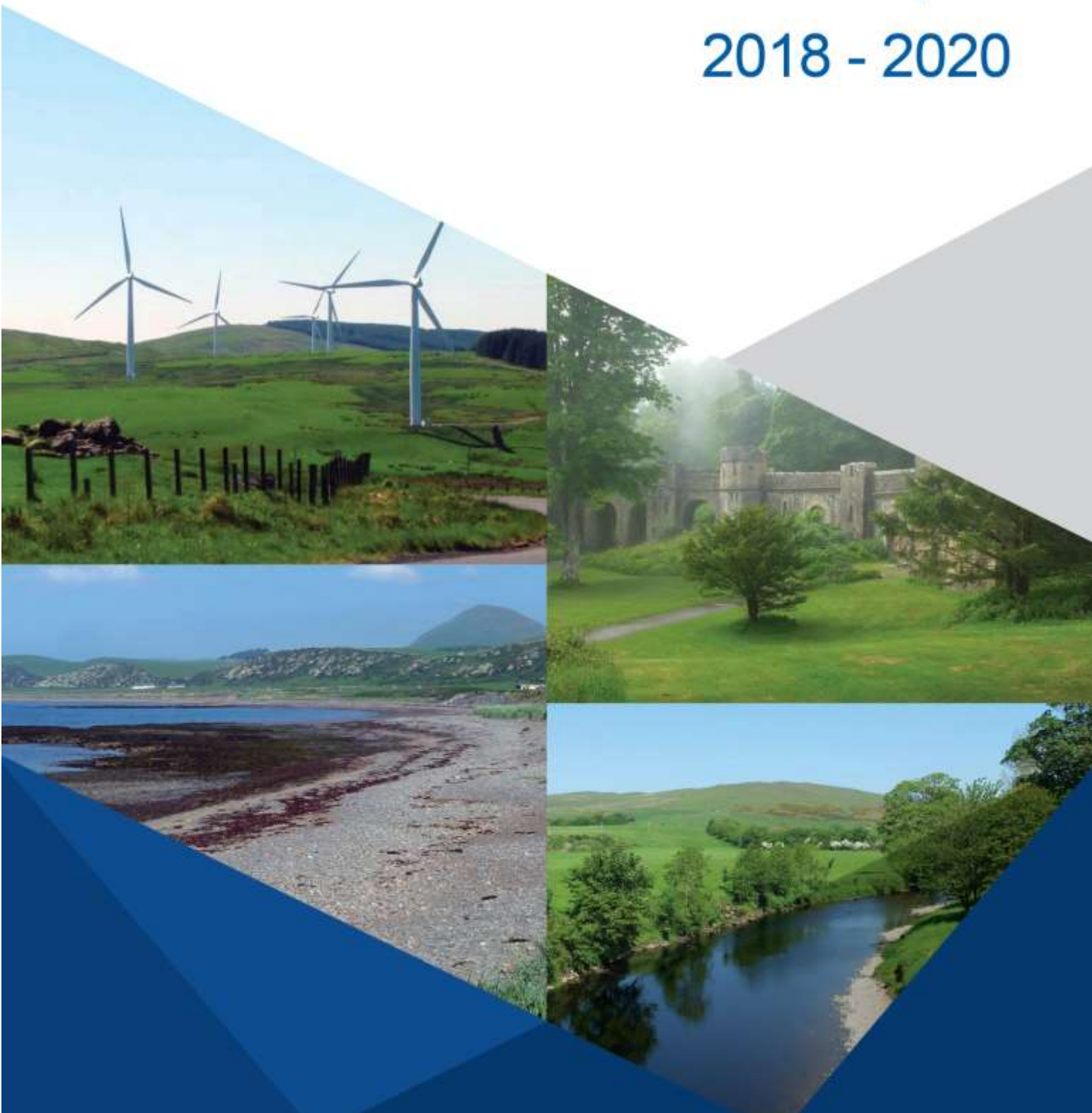


WORKING WITH PARTNERS  
AND COMMUNITIES TO  
MAKE LIFE BETTER



# State of the Environment Report 2018 - 2020



## **FOREWORD**

On behalf of South Ayrshire Council I'd like to welcome you to our very first State of the Environment Report. This comprehensive document provides a snapshot of the local environment in 2018, bringing together a wealth of information in a single document for the first time.

South Ayrshire is a great place to live, boasting beautiful and varied landscapes, diverse wildlife, thriving cultural heritage and a clean air environment. The report outlines a great many positives to be found in our current environment, but also points to trends and areas where we will have to improve in the years ahead.

It is critical that we as a council regularly consider, and take stock of, the condition of our environment. With the Paris Climate Agreement of 2015, the governments of the world have made a firm commitment to take measures to limit the extent of global warming. The environment is in the spotlight like never before and councils have a key role to play in its protection. This relates not only to our carbon emissions and their impact on global weather patterns, which capture most of the headlines, but also factors such as the health of our population, the condition of our infrastructure and the quality of our biodiversity. To see all of these wide-ranging issues summarised in one document allows us to create a picture of how our environment is performing in South Ayrshire and what we can do to improve it.

This baseline document will be revised every two years with new updated information to provide an assessment of whether any aspect of our environment is improving or getting worse. Importantly the report also provides information that can be used to measure against our future progress.

While the production of this report does not represent a statutory obligation for the Council, its publication affirms our commitment to the environment and demonstrates our willingness to ensure its protection and improvement.

The Council is committed to working with our communities to make life better and I look forward to working with the entire council to ensure the environment of South Ayrshire is protected and improved wherever possible.

**Councillor Ian Cochrane**

**Portfolio Holder for Sustainability & the Environment**

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# 1. Introduction



*South Ayrshire Coastline - Ballantrae*

## Introduction

This is the first South Ayrshire Council State of the Environment (SoE) Report. The purpose of the report is to provide a diagnostic tool that will help inform plan-makers, decision-makers and the community about the current status and health of the natural and built environment in South Ayrshire. The Report is structured around 11 environmental topics that support the monitoring and environmental appraisal of South Ayrshire's environmental issues.

### These topics are:

- Biodiversity
- Cultural heritage
- Water environment
- Soils and geology
- Landscape
- Air quality
- Climatic factors
- Noise
- Human health
- Population
- Material assets

These environmental topics are also the issues that have to be considered through the Strategic Environmental Assessment (SEA) process, a statutory requirement placed on public bodies to assess the environmental impacts of qualifying plans, programmes, policies and strategies (PPPS) under the [Environmental Assessment \(Scotland\) Act 2005](#).

The Environmental Assessment (Scotland) Act 2005 requires all qualifying PPPS prepared by Local Authorities and other public bodies to be subject to SEA. The purpose of SEA is to systematically assess and monitor how the PPPS might significantly affect the environment, positively or negatively, and to consider how environmental impacts can be reduced, mitigated, avoided, or enhanced.

SEA is an important process which places environmental considerations at the centre of the decision-making process. To help enable consistent SEA's to be undertaken by South Ayrshire Council on its PPPS each environmental topic in this report commences with the identification of SEA objectives that relate to that topic. These objectives are not set in stone, but are indicative of the final objectives that would be determined during the SEA process.

Schedule 3 of the Environmental Assessment (Scotland) Act 2005 requires that the SEA Environmental Report includes a description of “*the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme*”, and “*the environmental characteristics of areas likely to be significantly affected*”.

The report has been deliberately compiled in such a way that it can be used as the environmental baseline when conducting SEA, and should be viewed as a starting point to be built on as more information becomes available and reporting evolves further. Describing the environmental baseline represents a key component of the Environmental Report under SEA, and will allow the Council to monitor any significant environmental effects that stem from the implementation of a PPPS once it has been adopted. This will help ensure that any unforeseen adverse effects are identified at an early stage to enable appropriate remedial action.

The environmental data and maps used in this report has been taken from information held on the South Ayrshire Council's Geographical Information System (GIS), and from other Council departments and service areas. Additional information has been accessed from the Scottish Government and other governmental and nongovernmental agencies.

Each chapter begins with a summary table outlining how South Ayrshire is performing against the key indicators in that particular theme. Two themes, Soil & Geology and Noise, do not make use of any indicators as there were none deemed suitable. Instead a more general qualitative explanation is provided.

Table 1.1 (page 7) summarises the performance of each individual theme. Of the nine themes that make use of quantitative indicators, South Ayrshire is performing well in four, moderately in four and poorly in one. When considering current trends however the picture is more positive; the environment is improving in five themes, is stable in three, and is declining in only one.

It is not a statutory requirement for local authorities in Scotland to produce a State of the Environment Report.

## Context

South Ayrshire is located on the south west coast of Scotland and is bordered by the council areas of North Ayrshire, East Ayrshire and Dumfries and Galloway. It spans approximately 422 square miles and contains a population of 112,097; the main centres of population are located across five towns at Ayr, Girvan, Prestwick, Troon and Maybole (Figure 1.1).

The key transport routes relevant to South Ayrshire include the A77, A71 and A76, providing connections to Glasgow to the north, Stranraer to the south, Edinburgh to the north east and Dumfries to the south east. South Ayrshire is also served by rail links connecting to the central belt and Dumfries and Galloway. Prestwick Airport in the north of the council area is one of Scotland's main airports, offering national and international connections.

South Ayrshire's environment is rich and diverse containing a number of environmentally important sites designated at international, national and local level.

The following sections of the report will provide the details of the current and future state of the environment within South Ayrshire for each environmental parameter.



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Figure 1.1 – Population centres of South Ayrshire

**Table 1.1 – Summary of the State of the Environment in South Ayrshire, 2018**

<b>Biodiversity</b>	
← →	Given its high quality diverse landscapes and low population density, biodiversity is generally in a good state in South Ayrshire. A number of sites have been designated at different administrative levels, with the aim of preserving and enhancing biodiversity through protection and education.
<b>Cultural Heritage</b>	
↑	Cultural Heritage is in a good state across South Ayrshire, with a huge number of key sites and buildings designated for preservation. Particularly positive is the fact that the number of Listed Buildings, Conservation Areas and recognised Archaeological Sites has increased in recent years. The only area of concern is the number of registered Buildings at Risk, which have increased recently; which warrants further attention in future.
<b>Water</b>	
← →	The state of South Ayrshire's water is mixed. Estuarine and groundwater quality is above the national average in terms of the number of bodies in the area achieving 'good' or better status. River and bathing water quality is however generally below satisfactory and requires improvements to be made. Flood risk is also a major issue affecting more than 3,000 properties.
<b>Soils and Geology</b>	
	<i>No meaningful quantitative indicators</i>
<b>Landscape</b>	
↔	The state of South Ayrshire's landscape is generally good. Most of the area south and east of Ayr has been designated as a Scenic Area, where stricter rules on planning applications apply in order to preserve the value of the local landscape. Large areas around Ayr have also been designated as Greenbelt land. However the number of Vacant and Derelict Land sites has increased in recent years.
<b>Air Quality</b>	
↑	South Ayrshire's air quality is excellent. There have been no breaches of UK government permitted levels of any of the key pollutants for the last five years. Furthermore, actual concentrations of monitored pollutants have decreased in recent years.
<b>Climatic Factors</b>	
↑	South Ayrshire Council is performing fairly well in terms of regulating energy use and reducing CO2 emissions. Compared with previous years emissions have reduced overall and in the buildings and waste sectors, though emissions from energy usage in water-related processes have increased. Transport-related emissions have been fairly steady. Continued effort will be required to ensure emissions reduce further year-on-year.
<b>Noise</b>	
	<i>No meaningful quantitative indicators</i>
<b>Human Health</b>	
↓	While the percentage of the population in good / very good health has been increasing, South Ayrshire still remains below the national average. Obesity is a major problem, with the percentage of children and adults classed as overweight and obese rising consistently in recent years. Active travel also continues to be an issue, with the population of South Ayrshire evidently becoming more reliant on cars and taxis as part of their daily commute.
<b>Population</b>	
↑	Life expectancy continues to rise for males and females. Death rates are however significantly above the national average, a fact attributable to South Ayrshire's ageing population; the average age of a South Ayrshire resident is more than three years above the national average. Elsewhere, unemployment rates are broadly equivalent to national figures, while accessibility in terms of access to a vehicle is both increasing and above the national average.
<b>Material Assets</b>	
↑	South Ayrshire performs well in terms of waste management, sending significantly less rubbish to landfill and recycling / composting more material than the national average. Street cleanliness has been mixed in recent years, with the council currently ranked in the bottom half of their peer group. Performance in matters relating to roads is however poor - both the state of the road condition and the number of fatalities and serious injuries on the county's roads requires improvement.

**Status**

	Good
	Moderate
	Poor

**Trend**

← →	Stable
↑	Improving
↓	Declining
?	No trend

## 2. Biodiversity



*Feoch Meadows - Scottish Wildlife Trust Reserve*

### SEA objectives that relate to Biodiversity:

- *Ensure that the integrity of internationally designated sites within or in close proximity to the SAC area is preserved.*
- *Safeguard national and local designated sites and habitats (particularly hedgerows and woodland) from loss and / or fragmentation.*
- *Biodiversity, species and habitats, including protection of European protected and priority species are protected from loss and / or fragmentation.*

### Summary of 2018 Performance:

Indicator	Status & Trend	Description
International Designated Sites	← →	2 x Special Protected Areas, 2 x Special Areas of Conservation, 2 x Important Bird Areas
National Designated Sites	← →	34 x SSSI, 1 x Biosphere Reserve
Regional Sites	← →	1 Country Park
Locally Designated Sites	← →	3 x Forestry Commission Scotland (FSC) forests, 1 x RSPB reserve, 4 x SWT reserves

#### Status

	Good
	Moderate
	Poor

#### Trend

← →	Stable
↑	Improving
↓	Declining
?	No trend



## Introduction

Biodiversity can be defined as the total variety of living organisms on earth, including all species of plants and animals and their associated habitats. Biodiversity represents the foundation from which a wide variety of ecosystem services are provided, contributing significantly to our health and well-being. This vast array of services includes the production of food, the filtering of clean water and the control of climate and disease.

It is critical that we act to preserve and enhance biodiversity, both in the man-made environment as well as the ever-decreasing natural realm, to safeguard the future of the planet and all life that lives upon it.

The major threats to biodiversity can largely be attributed to the action of humans. These include:

- Climate change and man-made global warming
- Population growth and ever-increasing consumption of resources (e.g. over fishing)
- Over-exploitation of natural resources (e.g. deforestation)
- Environmental degradation (e.g. pollution)
- Habitat loss due to urbanisation (the expansion of towns and cities)

## International Designations

Natura 2000 sites are the official European network of protected sites, representing the highest value of rare, endangered or vulnerable natural habitats and species of plants and animals identified under the EC Habitats Directive (92/43/EEC) and EC Birds Directive (79/409/EEC). Natura 2000 sites include:

- Special Areas of Conservation (SACs)
- Special Protection Areas (SPAs)
- Ramsar sites (wetland habitat)

In addition to Natura sites, the Important Bird Area (IBA) programme aims to identify, document and protect all places on earth of greatest significance for the protection and conservation of the world's birds. There are 20 qualifying criteria for classification as an IBA. Over 12,000 IBA's have been identified globally to date, with two present in South Ayrshire.

Details of South Ayrshire's sites are highlighted in Figure 2.1 and Table 2.1. A full description of each is provided in subsequent chapters.

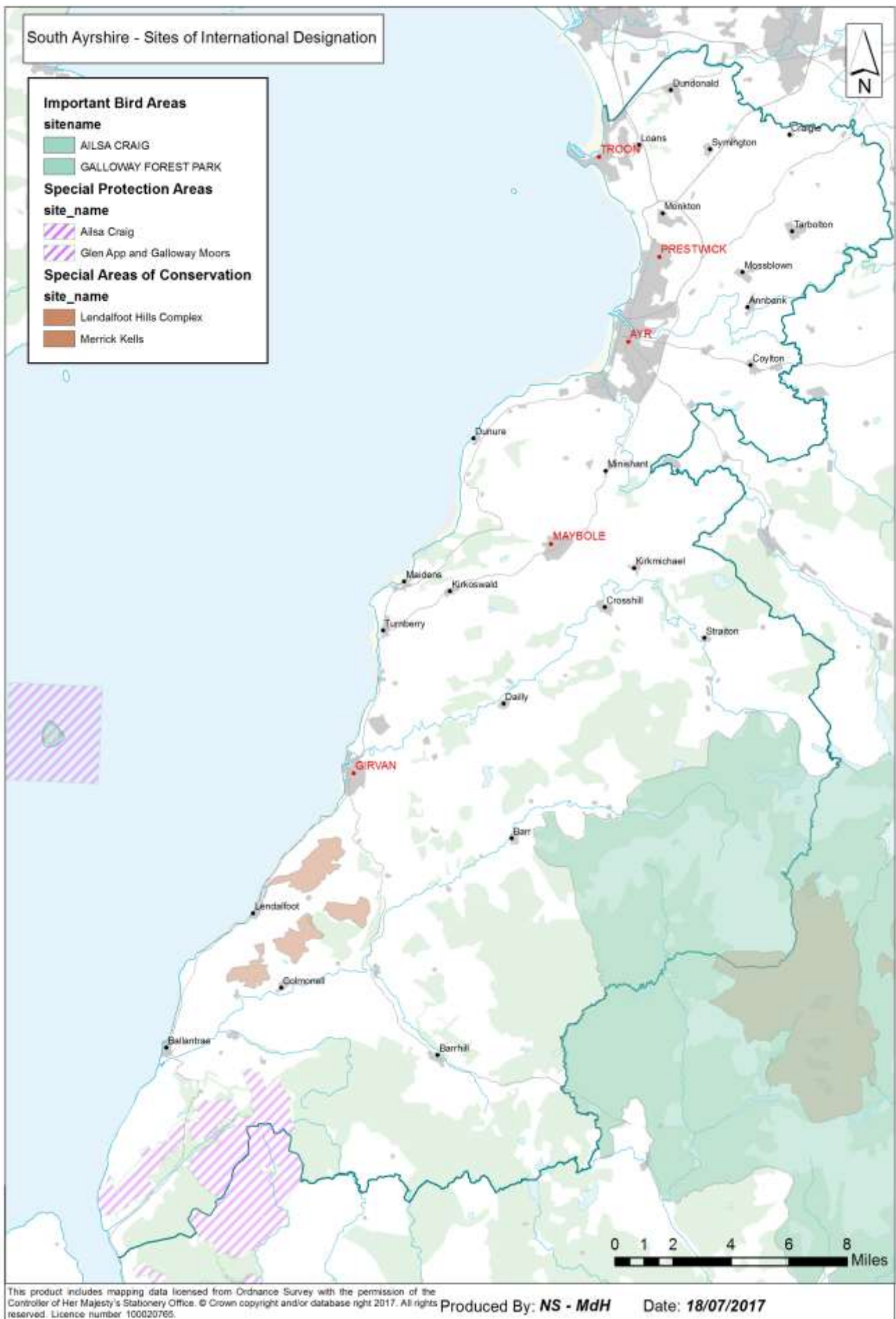


Figure 2.1 – Sites of international designation for wildlife

**Table 2.1 – International Nature Conservation Designations in South Ayrshire (source – [JNCC](#))**

Designation	S.A	Scotland	Description
Special Area of Conservation (SAC)	2	254	An SAC is a site designated by the UK Government under the <a href="#">EC Habitats Directive (92/43/EEC)</a> . SAC's are designated due to the presence and number of certain habitats and species, both terrestrial and marine, which are listed in the Habitats Directive; the Directive requires that a network of sites is established that will make a significant contribution to preserving these habitats.
Special Protection Area (SPA)	2	167	An SPA is a site designated by the UK Government under the <a href="#">EC Birds Directive (79/409/EEC)</a> . SPAs are designated due to the presence and number of rare, threatened or vulnerable bird species listed in Annex I of the Birds Directive, and also for regularly occurring migratory species.
Ramsar Site	0	51	Ramsar sites are sites designated as internationally important wetlands, an extremely important ecosystem for biodiversity conservation and human community well-being. Ramsar Sites were designated under the Convention on Wetlands of International Importance, 1971.
Important Bird Area	2	173	IBAs constitute a protected network of sites critical for birds and their conservation. IBAs are selected on the basis of internationally agreed and standardised criteria. Many IBAs are also Natura 2000 sites.

## Special Areas of Conservation (SAC)

There are currently two SACs in South Ayrshire; Lendalfoot Hills and Merrick Kells.

### (a) Lendalfoot Hills Complex SAC

Lendalfoot Hills Complex SAC, designated in 2005, is located in the southwest corner of South Ayrshire. The total area of the group of individual sites covers 1309 hectares. The entirety of the SAC is designated as a Site of Special Scientific Interest (SSSI).

Lendalfoot Hills Complex supports the following habitats (Table 2.2):

**Table 2.2 – General character of Lendalfoot Hills SAC (source – [JNCC](#))**

Habitat	
Heath, Scrub, Maquis and Garrigue, Phygrana	39%
Dry grassland, Steppes	37%
Humid grassland, Mesophile grassland	13%
Improved grassland	5%
Bogs, marshes, water fringed vegetation, Fens	4%
Alpine and sub-Alpine grassland	1%
Broad-leaved deciduous woodland	1%

The site qualifies as a Special Area of Conservation under the following criteria (Table 2.3):

**Table 2.3 – Qualifying features of Lendalfoot Hills SAC (source – [JNCC](#))**

<b>Annexe One Habitats – Primary selection reason</b>
Species-rich Nardus grasslands, on siliceous substrates in mountain areas
Alkaline fens
<b>Annexe One Habitats – Secondary selection reason</b>
Northern Atlantic wet heaths with Erica tetralix
European dry heaths
Calaminarian grasslands of the Violetalia calaminariae
Transition mires and quaking bogs

The site is exposed to a number of vulnerabilities. The complex suite of features are found in agricultural holdings and their maintenance is dependent on differing grazing and management regimes. A formal management plan for the site, which would allow Scottish Natural Heritage to monitor the condition of the habitat and recommend adjustments to grazing and the application of artificial fertilisers, is not currently in place.

### **(b) Merrick Kells SAC**

Merrick Kells SAC, designated in 2005, is situated in the southern part of South Ayrshire, extending into both Dumfries and Galloway and East Ayrshire. The total area of the site covers 8,767 hectares. The entirety of the SAC is designated as a Site of Special Scientific Interest (SSSI), while 2.4% of it is also a Natural Nature Reserve (Silver Flowe).

Merrick Kells SAC supports the following habitats (Table 2.4):

**Table 2.4 – General character of Merrick Kells SAC (source – [JNCC](#))**

<b>Habitat</b>	
Bogs, Marshes, Water fringed vegetation, Fens	40%
Heath, Scrub, Maquis and Garrigue, Phygrana	33%
Humid grassland, Mesophile grassland	15%
Alpine and sub-Alpine grassland	10%
Inland water bodies (standing water, running water)	2%

The site qualifies as a Special Area of Conservation under the following criteria (Table 2.5):

**Table 2.5 - Qualifying features of Merrick Kells SAC (source - [JNCC](#))**

<b>Annexe One Habitats - Primary selection reason</b>
Northern Atlantic wet heaths with Erica tetralix
Siliceous alpine and boreal grasslands
Blanket bogs
<b>Annexe One Habitats - Secondary selection reason</b>
Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoete-Nanojuncetea
Natural dysotrophic lakes and ponds
European dry heaths
Depressions on peat substrates of the Rhynchosporion
Siliceous scree of the montane to snow levels
Siliceous rocky slopes with chasmophytic vegetation

The site is also exposed to a number of vulnerabilities. Grazing levels on this large upland site are generally low, though there are some localised overgrazed areas and the existing grazing tenancies are currently under review. Again, though managed by Scottish Natural Heritage, a formal management plan for the site is currently not in place.

## Special Protection Areas

There are currently two SPAs in South Ayrshire; Ailsa Craig and Glen App – Galloway Moors.



*Ailsa Craig Special Protection Area (SPA)*

### Ailsa Craig SPA

Ailsa Craig SPA, designated in 1990, is situated in the outer part of the Firth of Clyde. The site comprises a cone-shaped granitic island with high cliffs rising to 100m, providing nesting sites for a range of seabird species. The island spans 99 hectares in size and is leased by the RSPB from a private owner until 2050.

Ailsa Craig qualifies as an SPA by supporting populations of European importance and a seabird assemblage of international importance (gannet). In total, Ailsa Craig regularly supports over 30,000 breeding pairs of seabirds (Table 2.6).

**Table 2.6 – Breeding birds of Ailsa Craig SPA (source – [JNCC](#))**

Species	Number of Breeding Pairs
Gannet	23,000
Guillemot	3,350
Kittiwake	3,100
Herring Gull	2,250
Lesser Black-backed Gull	1,800

In terms of vulnerabilities there are no significant threats to the bird populations on the island itself, though there are issues with the maintenance of food resources.

## Glen App – Galloway Moors Special protection Area (SPA)

Glen App – Galloway Moors SPA, designated in 2003, is located in the southern part of South Ayrshire. It comprises a large upland area that extends north from Castle Kennedy, in Dumfries and Galloway to Ballantrae in South Ayrshire.

The site represents an extensive upland area of moorland with acid grassland, large blanket bogs, wet heaths, and dry heaths. The site supports a rich variety of moorland breeding birds, including curlew, black grouse, raven, red grouse, snipe, stonechat, wheatear, and whinchat.

The site qualifies as an SPA by supporting populations of hen harrier, a species of European importance. The 20 breeding pairs present on the site constitute at least 4% of the breeding population in Great Britain.

**Table 2.7 – Breeding birds of Glen App – Galloway Moors SPA (source – [JNCC](#))**

Species	Number of Breeding Pairs
Hen Harrier	20 (approximately)



**Glen App Special Protection Area (SPA)**

In terms of vulnerabilities, much of the heather habitat has become fragmented, with acidic grasslands becoming a more common feature due to overgrazing. Limited muirburn is still practiced to reclaim moorland for livestock grazing.

Scottish Natural Heritage have set in place a Moorland Management Scheme for owners and occupiers in order that the site be maintained and habitats improved to support birdlife. This is achieved by better integrating the different uses of the moorland and by providing management and funding to support good practice, including prescriptions for heather restoration, sensitive muirburn and the reduction of stocking levels.

## Important Bird Areas (IBA)

There are currently two IBA sites in South Ayrshire; Ailsa Craig, and Galloway Forest Park.

### Ailsa Craig IBA

Ailsa Craig IBA is an important site for a range of seabird species. See earlier section on Ailsa Craig for details.

Table 2.8 details the qualifying features of the Ailsa Craig IBA. The site qualifies on account of its breeding gannet population as well as its sizable congregation of seabirds.

**Table 2.8 – Qualifying features of Ailsa Craig IBA (source – [Birdlife International](#))**

	IBA Qualifying Criteria					
	A4ii	A4iii	B1ii	B2	C3	C4
Gannet	X		X	X	X	
Species – Seabird		X				X
<b>Details of Criteria:</b>						
A4ii - The site is known or thought to hold, on a regular basis, more than 1% of the global population of a congregatory seabird or terrestrial species						
A4iii - The site is known or thought to hold, on a regular basis, more than 20,000 waterbirds or more than 10,000 pairs of seabird of one or more species						
B1ii - The site is known or thought to hold more than 1% of a distinct population of a seabird species						
B2 - Species with an unfavourable conservation status in Europe						
C3 - Congregations of migratory species not threatened at the EU level						
C4 - Large congregations						

### Galloway Forest Park IBA

Galloway Forest Park IBA is situated in the eastern part of South Ayrshire. The 58,295 hectares site extends over into Dumfries and Galloway and into East Ayrshire.

Galloway Forest Park comprises a very large area of forest, including lochs, rivers and moorland. This IBA supports a range of breeding waders and water birds in addition to species of forest and moorland bird. The site qualifies as an IBA based on the presence of three species as follows (Table 2.9):

**Table 2.9 – Qualifying features of Galloway Forest Park IBA (source – [Birdlife International](#))**

	IBA Qualifying Criteria	
	B2	C6
Short-eared Owl	X	X
Peregrine Falcon	X	X
Black Grouse	X	
<b>Details of Criteria:</b>		
B2 - Species with an unfavourable conservation status in Europe		
C6 - Species threatened at the European Union level		

### National and International Designations

There are various forms of sites present in Scotland that are designated at national level. Details are provided in Table 2.10. In South Ayrshire, the nationally designated sites are represented by 34 SSSIs and a Biosphere Reserve.

**Table 2.10 – Details of national and international site designations in Scotland and South Ayrshire (source – [SNH](#))**

Designation	S.A	Scotland	Details
Site of Special Scientific Interest (SSSI)	34	1,423	Areas of land and / or water that Scottish Natural Heritage (SNH) considers to best represent our natural heritage - i.e. diversity of plants, animals and habitats, rocks and landforms, or a combinations thereof. Sites are designated under the Wildlife and Countryside Act 1981 and the Nature Conservation (Scotland) Act 2004.
National Scenic Area (NSA)	0	40	Areas designated due to their outstanding scenic value, representing Scotland's finest landscapes. Sites are mainly located in more remote and mountainous areas and were all originally identified by the Countryside Commission for Scotland (CCS) in 1978. NSAs are generally equivalent to Areas of Outstanding Natural Beauty (AONB) in England, Wales and Northern Ireland
National Nature Reserve (NNR)	0	47	NNRs represent some of the most important terrestrial and coastal ecosystems in Scotland. Most reserves have habitats and/or species that are nationally or internationally important, so the wildlife is managed very carefully. The 47 NNRs in Scotland cover a diverse range of habitats including pine forests, peat bogs and seabird colonies
National Park	0	2	Scotland's National Parks are areas of the very highest value for their landscapes, wildlife and cultural heritage. Established under the National Parks (Scotland) Act 2000, their purpose is to conserve and enhance countryside landscapes, while promoting public enjoyment of them and enhancing the well-being of those living within them. They are also designated to help to promote the sustainable use of natural resources from the area.
Marine Protected Area (MPA)	0	30	Sites designated under the Marine (Scotland) Act 2010 to protect areas of the marine environment containing 41 vulnerable habitats and species, including maerl beds, coral gardens and common skate. Of the 30 MPAs designated, 17 are in inshore waters and 13 are offshore
Biosphere Reserves (International Designation)	1	2	Biosphere Reserves aim to harmonise the integration of people and nature in the pursuit of sustainable development. They have three principal goals: 1) Conservation - promoting the preservation of wildlife, habitats and landscape, 2) Learning - supporting a better understanding of nature and global issues, 3) Development - fostering a sustainable economy and society. Biospheres are created under an intergovernmental scientific programme headed by UNESCO.

### **Sites of Special Scientific Interest (SSSIs)**

There are currently 16 biological SSSIs, 15 geological and three mixed (biological and geological) within South Ayrshire. Details are provided in Table 2.11 and Figure 2.2 (map).

As the map shows, the majority of the larger SSSIs are present at various sites along the coast. There are also a number of smaller SSSIs present inland, particularly in the area east of Girvan.



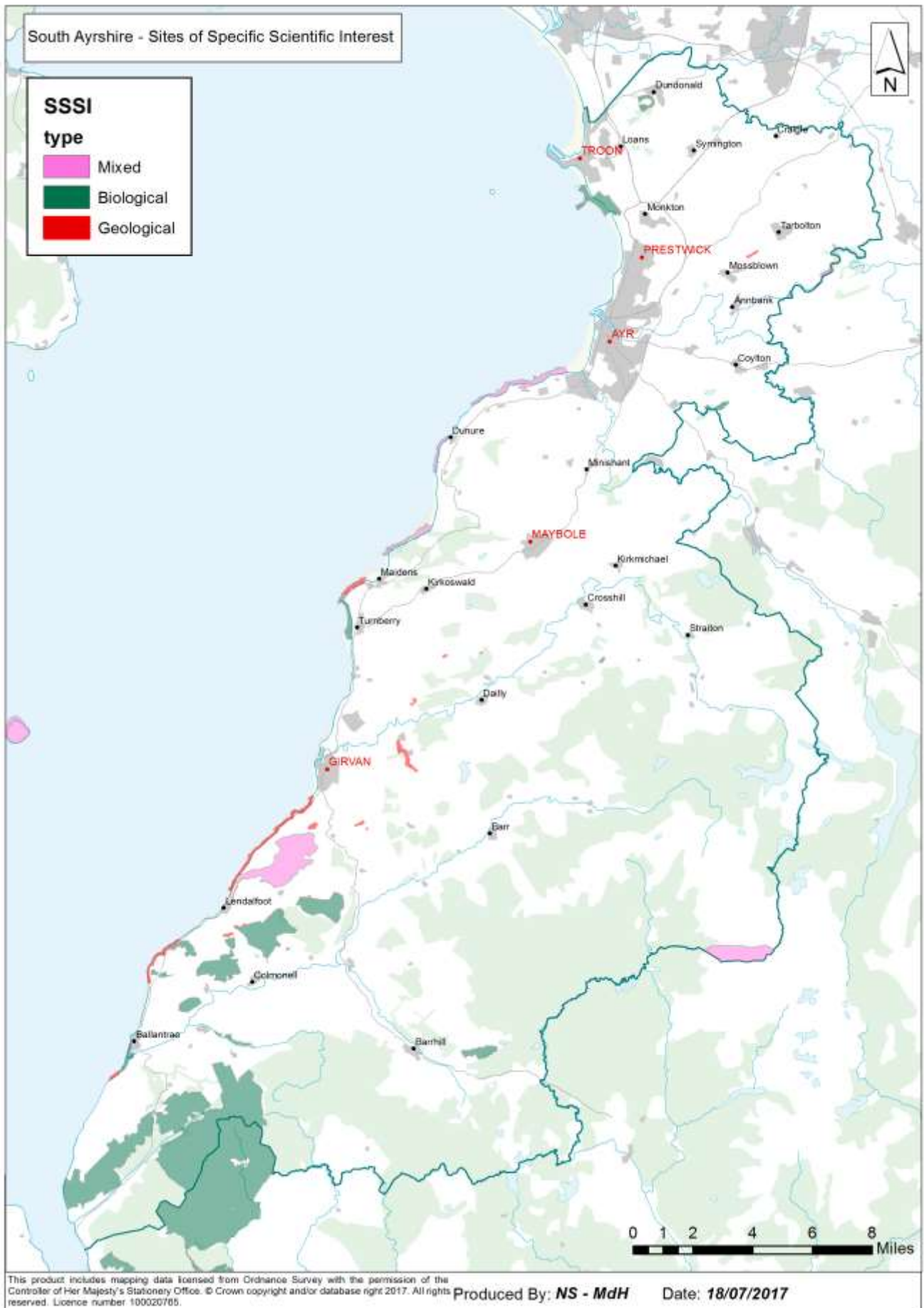


Figure 2.2 – Sites of Special Scientific Interest in South Ayrshire

**Table 2.11 – Description of South Ayrshire’s SSSIs (source – [SNH](#))**

SSSI	Type	Area (ha)	Brief Description
Afton Lodge	G	2.8	Site of Quaternary high-level shell-beds.
Ailsa Craig	B	99	Sea bird colony of significant size.
Aldons Hills	B	236	Significant site of grassland, heathland and upland habitats.
Auchalton	B	5.2	Species-rich grasslands with locally rare plant species.
Ballantrae Shingle Beach	B	34	Best example of well-developed shingle beach demonstrating active marine erosion, transportation and deposition in SW Scotland.
Bennane Head Grasslands	B	70.9	Site of lowland neutral grassland with diverse flowering plant species, including only Scottish population of a green-winged orchid.
Blair Farm	G	0.3	Exposure of the Silurian-aged Blair Formation. Contains well preserved fossilised planktonic algae.
Byne Hill	G	8.6	Exposure of a section of the Ordovician Ballantrae Ophiolite Complex.
Craig Wood	B	23	Prime example of relatively undisturbed semi-natural deciduous woodland in Ayrshire.
Craighead Quarry	G	2.4	Exposure of geologically significant Ordovician-aged sedimentary / volcanic sequence.
Dundonald Wood	B	35	Extensive area of deciduous woodland, supporting a diverse beetle assemblage including scarce species.
Feoch Meadows	B	82	Mosaic of grassland types incorporating fen meadow and species-rich neutral grassland. One of the prime grassland sites in Ayrshire.
Girvan to Ballantrae Coast Section	G	87	Exposure of a section of the Ordovician Ballantrae Ophiolite Complex.
Glenn App and Galloway Moors	B	8942	Mosaic of blanket bog, wet/dry heath and acid grassland supporting breeding hen harrier.
Knockdaw Hill	B	387	Upland area containing variety of habitats reflecting the complex underlying geology – calcareous grasslands, dry/wet heaths and alkaline fens.
Knockdolian Hill	B	64.1	Unusually substantial extent of subalpine calcareous grassland at low altitude.
Knockgardner	G	0.3	Exposure of the Silurian fossiliferous Knockgardner Formation.
Knockormal	G	5.4	Exposure of a section of the Ordovician Ballantrae Ophiolite Complex.
Laggan Burn	G	2.6	Exposure of the fossiliferous Ordovician Balclatchie (Caradoc) succession.
Littleton and Balhamie Hills	B	242	Upland area containing variety of habitats reflecting the complex underlying geology – calcareous grasslands and basin / alkaline fens.
Maidens to Doonfoot	M	216	Stretch of coastline of significant geological and biological interest. Geological – key exposures of igneous and sedimentary successions of Devonian to Permian age; Biological – prime example of maritime cliff habitat, sites of nationally important shingle habitat, prime example of upland mixed ash woodland and, finally, a key site for invertebrates associated with the maritime cliff habitat including a nationally rare crane fly and three nationally scarce species of beetle.
Martnaham Loch and Wood	B	65	Site containing one of most biologically diverse lochs in Ayrshire, alongside one of the largest remaining oak woodlands in lowland Ayrshire.

