in Shetland;

- 64% of these sites are for shellfish, mainly mussels at 145 sites, 1 oyster and 1 whelk;
- 36% of these sites are finfish with 83 sites;
- 98% of the finfish sites are seawater rather than freshwater;

The size and success of Shetland's aquaculture industry is due to three main reasons:

1. The Zetland County Council Act 1974 gave Shetland local control on the industry as it developed at a time in the past when other local authorities had not much control,

2. Significant investment by the Council and the Charitable Trust provided support for the industry to expand,

3. Shetland having good pier/ slipway/ infrastructure and small voes so less distance between sites and ports.

These three factors as well as the environment allowed Shetland's aquaculture to grow to what it is now. The aquaculture industry is very important for the number of rural jobs that it supports as shown in ***Table 5.1***. Given the location of growing sites these jobs are often located in Shetland's more rural areas providing access to employment for remote and rural communities. Salmon farming is of national importance and is Scotland's top food export.

## Table 5.1 Atlantic Farmed Salmon, Staff and Production

| Year | Staff F/T (P/T) | | Annual Production | | % National Production in Shetland |
|---|---|---|---|---|---|
| | Shetland | Scotland | Shetland | Scotland | |
| 2011 | 189 (22) | 923 (90) | 35,493 | 158,018 | 21.8 |
| 2013 | 210 (14) | 1,081 (99) | 36,694 | 163,234 | 22.5 |
| 2015 | 228 (19) | 1,256 (107) | 42,786 | 171,722 | 24.9 |
| 2017 | 207 (12) | 1,320 (69) | 38,908 | 189,707 | 20.5 |
| 2019 | 227 (6) | 1,591 (60) | 36,141 | 203,881 | 17.7 |

*Source: Munro, L. 2020. Scottish Fish Farm Production Survey 2019. Marine Scotland Science (https://www.gov.scot/publications/scottish-fish-farm-production-survey-2019/).*

The shellfish industry in Shetland is the biggest in Scotland as shown in ***Table 5.2***. Mussels from Shetland are mainly used for UK supermarkets and restaurants, and it is a very limited number that leave exported outside of the UK.

## Table 5.2 – Mussel Production (Tonnage)

| Year | Shetland | Scotland | % National Production in Shetland |
|---|---|---|---|
| 2011 | 4567 | 6996 | 65.2 |
| 2013 | 4337 | 6757 | 64.2 |
| 2015 | 5565 | 7270 | 76.5 |
| 2017 | 6647 | 8232 | 80.7 |
| 2019 | 5324 | 6699 | 79.5 |

*Source: Munro, L., Wallace, S. 2019. Scottish Shellfish Farm Production Survey Data. DOI: 10.7489/1917-1. Marine Scotland. (https://data.marine.gov.scot/dataset/scottish-shellfish-farm-production-survey-data).*

Mussel farming is considered to be one of the least environmentally damaging ways to produce high quality animal protein, as they are natural and require no input of food or chemicals. Mussel farming is constrained by carrying capacity for water bodies to make sure they do not take too much nutrients out of the water column.

Given the long and successful history of aquaculture in Shetland there are limited options for expansion of the industry. There is an ongoing trend for consolidation as both shellfish and finfish are moving towards bigger sites, although this often includes revoking other sites so that there is often no overall increase in biomass in an area as part of this process. The reasons for this are improvements include technology, economics, fish health, environmental and amendments to SEPA

modelling. Over time environmental protection has improved as new data and a greater understanding of the issues has become available. Advancements in technology have also been important. However, there are still problems such as sea lice for finfish sites, but industry is attempting to address this with natural and technological improvements. SEPA's modelling and rules has improved over the years which should improve the issue of fish waste on the environment and be more reactive.

In the longer term the finfish aquaculture industry is likely to consider offshore sites which would be better environmentally as they will be in deeper faster flowing water. Economically it is likely that this would mean significantly bigger sites. There are presently no offshore finfish farms in Shetland water.

# Marine Designations

## Marine Region

Under the Marine (Scotland) Act 2010, Scottish Ministers were given the power to identify the boundaries of Scottish Marine Regions (SMRs). 11 Marine Regions have been created in Scotland which cover sea areas extending out to 12 nautical miles. One of these areas covers Shetland and along with the Clyde Marine Region it is one of the first regions to be directed to take forward Marine Planning. The Shetland Islands Regional Marine Plan is the first plan to be completed and is currently with the Scottish Government for adoption.

## Shellfish Water Protected Areas

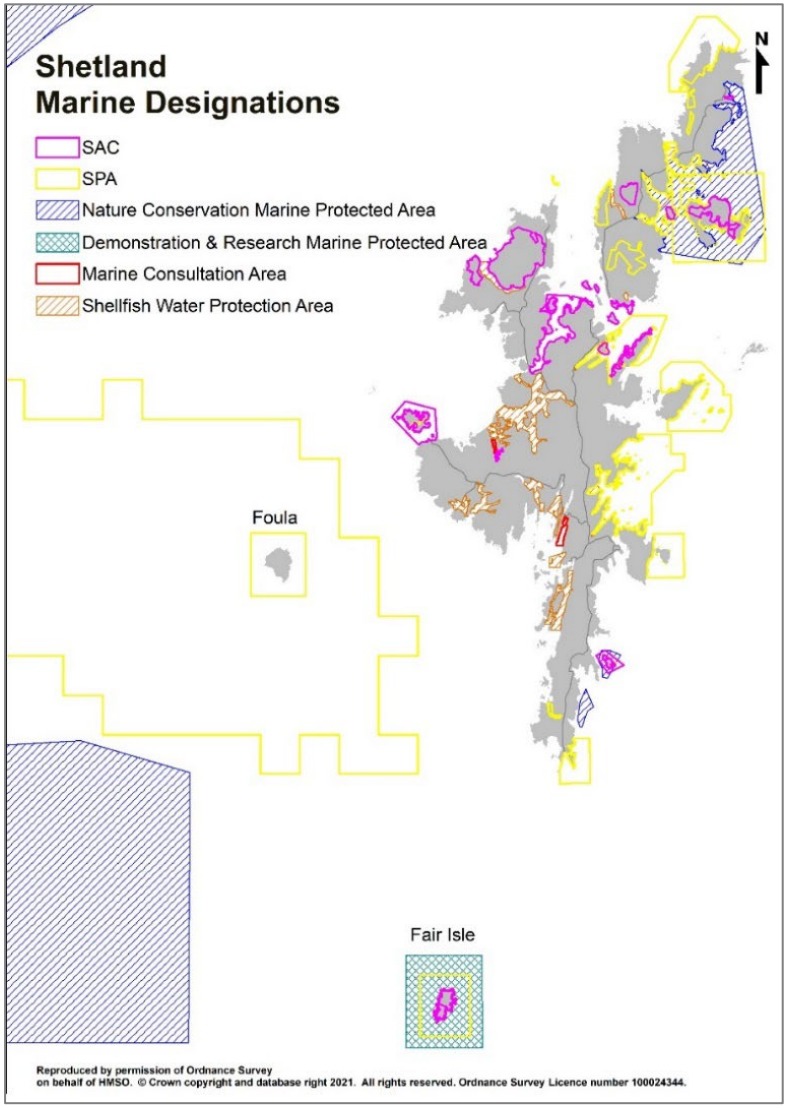
The European Community Shellfish Waters Directive 79/923/EEC, was adopted in 1979 to protect and, where necessary, improve the quality of waters where shellfish grow and to contribute to the high quality of directly edible shellfish products. In response to the requirements of the Shellfish Waters Directive SEPA has developed Pollution Reduction Plans for designated shellfish waters in Scotland. The requirements of the Directive were transcribed into Scottish law by a Designation Order (The Water Environment (Shellfish Water Protected Areas: Designation) (Scotland) Order 2013) which identified 84 waters as 'shellfish water protected areas'. Of these sites, 22 are around Shetland, and the location shown in ***Figure 5.4*** on the following page. The setting of environmental objectives for these areas has been made under The Water Environment (Shellfish Water Protected Areas: Environmental Objectives etc) (Scotland) Regulations 2013).

There are also a number of marine and offshore sites designated for various heritage reasons including, nature conservation and sustainability. These include Marine Consultation Areas, Nature Conservation Marine Protected Areas, Demonstration and Research Marine Protected Areas, Special Areas of Conservation and Special Protected Areas, these are covered in more detail in ***Topic 1*** (Biodiversity, Flora and Fauna).

## Marine Pollution

Marine pollution arises from various different sources including domestic sewage, industrial waste, naturally occurring nutrients and ballast discharged offshore by oil tankers. Other forms of pollution are those caused by noise and light; these are especially relevant in terms of aquaculture. Eutrophication, the enrichment of water, can be caused by high levels of pollution from, amongst other things, too many sewage outfalls and badly positioned septic tanks. Marine pollution can also occur in the event of an oil spill or marine dumping. Increasing levels of plastic and marine litter in the oceans is a global issue.

Figure 5.5 Marine Designations in Shetland




*Source: Marine Scotland*

# Key Messages

The quality of both freshwater and coastal waters is relatively high in Shetland. Flooding related to Climate change including sea-level rise and extreme weather is an increasing issue which may have implications for Shetland both in the short and longer term.

Fishing and aquaculture is a key industry in Shetland and the LDP will look to support sustainable development of these industries in an effort to attract people to live, work, study and invest in Shetland.

The marine environment in Shetland has a number of designations in place to protect its special qualities. The new Marine Region Plan will be a key element in managing both the development of industry and in the protection and enhancement of the marine environment.

The quality of the public water supply is generally good and there are only a few private water supplies in the region. The rural nature of Shetland and the dispersed settlement pattern means that there are a high number of private sewerage treatment plants and small scale Waste water Treatment Works (Septic tanks).

At this time flooding is not a significant issue in Shetland although this may change with climate change and sea level rise.

# Topic 5: Air

## Air Pollution

Air pollution results from the introduction of a range of substances into the atmosphere from a wide variety of sources, including industry, transport and power generation. Even domestic activities such as driving, heating and cooking contribute, as do natural sources like sea salt, wildfires, volcanic activity, soil erosion and farming (Scottish Government, 2015). Poor air quality poses significant risks to the environment and / or human health. However, air quality in Shetland is generally good in terms of national air quality objectives and there are no significant air quality issues. There are no Air Quality Management Areas in Shetland.

Air pollution can have short and long-term effects on:

- health, particularly for people with pre-existing health conditions;
- the environment causing acidification of soils and water, damaging plant and animal life in forests, lochs and rivers;
- biodiversity through nutrients being added to the soil; and,
- the fabric of buildings and historic monuments.

The main industrial area in the islands is the Gremista and Green Head Industrial Estate to the north of Lerwick. There is a high concentration of regulated activity in this area including a landfill site, energy recovery plant and an oil-fired power station. The Sullom Voe oil terminal handles around 25 million tonnes of oil each year and also contains a power station that supplies some of the island's electricity. Other industrial processes include quarrying, mineral processes and fish processing activities.

Air Pollution sources in Shetland are identified in ***Table 5.1***.

### Table 5.1 – Air Pollution sources in Shetland

| Source | Description |
|---|---|
| **Road Traffic** | Traffic density is very low in comparison to motorway and city traffic. There are very few roads and junctions where traffic is in excess of 5,000 and 10,000 vehicles per day. |
| **Other Transport** | There are air and seaports but no trains in Shetland. The main airport is Sumburgh and the main seaports are Lerwick, Scalloway and Sullom Voe. |
| **Industrial** | The key industry sectors in Shetland are Fisheries, Oil Production Operations and Agriculture. A (small) major fuel storage depot is located in Lerwick. |

*Source: SIC*

## Air Quality

The Air Quality Strategy for England, Scotland, Wales and Northern Ireland provides a framework for air quality control through air quality management and air quality standards. The aim of the Strategy is to set out air quality objectives and policy options to further improve air quality in the UK from today into the long term. As well as direct

benefits to public health, these options are intended to provide important benefits to quality of life and help to protect our environment.

The Air Quality (Scotland) Regulations 2000 (and the 2002 and 2016 amendments) set out a series of air quality objectives for key pollutants. These include; Benzene; 1,3-Butadiene; Carbon Monoxide Lead; Nitrogen Dioxide; Particles (PM10 and PM25) &; Sulphur Dioxide.

Where air quality objectives are not being met, Local Authorities have a duty under the Environment Act 1995 to review and assess the air quality within their geographical areas. The process is designed to identify any exceedances of the UK Air Quality Strategy Objectives. Where a local authority identifies an area where these are exceeded they are required to develop and implement a plan (with stakeholders) to improve air quality within the area. These areas are called Air Quality Management Areas (AQMA).

There are no existing air quality constraints or significant areas of pollution in Shetland. At present there are no AQMAs in Shetland, the nearest being in Aberdeen and Inverness.

