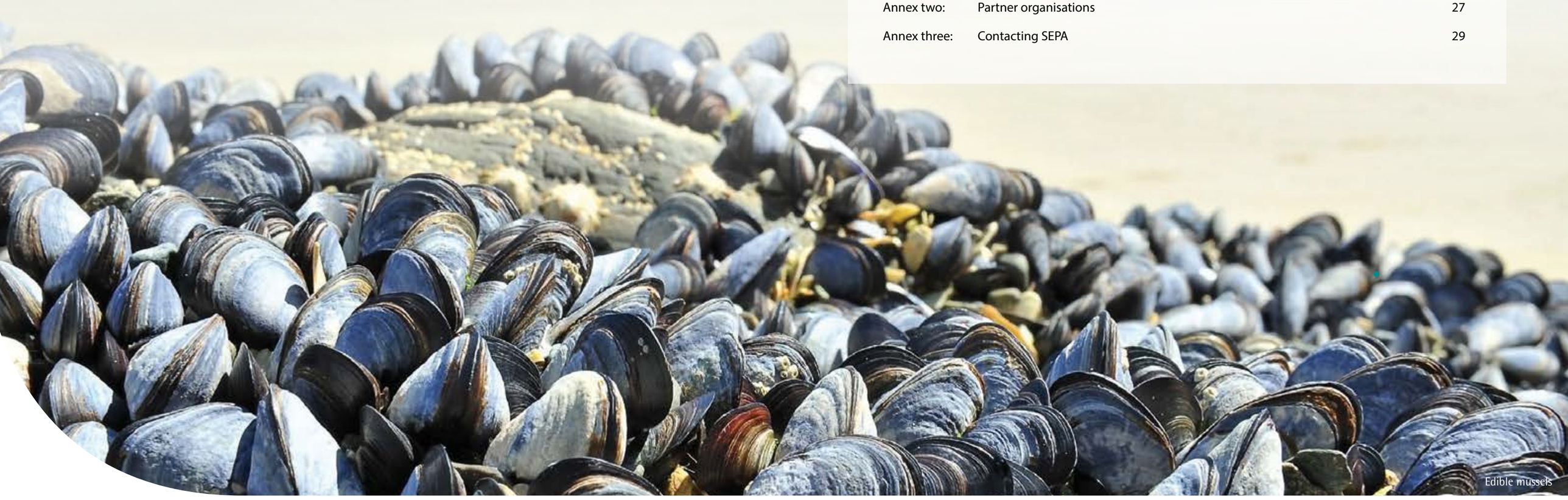
SEPA
Scottish Environment Protection Agency

Scottish bathing waters

2016

natural scotland
SCOTTISH GOVERNMENT

Contents



Edible mussels

Scottish bathing waters 2016

Front cover: Scottish coast

Foreword

Scotland's bathing waters have entered a new era. This summer 2016 is the first year when designated bathing waters will have their water quality classifications on display at beach access areas by statutory EU signs and symbols. This is set by the Bathing Water Directive (2006/7/EC) which is now fully implemented in Scotland.

Much work has taken place to achieve full implementation of this directive, including:

- the development and regular updating of bathing water descriptive profiles on each area;
- standardising new analytical parameters to assess water quality;
- upgrading and validating our water quality prediction models to match the new standards;
- setting up expanded digital systems for storing data and calculating the water quality classifications.

The good news is that 80% of Scottish bathing waters will have at least 'sufficient' or better classification in 2016. However, due to the much stricter standards of the new directive there are 17 bathing waters in Scotland that will have a 'poor' classification displayed at the beach, we realise this will be disappointing to these local communities and beach users.

We will continue to work with our partners in order to bring all bathing waters up to at least 'sufficient' by 2020. This target date is important because under the directive, any bathing water which has five successive poor annual classifications requires to have permanent advice against bathing displayed.

To achieve our aim of all bathing waters meeting at least sufficient by 2020, we are adopting two key approaches to deliver improved water quality.

(1) Reducing the levels of pollutants entering the bathing water.

(2) Providing public information and advice on occasions when bathing is not advised.

In this report we outline the actions that we and our partners are taking to deliver these improvements.

There are many challenges facing Scottish bathing waters, but by working closely with our partners to reduce pollution inputs to our bathing waters and improve public information provision, we have the best opportunity to achieve our aim of bringing all of Scotland's bathing waters up to the new standards by 2020.

David Pirie
Executive Director of Science and Strategy

Stonehaven, Aberdeenshire

Executive summary

Increased understanding of health risks from epidemiological studies was a key driver for the introduction of the new directive, which has much stricter standards for bathing water quality and requires a new approach to public information.

The most visible change for the 2016 season is that water quality at Scotland's bathing waters is now described by a quality classification statement of 'excellent', 'good', 'sufficient' and 'poor'. Other key changes involve public information and there is increased assessment, and action when required, of on-site conditions to assess other potential risks to public health, including monitoring freshwater influences (extent and microbial levels), algal blooms, seaweed and marine phytoplankton.

The 2016 bathing water classifications, the first under the new directive, are listed in Section 2 of this report. These new classifications give a more consistent picture of water quality condition at each location and are usually based on four years of monitoring.

In 2016, 80% of Scottish bathing waters will have at least sufficient or better classification and 65% of bathing waters will have an excellent or good classification against the much stricter standards now in place. In total, 17 (20%) of our bathing waters will have a poor classification and it is at these sites where we are focussing our efforts to improve bathing water quality.

How we plan to improve bathing water quality is outlined in Section 3, where we celebrate water quality improvements under the previous directive and then set out our plans to achieve a similar improvement, of bringing all bathing waters up to the required standard, under the new directive.

Our aim is for all of Scotland's bathing waters to achieve a classification of at least sufficient by 2020 and with no real deteriorations in class. Any bathing water which has five successive poor classifications will need to have permanent advice against bathing displayed.

We also look at how we work with our partner organisations to protect and improve water quality, undertake beach management and provide public information, and other areas of bathing waters management and beach use.

Decommissioned lighthouse, Southerness

1 The new bathing water directive

Increased understanding of health risks from epidemiological studies was a key driver for the introduction of a new directive. It has much stricter standards for bathing water quality and requires a new approach to public information.

This year (2016) is the first year of full implementation of the new directive in Scotland and this section explains the requirements for our bathing waters. Section 2 summarises our performance against these requirements and in Section 3 we outline our strategies for improving bathing water quality.

The most visible change for the 2016 season is that water quality at Scotland's bathing waters is now described by a quality classification statement of 'excellent', 'good', 'sufficient' or 'poor'. These new classifications give a more consistent picture of water quality condition at each location and are usually based on four years of monitoring. They will apply, and need to be displayed, at each bathing water from the start of the season, having been calculated at the end of the previous season.

Other key changes involve public information and there is increased assessment, and action when required, of on-site conditions to assess other potential risks to public health, including monitoring freshwater influences (extent and microbial levels), algal blooms, seaweed and marine phytoplankton.

Prestwick, South Ayrshire

Isle of Mull, Inner Hebrides

Kinghorn, Fife

Implementation timeline for the new directive

In March 2006, the revised directive came into force. This was enacted in Scotland by the Bathing Waters (Scotland) Regulations 2008 which came into effect in May 2008. This year sees the directive fully implemented, and is the first year where the requirement for the new water quality classifications to be displayed at beach locations is in place.

