

Scottish bathing waters 2013-2014

*

Charles and

Contents

Foreword	
Executive summary	2
1 Improving bathing water quality	
1.1 Our role	3
1.2 Working with our partners	
1.3 The Water Framework Directive and river basin management planning	4
1.4 The revised Bathing Water Directive	
2 Bathing water quality, 2013	4
2.1 Water quality results	
2.2 Summer weather	6
2.3 Bathing waters signage: providing daily forecasts of predicted bathing water qual	lity
2.4 Analytical developments	6
3 Working with our partners	
3.1 Investment by Scottish Water	7
3.2 Private sewage treatment systems	1
3.3 Our plans to reduce sources of diffuse pollution	0
	1



Annex one:	2013 Monitoring data from Scotland's 83 identified bathing waters	2
Annex two:	Current legislation and results assessment	2
Annex three:	Sources of additional information on bathing water quality	2
Annex four:	Individual bathing waters information	5
Annex five	SEPA offices	2
Map 1:	Individual sample results, 2013	8
Figure 1:	Partnership working is essential	2
Figure 2:	Water quality results	9
Figure 3:	Scotland's 2013 bathing water compliance results	4
Figure 4:	Bathing waters signage performance and validation of daily predictions	0
Figure 5:	DNA extraction	1
Box 1:	Diffuse pollution priority catchments in the first river basin cycle	2
Table 1:	Q&SIIIb (2010–2015) Scottish Water bathing water studies	
Table 2:	Interpretation of microbiological values for bathing waters	5
	for the period 2012 to 2014	1 27
		1



Scottish bathing waters

Front cover: Machair flowers, Horgabost, Isle of Harris

Foreword

It is always a pleasure to report good news. This year's achievement of all of our bathing waters meeting the mandatory water quality standard is a substantial success for Scotland.

However, change is around the corner. The revised Bathing Water Directive, which we will first report against at the end of the 2015 season, will change the way we classify water quality. Under the revised directive there are new bathing water quality classifications – 'excellent', 'good', 'sufficient' or 'poor' – which are significantly more stringent than those of the current directive. The revised directive requires a water quality classification method

based on four seasons' monitoring, rather than the present system of reporting single sample results each season. All bathing waters are required to be 'sufficient', or better, by 2015.

We welcome the drive to improve the quality of our waters for beach users and bathers. The majority of our bathing waters are already looking to be at the sufficient standard or higher, and we have, along with the Scottish Government, been working closely with many partners to raise awareness of the risks and impacts of pollution, and measures to reduce them.

Accelerated investment made by Scottish Water under its Quality and Standards programmes has resulted in significant

upgrades in Scotland's sewerage and drainage infrastructure, much of it aimed at improving bathing waters compliance. The current investment programme, running from 2010 to 2015, includes 39 bathing water studies.

Reducing diffuse pollution remains a key component in improving water quality in Scotland and we are working with our stakeholders to implement a rural diffuse pollution plan for Scotland. A catchment approach is being taken, with work up to 2015 focusing on 14 priority catchments across Scotland.

We continue to lead the way in new public information and health protection initiatives. Our expanded daily prediction and signage system provided daily water quality forecasts at 23 locations across Scotland via electronic beach signage, the internet, Beachline and mobile phone apps. For all locations we continue to supply summary information to local authorities who are responsible for posting it. The summary 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.

The superb weather conditions during summer 2013 gave Scotland a wonderful combination of sunshine and clean waters at our wide variety of bathing beaches; from sandy bays to rocky coves, traditional resorts to peaceful rural sites. We will continue to work with our partners to drive forward the improvements needed to fully comply with the new directive.

David Pirie Director of Science and Strategy



Executive summary

All of Scotland's 83 bathing waters passed European water quality standards during the 2013 season and 47 (57%) also gained the stricter guideline standard.

2013 has been the best year on record for water quality at our designated bathing waters. While 2006 also recorded a 100% pass rate the results this year include 20 more bathing waters due to additional designations in the intervening period and an even greater proportion of bathing waters reached the highest guideline standard. This confirms that investment by water companies and other measures to improve bathing water quality are paying off over the long-term.