The Local Air Quality Management (LAQM) process requires local authorities to provide progress reports in the intervening years between the three-yearly Updating and Screening Assessment reports. The latest LAQM Progress Report for Shetland (2020) provides information on developments and air quality monitoring. The Report concludes that historic monitoring indicates no exceedances of national air quality objectives are likely to occur in Shetland. Furthermore, reductions in the oil and gas exploration and process industry and linked reductions in the aviation support for this sector, including the closure of Scatsta Airport, will result in a decrease in pollutants being released to atmosphere. The LDP has an important role to play in helping the Council achieve its aim of maintaining air quality. The oil fired power station in Lerwick is also likely to close during the period of the plan and be replaced by a less environmentally harmful alternative with associated benefits in air quality locally.

## Air Quality Monitoring in Shetland

The SIC does not undertake any automatic (continuous) monitoring within the authority's area. This is due to past monitoring results indicating that concentrations were all below the national objectives, thus negating the need for further monitoring.

Nor does SIC undertake any non-automatic (passive) monitoring of NO2 within the authority's area. This is due to past monitoring results indicating that concentrations were all below the national objectives, thus negating the need for further monitoring.

# Key Messages

Air pollution in Shetland is low with no Air Quality Management Areas at present and none anticipated in the near future. However, certain industrial developments may lead to local air quality issues and this needs to be considered as well as measures to continue to reduce emissions from travel and energy generation.

There is potential for air quality to improve with a move towards renewable energy generation and the planned closure of the Lerwick Diesel fired Power Station, however, given that air quality is already high the SEA objective is to maintain, rather than attempt to improve it.

# Topic 6: Material Assets

Material assets in SEA covers a wide variety of assets and resources both built and natural. Many are covered under other topics (e.g. agricultural land is covered under *Topic 4: Soils*). The issues covered within this section are:

- energy;
- waste;
- transport infrastructure;
- telecommunications infrastructure; and,
- Minerals.

There is no longer a discrete sustainable development strategy for Scotland, rather the concept has been embedded into its overall purpose. SPP highlights the need to contribute to sustainable development and the tackling of climate change into the development plan process. Local Authorities have a legislative duty to contribute to sustainable development and this links with the aims of the Scottish Government to create a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth.

## Energy

The Scottish Government have produced a 'heatmap' to identify heat demand and potential supply across Scotland. Over 50% of energy used in Scotland goes on heating and cooling buildings and processes. The Heat Policy Statement (2015) sets out the Scottish Government approach to decarbonising our heat system, diversifying our sources of heat, reducing pressure on household energy bills and maximising economic opportunity of the transition to a low carbon heat sector.

Table 6.1 outlines the key findings of the heatmap for Shetland in Giga Watts per hour/year.

### Table 6.1 – Shetland Heatmap Findings

| | |
|---|---|
| **Total Heat Demand (GWh/yr)** | **308** |
| **Public Heat Demand (GWh/yr)** | **10** |
| **Number of Energy Sources** | **22** |

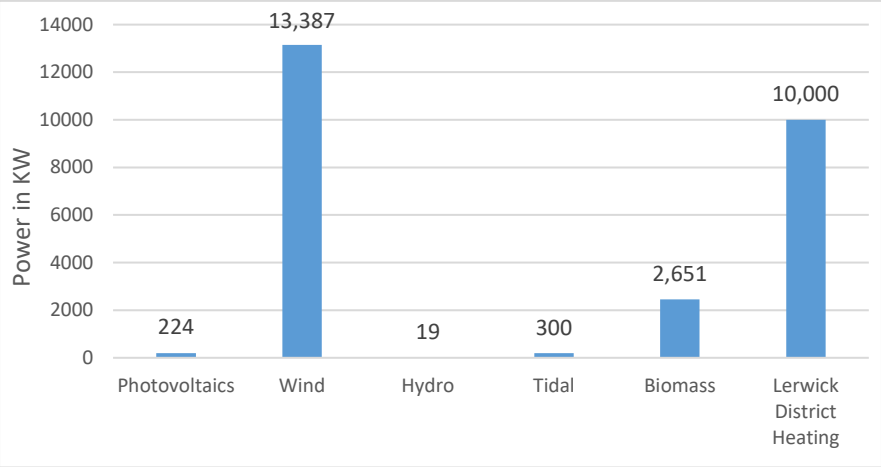
*Source: Scottish Government (https://www.gov.scot/publications/scotland-heat-map-documents/)*

Shetland is not currently connected to the National Grid and there is no mains gas. It has two power stations, a diesel fuel Lerwick which is the principal source of electrical energy for Shetland, and a further gas turbine power station at the Sullom Voe Oil Terminal.

Both these power stations are high emitters of Carbon Dioxide. The Lerwick power station is coming to the end of its operational life and it is expected to cease operation no later than 2025. Ofgem has approved a 600MW HVDC link connecting Shetland to the GB mainland by the first time and this is expected to be operational by 2024. Planning permission has been granted for a number of large scale wind farms in Shetland, the 443MW, 103 turbine Viking Wind Farm has commenced construction following confirmation of the go ahead of the HVDC link and is also expected to be commissioned in 2024. As the peak electricity demand in Shetland is less than 50MW Shetland is likely to become a net exporter of renewable electricity in the near future. Shetlands energy is likely to be largely provided from local onshore wind in the future or imported via the HVDC link, however, there will be a requirement for some type of back up station in Lerwick. At present there is limited energy generation for renewables

on the islands, however, this is likely to increase significantly during the life of the plan. ***Figure 6.2*** shows renewable energy generation in Shetland by type and kw installed.

Figure 6.1 – Renewable Energy generation and District Heating in Shetland by type & KW installed




*Source: Shetland in Statistics 2017*

There is currently a District Heating system in Lerwick serving approximately 1,000 properties. The system generates heat through a Waste Energy Plant which burns municipal refuse, waste material from offshore and refuse from Orkney. New legislation on waste management may impact the system in terms of materials available to burn.

## ORION Project

The ORION (Opportunity Renewables Integration Offshore Networks) project is seen as vital to Shetland's future. Both economically as there are significant challenges currently being faced alongside opportunity that needs to be harnessed and environmentally to deliver on its net carbon zero requirements. It is essential that Shetland develops new sectors and industries to provide a transition from the declining sectors that the Islands are faced with. It is essential that new projects and ideas are progressed that will enable job creation, in transferrable sectors, which in turn can counteract the projected job reductions in the overall economy. Shetland's aspirations are to be the first Energy Hub in the UK and more specifically, to accelerate the transition of Oil & Gas – finding ways to reduce carbon footprint while delivering hydrocarbon production in existing and new developments.

The key objectives of the project are as follows:

- To supply 32TWh of low carbon hydrogen to UK consumers annually, 12% of the expected total requirement by 2050
- Produce green hydrogen, utilising wind and tidal energy, to fuel domestic heating, road, and marine transportation to Shetland
- Provide more than 3GW of wind generated electrical power to Shetland, the UK grid and electrification of the offshore oil and gas sector
- Enable all West of Shetland hydrocarbon assets to be net zero by 2030 and abate 8Mt/year CO2 by 2050
- Generate £5bn in annual revenue by 2050 and contribute significantly to the UK exchequer
- Provide sustainable employment for 1,750 people, locally and regionally, whilst maintaining a pristine environment.

With the approval in July 2020, of a 600MW interconnector between Shetland and the UK mainland and the project now underway, this results in a transformational change for Shetland and its significant wind resource. Once operational, the link will ensure long term security of supply on Shetland whilst also allowing significant levels of low carbon generation to connect to the electricity network and that can

contribute towards meeting Scotland's Net Zero target. The interconnector creates a route to market for renewables generation. While Shetland will become a net exporter of decarbonised electricity, there remains the significant challenge of integrating large volumes of intermittent generation with 'on island' power requirements of people and businesses across electricity, heat & transport.

The ultimate aim of ORION is to ensure Shetland moves beyond the capacity of self-sufficiency in cleaner energy, to be capable of exporting renewable energy into the national grid and offshore, significantly contributing to the UK hydrogen demand, and helping develop offshore carbon capture and storage projects. The ORION project is a transformational shift for Shetland and the surrounding oil and gas province, which will benefit the local community, the wider supply chain, provide long-term security of employment and energy security of significance at a regional and national scale.

## Oil & Gas

Oil and gas extraction in the North Sea and west of Shetland remains a key industry and employer in the islands. 56% of businesses rely to a greater or lesser extent on this.

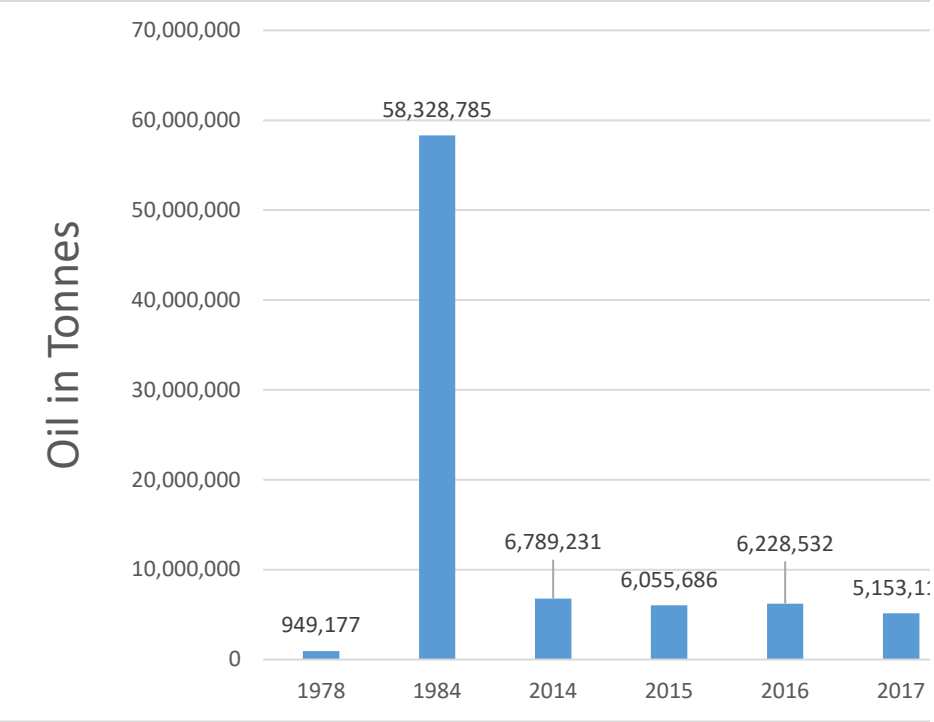
Sullom Voe Terminal is the largest oil and liquefied gas terminal in Europe. Situated 46kms north of Lerwick on the shores of Sullom Voe, it covers a site of approximately 400 hectares. Construction work started in 1974 with the first oil brought ashore in 1978.

The terminal was built to handle oil production from the Brent and Ninian oil fields in the North Sea. Oil is piped from these fields to the terminal in two 36 inch pipes. The terminal has a throughput design capacity of 1.2million barrels of crude oil per day. It reached its peak in 1984 with a total receipt of 439,434,656 barrels (53,328,785 tonnes).

Throughput has declined in recent years but the terminal remains strategically important for the UK oil and gas industry and has potential to handle output from new oilfields developing west of Shetland. Oil throughput at the terminal is shown in ***Figure 6.3***. Although oil output has been broadly stable in recent years the 333m long Very Large Crude Carrier, 'Fort Endurance' berthed at Sullom Voe in October 2020. The first vessel of this size for a number of years.

The future of the terminal is likely to dependent on whether BP continue to export oil from the Clair fields to Sullom Voe Terminal with a final decision expected shortly. It is possible Sullom Voe may close within the lifetime of LDP2 if another option is selected for exporting oil from the west of Shetland.

Figure 6.2 – Sullom Voe Terminal Oil Throughput in Tonnes




*Source: Shetland in Statistics 2017*

Shetland Gas Plant sits on the shores of Sullom Voe adjacent to the oil terminal on a site of 54 hectares. Gas fields west of Shetland are linked to the Plant by an 18 inch pipe and work is underway to link more gas fields to this pipe. The gas plant has a throughput design capacity of 500 million standard cubic feet of gas per day.

Construction of the plant began in October 2011 and the first gas was delivered to the plant in 2016. Processed gas is exported from the gas plant to St. Fergus on the UK mainland by pipeline.

# Waste

Recycling in Shetland is limited by its remote location. A kerbside recycling scheme was introduced in 2018 with waste collection moving from weekly to fortnightly. The scheme allows residents to recycle paper, cardboard, cans, some plastics and cartons at the kerbside. Households wishing to recycle glass can do so at central recycling points, although SIC have provided storage bags to assist households achieve this.

At present much of the waste for landfill is diverted to other sources, including fuel for the District Heating system in Lerwick. Any materials for recycling in Shetland have to be transported to mainland Scotland by boat and onwards by road, the environmental and financial costs of which are high, however, these are still lower than the alternatives.

SEPA compiles annual data on household waste estimates. The proportion of household waste that is recycled, goes to landfill and is diverted from landfill is shown in ***Table 6.2*** for both Shetland and Scotland.

