


# Bathing water profile:

## Southernness

<p><b>Bathing water:</b> Southernness</p>	 <p>Copyright <a href="#">Anne Burgess</a> and licensed for <a href="#">reuse</a> under this <a href="#">Creative Commons Licence</a>.</p>
<p><b>EC bathing water ID number:</b> UKS7616053</p>	
<p><b>Location of bathing water:</b> UK/Scotland/LA (Map1)</p>	
<p><b>Year of designation:</b> 1999</p>	
<p><b>Bathing water description</b></p> <p>The Southernness bathing water is a relatively small, horse shoe shaped area of beach, approximately 4 km long. It is situated on the north coast of the Solway Firth close to the village of Southernness, south of the town of Dumfries. It was designated as a bathing water in 1999.</p> <p>The beach is fairly rocky leaving an array of rock pools exposed at low tide. As this beach sits on a transitional water mud flats are exposed at low tide making the waters edge difficult to access in certain areas.</p> <p>During high and low tides the approximate distance to the water's edge can vary from 50 metres to just over 1 km. For local tide information see: <a href="http://easytide.ukho.gov.uk/EasyTide/">http://easytide.ukho.gov.uk/EasyTide/</a></p> <p>Our monitoring point for taking water quality samples is located towards the middle of the designated area (NX 97686 54006) as shown on Map 1.</p>	
<p><b>Monitoring water quality</b></p> <p>Please visit our <a href="#">website</a><sup>1</sup> for details of the current EU water quality classification and recent results for this bathing water.</p> <p>During the bathing season (1 June to 15 September), designated bathing waters are monitored by SEPA for faecal indicators (bacteria) and classified according to the levels of these indicators in the water. The European standards used to classify bathing waters arise from recommendations made by the World</p>	

<sup>1</sup> <http://apps.sepa.org.uk/bathingwaters/SamplingResults.aspx>

Health Organisation and are linked to human health. More information on bathing water monitoring, health and classification can be found on our [website](#)<sup>2</sup>.

## Risks to water quality

In general, most natural waters will be affected to some extent during and following rainfall as pollutant loads may be increased due to run-off from agricultural or urban land in the catchment. In addition, at some locations waste water discharges from combined sewer overflows, which then drain into the bathing water and can reduce water quality.

Faecal pollutants can come from human sewage, farming activities and livestock (e.g. cattle, sheep), industrial processes, surface water urban drainage, domestic animals (e.g. dogs) and wildlife (e.g. birds) and can enter bathing waters via:

- direct discharges into the marine environment at, or in the vicinity of, the beach;
- the freshwater network draining into a bathing water, which can be prone to elevated bacterial levels as a result of diffuse pollution and/or point source inputs upstream.

The potential relevant pollution sources at, or near, Southernness bathing water are highlighted on Map 1.

The principal risks and sources of wet weather driven short term pollution at this bathing water arise from surface water urban drainage, agricultural run-off, combined sewer overflows and treated sewage effluent. These events are expected to last 1–2 days, depending on the duration of the rainfall, and may result in elevated bacteria levels compared to dry conditions.

Our regulatory and scientific assessment indicates that potential sources of short-term faecal indicator pollution at this bathing water can at times originate from human or animal sources.

Bathing is not advisable during or following (one or two days after) rainfall. Bathing or swimming after storms, floods or heavy rainfall should be avoided as the risk of illness following short term water pollution is increased.

It is possible that the large numbers of wintering wildfowl and wading birds using the Solway Estuary influence water quality at Southernness bathing water, but any affect will be small compared to other potential sources of bacteria.

## Cyanobacteria (blue-green algae)

Marine waters are not at risk of cyanobacteria overproduction.