Merrick Kells	M	8767	Upland area of significant geological and biological interest. Geological – exposure of key ice age moraine sediments, granite pavements and fossilised pine remains; Biological – extensive blanket bog habitat supporting numerous rare or locally scarce beetles, upland habitats supporting rare plant species, breeding bird assemblages and a locally rare dragonfly.
Millenderdale	G	1.32	Inland exposure of a section of the Ordovician Ballantrae Ophiolite Complex.
Penwhapple Burn	G	28	Significant exposure of fossiliferous Lower Silurian aged sediments exposed along the river bank.
Pinbain Burn to Cairnhill	M	522	Upland area of significant geological and biological interest. Geological - exposure of a section of the Ordovician Ballantrae Ophiolite Complex; Biological – variety of habitats including calaminarian grassland & serpentine heath, subalpine acid grassland and a rare natural water body occurring on underlying serpentinite geology. All habitats harbour a range of plant species of interest.
River Ayr Gorge	B	57	Sandstone gorge containing one of the prime sites of upland oak woodland in Ayrshire, supporting an important range of beetle species.
Roughneuk Quarry	G	0.3	Significant exposure of fossiliferous Silurian aged sediments, exposed following quarry excavation.
Sgavoch	G	6.1	Coastal outcrops exposing a section of the Ordovician Ballantrae Ophiolite Complex.
South Threave	G	1.4	Exposure of fossiliferous Ordovician sediments, including the world-famous Lady Burn Starfish Beds. Several key fossil species are exposed.
Stairhill	G	1	Exposure of fossiliferous Carboniferous and Permian sediments.
Troon Golf Links and Foreshore	B	149	Best example of a sand dune system in Ayrshire.
Turnberry Dunes	B	77	High quality coastal habitat harboring a number of key beetle species.
Turnberry Lighthouse to Port Murray	G	24	Coastal exposures of Devonian aged lavas.

## Biosphere Reserves

### Galloway and South Ayrshire Biosphere

One of only two in Scotland and four in the UK, the Galloway and South Ayrshire Biosphere was designated in its current form in 2012 as a result of its unique combination of special wildlife areas, rich cultural heritage and communities that take a special interest in the environment.

The Biosphere covers an area of some 527,000 hectares, including 45,000 houses and 95,000 people. It also contains 14 Special Areas of Conservation and four Special Protected Areas. The central core area of the Biosphere encompasses the Cairnsmore of Fleet National Nature Reserve (NNR), the Silver Flowe SSSI and the centre of the Merrick Kells SSSI.



*Galloway and Southern Ayrshire Biosphere - © Sothern Upland Partnership*

## Regional Sites

Two types of site of regional designation exist in Scotland, details of which are provided in Table 2.12.

**Table 2.12 – Regional site designations in Scotland and South Ayrshire (source – [SNH](#))**

Designation	S.A	Scotland	Description
<b>Country Park</b>	1	36	Areas of land close to towns and cities, managed to give the public the opportunity to enjoy the countryside and for open-air recreation. Though they are not primarily intended for nature conservation purposes, they often represent significant sites of semi-natural habitat. Management of the parks is mainly in the hands of local authorities, though the National Trust for Scotland manages two.
<b>Regional Park</b>	0	3	Large areas of attractive countryside which lie close to Scotland's larger towns and cities, and which are therefore popular for outdoor recreation. Regional parks are managed by local authorities in agreement with landowners to allow for public access, with support from Scottish Natural Heritage.

## Country Parks

### Culzean Castle and Country Park

Culzean Castle and Country Park, located on the South Ayrshire coast west of Maybole, is an estate owned and managed by National Trust for Scotland covering an area of 260 hectares. It was designated as Scotland's first Country Park in 1969.

The hugely varied estate includes a grade-A listed cliff-top castle, woodland areas planted with conifers and beech and long stretches of coastline containing high quality sandy beaches. A large pond and formal gardens with fruit-filled glasshouses contribute to the visitor appeal.

## Non Statutory Locally Designated Sites

South Ayrshire also contains a number of non-statutory locally designated sites, the most significant of which are detailed in Table 2.13 and Figure 2.3.



Figure 2.3 – Non-statutory local wildlife / biodiversity sites in South Ayrshire

**Table 2.13 – Details of non-statutory local site designations in Scotland and South Ayrshire (source – [SNH](#))**

Designation	S.A	Scotland	Description
<b>Local Nature Reserve</b>	0	74	LNRS are selected, declared and managed by local authorities to provide better opportunities for people to learn about and enjoy nature close to where they live. They may gain protection through also being Sites of Special Scientific Interest or Natura sites.
<b>Forestry Commission Scotland (FSC) Forests</b>	3	314	Scotland's National Forest Estate is made up of a network of 314 areas of forest, woodland and open ground, covering approximately 9% of the total land cover of Scotland. The sites are managed by Forestry Commission Scotland, with a view to increasing their value to the environment and society.
<b>RSPB reserves</b>	1	57	The RSPB own and manage a number of key birdlife sites around Scotland, with a view to both conserving the nature of the sites and educating the public on all aspects of birdlife.
<b>SWT Reserves</b>	4	120	The Scottish Wildlife Trust manages a number of reserves for their wildlife for the benefit of the environment and people, across a range of different environments and habitats.

There are three Forestry Commission Scotland (FSC) managed forests in South Ayrshire, namely Barr Trails, Bells Memorial and Carrick Forest Drive. All three are located towards the NW extent of the Galloway Forest Park, south-east of Girvan.

Ailsa Craig represents the only RSPB reserve in South Ayrshire, a description of which is provided earlier in the chapter.

There are four Scottish Wildlife Trust (SWT) Reserves in South Ayrshire; Auchalton Meadow (12.2ha), Ayr Gorge Woodlands (46 ha), Feoch Meadows (114.5 ha) and Grey Hill Grasslands (328.5ha).

There are approximately 170 areas of ancient woodland (of semi natural origin) and long-established woodland (of plantation origin) in South Ayrshire, distributed fairly evenly across the whole of the area.

There are also a further 113 Wildlife Sites and 56 Ornithological Sites, designated by SWT and RSPB. These sites represent the most important for wildlife in South Ayrshire outside of the statutory sites described above. The list of sites is reviewed periodically.

Wildlife/green corridors are non-designated sites that provide important connections between individual wildlife sites, such as marshy areas in the corner of fields, river banks, woodland areas, hedgerows and areas of species rich grassland. South Ayrshire Council's Wildlife Strategy identifies potential green/wildlife corridors that pass through main settlements, listed below in Table 2.14.

**Table 2.14 – Wildlife / green corridors in South Ayrshire ([SAC Local Plan](#))**

<b>Name and Type of Corridor</b>	<b>Grid Reference (start-end approx)</b>
<b>Ayr / Prestwick</b>	
River Ayr – watercourse.	NS 329228 – 363215
River Doon and tributary – watercourses.	NS 325195 - 338178 / 315183
Coastal Strip - coastal habitats (including Prestwick Golf Courses).	NS 295189 - 339282
Pow and March Burns – watercourse.	NS 339282 - 367264 / 362252
Slaphouse and Annfield Burns (including Cunning Park, Belleisle and Rozelle), watercourses plus established parkland and grassland habitats.	NS 325196 - 357197 / 349184
Alloway disused railway line - scrub and grassland.	NS 300182 - 349184
Glasgow to Stranraer railway line - scrub habitats.	NS 350187 – 347280
Ayr to Mauchline railway line - scrub habitats.	NS 344227 - 368237
<b>Troon</b>	
Troon Golf Courses - dune grassland and heath.	NS 339282 – 329332
Coastal Strip - coastal habitats.	NS 339282 – 325338
Darley Plantation to Southwood - plantation mixed woodland.	NS 345286 – 344307
Darley Burn - watercourse and scrub habitats.	NS 324320 - 345307
Roughlea Place to Struthers Primary School – parkland.	NS 335327 – 338323
Ayr to Glasgow Railway Line - scrub habitats.	NS 347280 - 327338
Barassie Burn.	NS 33953280
<b>Girvan</b>	
River Girvan and Tributary – watercourses.	NX 180983 – 193988
Coastal Strip - coastal habitats.	NX 180962 - 186994
Ayr to Stranraer railway line - scrub habitats.	NX 193972 – 191986
<b>Maybole</b>	
Ayr to Stranraer railway line - scrub habitats.	NS 294094 – 307106

## **Important Species and Habitats**

### **European Protected Species**

Annex IV of the 1992 EU Habitats Directive (92/43/EEC) lists species of European Community interest in need of strict protection, known as European Protected Species. In Scotland, protection for these species is ensured via the Habitat Regulations 1994 (as amended), within which protected species are listed as Schedule 2 (animals) and Schedule 4 (plants). These species are explicitly protected by law, with strict licensing guidelines in place for development in areas where they do or may exist.

European Protected Species present within South Ayrshire include:

- Noctule bat
- Common Pipistrelle bat
- Soprano Pipistrelle bat
- Great-Crested newt
- European otter
- Loggerhead turtle
- Leatherback turtle
- Kemp's Ridley turtle
- Risso's dolphin

## Priority Species and Habitats

Following the Rio Earth Summit in 1992 and the signing of the Convention on Biological Diversity, there has been commitment from the European and UK governments to protect the biodiversity of plants and wildlife, particularly rare and threatened species. This commitment is most recently presented at the UK level in the 'UK post-2010 Biodiversity Framework', and transposed to Councils through Local Biodiversity Action Plans (LBAPs).

Details of the current biodiversity strategies relevant to South Ayrshire, at all geopolitical levels, are presented in Table 2.15.

**Table 2.15 – Current biodiversity strategies relevant to South Ayrshire**

Date	Level	Strategy
2004	Scotland	'Scotland's Biodiversity Strategy - it's in your hands'
2008	Ayrshire	Ayrshire Local Biodiversity Action Plan (2007-2010)
2010	Global (CBD)	'Strategic Plan for Biodiversity 2011-2020'
2011	European Union	'EU Biodiversity Strategy' (2011-2020)
2012	UK	'UK post-2010 Biodiversity Framework' (2011-2020)
2013	Scotland	'2020 Challenge for Scotland's Biodiversity'
2015	Scotland	'Scotland's Biodiversity - A route-map to 2020'

A statutory list of priority species has been devised by Scottish ministers, building on lists devised at UK level under past versions of the UK Biodiversity Action Plan.

The list is used by local authorities to list to identify their own objective and actions for preserving and enhancing biodiversity. For South Ayrshire, this was most recently presented in the Ayrshire Biodiversity Action Plan 2007-2010 (ABAP) which formed the baseline which was devised in partnership with North Ayrshire and East Ayrshire.

The ABAP identifies 32 Ayrshire Priority Habitats, 20 of which are UK Priority Habitats. Action Plans were devised for two habitats:

- 1) Coastal Habitat, under threat from over-development in coastal areas (housing, factories, power stations, landfill sites etc.)
- 2) Raised Bog Habitat, long damaged through peat extraction and bog draining.

The ABAP identifies Ayrshire's 68 key species, 55 of which are UK BAP Priority Species. Two Action Plans were devised, one for the water vole and one for 'farmland birds'. Water vole have been adversely affected through the grazing and trampling of their wetland habitats, as well as severe predation from the non-native mink, released accidentally from fur farms. Farmland birds have been threatened by the removal of hedges, loss of habitat, agricultural operations and livestock trampling.



The full list of farmland bird species recognized within the ABAP as being present in South Ayrshire is as follows:

- Tree Sparrow
- Skylark
- Linnet
- Reed Bunting
- Corn Bunting
- Bullfinch
- Grey Partridge
- Song Thrush
- Lapwing
- Snipe
- Curlew
- Redshank
- Yellowhammer

All species with the exception of corn bunting breed in Ayrshire and all, with the exception of tree sparrow and corn bunting, are regarded as widespread.

### Biodiversity Features in proximity to South Ayrshire

A number of sites of international and national biodiversity designation are found outside but very close to South Ayrshire’s southern and eastern boundaries. These sites could be affected by any development taking place within South Ayrshire itself. Details of these sites are outlined in the Table 2.16.

**Table 2.16 – International and national designated sites in close proximity to South Ayrshire (source - [JNCC](#) & [SNH](#))**

Type	Name	Location	Features & Vulnerabilities
<b>Ramsar</b>	Silver Flowe	Dumfries and Galloway, approx. 4km from South Ayrshire boundary.	Series of patterned blanket mires constituting the least-disturbed and most varied extent of acid peatland in southern Scotland. One of the most significant systems of blanket mire in UK.
<b>SAC</b>	Kirkcowan Flow	Dumfries and Galloway, southern boundary of South Ayrshire.	The site is designated for presence of the Annex 1 habitat: blanket bogs. Also contains depressions on peat substrates on the <i>Rhynchosporion</i> . This large peatland site is covered by a Management Agreement to conserve the active blanket bog. The agreement controls grazing, drainage and muirburn (controlled muirburn is acceptable).
<b>National Nature Reserve (NNR)</b>	Silver Flowe	Dumfries and Galloway, approximately 4km from South Ayrshire boundary.	Blanket bog of international importance.
<b>Marine Protection Area (MPA)</b>	Clyde Sea Sill	NW-SE strait between Rhins of Galloway and Mull of Kintyre, approx. 5km offshore from southern tip of South Ayrshire	Shallow strait of water overlying seafloor geological sill. Causes cool saline waters of the Northern Channel to mix with warmer less saline waters from the Firth of Clyde, resulting in the concentration of nutrients and creation of a feeding hotspot for fish and higher predators. Key area for the preservation of local fish stocks.

## **Future Trends**

### **Designated Sites**

There are currently no proposals for any further statutory or non-statutory biodiversity sites to be designated within South Ayrshire.

### **Climate Change Effects**

The UK Climate Impacts Programme (UKCIP) states that the implications of climate change on biodiversity for Scotland could include:

- Changes in abundance and distribution of species and length of growing season
- Higher temperatures less favourable for native species
- High intensity rainfall causing destruction to river habitat
- Increased erosion causing the removal of soil or rocks by water or wind
- Disruption to the food chain, with potential catastrophic loss of species (e.g. island breeding sea bird populations)

### 3. Cultural Heritage



*Bargany Gardens – Bargany Estate, Dailly*

#### SEA objectives that relate to Cultural Heritage:

- *Protect, maintain and enhance the built and historic environment and promote good quality place making.*
- *Protect scheduled monuments, listed buildings and their settings*

#### Summary of 2018 Performance:

Indicator	Status / Trend	Description
Scheduled Monuments	← →	90
Listed Buildings	↑	943. Down from 945 in 2009
Historic Gardens / Designed	← →	8. No change from 2009
Conservation Areas	↑	23. Up from 21 in 2009
Buildings at Risk (BARR)	↓	68. Up from 60 in 2009
Archaeological Sites	↑	2,880. Up from 2,762 in 2009
Marine Archaeological Sites	↑	980. Up from 602 in 2009
Tree Preservation Orders	↑	53. Up from 49 in 2009

**Status**

	Good
	Moderate
	Poor

**Trend**

← →	Stable
↑	Improving
↓	Declining
?	No trend

## Introduction

Cultural heritage considers the historic and archaeological components of the environment. Features considered as cultural heritage assets require preservation and are therefore afforded protection from the adverse effects of development.

South Ayrshire has a rich variety of cultural heritage resources from castles to buried flint scatterings. It is likely that further sites of interest have still to be discovered.

The towns of South Ayrshire are full of character and steeped in history. The main settlement of Ayr was established as a Royal Burgh in 1205 and, notably, was the site of a citadel constructed by Oliver Cromwell in the mid-17th century. South Ayrshire is perhaps best known however for its association with the late 18th century poet Robert Burns.

Cultural heritage is an important asset to South Ayrshire in terms of tourism and economy, cultural identity and providing a sense of place.

## Designated Sites

There are a number of forms of designated sites for cultural heritage within South Ayrshire including Scheduled Monuments, Listed Buildings and Historic Gardens & Designed Landscapes.

### Scheduled Monuments

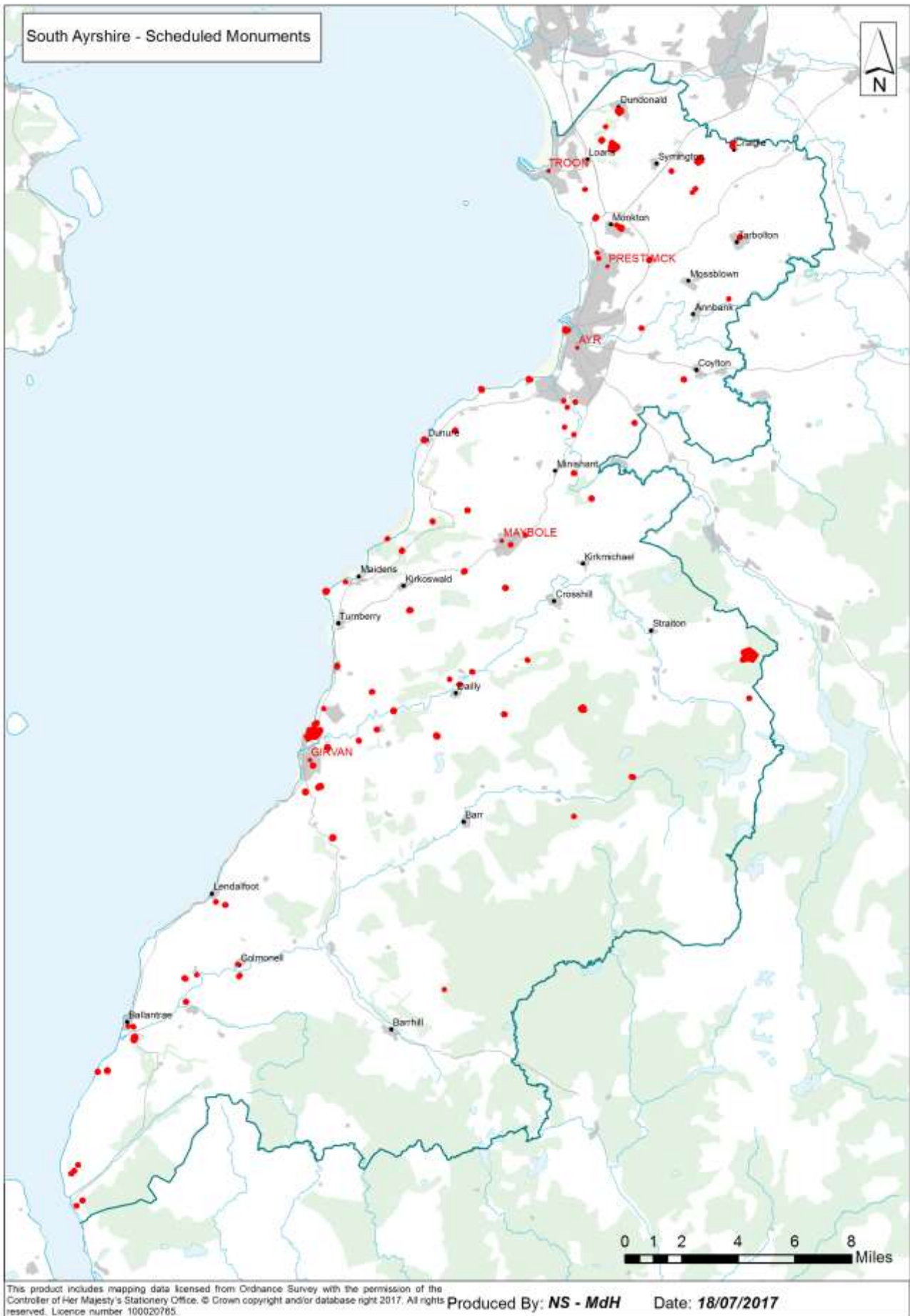
A Scheduled Monument (SM) is a monument of national importance, protected under the Ancient Monuments and Archaeological Areas Act 1979.

The principle of scheduling is designed to preserve significant sites and monuments as best as possible in the form in which they exist in the present day.

The list of Scheduled Monuments is managed by Historic Environment Scotland. Any new monuments proposed for inclusion on the list are assessed against criteria set out in the Historic Environment Scotland Policy Statement, June 2016.

There are 90 Scheduled Monuments within South Ayrshire including Ardstinchar Castle, Ayr Fort, Culzean Castle, Turnberry Castle, Maybole Collegiate Church, Crossraguel Abbey and Bencallen Hill Cairn

Figure 3.1 provides details of the location of all Scheduled Monuments within South Ayrshire. As the map highlights, they are relatively evenly distributed throughout the area.



**Figure 3.1 –Scheduled Monuments within South Ayrshire**

## Listed Buildings

Listed Buildings are buildings of 'special' architectural or historic interest, identified and protected by Historic Environment Scotland to ensure that they continue to enrich Scotland's heritage. Historic Environment Scotland determines which buildings should be listed and is responsible for administering and maintaining the statutory list.

All listed buildings are identified and protected under the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 which identifies that listed building consent must be obtained prior to any alterations to, or the demolition of, a Listed Building. Listings are assessed and administered by Historic Environment Scotland.

Three categories of Listed Building exist according to their relative importance:

- **Category A** - Buildings of national or international importance, either architectural or historic, or fine little-altered examples of some particular period, style or building type
- **Category B** - Buildings of regional or more than local importance, or major examples of some particular period, style or building type which may have been altered
- **Category C** - Buildings of local importance, lesser examples of any period, style, or building type, as originally constructed or moderately altered; and simple traditional buildings which group well with others in Categories A and B



*Colmonell Conservation Area*

There are currently 999 Listed Buildings within South Ayrshire, including 72 'A' listed, 492 'B' and 435 'C'. The list includes nationally important 'A' Listed Buildings such as Burns Cottage, Alloway and Auchincruive Estate Wilson Hall, to more regionally and locally important B and C Listed Buildings such as small rural cottages and farm buildings.

Many of the buildings are situated in the northern regions of South Ayrshire, particularly around the larger towns of Ayr and Troon. Ayr has a large number of Listed Buildings in the town centre and radiating out along the main roads, particularly the A719. Fewer listed buildings are located to the south of the local authority area due to historically lower population density, though several are located in Girvan's harbour area. Elsewhere, small clusters can be found in villages and scattered throughout the countryside.

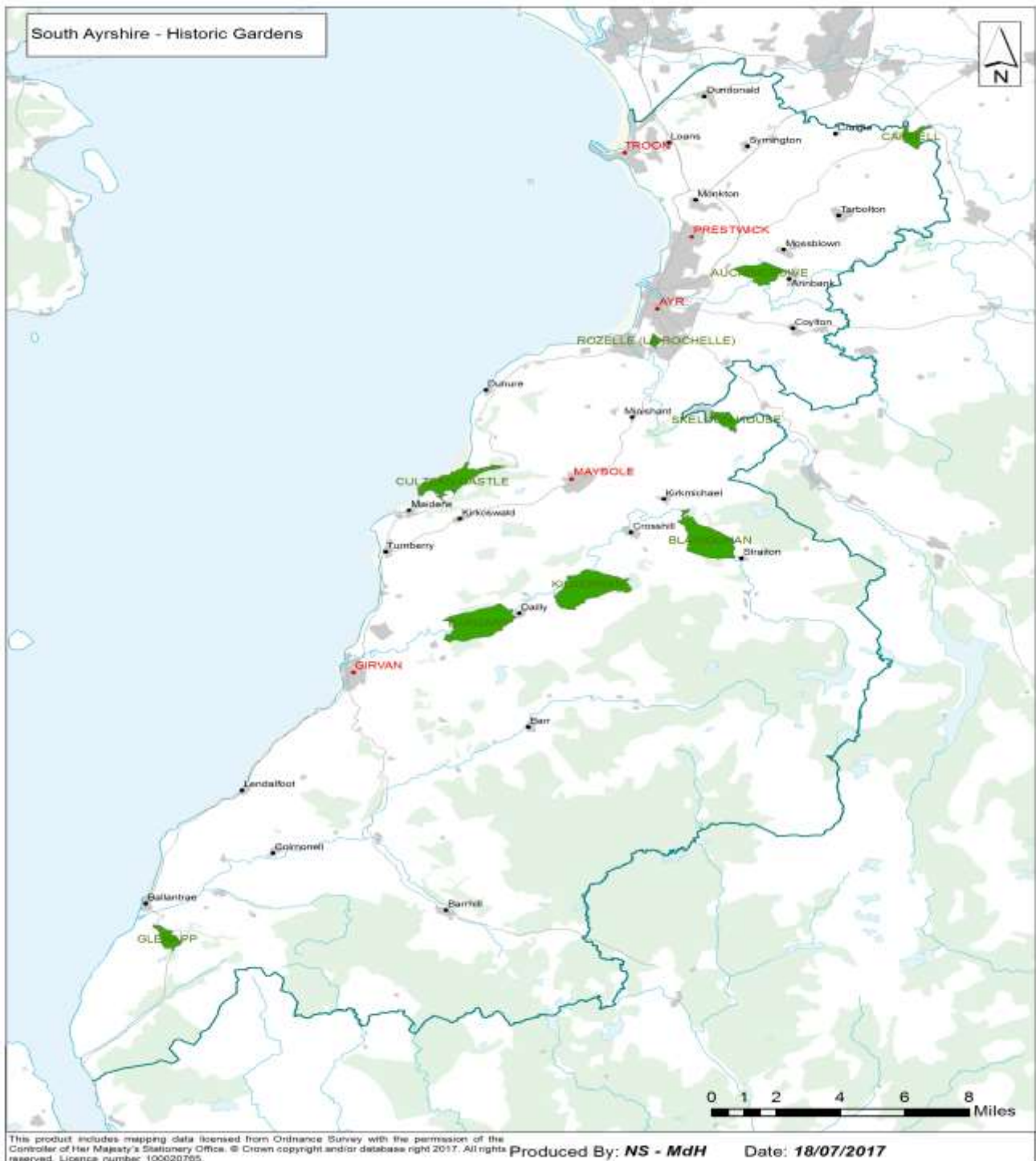
## Historic Gardens and Designed Landscapes

Historic Gardens and Designed Landscapes are gardens and landscapes designated by Historic Environment Scotland that are considered to be exceptional. They are often associated with important country estates and monuments.

Designated Landscapes in South Ayrshire have been adversely affected in recent years by various forms of development. A few have become country parks, such as Culzean which is now in the care of the National Trust for Scotland (NTS). Others have been converted into hotels or institutions such as schools or colleges, e.g. Auchincruive Estate.

South Ayrshire currently has a total of eight Historic Gardens and Designed Landscapes. Details of these sites are described in Figure 3.2 and Table 3.1 below.

**Figure 3.2 – Historic Gardens / Designed Landscapes within South Ayrshire**



**Table 3.1 - Historic Gardens and Designed Landscapes in South Ayrshire (source [Historic Environment Scotland](#))**

Site	Location	Description
<b>Auchincruive</b>	3 miles NE of Ayr	Informal 19th century parkland and woodland landscape, overlaying an earlier formal 18th century landscape. Includes impressive walled garden and several outstanding architectural features.
<b>Bargany</b>	Dailly	Category A listed house with 50 acre mature woodland garden. Notable for the quality of decorative planting.
<b>Blairquhan</b>	Straiton	Over 200 acres of private woodland and gardens forming the setting for a Category A listed house, first laid out in the 17th century and later re-modelled. Notable for an interesting collection of trees.
<b>Carnell</b>	Craigie	Prize-winning gardens and over 2000 acres of parkland, forming the grounds of an estate including a Mansion House and a 14 <sup>th</sup> century Tower.
<b>Culzean Castle</b>	Kirkoswald	Attractive layout of parkland, woodland and formal gardens forming the grounds of Culzean Castle. The gardens contain a wide range of interesting trees and shrubs, particularly notable for a range of exotic species.
<b>Glenapp</b>	Ballantrae	Designed landscape with walled garden and Victorian arboretum, notable for its displays of decorative planting.
<b>Kilkerran (Barclanachan)</b>	Dailly	Farmed estate with grazed parkland, notable for its specimen conifer plantations. Includes a remnant woodland garden, a curved walled garden and a late-19 <sup>th</sup> century sunken garden.
<b>Rozelle (La Rochelle)</b>	Ayr	An attractive public park near Ayr town centre, notable for its interesting trees and planting. Also provides the setting for the Category A listed Rozelle House.

## Conservation Areas

Conservation Areas are defined as ‘areas of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance’. The aim is to safeguard them for the enjoyment and benefit of future generations; any new development therefore, including transportation, should preserve or enhance the character of each area.

Conservation Areas can cover historic land, battlefields, public parks, designed landscapes or railways; however most contain groups of buildings extending over areas of a village, town or city.

Conservation Areas are designated by planning authorities as required by section 61 of the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997.

There are a total of 23 Conservation Areas distributed throughout South Ayrshire, with five deemed to be of outstanding status by the Scottish Government. Character appraisals are currently being prepared by South Ayrshire Council for all areas to identify and define their key features and appearance. The sites are listed in Table 3.2, with details provided for those areas already subject to a character appraisal. The location of each Conservation Area is highlighted in Figure 3.3.



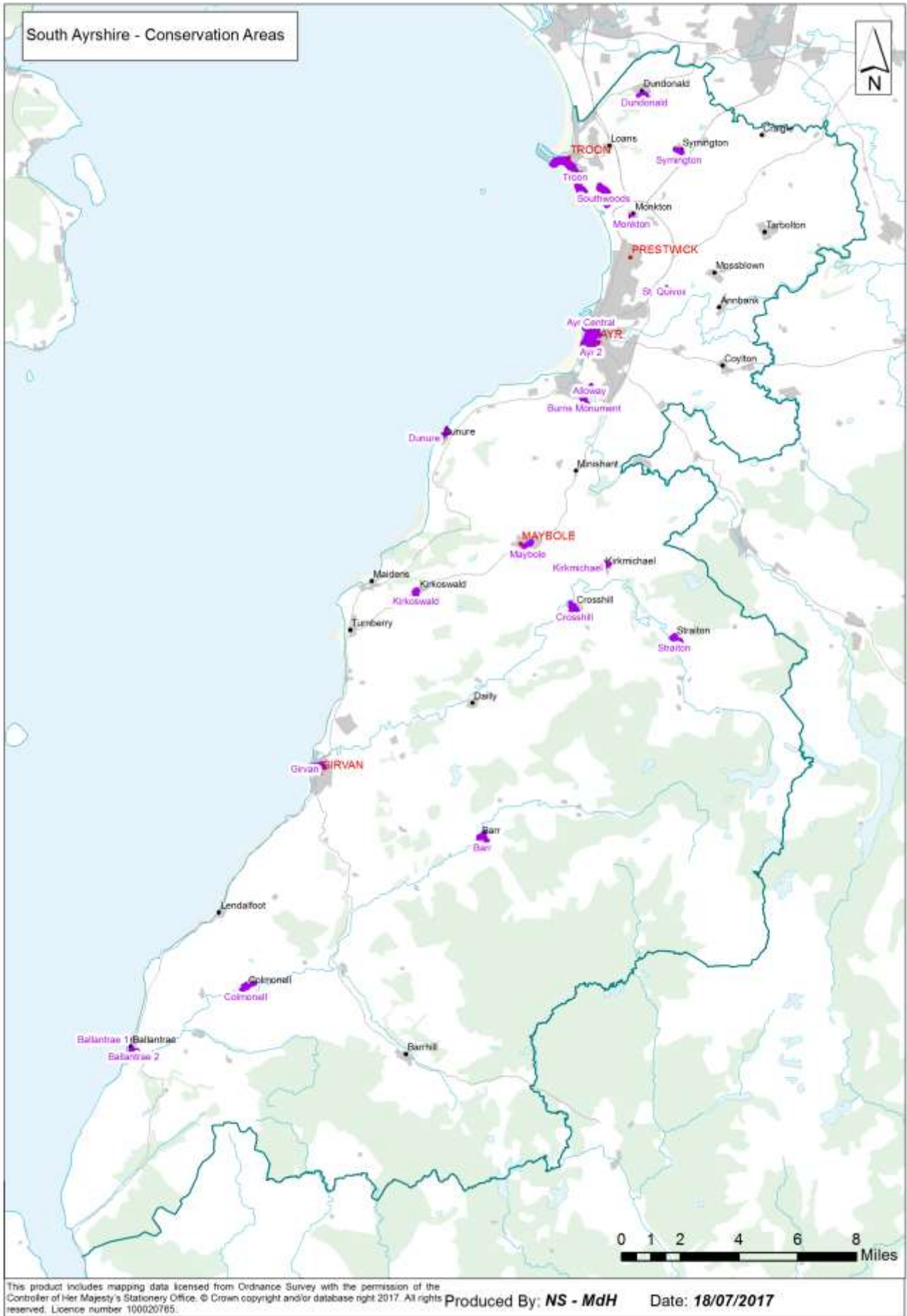


Figure 3.3 – Designated Conservation Areas within South Ayrshire

**Table 3.2 – Conservation Areas in South Ayrshire (\* denotes outstanding status, source [SAC](#))**

Conservation Area	Character Appraisal Summary
<b>Alloway</b>	Attractive group of mainly listed buildings, some dating from 1903-4, centred around the Category 'A' listed Burns Cottage. The Conservation Area is of architectural and historic interest.
<b>Colmonell</b>	Community of early to mid-19 <sup>th</sup> century one-storey cottages and two-storey houses, many of which are Category C listed, predominantly located on the main street along from the Category B listed parish church.
<b>Maybole*</b>	Comprises three distinct areas of significant historical quality, in terms of development history, layout, scale and density, architectural style and detailing – the early 19 <sup>th</sup> century High Street, the early 19 <sup>th</sup> century houses on Town Green and the 19 <sup>th</sup> century houses in Culzean Road and Barns Terrace
<b>Ayr I (Central)*</b>	Comprises five distinct areas of significant historical quality, in terms of development history, layout, scale and density, architectural style and detailing - Sandgate, High Street, Wellington Square, Citadel and Villa Area.
<b>Crosshill</b>	Least altered example in Ayrshire of a weavers' village, with 19th century traditional terraced single storey cottages lining the main spine road of the village.
<b>Monkton</b>	Community of 19 <sup>th</sup> century terraced cottages focused around the ruined 13 <sup>th</sup> century grade A listed St Cuthberts Church and graveyard
<b>Ayr II</b>	Community of substantial late 19th century detached residential properties of significant architectural quality, set within a dominantly tree-lined streetscape.
<b>Dundonald</b>	Good example of a 19th century linear village, enhanced by a castle, parish church and churchyard.
<b>Southwood</b>	Community of large late 19th / early 20th century detached mansion type dwellings of architectural significance, set in mature woodland.
<b>Ballantrae I</b>	Community of predominantly 19 <sup>th</sup> century terraced cottages of architectural significance, focused along a curved main street around the Category grade B listed parish church.
<b>Dunure*</b>	An elongated area which contains a relatively small number of buildings. At the heart of the conservation area is the B-listed Dunure Harbour and a pleasant row of 19th century traditional 1 and 2-storey buildings. Also comprising a large number of trees which make a notable contribution to the setting of the village.
<b>St. Quivox</b>	Small community centred around the 13 <sup>th</sup> century Category A listed parish church. Most of the residential buildings are early 19 <sup>th</sup> century or older, are Category B or C listed and were at one time related to the church.
<b>Ballantrae 2</b>	A group of predominantly 19th century traditional 1 1/2 storey terraced cottages, which connect the centre of the village with its most southerly point. Also comprising a small number of listed buildings, including the A-listed remains of the Old Parish church.
<b>Girvan</b>	Comprises three distinct areas of significant historical quality, in terms of development history, layout, scale and density, architectural style and detailing – the town centre, the 19 <sup>th</sup> century villas of the Avenue and finally the harbour & seafront area.
<b>Straiton*</b>	This is principally defined by an attractive row of late 18th century buildings located along both sides of Main Street, some of which were originally weavers cottages, and all of which are listed at Category C. Also comprises the A-listed St Cuthbert's Parish Church and graveyard.
<b>Barr</b>	19th century two storey terraced houses and traditional single storey cottages of architectural significance, focused around the Category 'C' listed parish church.
<b>Kirkmichael</b>	Community of 1790's terraced weavers cottages, centred on the Category B listed parish church and graveyard
<b>Symington</b>	Community of 19th century traditional terraced weavers' cottages centred around the Category 'A' listed parish church, which is one of the finest examples of a Norman church in Scotland.
<b>Burns Monument*</b>	A group of listed buildings of architectural significance centred around the Category 'A' listed Burns Monument and the ruined Auld Kirk, which is itself a Scheduled Monument.
<b>Kirkoswald</b>	Good example of a long established roadside village, characterised by 19th century buff coloured sandstone cottages.
<b>Troon</b>	A notable area covering a large proportion of the town which follows the coastline. There are a range of different architectural styles and ages of buildings throughout, although there is a notable number of large residential properties, often situated within generous garden ground at the southern end of the conservation area. The northern portion contains a large number of 2-storey traditional red sandstone buildings.
<b>Prestwick</b>	There are 3 distinct groupings of buildings within this conservation area; Links Road, Station Road and The Cross. Links Road is defined by large 2 and 3-storey buildings which have generally been subdivided. Station Road contains 2-storey traditional red sandstone terraced properties and The Cross contains a mixture of architectural styles, and the A-listed Mercat Cross.
<b>Tarbolton</b>	A community of mainly 19th century buildings, a number of which are traditional, single storey rural cottages. The area contains a number of listed buildings, including the A-listed Old Parish church and the A-listed Bachelors Club which is directly associated with Burns.