The recycling rate in Shetland has increased significantly since the introduction of kerbside recycling, however, it is still the lowest in the country. Yet there is a much lower percentage of waste going to landfill than other areas due to the District Heating Scheme. The amount of waste generated overall has increased and the proportion of the waste recycled has decreased.

Zero Waste Scotland's recent technical report on "The climate change impacts of burning municipal waste in Scotland" notes that the Shetland Energy Recovery Plant is the only heat-only plant in

Scotland, and has a considerably lower impact than the other Energy from Waste plants because it operates at a higher energy efficiency".

### Figure 6.2 – Household Waste

| Year | Area | Generated (Tonnes) | Recycled (%) | Other Diversion from landfill (%) | Landfilled (%) | Carbon Impact ($TCO_2e$ per person) |
|---|---|---|---|---|---|---|
| 2017 | Shetland | 9,996 | 7.9 | 69.6 | 22.6 | Unknown |
| | Scotland | 2,498,981 | 45.2 | 9.5 | 45.3 | Unknown |
| 2018 | Shetland | 9,649 | 10.5 | 67.1 | 22.3 | 1.35 |
| | Scotland | 2,405,246 | 44.7 | 12.4 | 49.9 | 1.06 |
| 2019 | Shetland | 9,648 | 17.1 | 63.1 | 19.8 | 1.28 |
| | Scotland | 2,421,790 | 44.9 | 23.8 | 31.3 | 1.04 |

Source: *https://www.sepa.org.uk/environment/waste/waste-data/waste-data-reporting/waste-data-for-scotland/.*

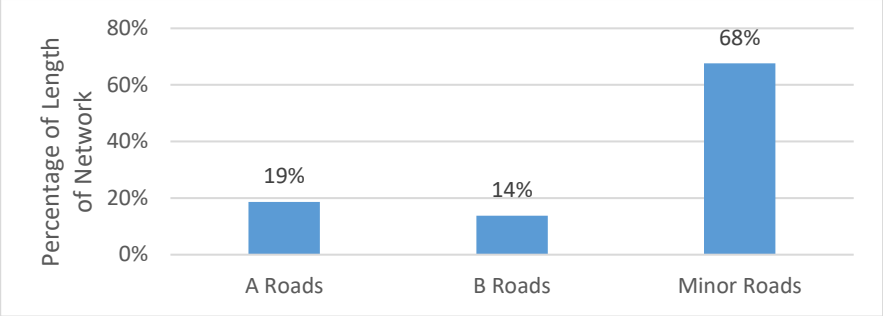
## Transport Infrastructure

The Scottish Index of Multiple Deprivation (SIMD) gives an indication of the accessibility faced by the whole of Shetland and more specifically on its more remote islands, with over 50% of the Shetland data zones being within the Index's most deprived 10% in terms of geographic access to services.

### Road

Shetland has 723 miles of road network, the majority of which are minor roads. ***Figure 6.4*** provides a breakdown of the network by road type. As highlighted in Section 2 Shetland has a higher proportion of households with access to a car than the Scottish average and this reflects the heavy reliance on the private car in Shetland due to remote and rural nature of the island group.

### Figure 6.4 – Proportion of road types in network by length




*Source: SIC*

While car ownership in Shetland is one of the highest in the UK Shetland also retains a good bus network which provides a vital service to Shetland's many rural communities and essential access to work, healthcare, retail and leisure. Lerwick is the main service centre in Shetland and it is possible to commute to and from Lerwick by bus for a 9 – 5 workday, and at lunchtimes, 6 days a week from most parts of Shetland including the Northern Isles. Outwith Lerwick, the main service centres are Brae, Scalloway and Sandwick and it is possible to

commute locally the these centres by bus for a 9 – 5 workday, and at lunchtimes, 6 days a week. Most outlying rural areas have a local, sometimes demand-responsive, shopping / health centre service 1 or 2 days a week. In additional, there is a 7-day-a-week bus service linking Lerwick to the airport at Sumburgh (Transport Strategy Refresh 2018-2028[4]). However, while data is only available on a regional scale for the Highlands, Islands and Shetland (Transport for Scotland) this indicates that use of public transport fell by nearly 20% between 2014 and 2019.

### Air

The main airport in Shetland is at Sumburgh; in 2019 it dealt with 328,163 (HIAL) passengers, a small decrease on the previous year. Although due to the impacts of Covid-19 the numbers for 2020 are expected to be significantly lower. Sumburgh airport connects directly to Kirkwall, Inverness, Aberdeen, Glasgow, Edinburgh, Manchester and Bergen (summer only). There has been significant investment in the airport recently years to improve facilities and services. The Scottish Government's Air Discount Scheme provides a 50% reduction on airfares for residents. The introduction of a parking charge at the airport has been highly controversial.

The Shetland Islands Council operate inter-island air services from Tingwall airport to the some outer islands of Shetland including Fair Isle and Foula. Flights to Fair Isle operate 6 days a week in the summer, 5 days in winter. Flights to these outer islands are often subject to disruption due to the weather.

### Sea

The Northlink ferry connecting Shetland to Orkney and mainland Scotland is estimated to serve approximately 300,000 passengers per year. There is an overnight sailing 7 days a week throughout the year. In addition there are a number of freight services operating serving industry and bringing essential supplies to Shetland. Passenger numbers for 2020 are down by over 70% due to the Corona virus pandemic whilst freight volumes have been less affected only showing a 9% year-on-year decrease.

The majority of Shetland's food and drink is brought to the islands by sea. Lerwick Port handles around 900,000 tonnes of cargo annually. In addition, there is a major oil port at Sullom Voe which was built initially for production from North Sea oil and gas and now also handles oil from west of Shetland.

There is also a network of seven inter-island ferry services. Which provide a critical service linking the outer islands to the Mainland.

## Telecommunications Infrastructure

### Broadband

The Highlands and Islands Enterprise Local Authority update on digital rollout for Shetland states that in 2013 there was no access to fibre broadband in Shetland. By April 2017 this had increased to 80%. Through the rollout more than 9,000 Shetland premises have now been drawn into the fibre network with over 50 new cabinets across the Islands, although Shetland has some of the lowest average broadband

[4] shetland_transport_strategy_refresh_2018_final-1.pdf (zettrans.org.uk)

speeds in the UK. The Coronavirus pandemic, and the resultant requirements for home learning and home working, highlighted that for a proportion of the population access to reasonable broadband was an issue and had significant impact on their ability to manage during this time.

The Scottish Government R100 programme aims to ensure that all homes and businesses in Scotland have access to broadband speeds of 30Mbps - this is behind schedule and at present only around 75% of Shetland has access to internet of this speed, while 18% of coverage in Shetland has access to speeds of less than 10Mbps, which is below the UK Government's new legally binding Universal Service Obligation. Fibre broadband is available in some areas of the mainland, and the North Isles Fibre project has extended the Council's fibre network to Yell and Unst for the use of public services, but significant areas of Shetland, including large parts of the mainland and the outer islands, have no access to fibre connectivity.

### Mobile Voice and Broadband

Mobile phone coverage (2G) and mobile broadband coverage (3G/4G) is patchy in Shetland. Between the main networks, most of Shetland has 2G coverage although there are key gaps and *NotSpots* in the network. Again, between the main networks, much of Shetland now has 3G coverage but with notable exceptions in the northern and outer Isles and a large number of *NotSpots*. 4G is increasingly available from some of the main networks for much of mainland Shetland.

## Mineral Extraction

Quarrying, minerals and aggregates data is poorly recorded in Shetland, with little sales data available, largely for reasons of commercial confidentiality surrounding relatively small operations and the significant variability over time due to the nature of the various construction related industries and activities.

The SIC Interim Planning Policy Minerals Technical Report in 2009 provides background information on the current quarrying situation, though it is worth noting that this interim document is now 12 years old. According to this document there were 13 active private quarries operating in Shetland that at the time were considered able to supply Shetland's mineral needs for the foreseeable future. While an additional 3 sites had planning permission but were either dormant or inactive. Quarried materials include aggregates, talc, sand, sandstone and peat[5]. While many sites still host extractable reserves, a small number will have been worked out since 2009. Others lie dormant periodically (or temporarily house other uses in the quarry void) while waiting for appropriate demand to re-activate working. Some sites are only activated by projects of a significant scale within an economically viable transportation distance.

[5] Peat is covered under mineral extraction in SPP under 'Promoting Responsible Extraction of Resources', paragraph 241. *'Policies should protect areas of peatland and only permit commercial extraction in areas suffering historic, significant damage through human activity and where the conservation value is low and restoration is impossible.'*

Scottish Government (2029). *Scottish Planning Policy* p. 54 (https://www.gov.scot/publications/scottish-planning-policy/). Peat is addressed under Topic 2 (Soils).

Shetland Islands Council periodically surveys data related to aggregates working, with the last survey conducted in 2017 (most of the respondents were crushed rock site operators). Information from such surveys can be indicative of sales data and extraction rates year on year, but this information is often incomplete and not returned by all operators. The primary mineral types subject to such surveys in this local authority area are Crushed Rock, Sand and Gravel, Talc and Peat.

Until 2005 the local industry were subsidised for the export of minerals including aggregates and talc. The withdrawal of the subsidy and the subsequent aggregate levy has meant that export rates have reduced. The geography of Shetland means that remote islands tend to be self-sufficient in aggregate supplies although concrete for road work is routinely transported between islands. It is estimated that Shetland Islands Council extracts the largest amount of aggregate in Shetland and that aggregate reserves held by private operators and SIC appear sufficient to meet current demand levels for over 10 years it is important to protect this supply of indigenous aggregate as Shetland's remote location means that the importation of minerals, even from other Scottish Local Authorities is unlikely to be economically viable and also have a higher carbon footprint.

It is recognised that the supply of some minerals in Shetland may be limited, for example minerals such as sand are likely to have previously been extracted from beaches but it is recognised that this is damaging and unsustainable and there are no extant permissions for this type of activity. While this does not appear to be currently causing issues within the construction industry it is accepted that this is an area for which limited information is available and there is lack of knowledge in terms of minerals supply and demand in Shetland. The next local development plan should assist in the development of a circular economy, encouraging reuse and recycling of materials in the first instance and reducing the demand for virgin sources, especially for those outside Shetland which are bulky and expensive to transport and have a high carbon footprint.

SPP promotes a landbank approach to planning for the supply of construction aggregates. This approach is intended to ensure that a stock of reserves, with planning permission, is maintained to ensure adequate supplies of construction aggregates over a minimum 10 year period based on current production levels. The 10 year period recognises the likely timescale between an operator deciding that there is a need for a new site, securing planning permission and bringing the site into full production. It is important going forward that the Local Development Plan safeguards current resources and any reserves that are economically viable to extract, especially where there is potential for these resources to be sterilised by other development.

For planning purposes SPP confirms the Scottish Government's view that LDPs should support the maintenance of a landbank of permitted reserves equivalent to a minimum 10 years extraction at all times for all market areas.

For Estimated Consented Reserves, the 2012 Scottish Aggregates Survey (SAS) gives the figure of 1,759,000 tonnes, implying that these are generally sufficient to meet local demand within the Orkney & Shetland Islands Region, though the equivalent figure for sand and gravel is zero, implying no ability to meet local demand. However, all these figures should be treated with caution for at least 3 reasons, firstly they only show data for the "Orkney & Shetland Islands Region" and it is not possible to extract data for Shetland alone. Secondly, this data is nearly 10 years old and there has been considerable

construction activity in Shetland over the intervening period. Thirdly, rates of return from operators to SAS are unknown and it has so far not been possible to collect comprehensive data as part of local monitoring exercises undertaken by the SIC.

Mineral extraction in Great Britain 2012, Department for Communities and Local Government Business Monitor PA1007, provides additional minerals production data specifically for Shetland:

- 1,000 tonnes of sand and an unspecified amount of other sand and gravel for fill
- Unspecified amounts of sandstone for building stone, roadstone, armour stone and gabion
- 227,000 tonnes of igneous rock for roadstone and other purposes
- 3,000 cubic metres of peat
- Unspecified amounts of Soapstone & Talc

As minerals extraction development is granted consent for specific time periods (after which further applications are required) an indication of the amount available for extraction can be estimated from consent time periods and stated extraction rates in tonnes per annum (tpa). This can then be plotted through a study such as a Minerals Delivery Schedule. This, in combination with sales data, is one way of calculating a landbank. Active planning permissions is also indicate how many more years current consented reserves will continue to contribute to the market.

From information available in current planning consents it is estimated that over the next decade a combination of sites will continue to provide for a Shetland-based supply for crushed rock. There is likely to be some available gravel supply and to a lesser extent Talc, though these consents will all expire within the next 10 years.

On the basis of current consents, supply will understandably diminish over the next ten year period as permissions reach their extent. There is the potential for consents to be extended if minerals have not been worked during the permitted period (if proposals are deemed appropriate). Additionally, supply may be supplemented with extension to extraction sites (where sustainable and appropriate) or by new extraction operations. There is a lack of data in regards to this issue which makes it difficult to understand current usage or future requirements.