Our expanded daily prediction and signage system provided daily water quality forecasts at 23 locations across Scotland. We again had a high level of accuracy to our predictions; on over 99% of days, the daily advice given to the public was correct or precautionary.

Fisherrow Sands was awarded designated bathing water status by the Scottish Government after a strong application showing high usage by a local community group supported by the local authority. Tentsmuir Sands was de-designated as a review considered that, despite consistently excellent water quality, the significant safety issues of fast moving tides and shifting sands at this site meant that it should not be promoted as a bathing water. It remains a beautiful and popular site for walking and nature watching.

The success of bathing water seasons in Scotland is very weather dependent, as changeable weather patterns and heavy summer rains can have a negative impact on water quality. This year we have enjoyed a good run of dry months, although there were a few periods of very heavy rain in June and July in both the North and West of the country. These results clearly demonstrate the benefit of a dry summer, where lower than normal heavy rainfall events have led to less water running off land which can carry contaminants into streams, burns and rivers.

The revised Bathing Water Directive, which we will first report against in 2015, classifies waters as 'excellent', 'good', 'sufficient' or 'poor'. The standards used to derive the new quality classes are significantly more stringent than those of the current directive and all bathing waters are required to be 'sufficient', or better, by 2015. The data used for the annual classification of a bathing water will change from the current one year period using single pass/fail samples on to a rolling, four year period. The results already in our database from the 2012 and 2013 seasons will already count towards our first classifications to be reported by the end of 2015.

A lot of work has been carried out by Scottish Government and SEPA, in association with other partners, in catchments where water quality is at risk. This has been reflected in monitoring, with the highest ever number of samples achieving the top water quality standard being recorded. This work will continue, to ensure that, in future, families can enjoy a day at the beach and have confidence in the quality of the water.



1 Improving bathing water quality

We continue our progress of improving water quality and public information at the 83 designated bathing water sites across Scotland. This year we achieved our goal of total compliance with the current Bathing Water Directive's mandatory standards.

We are making progress towards the tighter parameter standards of the

revised directive and have a specific target of all bathing waters to be classified at least sufficient quality by the end of 2015.

1.1 Our role

Our role is to make sure that the environment and human health are protected by regulating activities that can cause harmful pollution and encouraging good environmental practice. A clean and healthy environment is essential to our health and well-being, as well as to sustainable economic growth and provides a variety of opportunities for recreation.

As a non-departmental public body, accountable through Scottish Ministers to the Scottish Parliament, we implement Scottish, UK and European legislation.

We will continue to protect and improve the quality of Scotland's lochs, rivers, estuaries, wetlands, groundwater and coastal waters so that they are sustainable for the future. We are responsible for co-ordinating the management of the water environment through the production of river basin management and area management plans (see Section 1.4).

Bathing waters feature in our key environmental outcome 'Scotland's environment is understood and SEPA is an influential and respected authority', detailed in both our Corporate Plan 2012-20171 and our Annual Operating Plan2 2013–2014. They also feature in the plan to improve the 'effectiveness of public warning services' with regard to our role in providing health related public information.