Given its significance, Ayr (Central) is also subject to further protection under the terms of a formal Management Plan, implemented by South Ayrshire Council and associated stakeholders to ensure the special character and appearance of the area is preserved and enhanced.

## **Buildings at Risk**

Buildings at Risk have been catalogued by Historic Environment Scotland since 1990, in response to concerns regarding the increasing number of listed buildings or buildings in conservation areas that were falling into disrepair.

Since records began a total of 1700 Buildings at Risk have been saved and 498 demolished across Scotland. There are currently 2506 such Buildings at Risk across Scotland (Historic Environment Scotland).

There are 69 buildings in South Ayrshire currently on the Buildings at Risk register, located mainly in the settlements of Ayr, Girvan and Maybole (Historic Environment Scotland). The list includes 12 Category 'A' listed buildings, 24 'B', 15 'C', and 18 unlisted buildings. 37 are characterised as of 'low risk', 20 of 'moderate' and 12 'high'. Four are currently undergoing restoration.

## **Archaeological Sites**

The West of Scotland Archaeological Service (WoSAS) holds computer records of all known archaeological sites, finds, fieldwork and research in the West of Scotland.

In South Ayrshire there are 2,880 sites recorded on the WoSAS database (WoSAS) distributed throughout the local authority area. The type of sites and monuments range from bronze axes and spearheads to buildings, forts and castles.

Also present in South Ayrshire are sites known as 'Archaeological Consultation Triggers', representing areas in which archaeological issues are known or thought likely to exist, thereby triggering consultation with West of Scotland Archaeology Service prior to any development taking place. In such case it is likely that the completion of an archaeological survey will be requested. A number of Archaeological Consultation Trigger areas exist in South Ayrshire, ranging in size from smaller plots up to areas encompassing entire villages.

## **Marine Archaeological Sites**

Historic Environment Scotland identifies 980 marine archaeological sites off the coast of South Ayrshire on their Canmore database (Historic Environment Scotland).

Findings include 89 aircraft, many of which were WWII fighter planes, three submarines, including the WWI German sub UB-82, as well as a wide range of boats and ships. Many are located off Girvan and Turnberry such as the Rialto, a cargo ship driven into the rocks north of Turnberry in 1862 while carrying wheat and flour from New York to the Clyde.

## **Tree Preservation Orders**

Trees identified as being of significant amenity value or of cultural or historical significance may be protected by a Tree Preservation Order (TPO), made by the Council. It is an offence to cut down, top, lop, uproot, wilfully damage or wilfully destroy a tree protected by a TPO, without the planning authority's permission. Most TPOs in South Ayrshire protect individual trees or groups of trees in urban areas, though there are some TPOs in rural areas.

There are 53 confirmed TPOs in South Ayrshire as of January 2018 (South Ayrshire Council 2018).

## **Future Trends**

The Listed Building inventory is continuously updated by Historic Environment Scotland. However, there is no estimate of how many new buildings will be listed in the future in South Ayrshire. An extension to the Ayr Central Conservation Area to incorporate the Low Green has been designated.

Two new Conservation Areas for Prestwick and Tarbolton have also been designated.

Conservation Area Character Appraisals for Maybole, Crosshill, Barr, Tarbolton, Symington, Alloway and Burns Monument have been approved, with draft appraisals also in place for Girvan, St Quivox, Ballantrae I, Colmonell, Kirkmichael and Monkton.

## 4. Water Environment



*River Stinchar*

### SEA objective that relate to Water:

- *To protect and enhance the state of the water environment, inland and costal.*

### Summary of 2018 Performance:

Indicator	Status and Trend	Description
Properties situated in a potentially vulnerable area for flooding	?	3140 in 2016 (no previous data for comparison)
Percentage of rivers of 'good' or 'high' status for water quality	↑	57 % (up from 45% in 2013. National figure 55%)
Percentage of bathing waters of 'good' or 'excellent' status for water quality	↓	29%. (down from 43% in 2015/16. National figure 74%)
Percentage of groundwater bodies of 'good' status for water quality	↑	90%. (up from 80% in 2013 and 2014. National figure 87%)
Percentage of estuaries of 'good' or 'high' status for water quality	← →	100%. (no change for South Ayrshire from previous year. National figure 87%)

#### Status

	Good
	Moderate
	Poor

#### Trend

← →	Stable
↑	Improving
↓	Declining
?	No trend

## Introduction

South Ayrshire's water features include the coastline which forms its western boundary, as well as a number of rivers and inland water bodies that provide both a habitat to the local ecology and a host of recreational opportunities for the community and tourists.

The water environment is critical to South Ayrshire, both for providing wildlife habitat and for contributing significantly to the local economy. The coastal waters and associated beaches are well visited, particularly in the summer. The 'golf coast', comprising the numerous coastal links golf courses along the Ayrshire coast, including world class courses such as Turnberry and Royal Troon, provides recreational opportunities and represent a further significant tourist attraction. Rivers such as the Stinchar and Water of Girvan are also important for salmon fishing.

Due to a combination of climate change, the pervasive wet climate and the proliferation of water bodies located in South Ayrshire, flooding is a significant risk that has to be managed carefully.

The Water Framework Directive (2000/60/EC) is an EU Directive which entered into force in 2000, designed to establish systems that member states are required to follow to effectively and sustainably manage their water environments, including rivers, lochs, estuaries, ground water and coastal water. Requirements stated within the Water Framework Directive have been transposed into various pieces of legislation within UK and Scottish law.

The role of protecting the water environment in Scotland is undertaken by SEPA, Scotland's principal environmental regulator.

Water quality data is available on the Scottish Government website.

## Flood Risk

Scotland has been subdivided into 14 Local Plan Districts (LPD's) for flood management purposes. South Ayrshire forms part of District 12 'Ayrshire', alongside North Ayrshire and East Ayrshire.

Each district is required to publish a Flood Risk Management Strategy, with a supporting Flood Risk Management Plan to identify the actions required to fulfil the strategy.

The most recent Ayrshire Flood Risk Management Plan was published in 2016 to cover the period 2016-2022. Within the plan a number of 'Potentially Vulnerable Areas' (PVA's) are identified, representing priority areas identified as being potentially prone to flooding.

A total of 18 PVA's and one candidate PVA are identified within the Plan, 11 of which lie wholly or partly within South Ayrshire (Table 4.1).

**Table 4.1 – Potentially Vulnerable Areas (Flooding) within South Ayrshire (source [North Ayrshire Council](#))**

PVA	Properties at risk			Flooding Impacts (%)		
	Residential	Non-residential	Annual Ave. Damages (£)	River	Coastal	Surface
12/07 Irvine to Troon	1000	520	1,300,000	70	20	10
12/09 Prestwick & Ayr	300	160	240,000	20	50	30
12/10 Pow Burn Catchment	410	20	940,000	90	0	10
12/11 River Ayr Catchment	90	10	72,000	14	3	83
12/12 Ayr East	290	10	720,000	70	10	20
12/13 Ayr South	20	10	40,000	70	0	30
12/15 Dalrymple to Patna	90	20	120,000	98	0	2
12/16 Straiton	20	10	45,000	90	0	10
12/17 Dailly	10	10	38,000	90	0	10
12/18 Girvan	110	30	220,000	87	6	7
<b>Totals</b>	<b>2340</b>	<b>800</b>	<b>3,735,000</b>	<b>69.9</b>	<b>8.9</b>	<b>21.2</b>
<b>Candidate PVA</b>						
12/19 Dalmellington	50	40	140,000	90	0	10

A total of 3,140 properties are identified at risk within South Ayrshire, with an average of £3.74m spent per year on damages. River flooding is the dominant cause, accounting for 70% of all flood risk, alongside surface water (21%) and coastal flooding (9%).

The plan identifies the causes and consequences of flooding for each area and identifies objectives and the necessary actions to achieve them sustainably.

## Rivers

South Ayrshire contains four main rivers, the Ayr, Doon, Girvan and Stinchar (Figure 4.1). The River Ayr is the largest of these rivers with a catchment area of 574km<sup>2</sup>.



*River Ayr*



Figure 4.1 – Main rivers of South Ayrshire

The information provided in the following chapters outline the general condition and threats, water quality, groundwater information and flood risk for each of the four major catchments in the local authority area.

## River Ayr

### General Condition and Threats

The River Ayr is Ayrshire's largest river, rising at Glenbuck Reservoir on the boundary of Ayrshire and Lanarkshire and flowing westwards 63 km to its mouth at Ayr on the Firth of Clyde.

The catchment area for the river is 574km<sup>2</sup> and its principal tributaries include Greenock Water, Lugar Water, Water of Fail and Water of Coyle. The river is also of ecological importance with two designated SSSIs located at Howford, by Mauchline (East Ayrshire), and the River Ayr Gorge SSSI at Failford.

The River Ayr plays host to several fish species including salmon, sea trout, brown trout, grayling, eel, stickleback, minnow and stone loach (Ayrshire Rivers Trust, 2017). The river plays a key role in terms of influencing catchment hydrology and ecology, and is therefore of high environmental value.

### Water Quality

The River Ayr catchment is identified by SEPA as one of 14 'priority catchments' in Scotland, defined as a river catchment failing to meet environmental standards (SEPA, 2015). The River Ayr has previously achieved 'good' quality status in 2014 (Table 4.2).

Of the 18 water bodies or sub-catchments within the Ayr catchment, 10 are classified by SEPA as 'below good status'.

Principal risks are phosphorous, faecal bacteria and nitrate loadings from rural diffuse pollution and sewage discharge. This is of particular concern due to the presence of bathing water beaches along the South Ayrshire coast around the mouth of the River Ayr.

Upstream and outside of South Ayrshire's boundary, the pressures relate to point source pollution from mining and quarrying of coal. There is also the issue along large stretches of the presence of invasive plant species, Giant Hogweed and Japanese Knotweed.

Under the terms of its classification as a priority catchment, a partnership between SEPA and local landowners has been created for the River Ayr with measures identified and implemented for water quality improvement. This has included diverting lightly contaminated farm drainage to swales, construction of farm wetlands, increased slurry storage capacity on farms and changes to farm management practices concerning grazing and milking.

### Associated Protected Areas

The Urban Waste Water Treatment Directive (UWWTD) (91/271/EEC) was adopted by the European Union in May 1991, with the objective of protecting the water environment from the adverse effects of untreated waste water or 'sewage'. This was transposed into Scottish law through the Urban Waste Water Treatment (Scotland) Regulations 1994.

Under the regulations, waters are reviewed at four-yearly intervals to determine if they are susceptible to being adversely affected by sewage discharge. If so, the water body can be designated as a UWWTD sensitive area, with special treatment required for any waste water entering it.

The River Ayr has been designated as an Urban Waste Water Treatment Directive (UWWTD) Sensitive Area.

### Flooding

The River Ayr Catchment has been identified as a Potentially Vulnerable Area (PVA 12/11) by SEPA under the Flood Risk Management (Scotland) Act 2009 (Table 4.1).

This classification triggers a number of key statutory requirements on both SEPA and South Ayrshire Council, including the production of flood hazard and risk maps, production of Local Flood Risk Management Plans and the setting of objectives and measures to address identified risks.



SEPA identify 90 residential properties at risk of flooding, all located along the stretch in and between Ayr and Mossblown. SEPA estimate that this will increase to 110 households as a result of the effects of climate change. The main risk is surface water flooding to households as well as the road and rail network, following heavy rainfall events. Average annual damages are calculated at £72,000 for the catchment.

## River Doon

### General Condition and Threats

The River Doon originates at Loch Enoch in the Galloway Hills, flowing for 63 km in a northwest direction by Dalmellington, directly through Patna and Dalrymple, entering the Firth of Clyde just south of Ayr.

The river has a catchment area of 324km<sup>2</sup>. Tributaries of the river include Muck Water, Cumnock, Dunaskin and Culroy burns. Several large stillwaters are present in the catchment, the largest being Loch Doon followed by Bogston loch and Martnaham loch.

The river has been dammed to supply and store water for the Galloway hydro-electric power scheme. While this leads to significant interference with the flow rate, it is mitigated by a compensation flow agreement which maintains water quality and flow levels throughout the year. A hydropower scheme for the river at Millbrae in Alloway was approved by South Ayrshire Council in August, 2016.

Common fish species present in the river include salmon, sea trout, brown trout, stone loach, eels, lampreys, pike and perch and, notably, the only population of arctic charr in SW Scotland. The river is noted as being the most productive salmon river in the west coast of Scotland, resulting in significant economic benefits through its viability for angling.

There are several small to medium sewerage treatment works that feed into the River Doon, however the river is of sufficient flow to dilute pollution and maintain water quality.

### Water Quality

The River Doon, similar to the River Ayr, is classified by SEPA as a 'priority catchment'. Numerous pressures affect the quality of the waterbody including diffuse source pollution through livestock and mixed farming, flow manipulation including gravel addition or removal and flow impounding through weirs and dams.

The Doon was classified as being of 'good ecological potential' in 2014 (Table 4.2).

### Associated Protected Areas

As with the River Ayr, the Doon is an UWWTD Protected Area.

### Flooding

Similar to the River Ayr, the River Doon has been identified as a Potentially Vulnerable Area (PVA 12/13 'Ayr South') by SEPA under the Flood Risk Management (Scotland) Act 2009.

SEPA identify 20 residential (rising to 30 with the effects of climate change) and 10 non-residential properties as at risk across a 10km<sup>2</sup> area to the south of Ayr, incorporating Newark, Mountcharles, Alloway and Carcluie. Average annual damages from flooding are calculated at £40,000.

The main risk to residential areas is river flooding, with surface water flooding also affecting agricultural and de-forested areas.

## Water of Girvan

### General Condition and Threats

The Water of Girvan's source is Loch Girvan Eye, situated high in the Galloway Hills. The river flows through Lochs Cornish, Skelloch and Bradan, Ayrshire's major water supply reservoir, before flowing north past Straiton, Kirkmichael, Corsshill and Dailly, reaching its mouth at the sea at Girvan.

The River Girvan is a spate river, i.e. it releases surges of water regularly, with only a small compensatory flow from Loch Bradan. Surges of water are also released from the dam throughout the summer season.

The River Girvan has a relatively small catchment area of around 250km<sup>2</sup>. Its numerous tributaries include the Palmullan, Lamdoughty, Dyrock, Barlewan, Lindsayston and Penwhapple burns.

The old mine workings at Dailly carry a significant threat of pollution to the Water of Girvan. In 1979 there was a major pollution incident where groundwater from the abandoned Dalquharran mine at Dailly upwelled, killing everything in the lower reaches of the river. This is regarded as one of the worst river pollution incidents in Scottish history.

The river's principal fish species are atlantic salmon, sea trout, brown trout, eels and lampreys. The river is an excellent salmon and trout fishery, with returns having continually improved since the 1979 pollution incident.

A number of settlements along the river, mostly small villages but also larger towns such as Maybole, discharge treated sewage into the river. Sections in the middle river have been channelised, resulting in a loss of river length and habitat diversity. Furthermore, there are extensive stands of Japanese Knotweed in the lower river.

### Water Quality

The Water of Girvan is of moderate to good water quality (Table 4.2). Pressures include diffuse source pollution from mixed farming, alterations due to construction and creation of flood defences and abstraction for chemicals production.

Extensive stretches of invasive Japanese Knotweed exist along downstream stretches of the river.

### Associated Protected Areas

The Water of Girvan is a UUWTD Sensitive Area.

### Flooding

Similar to the Ayr and Doon, the Girvan has been identified as contributing to a Potentially Vulnerable Area (PVA 12/18 'Girvan') by SEPA under the Flood Risk Management (Scotland) Act 2009.

SEPA identify 110 residential properties and 30 non-residential properties to be at risk across a 20km<sup>2</sup> area stretching south from Girvan.

While the River Girvan is situated just to the north of the PVA, it is likely to contribute to flooding along the lower reaches of the Mill Burn in Girvan itself.

Both river flooding via the Mill Burn and surface water flooding following heavy rainfall are identified as risks to the area.

## River Stinchar

### General Condition and Threats

The source of the River Stinchar is in the Carrick Forest to the north of the Galloway Forest Park, approx. one km from the source of the River Girvan.

The river has a catchment area of 314km<sup>2</sup> and runs for 54km, initially flowing north before turning southwest via Barr, Pinwherry and Colmonell, finally entering the Firth of Clyde at Ballantrae. Tributaries of the river include Muck Water, Duisk Water, Water of Assel and Water of Tig.

The River Stinchar is the most rural of the Ayrshire catchments and is highly responsive, with a rapid run-off and steep valley sides resulting in sudden changes of water flow.

Similar to surrounding rivers, the common fish species found in the river include salmon, trout, eels and lampreys. It is particularly noted as a stronghold for eels, boasting a healthy and widespread population.

Unlike many of the other South Ayrshire rivers the Stinchar is relatively unaffected by pollution, however there do remain several potential hazards created by farming. Several areas of the upper Stinchar, Duisk River and small tributaries have been affected by livestock grazing which has resulted in extensive bank erosion and siltation.

The Stinchar is a high quality salmon fishery.

### Water Quality

The River Stinchar is classified as being of good water quality along its entire length, a result of a lack of major industry or significant sewage treatment works present along its course. Saline lagoons at Ballantrae (around 1km<sup>2</sup>) are of excellent status.



*Ballantrae Lagoon - North*

## Associated Protected Areas

The protection, enhancement and conservation of the atlantic salmon and seat trout stocks within the River Stinchar are managed by the River Stinchar District Salmon Fishery Board.

## Flooding

While not being situated in any SEPA classified Potentially Vulnerable Areas, the Stinchar is prone to flooding along certain stretches of its course, the main areas being:

- South of Ballantrae town centre
- South of Colmonell
- West of Pinwherry.

## River Water Quality

The Water Framework Directive covers all rivers and canals in Scotland, totalling more than 25,000km in length. This includes 42 separate rivers, or stretches of river, in South Ayrshire.

Under the assessment system implemented by SEPA, rivers are categorised in a five-tier classification – (from best to worst) High – Good – Moderate – Poor – Bad. Deviation away from high status reflects increasing impacts from human activities.

In some cases, where rivers and canals have been significantly altered for socio-economic benefit, achieving good status is not possible; in this case waterbodies are assessed according to their potential and can only achieve 'good potential' status at best.

To achieve good or high status, waterbodies must fulfil each of the following four criteria:

- Be free from harmful pollutants that may affect the water or the plants and animals it supports
- Have been altered in terms of their habitats and flow patterns to a minimal degree
- Harbour a certain range of plant and animal species
- Not be negatively affected by invasive non-native species

Figure 4.2 tracks the status of Scotland's rivers during the period 2007 to 2013. In 2013, 55% of all rivers achieved good or high status.

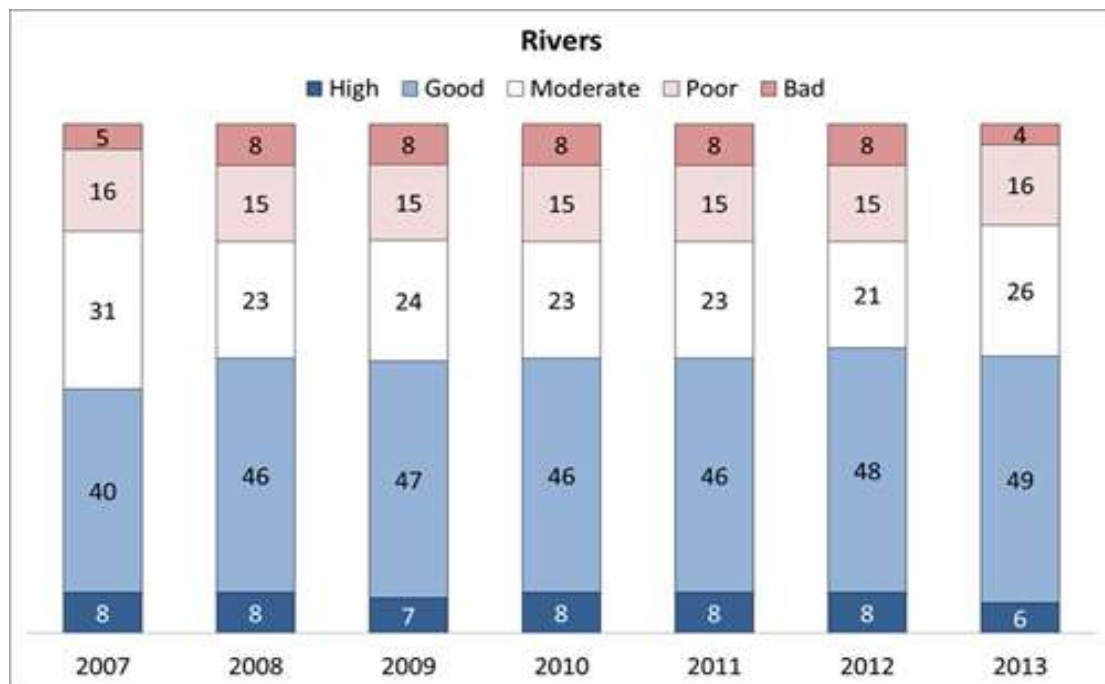


Figure 4.2 – Quality of Scotland's rivers from 2007 to 2013 (source – [Environment Scotland](#))

The results for South Ayrshire's rivers in 2014 are shown in Table 4.2.

**Table 4.2 – Quality of South Ayrshire's rivers in 2014 (source – [Environment Scotland](#)) (I denotes improved from 2013)**

Waterbody	Status
Dobbingstone Burn/Lindsaystoun Burn	High (I)
Palmullan Burn	High
Dalquhairn Burn	High
Rumbling Burn	Good
River Ayr (d/s Greenock Water)	Good (I)
Water of Coyle (u/s Taiglum Burn)	Good
Dalcairnie Burn/Shalloch Burn	Good
Milton Burn	Good
Water of Lendal	Good
River Stinchar (d/s Duisk River)	Good
River Stinchar (Duisk River to Water of Gregg)	Good
River Stinchar (u/s Water of Gregg)	Good
Water of Tig	Good
Duisk River (d/s Muck Water Confluence)	Good
Duisk River (u/s Muck Water Confluence)	Good
Muck Water	Good
Cross Water	Good
Feoch Burn/Carnmock Burn/Roughlea Burn	Good (I)
Lavery Burn	Good
Water of Assel	Good
Water of Gregg/Lead Mine Burn	Good
Water of Girvan (d/s Loch Bradan to Palmullan Burn)	Good ecological potential
Penwhapple Burn	Good ecological potential
River Doon (d/s Muck Water)	Good ecological potential (I)
Water of Coyle (d/s Taiglum Burn)	Moderate
Taiglum Burn	Moderate
Slaphouse Burn	Moderate
Culroy Burn/Minishant Burn	Moderate
Chapelton Burn	Moderate
Water of Girvan (Lindsaystoun Burn to Palmullan Burn)	Moderate
Water of Girvan (u/s Loch Bradan)	Moderate
Burnton Burn / Balsaggart Burn	Moderate
Barlewan Burn	Moderate
Water of Girvan (d/s Dailly)	Moderate
Ladykirk Burn	Moderate (I)
Dyrock Burn	Moderate ecological potential
Glenstang Burn/Trabboch Burn	Poor
Purclewan Burn	Poor
Muck Water	Poor
Pollcrayvie Burn	Poor
Pow Burn	Poor
Water of Fail	Bad

In total, 24 of South Ayrshire's 42 rivers (57%) achieved good or high status in 2014, slightly higher than the national average. One river, Water of Fail, achieved bad status, principally due to issues with cattle poaching along its length which adds silt and other unwanted nutrients to the water.

Compared with the previous year's classification (2013), five rivers in South Ayrshire were awarded an improved status, with no rivers awarded a degraded status.

## Coastal Waters

### EU Bathing Waters

The western edge of South Ayrshire is bounded by the coastline of the Firth of Clyde, along which there are several protected EU Bathing Waters. These sites are essential for the tourism economy and recreational potential that they offer South Ayrshire.

Bathing waters are designated under the Bathing Water Directive 2006 (revised in 2015), which was translated into Scottish law by the Bathing Waters (Scotland) Regulations 2008. Under the revised EU Directive, Scottish Ministers are required to ensure that water quality meets strict microbiological standards at all of Scotland's bathing sites.

There are 84 official EU bathing sites designated in Scotland, seven of which are located in South Ayrshire. Sites are categorised into four classifications, following strict testing procedures for faecal bacteria pollutants by the regulatory authority SEPA, as follows (from best to worst): Excellent – Good – Sufficient - Poor.

The 2015/16 and 2016/17 results for South Ayrshire's bathing sites are outlined in Table 4.3.

**Table 4.3 – Bathing Water Quality in South Ayrshire, 2015/16 and 2016/17 (source – [SEPA](#))**

Location	2016/17	2015/16
Troon (South Beach)	Sufficient	Good
Prestwick	Sufficient	Poor
Ayr (South Beach)	Poor	Sufficient
Heads of Ayr	Poor	Poor
Culzean	Good	Excellent
Maidens	Good	Good
Girvan	Sufficient	Poor

No bathing sites in South Ayrshire achieved 'excellent' status, with only Culzean and Maidens achieving 'good'. The remaining five sites were classified as either 'sufficient' or 'poor'. This compares unfavourably with the Scotland-wide results, where 62 of the 84 sites (74%) achieved 'good' or 'excellent'.

Tailored improvement plans are being prepared for all sites in a bid to ensure they achieve 'sufficient' rating by 2020.

### Coastal Water Quality

Coastal water bodies are assessed using the Water Framework Directive system. Under this system administered by SEPA, waterbodies are categorised in a five-tier classification as follows (from best to worst): High – Good – Moderate – Poor – Bad. Similar to the system used for rivers, each consecutive Category away from 'high' demonstrates increasing human alteration, here in terms of water quality, habitats and tidal regime.

To achieve 'good' status a water body must fulfil each of the following three criteria:

- Contain pollutant concentrations below the level at which the supported plants and animals may be harmed
- Have undergone minimal changes to their habitats
- Not be negatively affected by invasive non-native species

Of the 456 coastal water bodies tested in Scotland, 95% achieved good or high status in 2013 (Figure 4.3). The remaining 5% have been negatively affected by inputs of pollutants or by physical damage to the sea bed.

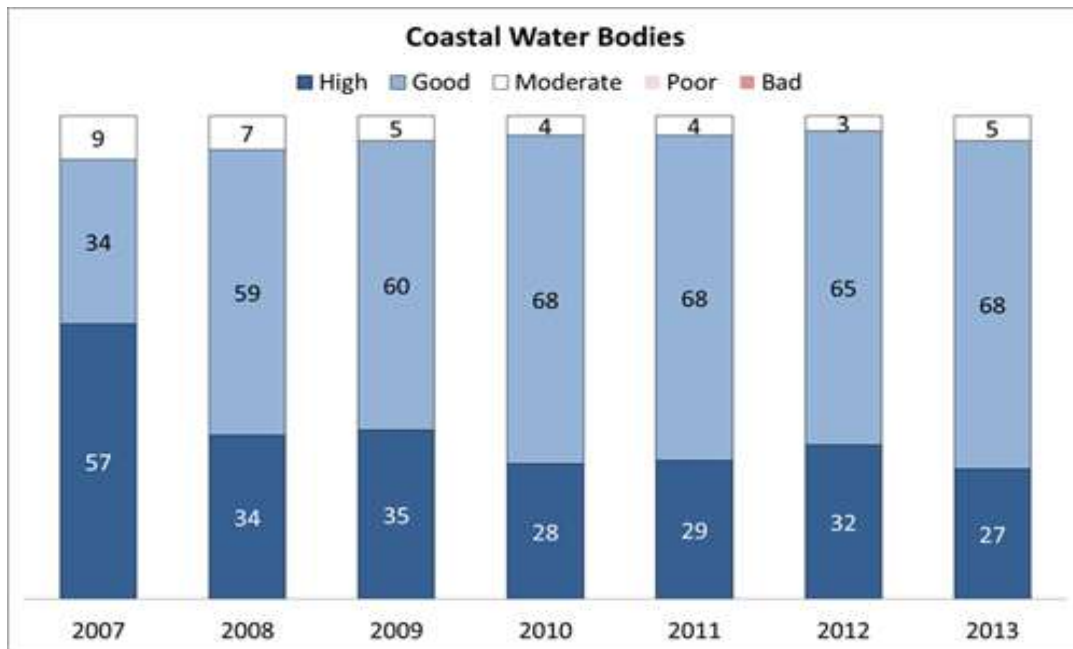


Figure 4.3 – Quality of Scotland’s coastal water bodies from 2007 to 2013 (source – [Environment Scotland](#))

There are three coastal water bodies in South Ayrshire included in the assessment database.

- Ayr Bay: Approx. 98.3 km<sup>2</sup> in area.
- Girvan: Approx. 134.4 km<sup>2</sup> in area.
- Culzean: Approx. 89.1 km<sup>2</sup> in area.

Pressures on water quality include point source pollution through sewage disposal and food production and diffuse pollution from mixed farming methods.

The most recent results available (2014) for South Ayrshire’s coastal water bodies are outlined in Table 4.4. All three water bodies achieved good status.

**Table 4.4 – Coastal water quality in South Ayrshire in 2014 (source – [Environment Scotland](#))**

Reporting Parameter	Girvan	Culzean	Ayr Bay
Overall status	Good	Good	Good
Pre-HMWB status	Good	Good	Good
Overall ecology	Good	High	Good
Physico-Chem	High	High	High
Dissolved Oxygen	High	High	High
Dissolved inorganic nitrogen	High	Good	High
Biological elements	Good	Good	Good
Invertebrate animals	Good	High	Good
Benthic invertebrates (IQI)	Good	Good	High
Phytoplankton	High	High	Good
Specific pollutants	Pass	High	High
Unionised ammonia	Pass	Pass	Pass
Copper	Pass	Pass	Pass
Hydromorphology	High	High	High
Morphology	High	High	High

## Threats

A significant issue adversely affecting the coastal waters of South Ayrshire is that of the invasive Carpet Sea Squirt (*Didemnid vexillum*). The rate at which this organism can multiply and spread represents a significant threat to native marine biodiversity. The organism can be transferred from port to port via the hulls of boats and a significant population have already been identified in ports which feed South Ayrshire, such as Belfast.

## Groundwater

A series of groundwater bodies in Scotland were defined by SEPA in 2012 using a combination of geological / hydrological boundaries and surface water catchment boundaries. These individual bodies create the framework for the management of groundwater in Scotland in terms of water quality and abstraction pressure.

### Groundwater Quality

Groundwater bodies are assessed every year according to a classification system, devised by the UK with EU guidance, where each body is either classified as 'Good' or 'Poor'. This enables SEPA to target areas that require particular attention where improvements need to be made.

There are 404 separate ground water bodies defined in Scotland, 10 of which are situated within South Ayrshire. Results for each of the water bodies over the period 2012-14 are highlighted in Table 4.5.

**Table 4.5 - Groundwater quality in South Ayrshire from 2012 to 2014 (source – [SEPA](#))**

Groundwater Body	2012	2013	2014
Minishant	Good	Good	Good
Carrick Forest	Good	Good	Good
Crosshill	Good	Good	Good
Girvan	Good	Good	Good
Lendalfoot	Good	Good	Good
South Ayrshire Hills	Good	Good	Good
Ayr	Poor	Poor	Poor
Stinchar Sand and Gravel	Good	Good	Good
Girvan Coastal	Poor	Poor	Good
Prestwick	Good	Good	Good



The upgrading of Girvan from poor to good represents the only variation across all bodies between 2012 and 2014.