## Key Messages

Material Assets cover a wide range of environmental concerns. Shetland currently generates all of its own electricity needs with a combination of a power station, district heating and a low level of renewables. The power station is due to close when a new sub-sea cable connects Shetland to the National Grid paving the way for increased renewables. Oil and gas extraction remains a key industry and options to decarbonise these will become increasingly important.

Shetland has a very low recycling rate due to challenges related to its remote location. However, it also has low levels of waste going to landfill due to the District Heating scheme. There will be a requirement for this to change, given the new legislation, more waste will be recycled but will require to be shipped out of Shetland and less waste will be directed to the District Heating Scheme.

Given the geography of Shetland there is a heavy reliance on the private car, air and sea transport. Mobile voice and mobile broadband capability are improving with plans for further rollout but NotSpots remain. Some areas of central, south and north mainland Shetland have access to fibre broadband, and the North Isles Fibre project has extended the Council's fibre footprint to Yell and Unst for the use of public services, but there are considerable areas of Shetland which continue to have no access to superfast (30Mbps) broadband.

The LDP is likely to have an impact on material assets given the ambition to grow the economy as set out in the Corporate Plan. This will have a direct impact on demand for infrastructure and services.

# Topic 7: Climatic Factors

Scotland has a temperate maritime climate with generally cool summers, mild winters and rainfall spread throughout the year. There is variation between regions and seasons due to a range of factors, including latitude, distance from the sea, prevailing winds, ocean currents and altitude.

Shetland experiences weather similar to that of the Faroe Islands or Southern Norway, although, due to the Gulf Stream it is warmer than other areas on similar latitudes. Shetland experiences long cool winters and short mild summers. The general character of the climate is windy and cloudy, with an average wind speed of force 4 and with around 1,100 hours of sunshine per year. There are also big differences in day length with almost 19hours between sunrise and sunset in summer but less than 6 in winter.

The climate is changing mainly due to anthropogenic reasons in Scotland (and globally), this is likely to continue in the future due to global emissions of greenhouse gases. Over the last 100 years it has become warmer, with drier summers, wetter winters and more frequent heavy rainfall. It is predicted that over the next few decades Scotland and the UK will in general experience milder wetter winters and hotter drier summers.

## Historic Trends and Future Predictions

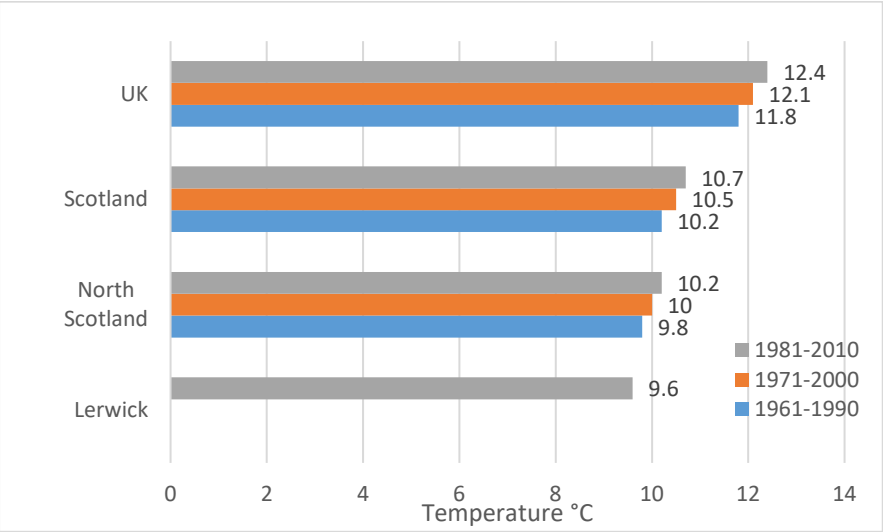
The impacts of climate change are already being seen in Scotland with trends showing an increase in minimum and maximum temperatures and rainfall and a reduction in the number of days of frost and snow cover.

### Temperature

In Northern Scotland the northern Outer Hebrides, Shetland and Orkney are warming at a similar level in all seasons, although Orkney has warmed slightly less in winter and Shetland less in summer.

The temperature in Shetland typically varies between 3°C and 15 °C with hottest temperature of the last 30 years being 23.4°C. ***Figure 7.1*** below shows the yearly average maximum temperatures for Lerwick, North Scotland, Scotland and the UK over different time periods.

Figure 7.1 – Yearly Maximum Average Temperatures

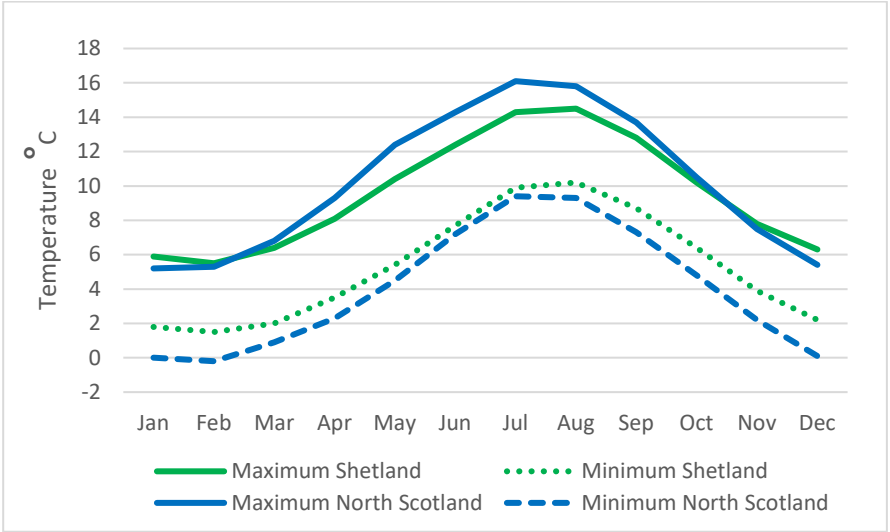



*Source: MetOffice. Contains public sector information licensed under the Open Government Licence v3.0. (Lerwick data only available for 1981-2010)*

Average yearly temperatures have increased in all areas over the time period. The highest increase is for the UK average with a rise of 0.6°C since 1961, 0.5°C in Scotland and 0.4°C in North Scotland. Although even in a high emissions scenario with 4ºC rise in global temperatures, it is unlikely that the temperature in Shetland would exceed 25ºC.

***Figure 7.2*** provides information on average monthly temperatures for Shetland and for North Scotland from 1981-2010. The average minimum monthly temperature in Shetland is warmer then the north of Scotland due to the maritime influence and shows less variation overall than other areas of the UK.

Figure 7.2 – Average maximum and minimum monthly temperatures 1981-2010



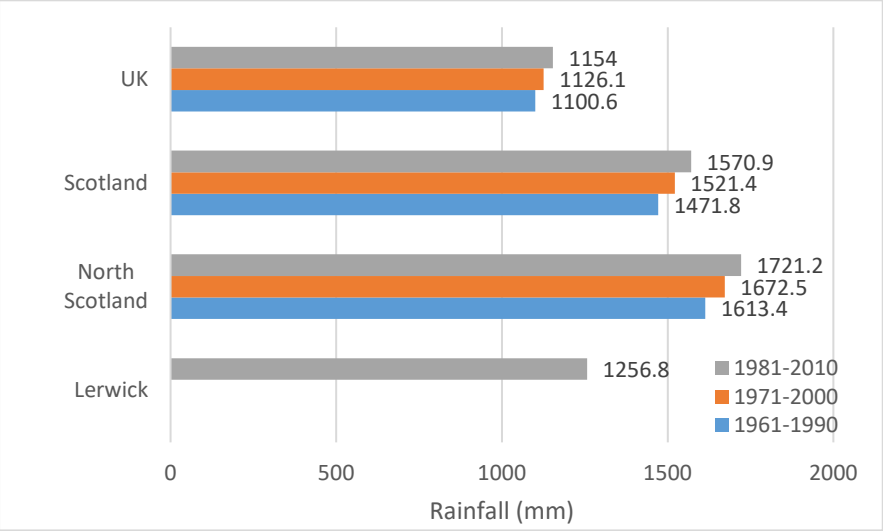

*Source: MetOffice. Contains public sector information licensed under the Open Government Licence v3.0. (Lerwick data only available for 1981-2010)*

## Precipitation

The average annual rainfall for Shetland (Lerwick weather station) is 1256.8mm for the period 1981-2010; data for previous time periods is not available at the local level. This is lower than the Scottish average. ***Figure 7.3*** shows yearly average rainfall for Lerwick, North Scotland, Scotland and the UK over different time periods. Average annual rainfall has increased in all areas over the time period. Scotland and

North Scotland have both experienced an increase in rainfall of 6.7% while in the rest of the UK the average increase is 4.9%.

Figure 7.3 – Yearly average rainfall

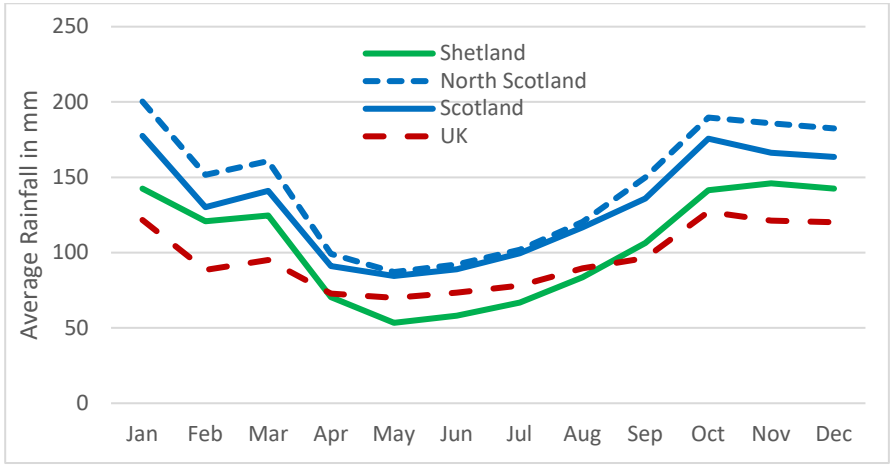



*Source: MetOffice. Contains public sector information licensed under the Open Government Licence v3.0. (Lerwick data only available for 1981-2010)*

***Figure 7.4*** provides information on average monthly rainfall for Shetland, North Scotland, Scotland and the UK from 1981-2010.

Over the past 30 years in Shetland there has been an average of 11 rainy days in the summer and 21 in the winter, even in a high emission scenario with a 4ºC global temperature rise this would remain broadly the same. While the wettest summer day is projected to be 4% less than the currently high of 90mm over the last 30 years the wettest winter day could see an increase of 16% from the current 30 year high 46mm. This is in-line with current UK predictions with drier summers and wetter winters with more extreme events anticipated. In the short and medium term it is predicted that annual precipitation in Shetland by up to 10% annually.

Figure 7.4 – Average monthly rainfall 1981-2010




*Source: MetOffice. Contains public sector information licensed under the Open Government Licence v3.0. (Lerwick data only available for 1981-2010)*

## Wind

The western and northern parts of Northern Scotland are, on average, the windiest in the UK, being fully exposed to the Atlantic and closest to the passage of areas of low pressure. It is generally windier in the winter, with an average of 14.5 days per month where the wind speed is in excess of 10 knots. The annual wind rose for Lerwick is typical of open level locations across the Northern and Western Isles, with a prevailing south-west wind direction through the year and frequent strong winds. Shetland is one of the stormiest places in Britain and can

have up to five times as many storm days as mainland Scotland (http://www.islandvulnerability.org/ShetlandCrichton.pdf).

## Greenhouse Gas Emissions

Climate change is a global issue with a strong global consensus that greenhouse gases (GHG) must be reduced in order to avoid significant adverse effects. The Scottish Government is in the process of transitioning to a net-zero emissions Scotland. The Climate Change (Emmissons Reduction Targets) (Scotland) Act 2019 introduced a statutory target to reduce Scotland's greenhouse gas emissions net-zero by 2045 at the latest. With interim targets for reduction of at least 75% lower than baseline by 2030 also set.

Carbon dioxide in the atmosphere is the main driver of anthropogenic climate change and the current global average of 409.8 parts per million (ppm) is significantly higher than at any point in the last 800,000 years.