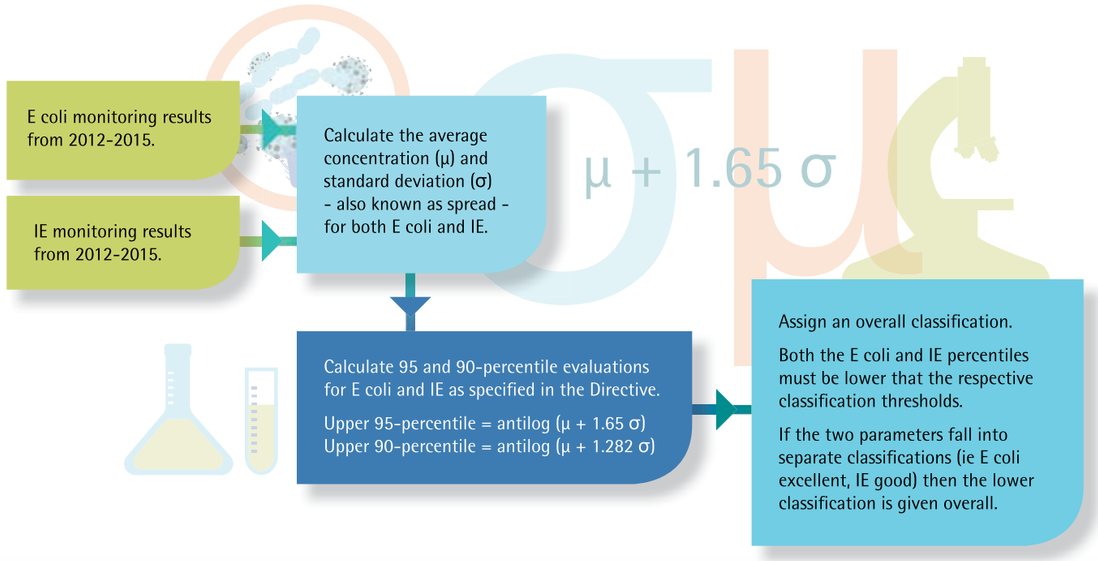
2011	2012	2015	2016
Publication of bathing water profiles.	Switch to two new microbial parameters as standard across the EU.	Report the first new EU water quality classifications by the end of 2015 against the revised bathing water directive standards and calculation methods.	Post the annual water quality classes and information symbols at all beaches from the start of each season – on going.
Publication of monitoring calendar.	Summary information from each bathing water profile to be posted at beach locations.		Rolling classifications using (normally) four years monitoring data will be reported annually.
Action, where required, on cyanobacterial (bluegreen algae) blooms, macroalgae (seaweed), marine phytoplankton and other waste.	Implementation of real-time short term pollution signage advice and discounting.		
	New abnormal situation rules to apply.		

How we calculate classifications

The classifications are normally calculated on four years of monitoring data, to give a more consistent picture of water quality condition of each protected area location, using the two key mandatory microbial parameters that we measure; Escherichia coli (E coli) and intestinal enterococci (IE).

Less than four years of data would be used for classification if the bathing water had been designated for less time where only samples collected since the designated date are used or if any changes have occurred that are likely to affect the classification of the bathing water. In such cases the classification is calculated using only data for samples collected since the changes occurred. An example of this might be the commissioning and operation of a sewerage infrastructure improvement or a new treatment plant.

Figure 1: Directive classification flow chart



Public information

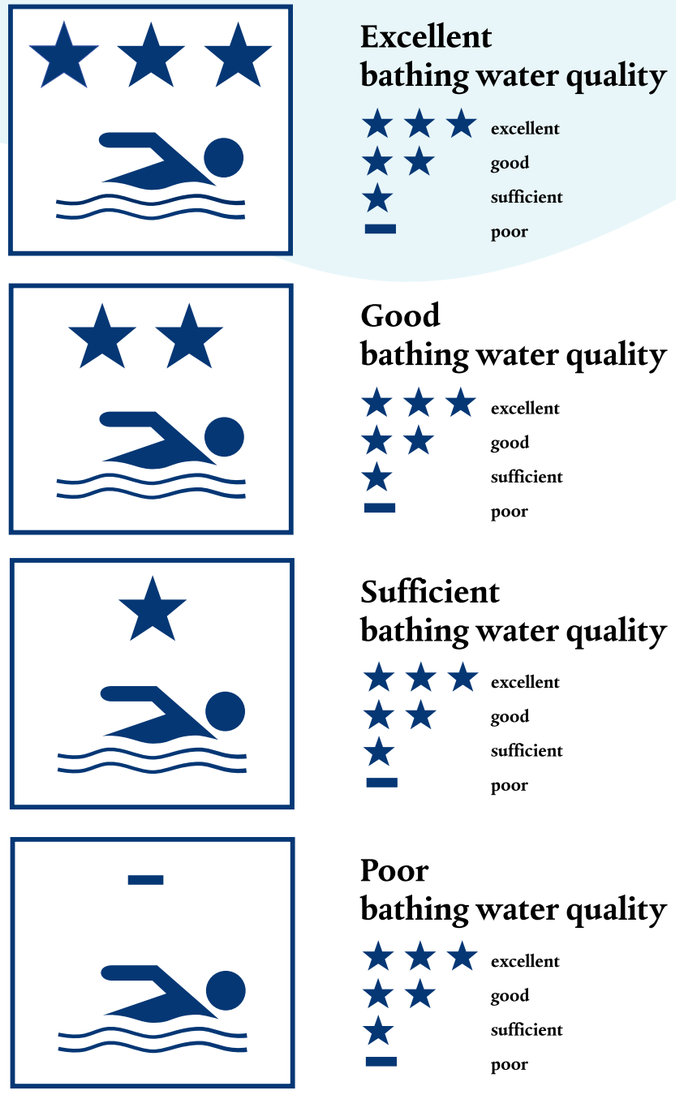
The new directive emphasises providing information to the public, particularly on the risks that bathers may face from pollution. There are requirements for information at beach locations and on appropriate media, including our website. This includes information both on normal water quality and specific information in the case of water quality deterioration.

Kyle of Durness Balnakeil bay beach

Normal water quality – at the beach

From 2016, the annual water quality classification will need to be displayed at the bathing water location, using the appropriate EU symbols.

Figure 2: EU symbols for informing on bathing water classification



Since 2012, annual summary information has been provided to local authorities to post at bathing water locations via mandatory beach signs. This summary of the bathing water profile includes details of the bathing water season, information on potential pollution sources and risks to water quality, and any relevant advice on swimming after storms.

Water quality information on our website

As well as classifications, our website will display information on water quality samples as they are collected throughout the season.

A detailed bathing water profile is available on our website for each of Scotland's designated bathing waters. These profiles are intended to provide useful information to the public and are written in accordance with the requirements of the new directive.

Each profile includes:

- a description, map and photograph of the bathing water;
- information on potential pollution sources and risks to water quality;
- descriptions of measures being taken to improve water quality;
- information on reporting and responding to any pollution incidents;
- local contact details for sources of further information.

Water quality: short-term deterioration

Our priority in the case of short-term or any known incidents of water quality deterioration is to inform the public so that an informed choice about using the bathing water can be made.

Our electronic signage network provides real-time predictions of bathing water quality at selected sites throughout Scotland. Mostly, these display predictions from water quality models, as at these sites in particular, water quality can deteriorate after heavy rainfall. They can also be used to post a warning regarding a specific pollution event.

Working with local authorities, temporary signage can be posted in the case of a pollution incident at any site outwith our network of electronic signs.

Sandwood Bay beach, Sutherland

Directive provisions in the event of water quality deterioration

Short-term pollution

Having a public warning and real-time bathing advice system in place via our electronic signs (to inform prospective bathers of periods when there may be potentially poorer water quality) allows us to disregard occasional samples from the classification dataset if these were collected during short-term pollution events. This is allowed in the directive because these short-term incidents are unrepresentative of normal classification conditions.

Following any short-term pollution event, a separate closure sample must have been taken to demonstrate that the event has ended and management measures must be in place to prevent, reduce or eliminate the causes of the pollution. The directive indicates that a maximum of 15% of the samples used to assess the classification of a bathing water can be disregarded from the assessment and, if necessary, replaced.

Abnormal situations

An abnormal situation is defined by the directive as "an event, or combination of events, impacting on bathing water quality at the location concerned and not expected to occur on average more than once every four years". During an abnormal situation, the monitoring calendar can be suspended so that samples that assess classification of the bathing water are not taken. This is because they are unrepresentative of the water quality of a bathing water.

When an abnormal situation is in force, signs must be put up at the beach by the local authority, or by SEPA if at a SEPA operated electronic sign, warning the public of the nature and expected duration of the pollution.

Water quality sampling

Sampling schedules (the monitoring calendar) are all set in advance of the bathing season, including a pre-season sample, and we ensure that the number of samples and regularity meet the requirements of the directive.