## Algae

Current information suggests that this bathing water is at risk of macroalgae (seaweed) and/or phytoplankton overproduction. At any time of the year and particularly after storms a considerable amount of macroalgae (seaweed) can be stranded on the beach. This is an entirely natural phenomenon. Accumulated seaweed under the right conditions can rot and this can result in the production of a grey/black fluid which can be seen in the vicinity of the seaweed. The rotting seaweed can also generate offensive odours. This is however also an entirely natural process.

## Jellyfish

There is a possibility of increased numbers of jellyfish in the water during the summer months. This is a naturally occurring phenomenon. Although there are a few stinging species common to the UK, most are harmless. The Marine Conservation Society advises to 'look but don't touch'.

## Daily water quality forecasts

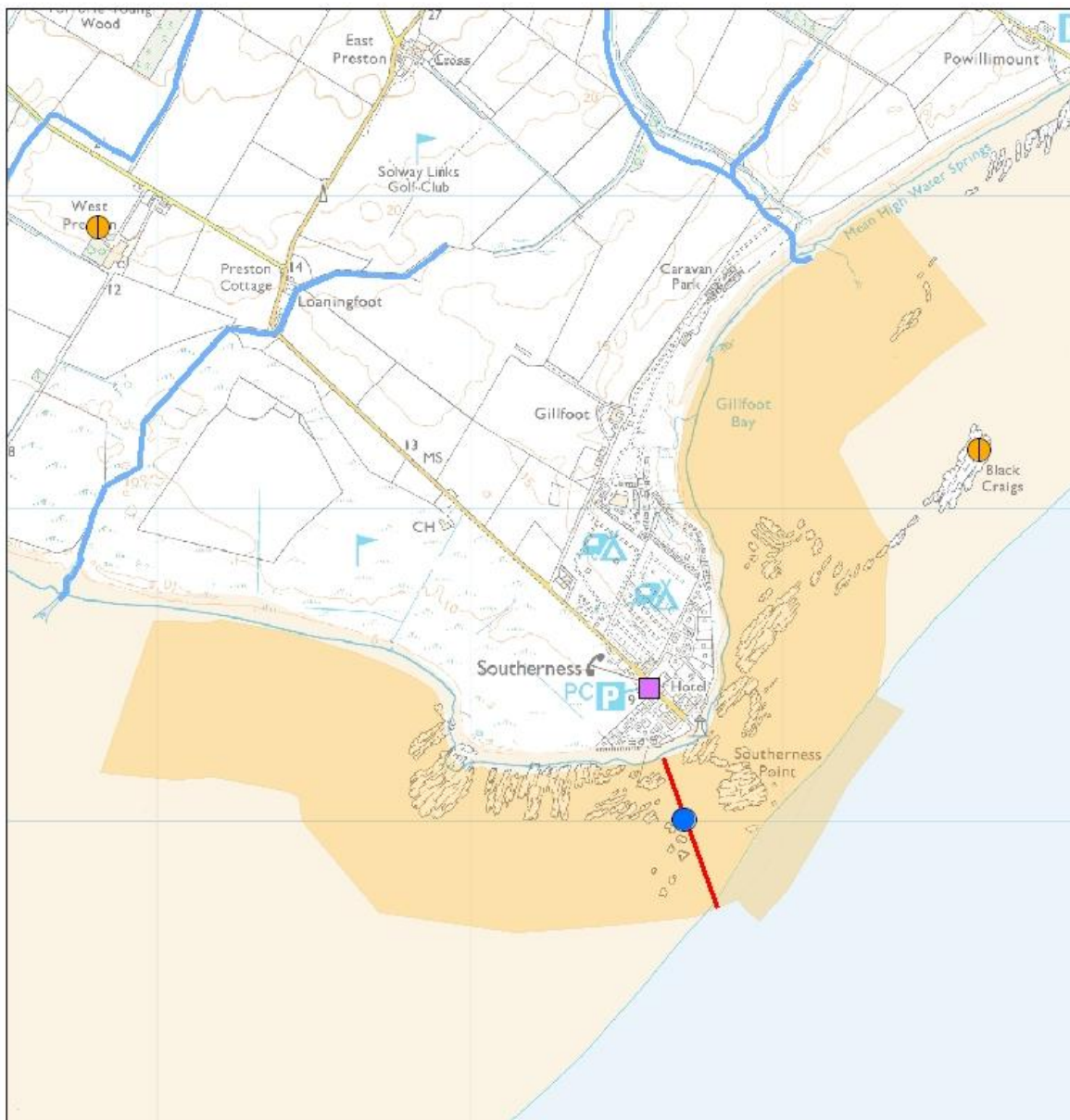
Southernness bathing water is part of our daily water quality prediction and signage network.