¹ www.sepa.org.uk/about_us/publications/corporate_plan.aspx

² www.sepa.org.uk/about_us/publications/annual_operating_plans.aspx

Scottish Water and the Water Industry

The Scottish	Commissioner	
The Scottish Government The importance of in coas factors outside our Diffuse statutory control has agric become increasingly pose apparent. The Scottish to Government's strategy Ta document Better concerts bathing waters: meeting of the challenges of the bath revised Bathing Wate, this Directive in Scotland3 and is the most recent in a abor series of publications prev which are very helpful pol in enabling problem ident sources to be tackled. doi • that planned capital inver-	Commissioner The agricultural community Sewage remains a significant cause of pollution stat waters despite all large continuous e pollution from sewage discharges to Scottish waters being cultural and rural sources subject to at least full secondary treatment. es a significant risk Storm overflows to freshwaters and directly bathing water quality. to sea continue to be a pollution problem in ackling these sources requires numerous catchments. During heavy rainfall, ed action across combined sewer overflows which discharge aatchments draining to the diluted, but minimally treated, sewage to bing waters. We will ensure watercourses and coastal waters, are essential s by working with farmers to prevent flooding. d others to raise awareness Measures to reduce sewage related problems but the requirement for are, in most cases, the responsibility of Scottish venting and reducing Water. SEPA and the Scottish Government work lution and to help them with Scottish Water and the Water Industry ify appropriate actions for Commissioner to ensure: ng so (see Section 3.3). estment	
sewerage infrastructure t	hroughout	
the country are prioritised		
The public maximise env (See Section 3.1); Every year there are over DIOCKED DIAL Scotland, which can cause flooding and	ns and sewers across Partnership • compliance w pollute rivers and working is implementing the Fi	vith r Jron
buins. Around 80% of the DIOCKASES III sewerage system are cause either inappropriate items	at clog up the essential (UWWTD) and all relevant	t qua
put down the toilet, or fat, grease being put down the 'Keep the water cycle runn smoothly'4 is a Scottish M	, oil and e sink. ning Vater In urban areas, sustainable Local authorities	
campaign aiming to tackle blocked drains and sewer by working together with t public to help prevent blo	e urban draining systems (SUDS) flooding Under the Environmental are being increasingly used the Protection Act 1990, local to drain new developments. ckages authorities are responsible for They are designed to avoid	
in the sewerage and drain system. More information their campaign can be fou the Scottish Water websit	hage keeping 'amenity beaches', those pollution of the water a about areas of beach adjoining an environment and include and on identified bathing water, free permeable surfaces that allow te.from litter. Infiltration of rainwater into	
Clean Up Scotland 5, led b Bage at bathing of the source o	by Keep Local authorities are required the ground, slo vin g the rate mass to display sig ^{er} at is waters giving a general environment and trapping and of the description of sin e. Litter and information as to if the artificial ponds or wetlands of the bathing wat both of subject to short term pollution. of treatment. Information	
on SUDS and the latest which are relevant to our I developments is available waters. our website.7	bathing e on	

3 www.scotland.gov.uk/Publications/2006/03/23151924/0

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

- www.cleanupscotland.com

- 6 http://ec.europa.eu/environment/water/water-urbanwaste/index_en.html
- 7 www.sepa.org.uk/water/water_regulation/regimes/pollution_control/suds.aspx

1.2 Working with our partners

We cannot achieve current compliance or the revised classifications on our own and we will continue to work with all relevant organisations, the agricultural community and the public to achieve this objective (Figure 1). We recognise that partnership working is essential if we are to reduce the risk of urban and rural pollution in our coastal and inland bathing waters, to give Scotland and its visitors the high quality of water and information which they are entitled to expect.

1.3 The Water Framework Directive and river basin management planning

The condition of bathing waters is linked to the quality of other water bodies in their catchments as well as how land and pollution source pathways are managed. Consequently, integrating land and water management is essential for the effective protection and improvement of the water environment.

The Water Framework Directive8 (transposed to Scottish Law under the Water Environment and Water Services (Scotland] Act 2003)9 established a new, integrated approach to the protection, improvement and sustainable use of Europe's water environment. The river basin management planning10 (RBMP) system is the key mechanism for ensuring

integrated management. The first river basin management plans were published in December 2009. For river basins in Scotland, these plans can be found on our website11. The plans cover all types of water body (rivers, lochs, estuaries, coastal waters and groundwaters) 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 our waters of special value (e.g. protected for drinking, biodiversity,

shellfish growing or bathing) are up to standard, and to maintain quality where they already meet those standards;

• set out the actions needed to deliver environmental improvements whilst trying to achieve a balance between protection of Scotland's water environment, sustainable economic development and the protection of the interests of those who depend on our water environment for their quality of life.