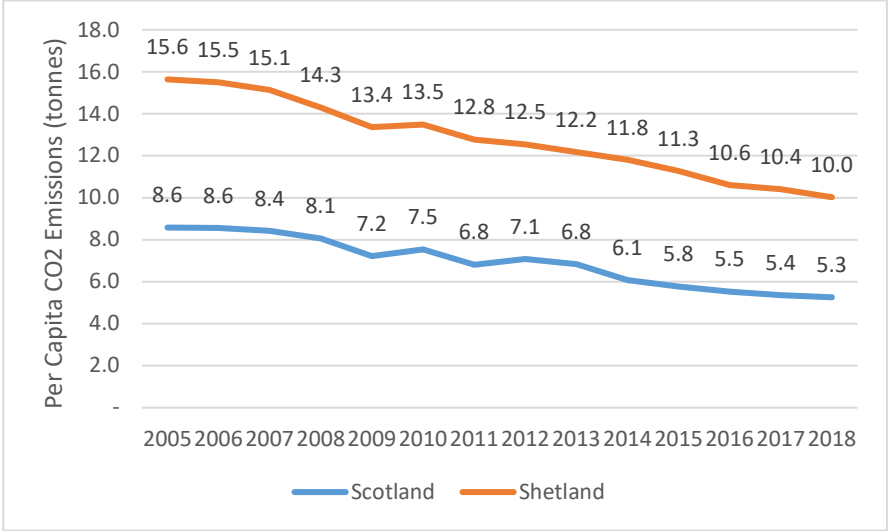
In recent years, increasing emphasis has been placed on the role of regional bodies and local government in contributing to energy efficiency improvements, and hence reductions in carbon dioxide emissions. Scottish Ministers set year on year targets to facilitate a year on year reduction. The Shetland Islands Council (SIC) Corporate Plan sets a target of preparing and implementing a council net zero plan and to lead the preparation of a Shetland net zero strategy by 2026.

Carbon dioxide emissions contribute the greatest proportion of total greenhouse gas emissions in the UK, accounting for around 80% in 2019 (Department for Business, Energy and Industrial Strategy, 2021) with the total greenhouse gas emissions being 454.8Mt$CO_2$e.

Estimates of carbon dioxide emissions are available for Local Authority areas from the Department for Business, Energy and Industrial Strategy.

Carbon Dioxide (CO2) emissions per capita (tonnes) for Shetland in 2018 is estimated to be nearly double that for of Scotland – 10.0 for Shetland compared to 5.5 for Scotland. Emissions for both Scotland and Shetland have decreased by around 36 % since 2005 so there is no closure of the gap between them. $CO_2$ Emissions per Capita for Shetland and Scotland from 2005 to 2018 can be seen in ***Figure 7.5***.

### Figure 7.5 – Scotland & Shetland CO2 Emissions per capita 2005-2018



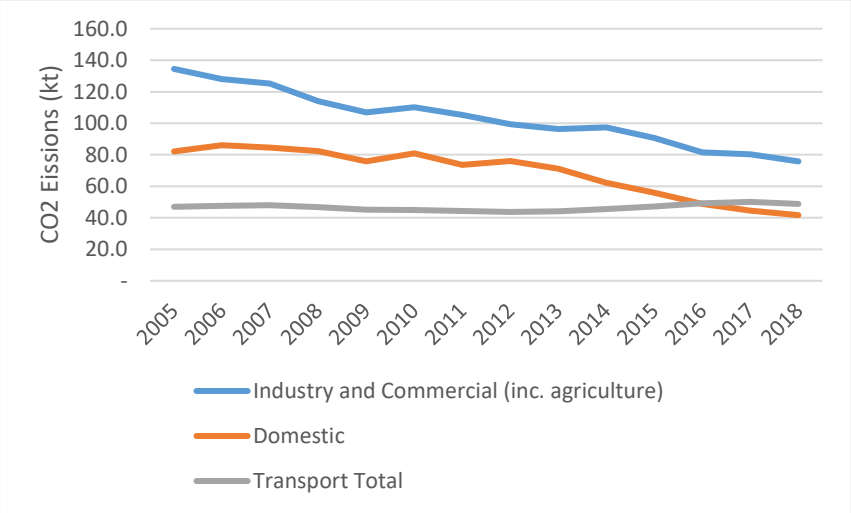

*Source: Department for Business, Energy & Industrial Strategy. (https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2018)*

Estimated emissions are broken down into key sectors:

- ***Industry and Commercial emissions*** including industry and commercial electricity/gas/other fuels and large industrial installations
- ***Domestic*** including domestic electricity/gas/other fuels
- ***Transport*** including Road Transport on A roads/Minor roads and Other Transport

The Shetland data does not include commercial and domestic gas as there is none available in Shetland as appropriate to this measure. This is also the case for large installations. There are no motorways or railways in Shetland and as such transport figures do not include these. Estimated $CO_2$ Emissions for the three sectors from 2005-2018 in Shetland is shown in ***Figure 7.6*** and ***Table 7.1***.

## Figure 7.6 – Estimated CO2 Emissions for Shetland by sector and year




*Source: Department for Business, Energy & Industrial Strategy. (https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2018)*

***Figure 7.7*** shows the percentage change in emissions for each sector from 2005 to 2018 for both Scotland and Shetland. For both Scotland and Shetland the greatest reductions in emissions has been in 'Industry and Commercial fuels' and 'Domestic Electricity and other fuels'. Reductions from transport are falling at a much slower rate in Scotland but have actually increased slightly in Shetland.

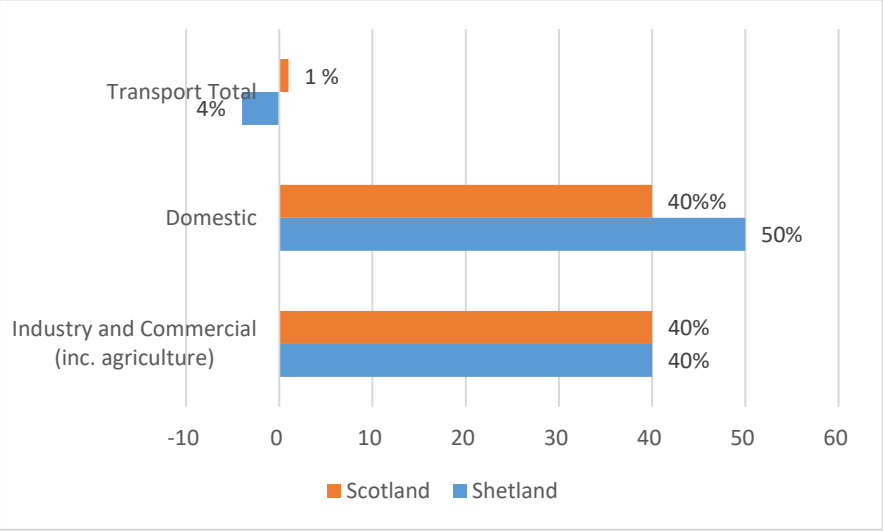
## Table 7.1 – Estimated $CO_2$ Emissions for Shetland by Year

| *Year* | *Industry & Commercial (kt CO2)* | *Domestic (kt CO2)* | *Transport (kt CO2)* | *TOTAL (kt CO2)* | *Population (mid-year estimates)* | *Per Capita Emissions (t)* |
|---|---|---|---|---|---|---|
| 2005 | 134.5 | 82.1 | 46.9 | 347.9 | 22300 | 15.6 |
| 2006 | 128.0 | 86.1 | 47.6 | 344.1 | 22200 | 15.5 |
| 2007 | 125.2 | 84.6 | 48.1 | 338.2 | 22400 | 15.1 |
| 2008 | 113.9 | 82.3 | 46.7 | 321.4 | 22500 | 14.3 |
| 2009 | 106.9 | 75.8 | 45.1 | 304.7 | 22800 | 13.4 |
| 2010 | 110.1 | 80.9 | 44.9 | 311.1 | 23100 | 13.5 |
| 2011 | 105.3 | 73.5 | 44.3 | 296.6 | 23200 | 12.8 |
| 2012 | 99.4 | 76.1 | 43.7 | 291.1 | 23200 | 12.5 |
| 2013 | 96.3 | 71.2 | 44.2 | 282.3 | 23200 | 12.2 |
| 2014 | 97.3 | 62.1 | 45.5 | 274.1 | 23200 | 11.8 |
| 2015 | 90.7 | 55.9 | 47.1 | 261.6 | 23200 | 11.3 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2016 | 81.4 | 48.7 | 49.2 | 246.0 | 23200 | 10.6 |
| 2017 | 80.2 | 44.5 | 50.1 | 240.3 | 23100 | 10.4 |
| 2018 | 75.8 | 41.7 | 48.8 | 230.4 | 23000 | 10.0 |

*Source: Department for Business, Energy & Industrial Strategy. (https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2018)*

## Figure 7.7 – Changes in estimated $CO_2$ Emissions by sector for 2005-2018 for Shetland and Scotland




*Source: Department for Business, Energy & Industrial Strategy. (https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2018)*

Shetland emissions for 'Industry and Commercial fuels' are decreasing at a faster rate than the rest of Scotland while 'Domestic Electricity and other fuels' are decreasing at an identical rate as the rest of Scotland.

Due to the geography of Shetland there is a heavy reliance on private cars, ferry and air travel. As a result, emissions from road and other transport in Shetland have increased by 4% from 2005 to 2018. This is pressure is demonstrated in the fact that around 50% of SIC carbon emissions are attributed to the internal ferry service which is an essential service that the council provides. The rest of Scotland has seen a 1% reduction in emissions from transport in the same time period.

# Key Messages

Climate Change projections for the UK predict summers that are between 1°C and 6°C warmer and up to 60% drier and winters which are between 1°C and 4.5°C warmer and up to 30% wetter 2070 (https://www.metoffice.gov.uk/weather/climate-change/effects-of-climate-change).

The climate in Shetland is both warmer and wetter than it was 50 years ago and this trend is predicted to continue.

Shetland is estimated to have much higher Carbon Dioxide Emissions per capita than the rest of Scotland – estimates show that these emissions have been falling at a similar rate to Scotland over the last decade. This is a result of its remote locality and dispersed population. Although the proposed closure of the Lerwick Power Station could have a significant impacts on greenhouse gas emissions.

The LPD may have an effect on greenhouse gas emissions through its ambitions for:

- economic growth in key sectors (including energy);

- an increase in the working age population leading to overall population growth; and,
- support for other initiatives including blue / green networks, 20 minute neighbourhoods and low carbon development.

- Supporting the development of more environmentally friendly travel options.

# Topic 8: Cultural Heritage

## Cultural Heritage

Shetland possesses a rich heritage and is home to many sites of historical value including Viking settlements, brochs, standing stones, ancient crofts and ruined chapels. These are all important contributors to Shetland's strong and unique cultural identity. A number of areas and features have been designated due to their historical importance.

### Historic Inhabitants

Shetland has been inhabited for over 6,000, the earliest date coming from a site beside the coast at West Voe. The earliest dates for Neolithic settlement were found during the recent construction of the Gas Plant, at Crooksetter and Firth's Voe, which highlights the importance of archaeological work carried out alongside development. Shetland was farmed for about 3,000 before the brochs were built. Excavations at Old Scatness shows that these were constructed around 400-200 BC. The impressive network of brochs and the settlements around some of them, suggests that Shetland was thriving at the time.

By the time of the Viking invasions around 800AD. It is apparent that Shetland was part of a Pictish culture, similar to the North of Scotland and that Christianity had reached the islands. The Picts were accomplished crafts workers, leaving a legacy of carved stones and the intricately worked St Ninian's Isle Treasure.

The relationship between the Picts and the Vikings is shrouded in mystery, but the Viking way of life gradually replaced that which had gone before and eventually Shetland became part of Norway itself. Norse rule in Shetland ended in 1468 when Denmark gifted Shetland (and Orkney) to Scotland as part of a marriage treaty. The Scandinavian legacy is still strongly apparent in Shetland through place names, archaeological sites, boat building techniques, Scandinavian inspired buildings, the Shetland dialect, and cultural events such as Up Helly Aa – a series of fire festivals held annually throughout the winter months. However, the fire festivals are a Victorian invention and began in the 1870s.

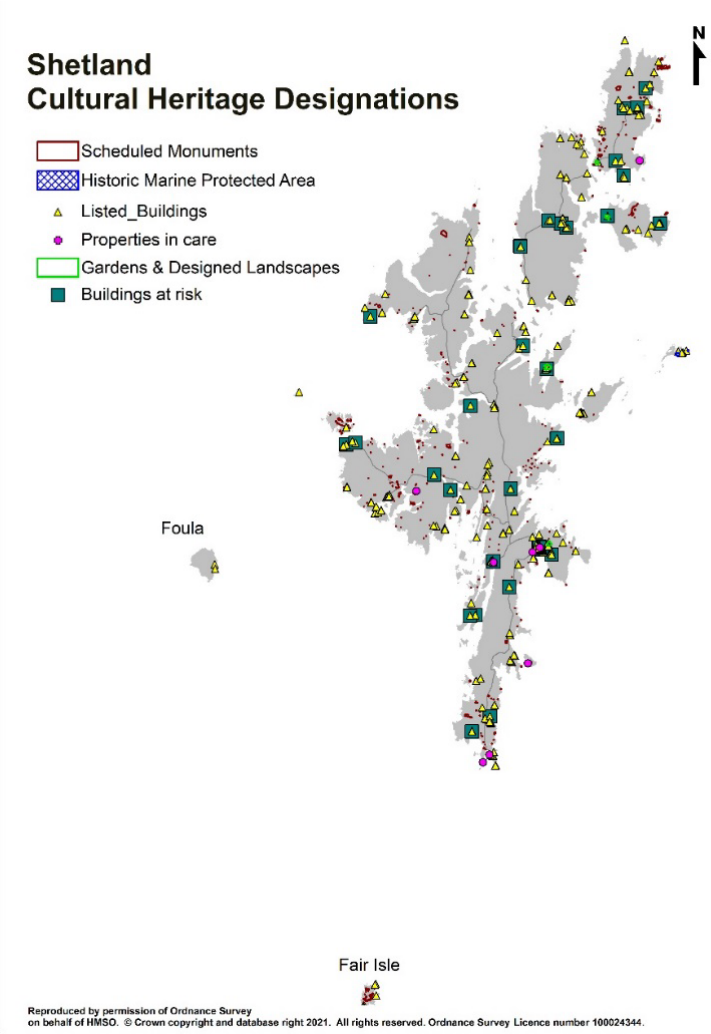
### Historic landscape

The landscape we see today is the result of a long period of evolution, involving a complex interplay of the natural elements of climate, geology, geomorphology, soil development, habitat succession and herbivore impact. This has a rich overlay of human elements linked to its earlier inhabitants and their settlements, transport, farming, and fishing practices.