In total 90% of South Ayrshire’s coastal water bodies achieved ‘good’ status in 2014, comparing favourably with the 2013 Scottish national figure of 78% (Figure 4.4)

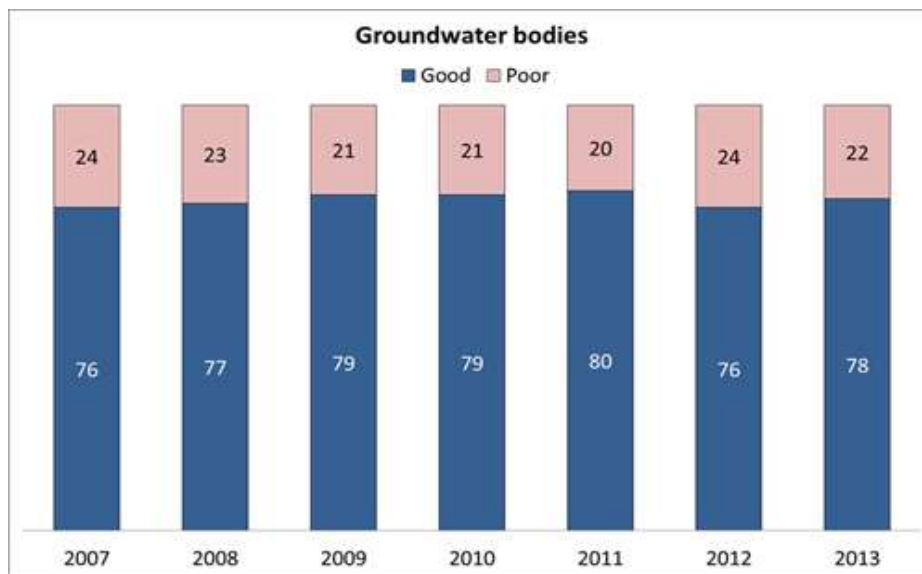


Figure 4.4 – Quality of Scotland’s groundwater bodies from 2007 to 2013 (source – [Environment Scotland](#))

### Aquifer Productivity

Bedrock aquifer productivity maps were produced by the British Geological Survey in 2014 (Figure 4.5). There are five classes ranging from very high to very low.

SEPA’s bedrock aquifer map identifies that to the north of South Ayrshire, aquifers are generally of moderate productivity. To the south of the council area however, productivity is generally low, with areas of very low productivity to the south of Girvan. There are small areas of high and even very high productivity to the south and east of Ayr.

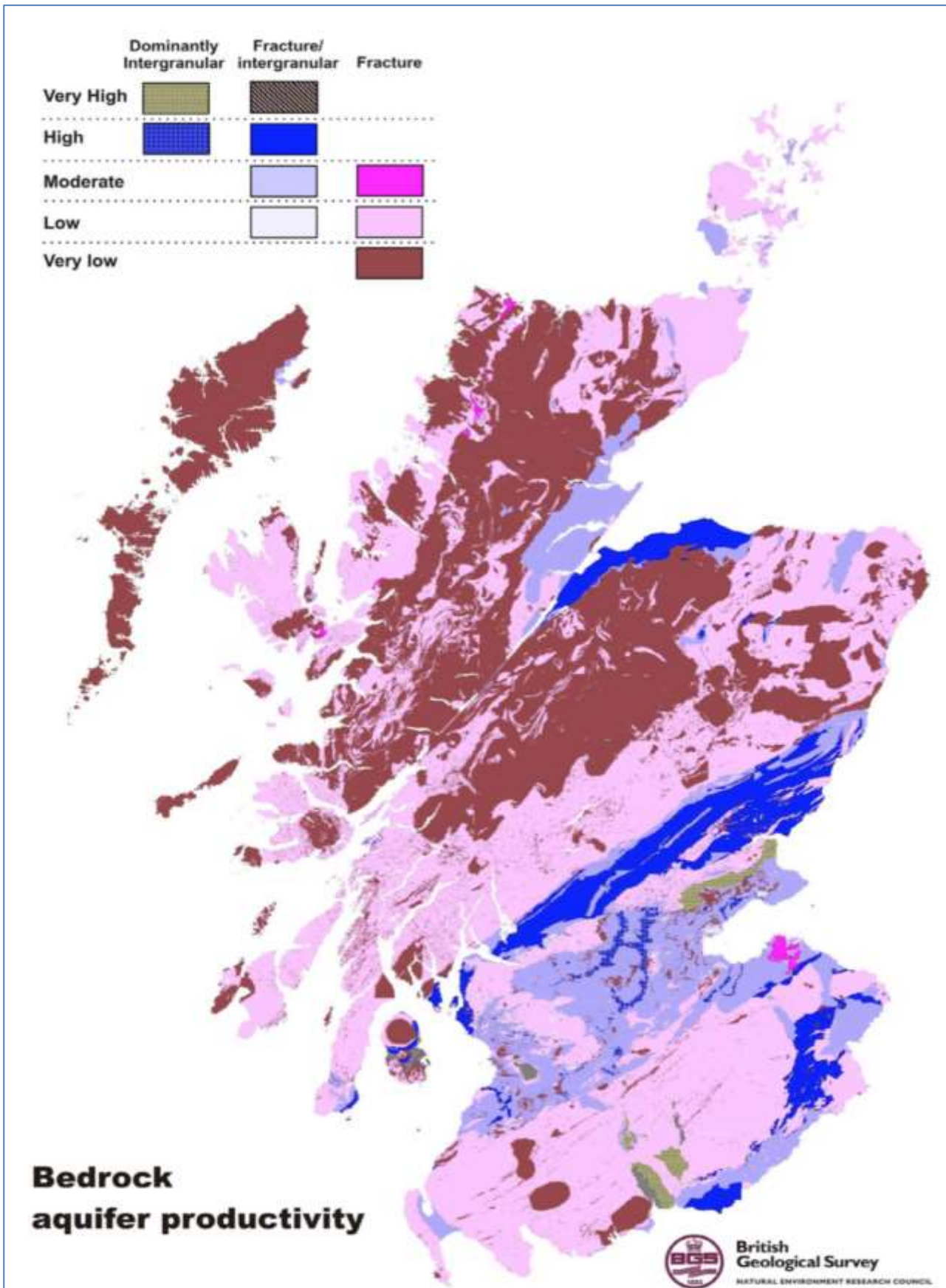


Figure 4.5 – Bedrock Aquifer Productivity map of Scotland (source – [British Geological Survey](https://www.bgs.ac.uk))



## Groundwater Vulnerability

Groundwater vulnerability is defined as the tendency and likelihood for general contaminants to reach the water table after introduction at the ground surface.

SEPA produced groundwater vulnerability maps in 2011 to provide a regional screening tool that enables areas of comparatively higher risk to be identified (SEPA, 2011) (Figure 4.6).

Groundwater bodies are classified in terms of vulnerability according to the following scale (Table 4.6).

**Table 4.6 – Groundwater Vulnerability scale (source – [British Geological Survey](#))**

Vulnerability class	Description	Frequency of activity	Travel time		
5	Vulnerable to most pollutants, with rapid impact in many scenarios	Vulnerable to individual events  Vulnerable only to persistent activity	Rapid  Very slow		
4	Vulnerable to those pollutants not readily adsorbed or transformed			<i>4a</i> May have low permeability soil; less likely to have clay present in superficial deposits	
	<i>4b</i> More likely to have clay present in superficial deposits				
3	Vulnerable to some pollutants; many others significantly attenuated				
2	Vulnerable to some pollutants, but only when they are continuously discharged/leached				
1	Only vulnerable to conservative pollutants in the long term when continuously and widely discharged/leached				
0	Not sufficient data to classify vulnerability: e.g. below lochs; in urban areas where geological and/or soils data are missing; where superficial deposits are mapped but not classified; or in mined (including opencast) and quarried areas				

Groundwater vulnerability varies throughout South Ayrshire. The majority of waterbodies are as Class 3 and 4a. Some pockets of Class 5 (most vulnerable) are identified around Heads of Ayr as well as towards the south-east of South Ayrshire into Galloway Forest Park (Figure 4.6).

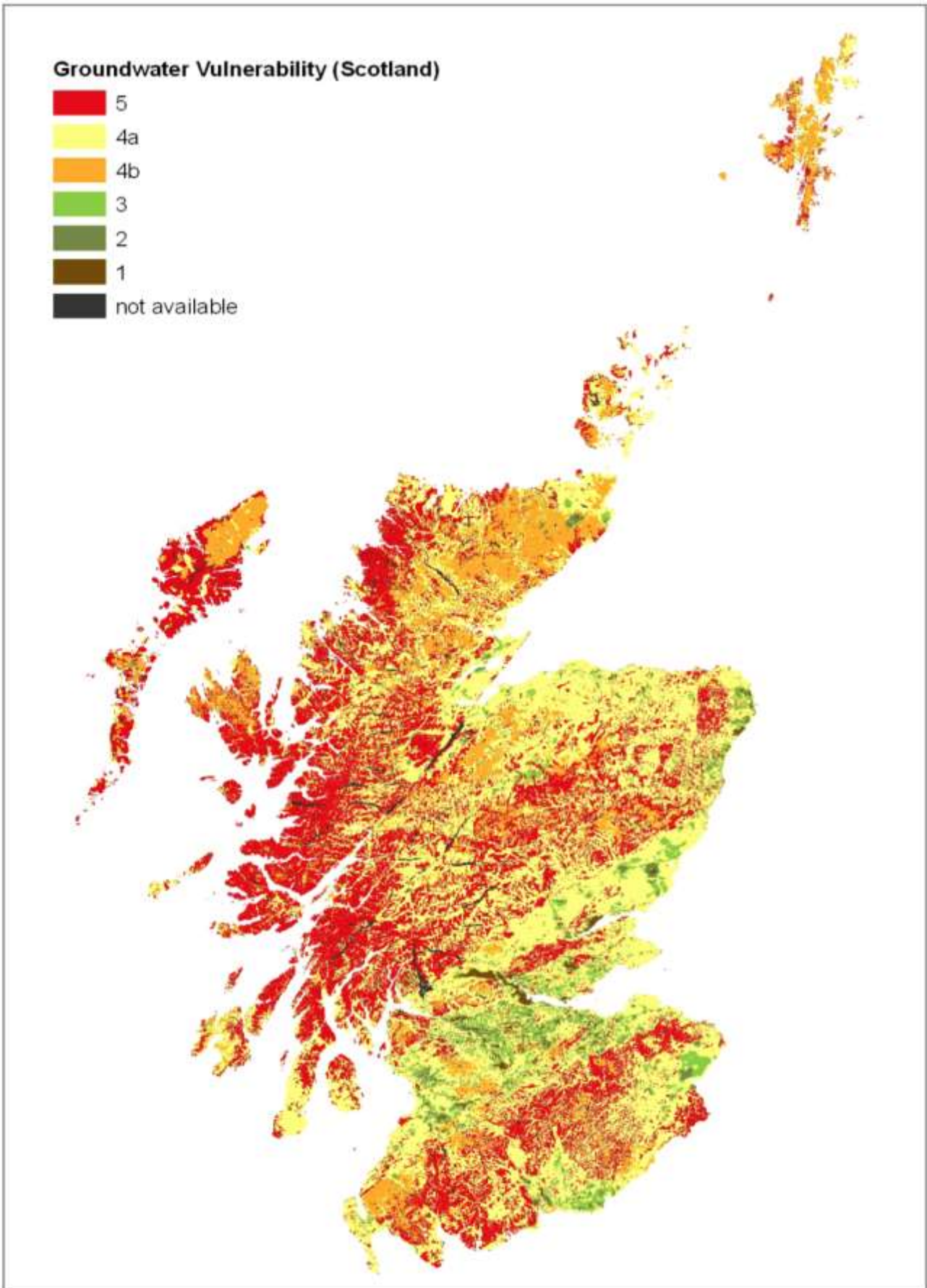


Figure 4.6 – Groundwater Vulnerability map of Scotland (source – [British Geological Survey](#))

## Inland Lochs

The Water Framework Directive states that all inland water bodies greater than 0.5km<sup>2</sup> in size be subject to water quality assessment, resulting in 334 lochs qualifying in Scotland.

Under the assessment system administered by SEPA, lochs are categorised in a five-tier classification – (from best to worst) High – Good – Moderate – Poor – Bad. Similar to the system used for rivers, each consecutive Category away from ‘high’ demonstrates increasing human impact on the water environment.

In cases where the loch has been substantially altered for socio-economic purposes such as damming for hydropower, the loch is assessed according to its potential, with ‘good potential’ representing the highest possible classification.

The results of the classification for all Scottish lochs over the period 2007-2013 are displayed in Figure 4.7. In 2013, 67% of lochs in Scotland achieved ‘Good’ or ‘High’ status.

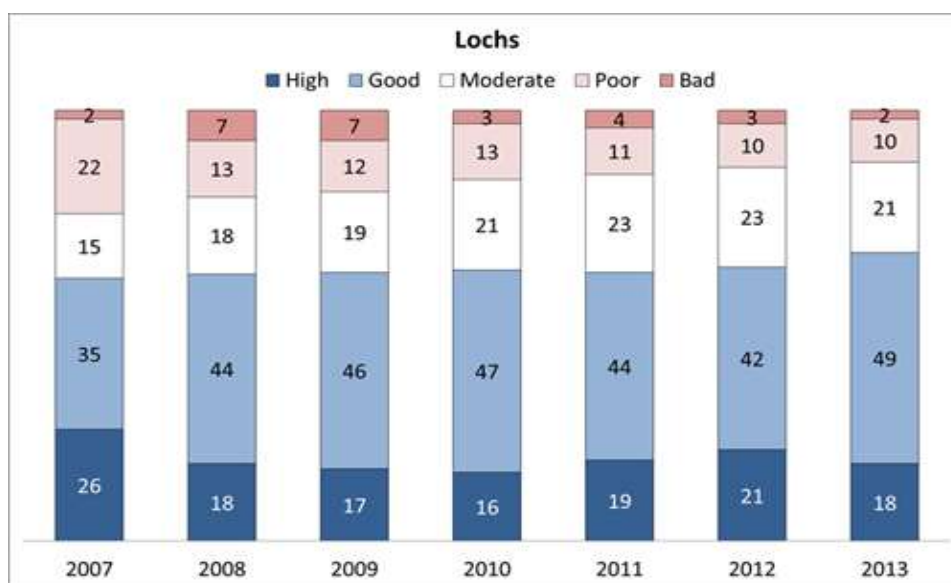


Figure 4.7 – Quality of Scotland’s inland lochs from 2007 to 2013 (source – [Environment Scotland](#))

Only one of the 334 qualifying lochs in Scotland is situated in South Ayrshire (Loch Braden). There are however three lochs in Dumfries and Galloway directly adjacent to the Council border, which are included for completeness as they are significantly affected by activity in South Ayrshire (Loch Finlas, Loch Riecawr and Loch Matteredick). The 2014 results for all four lochs are displayed in Table 4.7.

Table 4.7 – Inland loch water quality in South Ayrshire, 2014 (source – [Environment Scotland](#))

Water body name	Class	
Loch Bradan	Moderate ecological potential	
Loch Finlas	Moderate ecological potential	*Dumfries and Galloway
Loch Riecawr	Moderate ecological potential	*Dumfries and Galloway
Loch Macaterick	Moderate	*Dumfries and Galloway

The results for South Ayrshire reflect the common pressures that exist on lochs in intensively farmed areas from the run-off of farm pollutants. The lochs that achieve ‘good’ or ‘high’ status within Scotland are typically located within the Highlands where intensive farming is far less widespread.

## Estuaries

The quality of Scotland’s 49 estuaries are measured according to the Water Framework Classification scheme, where each waterbody is categorised within a five-tier classification - (from best to worst): High – Good – Moderate – Poor – Bad.

Similar to the system used for rivers, each consecutive Category away from 'High' demonstrates increasing human impact on the water environment. Estuaries achieving 'High' status demonstrate very little human impact.

If an estuary has been significantly altered for socio-economic gain, such as to provide a harbour, it is assessed according to its ecological potential; 'good ecological potential' is the highest score such a water body is able to achieve.

The performance of Scotland's estuaries over the time period 2007 to 2013 is displayed in Figure 4.8. Good progress has been made over this period resulting in no bodies now being classified as 'poor' or 'bad', with 87% achieving 'good' or 'high' status. Those that continue not to achieve high status are generally affected by invasive non-native species, or by high levels of pollutants entering the water from farming.

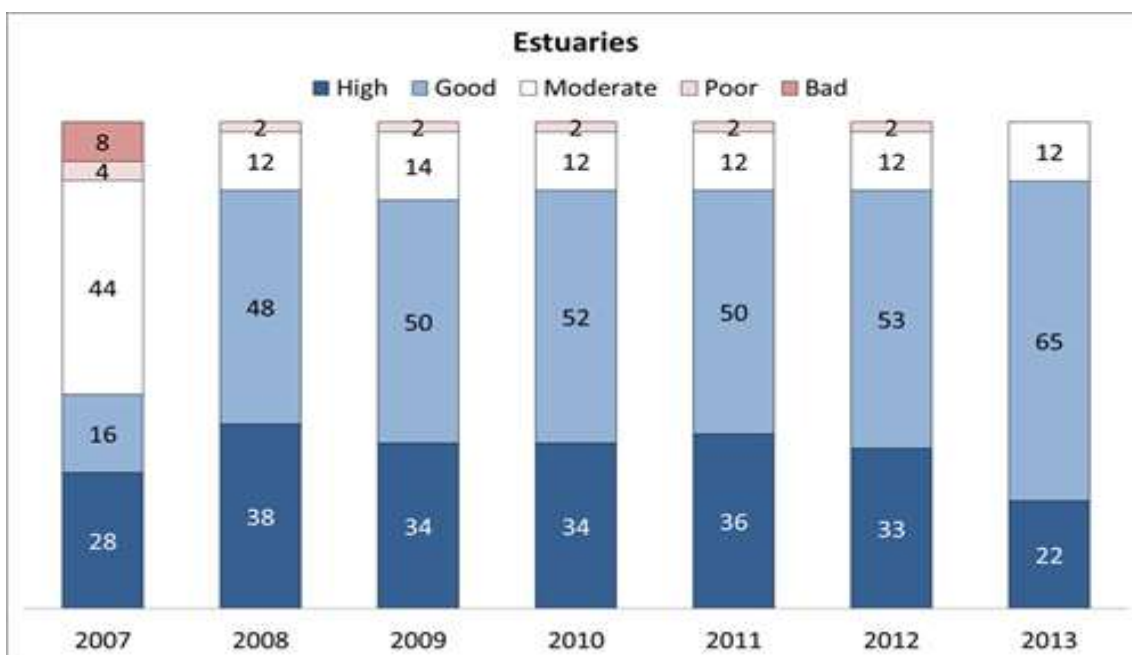


Figure 4.8 – Quality of Scotland's estuaries from 2007 to 2013 (source – Environment Scotland)

There are five estuaries with South Ayrshire included with the assessment database. Results of the 2014 assessment are shown in Table 4.8. All estuaries achieve a 'good' or 'high' status. No individual body had its classification changed from the previous year.

Table 4.8– Estuary Water Quality in South Ayrshire, 2014 (source – Environment Scotland)

	Girvan	Ayr	Ballantrae Lagoon North	Ballantrae Lagoon South	Stinchar Estuary
Overall status	Good ecological potential	Good ecological potential	High	High	Good

## Future Trends

### Flooding

It is likely that the effects of flooding will continue to be exacerbated through the effects of climate change. According to the UK Climate Impacts Programme (UKCIP), the implications of climate change on Scottish water resources include:

- More frequent and severe flooding
- Increased likelihood of summer droughts leading to river water quality problems and disruption of water supply
- Higher sea level and increased wave height, leading to coastal erosion and loss of habitat
- Loss of traditional commercial fisheries

- Periods of reduced river flow, providing less dilution for discharges and increased sewage treatment costs
- Increased treatment costs to provide water supplies
- Increased run-off impacting on bathing water quality

## Water Quality

As a requirement of the Water Framework Directive, SEPA's River Basin Management Plan 2015-27 for the Scotland river basin district outlines a programme of measures designed to protect and improve the water environment in all designated rivers, lochs, estuaries, coastal waters and groundwater bodies.

The plan builds on the original River Basin Management Plan for the district published in 2009 and sets revised objectives to cover the 12 year period from 2015 to the end of 2027.

The district covers the majority of Scotland, excluding only parts of Dumfries and Galloway and the Borders which fall into the Solway Basin district.

The plan identifies the target of improving 908 of the 1,092 water bodies classed as worse than 'Good', in 2015, to 'Good' or 'Better'. This would result in 88% of all 3,169 water bodies in the district classed as 'Good' or better. SEPA do not specifically state which water bodies are expected to achieve improvements.

SEPA note that 184 bodies will not achieve 'Good', of which 167 will be 'Moderate' and 17 'Poor' in 2027, as it would be technically unfeasible and / or prohibitively expensive to do so. The first report on progress towards this target is expected to be published by SEPA in 2018.

Table 4.9 summarises the results of all 61 assessed water bodies in South Ayrshire for 2014, highlighting that the main area for water quality improvement would be rivers.

**Table 4.9 – Summary of water quality in all South Ayrshire water bodies, 2014 (source – [SEPA](#))**

						<i>Potential</i>		<b>Total South Ayrshire</b>	<b>Total Scotland</b>
	<b>High</b>	<b>Good</b>	<b>Mod.</b>	<b>Poor</b>	<b>Bad</b>	<b>Good</b>	<b>Mod.</b>		
<b>Rivers</b>	3	18	11	5	1	3	1	42	1,926
<b>Lochs</b>							1	1	334
<b>Estuaries</b>	2	1				2		5	49
<b>Coastal</b>		3						3	456
<b>Groundwater</b>		9		1				10	404
								<b>61</b>	<b>3169</b>

By 2020 it is expected that all bathing waters will achieve 'sufficient' classification. For South Ayrshire, this will require the improvement of Prestwick, Heads of Ayr and Girvan, all of which were classified as 'poor' in 2016.

## 5. Soils and Geology



*Ballantrae Ophiolite Complex*

### SEA objectives that relate to Soil and Geology:

- *Protect and safeguard prime agricultural land and geological sites in South Ayrshire.*

### Summary of 2018 Performance:

Indicator	Status and Trend	Description
No meaningful quantitative indicators		

### Introduction

Scotland is a geologically diverse area comprising three distinct geological regions; the Highlands, the Central Belt and the Southern Uplands. The majority of South Ayrshire is located in the Central Belt, with a small area within the Southern Upland region.

A regions geology has a direct impact on many other key components of the environment, including landscape, mineral resources, soil type and water quality. It also contributes significantly to the identity of a region and the tourism economy.

Soils are a hugely important natural resource, providing a number of environmental, economic and social functions from the growth of food to supporting wildlife habitats and acting as a natural carbon sink.

Soil quality however varies significantly across Scotland, due to a combination of factors such as climate, underlying rock type, and man-made causes, including pollution through the use of pesticides.

The nature of the soil in a particular area has shaped the use of the land over time through all forms of agriculture, from barley and wheat cultivation to grass production for supporting livestock.



While Scotland's soils are generally in good health they are vulnerable to erosion and are a finite, non-renewable resource, facing pressures in the form of climate change and through changes in land use and land management practices. Soils must therefore be protected if they are to provide for a growing population with increasing demand for food.

## Local Geology

The geology of South Ayrshire is dominantly sedimentary, comprising sandstones, shales and coal measures. These successions were deposited from the Ordovician through to the Carboniferous Periods, between approximately 480 and 300 million years ago.

As the landmass now comprising South Ayrshire was moving gradually northwards from the southern hemisphere over that time, the environments of deposition ranged over time from dry, arid deserts to wet, swampy forests and lagoons. Periods of sea level rise are marked by the deposition of ocean marine shales and mudstones.

South Ayrshire also comprises the Ballantrae Ophiolite Complex. The rocks of this geological succession are predominantly igneous (basalts and gabbros), forming during periods of tectonic activity and active volcanism in the area. Sedimentary conglomerates, sandstones, shales and limestones are also present, within which many of South Ayrshire's coal deposits are located. The succession covers an approximately triangular-shaped area on the coast at the south-west tip of the Southern Upland Fault.

The whole bedrock succession is overlain in places by recent sediments resulting from the activity of glaciers during the last ice age (The Quaternary), from 2.6 million years ago to the present day. Some sediments are as young as 12,000 years old, deposited during the last period of glaciation known as the Loch Lomond Re-advance. Glaciers, alongside rivers, also served to carve the landscape into its present form, shaping in particular the upland hills and valleys where the ice was thickest. These glacial environments were also responsible for depositing many of the sand and gravel resources commonly used in construction.

A summary of the geology of South Ayrshire is provided in Table 5.1, alongside a simplified geological map of Scotland in Figure 5.1.

**Table 5.1 – Summary of the Geology of South Ayrshire**

Overview of South Ayrshire Geology
<b>Drift Geology</b>
Recent and Pleistocene – Raised beach alluvium / glacial boulder clays
<b>Solid Geology</b>
Carboniferous (Sedimentary)
Upper (Barren Red) Coal Measures
Middle (Productive) Coal Measures
Devonian Old Red Sandstone (Sedimentary)
Silurian (Sedimentary)
Ordovician (Sedimentary)

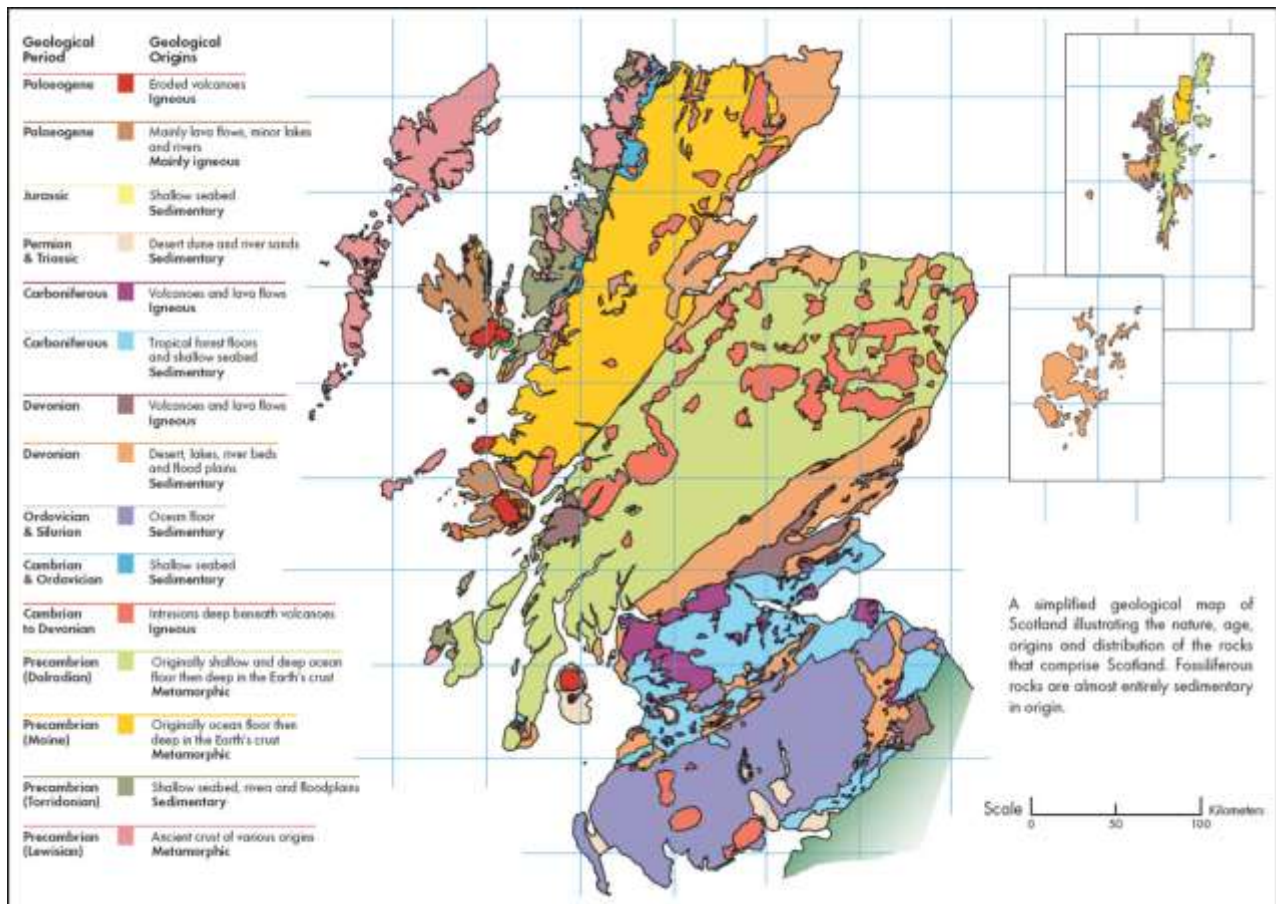


Figure 5.1 – Simplified geological map of Scotland (source – [Scottish Geology](#))

## Geological Resources

There are several active mines and quarries located in South Ayrshire. Details are provided in Chapter 12 – Material Assets.

## Designated Geological Sites

Geological Sites of Special Scientific Interest (SSSI) represent the best of Scotland's natural heritage in terms of rock outcrops and / or landforms. Many also contribute significantly to biological diversity. South Ayrshire has 15 geological SSSIs and three mixed (geological and biological). Details are provided in Chapter 2 – Biodiversity.

## Soils

Soils in Scotland are characterised as moderately to highly organic, well leached and wetter than soils elsewhere in the UK, due principally to the colder and wetter climate. The soils in Scotland formed following the end of the last ice age around 11,000 years ago.

The most common types of soils found within South Ayrshire are gleys and brown earth soils. Gley soils are generally intermittently or permanently waterlogged with low organic content, requiring extensive drainage for use in agriculture.

Brown earths, or brown forest soils, by contrast are often deep, well drained and generally of high organic content, and are therefore very useful when cultivated to support crop production. Gleys cover approximately 34% of Scotland and brown earths around 15%.

There are also isolated areas of peat, blanket peat and regosols (weakly developed, unconsolidated soil) around Girvan and Ballantrae.

Figure 5.2 highlights the organic content of the topsoil across Southern and Central Scotland. A good quality topsoil should contain between 3-20% organic content; South Ayrshire's soils are generally in the 1.5 – 5% range in the more populated north of the Local Authority area and 5 – 35% towards the more rural south and east.

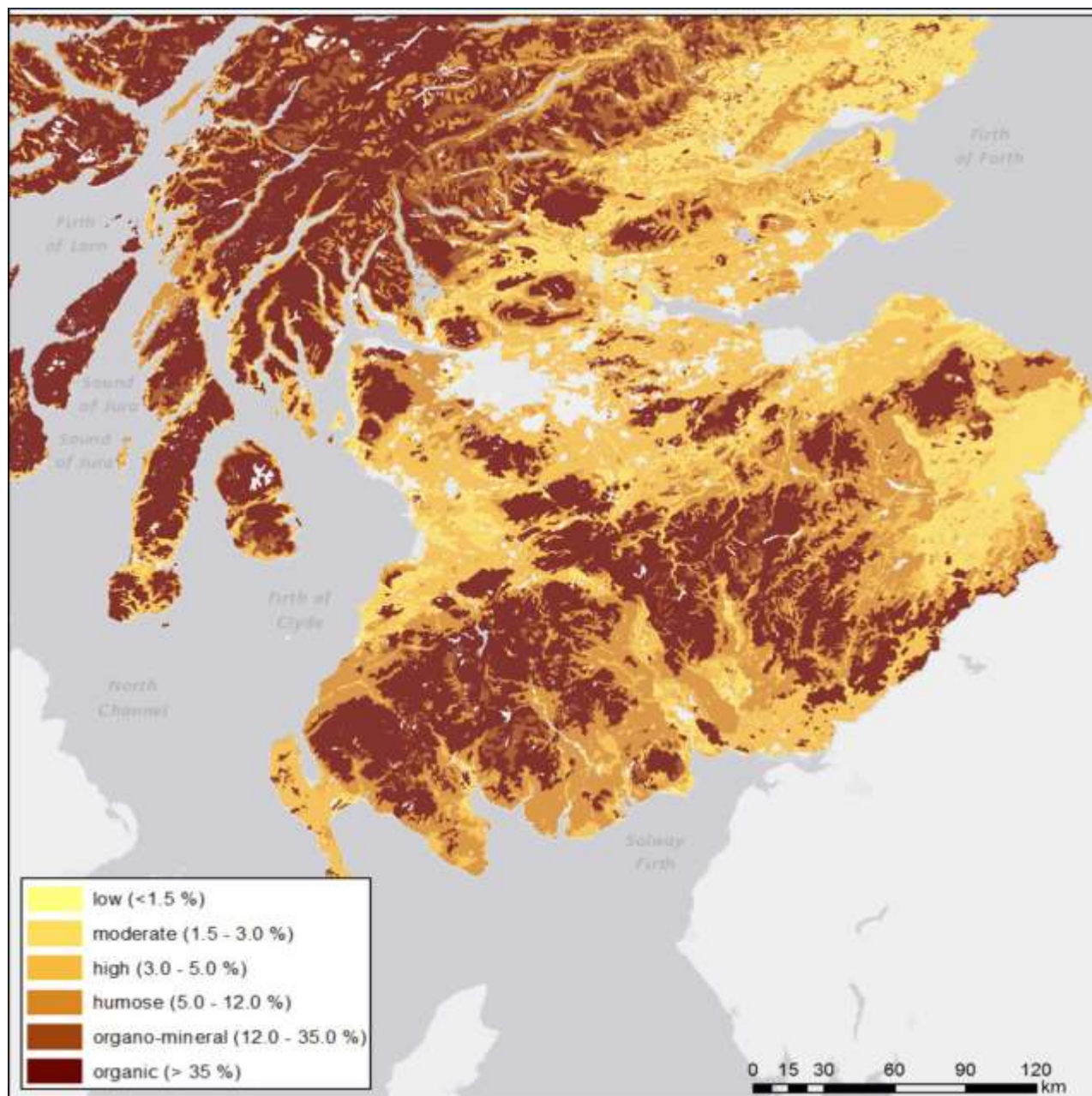


Figure 5.2 – Soil Organic Carbon Content map of Central and Southern Scotland (source – [UK Soil Observatory](#))

## Agricultural Land

The Macaulay Institute holds records for the Land Capability for Agriculture (LCA). The system provides an understanding of the capabilities of land in Scotland for a range of different uses, and is used by the Scottish Government and planning authorities when development or other changes to agricultural land are proposed.

The LCA system identifies the flexibility of the land for different agricultural uses or management practises, and is based upon the physical constraints on land use: soils, climate, topography and vegetation.

The higher classes in the system (Classes 1, 2 and 3.1) are defined as 'prime land', capable of supporting arable agriculture. Here all factors combine to allow the land to support a wide range of crops, including a favourable climate, low slope angle and deep well drained soils. Scottish Planning Policy states that no development should be permitted on these areas unless the proposals meet specific criteria.

The higher the number of the Class, the poorer quality of the land and the less it is able to support in terms of agriculture. The poorest classes of land (6.1 and 7) are suitable only for rough grazing.

Figure 5.3 displays the LCA map for southern Scotland, focusing on South Ayrshire.