The monitoring calendar effectively has a five day window (the date in the monitoring calendar plus four days), when a sample must be taken.

Most of the time, and indeed at all non-signage sites, we sample on the date in the monitoring calendar unless there is an unexpected operational reason (for example, a vehicle breakdown or a health and safety risk to our sampling officers, such as severe sea conditions).

Poor classifications

In the event of five consecutive annual 'poor' classifications, the directive requires that 'permanent' advice against bathing must be put in place and a sign will state that this is the case, giving the reasons for this decision. In effect, that site would no longer be a designated bathing water until conditions improve and can be shown to meet at least the sufficient EU class conditions.

The first year this could happen, if anywhere, will be at the start of the 2020 season. Permanent advice against bathing may also be given between 2015 and 2020 by Scottish ministers if achieving 'sufficient' is considered to be technically infeasible or disproportionately expensive.

The Water Framework Directive and river basin management planning

The condition of most bathing waters is often directly affected by the quality of nearby water bodies (coastal burns and rivers) and their catchments which drain into the protected area. That quality depends on how land and pollution source pathways are managed. Consequently, integrating land and water pollution control, and catchment management is essential for the effective protection and improvement of the bathing water protected areas themselves.

The Water Framework Directive[1] (transposed into Scottish law under the Water Environment and Water Services (Scotland) Act 2003)[2] established an integrated approach to the protection, improvement and sustainable use of Europe's water environment. The river basin management planning (RBMP) system is the key mechanism for ensuring integrated management. The first river basin management plans for Scotland were published in December 2009 and made some good progress.

The second river basin management plans[3] were published at the end of 2015 and are available on our website.

The river basin plans cover all types of water body (rivers, lochs, estuaries, coastal waters, ground waters and wetlands) and:

- describe the current condition of the water environment;
- identify where current or historic activities are adversely affecting the quality of the water environment and the biodiversity it supports;
- detail the actions required to ensure all of Scotland's waters, including those of special value, (e.g. those protected for drinking, biodiversity, shellfish growing or bathing) are up to standard, and to maintain quality where they already meet those standards;
- strike a balance between sustainable management of Scotland's waters and protecting the interests of those who depend on the water environment for their well-being and livelihoods.

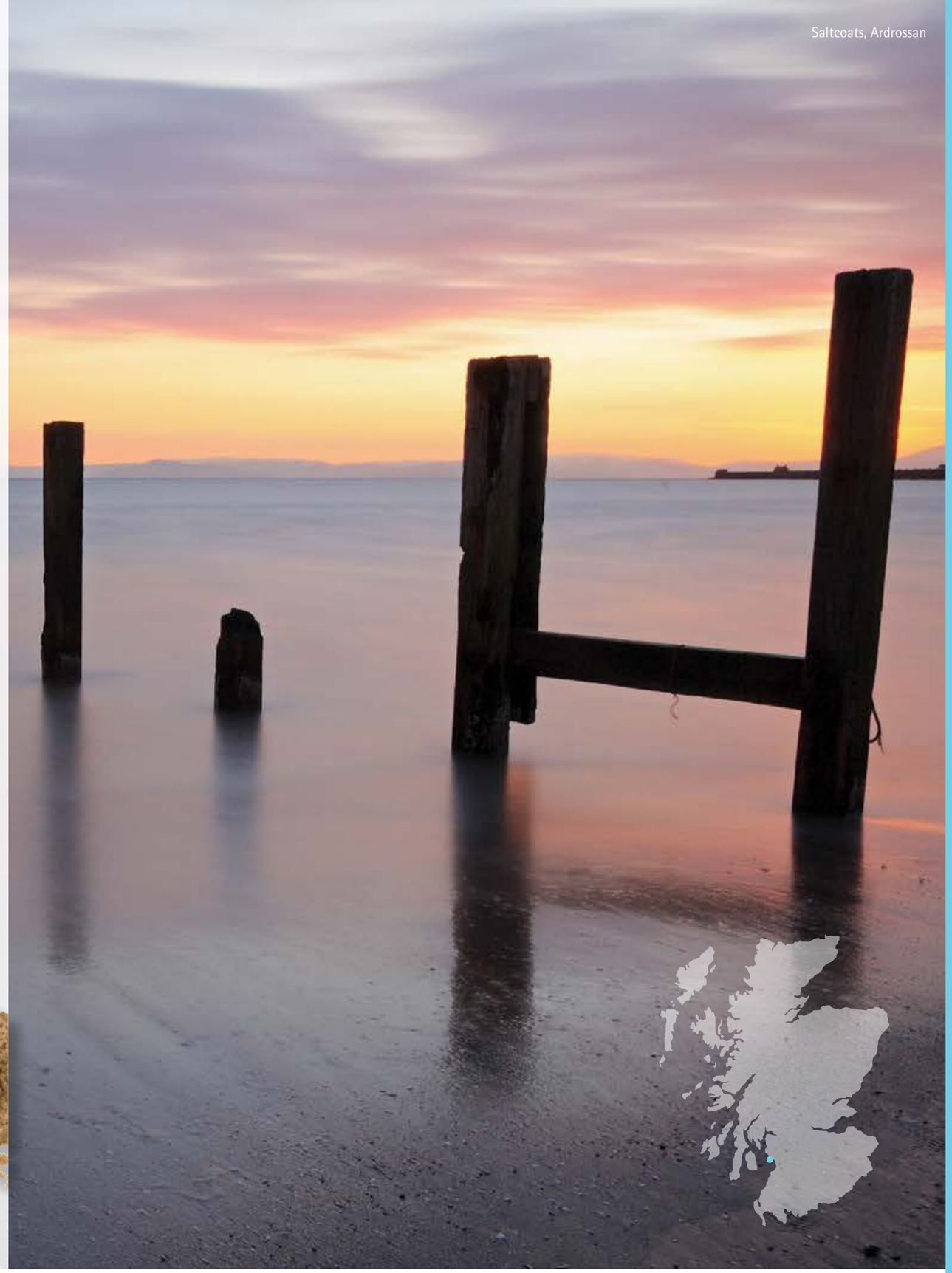
Protecting and maintaining bathing water quality

Bathing waters are classed in the RBMP as protected areas under Annex IV of the Water Framework Directive (WFD). Protected areas are those that have been identified as requiring special protection because of their sensitivity to pollution or their economic, social or environmental importance. There is a register of protected areas and maps[4] of their locations on our website.

Protected areas must comply with the standards and objectives specified by the directive under which they were established. Bathing waters will continue to be protected under the Bathing Water Directive. It states that all waters must achieve a 'sufficient' or better classification by end 2015, or with suitable management measures for any poor waters, to remain in compliance with the directive. By implementing actions in the river basin plans to improve and protect water quality, and working closely with our partners, we will contribute to achieving and maintaining this level of protection for bathing waters in Scotland.

1 http://www.gov.scot/Topics/Environment/Water/15561/WFD
2 http://www.legislation.gov.uk/asp/2003/3/contents
3 https://www.sepa.org.uk/environment/water/river-basin-management-planning/the-current-plans/
4 https://www.sepa.org.uk/environment/water/monitoring/protected-areas/

Saltcoats, Ardrossan




Bathing water sampling

2 Bathing water quality 2016

Scotland's Environment Web hosts the Scottish designated bathing waters data tool[5] which allows users to access and view a range of information and data associated with the monitoring and reporting of designated bathing waters in Scotland.

As well as the overall 2016 water quality classifications, results from microbiological analysis of E. coli, Intestinal Enterococci and salinity data is available from 2005. In addition, data on cyanobacterial (bluegreen algae) blooms, macroalgae (seaweed), marine phytoplankton and other waste information (e.g. beach litter) is available from 2012.

Individual bathing water monitoring results were placed on our bathing waters web pages throughout the bathing season within a few days of sample collection and analysis.

Water quality results for our identified bathing waters are reported annually to the European Commission. The commission publish the results as part of its annual report on the overall quality of bathing waters throughout the member states of the European Union.