## Historic Environment Designations

There are a large number of cultural and built heritage designations in Shetland. This includes Scheduled Monuments, Listed Buildings, Conservation Areas, Historic Marine Protection Areas, and Gardens and Designed Landscapes. There are also a number of other key sites including properties in the care of Historic Environment Scotland and those owned by other bodies such as Shetland Amenity Trust. Some of the main historic environment designations in Shetland are shown on **Figure 8.1** on the following page.

Figure 8.1 - Map of Cultural Heritage Designations in Shetland




Source: Historic Environment Scotland. *This information is © Historic Environment Scotland and is licensed under the Open Government Licence v3.0*

## Archaeology

Scheduled Monuments are given legal protection under the Ancient Monuments and Archaeological Areas Act 1979 as they are of national importance. National importance takes account of a wide range of factors, including artistic, archaeological, architectural, historic, traditional, aesthetic, scientific and social. The aim of Scheduling is to preserve sites and monuments as far as possible in the form in which they have come down to us today. Shetland currently has 392 scheduled ancient monuments classified in seven categories including secular, prehistoric ritual and funerary, industrial, ecclesiastical, crosses and carved stones, 20th century military and related but the majority of sites as classified as prehistoric domestic and defensive.

In addition to designated areas and buildings, Shetland Amenity Trust maintains the Sites and Monuments Record, (the Historic Environment Record). This holds records all aspects of the Shetland environment which have been impacted by human activity, ranging from pre-historic to the Cold War which are not part of the current pattern of landuse. There are currently 10,672 recorded sites; these are detailed in the ***Table 8.1*** below.

There are extensive archaeological remains in Shetland including Viking sites, brochs, wheelhouses, standing stones, ancient crofts and ruined chapels. Whilst many of these sites have been identified and are recorded within the SMR there is always the potential for unknown archaeological sites to be present and affected by development.

## Table 8.1 – Shetland Sites and Monuments Record

| Classification | No. of Sites (in Shetland) |
|---|---|
| Broch / possible broch | 147 |
| Chambered Cairns | 141 |
| Souterrains | 27 |
| Fishing Stations | 38 |
| Burnt Mounds | 362 |
| Viking / Norse Houses | 102 |
| Military Remains | 657 |
| Wheelhouses | 9 |
| Other classifications | 9189 |

*Source: Shetland Historic Environment Record, Shetland Amenity Trust, Pers Comm*

## Conservation Areas

A Conservation Area is 'an area of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance' (Planning (Listed Buildings and Conservation Areas) Act 1990). There are three Conservation Areas in Shetland, two in Lerwick and one in Scalloway, with formal character appraisals having been undertaken for each site.

## Listed Buildings

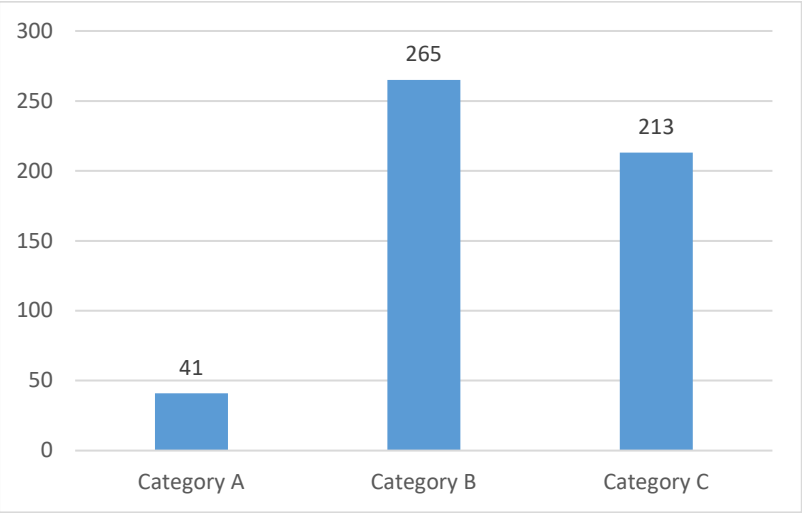
Listed buildings can include structures from great country houses to modest croft houses, tenements to toll houses, and post boxes to primary schools. They can date from the early medieval period up until the 1980s. They need not necessarily be 'buildings' but could be bridges, railings, mileposts or statues. Whether urban, rural, industrial, public or residential they all contribute to their particular area and to Scotland as a whole. They are integral to Scottish culture and provide a unique record of our economic and social history (Historic *(Environment)* Scotland, 2007).

Buildings are listed by Historic Environment Scotland for their special architectural or historic interest. They are assigned to one of three categories depending on relative importance:

- ***Category A*** - Of national or international importance either historic or architectural, or fine little-altered examples of a particular period, style or building type
- ***Category B*** - Of regional or more than local importance, or major examples of a particular period, style or building type which may have been altered
- ***Category C*** - Of local importance, lesser examples of any period, style or building type, as originally constructed or altered; and simple, traditional buildings grouped well with other in categories A and B or part of a planned group such as an estate or industrial complex

At the present time there are 519 Listed Buildings in Shetland, of those approximately 20% are in Lerwick. Table 8.2 below shows the number of buildings in each category.

## Figure 8.2 – Listed Buildings in Shetland




*Source:* https://britishlistedbuildings.co.uk/scotland/shetland-islands#.YD4LqWj7SUk. *This information is © Historic Environment Scotland and is licensed under the Open Government Licence v3.0*

### Buildings at Risk

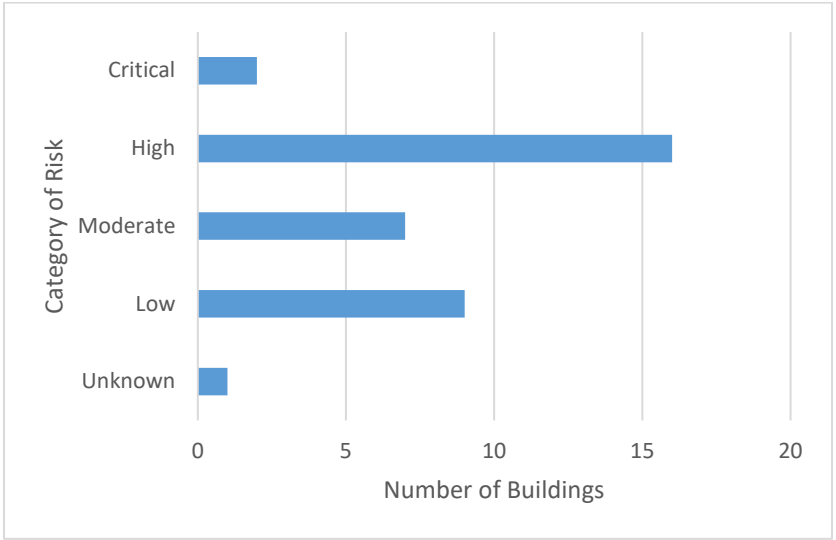
The Buildings at Risk Register (BARR) for Scotland highlights properties of architectural or historic merit throughout the country that are considered to be at risk or under threat. A Building at Risk is usually a listed building, or an unlisted building within a conservation area, that meets one or several of the following criteria:

- Vacant with no identified new use
- Suffering from neglect and/or poor maintenance
- Suffering from structural problems
- Fire damaged
- Unsecured
- Open to the elements, and / or
- Threatened with demolition

To be at risk, a building does not necessarily need to be in poor condition, it may simply be standing empty with no clear future use. Many buildings at risk are in this latter category.

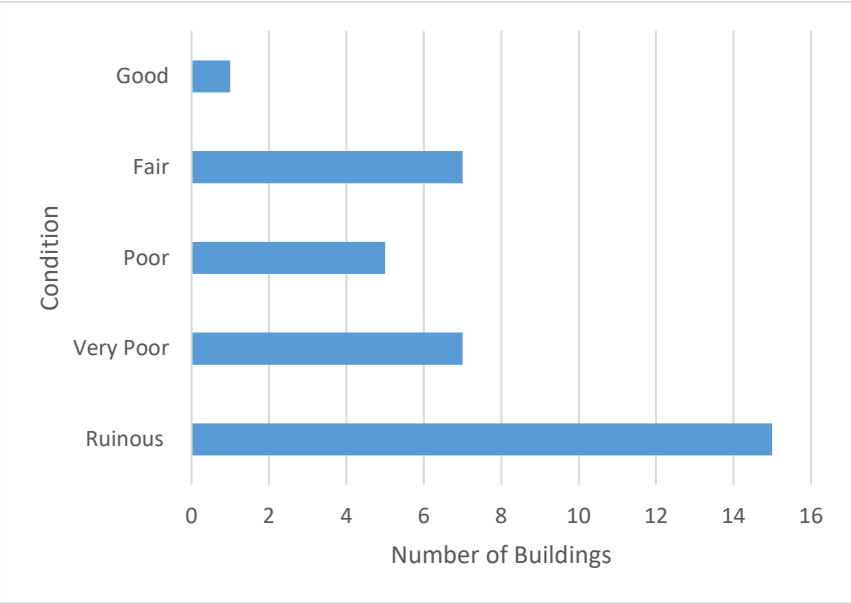
There are currently 35 buildings at risk in Shetland, many of which are old *Haas* (the Laird's House), only 3 sites have been identified as having restoration in progress. ***Figure 8.3*** shows the level of risk to these buildings and ***Figure 8.4*** the current condition.

## Figure 8.3 – Buildings at Risk in Shetland by category of risk




*Source: Buildings at risk register for Scotland,* https://www.buildingsatrisk.org.uk/ *. This information is © Historic Environment Scotland and is licensed under the Open Government Licence v3.0*

## Figure 8.4 – Buildings at Risk in Shetland by condition




*Source: Buildings at risk register for Scotland, https://www.buildingsatrisk.org.uk/. This information is © Historic Environment Scotland and is licensed under the Open Government Licence v3.0.*

### Properties in Care of Historic Environment Scotland

Properties in Care is a collection of monuments, which define significant aspects of Scotland's history, brought into care for their long term preservation and public benefit. Historic Environment Scotland manage them on behalf of the Scottish Ministers, for the benefit of people living in and visiting Scotland. These monuments range from standing stones to abbeys and castles and all provide an insight into Scottish history and the people who shaped the development of our country.

There are 8 Properties in Care in Shetland as shown in ***Table 8.3***.

## Table 8.3 – Properties in Care in Shetland

| Name of Property | Description |
|---|---|
| Clickhimin Broch | A pre-historic and defensive broch in Lerwick with evidence dating from the Bronze Age |
| Fort Charlotte | A 17th Century artillery fortification in Lerwick |
| Jarlshof | A multi-period settlement site at Sumburgh including Norse settlement remains and structural remains from the Neolithic period up until the 17th Century AD. |
| Mousa Broch | Iron Age Broch on the Island of Mousa |
| Muness Castle | Castle built at the end of the 16th Century on Unst |
| Ness of Burgi | A pre-historic promontory fort south of Sumburgh |
| Scalloway Castle | A 17th Century Castle in Scalloway |
| Stanydale Temple | Prehistoric megalithic structure |

*Source: Historic Environment Scotland, https://www.historicenvironment.scot/visit-a-place/explore-by-region/. This information is © Historic Environment Scotland and is licensed under the Open Government Licence v3.0.*

## Gardens and Designed Landscapes

Gardens and designed landscapes are grounds which have been consciously laid out for artistic effect. They are an important element of Scotland's historic environment and landscape and are a significant feature of the country's heritage. There are four properties in Shetland that are on the register of Gardens and Designed Landscapes, shown in ***Table 8.4*** and in ***Figure 8.2***.

### Table 8.4 – Gardens and Designed Landscapes in Shetland

| Site Name | Location |
|---|---|
| Belmont House | Unst |
| Brough Lodge | Fetlar |
| Gardie House | Bressay |
| Lunna House | Nesting |

*Source: Historic Environment Scotland. This information is © Historic Environment Scotland and is licensed under the Open Government Licence v3.0.*

## Historic Marine Protection Areas

Historic marine protected areas identify marine historic assets of national importance which survive in Scottish territorial waters. These can be wrecks of boats or aircraft or more scattered remains, such as groups of artefacts on the seabed from a submerged prehistoric landscape (Historic Environment Scotland 2016).