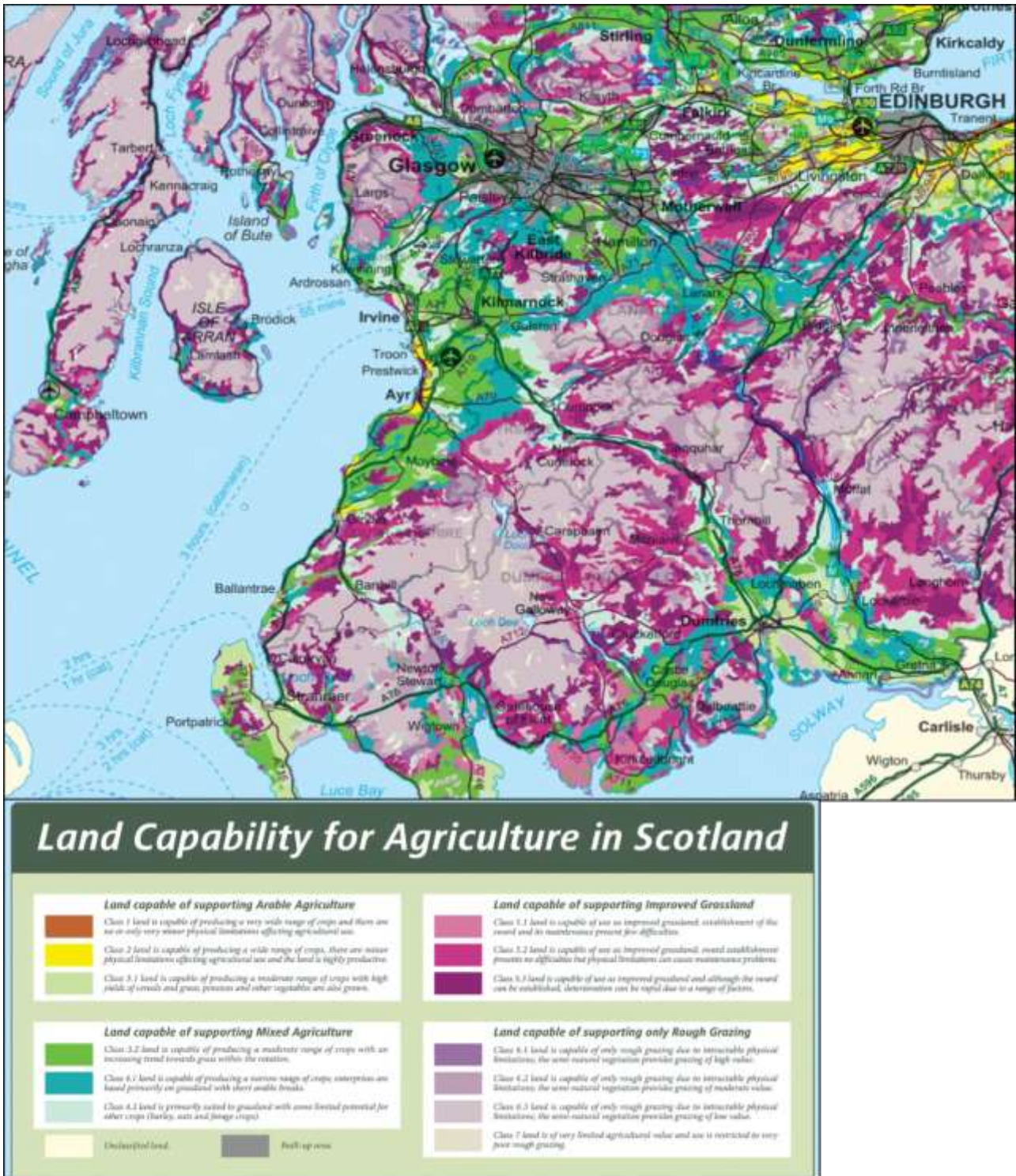


Figure 5.3 – Land Capability for Agriculture map of Southern Scotland (source – [James Hutton Institute](#))

There are areas of Class 2 and Class 3 Agricultural Land on the low-lying land surrounding Ayr and towards the north of the South Ayrshire area. Class 2 land is capable of providing a wide range of crops, and Class 3 is capable of producing a moderate range of crops.

There are small areas of Class 4 land, located mainly to the east of Ayr. This land is only capable of producing a narrow range of crops (Class 4.1), or is only suited to grassland (Class 4.2).

The remaining large areas of land, located mainly across the upland south and eastern parts of South Ayrshire, are classified as Class 5 and Class 6, described as land capable of use for improved grassland or rough grazing.

The current LCA system is based upon the most recent assessment in 2010. It is important that the assessment is updated periodically as the changing climate could have a significant impact on the LCA classes assigned.



*Agricultural land at Glengennet*

## **Future Trends**

The following sections detail possible changes to agricultural land and potential effects of climate change.

### **Soils**

Projected climate change in Scotland involving warmer / drier summers and wetter winters, with increased frequency of severe and erratic weather events, threatens Scottish soil resources in a number of ways.

The UK Climate Impacts Programme (UKCIP) recognises the following major implications:

- Accelerated decomposition of peaty soils, a significant natural sink of carbon, resulting in increased emissions of carbon dioxide and methane to the atmosphere; this creates a feedback loop which will act to further increase climate change
- Increased loss of soil organic matter through water and wind erosion, due to higher frequency of severe weather events
- Necessary changes to agricultural practices and longer crop growing seasons
- Drying out of soils, combined with higher intensity storm events, may lead to landslides with potential disruption to transport

Certain soil organisms and their associated biological processes, including soil carbon cycling, are highly sensitive to changes in both soil temperature and moisture. These organisms will be vulnerable to the effects of climate change, particularly if they are linked to rare or isolated soils, or habitats where migration options may be limited (e.g. coastal and upland habitats)

Increased precipitation and the subsequent wetter land will make it much more difficult for the farming and forestry sectors to conduct operations when soils are dry enough to minimise the risk of soil compaction, such as cultivation, spraying and harvesting processes.

Specific soil management practices however, including use of minimum tillage, crop residues, fertilisers and manures, may assist in reversing these impacts on managed farmland.

There has historically been no routine monitoring of soil and limited information on trends. However, recent efforts in collaboration between the various partners across Scotland's soil community has resulted in the development of the Soil Monitoring Action Plan (Soil MAP), which aims to develop a soil monitoring programme that collects soil data and makes information available. The plan represents work in progress (2017).

As well as soil quality, the plan also includes consideration of peatland areas, the carbon cycle, soil erosion and soil sealing (covering of soil with impermeable material).

## **Agricultural Land**

Areas of prime agricultural land may be reduced through development, particularly on the green belt areas surrounding the main towns.

The changing climate may have a significant effect on the extent and distribution of Land Capability for Agriculture classes. Results of a recent study by the Macaulay Institute indicate that, using forward modelling of future climate change scenarios, major effects could include:

- Large increases in prime agricultural land across Scotland
- Large areas of land suitable for only rough grazing at present could be upgraded to provide improved grassland.
- Large increase in South Ayrshire in the amount of Class 2 land (capable of supporting a moderate to wide range of crops) by 2050, increasing to 80% of the total land area of South Ayrshire. This will be associated with a significant reduction in the amount of Class 6 land (capable of supporting rough grazing).

A more detailed assessment is now being undertaken by the Macaulay Institute to assess the changes in LCA in relation to soil properties, soil-climate interactions, vegetation and topography.

## 6. Landscape



*Land at Turnberry*

### SEA objectives that relate to Landscape:

- *Protect and enhance the area's natural landscape character and designated Scenic Areas in South Ayrshire*

### Summary of 2018 Performance:

Indicator	Status and Trend	Description
Scenic Areas	← →	5. No change from 2009.
Greenbelt	← →	3 areas covering a total of 3460 hectares. (the most recent greenbelt revision occurred in 2011 ('Green Belt Update of the South Ayrshire Proposed Local Development Plan'). An area of the eastern greenbelt was removed east of Annbank. However, the southern area south of Ayr was extended by roughly the same amount.)
Vacant and Derelict Land	↓	59 sites. (up from 41 in 2009.)

#### Status

	Good
	Moderate
	Poor

#### Trend

← →	Stable
↑	Improving
↓	Declining
?	No trend

## Introduction

South Ayrshire boasts a wide diversity of landscapes, from its 70km of coastline comprising towns, centres of industry, high quality beaches, through to the rural countryside, dominated by rolling hills and agricultural practices.

It is critical that the various landscapes are protected from unsuitable forms of development, while also enhancing their positive features where possible.

## Designated Sites

Areas of particular landscape value are protected by legislation to conserve their character and scenic quality.” Other designations are used to protect resources such as wildlife, geology or cultural heritage.

## National Landscape Designation

The principal form of national landscape designation in Scotland is the National Scenic Area (NSA). Details are provided in Table 6.1. There are currently no NSAs designated in South Ayrshire.

**Table 6.1 – Designated landscape sites in South Ayrshire (source – [SNH](#))**

Designation	S.A	Scotland	Description
<b>National Scenic Area (NSA)</b>	0	40	These are areas whose landscapes are regarded as nationally important owing to their outstanding scenic value. NSAs include everything from dramatic mountainous areas (Ben Nevis) and island landscapes (Hebrides – Lewis, Harris and North Uist) to more gentle, picturesque landscapes such as in the Borders. A total of 13% of the land area of Scotland is covered by an NSA.

## Local Landscape Designation

There are various names used by Local Authorities across Scotland when identifying areas worthy of a local landscape designation with regards to their scenic value, including Special Landscape Areas (SLA), Regional Scenic Areas (RSA) and Areas of Great Landscape Value (AGLVs).

In early 2017, Scottish Natural Heritage and Historic Environment Scotland consulted planning authorities on revised ‘Guidance on Local Landscape Areas’, this was intended to help planning authorities identify or review and identify their local landscape designation and maximise its benefits. As a result, South Ayrshire Council has identified the review of Local Landscape Areas as a main issue in the Main Issues report of its replacement local development plan.

LLAs are intended to complement National Scenic Areas and act as the standardised designation for locally identified scenic areas across Scotland. They represent areas where the scenery is highly valued locally, and are therefore designated by the relevant Local Authority to protect them from inappropriate or harmful development.

South Ayrshire currently uses the designation ‘Scenic Area’, in line with Scottish planning policy at the time of adoption of the current Local Development Plan, in 2014. Any planning proposals in or next to the designated Scenic Area will be subject to increased scrutiny with regards to their impact on the landscape, how it would benefit the economy and whether it can be justified in a rural location.

Designated Scenic Areas (Figure 6.1), as follows:

- River Ayr Valley
- Heads of Ayr
- Carrick Hills
- Upland area of South Carrick
- Coastal Region in the South of the Local Authority Area



## **Landscape Character Assessment**

The landscape character assessment is undertaken by Scottish Natural Heritage, with the aim of establishing an inventory of all landscapes in Scotland. Landscape character types are distinct types of landscape that are relatively homogeneous in nature.

The Ayrshire Landscape Assessment (SNH, 1998) identifies the key features and landscape character types in Ayrshire. In general, Ayrshire's landscape varies from lowland coastal areas to river valleys, foothills and the prominent Southern Uplands.

In total there are 16 different landscape character types, detailed in Table 6.2 and Figure 6.2.

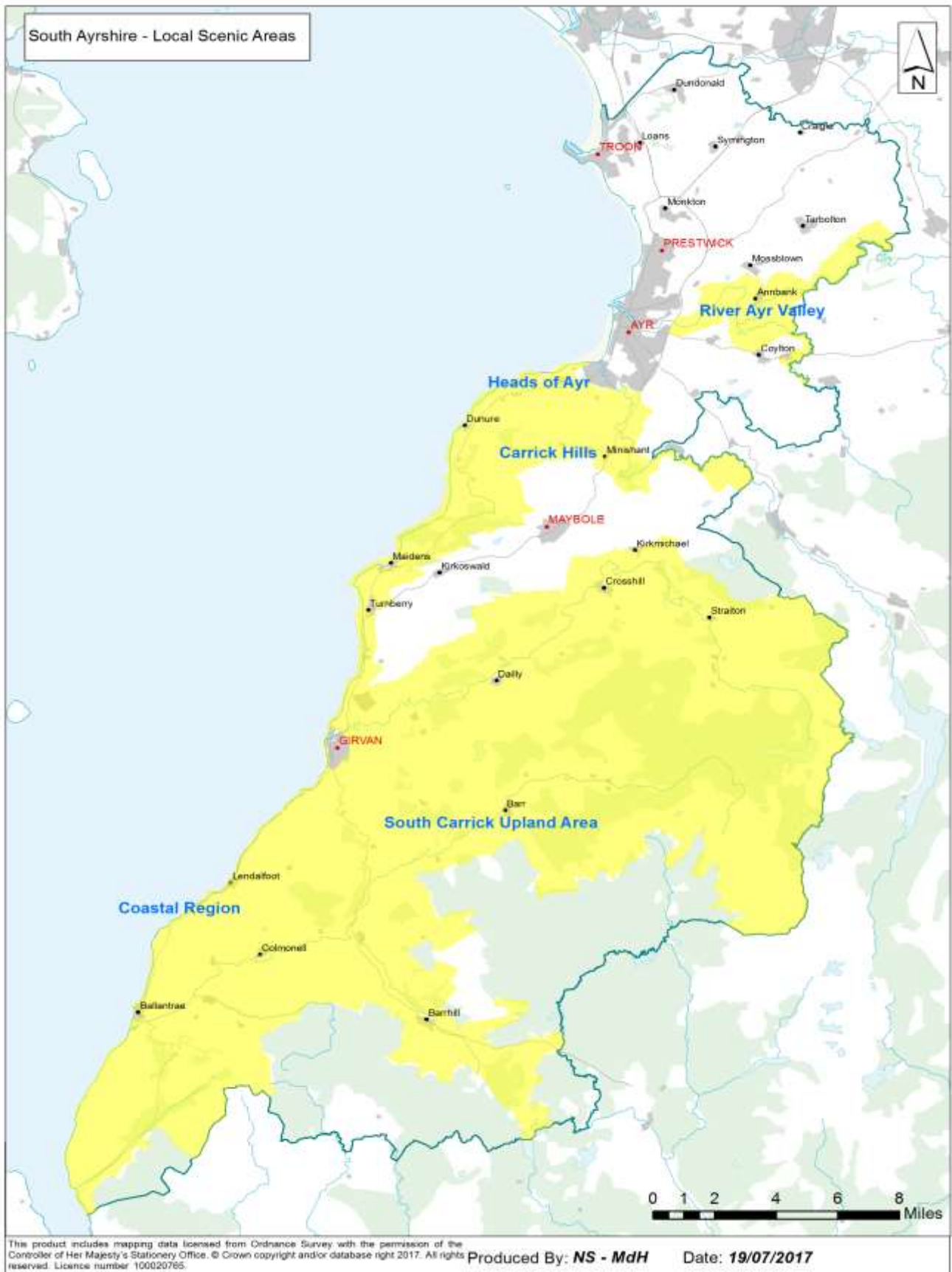


Figure 6.1 – Designated ‘Scenic Areas’ in South Ayrshire (source – [South Ayrshire Council](#))

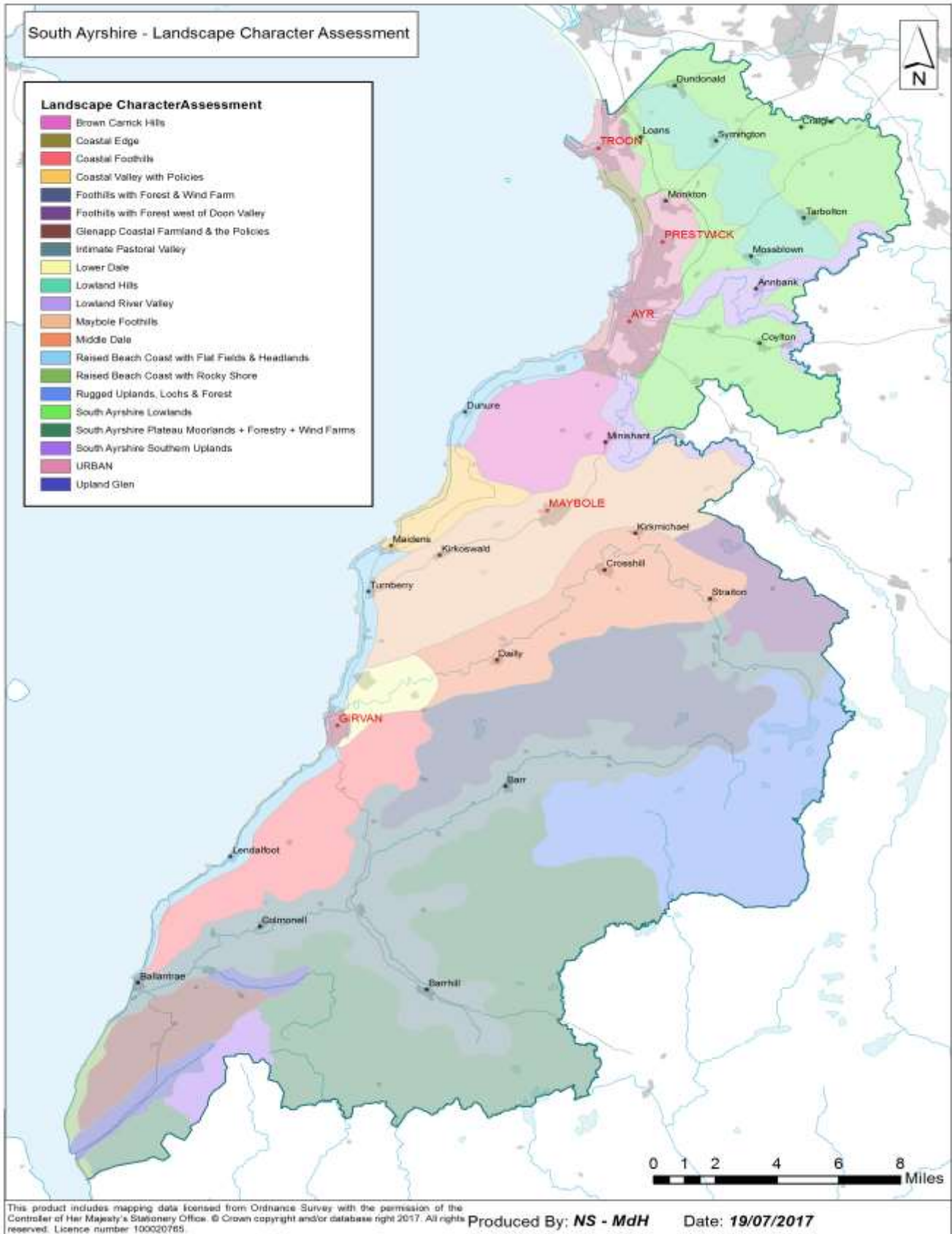


Figure 6.2 - Landscape Character Assessment of South Ayrshire (source – [SNH](#))

Land use is similarly varied, ranging from agriculture, grazing, forestry and recreational to industrial. Land use in relation to Landscape Character Type is detailed in Table 6.2.

**Table 6.2 - Landscape Character types in South Ayrshire (source – [SNH](#))**

Landscape Character Types	Land Use
Ayrshire Lowlands	Agriculture, Grazing, Urban
Lowlands	Grazing, Agriculture, Mineral Extraction
Lowland Coast	Golfing, Mineral Extraction, Urban, Industrial, Transport, Forestry
Lowland River Valley	Grazing Estate
Ayrshire Lowlands – Complex Hills	Agriculture, Grazing Estate, Urban
Coastal Headland	Grazing, Forestry
Foothills	Agriculture, Grazing, Mineral Extraction, Industrial
Foothills with Forest	Forestry, Grazing, Recreation
Intimate Pastoral Valleys	Grazing, Forestry
Raised Beach Coast	Agriculture, Grazing, Urban, Industrial, Transport, Tourism, Leisure
Lower Dale	Agriculture, Urban, Transport, Industrial
Plateau Moorland	Grazing
Rugged Granite Upland with Forest	Forestry, Recreation
Plateau Moorland with Forest	Forestry, Recreation, Grazing
Rugged Granite Upland	Grazing, Recreation, Climbing, Hill walking
Southern Uplands	Grazing Recreation

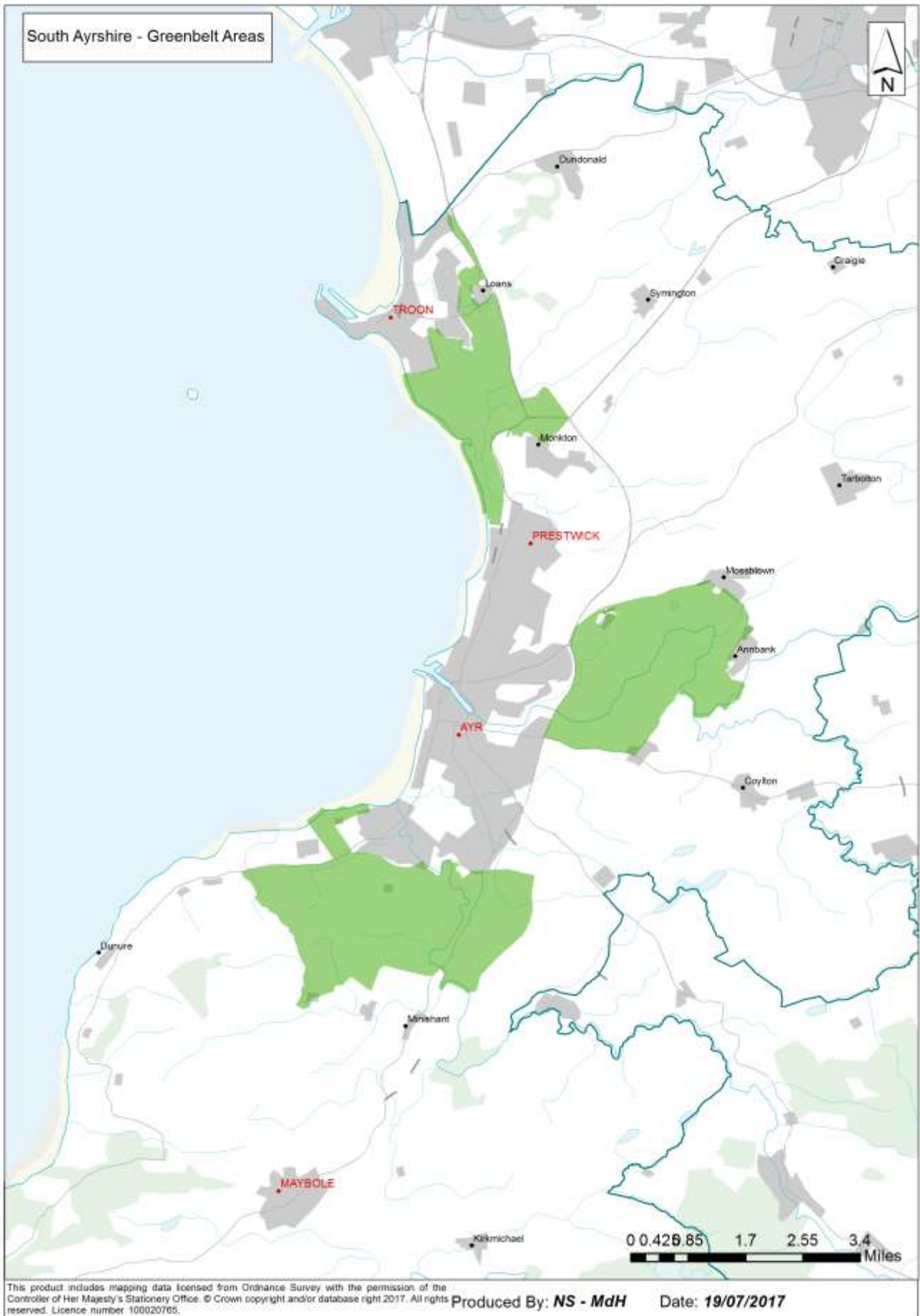
An online Landscape Character Area visualisation tool is currently being developed by Scottish Natural Heritage (SNH, 2017).

## Greenbelt

Greenbelt status offers another way in which certain areas of landscape can be protected through the planning system.

Three distinct areas of greenbelt land were identified in South Ayrshire in the 2014 Local Development Plan (Figure 6.3). This includes areas to the south and east of Ayr as well as the coastal area between Prestwick and Troon.

Any planning application submitted in a greenbelt area is assessed against strict criteria, with the aim of preserving and enhancing the landscape as best as possible, including contributing to the agricultural heritage and economic & environmental sustainability of the areas.



**Figure 6.3 – Designated greenbelt areas within South Ayrshire**

## **Vacant and Derelict Land**

The Vacant and Derelict Land Survey 2016 identified 59 vacant and derelict sites in South Ayrshire. These covered a total area of 108ha which is an increase from the 96ha recorded in 2010. The majority of the vacant and derelict land in South Ayrshire is located in Ayr and Prestwick.

## **Future Trends**

Development in Local Landscape Areas could have adverse effects on their scenic quality. Pressures that may influence future land use change include:

- Development and enhancement of forestry
- Changing agricultural practices
- Development pressures in response to urban expansion
- Tourism development
- Energy related development and expansion of the road / rail network
- Climate change effects including rising sea levels along coastlines and temperature changes affecting upland vegetation.

## **Vacant and Derelict Land**

Several of the vacant land sites are compromised due to issues such as land contamination, cost of land remediation, cost of land acquisition, mixed ownership issues and poor access. These issues would need to be overcome to allow for future development to take place in these areas.

A concentration of empty properties at the northern end of Ayr High Street demolished in summer 2017 as part of the Ayr Renaissance Riverside project, a factor that will help to reduce the total area of vacant and derelict land in South Ayrshire as the development progresses.

## 7. Air Quality

### SEA objectives that relate to Air Quality:

- *Improve air quality and reduce the level of airborne pollutants.*

### Summary of 2018 Performance:

Indicator	Status and Trend	Description
Exceedances of allowed pollutant levels	↑	0. (There have been no actual exceedances of permitted pollution levels for the past 5 years, and concentrations of NO <sub>2</sub> and PM <sub>10</sub> have generally decreased.)

Status	Trend		
	← →	Good	Stable
	↑	Moderate	Improving
	↓	Poor	Declining
	?		No trend

### Introduction

Air pollution is the direct result of emissions generated from a variety of natural and man-made sources, including industry, energy, agriculture, transport and household sources such as space heating.

Poor air quality, particularly in urban areas where the majority of the population lives, can lead to significant issues with human health, particularly affecting those with pre-existing conditions such as heart and lung diseases and asthma.

Air pollution also leads to wider environmental problems, including damage to plants and animals through the acidification and nutrient enriching of soils and water.

Air quality in Scotland has improved dramatically since the 1950's, owing largely to technological improvements and tighter legislation on emissions from industry and transport as well as a decline in coal burning for domestic heating.

However, pollution levels are still too high and further progress is needed to improve air quality throughout Scotland, particularly regarding emissions from transport.

The most significant piece of legislation governing air quality in Scotland is the 'Air Quality Strategy for England, Scotland, Wales and Northern Ireland', which came into force in 2011. The strategy outlines the UK's system for local air quality management, a responsibility that lies with the local authority.

The strategy sets specific objectives for the concentrations of a range of pollutants that must not be exceeded (Table 7.1). Air Quality Management Areas (AQMA's) must be declared by local authorities in areas identified as exceeding any of these objectives; 40 such AQMA's are in place across Scotland.

### Existing Air Quality in South Ayrshire

South Ayrshire Council published its latest [Air Quality Annual Progress Report](#) in June 2017, providing air quality data for South Ayrshire for the period 2010-2016.

The report includes data for Nitrogen Dioxide (NO<sub>2</sub>), Fine Particles (PM), Sulphur Dioxide (SO<sub>2</sub>) and Benzene (C<sub>6</sub>H<sub>6</sub>). The report is a statutory requirement on the Council following the Environment Act 1995.

A summary of the results for 2016 is provided in Table 7.1, with a full explanation for each source provided below.

Air quality in South Ayrshire is generally very good, owing principally to a relative lack of heavy industry and a low population density. As a result there are no declared AQMA's in South Ayrshire.

However, a number of threats do exist which will need to be managed to prevent South Ayrshire's air quality being adversely affected.

The major towns are characterised as areas of high car ownership, with subsequent congestion problems identified in Ayr and Prestwick town centres. Other transport sources of air pollution include Glasgow Prestwick Airport, bus and coach stations, railways and ports. Troon harbour is a well-established fishing port, as well as hosting a regular ferry service to Belfast.

No large-scale industrial processes in South Ayrshire have been identified (in agreement with SEPA) as having the potential to exceed emissions objectives. Domestic and commercial sources of air pollution are also considered minimal.

**Table 7.1 – South Ayrshire air quality performance, 2017 (source – [South Ayrshire Council](#))**

	Allowance		Exceedances	
	Concentration	Measured As	Permitted / yr	SAC 2016
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>	200 µg/m <sup>3</sup>	1-hour mean	18	0
	40 µg/m <sup>3</sup>	Annual mean	0	0
<b>Fine Particles (PM<sub>10</sub>)</b>	50 µg/m <sup>3</sup>	24-hour mean	7	0
	18 µg/m <sup>3</sup>	Annual mean	0	0
<b>Fine Particles (PM<sub>2.5</sub>)</b>	10 µg/m <sup>3</sup>	Annual mean	0	0
<b>Sulphur Dioxide (SO<sub>2</sub>)</b>	350 µg/m <sup>3</sup>	1-hour mean	24	N/M
	266 µg/m <sup>3</sup>	15-minute mean	35	
	125 µg/m <sup>3</sup>	24-hour mean	3	
<b>Benzene (C<sub>6</sub>H<sub>6</sub>)</b>	3.25 µg/m <sup>3</sup>	Annual mean	0	N/M

## Nitrogen Dioxide (NO<sub>2</sub>)

Nitric oxide, derived from road transport emissions and other combustion processes, oxidises to nitrogen dioxide (NO<sub>2</sub>) when released to the atmosphere. NO<sub>2</sub> is harmful to human health as it can irritate the lungs and lower resistance to respiratory infections.

There are 20 diffusion tube passive monitoring sites for NO<sub>2</sub> in South Ayrshire, as well as two real time analysers at High Street / New Bridge Street, Ayr and Taylor Street, Ayr Harbour.

The measured annual mean concentration of NO<sub>2</sub> was below the NAQS objective standard of 40 µg/m<sup>3</sup> across all sites in 2015, with only King Street in Ayr recording greater than 30 µg/m<sup>3</sup> at any point.

There has been a marked steady improvement over the most recent five year period from 2010, when six sites recorded annual mean NO<sub>2</sub> values over 30 µg/m<sup>3</sup> and two sites recorded over 40 µg/m<sup>3</sup>.

There were no exceedances of the air quality objectives for NO<sub>2</sub> within SAC for the last five years.

## Fine Particles (PM<sub>2.5</sub> & PM<sub>10</sub>)

Fine particles arise from a variety of sources including fuel combustion, road traffic, dust and suspended soils. They cause inflammation of the lungs and the worsening of symptoms of heart and lung diseases.

Particulate Matter is measured using two key metrics; PM<sub>10</sub> denotes the concentration of particles in the air that are less than or equal to 10 µm in diameter, while PM<sub>2.5</sub> describes even finer particles less than or equal to 2.5 µm in diameter.



PM<sub>10</sub> is currently monitored at the two monitoring sites at New Bridge Street, Ayr and at Taylor Street, Ayr Harbour. Neither site exceeded the two NAQS mean annual objectives in 2015.

PM<sub>2.5</sub> is currently not monitored within South Ayrshire, though the council plans to convert the existing recording monitors to allow the recording of PM<sub>2.5</sub> concentrations in the future.

## Sulphur Dioxide (SO<sub>2</sub>)

Sulphur dioxide (SO<sub>2</sub>) is produced from the burning of materials or fuels containing sulphur, including fossil fuel burning power stations. Sulphur dioxide can cause lung problems, particularly with individuals suffering from asthma.

South Ayrshire Council formerly checked SO<sub>2</sub> using two air quality monitors, one at Dundonald Activity Centre and one at the road depot within Grangeston Industrial Estate, Girvan. SO<sub>2</sub> levels measured at these locations over a period of seven years however were significantly below objective levels.

Monitoring ceased at Dundonald in 2006 and Girvan in 2007; since this time there is no indication to suggest that environmental circumstances have changed in such a way that SO<sub>2</sub> will have increased meaningfully.

## Benzene (C<sub>6</sub>H<sub>6</sub>)

The main sources of benzene are from the combustion of petrol. Possible health effects include cancer, liver and kidney disorders and birth defects.

Benzene was formerly monitored using chromosorb 106 absorbent tubes at four sites in South Ayrshire, two in Maybole, one at Ewanfield Place in Ayr and one at Rozelle Park in Ayr.

The annual mean concentration recorded was always significantly below the NAQS objective of 3.25 µg/m<sup>3</sup>. Due to the fact that recorded concentrations throughout the district were so low, the decision was taken to stop monitoring benzene levels from 2010 onwards.

## Ozone

The most important man-made precursors for ozone are nitrogen oxides and volatile organic compounds produced by road transport, industrial processes and through solvent use.

Ozone concentrations tend to be lower in urban areas where it is converted to NO<sub>2</sub> by reacting with nitrogen oxides.

Ozone levels are not monitored in South Ayrshire. The nearest monitoring stations are Glasgow Waulkmill Glen Reservoir (urban) and Eskdalemuir in Dumfries and Galloway (rural). Levels in Eskdalemuir have reduced over time since 1997, when 17 exceedances of the NAQS objective (mean 100 µg/m<sup>3</sup> on more than 10 days) occurred over the year. In 2016 no exceedances were recorded.

In Glasgow, ozone levels historically increased from 1997 (no exceedances) to 2006 (five exceedances) and 2007 (one incidence of exceedance). Again however, no exceedances were recorded in 2016.

## Other Pollutants

No monitoring is available for carbon monoxide, lead and 1,3-Butadiene; however, no significant new emissions sources have been identified since the initial Updating and Screening Assessment was conducted in 2006.

## Future Trends

Glasgow Prestwick Airport is currently experiencing reduced passenger numbers, down to 1.1m per year from a peak of 2.4m per year in 2007; this resulted in a bail out by the Scottish Government in 2013 at a time when it was experiencing serious financial losses. Unless passenger numbers increase significantly to greater than 2.5m per year, it is unlikely that the requirements for an AQMA would be triggered.

Recent discussions have been taking place regarding the possibility of Prestwick becoming a 'Space Hub', capable of launching small satellites and tourists into low-level orbit. Associated emissions would be significant and should therefore be monitored closely.

Otherwise, there are no significant developments identified that may have a detrimental effect on South Ayrshire's air quality.

A number of initiatives have been implemented by South Ayrshire Council with a view to improving local air quality. These include the installation of an Active Travel Hub at Ayr Station with the aim of encouraging people to choose more environmental commuting travel choices, as well as increasing use of electric vehicles in the South Ayrshire Council fleet.

Possible further initiatives for the future involve the creation of a car club for vehicle sharing and the implementation of a public bicycle hire scheme.

South Ayrshire Council continues to work with Police Scotland and Glasgow City Council to undertake roadside vehicle emission monitoring throughout the year, in an attempt to remove the most polluting vehicles from the roads.