5 http://www.environment.scotland.gov.uk/get-interactive/data/bathing-waters/


Luss Bay, Argyll and Bute


Puffin


Irvine, North Ayrshire

2016 classifications

The 2016 bathing water classifications are the first water quality classifications under the new directive, now standardised across Europe. For the first time, classifications apply to each bathing water at the start of the season, rather than just being the final result for the previous year's season.

The classifications are mostly calculated using data from 2012 to 2015. Colliston was designated for the first time in 2014, so data from 2014-2015 was used for that classification. At Fisherrow Sands, which was first designated in 2013, three years of data were used.

Of Scotland's 84 designated bathing waters, in 2016:

- 17 have an excellent classification;
- 38 have a good classification;
- 12 have a sufficient classification;
- 17 have a poor classification.

Map 1 and Figure 3 show the classifications for each designated bathing water.

18 samples were taken at most of our bathing waters in 2015. Due to their prior long term excellent water quality, Achmelvich, Dornoch, Gullane and Seacliff were only sampled five or six times. Geographical remoteness and the corresponding resource required for collecting water quality samples meant that Machrihanish, Ganavan and Loch Morlich were sampled 10 times.

24 samples were taken on dates during predicted short-term pollution events when appropriate public signage and information was in place. These samples were disregarded and, where necessary, replaced as required by EU rules and the 2008 Bathing Water (Scotland) Regulations.

0 abnormal situations were declared in Scotland in 2015.

7 samples out of **1,439** planned samplings were taken after, but within five days of, the sample date in the monitoring calendar. The remaining **1,432** classification samples were all taken on the day specified.

Map 1:
2016 classifications

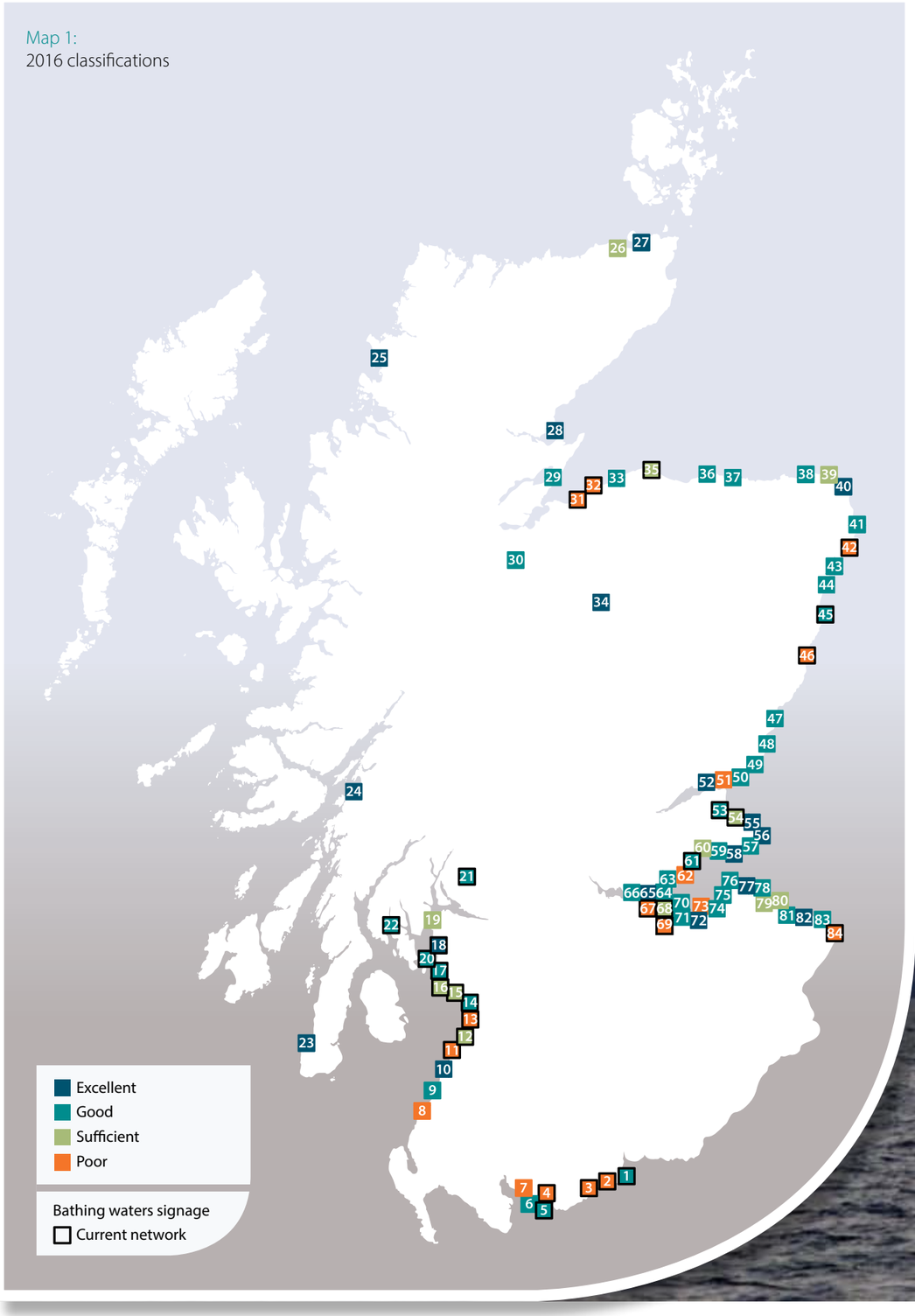


Figure 3: Scotland's 2016 bathing water classifications

Map ref.	Bathing water	Result
1	Southerness	Good
2	Sandyhills	Poor
3	Rockcliffe	Poor
4	Dhoon Bay	Poor
5	Brighouse Bay	Good
6	Carrick	Good
7	Mossyard	Poor
8	Girvan	Poor
9	Maidens	Good
10	Culzean	Excellent
11	Heads of Ayr	Poor
12	Ayr (South Beach)	Sufficient
13	Prestwick	Poor
14	Troon (South Beach)	Good
15	Irvine	Sufficient
16	Saltcoats/Ardrossan	Sufficient
17	Seamill	Good
18	Largs (Pencil Beach)	Excellent
19	Lunderston Bay	Sufficient
20	Millport Bay	Good
21	Luss Bay	Good
22	Ettrick Bay	Good
23	Machrihanish	Excellent
24	Ganavan	Excellent
25	Achmelvich	Excellent
26	Thurso	Sufficient
27	Dunnet	Excellent
28	Dornoch	Excellent
29	Rosemarkie	Good
30	Dores	Good
31	Nairn (Central)	Poor
32	Nairn (East)	Poor
33	Findhorn	Good
34	Loch Morlich	Excellent
35	Lossiemouth (East)	Sufficient
36	Cullen Bay	Good
37	Inverboyndie	Good
38	Rosehearty	Good
39	Fraserburgh (Tiger Hill)	Sufficient
40	Fraserburgh (Philorth)	Excellent
41	Peterhead (Lido)	Good
42	Cruden Bay	Poor

Map ref.	Bathing water	Result
43	Collieston	Good
44	Balmedie	Good
45	Aberdeen	Good
46	Stonehaven	Poor
47	Montrose	Good
48	Lunan Bay	Good
49	Arbroath (West Links)	Good
50	Carnoustie	Good
51	Monifieth	Poor
52	Broughty Ferry	Excellent
53	St Andrews (West Sands)	Good
54	St Andrews (East Sands)	Sufficient
55	Kingsbarns	Excellent
56	Crail (Roome Bay)	Excellent
57	Anstruther (Billow Ness)	Good
58	Elie (Ruby Bay)	Excellent
59	Elie (Harbour) and Earlsferry	Good
60	Leven	Sufficient
61	Kirkcaldy (Seafield)	Good
62	Kinghorn (Harbour Beach)	Poor
63	Kinghorn (Pettycur)	Good
64	Burntisland	Good
65	Aberdour (Silversands)	Excellent
66	Aberdour Harbour (Black Sands)	Good
67	Portobello (West)	Poor
68	Portobello (Central)	Sufficient
69	Fisherrow Sands	Poor
70	Seton Sands	Good
71	Longniddry	Good
72	Gullane	Excellent
73	Yellowcraig	Poor
74	Broad Sands	Good
75	North Berwick (West)	Good
76	North Berwick (Milsey Bay)	Good
77	Seacliff	Excellent
78	Dunbar (Belhaven)	Good
79	Dunbar (East)	Sufficient
80	Whitesands	Sufficient
81	Thorntonloch	Good
82	Pease Bay	Excellent
83	Coldingham	Good
84	Eyemouth	Poor

Bass Rock, Berwick

3 Improving bathing water quality

It is encouraging that 80% of Scottish bathing waters already meet the sufficient or better classification.