There are 2 Historic Marine Protection Areas in Shetland. They cover two ship wrecks near Out Skerries. The *Kennemerland* and *Wrangles Palais* lie on the seabed, objects formerly contained in the vessels and deposits or artefacts which evidence previous human activity on board the vessels. There is a current consultation on the designation of another wreck, the *Queen of Sweden*, close to Twageos Point, at the southern entrance to Lerwick Harbour.

## World Heritage Status

World Heritage sites are places that are important to everyone, irrespective of where in the world they are and to future generations (i.e. have outstanding universal value). They represent unique, or the most significant or best, examples of the world's cultural and/or natural heritage and have been inscribed on the World Heritage List by the World Heritage Committee (UNESCO).

World Heritage status is a high accolade that brings with it responsibilities and international scrutiny. Shetland has three sites, Mousa, Old Scatness and Jarlshof on the UK Tentative List, which means that the UK Government believes that they have to potential to become World Heritage sites. Work to develop the full nomination of these sites to UNESCO for World Heritage status is ongoing.

# Key Messages

The region contains a range of diverse cultural heritage assets with a wealth of archaeological sites and monuments, supported by historic designations dating from early Neolithic times. Although, 95% of the archaeological resource is undesignated, much of it is of schedulable quality. The lack of a designation does not necessarily relate to its cultural value. For example, the remains at Old Scatness were largely

unknown 25 years ago, while today they are on the UK Tentative List for World Heritage Status. While a number of the historic assets are in a poor condition and within Shetland only 8.5% of the buildings on the ‘at risk’ register having ongoing restoration.

# Topic 9: Landscape

## Landscape

"Landscape" means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors. This means that it includes nature and people, the past and the present, and tangible and intangible components[6].

The NatureScot publication 'Landscapes of Scotland' provides the following description of the Shetland landscape:

*"An elongated group of islands, whose character is accentuated by the north-south trend of the hills and ridges. The dramatic coastlines are highly varied, with fjords, arches, stacks, beaches and tombolos (sand bars). The seas are busy with boat and ferry traffic.*

*The coast is where most of the settlement is located, including the distinctive capital of Lerwick with its narrow stone-flagged streets.*

*The islands are mostly tree-less while seabirds throng the coasts and cliffs. Frequent winds sweep over landscapes with long hours of summer light and winter darkness, and a strong sense of Nordic culture.*

*The landscape is rich in exceptionally well preserved archaeological remains. This includes a high proportion of nationally important sites, such as, at Mousa, the best preserved broch in Scotland, and extensive Norse remains in Unst."*

## Landform Character and Use

Gillespie's 1998 Landscape Assessment of Shetland (NatureScot Review No. 93) describes the landform of Shetland as having:

*"…a strong north-south linear quality to the central mainland with a landform of ridges and valleys which in the north turn north-east and south-west. The landform is generally undulating and coastal and other low lying areas, with numerous hillocks and hummocks.*

*…Broader scale hill masses are also evident, notably Ronas Hill. The north-south band of hills in the south mainland and the north-south ridge along the western edge of Unst.*

*…The topography and landform, influenced by geological forces and geomorphological processes has also been affected by changing sea level. The characteristic drowned valleys which form many of the voes and sounds are evidence of the rising sea level."*

### Landscape Character

NatureScot, in conjunction with partner councils, has undertaken detailed review and classification of the various landscape areas and types in Scotland. Landscape Character is created by the way the physical components come together and can be defined as a "distinct, recognisable and consistent pattern of elements in the landscape that make one landscape different from another. The standard reference

[6] People, Place and Landscape – A position statement from Scottish Natural Heritage and Historic Environment Scotland

that describes landscape character in Shetland is now the "Scottish Landscape Character Types Map and Descriptions" (NatureScot, 2019) - https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions. The Shetland landscape character assessment identifies eight primary landscape types which are further subdivided into detailed landscape character areas.

Inland landscapes are characterised by rolling hills, heather and rough grassland with historic buildings and features. Historic land use practices, particularly crofting and peat cutting, have helped to create the diverse landscapes. The primary landscape types are listed below:

- Major uplands
- Peatland and moorland
- Undulating moorland with lochs
- Inland valleys
- Farmed and settled lowlands and coast
- Farmed and settled Voes and Sounds
- Coastal edge
- Small Uninhabited Islands

The 2019 map has replaced the original standard reference "A Landscape Assessment of the Shetland Islands" (Gillespies 1998), which was one of a series of similar publications that covered Scotland.

## Land use and Land cover

As described in Topic 4 (Soil), page 26 of this report, peat dominates the landscape and there are no areas of prime agricultural land in Shetland. The majority of land is used for rough grazing.

The principal form of agriculture on Shetland is crofting. Over the last century sheep rearing expanded leading to agricultural improvement of moorland and common grazing, a decline in hay and winter crops and an increase in silage production. Although this is not currently considered to be a significant pressure on the landscape.

Fish farming and aquaculture are key industries in Shetland (see Topic 3, Water, page 20). It is an important and appropriate development of a traditional industry for Shetland. It does have a significant visual impact which could detract from existing landscape qualities and as such must be carefully designed and sited.

Infrastructure used by the fishing industry and oil and gas also has an impact on the land and sea scape. There are no offshore renewables at present (see Topic 5, Material Assets, page 28) but these too have the potential to impact in the future.

The landscape of Shetland is currently subject to significant change with construction on the 103 turbine Viking windfarm, one of the largest onshore wind farms in Europe having commenced. There are a number of other windfarms, albeit of a significantly smaller scale either consented or at the application stage.

The proposal to development a satellite launch facility and the associated infrastructure and industrial development could also have significant landscape impacts.

These developments means that the pace and significance of landscape change on Shetland is arguably at its greatest for thousands of years. The management of this will be of critical importance for the Local Development Plan.

### Infrastructure and the landscape

Shetland is generally sparsely populated with a series of small settlements and houses scattered throughout the landscape. There are a network of main roads and more minor roads throughout the landscape. Telecommunications masts are increasingly visible, especially with the role out of the AirWave telecommunication masts for the emergency services communications systems, across Shetland but coverage is still limited so this may increase in the future. There are a number of small scale airports throughout the islands, although many of these are no longer routinely operational and a large airport at Sumburgh taking advantage of areas of flat land.

There are larger ports at Lerwick and Sullom Voe with a number of smaller ports throughout the islands. There are numerous slipways, boat shelters and general evidence of marine activity throughout the islands indicating Shetland's long connection with the sea.

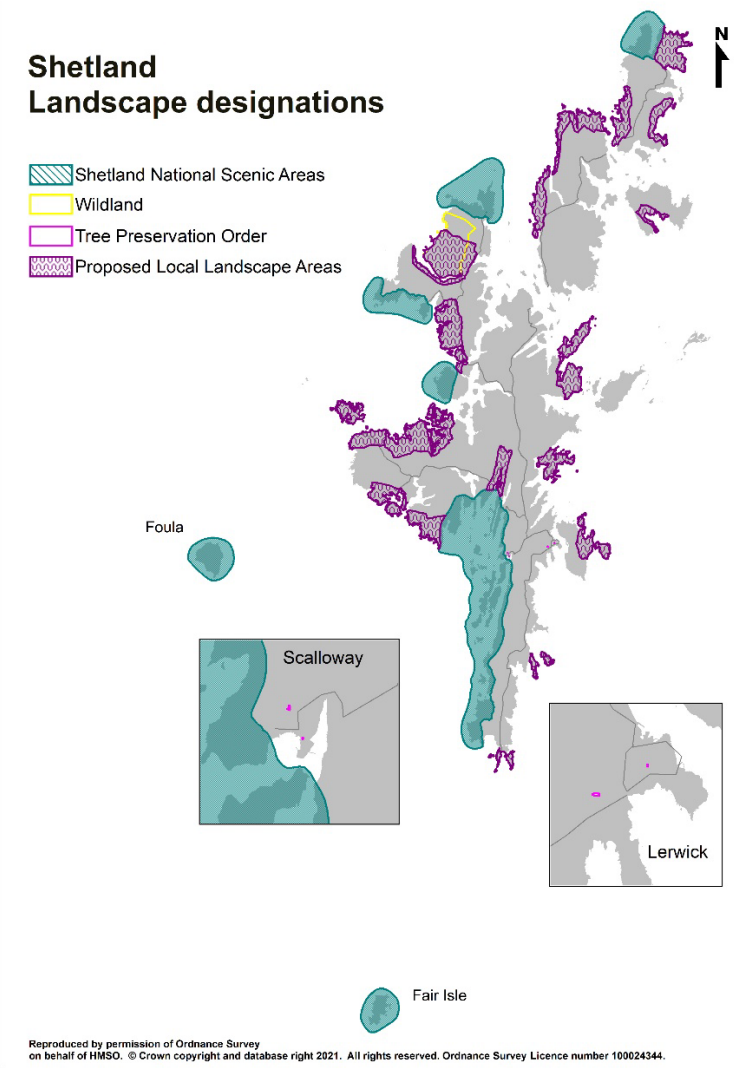
The main impact of the oil and gas industry on the Shetland landscape is the Sullom Voe Terminal (SVT) and the Total Gas Plant. SVT is the largest terminal in Europe and is responsible for extensive light pollution in the area whilst the rest of Shetland benefits from dark skies for much of the year and displays of the northern lights.

## Landscape Designations

There are a number of landscape designations in Scotland and a number of these are present in Shetland. This includes a National Scenic area, an area of Wild land and proposed Local Landscape Areas (PLLAs). The pLLAs were approved by the SIC for consultation with the public and stakeholders as part of the draft Supplementary Guidance, however this has not yet been adopted. There are no National, Country or Regional Parks in Shetland.

The landscape designations in Shetland can be viewed in ***Figure 9.1*** on the following page.

Figure 9.1 – Landscape Designations in Shetland




*Source: NatureScot and SIC*

## National Scenic Areas

Scotland is renowned for its outstanding scenery, and the very best have been designated as National Scenic Areas (NSA). These are areas of exceptional scenic value and comprise some of the best examples of Scotland's landscapes. Shetland has an outstanding coastline and the Shetland NSA comprises Shetland's scenic highlights and epitomise the range of coastal forms varying across the island group. Some special qualities are generic to all the identified NSA areas, while others are relevant only to one or some of the NSA areas. The seven individual areas of the Shetland NSA are listed in ***Table 9.1***.

The special qualities (the characteristics that individually or combined, give rise to an area's outstanding scenery) of the Shetland NSA are identified as:

- the stunning variety of the extensive coastline;
- coastal views both close and distant;
- coastal settlement and fertility within a large hinterland of unsettled moorland and coast;
- the hidden coasts;
- the effects and co-existence of wind and shelter;
- a sense of remoteness, solitude and tranquillity;
- the notable and memorable coastal stacks, promontories and cliffs;
- the distinctive cultural landmarks; and,
- northern light.

More details on the Special Qualities and how these relate to the individual NSA please refer to The Special Qualities of the National Scenic Areas Report (NatureScot Report No.374).

Table 9.1 – Shetland National Scenic Area

| Site Code | Site Name | Area (ha) | Areas covered |
|---|---|---|---|
| 9148 | Shetland NSA | • 15,486 land area<br>• 26,347 marine area<br>• 41,833 total area | • ***Fair Isle***<br>• ***Foula***<br>• ***South West Mainland*** - Fitful Head to Weisdale Voe and Skeld including Burra, Trondra and the islands to the north<br>• **Muckle Roe** - western half of the island<br>• **Eshaness** - including Hillswick Ness and the intervening coastline<br>• **Fethaland** - broad coastal strip from Uyea to Burravoe in Northmavine<br>• **Hermaness** - including Muckle Flugga and the western slopes of Saxa Vord |

*Source: NatureScot (2010). The Special Qualities of the National Scenic Areas. NatureScot Commissioned Report No.374 (iBids and Project no. 648) (https://www.nature.scot/naturescot-commissioned-report-374-special-qualities-national-scenic-areas).*

## Wild Land Areas

NatureScot has identified large areas of Scotland – chiefly in the north and west – which have largely semi-natural landscapes that show minimal signs of human influence. These may be mountains and moorland, undeveloped coastline or peat bog. NatureScot states that wild land is; i) a big part of Scotland's identity; ii) brings significant economic benefits – attracting visitors and tourists; iii) offers people psychological and spiritual benefit; and, iv) provides increasingly important havens for Scotland's wildlife.

Although capturing wildness is inherently difficult, as it is a subjective quality, NatureScot undertook work to measure relative wildness of these areas and published a map of wild land areas. These areas represent the most extensive areas of high wildness in Scotland. The Wild Land Areas identified are considered to be nationally important but are not a statutory designation. Scottish Planning Policy also states that any development proposal on wild land must "demonstrate that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation".