## 8. Climatic Factors



*Hadyard Hill Windfarm*

### SEA objectives that relate to Climate Change:

- Reduce green-house gas emissions in line with the Scottish Government target of 80% reduction by 2050
- Reduce South Ayrshire's carbon foot print

### Summary of past Performance:

Indicator	Status and Trend	Description
Greenhouse gas emissions	↑	26,591 tCO <sub>2</sub> (2015/16). (Down 3.8% from 27,643 tCO <sub>2</sub> in 2014/15. Steady decrease from 31,475 tCO <sub>2</sub> in 2005/06)
Emissions from energy use in buildings	↑	23,047tCO <sub>2</sub> (2015/16). (Down 3.3% from 23,820 tCO <sub>2</sub> in 2014/15)
Emissions from energy use in waste	↑	260 tCO <sub>2</sub> (2015/16). (Down 57% from 598 tCO <sub>2</sub> in 2014/15)
Emission from energy use in water	↓	344 tCO <sub>2</sub> (2015/16). (Up 45% from 237 tCO <sub>2</sub> in 2014/15)
Emissions from energy use in transport	← →	- 2940 tCO <sub>2</sub> (2015/16). (No meaningful change from 2,990 tCO <sub>2</sub> in 2014/15)
Windfarm potential output	↑	680MW from 8 windfarms, either operational or under construction. (Gradual increase in capacity over time as new windfarms are developed. Represents approximately 8.2% of the installed renewable electricity capacity in Scotland 2016)

Status	
<span style="display:inline-block; width:15px; height:15px; background-color:lightgreen; border:1px solid black;"></span>	Good
<span style="display:inline-block; width:15px; height:15px; background-color:yellow; border:1px solid black;"></span>	Moderate
<span style="display:inline-block; width:15px; height:15px; background-color:red; border:1px solid black;"></span>	Poor

Trend	
<span style="display:inline-block; width:15px; height:15px; border:1px solid black; text-align:center;">← →</span>	Stable
<span style="display:inline-block; width:15px; height:15px; border:1px solid black; text-align:center;">↑</span>	Improving
<span style="display:inline-block; width:15px; height:15px; border:1px solid black; text-align:center;">↓</span>	Declining
<span style="display:inline-block; width:15px; height:15px; border:1px solid black; text-align:center;">?</span>	No trend

## Introduction

Climate change can be defined as the global long-term shift in the planet's weather patterns and temperatures.

The current trend is towards a warming climate featuring more frequent extreme and erratic weather events.

While the climate has been subject to varying scales of warming and cooling periods throughout history, it is generally recognised that the current warming trend began in approximately 1850, coinciding with the end of the industrial revolution, where the explosion in the use of coal as a fuel led to vast increases in the volume of greenhouse gases being released into the atmosphere.

Key to tackling climate change therefore will be reducing these greenhouse gas emissions; National Government and local authorities have a key role to play, both in terms of their own behaviour, as well as legislating for the wider public.

On 19 January 2017 the Scottish Government published the 'Draft Climate Change Plan – the draft Third 'Report on Policies and Proposals 2017-2032'. This document represented the third report on proposals and policies (RPP3) for meeting Scotland's annual greenhouse gas emissions targets. The report builds on previous progress reports:

- RPP1, published in 2011, covering the period 2010-2022
- RPP2, published in 2013, covering the period 2013-2027

The report is a statutory requirement of the Climate Change (Scotland) Act 2009 and forms part of the strategic framework of the government for a transition to a low carbon Scotland.

The Climate Change (Scotland) Act 2009 is Scotland's response to the UK's Climate Change Act 2008, which committed to an 80% reduction in UK emissions relative to 1990 levels by 2050.

The latest official Scottish government statistics published were for the year 2014 (published June 2016), reporting emissions for that year at 45.8% lower than 1990 baseline levels; this represented an improvement on the official government target set out in the Climate Change (Scotland) Act 2009 for Scotland to reduce its emissions by 42% of 1990 baseline levels by 2020, a target it therefore met 6 years early.

## Greenhouse Gas Emissions

### Scotland

The main sources of greenhouse gas emissions for Scotland are reported in Table 8.1. The data is from 2014, the most recent year for which official government figures have been published. Greenhouse gases include carbon dioxide, methane and nitrous oxide, as well as a minor contribution from 'F-gases'.

**Table 8.1 – Main sources of greenhouse gas emissions (source [Scottish Government](#))**

Source Sector	Description	% of total emissions
<b>Energy Supply</b>	Emissions from fuel combustion for electricity production and from raw fuel mining (e.g. coal mining and onshore gas / oil production)	24.2
<b>Transport</b>	Domestic aviation, road transport, rail transport, fishing and aircraft support vehicles. Also some international aviation and shipping emissions attributed to Scotland.	22.7
<b>Agriculture and Related Land Use</b>	Net emissions from cropland and grassland, livestock, agricultural soils and off-road machinery	18.8
<b>Business and Industry</b>	Emissions from industrial and commercial sectors	15.3
<b>Residential</b>	Emissions from residential heating, cooking and use of garden machinery as well as aerosols / inhalers.	10.4
<b>Waste Management</b>	Emissions from landfilled waste, incineration of waste and the treatment of waste water	3.9
<b>Other sources</b>		4.7

Scotland's net emissions for 2014 totalled 46.7 MtCO<sub>2</sub>e (million tons of CO<sub>2</sub> equivalent), marking an 8.6% reduction on 2013 and a 39.5% reduction on 1990. Actual emissions from the above sources totalled 56.9 MtCO<sub>2</sub>, however this was partly offset through planting of new forests which captured 10.2 MtCO<sub>2</sub>.

Scotland, in line with much of the rest of UK and Northern Europe, has seen a steady decline in emissions from 1990 to present day levels, the result of a combination of regulation, energy efficiency measures and the rise of renewable energy provision.

## Greenhouse Gas Emissions - South Ayrshire

The Climate Change (Scotland) Act 2009 places a number of duties on local authorities with respect to climate change. Local authorities have a key role to play in delivering carbon reduction targets across Scotland; South Ayrshire Council alone operate approximately 600 buildings across 250 sites.

Section 35 of the Act includes a statutory requirement for local authorities to report on their compliance with the duties on an annual basis, so that performance at a local authority level can be monitored. The most recent submissions were made by local authorities in November 2017, covering the period 1 April 2016 to 31 March 2017.

Table 8.2 outlines the greenhouse gas emissions of South Ayrshire Council in the period from 2005 to 2016. Note the organisational carbon footprint boundary was updated in 2014/15 and now includes: electricity, natural gas, gas oil and biomass in buildings, electricity for street and traffic lighting, water supply and treatment, disposal of waste generated from council properties, fleet diesel, petrol and gas oil and business miles in grey fleet (private cars).

As the definition of the boundary was altered between the reporting years 2013/14 and 2014/15, data cannot meaningfully be compared before and after this period. However a broad reduction in emissions can be noted prior to 2014/15, as well as in the two years since.

**Table 8.2 – Greenhouse gas emissions of South Ayrshire, 2005 to 2016 (source - [South Ayrshire Council](#))**

Reference Year	Year	Total (tCO <sub>2</sub> e)
<b>Baseline</b>	2005/06	31,475
<b>Year 1</b>	2006/07	29,759
<b>Year 2</b>	2007/08	29,946
<b>Year 3</b>	2008/09	30,228
<b>Year 4</b>	2009/10	30,204
<b>Year 5</b>	2010/11	29,117
<b>Year 6</b>	2011/12	26,813
<b>Year 7</b>	2012/13	27,347
<b>Year 8</b>	2013/14	24,844
<b>Year 9</b>	2014/15	27,643
<b>Year 10</b>	2015/16	26,591

Table 8.3 provides a more detailed breakdown of South Ayrshire Council's carbon footprint for the two most recent years that records exist for, 2014/15 and 2015/16. The carbon footprint is calculated using the Resource Efficient Scotland Carbon Footprint and Project Register Tool (CF&PR tool), developed specifically by Resource Efficient Scotland to aid public sector organisations in maintaining and updating their Carbon Management Plans.

**Table 8.3 – Breakdown of South Ayrshire Council's carbon footprint for 2014/15 and 2015/16**

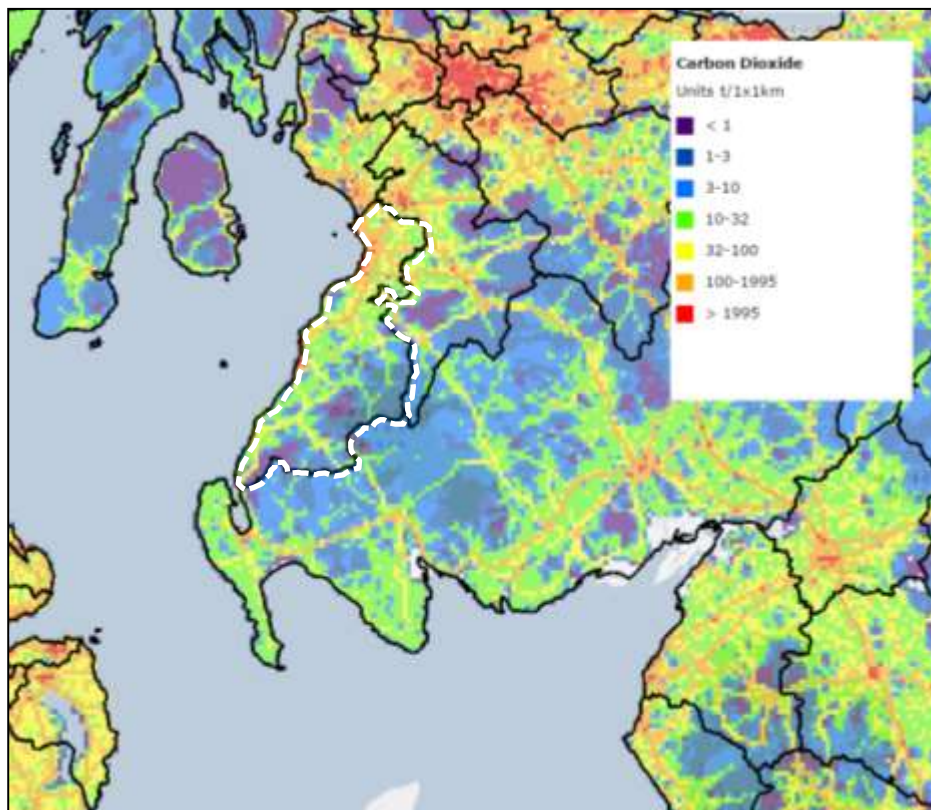
Category	2014/15		2015/16	
	tCO <sub>2</sub> e	Cost (£)	tCO <sub>2</sub> e	Cost (£)
Stationary (energy in buildings)	23,820	£4,352,644	23,047	£4,406,542
Water	237	£224,275	344	£897,383
Waste	598	£547,756	260	£568,713
Transport (fleet and business travel)	2,990	£1,937,530	2,940	£1,455,330
<b>Total</b>	<b>27,644</b>	<b>£7,062,205</b>	<b>26,591</b>	<b>£7,327,968</b>

The figures show that, for 2015/16, stationary sources contribute 86% of the total emissions in the boundary studied. Transport contributes a further 11% while waste and water account for only very nominal amounts.

However the picture changes when considered in cost terms (£), with transport contributing 27%, waste 8% and water 3% of total cost; the figures indicate a rising cost from 2014/15 to 2015/16 despite reduced emissions, reflecting the greater cost of energy consumption within these sources.

CO<sub>2</sub> emissions are also mapped across the whole of the UK on a km<sup>2</sup> basis. The data is published by UK government through the National Atmospheric Emissions Inventory. Data is currently available for the period 2005 to 2014. The data itself is an estimate, based on emissions factors calculated for different fuel uses combined with local authority activity data.

CO<sub>2</sub> emissions data for Central and SW Scotland for 2014 is shown in Figure 8.1, with the South Ayrshire local authority boundary marked in white.



**Figure 8.1 – CO<sub>2</sub> emissions map for Central and SW Scotland, 2014 (source - [National Atmospheric Emissions Inventory](#))**

Away from the obvious high emissions corridors around major trunk roads, high emission areas are very limited and only focused around the major settlements of Ayr, Prestwick and Troon as well as the only large industrial installation in the area, the Girvan Distillery.

In comparison with the central belt of Scotland, the map highlights South Ayrshire as a relatively low CO<sub>2</sub> emitter, primarily due to lower population density and a lack of heavy industry. Large parts of the east and south of the local authority area record the lowest possible values, less than 1 ton CO<sub>2</sub> per km<sup>2</sup> per year.

## Renewable Energy

### Scotland

In Q3 2016 Scotland had 8,263MW of installed renewable electricity capability (DECC, 2016). Table 8.4 outlines the contribution made to the total from the various sources of renewable electricity operating in Scotland, with onshore wind and large scale hydropower the key contributors.

**Table 8.4 – Breakdown of contributing renewable energy sources in Scotland, Q3 2016 (source – [Scottish Renewables](#))**

Category	Installed Capacity (MW)	% of Total
Onshore Wind	5,805	70.2
Large scale Hydro	1,339	16.2
Solar photovoltaics	299	3.6
Small scale Hydro	252	3.1
Offshore Wind	187	2.3
Plant Biomass	192	2.3
Landfill gas	116	1.4
Anaerobic Digestion	29	0.3
Energy from waste	18	0.2
Animal Biomass	13	0.2
Shoreline wave / tidal	8	0.1
Sewage sludge digestion	7	0.1
<b>Total</b>	<b>8,263</b>	

Scotland has experienced a steady rise of installed renewable energy capacity between 2007 and 2015, as outlined in Table 8.5.

**Table 8.5 – Installed renewable electricity capacity in Scotland, 2007 to 2016 (source – [Scottish Renewables](#))**

Year	Installed Capacity (MW)
2007	2673
2008	3353
2009	3799
2010	4369
2011	4769
2012	5792
2013	6634
2014	7316
2015	7756
<b>2016 (Q3)</b>	<b>8263</b>

In terms of actual renewable electricity output, the latest figures published by the Scottish Government (March 2016) indicate that, in 2015, renewable energy sources contributed 59.4% to the gross electricity consumption of Scotland. This marks the continuation of a steady increase from 2003, when only 9.0% of all electricity consumed in Scotland was generated by renewable sources (Table 8.6).

**Table 8.6 – Renewable energy as a proportion of gross electricity consumption in Scotland, 2000 to 2015 (source – [Scottish Government](#))**

Year	Renewable Electricity Output (GWh)	Gross Electricity Consumption (GWh)	Renewables as a % of Gross Electricity Consumption
2000	4,972	40,801	12.2
2001	4,202	40,446	10.4
2002	5,099	41,619	12.3
2003	3,724	41,238	9.0
2004	5,832	41,364	14.1
2005	6,486	41,923	15.5
2006	6,956	41,309	16.8
2007	8,003	40,718	19.7
2008	9,062	41,049	22.1
2009	10,586	38,852	27.2
2010	9,465	39,571	23.9
2011	13,686	37,804	36.2
2012	14,685	37,641	39.0
2013	16,949	38,148	44.4
2014	18,962	38,115	49.7
2015	21,983	38,099	59.4

This figure of 59.4% in 2015 allowed Scotland to meet its interim target, set in 2012 by the Scottish Government, that 50% of total national electricity consumption should be generated from renewable sources by 2015. Scotland continues to work towards its target, set in 2011 as part of the '2020 Routemap for Renewable Energy in Scotland', to deliver the equivalent of 100% gross electricity consumption by 2020.

### **Renewable Energy Generation – South Ayrshire**

The Scottish Government, through the publication in 2014 of the National Planning Framework 3 (NPF3) and Scottish Planning Policy (SPP), highlighted the role that local authorities must play in the transition to a low carbon Scotland. Part of this is that local authorities should support, where possible, the development of renewable energy generating infrastructure in appropriate locations. In response to this, South Ayrshire Council published in December 2015 an addendum to the 2014 Local Development Plan with respect to wind power ('Supplementary Guidance: Wind Energy').

A total of eight windfarms are either operational or under construction in South Ayrshire as of January 2018. A number of windfarms are also currently in the planning system awaiting decision on consent. Details of windfarms currently operational or under construction are provided in Table 8.7.



**Table 8.7 – Windfarms either operational or under construction in South Ayrshire (source – South Ayrshire Council)**

Status	Windfarm	Location	Operational	Operator	Turbines	Potential Output (MW)
<b>Operational</b>	Hadyard Hill	Barr	2006	SSE	53	130
	Arecleoch	Barrhill	2011	Scottish Power	60	120
	Mark Hill	Barrhill	2011	Scottish Power	28	56
	Dersalloch	Straiton	2016	Scottish Power	23	69
	Assel Valley	Girvan	2016	Falck Renewables	10	25
<b>Under construction</b>	Kilgallioch	Barrhill	2017 - 2018	Scottish Power	96	239
	Tralorg Hill	Girvan	N/A	Brookfield Renewable	8	19
	Glenapp	Cainryan	2017 - 2018	Scottish Power	11	22
				<b>Total</b>	<b>289</b>	<b>680</b>

Kilgallioch, will represent the UK's third largest onshore windfarm when it is brought on stream.

The location of all windfarms, including those currently in the application / planning process, is outlined in Figure 8.2. Glenapp is the only wind farm not included on the map.

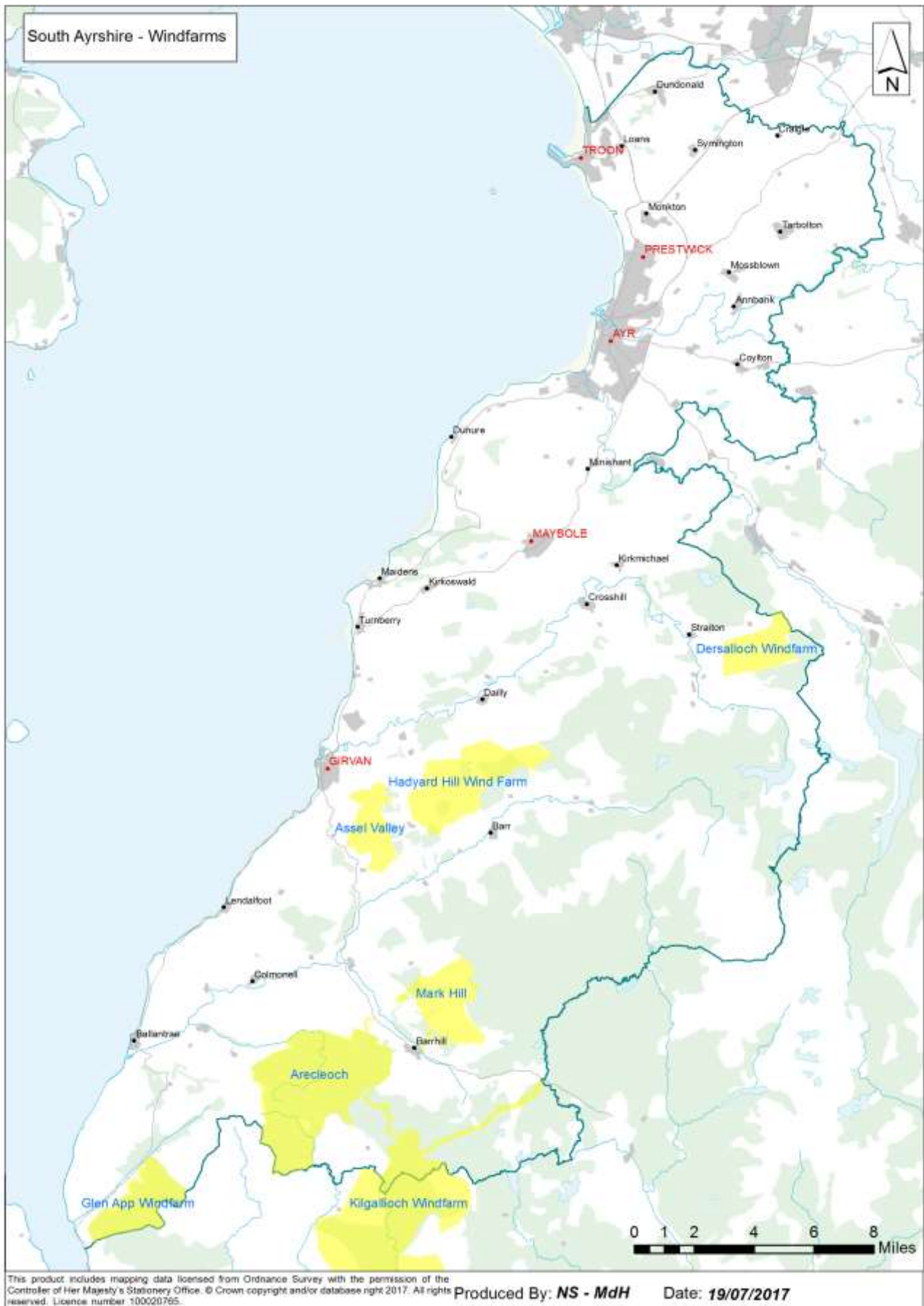


Figure 8.2 – Location of windfarms in South Ayrshire

## Other Renewable Energy Projects – South Ayrshire

South Ayrshire Council has undertaken a number of solar energy projects:

- Installation of 30KW of photovoltaic (PV) solar panels onto the Braden Road sheltered housing complex, Troon in 2002. At the time this represented the biggest PV installation in Scotland.
- Installation of 450W of PV solar panels at Girvan Academy
- Installation of 2.5KW of PV panels at each of Barr, Pinwherry and Dailly Primary Schools.
- A number of smaller scale solar thermal panel installations in sheltered housing units

## Energy Efficiency

South Ayrshire Council has been awarded a fund from the Scottish Government to improve the energy efficiency of older inefficient properties that are owned or privately rented. Funds are being targeted at areas prioritised by Energy Company Obligation (ECO) legislation, which reflect the areas most in need.

South Ayrshire Council part-fund the Energy Agency, a registered charity formerly known as the South Ayrshire Energy Agency, which is responsible for promoting energy efficiency improvements across South Ayrshire, East Ayrshire and Dumfries and Galloway. The services the Energy Agency provide include:

- Home Energy Scotland advice centre – an energy saving advice centre for SW Scotland, providing advice on energy saving, renewable energy, sustainable transport and waste prevention
- Manage the Home Energy Efficiency Programmes (Area Based Schemes) for South Ayrshire, East Ayrshire and Dumfries and Galloway Councils to create warmer, fuel efficient and more sustainable communities.
- Assist Local Energy Scotland in the delivery of the Scottish Government Community and Renewable Energy Scheme (CARES) for the area, a government funded initiative to provide loans to high-risk renewable energy projects which involve significant community engagement and benefit.
- Delivery of energy-saving lessons to primary and secondary school pupils across the area

## Climatic Conditions

The UK Met Office provides historic climatic data for approximately 300 different weather stations across the UK, as well as national data for Scotland and the UK as a whole. Tables 8.8a and 8.8b display data for the two stations in South Ayrshire, Girvan and Prestwick, alongside national data for Scotland. All data is averaged across the period 1981 to 2010.

Table 8.8a – South Ayrshire average monthly temperature data, 1981 to 2010 (source – [UK Met Office](#))

Month	Max. temp (°C)			Min. temp (°C)		
	GIRVAN	PRESTWICK	SCOTLAND	GIRVAN	PRESTWICK	SCOTLAND
Jan	7.6	7.3	5.3	2.8	1.8	0
Feb	7.8	7.5	5.5	2.8	1.8	-0.1
Mar	9.4	9.3	7.2	3.9	3	1
Apr	11.8	11.6	9.8	5.2	4.4	2.4
May	15.1	14.8	13	7.6	6.7	4.8
Jun	17.2	17	15.1	10.3	9.7	7.5
Jul	18.8	18.5	17	12.3	11.8	9.6
Aug	18.5	18.4	16.6	12.1	11.5	9.4
Sep	16.5	16.2	14.3	10.3	9.8	7.5
Oct	13.3	13.1	10.9	7.9	7.2	4.9
Nov	10.2	9.9	7.7	5.3	4.3	2.3
Dec	8.1	7.5	5.5	3	1.9	0.1
Annual	12.9	12.6	10.7	7	6.2	4.2

Table 8.8b – South Ayrshire average monthly sunshine and rainfall data (source – [UK Met Office](#))

Month	Sunshine (hours)			Rainfall (mm)			Days of rainfall >= 1 mm (days)		
	GIRVAN	PRESTWICK	SCOTLAND	GIRVAN	PRESTWICK	SCOTLAND	GIRVAN	PRESTWICK	SCOTLAND
Jan	41.1	41.7	35.8	111.3	90.2	177.5	16.6	16.2	18.6
Feb	66.7	71.5	62.7	78.9	64.8	130.2	12.8	12.8	15
Mar	96.8	103.2	92.8	90.2	77.5	141	14.7	13.9	17.2
Apr	151.8	158.2	135	61.8	54.6	91.1	11.2	11.2	13.5
May	201.1	214.1	178.2	56.9	50.2	84.5	10.8	10.1	12.9
Jun	172.6	190.8	150	53.8	59.8	88.9	10.7	10.7	13
Jul	161.3	182.7	141.1	75.5	74	99.5	11.7	12.2	14.1
Aug	154	167.1	134.3	86.3	84.1	116.7	13.7	13.1	14.8
Sep	114.9	123.1	105.2	91.5	83.4	136	13	12.5	15.3
Oct	82.9	91.5	75.5	125.7	111.6	175.7	17.3	15.7	18.4
Nov	52.5	56	45.8	116	93.7	166.3	16.5	15.9	18.1
Dec	38.2	38.9	30.3	115.2	94.8	163.5	15.6	15.3	17.3
Annual	1333.8	1438.5	1186.8	1063.1	938.8	1570.9	164.4	159.8	188.1

The tables show that South Ayrshire, relative to Scotland as a whole, has a warmer and drier climate with more hours of sunshine. The data also shows that, in South Ayrshire, Girvan is slightly warmer and wetter than Prestwick. All of these trends are apparent throughout the year and do not vary seasonally.

## Future Trends

### Climate Change

In 2010 South Ayrshire Council published a report 'The Potential Impact of Climate Change on South Ayrshire up to 2050'. The report projects climate trends through to 2050 to understand what the potential implications will be for South Ayrshire and in what areas the council need to increase resilience to climate change. Key findings are as follows (all relative to the baseline period from 1961-1990):

- Winters will be approx. 1°C warmer and slightly wetter
- Increase in frequency of high precipitation days
- No significant rise in the frequency / ferocity of winter storms
- Summers will be approx. 2°C warmer and drier (precipitation down 20%)
- No significant rise in the frequency of high temperature or heavy precipitation summer events

With that in mind, Table 8.9 identifies the key impacts of climate change on South Ayrshire and the implications for South Ayrshire Council.

**Table 8.9 – Perceived key impacts of climate change on South Ayrshire Council, 2050 (source – [South Ayrshire Council](#))**

Key Issue	Impact of Climate Change	Implications for SAC
<b>Land Use</b>	1) Change to more mixed (crop-livestock) farming 2) Expansion of intensive grazing systems on marginal land, leading to an increased use of fertilisers	Increased problems of diffuse pollution of water
	1) Increased growth rates for many tree species 2) Improved suitability of area for deciduous trees, such as oak and ash	Potential expansion of forested area
<b>Natural Heritage</b>	1) Considerable risk to coastal habitats posed by rising sea levels 2) Potential degradation and loss of coastal habitats as a result of small changes in microclimate	Potential loss of important coastal habitats
	Many existing flora and fauna are vulnerable to changes in grazing management and fertiliser usage, e.g.; 1) Threat to lowland grasslands from changes in farming practices 2) Threat to upland heath areas from possible expansion of intensive grazing	Need for focus on environmental management and conservation agreements
<b>Human health</b>	1) Warmer summers are likely to increase skin exposure, leading to potential for increased incidences of skin cancers 2) Higher temperatures could increase incidences of food poisoning	Need to raise public awareness of both issues to prevent an increase in hospital admissions
<b>Water Supply</b>	1) Possibility of a greater incidence of cryptosporidiosis in public water supplies 2) Threat of the development of algal blooms as a result of higher temperatures	Increased need to ensure both public and private water supplies are adequately disinfected
<b>Energy Use</b>	1) Potential change in seasonal energy demand, with reduced demand in winter and greater in summer as more people install air-conditioning. This shift could present supply problems, with lower summer rainfall threatening hydro-electric generation 2) With a greater reliance on renewable sources of energy, it may be difficult to fill the potential energy gap	Development of long-term strategies for meeting energy demands
<b>Roads &amp; Transport</b>	Likely to be fewer days of snow and ice, resulting in less damage to road surfaces through frost action and less need to salt roads in the winter	Reduced expenditure on road maintenance and gritting; still likely to be a need to plan for extreme events however
	Increased possibility of intense rainfall events could create problems for road drainage	Review of road drainage infrastructure
<b>Flooding</b>	Increased likelihood of coastal flooding, owing to the rise in the relative sea-level.	Review of coastal defences
	Increased possibility of river flooding following intense rainfall	Review of flood contingency plans

## Greenhouse Gas Emissions – South Ayrshire Council

South Ayrshire Council has set two main targets for reducing greenhouse gas emissions:

- 3% annual reduction in emissions based on energy usage in buildings
- 10% annual reduction in council vehicle fleet kilometres driven

The council has also identified three main priorities in order to achieve these targets:

- Development and approval of the South Ayrshire Council Sustainable Development and Climate Change Strategy
- Development of a revised Fleet and Travel Policy, addressing both climate change mitigation and the promotion of sustainable travel
- Working towards including consideration of emissions and possible adaptation techniques as part of the approach to asset management

Other relevant initiatives being adopted in the council include:

- One of the first local authorities in Scotland to provide an Active Travel Hub, comprising a fully staffed facility in Ayr Railway Station with the aim of improving accessibility to and awareness of active travel methods.
- Providing 'Personal Travel Planning' consultations for all interested staff, to better inform individuals of their options for home-to-workplace commuting with the aim of reducing emissions and cost to the employee.
- Member of LiftShare, the UK's largest car-sharing community, with the aim of matching together employees with similar commuting habits who may be able to car share.

Further future emissions reductions are predicted through advancements in technology, changing habits and the introduction of further legislation, building on the Climate Change (Scotland) Act 2009.

## Greenhouse Gas Emissions – Area wide

The Scottish Government's 'Draft Climate Change Plan –Third Report on Policies and Proposals 2017-2032' (RPP3) sets a target for Scotland to reduce greenhouse gas emissions by 66% by 2032 relative to 1990 baseline levels. Policies and proposals are included within the report for reducing emissions from electricity generation, transport, industry, housing, waste, land use, agriculture and services.

Other targets for 2032 set out in the RPP3 progress report include:

- 40% of all new cars / vans sold in Scotland to be ultra-low emission
- 50% of Scotland's buses to be low carbon
- A wholly decarbonised electricity sector for Scotland based on renewable energy sources
- To have repaired 250,000 hectares of degraded peatlands
- 30% of Scotland's public ferry fleet to be low-carbon (powered by hybrid engines)

The UK Climate Change Act 2008 set a target for the UK to reduce its greenhouse gas emissions by at least 80% of baseline 1990 levels by 2050, consistent with the global target of limiting global temperature rise to below 2°C above pre-industrial levels.

In order to achieve this, the act also requires the setting of five-yearly carbon budgets which act as interim targets towards the ultimate 2050 goal. The UK is currently in the second carbon budget (2013-17). Details of all five carbon budgets are provided in Table 8.10.

**Table 8.10 – UK five-yearly carbon budgets (source – [UK Government](#))**

Budget	Carbon budget level	% reduction below base year
<b>1st carbon budget (2008-12)</b>	3,018 MtCO <sub>2</sub> e	23
<b>2nd carbon budget (2013-17)</b>	2,782 MtCO <sub>2</sub> e	29
<b>3rd carbon budget (2018-22)</b>	2,544 MtCO <sub>2</sub> e	35 by 2020
<b>4th carbon budget (2023-27)</b>	1,950 MtCO <sub>2</sub> e	50 by 2025
<b>5th carbon budget (2028-32)</b>	1,765 MtCO <sub>2</sub> e	57 by 2030

### **Renewable Energy Generation**

In Q3 2016 Scotland had 8,263MW of installed renewable electricity capability, the majority of which comes from wind energy.

Taking into account known projects currently in the system, the total renewable capacity either in operation or in planning totals 21.1 GW — nearly three times the level currently deployed (Scottish Government, 2016, Energy Statistics for Scotland).

It is likely therefore that the contribution from renewables, as a share of Scotland’s total energy generation, will continue to rise into the future.

### **Energy Efficiency**

Chapter 12 - Material Assets covers the use of renewable energies and future energy efficiency in South Ayrshire in detail. The council is committed to improving the future energy efficiency of both private and council housing through a variety of measures including low cost insulation schemes and developing renewable technologies, such as solar panels for use in public buildings such as schools and hospitals.

## 9. Noise

### SEA objectives that relate to Noise and Light:

- *Avoid deterioration in the noise regime in noise sensitive areas.*

### Summary of 2018 Performance:

Indicator	Status and Trend	Description
No meaningful quantitative indicators		

### Introduction

Environmental noise is defined by the Scottish Government as '*unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport, road traffic, rail traffic, air traffic, and from sites of industrial activity*'.

Noise can have a negative effect on a variety of factors, including human health and wellbeing, productivity and efficiency and finally the natural environment.

Noise generates a significant social cost and must be managed carefully where possible. It is critical to be aware of the sources and magnitude of noise in the environment in order to minimise its harmful effects.

Noise represents a key consideration to the council when forming policy, as well as when making decisions regarding planning and land use.

Noise is measured in terms of 'audibility' using the unit decibels, or dB. Zero dB represents the limit of audibility, while 140dB is the point at which pain will be experienced in the ear.

The principal legislation regarding public noise exposure is the European Environmental Noise Directive (END) (2002/49/EC), transposed into Scottish law through the Environmental Noise (Scotland) Regulations 2006.

In terms of assisting local authorities, 'Planning Advice Note 1/2011: Planning and Noise' advises on the role of the planning system in assisting in preventing and limiting the adverse effects of noise.

### Noise Complaints

South Ayrshire Council's Environmental Health team deals with noise and vibration complaints from the public. Common complaints include excessive residential noise, construction related noise, vibration from heavy goods vehicles and blasting at quarry construction sites undertaking activities such as pile driving.

### Noise Mapping

The Scottish Government has produced strategic noise maps for major roads, railways, airports and industrial sites in Scotland. Under the Environmental Noise Regulations, local authorities are then required to produce Action Plans to manage noise levels at any sites where necessary.

Two rounds of mapping have been undertaken, differentiated by the criteria used to define the transportation links to be modelled, with round two (2012) involving stricter criteria than round one (Table 9.1).



**Table 9.1 – Criteria for determining qualifying features for noise mapping (source – [Scottish Government](#))**

Category	Criteria	Round 1	Round 2
<b>Major Roads</b>	Vehicle passages per year	>6,000,000	>3,000,000
<b>Major Railways</b>	Train passages per year	>60,000	>30,000
<b>Agglomerations</b>	Population	>250,000	>100,000
<b>Airports</b>	Air traffic movements per year	>50,000	>50,000

Computer software calculates the noise level at a specific location as it disperses out from the sources of noise modelled. The result is an average noise level for an average day in the year calculated on the basis of a 10m grid a height of 4m above ground level, as defined in the Directive.

The A77 is the main road artery from South Ayrshire to Glasgow and the central belt. The noise sensitive receptors along the length of the A77 in South Ayrshire are the nearby centres of population and nature conservation designations.

The main population centres along the A77 in South Ayrshire are the towns of Ayr, Prestwick and Symington. Based on the strategic noise maps published by the Scottish Government, no residential property experiences road noise levels higher than  $65 \leq$  to  $<70$  dB (A) Lden and  $55 \leq$  to  $<60$  dB (A) Lnight.

Properties in the direct vicinity of Glasgow Prestwick Airport are the only areas that experiences higher noise levels in the range of  $70 \leq$  to  $<75$  dB (A) Lden and  $65 \leq$  to  $<70$  dB (A) Lnight.

Scottish noise maps for rail and industrial generated noise have not yet been published for South Ayrshire.