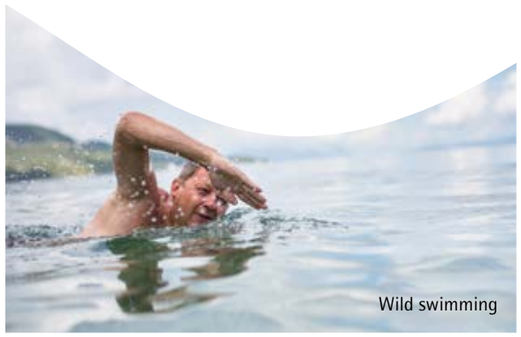
However, there are 17 bathing waters in Scotland that will have a poor classification displayed in 2016 on the beach and we realise this is important to local communities and beach users.

Our aim is to bring all of them up to at least sufficient by 2020, as any bathing water which has five successive poor classifications will require to have permanent advice against bathing displayed.

In this section we celebrate water quality improvements under the former directive, and then set out our plans to achieve a similar improvement, of bringing all bathing waters up to the required standard, under the new directive.

We also look at how we work with our partner organisations to protect and improve water quality, undertake beach management and provide public information and other areas of bathing waters management and beach use.

Scottish grey seal



Wild swimming

Scottish beach

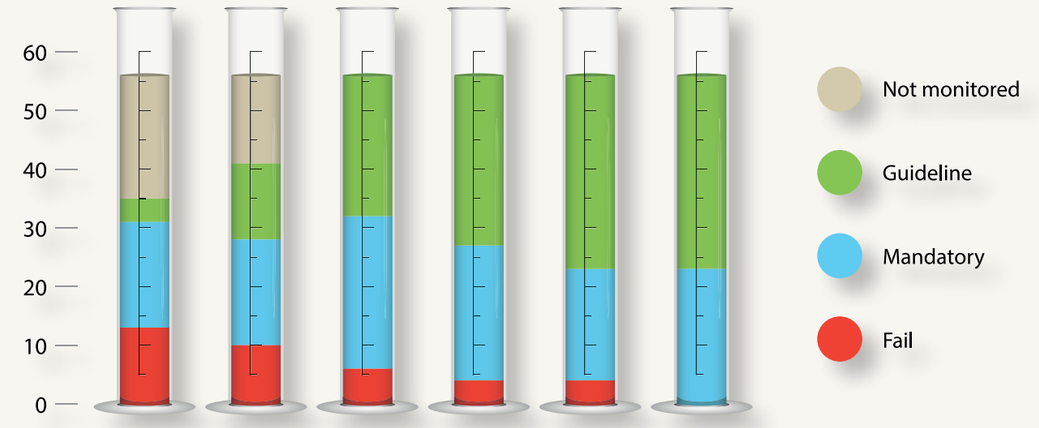
Improvements under the previous directive

Scottish bathing waters have been increasing in number and improving in quality since our regulation and monitoring of EU bathing waters compliance began in 1988. Since then, the number of designated bathing waters (where water quality is regularly reported and measures and engineering solutions put in place to protect against pollution) have increased from 23 to 84.

There has been steady improvement in the last 27 years, which is due to many years of investment and is testimony to the work of SEPA, the Scottish Government and our key partners Scottish Water and the rural agricultural community.

Figure 4 below shows the improvement under the old results of 'guideline', 'mandatory' and 'fail', where all bathing waters originally designated in 1988 were brought up to the former 'mandatory' or 'guideline' European water quality standard.

Figure 4: Bathing water results under the former directive for sites designated in 1999 or earlier



Our aim and strategies for bathing water quality improvement

Our aim is for all of Scotland's bathing waters to achieve a classification of at least sufficient by 2020 and with no real deteriorations in class. Any bathing water which has five successive poor classifications will be required to have permanent advice against bathing displayed.

We have two key strategies to achieve this aim:

1. Reduce the levels of pollutants entering the bathing water.
2. Use the provisions detailed in the directive which are designed to mitigate the effect of our variable climate on our bathing waters and inform and advise on occasions when bathing is not encouraged, particularly following short-term pollution events.

Here we describe our plans and actions, and those of our partner organisations, to implement these strategies.

Strategy: Reducing the levels of pollutants entering the bathing water

To effectively reduce pollutants we first need to find their source and have confidence of the impacts. We have a good record of working with Scottish Water and the farming community to identify and mitigate risks. It is standard practise to investigate all high results in the immediate aftermath, either in the form of a desk study or field visit and communicate, where relevant, with our partners.

Microbial source tracking developments

This year we had a new tool to aid our efforts in the form of microbial DNA source tracking analysis (MST). This allows us to identify the generic origin of pollution and we can currently determine if human, ruminant or other derived faecal indicator organisms are either present or are present at significant level.

Whilst this has often confirmed our on the ground knowledge, there have been some surprising findings and we are currently developing an avian (bird) marker. MST results only give a snapshot at a particular time, and need to be used with caution, although this is becoming a powerful tool to add to our investigatory and forensic options.


Yellowcraig beach, East Lothian

Once sources have been identified, the two key mechanisms we have to reduce pollution loads are Scottish Water Quality and Standards (Q&S) programmes and the priority rural catchments diffuse pollution programme.

Scottish Water Quality and Standards programmes

The Q&S process is the means by which the Scottish Water capital investment programme is identified, funded and delivered. Significant investment in water and drainage infrastructure has been made in previous investment periods and this has delivered notable improvements in recent years under the previous directive.

The main bathing water focus of the recent period has been an investment programme to identify and reduce the effects of unsatisfactory intermittent discharges in Ayrshire and the completion of 41 bathing water studies. These studies, just completed, were undertaken to determine whether improvements to Scottish Water assets are necessary to achieve compliance with the new directive.

Scottish Water will now begin to implement any required solutions during the current period and (where necessary) carry forward to the next investment period. Current estimates are that £35 million during 2015 - 2021 will be spent on further water pollution improvement by Scottish Water, to the benefit of Scotland's current impacted bathing waters.

Priority catchments

Our priority catchment approach, which has been ongoing since 2010, is our key mechanism for reducing sources of rural diffuse pollution from land use activities in 14 areas across Scotland.

In December 2014, we reached our initial target of completing all one-to-one visits to rural land managers within identified at risk areas of the 14 priority catchments. Over 1,000 revisits have been undertaken to rural land managers who were non-compliant with regulation in these catchments since June 2014. We have been impressed with the number of land managers either becoming compliant or working towards compliance by our first revisit. We have seen 88% of land managers changing their behaviour and becoming compliant with environmental regulations.

In these catchments we are working with land managers (farmers, foresters, golf course and sports field managers as well as others who work the rural land) and other stakeholders – for example, positive partnerships have been developed between SEPA and members of the local branches of the National Farmers Union Scotland (NFUS) and Scottish Waters Sustainable Land Management Team. Partnership working has allowed knowledge transfer and helped to develop methods to achieve compliance in all sectors with the diffuse pollution General Binding Rules (GBRs).

The priority catchment approach has seen significant milestones being achieved, increasing our understanding of diffuse pollution sources in rural areas and of mitigation measures that will help to minimise these issues in the future. Our approach has been accepted as a recognised way of land manager engagement and will be further rolled out in an additional 43 catchments within the next six years as per Scotland river basin plans.

More information about priority catchments[6] can be found on our website.

6 http://www.sepa.org.uk/environment/water/river-basin-management-planning/actions-to-deliver-rbmp/priority-catchments/

Strategy: Use the provisions detailed in the directive which are designed to mitigate the effect of our variable climate on our bathing waters and inform and advise on occasions when bathing is not encouraged, particularly following short-term pollution events.