One small area in Shetland has been identified as a Wild Land Area. The Ronas Hill and North Roe area (shown in ***Figure 9.1***) is of relatively limited extent. The area was identified as an area of wild land in particular due to its remote islands location and the absence of other wild land in the area. This area also has a number of natural heritage designations including and SPA, SAC, SSSI and Ramsar Site (see Topic 1, Biodiversity, Flora and Fauna).

## Local Landscape Areas

There are 17 proposed Local Landscape Areas in Shetland ((shown in ***Figure 9.1***)). These areas were identified through the Shetland Islands Local Landscape Designation Review. The purpose of these is to ensure sympathetic siting and design of new development within these areas, it is not the intention to prevent development, but to encourage appropriate consideration of the landscape. The Draft Supplementary Guidance for the current Local Development Plan identifies these areas and provides development guidelines for each are to assist developers design appropriate proposals for these areas. Full details are set out in ***Table 9.2***

## Table 9.2 – Shetland Proposed Local Landscape Areas

| Name | Area (ha) | Key Characteristics | Development Guidelines |
|---|---|---|---|
| Ronas Hill | 4,238 | • A Shetland landmark, the highest point of the islands<br>• Distinctive red granite geology is clearly expressed<br>• Largely empty, uninhabited hills and moors<br>• Rocky plateau, steep cliffs, and other rugged features | • Ronas Hill and the north shore of Ronas Voe should remain an area of very limited human influence. The further proliferation of infrastructure on Collafirth Hill may lead to visual clutter<br>• Carefully consider the siting and design of any proposed development along the south shore of Ronas Voe<br>• Seek to ensure that new and existing fish farms, and particularly the associated onshore components, can be assimilated into the landscape through design and ongoing maintenance Encourage sustainable and responsible recreational access into this landscape, to allow greater appreciation |
| Nibon and Mangaster | 2,508 | • Rugged landscape of rocky coastal hills interspersed with numerous lochans<br>• Sequence of long views along voes and sudden opening of wide panoramas<br>• Intricate coastal edge with an array of features and colours<br>• Panoramic views across St Magnus Bay | • Seek to retain undeveloped wildness character: any development should be at the smallest scale, and should be very sensitively sited and designed<br>• Encourage sustainable and responsible recreational access into this landscape, to allow greater appreciation<br>• Maintain the wider setting of the NSA through control of development within this area |
| Vementry and West Burrafirth | 3,602 | • Distinctive rugged rocky terrain based on Lewisian gneiss<br>• Complex interface between land and sea, intricate pattern of voes, sounds and islands<br>• Isolated pockets of settlement around sheltered voes | • Seek to maintain sustainable communities which are sympathetic to the landscape<br>• Development should be small in scale, and be sited and designed in accordance with the landscape setting<br>• Carefully consider any proposals for new aquaculture, ensuring particularly that onshore works can be sited sensitively |
| Papa Stour and Sandness | 1,919 | • Intact settled coastal landscape with strong crofting-derived pattern<br>• The varied coast of Papa Stour, including high stacks, dramatic caves, and vertical cliffs, as well as sandy bays<br>• Sense of a long history of settlement within a contained and relatively remote part of the Mainland | • Seek to retain the strong land-use pattern, ensuring a continuation of the sympathetic modern development of this area which have retained its cultural and natural values<br>• Promote responsible access and enable interpretation of the recent and distant past as well as the geological interest of the area.<br>• Seek to conserve the historic features such as planticrubs, stone walls and noosts. |

| Name | Area (ha) | Key Characteristics | Development Guidelines |
|---|---|---|---|
| Walls and Vaila | 1,294 | • Contrasting landscape of gentle and sheltered inner voes and sounds, and a rugged, exposed seaward coast<br>• An intact settled area with layers of past settlement and visible time depth<br>• Inland, larger scale open areas of moorland provides a wild setting to the more intimate coastal edges | • Seek to retain the strong land-use pattern, ensuring a continuation of the sympathetic modern development of this area which have retained its cultural and natural values<br>• Development should be directed away from the higher areas of moorland that enclose the coast and should be set below the skyline to retain the focus of development around the shoreline<br>• Encourage sympathetic siting and design of new development, including restoration of traditional buildings where appropriate |
| Culswick and Westerwick | 1,404 | • Rugged, intricate coastline with tall cliffs, dramatic caves, and rocky coves expressing the granite geology<br>• High variety of coastal features<br>• Inland topography of gently undulating moorland interspersed with a high concentration of lochs and water courses<br>• Intact crofting landscapes | • Development should be sympathetic to the existing pattern of settlement and located within the low-lying sheltered valleys<br>• There is scope for small-scale development in association with existing settlements, provided that it is appropriately sited and designed<br>• Continue to promote opportunities for responsible access to the coast |
| Weisdale | 1,125 | • Unique in Shetland as the location of the only substantial woodlands<br>• An enclosed valley landscape, opening out to wide voe<br>• Panoramic views across Weisdale Voe to the south, taking in an attractive composition of the islands and sea towards Fitful Head | • Seek to retain the distinctive woodland of the upper valley<br>• Retain largely undeveloped skyline that encloses the area and forms an important back-drop to the voe<br>• Development should be sympathetic to the existing pattern of settlement and located on the lower-lying coastal edge |
| Scat Ness and Sumburgh Head | 272 | • Dramatic headlands jutting into the open sea<br>• Rich historical background represented by world-class archaeological sites<br>• The distinctive approach to Sumburgh Airport across the headland<br>• An accessible area for viewing scenery, history and wildlife | • Seek to resist the further proliferation of communications equipment on Sumburgh Head, which may give rise to visual clutter<br>• Seek to retain the pattern of tofts in Scatness. Development within the settlement should be sympathetically sited and designed. The open, undeveloped nature of the southern part of Scat Ness should be maintained<br>• In planning for access, the distinction between the more accessible Sumburgh Head and the less accessible Ness of Burgi should be retained to preserve their individual characters |

| Name | Area (ha) | Key Characteristics | Development Guidelines |
|---|---|---|---|
| No Ness and Mousa | 381 | • An undeveloped headland within the most densely settled part of Shetland<br>• Prominent position on the south Mainland coast, with long visual links<br>• Important cultural landmarks<br>• Jagged rocky foreshores and sandstone strata | • Seek to protect the largely undeveloped nature of the headland, as a contrast to the settled land to the west<br>• Promote responsible access and understanding of the area's past<br>• Seek to protect the setting of the important group of historic buildings and Sand Lodge |
| Aith Ness and Noss | 1,084 | • Dramatic seascapes: high cliffs; rocky headlands; sheltered bays<br>• Landmark cliffs of the Noup of Noss<br>• Relict landscapes both ancient and modern | • The designation focuses on the distinction between the settled west of Bressay, associated with Lerwick, and the less developed east. Planning should seek to maintain this distinction<br>• Substantial development should be resisted, to retain the open landscape<br>• Small-scale development should be sympathetically sited and designed, in order to maintain the character of the landscape.<br>• Continue to promote responsible access to features of interest within the area, while protecting their landscape setting |
| Gletness and Skellister | 1,077 | • An intact, settled area, whose character has been preserved through a sympathetic approach to development<br>• An understated beauty of intricate and generally sheltered coast, rocky islands and ayres<br>• Rich in wildlife, a quiet tranquil area | • Development should be permitted in this area if it is at an appropriate scale, and is suitable in terms of siting and design<br>• There is potential for careful development to contribute to this landscape, as shown by sympathetic modern buildings in the area<br>• Seek to preserve the more open, remote character of the outer headlands, in contrast to the more settled area around Benston |
| Lunna Ness and Lunning | 2,161 | • Attractive settlements around Vidlin Voe, with a distinctive pattern and character<br>• Long, narrow and remote headland of Lunna Ness<br>• Rugged moorland hills around Lunning<br>• Historic features and associations at Lunna, including the ancient kirk and Shetland Bus | • Seek to preserve the distinctive character of the settlement around Vidlin Voe<br>• Ensure that any development is appropriate in scale, siting and design, and that it complements the landscape character of the area<br>• Protect the undeveloped nature of Lunna Ness, while continuing to promote responsible access to sites within the area |
| Wick of Tresta | 504 | • Secluded bay, a hidden gem<br>• Bright, broad sandy beach<br>• Enclosed by soft green cliffs and sinuous profile of Lamb Hoga | • Any development within the area should be sympathetic to the setting of the beach within the bay;<br>• Development should not be permitted in the area behind the beach, to preserve the setting of kirk and manse.<br>• Development should not be permitted south and west of Papil Water and the beach, to preserve the open backdrop to the beach when viewed from Tresta |

| Name | Area (ha) | Key Characteristics | Development Guidelines |
|---|---|---|---|
| Colvadale and Muness | 956 | • Deserted settlement and relict patterns of croft boundaries and empty buildings<br>• Backed by the bare, gravelly moors derived from the underlying serpentinite geology<br>• An empty landscape, no longer settled but with extensive time depth | • Seek to retain the unsettled isolation of this area, retaining its cultural and natural values<br>• Promote responsible access and enable interpretation of the recent and distant past, as well as the unique geological material<br>• The area around Muness, where there is active settlement, forms part of the setting of this landscape, but is not central. Development in this area should be sympathetic to the setting of the area<br>• Potentially, seek to conserve some of the relict stone walls and buildings |
| Haroldswick and Skaw | 1,869 | • Part of the most northerly area of Shetland and Britain<br>• Highly visible military defence infrastructure, including active and disused elements<br>• Rugged, exposed northern coast, with sheltered sandy bays<br>• Rich geology visible at the surface<br>• Actively settled area undergoing redevelopment as former military uses decline and new uses are found | • Development in and around the actively settled part of the landscape should not be unduly discouraged, though it should be appropriately sited and designed.<br>• Restoration of traditional buildings should be further encouraged<br>• Seek to encourage sensitive redevelopment of the former RAF buildings at Valsgarth, promoting sustainable uses which will further integrate these structures into the landscape<br>• Seek creative reuse or interpretation of remnant military structures across the landscape |
| Gloup Voe and Bluemull Sound | 2,161 | • Layers of historic settlement apparent in the many ruined churches and buildings and standing stones<br>• Exposed northern coast with enclosed bays and narrow voes<br>• Rolling coastal hills and the steeply rising slopes of Valla Field that enclose the area | • Retain undeveloped skylines of the rolling coastal hills and Valla Field that form the setting to the area<br>• Ensure new development is sympathetically and carefully integrated with the existing settlement pattern |
| West Sandwick to Gloup Holm | 1,844 | • Highly isolated, long stretches of coastline increasing in exposure to the north<br>• Impressive wide views of great depth across Yell Sound to the rocky hills of Northmavine<br>• An area of limited active settlement, with isolated pockets of historic settlement rich in cultural heritage | • Encourage sustainable and responsible recreational access into this landscape, to allow greater appreciation<br>• Seek to retain the unsettled isolation of this area, retaining its cultural and natural values |

*Source: SIC*

### Trees

Woodlands and trees are notably absent from the majority of the Shetland landscape and there are no natural or semi-natural native woodland in Shetland. Although there has been limited successful tree planting and establishment over the last 200 years. Tree planting should not be encouraged on peat and while there is land that is more suitable for tree planting this is mainly on the better agricultural land so it is unlikely to be available for tree planting. However, smaller schemes may provide environmental and landscape benefits, especially when they are included in development proposals.

### Table 9.3 – Shetland Tree Preservation Orders

| Location | Description | Year |
|---|---|---|
| Westerloch, Lerwick | 10 individual, 1 area and 8 groups of trees, comprising Sycamore, Alder and Willow | 1997 |
| Montfield, Lerwick | 18 individual trees comprising Sycamore, Hawthorn and Ash | 2001 |
| Ingaville House, Scalloway | 18 individual and 2 groups of trees comprising Sycamore, Ash, Wych Elm and Swedish Whitebeam (includes a Sycamore Avenue) | 2006 |
| Smiddy Closs, Scalloway | 14 individual Sycamore trees | 2010 |

*Source SIC*

Tree Preservation Orders (TPOs) are made to protect individual trees, or groups of trees or woodlands which have particular amenity value, make a significant contribution to the landscape or townscape.

TPOs are designated under the Town and Country Planning (Scotland) Act 1997, Shetland Islands Council must be given prior notification of intended works to protected trees. There are four Tree Preservation Orders (TPOs) in Shetland for groups of trees, with two in Lerwick and two in Scalloway.

## Key Messages

Shetland has a dramatic coastal landscape impacted by its geology and by human activity. There are areas designated at the national level for their landscape and scenic qualities with proposed sites at the local level. An area of wild land has also been identified in the administrative area. Climate change will have an increasing impact on the landscape over time.

Much of the landscape is treeless and grazed and there is evidence of the long-term impact of man all around in the buildings, structures, field systems and fishing ports.

The ambitions of SIC to grow the population and key industries - including renewables, tourism, and aquaculture - may have a long term impact on landscape and cultural heritage. The LPD has an important role to ensure that the landscape is protected and, as far as possible enhanced, by development.