## Action Plans

### Agglomeration and Airport Action Plans

No action plans for agglomerations or airports are necessary in South Ayrshire. No individual agglomeration exceeds 100,000 in population, while Prestwick Airport does not qualify as its throughput does not exceed 50,000 passengers per year.

### Transportation Action Plans

Following the second round of noise mapping in 2012, three Candidate Noise Management Areas (CNMA) have been identified in South Ayrshire. Each CNMA will be reviewed to determine whether it should be formally designated as a Noise Management Area (NMA). These NMA's form part of the Transportation Noise Action Plan for Scotland

Two CNMA's are associated with railways and one with roads, as follows:

- Road – CNMA 118 - A79, Prestwick Road, Near Fernbank Court, Prestwick (Figure 9.1)
- Rail – CNMA 25 - Near Dundonald Road, Troon (Figure 9.2)
- Rail – CNMA 26 - Near Montgomerie Road, Ayr (Figure 9.3)

The assessment of Candidate Noise Management Areas and resultant classification of Noise Management Areas is ongoing. If designated as a NMA, each area will be subject to a number of actions as identified in the Transportation Action Plan, such as the requirement for the installation of low noise road surfacing and roadside noise barriers and the promotion of the use of electric cars in the area.



Figure 9.1 - CNMA 118 - A79, Prestwick Road, Near Fernbank Court, Prestwick (source – Scottish Government)



Figure 9.2 - CNMA 25 - Near Dundonald Road, Troon (source – Scottish Government)



Figure 9.3 - CNMA 26 - Near Montgomerie Road, Ayr (source – Scottish Government)

### Sensitive Nature Conservation Areas

There are a number of sites designated for their nature conservation value that are in close proximity to potential transport related noise sources, outlined in Table 9.2.

Table 9.2 - Nature conservation sites in South Ayrshire Close Proximity to Noise Source

Potential Noise Source	Designation Type	Designated Area
A77	SPA	Glen App and Galloway Moors
	SAC	Lendalfoot Hills Complex
	SSSI	Glen App and Galloway Moors
		Pinbain Burn to Cairn Hill
	Aldons Hill	
A713	SSSI	Martnaham Loch and Wood
A78	SSSI	Dundonald Wood

### Future Trends

As consideration of environmental noise is now both the subject of defined European and national legislation and is recognised in Scottish Planning Policy, it is likely that the issue will become less significant in the future.

This is supported by the transition towards quieter, more efficient forms of transport such as electric cars and trains, as well as technological improvements in noise limiting apparatus.

## 10. Human Health




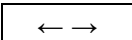




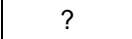
*Alloway to Doonfoot disused railway – a popular South Ayrshire walk*

### **SEA objectives that relate to Population and Human Health:**

- *To minimise any detrimental impact of activity on human health.*
- *To protect and sustain human health and enhance human wellbeing.*
- *To reduce the risks to human health arising from poor air, water and soil quality.*
- *To reduce the risks to human health arising from the effects of climate change.*
- *To reduce the risks to human health arising from flooding.*
- *To protect the noise environment of communities*

## Summary of 2018 Performance:

Indicator	Status and Trend	Description
Percentage of population in good or very good health	↑	80.9% (2011). (up from 68.3% in 2001 census. Below national average of 82.2% (2011))
Percentage of adult population overweight	↓	Males 73%, females 69% (2012-14). (up from 70% (males) and 62% (females) in 2008-11. Above national average (males - 69% and females - 61%) NB: data is for Ayrshire and Arran)
Percentage of children (aged 2-15) classed as overweight or obese	↓	31.6% (2011). (up from 28% in 1998. NB: data is for Ayrshire and Arran)
Percentage of commuter journeys by car / taxi	↓	76.8% (2011). (up from 74.5% in 2001. Above national average (70.3% in 2011))

Status	Trend
 Good	 Stable
 Moderate	 Improving
 Poor	 Declining
	 No trend

## Introduction

Human health is a key indicator of the state of the environment of an area as it depends on so many other factors, including air, soil and water quality as well as access to key services including health, education and high quality outdoor facilities.

Health has a direct impact on the quality of life of an individual and those close to them. It may be impacted more significantly by external factors such as poor air quality, or by personal choices linked to diet and lifestyle.

Focus in this chapter has been on the contribution of long-term illness and obesity on the welfare of the populations of South Ayrshire and Scotland.

Indications on the state of health in South Ayrshire can also be drawn from the commuting habits and levels of physical activity taken by the population. Improving health education and enhancing opportunities for the public to take part in active travel and physical activity are key elements to improving health within South Ayrshire.

The best source of information for the state of human health is the national census, conducted every ten years, most recently in 2011. Through the census process individuals are asked a number of key questions related, amongst other things, to their general health and well-being. The consistent nature of the census every ten years allows conclusions to be drawn as to whether the state of health in an area is improving or worsening. It also allows direct comparisons to be made between South Ayrshire and Scotland as a nation.

## General Health

According to the Scotland Census 2011 data, approximately 80.9% of South Ayrshire's population is considered to be in good or very good health, slightly below the Scottish average of 82.2%.

Similarly 5.6% of the population of South Ayrshire are in poor or very poor health, marginally worse than the national average of 5.8% (Table 10.1).

**Table 10.1 – General health of the population of South Ayrshire vs Scotland (source - [2011 Census](#))**

	Population	Health (% of Individuals)				
		Very Good	Good	Fair	Poor	Very Poor
<b>South Ayrshire</b>	112,799	50.8	30.1	13.3	4.4	1.4
<b>Scotland</b>	5,295,403	52.5	29.7	12.2	4.3	1.3

The census data also shows that 32% of the total population of South Ayrshire have some form of long-term illness, a higher proportion than the national average of 29.9%. Table 10.2 displays the percentage of the population reporting various conditions. Figures in red indicate where South Ayrshire is above the national average, and green where South Ayrshire is below the national average.

**Table 10.2 – Percentage of population with long-term illness (source – [2011 Census](#))**

	No condition	One or more conditions	Deafness / partial hearing loss	Blindness / partial sight loss	Learning disability
<b>South Ayrshire</b>	68.0%	32.0%	7.3%	2.7%	0.6%
<b>Scotland</b>	70.1%	29.9%	6.6%	2.4%	0.5%
	Learning difficulty	Developmental disorder	Physical disability	Mental health condition	Other condition
<b>South Ayrshire</b>	1.7%	0.5%	7.2%	4.6%	20.5%
<b>Scotland</b>	2.0%	0.6%	6.7%	4.4%	18.7%

Table 10.3 indicates how respondents consider that their long-term illness affects them. In this sense South Ayrshire is performing better than Scotland as a whole, with a lesser percentage of respondents reporting that the condition has a negative impact on their daily lives.

**Table 10.3 – Effect of long-term illness on day-to-day activity (source – [2011 Census](#))**

	Effect of condition on day-to-day activities....		
	Limited a lot	Limited a little	Not limited
<b>South Ayrshire</b>	9.6%	10.1%	80.4%
<b>Scotland</b>	10.5%	11.2%	78.2%

## Obesity

Obesity is linked to increased risk of coronary heart disease, diabetes, cancer, kidney failure and high blood pressure.

### Adult Obesity

Obesity has risen significantly in Scotland in the last 15 years and represents a major risk to the health of the population, impacting on a variety of physical, psychological and long-term health conditions.

Obesity is measured in terms of Body Mass Index (BMI), calculated as weight (kg) divided by bodily volume (m<sup>3</sup>).

According to the Ayrshire Healthy Weight Strategy (NHS, 2014), between 1995 and 2011 the proportion of adults (aged 16-64) classified as overweight or obese in Scotland increased from 52.4% to 62.2%. Over the same period, the proportion of adults classified as obese increased from 17.2% to 26.5%.

Table 10.4 displays statistics regarding the percentage of adults (16 +) classified as overweight in Ayrshire. Data is not available at the Local Authority level for South Ayrshire so instead it is taken from NHS Ayrshire and Arran figures, comprising all three Ayrshire Local Authorities (North, East and South Ayrshire).

As the table shows, the percentage of adults classified as overweight for Ayrshire and Arran is above the national average for both males and females, both for the periods 2008-11 and 2012-14. This has been recognised as an issue that requires attention and is being targeted through the Ayrshire Healthy Weight Strategy 2014-24.

**Table 10.4 – Percentage of adult population classified as overweight (source – [NHS](#))**

		Percentage of adults (over 16) overweight (BMI >25)	
		Males	Females
<b>Ayrshire &amp; Arran</b>	2012-14	<b>73</b>	<b>69</b>
<b>Scotland</b>	2012-14	69	61
<b>Ayrshire &amp; Arran</b>			
<b>Ayrshire &amp; Arran</b>	2008-11	<b>70</b>	<b>62</b>
<b>Scotland</b>	2008-11	68	61

## Childhood Obesity

The prevalence of childhood obesity in Scotland has increased in the past two decades, driven mostly by boys.

Childhood obesity is measured differently in children to adults, using the National BMI percentiles classification. Percentiles provide an indication of how an individual compares to their peers; in this case being 'at or below the 5<sup>th</sup> percentile' would indicate that the individual is amongst the lightest 5 % measured. Similarly being 'above the 98<sup>th</sup> percentile' would mean the individual is among the heaviest 2%. The full classification is outlined in Table 10.5.

**Table 10.5 – Classification system for calculating childhood obesity (source – [Scottish Government](#))**

Percentile Cut-off	Description
At or below 5th percentile	Underweight
5th to 85th percentile	Healthy Weight
85th to 95th percentile	Overweight
95th to 98th percentile	Obese
Above 98th percentile	Morbidly Obese

Table 10.6 displays the childhood weight statistics for Scotland, comparing 1998 with 2011. The table shows a clear trend over the 13 years of children (aged 2-15) moving from a healthy weight to overweight / obese / morbidly obese.



*Quay Zone Leisure Centre – Girvan*

**Table 10.6 – Childhood weight for Scotland, 1998 to 2011 (source – [Scottish Government](#))**

Classification	1998	2011
Healthy Weight	70.3%	65.6%
Overweight / Obese	28%	31.6%
Obese / Morbidly Obese	13%	15.7%

NHS Ayrshire and Arran perform measurements of BMI on all children in Primary 1 (P1) in all schools across South Ayrshire. A comparison of the data from school years 2007/08 and 2011/12 is shown in Table 10.7. As the table shows, the percentage of children in all categories has increased over this period.

**Table 10.7 – Percentage of P1-aged children classified as overweight, obese or morbidly obese in South Ayrshire (source – [NHS Ayrshire and Arran](#))**

Classification	2007/08	2011/12
Overweight	19.9%	24.1%
Obese	7.6%	11.1%
Morbidly Obese	3.8%	6.9%

Similar to adult obesity, childhood obesity in South Ayrshire is being addressed as part of the Ayrshire Healthy Weight Strategy 2014-24.

## Physical Activity and Recreation

### Active Travel

Active travel is defined as non-motorised travel, commonly by means of walking and cycling. Active travel has benefits to human health through increasing exercise levels and also to the wider community as a result of a reduction in traffic levels and congestion.

South Ayrshire has an extensive path and cycle network, including a National Cycle Network Route (NCR 7), as well as numerous local routes. The NCR7 runs from Carlisle to Inverness; in South Ayrshire the route



passes through Galloway Forest Park, Glengennet, Cloyntie and South Mains before heading to the coast and through Ayr, Prestwick and Troon.

In response to the Land Reform Act (Scotland) 2003, South Ayrshire Council produced a Core Paths Plan. The plan identifies a number of core path routes, including the Ayrshire Coastal Path, National Cycle Routes and the River Ayr Way. The intention is to provide the public with a network of clearly defined and recognisable routes suitable for walking, cycling, horse riding and other activities, allowing them to access as much of the area as possible.

The plan was adopted in 2014 and forms a central part of the outdoor access provision in South Ayrshire.

An Active Travel Hub was established at Ayr Train Station in 2016, funded jointly by South Ayrshire Council, Scotrail and the grant scheme Smarter Choices, Smarter Places. The Hub is manned by dedicated staff and volunteers, with the aim of providing advice and support to people wishing to promote and participate in active and sustainable travel across South Ayrshire.

## Commuting

The best statistics available for commuting preferences are via the national census datasets. Figure 10.1 and Table 10.8 outline the commuting habits for South Ayrshire in 2001 and 2011, alongside the equivalent national-level statistics for both years.

The data shows travelling via a personal motorised vehicle (car, motorbike or taxi) to be the dominant method of transport to the workplace. For both years however, South Ayrshire has exceeded the national average for the percentage of commuters travelling by personal motor vehicle. This Category also saw an increase at both regional and national level from 2001 to 2011.

South Ayrshire has fewer % of commuters travelling by all other forms of transport than the national average, including by public transport, bicycle and on foot.

In South Ayrshire itself, the percentage of commuters travelling actively (foot or bicycle) decreased from 2001 (12.6%) to 2011 (11.1%).

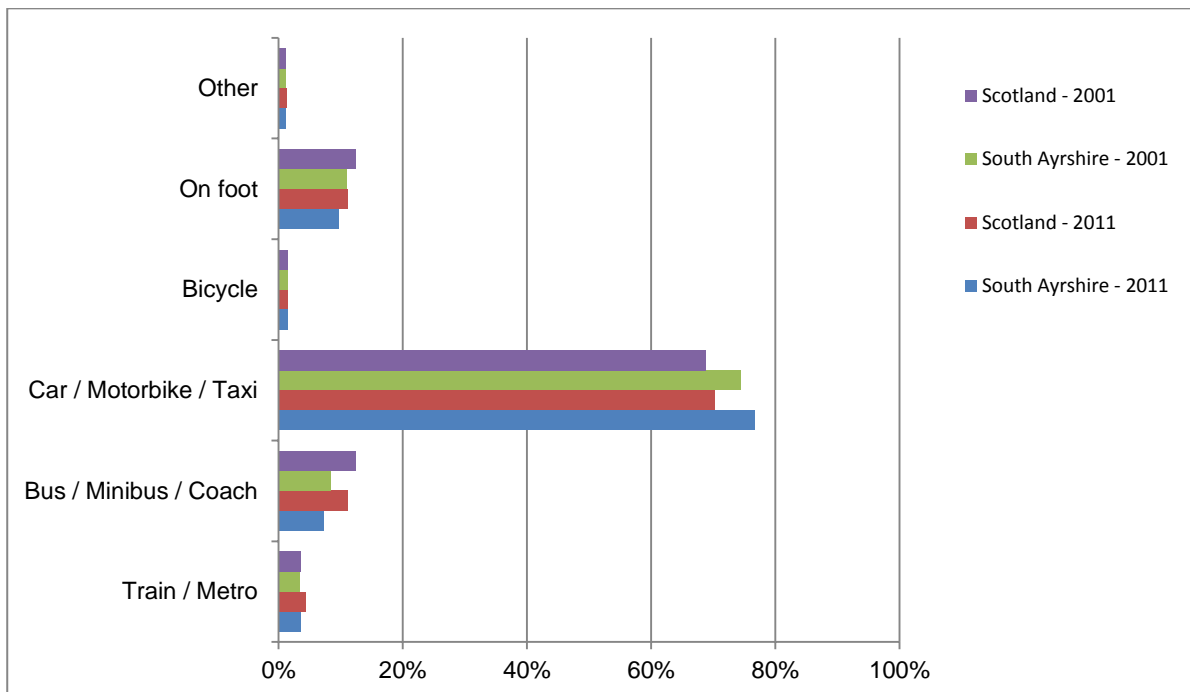


Figure 10.1 - Commuting methods of South Ayrshire vs Scotland, 2001 and 2011 (source – 2011 Census)

**Table 10.8 - Commuting methods of South Ayrshire vs Scotland, 2001 and 2011 (source – [2001 and 2011 Census](#))**

2011	Train / Metro	Bus / Coach	Car / Taxi	Bicycle	On foot	Other
S. Ayrshire	3.7%	7.4%	76.8%	1.4%	9.7%	1.1%
Scotland	4.5%	11.2%	70.3%	1.6%	11.1%	1.3%
<b>2001</b>						
S. Ayrshire	3.4%	8.4%	74.5%	1.5%	11.1%	1.1%
Scotland	3.6%	12.5%	68.8%	1.5%	12.4%	1.2%

## Physical Activity

Undertaking physical activity is a critically important for maintaining physical and mental health, including reducing the risk / effects of a number of conditions including coronary heart disease, cancer, type 2 diabetes, obesity and muscular-skeletal problems. It also increases the chances of a longer, independent life.

The Scottish Government's Scottish Health Survey 2015 provides an indication of the level of physical activity that the Scottish public take part in.

Only 63% of adults in Scotland met the guidelines for the recommended levels of Moderate / Vigorous Physical Activity (MVPA) that each individual should undertake on a weekly basis. This figure is similar to the 62-64% reported in 2012.

The survey further notes that men (67%) were more likely to meet the guidelines than women (59%).

In terms of children, in 2015 73% met the MVPA guidelines, with boys (77%) more likely to do so than girls (69%). Again, these figures are similar to 2012.

The 2012 Scottish Household Survey indicated that, in South Ayrshire, 81% of adults reported taking part in sport at some point in the past 28 days, exceeding the national average of 74%. If walking is excluded, both South Ayrshire and Scotland fell to 51% of adults taking part in the past 28 days.

The most popular sporting activities in South Ayrshire were walking, swimming and keep fit / aerobics.

## Future Trends

### General Health

The current trend of decreasing levels of mortality and increasing life expectancy is likely to continue in South Ayrshire, in line with Scotland nationally.

### Obesity and Active Travel

Forecasted trends show both adult and child obesity are increasing across Scotland. It is anticipated that South Ayrshire will show a similar trend. However, further promotion of walking and cycling could assist in addressing obesity and improving general health.

Scotland's walking and cycling paths are to be further extended by more than 500 miles between 2015 and 2020, including plans for expansion of routes within Ayrshire.

Continued efforts are also being made in South Ayrshire to encourage more people to walk and cycle. This expansion will aim to link more communities to their schools, shops and green spaces, while at the same time promote the benefits of active, healthy and environmentally friendly travel. Key initiatives in support of this are the creation of the Active Travel Hub in Ayr and the approval in 2014 of a Core Paths Plan.


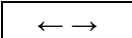




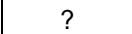
## 11. Population

### SEA objectives that relate to Population:

- *Improve the community environment and quality of life of residents.*
- *Maintain or enhance sustainable access to key services, amenities and employment, particularly for rural communities.*
- *Maintain or enhance sustainable access to key services, amenities and employment particularly for rural communities.*

### Summary of 2018 Performance:

Indicator	Status and Trend	Description
Average age of resident	?	43.5 years old (2011). Significantly above the national average of 40.3 years old
Life Expectancy - Males	↑	77.7 years (2013-15). Up from 75 years (2003-05). Above the national average of 77.1 years (2013-15)
Life Expectancy - Females	↑	81 years (2013-15). Up from 80 years (2003-05). Slightly below the national average of 81.1 years (2013-15)
Death Rates per 1000 population - Males	?	12.5 (2013-15). Significantly above the national average of 10.4
Death Rates per 1000 population - Females	?	13.1 (2013-15). Significantly above the national average of 10.5
Percentage of population unemployed	?	5% (2016). Similar to the national average of 4.8%
Percentage of population with access to a car or van	↑	74% (2011). Up from 70.8% in 2001. Above the national average of 69.5% (2011).

Status	Trend
 Good	 Stable
 Moderate	 Improving
 Poor	 Declining
	 No trend

### Introduction

The population profile of a region, including factors such as age distribution, ratio of male : females and ethnic composition, contributes significantly to its character as a place to live.

South Ayrshire has long been characterised as having a relatively aged population, due to its rural history, low population density and relative lack of large industry or settlements.

The majority of the population (approx. 78%) live in the five main towns of Ayr, Girvan, Maybole, Prestwick and Troon. Approximately 11% of South Ayrshire's population lives in settlements of less than 500 people.

There are many factors that contribute to the population profile of a region changing over time. These include birth rates, death rates and the degree of immigration into / emigration out of the region.

The most accurate population estimates are generated through the national census process, held every ten years. The latest census was conducted in 2011.

National Records of Scotland (NRS) produce updated estimates of population every year, based on the latest available census figures combined with elements of population change. These figures are considered to be the official estimates of Scotland's population at any given time.

## South Ayrshire Population Profile

### 2011 Census

The results from the 2011 census indicate that South Ayrshire's population is 112,799. This marks an increase of 702 from the 2001 census which reported a population of 112,097, an increase of 0.6%.

Scotland's population on census day in 2011 was estimated at 5,295,403. This represents a 4.6% increase from the 2001 census figures of 5,062,000.

The 2011 census indicated that approximately 2.1% of Scotland's population lives in South Ayrshire.

In terms of total population, South Ayrshire is the 17<sup>th</sup> largest council area of the 32 councils in Scotland.

Table 11.1 provides details of the populations of the five main settlements from the 2001 and 2011 censuses. As the table shows, both Ayr and Maybole experienced a marked population increase. Girvan experienced a notable population decrease, with modest decreases also seen in Troon and Prestwick.

**Table 11.1 – Comparison of the population of the five main settlements in 2001 and 2011 (source – [2001 and 2011 Census](#))**

	2001	2011	Diff.
<b>Ayr</b>	46,392	46,849	457
<b>Troon</b>	14,766	14,752	-14
<b>Prestwick</b>	14,934	14,901	-33
<b>Girvan</b>	6,992	6,651	-341
<b>Maybole</b>	4,552	4,760	208
<b>Total</b>	<b>87,636</b>	<b>87,913</b>	

### 2016 NRS Mid-year Estimates

NRS estimated South Ayrshire's population at 112,470 for mid-year 2016, an increase of 373 from the official 2011 census.

Despite this short-term increase, the long-term trend shows that South Ayrshire's population has decreased in recent years, from approximately 115,000 in 1989.

Over this same time period, Scotland's population experienced a steady 6% increase from 5,092,190 (1996) to 5,404,700 (2016).

### Demography and Ethnic Composition

11.1 Table 11.2 details the demographic breakdowns of the populations of South Ayrshire and Scotland. As the table shows, South Ayrshire contains a more ageing population relative to the national average, with relatively fewer population in the 16-29 and 30-44 age categories and a higher population in the 45-59, 60-74 and 75+ categories.

**Table 11.2 – Demographic profile of the populations of South Ayrshire and Scotland (source – [2011 Census](#))**

Percentage of Population of Age	South Ayrshire	Scotland
0 to 4 years old	4.9	5.5
5 to 15 years old	11.4	11.8
16 to 29 years old	15	18.5
30 to 44 years old	17.5	20
45 to 59 years old	22.3	21.1
60 to 74 years old	19	15.5
75 years old and over	9.9	7.7
<b>Total population</b>	112799	5295403
<b>Average resident age</b>	43.5	40.3

Table 11.3 details the ethnic profile of South Ayrshire and Scotland. The table indicates that South Ayrshire is less ethnically diverse than Scotland as a whole, containing a higher percentage of white Scottish residents and a lower percentage of all other ethnic groups.

**Table 11.3 – Ethnicity profile of the populations of South Ayrshire and Scotland (Source – [2011 Census](#))**

Ethnicity (Percentage)	South Ayrshire	Scotland
% White - Scottish	89.5	84
% White - Other British	7	7.9
% White - Irish	0.8	1
% White - Polish	0.3	1.2
% White - Other	1.1	2
% Asian, Asian Scottish or Asian British	0.8	2.7
% Other ethnic groups	0.5	1.3

## Life Expectancy and Death Rates

Table 11.3 details the life expectancy (at birth) statistics for South Ayrshire and Scotland, comparing the latest estimates (2013-15) with the equivalent estimates from the previous ten years (2003-05).

Life expectancy at birth in Scotland (2013 – 2015) is 77.1 for males and 81.1 for females. Both have increased markedly since the 2003-05 period.

Life expectancy in South Ayrshire is higher than the Scottish average for males (77.7), but slightly lower for females (81). Again, both male and female life expectancy in South Ayrshire have increased since the 2003-05 period (Table 11.4).

**Table 11.4 – Life expectancy in South Ayrshire and Scotland (source – [National Records of Scotland](#))**

	Male		Female	
	2003-05	2013-15	2003-05	2013-15
<b>South Ayrshire</b>	75	77.7	80	81
<b>Scotland</b>	74.2	77.1	79	81.1

Table 11.5 outlines the annual death rates (deaths per 1000 people) for South Ayrshire and Scotland, averaged across the period 2013-2015. As the table indicates, death rates are higher for South Ayrshire

compared to the national average. This may in part reflect the older demographic of South Ayrshire relative to Scotland.

The main causes of death are circulatory diseases and cancer.

**Table 11.5 – Annual Death Rates (per 1000 people) in South Ayrshire and Scotland 2013-15 (source – [National Records of Scotland](#))**

	Male	Female
<b>South Ayrshire</b>	12.5	13.1
<b>Scotland</b>	10.4	10.5

## Employment and Economic Development

### Employment

Table 11.6 displays the employment statistics for South Ayrshire and Scotland in 2016. The statistics are compiled by the Office for National Statistics, the recognised national statistical institute for UK.

An important distinction to note within the statistics is that the numbers refer to those aged 16 and over, while the percentages represent those of working age (i.e. aged 16-64).

As the table shows, South Ayrshire has a slightly lower percentage of the population classed as economically active relative to the national average, that is they are either employed or officially unemployed. The 'economically inactive' include students, those caring for family / other, long-term sick and the early-retired.

South Ayrshire also has a slightly lower percentage of the population employed relative to Scotland as a whole.

Another important point to note regarding the statistics is that the percentage calculated as 'unemployed' is based on a different methodology than the 'in employment' Category, hence the discrepancy in the numbers.

Using this model-based approach, South Ayrshire has a slightly higher percentage of unemployed than the national average at 5%.

**Table 11.6 – Employment Statistics for South Ayrshire and Scotland, 2016 (source – [Office for National Statistics](#))**

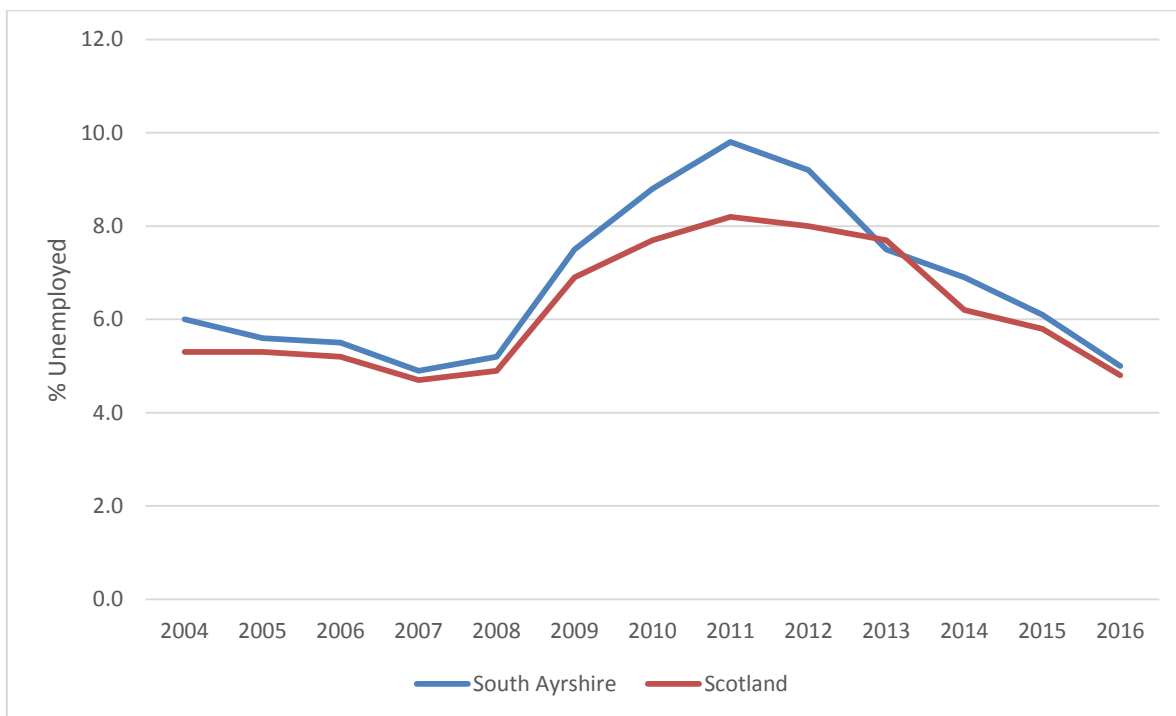
	Numbers	South Ayrshire (%)	Scotland (%)
<b>Economically Active</b>	52,500	75.1	76.8
<b>In Employment</b>	49,900	71.6	72.9
<b>Employees</b>	43,600	63.6	63.9
<b>Self Employed</b>	6,300	7.8	8.7
<b>Unemployed</b>	2,600	5	4.8
<b>Notes:</b> <i>Economically active - People who are either in employment or unemployed. Numbers are for those aged 16 and over, % are for those aged 16-64</i>			

Of those employed, the gross weekly wage is slightly higher in South Ayrshire (£538.50) than the national average (£536.60) (Office for National Statistics, 2017).

Figure 11.1 displays historical statistics for unemployment in both South Ayrshire and Scotland back to 2004, compiled by the Office for National Statistics.

A clear increase in unemployment resulted from the global financial crisis in 2008/09. South Ayrshire suffered greater relative to the national average, with unemployment rising to nearly 10%, the result of the

proportionally higher percentage of jobs in retail and tourism. Unemployment in both South Ayrshire and Scotland has subsequently been decreasing steadily since 2011.



**Figure 11.1 – Unemployment figures for South Ayrshire and Scotland, 2004 – 2016 (source – [Office for National Statistics](#))**

Table 11.7 provides a breakdown of the categories in which individuals from South Ayrshire and Scotland as a whole were employed.

The major group structure by which the different categories are classified was devised by the Office for National Statistics. The purpose was to bring together groups of jobs which are similar in terms of the qualifications, skills, training and experience necessary for the role. Generally speaking, the lower the number of the group (1-9), the greater the degree of qualifications, skills, training and experience necessary.

**Table 11.7 – Breakdown of roles of employment within South Ayrshire and Scotland, 2017 (source – [Office for National Statistics](#))**

	South Ayrshire (Numbers)	South Ayrshire (%)	Scotland (%)
<b>Major Group 1-3</b>	<b>20,400</b>	<b>40.9</b>	<b>42.8</b>
1 Managers, Directors And Senior Officials	3,900	7.8	8.7
2 Professional Occupations	9,500	19	20.6
3 Associate Professional & Technical	6,900	13.8	13.2
<b>Major Group 4-5</b>	<b>10,900</b>	<b>22</b>	<b>21.1</b>
4 Administrative & Secretarial	5,100	10.2	10.3
5 Skilled Trades Occupations	5,900	11.7	10.8
<b>Major Group 6-7</b>	<b>10,300</b>	<b>20.6</b>	<b>18.6</b>
6 Caring, Leisure, Other Service	6,300	12.6	9.6
7 Sales And Customer Service	4,000	7.9	8.9
<b>Major Group 8-9</b>	<b>8,200</b>	<b>16.5</b>	<b>17.5</b>
8 Process Plant & Machine Operatives	2,600	5.3	6.2
9 Elementary Occupations	5,600	11.1	11.2

As the table shows, South Ayrshire has a lower percentage of the population than the national average employed in Major Groups 1-3 and 8-9, and a higher percentage in Groups 4-5 and 6-7.

Of the individual categories, the most marked differences are that South Ayrshire has a higher percentage of individuals employed in the caring / leisure / service sector, with relative fewer in professional occupations.

## Economy

South Ayrshire has a long tradition of manufacturing and processing operations. The local economy has faced challenges following the decline of these sectors, most notably in engineering, textiles, coal mining and fishing. Areas which depended heavily on these industries have suffered marked decline, such as the industrial estates around Newton.

A report published by South Ayrshire Council in 2011 'The South Ayrshire Economy and its Future Prospects: A Strategic Review' noted that, of the 47,000 jobs in South Ayrshire, 33% were in the public sector, 15% in retail and 13% in tourism.

Furthermore, only 22% of local jobs were in the Scottish Government's six priority industries for growth – life science, food and drink, financial services, energy, tourism and creative industries.

There are localised areas of high unemployment in areas such as Ayr North and Girvan, where priority partnership areas have been designated to encourage new investment. These two areas contain around 25% of all unemployed in South Ayrshire, despite comprising only 10% of the total population.

Tarbolton, Mossblown and Annbank are also recognised as requiring priority investment to aid economic regeneration.

Around 30% of South Ayrshire's populations live in rural areas. However, the number of people directly employed in farming has declined in recent years, with a move away from intensive farming into other land management practices, including commercial forestry. The South Ayrshire Economic Development Strategy 2013 - 2023 therefore highlights the need to diversify the rural economy.

## Accessibility

Because of its relatively rural nature, South Ayrshire has a high rate of car ownership compared to the rest of Scotland. Table 11.8 details results from the 2001 and 2011 censuses.



**Table 11.8 – Percentage of households with access to a car or van (source – [2001 and 2011 Census](#))**

	2001	2011
<b>South Ayrshire</b>	70.8%	74.0%
<b>Scotland</b>	65.8%	69.5%

The table also indicates that access to a car increased both in South Ayrshire and at the national level from 2001 to 2011.

Of the 51,286 households in South Ayrshire, 13,351 do not have access to a car or van (26%). This is below (better than) the national average of 30.5 % (Table 11.9).

**Table 11.9 – Number of households with access to cars or vans (source – [2011 Census](#))**

	All households	No cars or vans	One car or van	Two or more cars or vans
<b>South Ayrshire</b>	51,286	13,351	22,345	15,590
		26.0%	43.6%	30.4%
<b>Scotland</b>	2,372,777	724,144	1,002,344	646,289
		30.5%	42.2%	27.2%

South Ayrshire has access to an average of 1.1 cars / vans per household, slightly higher than the national average of 1.

At present, the road network is capable of handling the current volume of traffic. However there are a number of congestion hotspots, particularly around rush hour time, including the A77 Whitletts roundabout, Maybole town centre and Ayr town centre.

Outside South Ayrshire, journey times for services to Glasgow are largely affected by congestion on the northern part of the M77 and the M8 in Glasgow, particularly during peak hours.

Chapter 10 – Human Health details the statistics regarding commuting choices, in terms of method of travel.

## Disability and Mobility

A number of access issues exist in South Ayrshire for those with disabilities or mobility problems, particularly in relation to buses and taxis.

Access to buildings including new shopping centres and council buildings has historically been poor. The proportion of public buildings accessible to disabled people was only 50% in March 2008 (South Ayrshire Council, 2008).

South Ayrshire Council aim to ensure that the design of new buildings and reconstruction works meets the needs and seeks to improve the quality of life for disabled people. The council has increased access to disabled amenities in Ayr town centre, and has developed access guides to Ayr, Girvan, Maybole, Prestwick, and Troon, in partnership with local businesses and the charity DisabledGo.

## Future Trends

### Demographics

National Records of Scotland (NRS) provide estimates of population change over the next 25-year period, based on birth and death rates and a number of other factors.

South Ayrshire's population is projected to decline by 2.2% by 2033 (relative to 2014) to 110,104. In this same time period, Scotland's population is projected to increase by 7.5%.

In the period 2014 to 2039 the age group projected to increase the most is the 75+. This is also the case for Scotland as a whole.

In the same time period, the under-16 population in South Ayrshire is projected to decline by 7.5%.

This will result in an increase in the dependency ratio (number of population aged U-16 or 65+ / number of population aged 16 to 64) from 71% in 2012 to 84% in 2037. This reflects the fact that the growing number of elderly will have an increasing dependency on the working population.