Throughout the bathing season we display daily water quality predictions on the electronic message sign (Map 1). These water quality predictions are also available on [our website](#)<sup>3</sup> or via the Beachline phone number (08452 30 30 98).

<sup>2</sup> <http://apps.sepa.org.uk/bathingwaters/SamplingResults.aspx>







<sup>3</sup> <http://apps.sepa.org.uk/bathingwaters/Predictions.aspx>

**Map 1: Southernness bathing water**



0 195 390 780 m



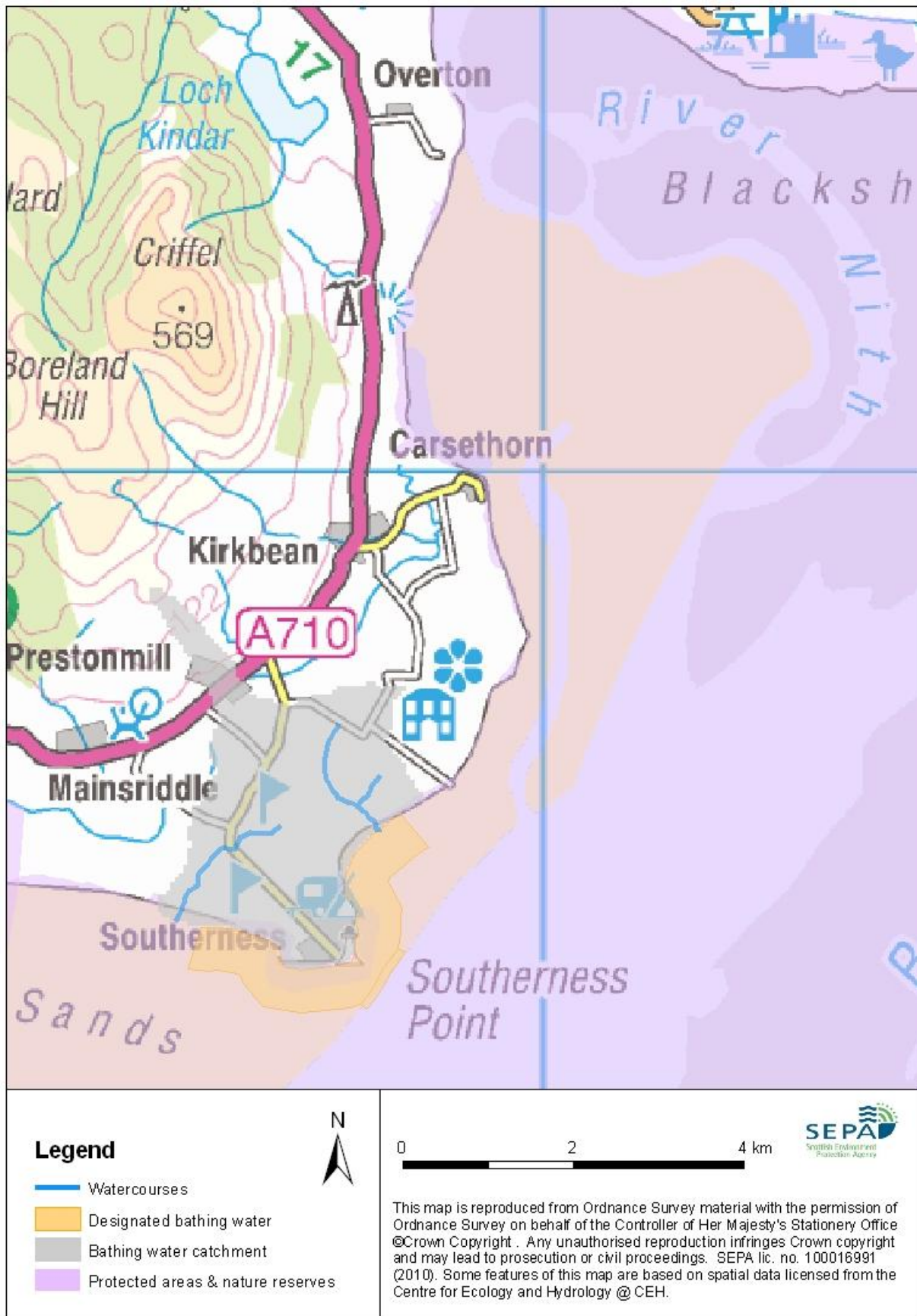
-  Designated bathing water
-  Bathing water sampling point
-  Bathing water sampling transect
-  SEPA electronic sign
-  Sewage effluent discharge
-  Watercourses