Interim reports describing progress in the implementation of the planned programme of measures for the first river basin management plans are now available on our website. They outline the work currently underway to meet targets set to improve the water environment by 2015.



8 www.scotland.gov.uk/Topics/Environment/Water/15561/WFD

A CALLER AND A CALLER

9 www.legislation.gov.uk/asp/2003/3/contents

10www.sepa.org.uk/water/river_basin_planning.aspx

11www.sepa.org.uk/water/river_basin_planning.aspx

We are now developing the second river basin management plans, which will be available in 2015. In the upcoming months our website will be updated with information, reports, and consultation opportunities. Continuous engagement with advisory groups, responsible authorities and specific sectors will remain part of the process.

are areas 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 of their locations12 on our website. Bathing waters improvement will be implemented through the river basin management plans.

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 revised Bathing Water Directive, which states that all waters must achieve a 'sufficient' or better classification by 2015. Bathing waters improvement will be implemented through the river basin management plans.

1.4 The revised Bathing Water Directive

The revised Bathing Water Directive13 (2006/7/EC) came into force on 24 March 2006 and was translated into Scottish law by The Bathing Waters (Scotland) Regulations 2008. The directive introduces a new classification system with more stringent water quality standards and puts an emphasis on providing information to the public. We will first report water quality under the revised directive in 2015, but other parts of the directive must be implemented earlier and are already in place.

2011 2012 2015

Publication of bathing water profilesSwitch to new parametersReport water quality standards

Publication of monitoring calendarSummary information to be posted at against the revised Bathing

Action, where required, on beach locationsWater Directive cyanobacterial (bluegreen algae) Implementation of signage and blooms, macroalgae (seaweed), marine discounting phytoplankton and other waste New abnormal situation rules to apply

New classifications and objectives

The revised directive classifies bathing waters according to four quality categories: 'excellent', 'good', 'sufficient' and 'poor'. The new 'good' classification is broadly equivalent to the existing 'guideline' standards. Under the new system, quality classifications are to be made using data covering four years, with the first classification in 2015 using samples from 2012 to 2015.

By 2015, member states across the EU have to ensure that all bathing waters are of 'sufficient' quality or better. The

revised

directive requires that measures are put in place to increase the number of 'good' or 'excellent' bathing waters. If a

water is classified as 'poor' for five consecutive years, even if improvement measures have been introduced, permanent advice against bathing must be introduced. Action is also required, where necessary, to tackle cyanobacterial (blue-green algae) blooms, macroalgae (seaweed), marine phytoplankton and other waste which took effect from 2011.



13 www.scotland.gov.uk/Topics/Environment/Water/15561/bathingwaters/BWD2

What we measure

Changes have now been made to the bacterial entities monitored. These arise from recommendations from the World Health Organization (WHO). In place of the current coliform and faecal streptococci standards, the revised directive sets standards for *Escherichia coli* and intestinal enterococci. While slightly altering the microbiological analytical techniques necessary, the differences in the values obtained are considered to be minimal. During the period 2012 to 2014 we report against the standards prescribed in Directive 76/160/EEC using these new parameters.

Public information

The revised directive emphasises providing information to the public, particularly on the risks that bathers may face from pollution.

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

As in 2012, summary information was provided to local authorities to post at bathing water locations via mandatory beach signs. A summary of the bathing water profile, it 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.

Our electronic signage network at 23 sites across Scotland (Section 2.3) provides real-time predictions of bathing water

quality. These electronic signs have enabled us to remove (from the overall classification dataset) samples collected during short-term pollution events, when there is a public warning system in place to inform prospective bathers of potentially poorer water quality. 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 says 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. Six samples were discounted using this provision in 2013.



Sampling program

The required sampling frequency under the revised directive is lower than under the current directive. Sampling schedules (the monitoring calendar) are now set in advance of the bathing season, but there is now a five day window including the date in the monitoring calendar when a sample can be taken.