The overall trend for South Ayrshire is that of a declining population, increasing in average age. These anticipated changes to population will have considerable consequences for the council as it seeks to meet the public's needs in social, educational, housing and community services.

## **Household Projections**

Despite the projected decline in population, NRS forecast that the number of households in South Ayrshire will increase by 5% in the same period, from 51,874 to 54,573. This is driven mainly by an increase in the number of lone adult households headed up by the divorced, retired and elderly, with an associated decrease in the number of larger households (two or more adults with children).

The average household size in South Ayrshire is projected to decrease from 2.14 in 2014 to 1.98 in 2039.

## **Employment**

South Ayrshire Council recognise the need for the area to diversify its economy with a view to creating more skilled and better-paid jobs, one of the priorities outlined in the South Ayrshire Economic Development Strategy 2013 - 2023.

This includes building on the existing strengths of the region in areas including tourism, aerospace and engineering, as well as recognising the need to attract new dynamic industries to the area connected with renewable energy, digital technologies and media.

With nearly 30% of the population aged 60+, there are also opportunities to grow the economy in areas associated with services for older people, including care services.

## 12. Material Assets

### SEA objectives that relate to Material Assets:

- *Improve quality of life through improvements in facilities for education, health and reduction in health inequalities.*
- *Improve existing access and green space and increase opportunities for recreation.*
- *To promote sustainable use and management of existing infrastructure e.g. water, heat, energy or flood protection infrastructure.*
- *To meet the objectives of the Household Waste Charter.*
- *Protect assets of economic and recreational value, including tourism*
- *Protect and enhance the quality of soils and peat.*

### Summary of 2018 Performance:

Indicator	Status and Trend	Description
Road Condition Index	↑	44.1% (2014-16). Improvement from 46.8% in 2012/14. Ranked 27th of the 32 local authorities in Scotland (2014-16)
Road safety	↓	Fatalities (7) & serious injuries (44) (2015). Both fatalities and serious injuries have increased since 2013. Missed 2015 target of maximum 5 fatalities and 30 serious injuries.
Percentage of household waste recycled / composted	↑	51.5% (2015). Up from 50% in 2014. Above the national average for local authorities of 44.2%.
Percentage of household waste sent to landfill	← →	35% (2015). Similar to 2014 performance (34.4%), though has dropped steadily since 2012. Below the national average of local authorities of 46.6%.
Street cleanliness score	↓	94.3 (2015/16). Down from 97.3 in 2014/15. Currently ranked 8/13 local authorities in peer group.

Status	
	Good
	Moderate
	Poor

Trend	
← →	Stable
↑	Improving
↓	Declining
?	No trend

### Introduction

Material Assets encompasses elements of both the built and natural infrastructure of South Ayrshire, the state and condition of which has a direct impact on the environment.

Certain elements of the built and natural world have been deliberately included to provide a perspective of the state of the environment in South Ayrshire, with the aid of statistics where possible.

Built assets covered in this chapter include transport infrastructure and the road network, industrial areas, waste management (including waste treatment) and street cleanliness. Transport is particularly important, in the attempt to move towards a carbon-free Scotland with the electrification of private and public transport. The state of the infrastructure itself, including efficiency of travel, congestion issues, condition of road surfaces and frequency of public transport services etc. all directly contribute to the state of the environment.

Waste management incorporates elements of recycling and waste treatment, critically important under the theme of reduce / reuse / recycle.

Other elements of the built environment such as buildings at risk, vacant and derelict land, energy infrastructure and flood prevention infrastructure are covered elsewhere.

Natural assets covered in this chapter include quarries and other forms of material extraction, including minerals and other geological resources such as brick clay and peat.

Extraction of minerals and aggregates can lead to significant environmental issues. Their value must be carefully balanced against the negative impacts, such as noise, visual impacts or destruction of heritage assets.

Other natural assets including woodlands and details of the underlying geology are included in other chapters.

## Natural Resources

There are 2 nationally designated Scotland's Great Trails (SGTs) in South Ayrshire: the River Ayr Way and the Ayrshire Coastal Path. The Council has developed, manages and promotes 6 path networks centred on rural settlements and 1 short distance linear route.

## Aggregates

Aggregates are defined as non-harmful granular materials, usually below 30-40mm in diameter. Examples include gravel, sand and crushed stone.

Aggregates can be used as an 'end use' product in their own right, such as for building and repairing operations for roads, railways, homes etc.

Aggregates are also used to form other materials with various uses. Sand and gravel are mainly used in the construction industry with sand principally used as fine aggregate in concrete, mortar and asphalt. Gravel is mainly used as course aggregate in concrete.

The UK is self-sufficient in aggregates in that it produces all that it consumes; importing the products is therefore unnecessary.

Aggregates can be primary, secondary or recycled. Primary aggregates are extracted as they exist, while secondary aggregates are the by-products of extractive operations for other materials, including the waste from collieries and other mineral extraction processes.

Recycled aggregates are produced by reprocessing materials previously used in construction, including recycled concrete, demolition waste material and railway ballast. The use of secondary and recycled aggregates are always preferred to primary, due to their lesser environmental impacts.

## Quarries

There are four active quarries in South Ayrshire extracting hard rock aggregate (Table 12.1). Hallyards and Hillhouse Quarries, near Troon, are currently the subject of an ongoing planning application to link the two together via an access road (May 2017).

**Table 12.1 – Active Quarries in South Ayrshire**

Quarry	Location	Company	Details
Hallyards	Troon	Hillhouse Quarry Group	Aggregates / Asphalt Plant. Planning application ongoing for consolidation via a link road with nearby Hillhouse quarry. Whinstone and limestone.
Hillhouse	Troon	Hillhouse Quarry Group	Aggregates / Asphalt Plant. Operational since 1907. One of the largest independent whinstone quarries in mainland Scotland - capacity to produce in excess of 1m tons of product per annum. Dolerite.
Barbrae	Girvan	Breedon Group	Aggregates. Ordovician Ardwell Farm Formation. Sandstone
Tormitchell	Girvan	Breedon Group	Aggregates / Asphalt / Concrete. Ordovician Stinchar Limestone. Sandstone and Conglomerate

There are also numerous disused quarries throughout South Ayrshire, many of which are now reservoirs or other recreational waterbodies. Quarries were previously more numerous and smaller in size, used principally to generate building material for nearby construction projects.

Until recently Ailsa Craig was quarried for microgranite in small quantities for curling stones.

## **Geological Resources**

### **Opencast Coal Sites**

Though coal seams are present throughout South Ayrshire and previously provided a significant resource, coal mining ended in the 1970's. Coal was mined initially from the surface and at very shallow depths and then, as technology improved, by deep longwall mining at larger collieries including Auchincruive and Enterkine.

The last deep mine in Scotland closed in 2002, while the last coal-fired power station in Scotland (Longannet Power Station in Fife) closed in 2016. There are now only a small number of open-cast coal mines in operation across Scotland, as production continues to experience a serious decline year-on-year.

### **Mineral Resources**

There are no active mineral workings in South Ayrshire. There are however several occurrences of minerals as recorded by the British Geographical Survey. Details of these minerals and their location are specified below:

- Dalmore – Antimony and copper
- Northeast of Maybole – Lead and silver
- East of Girvan on eastern boundary of South Ayrshire – Arsenic, copper and gold
- Glendinning (east of Girvan) – Arsenic and gold
- Balloch mine – Zinc and lead
- Laggan Burn – Lead.

### **Sand and Gravel**

Glaciofluvial sand and gravel deposits resources in South Ayrshire are limited in extent. Former pits in the area are found near Maybole, Kirkmichael House and Veenston Glen.

### **Brick Clay**

Clays and mudstones used predominately in the manufacture of bricks are termed 'brick clay'.

Carboniferous mudstones and fireclays (seatearths) were, until the mid 20th century, used for making bricks and fire-bricks respectively. Both were extracted from the Limestone Coal Formation around Dailly.

From approximately 1830 brick clays were worked for tile-making from alluvium near Martnaham Loch. These clays tend to be more limited and variable in quality than the Carboniferous mudstones and are no longer considered to be an important resource.

### **Peat Resources**

Peat is now used predominantly for horticultural purposes. Many of the lowland bogs are now protected as a national or international conservation area.

Peat is a significant resource as a natural carbon sink, contributing to the offsetting of the effects of climate change, and as such benefits from protected status. Peat resources in South Ayrshire are mainly found in the rural south of the area; however they have never been developed to any meaningful extent.

In South Ayrshire, raised peat is sparsely developed in poorly drained hollows such as at Red Moss. On hillsides such as Glenside Hill, blanket peat cover is more extensive but rarely developed to a greater thickness than 1m. When considered alongside the remote upland nature of the locations where peat is developed, it does not represent a viable economic resource.

## Existing Transport Infrastructure

The A77 Trunk Road (sections of dual and single carriageway) forms the main spine of South Ayrshire's road network, linking Ballantrae, Girvan, Maybole, Ayr and Prestwick to Kilmarnock and Glasgow to the north and Stranraer to the south. The route forms a key link between the Central Belt and the ferry ports on Loch Ryan.

The A78 is also a major trunk road (dual carriageway), linking the A77 north of Prestwick with Troon, before continuing north to Irvine, Largs and Greenock.

The majority of bus services are operated by Stagecoach West Scotland. Most services radiate from Ayr, with links to North Ayrshire, East Ayrshire, Glasgow, Lanarkshire and Dumfries and Galloway.

Rail services are operated by ScotRail. Services run half hourly between Ayr and Glasgow and hourly between Stranraer and Kilmarnock. The line south from Ayr to Stranraer is not electrified and relies on diesel trains. In general, this service south of Ayr is more infrequent and slower than the electric service to the north. The Scottish government has indicated that they intend to electrify the full line in the future.

Glasgow Prestwick Airport provides services to 17 European holiday destinations, mainly in the Mediterranean and Canary Islands. Prestwick is currently the 5<sup>th</sup> busiest airport in Scotland in terms of total passenger numbers (NCAA, 2016). The airport has its own dedicated railway station on the Glasgow to Ayr line.

Key constraints and congestion points in South Ayrshire's transport infrastructure, identified in the Local Transport Strategy 2009-2014, include:

- A77 south of Whitletts Roundabout, where the road narrows from dual to single carriageway
- A77 at Maybole, due to considerable traffic along the A77 passing directly through the small town centre
- Ayr town centre, due to a lack of crossing points over the River Ayr
- Prestwick town centre, due to the main road (Main Street) through the town linking Ayr and Troon also acting as the high street
- Lack of capacity on peak rail services between Ayr and Glasgow
- Lack of Park and Ride capacity at rail stations
- Lack of capacity to support growth in freight services
- Poor bus and rail interchange
- Poor bus services to rural communities

12.1 Figure 12.1 outlines the major road and rail infrastructure within South Ayrshire.



Figure 12.1 – Major road and rail infrastructure in South Ayrshire

## Condition of Road Network

South Ayrshire's roads are managed by the Ayrshire Roads Alliance (ARA), a public sector partnership between East Ayrshire and South Ayrshire Councils, responsible for delivering roads and transportation services to both local authority areas. The partnership was created in 2014 to allow both councils to benefit from efficiency savings at a time of funding cuts.

ARA are responsible for all aspects of the road network including road / bridge / footpath maintenance, street lighting, traffic calming / road safety measures, parking enforcement etc.

The Scottish Road Maintenance Condition Survey (SRMCS) is commissioned by the Society of Chief Officers of Transportation in Scotland (SCOTS) for all local authority areas. The survey began in 2002 and covers the different categories of roads to varying extents; all 'A' roads are surveyed every two years and 'B' & 'C' roads every four years in both directions. For unclassified roads, a random 10% sample is selected and surveyed in one direction every year.

The resultant metric by which local authorities are then measured is known as the Road Condition Index (RCI), defined as "the percentage of the road network which should be considered for maintenance treatment". The lower the value of the RCI, the better the local authority is performing.

Table 12.2 displays South Ayrshire's RCI values for the past three years of survey data.

**Table 12.2 – Road Condition Index for South Ayrshire, 2012 – 2016 (source – [South Ayrshire Council](#))**

SAC RCI	2012/14	2013/15	2014/16
<b>Overall (%)</b>	<b>46.8</b>	<b>45</b>	<b>44.1</b>
<b>A Class (%)</b>	41.6	42.2	40.5
<b>B Class (%)</b>	49.7	50.4	48.9
<b>C Class (%)</b>	48.0	49.5	43.9
<b>U Class (%)</b>	46.2	42.0	43.3

As the data shows, the overall condition of South Ayrshire's roads has improved over the period 2012-16 from an RCI of 46.8% to 44.1%. This places South Ayrshire 13<sup>th</sup> best of the 32 local authorities in terms of the value of the improvements made during this period

In the same period the national average has remained steady, between 36.6% and 37.1%, indicating that no overall improvements are being made at a national scale.

In absolute terms, however, South Ayrshire rank 27<sup>th</sup> of the 32 local authorities based on the 2014-16 data.

The Council's Road Improvement Plan 2016-17 includes measures intended to target a 1% reduction in the RCI year-on-year.

## Road Safety

Ayrshire Roads Alliance is responsible for all safety aspects related to South Ayrshire's road network. This includes a statutory obligation to implement measures designed to promote road safety and act to reduce the number of deaths and serious injuries on the roads.

In 2013 South Ayrshire Council published a 'Road Safety Plan to 2020', containing targets for reducing the number of fatalities / serious injuries by 2020. The magnitude of these targets was consistent with those outlined in Scotland's Road Safety Framework, specifically a 30% reduction in fatalities (2004-08 average) by 2015 and a 40% reduction by 2020. Serious injuries were to reduce by 43% of 2004-08 levels by 2015 and by 55% by 2020.

Figure 12.1 displays the number of fatalities and serious injuries reported on South Ayrshire's roads between 2004 and 2015. Table 12.3 details performance against the interim 2015 targets.



Table 12.3 – South Ayrshire Council’s road safety targets, 2015-2020 (source - [South Ayrshire Council](#))

	Average 2004-08	2015 Interim Target	2015 Actual	2020 Target
<b>Fatalities</b>	8	5	7	4
<b>Serious Injuries</b>	53	30	44	24

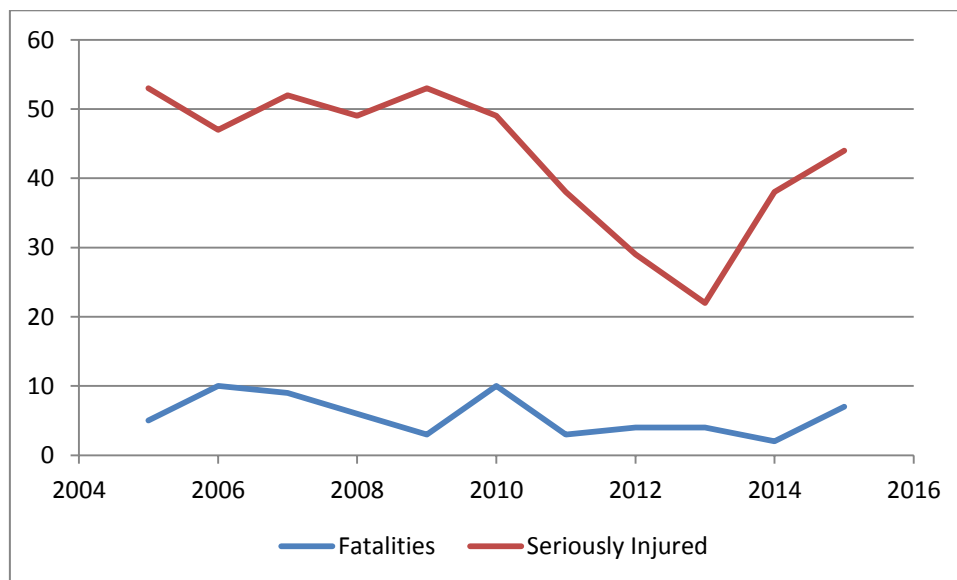


Figure 12.1 – Number of fatalities / serious injuries on South Ayrshire’s roads, 2004 – 2016 (source – [Travel Independent](#))

As the data shows, despite a steady decline in serious injuries and fatalities between 2004 and 2013, the period since then has seen an increase, resulting in South Ayrshire failing to meet its 2015 interim targets.

South Ayrshire Council analysed accident locations over a three year period from 2006 to 2008, identifying ten local roads with accident rates above the Scottish average.

The B7023 between Maybole and Crosshill recorded the highest number of incidents, with two fatalities, three serious injuries and 12 slight injuries.

In urban areas, the main commuter routes into Ayr and Prestwick have the highest number of accident black spots. In 2008, approximately one in every five collisions took place on a trunk road (the A77 or A78).

The A77 Safety Group was formed in 2003 in response to concerns about the number of fatal and serious road traffic accidents on a route used by 65,000 motorists daily. A total of 30 fatal, 243 serious and 830 slight casualties had resulted from accidents between January 1996 and December 2005 on the A77 between Fenwick and Stranraer (A77 Safety Group). This led to the installation of the UK’s first and longest average speed camera system in 2005; by 2015 this had reduced the number of deaths on the road by 77% and the number of serious injuries by 74% of 2005 levels. While the group are no longer active, Transport Scotland has continued to promote the key objectives of the group.

## Employment Land Supply

The South Ayrshire Industrial & Employment Land Audit is intended to meet the requirements of Scottish Planning Policy (2014), which states (at paragraph 93):

*“The planning system should:*

- promote business and industrial development that increases economic activity while safeguarding and enhancing the natural and built environments as national assets;*
- allocate sites that meet the diverse needs of the different sectors and sizes of business which are important to the plan area in a way which is flexible enough to accommodate changing circumstances and allow the realisation of new opportunities”*

By collating data on industrial land supply, it is intended to identify trends in usage and take-up of existing industrial supply for industrial purposes; where demand for industrial land has occurred outwith allocated industrial land; and, future trends in location, usage and demand for industrial land.

By collating data on industrial land supply, it is intended to identify trends in usage and take-up of existing industrial supply for industrial purposes; where demand for industrial land has occurred outwith allocated industrial land; and, future trends in location, usage and demand for industrial land.

The conclusions of this study will inform policy decisions made in future local development plans, which seek to provide a suitable supply of industrial employment land: in terms of choice, location, size, established use character and quality of industrial sites.

The full report and list of sites can be found here: [South Ayrshire Industrial & Employment Land Audit 2016](#).

## Waste Management

South Ayrshire Council does not operate any landfill sites. There are two private licensed landfill sites at Tarbolton Moss and at Straid Landfill Site, Lendalfoot. There is one licensed metal recovery facility at Ayr Harbour and one licensed waste transfer station at Salt pans Road in Ayr.

The council operate one licensed waste transfer station and four licensed civic amenity waste / recycling sites at Heathfield Ayr, Troon, Maybole and Girvan.

All council-collected municipal waste is disposed of in East Ayrshire at Garlaff Landfill Site near Cumnock.

Recycling centres in South Ayrshire provide facilities for recycling garden waste, wood, metals, glass, paper, cardboard, textiles, oil, etc. As well as the four main recycling centres in South Ayrshire, 20 smaller recycling banks are also sited in areas such as supermarket car parks and activity centres.

Residents are provided with a blue bin for mixed recycling (tin, paper, cardboard, plastic, and glass), a brown bin for garden waste and a small grey caddy for food waste. Green bins are also used to collect non-recyclable refuse.

All collected recycling, other than food waste, goes to Re-Gen Waste in Northern Ireland where it is converted to energy. Re-Gen work with various businesses and councils in UK to reduce the volume of waste sent to landfill and to limit the damage that any remaining waste has.

SEPA publish annual statistics outlining how each local authority has ultimately disposed of its household waste, whether through recycling / composting, diverting to other sources or through landfilling.

In 2010 the Scottish Government produced the Zero Waste Scotland Plan. As part of the plan, the government set targets for 2025 for both the % volume of waste that the country recycles / composts and the percentage volume of waste sent to landfill. Also included in the plan was an interim target for 2013 of 50%

of all household waste to be recycled / composted. No interim target was set for percentage of material sent to landfill.

Table 12.5 displays the recycling data for South Ayrshire, alongside the national average, back to 2012. As the data shows, recycling / composting rates have increased every year with the exception of 2013.

Both South Ayrshire and Scotland as a whole failed to achieve the target of 50% of all material to be recycled / composted by 2013, though South Ayrshire did achieve this in both 2014 and 2015.

In 2015 South Ayrshire recycled / composted 51.5% of household waste, the 10<sup>th</sup> best performing Scottish local authority and higher than the national average of 44.2%.

**Table 12.5 – Percentage of household waste recycled / composted (source – [SEPA](#))**

Year	2012	2013	2014	2015
<b>South Ayrshire</b>	47.5%	44.3%	50%	51.5%
<b>National Average</b>	41.1%	42.2%	42.8%	44.2%
<b>Zero Waste Scotland Target</b>		50%		

Table 12.6 displays the percentage of waste sent to landfill in each calendar year. As the data shows, the percentage volume of waste sent to landfill has been steadily reducing in recent years. In 2015 South Ayrshire landfilled 35% of its household waste, significantly below the national average of 46.6%. In this sense South Ayrshire was the 8<sup>th</sup> best performing local authority in Scotland.

**Table 12.6 – Percentage of household waste sent to landfill (source – [SEPA](#))**

Year	2012	2013	2014	2015
<b>South Ayrshire</b>	52.5%	48.8%	34.4%	35%
<b>National Average</b>	55.3%	53.5%	49.3%	46.6%

## Street Cleanliness

The Local Environment Audit and Management System (LEAMS) is a statutory performance indicator for the cleanliness of streets in all local authority areas in Scotland. The scoring is based on a total of seven cleanliness surveys of each area in a financial year, based on a framework outlined in the Code of Practice on Litter and Refuse (Scotland) 2006.

The surveys are conducted by a combination of the charity Keep Scotland Beautiful (KSB) and the local authority; each authority surveys its own streets with KSB performing an annual validation survey to ensure the results are fair and accurate.

The metric used to assess performance is known as the Street Cleanliness Score, measured as the percentage of streets within the area at an acceptable standard according to the LEAMS assessment system.

In terms of benchmarking, local authorities are entered into one of three ‘families’ in order that scores can be compared against one-another. South Ayrshire is one of 14 local authorities in the ‘Mixed Urban and Rural’ division.

Audits began in 2003/04 and are now in their fourteenth year. Table 12.7 highlights the data from the last six surveys, dating back to 2010/11.

**Table 12.7 – Street Cleanliness Score for South Ayrshire, 2010 to 2016 (source – [Keep Scotland Beautiful](#))**

Year	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Score	96.8	94	93.2	92.1	97.3	94.3
Peer Ranking ( /14)	3=	10	13	13	3	8

As the data shows, South Ayrshire’s performance has been mixed in the past six years. In the ‘Mixed Urban and Rural’ Category, South Ayrshire was ranked between 3rd and 13th out of the 14 local authorities.

## Future Trends

### Waste and Recycling

As outlined previously in this chapter, the Scottish Government, under the Zero Waste Scotland Plan 2010, has set targets for how household waste is treated. These targets have also been adopted by South Ayrshire. The targets are outlined in Table 12.8, alongside the latest statistics published for South Ayrshire.

**Table 12.8 – Scottish Government waste treatment targets (source – [Scottish Government](#))**

Year	2015 Actual	2020 Target	2025 Target
% of Material Composted / Recycled	51.5%	60%	70%
% of Material Sent to Landfill	35%		5%

The plan sets out a number of supporting mechanisms that the government will implement to assist the targets in being achieved, including:

- The creation of best practice commitments for local authorities and the waste management industry to meet the expectation of householders / businesses and increase recycling rates.
- Encouragement of more separate collection of different types of wastes, including food, to reduce contamination, ease the handling process and increase the value of the resource.
- Provide support for the creation of facilities required to recycle and recover the economic / environmental value from waste.
- Encourage the public and business sectors and households to use and buy products made from recycled materials.
- Support the development of plastics reprocessing facilities in Scotland, to enable greater levels of recycling and reuse of plastics that can then be used in the products on sale.
- The banning of certain types of waste from landfill sites.

In 2016 The Scottish Government produced ‘Making Things Last: A Circular Economy Strategy for Scotland’ (2016), incorporating elements of the ‘Zero Waste Plan’ (2010) and ‘Safeguarding Scotland’s Resources’ (2013). The strategy sets targets with more of a focus on reducing and reusing, as opposed to recycling.

The strategy re-iterates the target set in 2013 to reduce Scotland’s waste by 7% by 2018 from 2011 levels, and by 15% by 2025. These targets were set alongside the creation of Resource Efficient Scotland, an expert group set up to collate advice and best practice on energy, materials and water use, supporting businesses and other organisations to use resources more efficiently.

The strategy also sets the target for Scotland to reduce its food waste by 33% by 2025, the first such target outlined by a European Government.

South Ayrshire have signed up to the Household Recycling Charter, a declaration of commitment to provide services that deliver local and national benefit and encourage high levels of citizen participation in waste prevention, recycling and re-use. The charter was produced by Zero Waste Scotland and agreed with CoSLA and the Scottish Government.

One of the key recommendations in the charter is the adoption of a three-stream recycling system where three separate bins will be provided for glass, paper / card and metals / plastics. This will increase the value of the waste and cut down on processing cost and effort.

Most of the Scottish local authorities have now signed up to the charter. It is likely that implementation will be achieved in 2019.

## **Road Safety**

Within the 'Road Safety Plan to 2020', published in 2013, South Ayrshire have set themselves targets of:

- 40% reduction in fatalities (2004-08 average) by 2020
- 55% reduction in serious injuries (2004-08 average) by 2020

## Glossary

**Algae** - Simple rootless plants that grow in sunlit waters in proportion to the amount of available nutrients. They can affect water quality adversely by lowering the dissolved oxygen in the water. They are food for fish and small aquatic animals.

**Air pollution** - Air is made up of a number of gases, mostly nitrogen and oxygen and, in smaller amounts, water vapour, carbon dioxide and argon and other trace gases. Air pollution occurs when harmful chemicals and particles are emitted to the air – due to human activity or natural forces – at a concentration that interferes with human health or welfare or that harms the environment in other ways.

**Biodiversity** - the variety of all life forms: the different plants, animals and microorganisms, the genes they contain and the ecosystems they form.

**Biomass** - A source of fuel made from living and recently-dead plant materials such as wood, leaves and the biodegradable part of industrial and municipal waste.

**Biosphere** - The portion of Earth and its atmosphere that can support life.

**Carbon dioxide (CO<sub>2</sub>)** - A colourless gas that is naturally produced from animals and people in exhaled air and the decay of plants. It is removed from the atmosphere by photosynthesis in plants and by dissolving in water, especially on the surface of oceans. The use of fossil fuels for energy is increasing the concentration of carbon dioxide in the atmosphere, which is believed to contribute to global warming. See also greenhouse gases and photosynthesis.

**Carbon emissions** - In the context of climate change, carbon dioxide released when substances, especially oil, gas, and coal, are burned by vehicles and planes, by factories and by homes.

**Carbon footprint** - A measure of the impact our activities have on the environment, especially climate change, often reported as the units of tonnes (or kg) of carbon dioxide each of us produces over a given period of time.

**Carbon monoxide** - A highly poisonous, odourless, tasteless and colourless gas that is formed when carbon material burns without enough oxygen. Carbon monoxide is toxic when inhaled because it combines with your blood and prevents oxygen from getting to your organs.

**Climate change** - A change in the climate of a region over time due to natural forces or human activity. In the context of the UN Framework Convention on Climate Change, it is the change in climate caused by higher levels of greenhouse gases in the atmosphere due to human activities as well as natural climate changes.

**Conservation area** – Is an area of notable environmental or historical interest or importance which is protected by law against undesirable changes.

**CO<sub>2</sub>-equivalent (CO<sub>2</sub>-e)** - a metric measure used to compare the global warming potential (GWP) of various greenhouse gases relative to the concentration of CO<sub>2</sub> (which is defined as having a GWP of 1). For example, methane is 21 times more effective than CO<sub>2</sub> at heating the atmosphere and therefore has a GWP of 21; thus five tonnes of methane is equivalent to  $5 \times 21 = 105$  tonnes of CO<sub>2</sub>.

**Cultural heritage** – This is the legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations.

**Ecosystem** - A community of organisms that depend on each other and the environment they inhabit.

**Ecosystem processes** - The numerous interactions between different components (both living and non-living) of an ecosystem that support the biological elements of the system, including the storage and cycling of energy, nutrients and minerals; predation and competition; disturbance; weathering; and succession.

**Ecosystem services** - Any functions provided by an ecosystem, such as the provision of clean air and water, the maintenance of soil fertility and the removal of wastes, that benefit humankind.

**Emissions** - In the context of the atmosphere, gases or particles released into the air that can contribute to global warming or poor air quality.

**Estuary** - An estuary is a partially enclosed coastal body of brackish water with one or more rivers or streams flowing into it, and with a free connection to the open sea. Estuaries form a transition zone between river environments and maritime environments.

**Fragmentation** - The division of continuous habitat by vegetation clearance for human land-use activities, which isolates the remnant patches of vegetation and the species within them, and limits genetic flow between populations.

**Global warming** - The gradual increase in temperature of the Earth's surface caused by human activities that cause high levels of carbon dioxide and other gases to be released into the air.

**Greenhouse gases** - Atmospheric gases, including carbon dioxide, methane, chlorofluorocarbons, nitrous oxide, ozone and water vapour, which trap heat reflected from the Earth's surface

**Historic environment** – The historic environment is all the physical evidence for past human activity, and its associations, that people can see, understand and feel in the present world.

**Important Bird and Area (IBA)** - An Important Bird Area is an area identified using an internationally agreed set of criteria as being globally important for the conservation of bird populations.

**Invasive species** - Plant or animal that has been introduced into a region in which it does not naturally occur and that becomes established and spreads displacing naturally occurring species.

**Invertebrates** - Animals without backbones, such as insects, worms, snails, mussels, prawns and cuttlefish.

**Listed buildings** - A 'listed building' is a building, object or structure that has been judged to be of national importance in terms of architectural or historic interest and included on a special register, called the List of Buildings of Special Architectural or Historic Interest.

**NOx** - A generic term for a combination of the gases nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>); other oxides of nitrogen (e.g. nitrous oxide, N<sub>2</sub>O are usually not regarded as a component of NO<sub>x</sub>).

**PPPS** – Plans, programmes, policies and strategies.

**Ramsar site** - A Ramsar Site is a wetland site designated of international importance under the Ramsar Convention. The Convention on Wetlands, known as the Ramsar Convention, is an intergovernmental environmental treaty established in 1971 by UNESCO, and coming into force in 1975.

**River basin management plan** –statutory documents, produced by the Environment Agency. They plan protecting and improving the water environment and have been developed in consultation with organisations and individuals.

**Saline lagoons** - Lagoons in the UK are essentially bodies, natural or artificial, of saline water partially separated from the adjacent sea. They retain a proportion of their seawater at low tide and may develop as brackish, full saline or hyper-saline water bodies.

**Special Areas of Conservation (SACs)** - A Special Area of Conservation (SAC) is defined in the European Union's Habitats Directive (92/43/EEC), also known as the Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora.

**Special Protection Area (SPA)** - A Special Protection Area is a designation under the European Union Directive on the Conservation of Wild Birds. Under the Directive, Member States of the European Union (EU) have a duty to safeguard the habitats of migratory birds and certain particularly threatened birds.

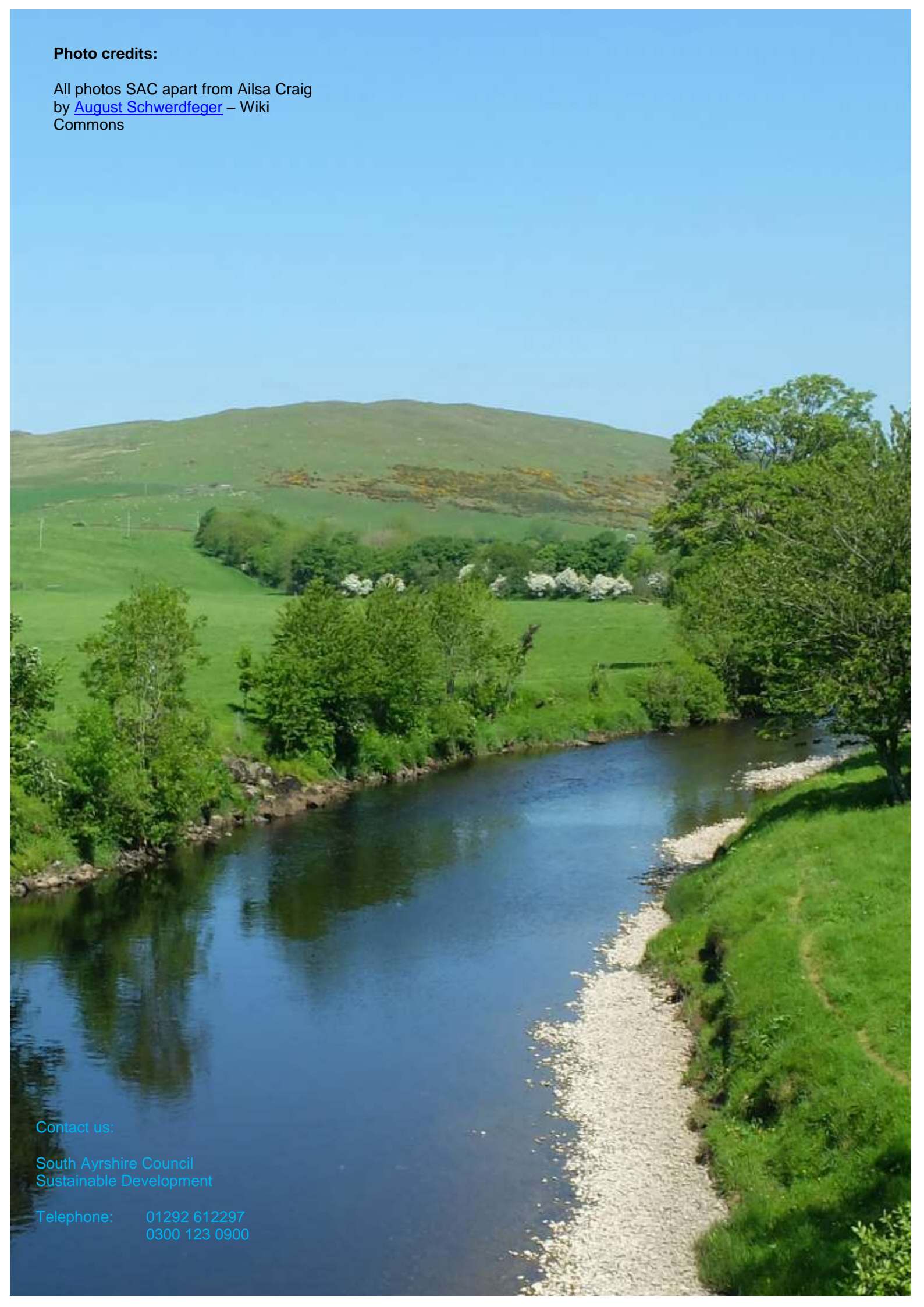
**Strategic Environmental Assessment (SEA)** – SEA is an iterative process of gathering data and evidence, assessing environmental effects, developing mitigation measures and making recommendations to refine plans or programmes in view of the predicted effects and the monitoring of significant effects of implementing the plan or programme.

**Sustainable development** – Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

**Sustainability** - Environmentally sound resource use; use that does not degrade ecosystems or affect the quality of the resource

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