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Map 2: Catchment draining into Southernness bathing water



## Catchment description

The immediate catchment draining to the Southernness bathing water extends to just under 7 km<sup>2</sup>. The area varies in elevation from a maximum of 200 metres in the north to an average of 10 metres along the coast. Average summer rainfall for the region is 356 mm compared to 331 mm across Scotland as a whole. There are two coastal burns within this catchment, one of which drains directly into the designated area.

The immediate bathing water catchment is predominantly rural (97%) with grassland the major land use. The area supports some, but not many, dairy and beef cattle as well as arable production. Approximately 1% of the immediate catchment is urban with the main population centre, Southernness village, adjacent to the bathing water. Population density out with the village is low comprising of a few scattered farms and houses. The catchment includes two golf courses: Solway Links and Southernness.

Water quality at the Southernness bathing water is thought to be more influenced by the wider area than its immediate catchment. The wider area includes fresh water inputs from a number of water courses entering the estuary, the most significant being the River Nith to the north-east (Map 2). The River Nith sits within the Lower Nithsdale Nitrate Vulnerable Zone. It drains a large agricultural area and flows through the town of Dumfries before discharging to the estuary. The proximity of the river Nith to Southernness bathing water can alter significantly as the estuary mud flats change.

The bathing water sits within the Upper Solway flats and marshes which is a Ramsar site, a Special Area of Conservation, a Site of Special Scientific Interest and a Special Protected Area (Map 2). The flats and marshes of the Upper Solway Firth form one of the largest continuous areas of intertidal habitat in Britain. The Solway Estuary is a site of national and international importance for wintering wildfowl and wading birds and is a vital link in a chain of west coast estuaries used by migrating birds. The numbers of birds present (exceeding 1% of the British populations) in this area have the potential to influence water quality at Southernness bathing water. For more information see Scottish Natural Heritage's [information service website](#)<sup>4</sup>.

Southernness bathing water is within a shellfish harvesting area.

## Measures to improve bathing water quality

High quality bathing waters are important so that people can enjoy Scotland's environment safely. They are also important for Scotland's tourism industry.

Recent years have seen considerable improvements in Scotland's bathing water quality, not least due to substantial investment in the sewerage system. SEPA and our partners are fully committed to continuing to improve bathing water quality.

### Improving diffuse pollution from agricultural sources

Diffuse pollution from agricultural sources is normally the result of cumulative inputs of pollutants from several different sources on farms within the catchments draining to the bathing water. Consequently, tackling diffuse agricultural pollution requires concerted action across catchments. We will ensure this by working with farmers to raise awareness about the requirement to prevent and reduce pollution, and to help them identify appropriate actions for doing so.