Short-term pollution and bathing water signage: providing daily forecasts of predicted bathing water quality and public information.

In Scotland, the primary causes of poor bathing water quality are short episodes of pollution caused by the impact of heavy rainfall on the operation of sewerage assets, surface drains, field run-off and agricultural activity.

Unfortunately our temperate and variable climate means we are frequently subject to summer rainfall, some of which can be increasingly intense. The directive allows up to 15% of samples collected during short-term pollution events to be removed from the overall classification dataset, provided active beach management (including advice and warnings against bathing issued to the public) is in place.

Our electronic signage network, which spanned 23 sites across Scotland in 2015, allows us to apply this provision. We are fully responsible for the real-time prediction and electronic signage system. We use our extensive rainfall and hydrological information network and technical systems to inform the water quality predictions and to run the daily operation of the signage service. We are also assisted by subcontractors for civil engineering consultancy, installation and technical maintenance of the signs.

In 2015 we ran our signage system with new models, designed to better predict against the tighter water quality standards required by the new BWD.

Our signage network operated from 15 May to cover the two week period prior to the start of the season when pre-season samples are taken. These pre-season samples are a statutory requirement and are used in calculating bathing water classification.

Signage developments for 2016

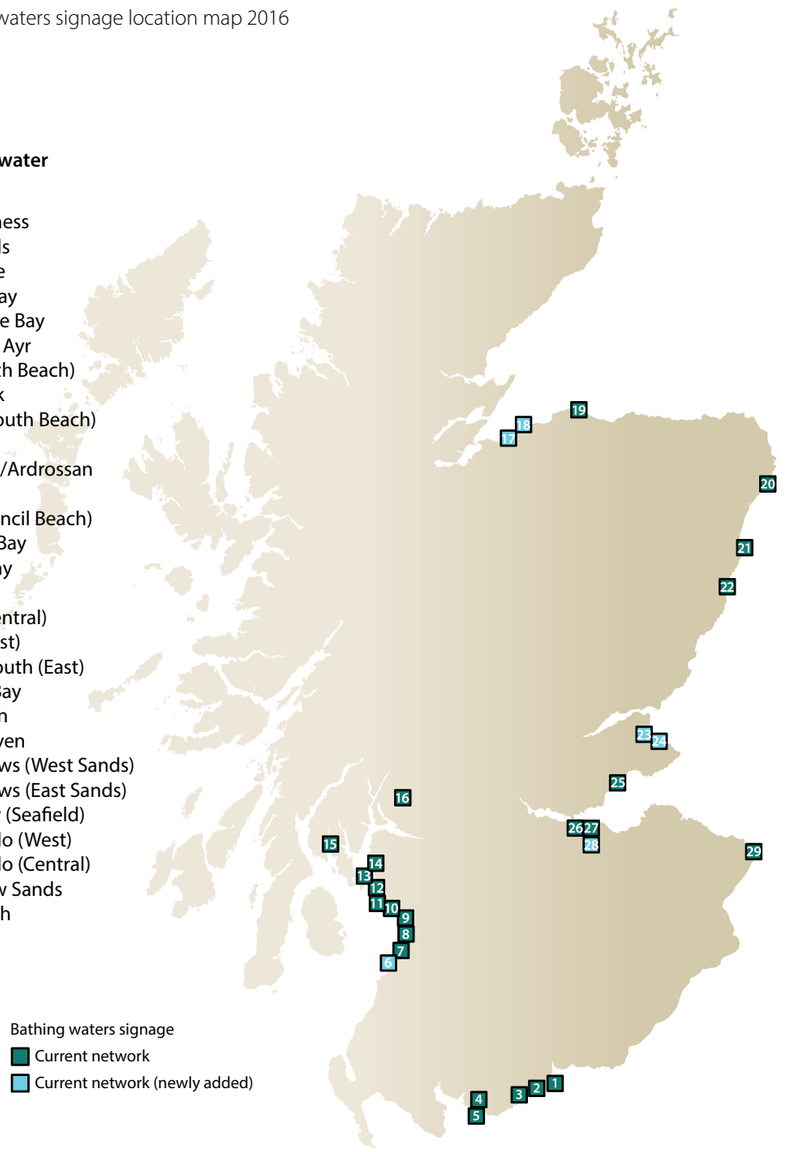
Six bathing waters have been selected to have new electronic boards at the beaches and to be integrated into our existing daily prediction system:

- Fisherrow Sands
- Nairn (East and Central)
- Heads of Ayr
- St Andrews (East and West Sands) - These sites are in collaboration with Fife Countryside Coastal Trust.

Their selection was based on an assessment of user numbers and an assessment as to whether high results at that site could be predicted by rain and river driven models.

Map 2: Bathing waters signage location map 2016

Map ref.	Bathing water
1	Southerness
2	Sandyhills
3	Rockcliffe
4	Dhoon Bay
5	Brighouse Bay
6	Heads of Ayr
7	Ayr (South Beach)
8	Prestwick
9	Troon (South Beach)
10	Irvine
11	Saltcoats/Ardrossan
12	Seamill
13	Largs (Pencil Beach)
14	Millport Bay
15	Ettrick Bay
16	Luss Bay
17	Nairn (Central)
18	Nairn (East)
19	Lossiemouth (East)
20	Cruden Bay
21	Aberdeen
22	Stonehaven
23	St Andrews (West Sands)
24	St Andrews (East Sands)
25	Kirkcaldy (Seafield)
26	Portobello (West)
27	Portobello (Central)
28	Fisherrow Sands
29	Eyemouth



Maximising information opportunities

All of our signs have the capacity to alternate between displaying daily water quality status and additional information.

While the standard alternative message is a reminder to keep beaches tidy, we can also accommodate appropriate bespoke messages to provide useful information as discussed and agreed with local authorities or beach managers. Currently, additional beach specific messages include information about safeguarding dolphins at Aberdeen, a request to not feed gulls at Eyemouth and advice about car park opening and closing hours at Kirkcaldy (Seafield).

This season, predictions were available on our website, mobile website and Beachline telephone service (08452 30 30 98), in addition to the electronic signs at bathing water locations.

Abnormal situations and other provisions

An abnormal situation is defined by the new directive as "an event, or combination of events impacting on bathing water quality at the location concerned and not expected to occur on average more than once every four years".

We are actively working with partners to maintain and improve our communication methods so that information and appropriate warnings about an event can be provided to the public. This allows us to suspend our directive monitoring calendar, although we will normally take additional investigative samples to determine the severity and extent of the event, and to confirm that it has ended.

Other matters

If any changes have occurred that are likely to affect the classification of the bathing water, the classification would be calculated using only data for samples collected since the changes occurred. These situations are sometimes referred to as 'step changes'. An example of this might be a sewerage infrastructure improvement, a new treatment plant, or completion of measures under our priority catchments program for managing diffuse pollution. We will apply this provision where appropriate so that classifications reflect these improvements.

Coldingham, just off Eyemouth, Scottish Borders

Roles of SEPA and our partner organisations in improving bathing water quality and in other areas of bathing waters management

SEPA protects and maintains a safe, healthy and sustainable environment for the people of Scotland. We ensure that business and industry is aware of, and complies with, environmental regulation, as well as warning and informing the public in the event of environmental incidents.

We implement the Bathing Waters Directive and our duties are described in the Bathing Waters (Scotland) Regulations 2008.

Activities that we undertake are to:

- Sample and assess Scotland's 84 designated bathing waters regularly throughout the bathing water season for faecal indicator organisms, cyanobacterial (bluegreen algae) blooms, macroalgae (seaweed), marine phytoplankton and other waste.
- Disseminate these results via our website during the bathing water season and report to Europe annually. We investigate promptly if our routine sampling of bathing waters identifies problems with any of these parameters and liaise with partner organisations both to resolve the problem and to provide relevant information and advice to the public.
- Provide real-time daily predictions of bathing water quality at selected sites across Scotland via our electronic signage network, website, mobile website and Beachline services.
- Publish bathing water profiles and provide summary information for display at bathing water locations to local authorities.
- Co-ordinate the management of the water environment through the production of river basin management and area management plans.