To help co-ordinate our work to encourage and ensure action, SEPA participate in the [Diffuse Pollution Management Advisory Group](#)<sup>5</sup> (DPMAG), which is a partnership of relevant authorities, land manager representatives and voluntary organisations.

The Scottish Government has also brought together nine public bodies to form [Scotland's Environmental and Rural Services](#)<sup>6</sup> (SEARS). This partnership will contribute to implementing plans for tackling diffuse pollution by providing co-ordinated education and advice to rural land managers.

Additional targeted efforts will be made to improve management of diffuse pollution within catchments identified as 'priority' catchments. These are catchments where the scale of the pollution reduction needed will require planned and targeted actions to be identified and discussed with farmers concerned. Assistance will be given in these areas to identify pollution hotspots, and one-to-one advice will be provided on

<sup>4</sup> [www.snh.org.uk/snhi](http://www.snh.org.uk/snhi)

<sup>5</sup> <http://www.sepa.org.uk/environment/water/river-basin-management-planning/who-is-involved-with-rbmp/dpmag/>

<sup>6</sup> [www.sears.scotland.gov.uk](http://www.sears.scotland.gov.uk)

following the agricultural codes of good practice, which in themselves lead to compliance with these regulations. Action in priority catchments will be phased.

The immediate Southernness bathing water catchment is part of the Stewartry priority catchment. However, as the Nith is thought to have the greatest influence on bathing water quality at Southernness it is also being studied as part of the Nith priority catchment. There are approximately 700 farms in the Nith catchment. Cattle are known to have direct access to the River Nith at The Merse, downstream of Dumfries.

Proactive one-to-one farm visits were undertaken in the catchment during September and October 2014. These visits looked to identify diffuse pollution sources and pathways by which potential pollutants could reach the water environment and impact on bathing waters. All actual and potential polluting sources were discussed with the land manager and mitigation measures agreed with them to reduce the likelihood of diffuse pollution arising from their activities and reduce the risk of bacterial pollution on water quality in the future.

The River Nith sits within the Lower Nithsdale Nitrate Vulnerable Zone and as such will already have measures in place to reduce and prevent further nitrate contamination. For further information see the Scottish Government's [website](#)<sup>7</sup>.

### **Improving pollution from sewage and other discharges**

Most waste water collection and treatment services in Scotland are provided by Scottish Water. It has invested substantially in waste water collection and treatment provision over recent years to protect public health and the environment. Public investments in the sewerage network and in treatment works will continue to be co-ordinated through the national investment and planning process for Scottish Water, known as 'Quality and Standards'.

The combined sewer overflows in the Troqueer catchment of Dumfries were upgraded in 2005 to provide better screening and to reduce the frequency of overflows. However, there were remaining issues with overflow frequency at two outfalls on the Troqueer network and premature overflows of settled sewage at Troqueer sewage treatment works which needed to be addressed. Work to address the premature overflows within the sewage works was completed in 2010.

Scottish Water has recently undertaken a study of Southernness bathing water to determine whether any improvements are required to their assets to meet the revised Bathing Waters Directive. The study has concluded that improvements to Scottish Water assets are not required.

There is a private waste water treatment plant at Southernness, which serves both the caravan park and the village. This treatment works has been upgraded to secondary treatment and since 2009 includes ultraviolet disinfection during the bathing season.

### **Improving pollution from diffuse urban sources**

Urban diffuse source pollution comes from rainwater falling onto urban areas (roads, pavements, yards and roofs) becoming contaminated with pollutants on those areas, washing into surface water drains and discharging from those drains to the water environment.