The Scottish Government

is responsible for administering the requirements of the current Bathing Water Directive in Scotland, including setting the bathing season and identifying bathing waters. The government is also required to transpose the requirements of the new directive into Scottish legislation.

Scottish Water

is a key player in our first strategy of reducing the levels of pollutants entering the bathing water through the quality and standards program, as outlined earlier in this section. Their role doesn't stop there though. Information provision in the event of infrastructure failure can allow us to post warnings to the public, either via our network of electronic signs or by manual posters. This in turn potentially allows us to call an abnormal situation or a short-term pollution event, and apply some of the provisions described in our second strategy.

'Keep the water cycle running smoothly'[7] is a Scottish Water campaign aiming to tackle blocked drains and sewer flooding by working together with the public to help prevent blockages in the sewerage and drainage system. Every year there are over 40,000 blocked drains and sewers across Scotland, which can cause flooding and pollute rivers and burns. Around 80% of these blockages that clog up the sewerage system are caused by either inappropriate items being put down the toilet, or fat, oil and grease being put down the sink.

The agricultural community

have a key role in reducing diffuse pollution from agricultural and rural sources which poses a significant risk to bathing water quality particularly during and after periods of heavy rain. See our priority catchments section.

As with Scottish Water, timely provision of information regarding any event which could affect bathing water quality again allows to post a warning and potentially apply directive provisions.

Local authorities

are responsible for keeping 'amenity beaches' - i.e. those areas of beach adjoining an identified bathing water - free from litter under the Environmental Protection Act 1990.

Local authorities, as responsible authorities named in the regulations, are required to display signage at bathing waters giving the water quality classification, a general description of the bathing water and information indicating if the bathing water is likely to be subject to short term pollution. They additionally have a role in posting temporary signage in the case of a pollution event at any site out with our network of electronic signs.

Keep Scotland Beautiful

is an independent charity which campaigns, acts and educates on a range of local, national and global environmental issues which affect people's quality of life. It co-ordinates beach awards which recognise excellent beach management, facilities, cleanliness, safety and water quality.

KSB also administrates Clean Up Scotland[8], the large engagement campaign that is working to make Scotland the cleanest country in Europe. Litter and dog fouling are two of the campaign's target topics, both of which impact our bathing waters.

The Marine Conservation Society (MCS)

is a UK charity dedicated to protecting the marine environment and its wildlife. It publishes the Good Beach Guide every year, using mostly the SEPA and other UK Environmental Agency bathing season monitoring results. MCS lists all identified and many non-identified bathing waters around the entire UK coastline. The MCS recommended beaches can be viewed online.

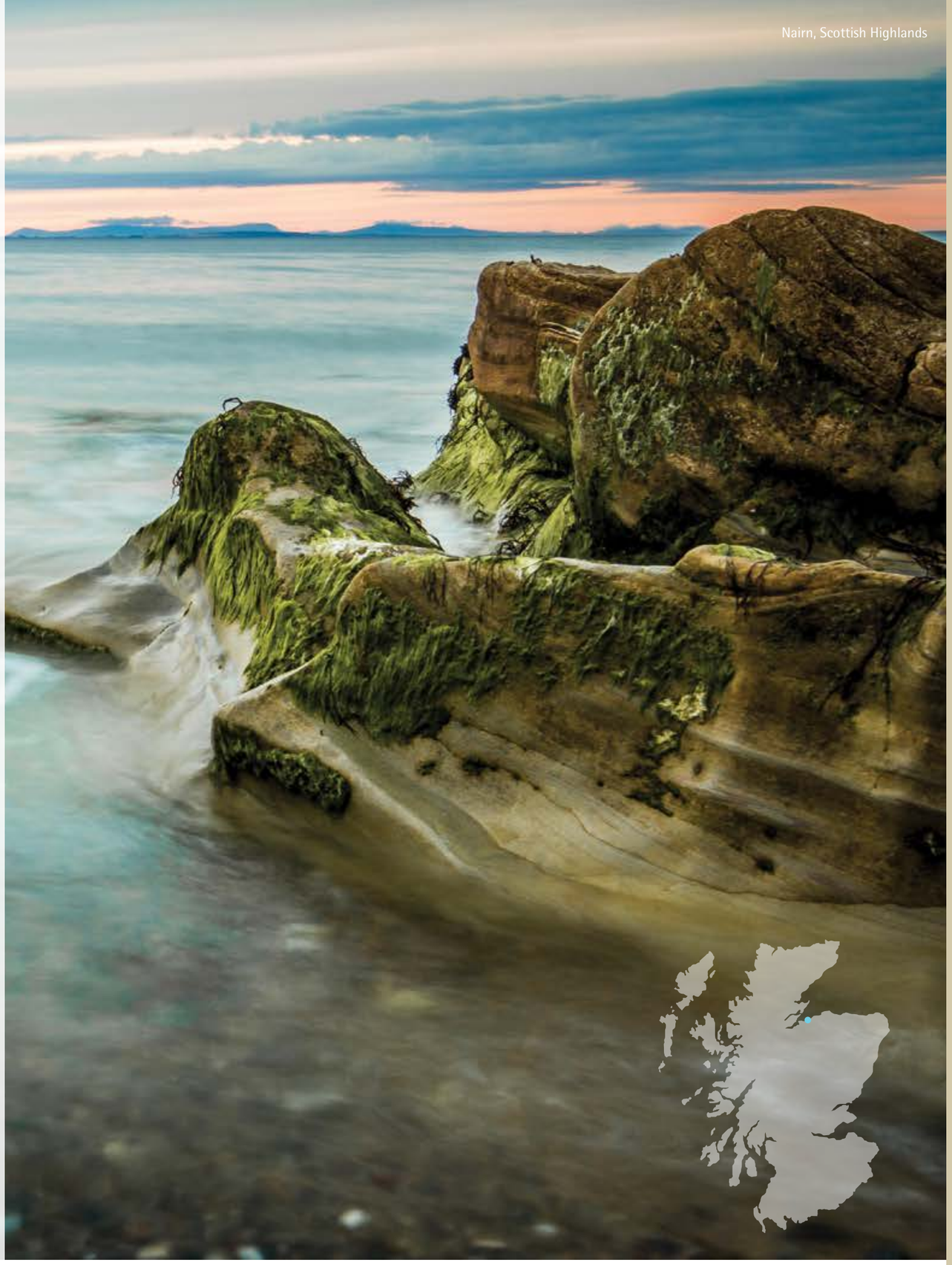
7 http://www.scottishwater.co.uk/you-and-your-home/your-home/keep-the-water-cycle-running-smoothly/cycle

8 http://www.keepscotlandbeautiful.org/local-environmental-quality/clean-up-scotland/

You

can undertake a number of steps both to improve both bathing water quality and the beach environment:

At the beach	At home
Use litter bins provided or take litter home. This will improve how our beaches look, and in addition reducing or eliminating food waste may reduce bird numbers which may improve water quality.	In the bathroom follow the 'three P's' rule and only flush pee, poo and toilet paper. Everything else should go in the bin, not down your toilet, where it can cause drains and sewers to block
Get involved with local beach clean-ups. Many local and national organisations organise regular beach cleans.	In the kitchen, dispose of your fats, oils and grease in the kitchen bin, not the kitchen sink. As they cool, fats, oils and greases, even in liquid form, will congeal, harden and stick to the inside of drains and sewers, which can cause them to block.
If you're a dog owner obey any dog exclusion zones and pick up after your dog. As well as improving the beach environment, dog faeces on beaches can be a direct cause of water pollution.	Ensure your home or business property is connected to the correct drainage system. Wrongly connected plumbing could mean that dirty water from toilets, dishwashers and showers could be going directly into your local river or sea.
Refrain from feeding the gulls as bird faeces can adversely affect water quality.	If your property is connected to a septic tank, check it's working correctly and keep it maintained.



Annex one: Designation of bathing waters

The Bathing Water (Scotland) Regulations 2008 require Scottish ministers to annually review the list of designated bathing waters for Scotland.

The directive states that a bathing water is one where a large number of people are expected to bathe and a permanent bathing prohibition, or permanent advice against bathing, has not been issued. Generally, a 'large' number of bathers (approximately 150 people) will be found at popular, well-used beaches and lakes where bathing is encouraged and facilities for bathers may have been provided.

Any organisation or individual can put forward a bathing water to be considered for designation. Once the application and supporting evidence has been received, it will be considered by a multi-sector panel, which we chair, who will make recommendations to the Scottish Government's Minister for Environment, Climate Change and Land Reform. The minister will then decide which beaches are designated before the next bathing water season.

Further information on the designation process[9] is available on our website and the Scottish Government and Keep Scotland Beautiful websites (see Annex 2). Official bathing water designation enables action to be taken to ensure the bathing water meets the directive's standards to protect public health. It is therefore in the interest of owners of non-recognised sites to apply for designation if they meet the appropriate criteria.

No additional bathing waters were awarded designated bathing water status by the Scottish Government for 2015 and no applications have been put forward for 2016.

9 http://apps.sepa.org.uk/bathingwaters/Designation.aspx

Oyster catcher

Annex two: Partner organisations

Scottish Government	Water Authority
Victoria Quay, Edinburgh, EH6 6QQ 0131 244 0396 eqcat@scotland.gsi.gov.uk www.gov.scot/Topics/Environment/Water/15561/bathingwaters	Scottish Water, Castle House, 6 Castle Drive, Carnegie Campus, Dunfermline, KY11 8GG 0845 601 8855 www.scottishwater.co.uk
Keep Scotland Beautiful	**Marine Conservation Society**
First Floor, Glendevon House, The Castle Business Park, Stirling, FK9 4TZ 01786 471333 beach@ksbscotland.org.uk www.keepscotlandbeautiful.org	Wolf Business Park, Alton Road, Ross-on-Wye, Herefordshire, HR9 5NB 01989 566017 info@mcsuk.org www.mcsuk.org

Local authorities and bathing waters

Aberdeen City Council: Aberdeen

Aberdeenshire: Balmedie, Collieston, Cruden Bay, Fraserburgh (Philorth), Fraserburgh (Tiger Hill), Inverboyndie, Peterhead (Lido), Rosehearty, Stonehaven

Angus: Arbroath (West Links), Carnoustie, Lunan Bay, Monifieth, Montrose

Argyll and Bute: Ettrick Bay, Ganavan, Luss Bay, Machrihanish

City of Edinburgh: Portobello (Central), Portobello (West)

Dundee City: Broughty Ferry

Dumfries and Galloway: Brighouse Bay, Carrick, Dhoon Bay, Mossyard, Rockcliffe, Sandyhills, Southerness

East Lothian: Broad Sands, Dunbar (Belhaven), Dunbar (East), Fisherrow Sands, Gullane, Longniddry, North Berwick (Milsey Bay), North Berwick (West), Seacliff, Seton Sands, Thorntonloch, Whitesands, Yellow Craig

Fife: Aberdour (Silversands), Aberdour Harbour (Black Sands), Anstruther (Billow Ness), Burntisland, Crail (Roome Bay), Elie (Harbour) and Earlsferry, Elie (Ruby Bay), Kinghorn (Harbour Beach), Kinghorn (Pettycur), Kingsbarns, Kirkcaldy (Seafield), Leven, St Andrews (East Sands), St Andrews (West Sands)

Highland: Achmelvich, Dores, Dornoch, Dunnet, Loch Morlich, Nairn (Central), Nairn (East), Rosemarkie, Thurso

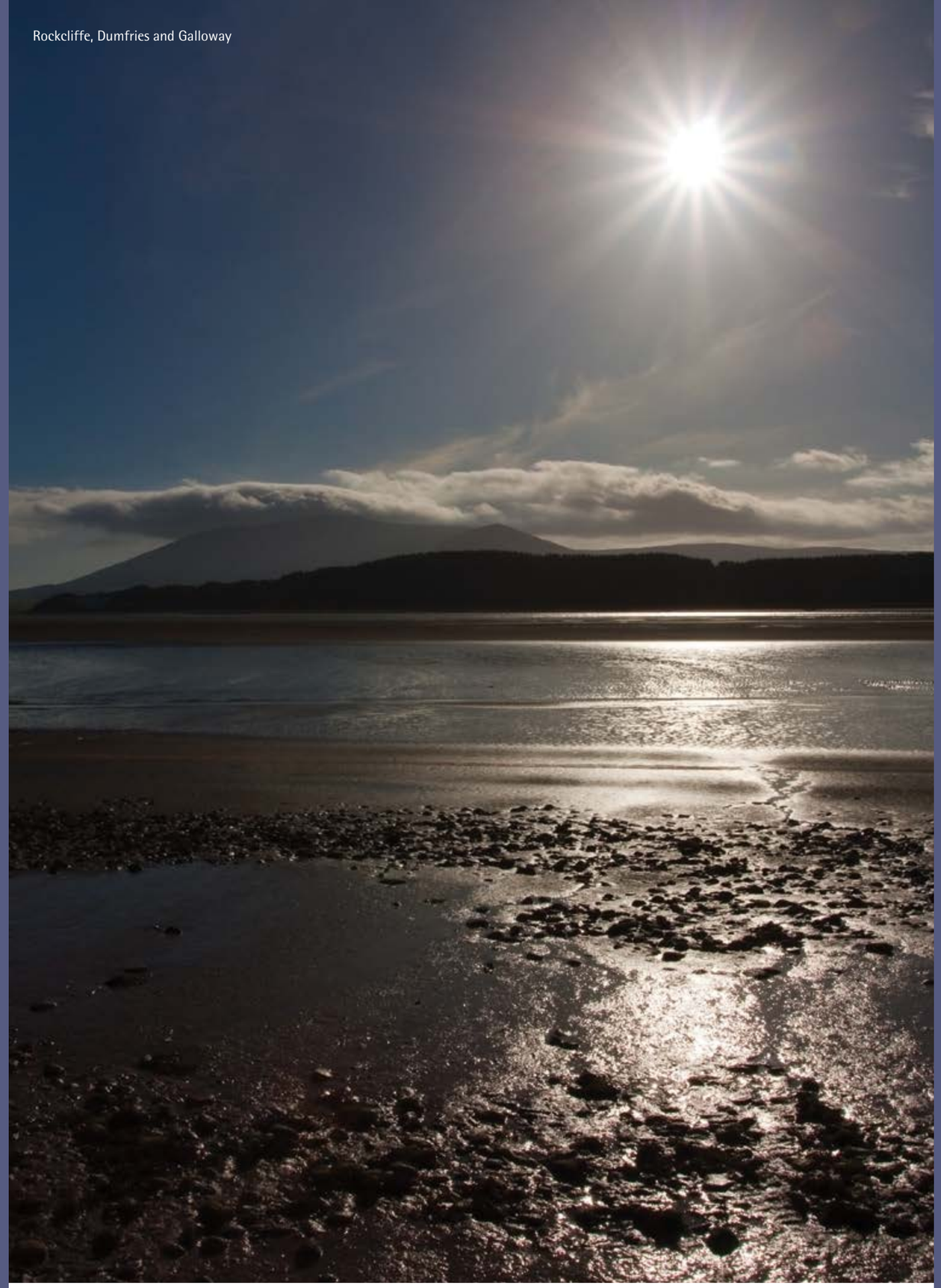
Inverclyde: Lunderston bay

Moray: Cullen Bay, Findhorn, Lossiemouth (East)

North Ayrshire: Irvine, Largs (Pencil Beach), Millport Bay, Saltcoats/Ardrossan, Seamill

Scottish Borders: Coldingham, Eyemouth, Pease Bay

South Ayrshire: Ayr (South Beach), Culzean, Girvan, Heads of Ayr, Maidens, Prestwick, Troon (South Beach)



Rockcliffe, Dumfries and Galloway

Annex three: Contacting SEPA

Visit **www.sepa.org.uk/contact** for a range of contact options or call us on **03000 99 66 00**.

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