Tackling this type of pollution requires substantial changes in the way urban areas are drained, and efforts to reduce the quantity of pollutants deposited on urban surfaces. Since the mid 1990s, Sustainable Urban Drainage Systems (SUDS) have increasingly been used to drain new developments. They are designed to avoid pollution of the water environment and include permeable surfaces that allow infiltration of rainwater into the ground, slowing the rate at which it drains to the water environment and trapping and breaking down pollutants. Artificial ponds or wetlands provide a final stage of treatment. Local authorities, Scottish Water and SEPA are working together to co-ordinate efforts to tackle pollution from diffuse urban sources, incorporating SUDS into local plans and encouraging partner organisations to retrofit SUDS where possible.

The Southernness bathing water is not known to be affected by surface water from the urban area through which it runs.

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<sup>7</sup> [www.scotland.gov.uk/Topics/farmingrural/Agriculture/Environment/NVZintro](http://www.scotland.gov.uk/Topics/farmingrural/Agriculture/Environment/NVZintro)

## Responding to pollution incidents

Although rare, pollution incidents affecting bathing water quality can happen. Pollution incidents tend to be unpredictable, for example a slurry spill or sewage network failure, and can result in elevated levels of faecal indicators.

To report a possible pollution incident please use our 24 hour pollution hotline (0800 807060). In response we will investigate the incident and contact other relevant organisations. That may include Scottish Ministers, Scottish Water, the local authority and the relevant health board. Where necessary measures will be put in place to resolve the problem.

Whenever our routine sampling of bathing waters identifies elevated levels of faecal indicators there is an immediate response to check all relevant potential sources and major discharges in the immediate catchment, as well as our hydrometric information to determine whether the levels may be due to high river flows. Follow-up microbiology sampling is also undertaken of the bathing water and local water courses.

If beach users or bathers are considered to be at risk the local authority will warn the public by erecting signs at the bathing water. Information will also be available on our [website](#)<sup>8</sup>.

Other pollutants at the beach may include plastics and litter. Beach users are encouraged to use the bins provided or to take litter home. Beach cleaning and litter clean-up is maintained for this bathing water by Dumfries & Galloway Council.

## Contact details and sources of additional information on bathing water quality

### SEPA Dumfries office

Irongray Road  
Dumfries  
Dumfries and Galloway  
DG2 0JE  
01387 720502  
[www.sepa.org.uk](http://www.sepa.org.uk)

### Dumfries & Galloway Council

Council Headquarters  
Council Offices  
English Street  
Dumfries  
DG1 2DD  
030 33 33 3000  
[www.dumgal.gov.uk](http://www.dumgal.gov.uk)

### Pollution Hotline

0800 80 70 60  
24 hours per day, seven days per week

### Keep Scotland Beautiful

01786 471333  
[beach@ksbscotland.org.uk](mailto:beach@ksbscotland.org.uk)  
[www.keepsotlandbeautiful.org](http://www.keepsotlandbeautiful.org)

### Scottish Government

Victoria Quay  
Edinburgh  
EH6 6QQ  
0131 244 0396  
[eqcat@scotland.gsi.gov.uk](mailto:eqcat@scotland.gsi.gov.uk)  
[www.scotland.gov.uk/Topics/Environment/Water/15561/bathingwaters](http://www.scotland.gov.uk/Topics/Environment/Water/15561/bathingwaters)

Further information about the condition of our water environment and the actions needed to deliver improvement can be found in:

- the Solway Tweed river basin management plan  
<http://www.sepa.org.uk/environment/water/river-basin-management-planning/>
- the Solway area management plan <http://www.sepa.org.uk/environment/water/river-basin-management-planning/who-is-involved-with-rbmp/area-advisory-groups/solway/>

Good Beach Guide: [www.goodbeachguide.co.uk](http://www.goodbeachguide.co.uk)

Blue Flag and Seaside Awards: [www.keepsotlandbeautiful.org/coastal](http://www.keepsotlandbeautiful.org/coastal)

<sup>8</sup> <http://apps.sepa.org.uk/bathingwaters/Predictions.aspx>

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1.1	April 2013	
1.2	April 2014	
1.3	March 2015	