At sites which have daily real time forecasting of bathing water quality and electronic beach message signage we may use the allowed five day sampling window to avoid sampling when the sign gives a poor water quality warning and we have actively advised against bathing.

At all other sites we sample on the date in the monitoring calendar unless

there is an unexpected operational reason e.g. vehicle breakdown. In 2013 there were four occasions where this provision was used.



Abnormal situations

An abnormal situation is defined by the revised Bathing Water 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 compliance 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 by the beach controller warning the public of the nature and expected duration of the pollution. One abnormal situation were declared in Scotland in 2013. This was at Stonehaven when a local pumping station was damaged by a lightening strike.

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 and Climate Change. The minister will then decide which beaches are designated before the next bathing water season.

Further information on the designation process is available on our website and the Scottish Government and Keep Scotland Beautiful websites (see Annex 3).

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.

Designations for the 2013 bathing water season

Fisherrow Sands, in Musselburgh, East Lothian, was awarded designated bathing water status by the Scottish Government after a strong application from a local community group supported by the Local Authority that demonstrated high usage.

Tentsmuir Sands was de-designated following a review, which showed that there was no tradition of bathing at this site and advice against swimming is given on several local websites. It was considered that despite consistently excellent water quality, the significant safety issues of fast moving tides and shifting sands at this site meant that it should not be promoted as a bathing water. It remains a beautiful and popular site for walking and nature watching.



2 Bathing water quality 2013

2.1 Water quality results

In 2013 100% of Scotland's 83 bathing waters achieved the mandatory standard for bathing water quality and over half also met the more stringent guideline standard.

The success of bathing water seasons in Scotland is very weather dependent, as changeable weather patterns and heavy summer rains can have a negative impact on water quality. These results clearly demonstrate the benefit of a dry summer; this has been the first summer with no failures since 2006, where we also experienced a dry summer.

During 2013, six samples had been taken on dates during predicted short-term pollution (with appropriate public signage and information). These samples were discounted, and where necessary, replaced as required by EU rules and the

2008 Bathing Water (Scotland) Regulations.

The 'reduced sampling' provision (five samples per season) of the Bathing Waters Directive was applied at Dornoch, Gullane and Achmelvich in 2013, in keeping with our stringent policy of no guideline standard exceedance of any determinant during the previous bathing season. Additionally, some sites were sampled 10 times (rather than the usual 20) because of their geographical remoteness (Annex 2).







Figure 3: Scotland's 2013 bathing water compliance results

Map ref.	Bathing water	Result
1	Southerness	Guideline
2	Sandyhills	Mandator y
3	Rockcliffe	Mandator y
4	Dhoon Bay	Mandator y
5	Brighouse Bay	Guideline
6	Carrick	Guideline
7	Mossyard	Mandator y
8	Gir van	Mandator y
9	Maidens	Mandator y
1	Culzean	Guideline
0	Heads of Ayr	Mandator y
1	Ayr (South Beach)	Mandator y
1	Prestwick	Mandator y
1	Troon (South Beach)	Mandator y
2	Irvine	Mandator y
1	Saltcoats/Ardrossan	Mandator y
3	Seamill	Mandator y
1	Largs (Pencil Beach)	Guideline
4	Lunderston Bay	Mandator y
1	Millport Bay	Guideline
5	Luss Bay	Mandator y
1	Ettrick Bay	Mandator y
6	Machrihanish	Guideline
1	Ganavan	Guideline
7	Achmelvich	Guideline
1	Thurso	Guideline
8	Dunnet	Guideline
1	Dornoch	Guideline
9	Rosemarkie	Guideline
2	Dores	Mandator y
0	Nairn (Central)	Mandator y
2	Nairn (East)	Mandator y
1	Findhorn	Guideline
2	Loch Morlich	Mandator y
2	Lossiemouth (East)	Guideline
2	Cullen Bay	Mandator y
3	Inverboyndie	Mandator y
2	Rosehearty	Guideline
4	Fraserburgh (Tiger Hill)	Mandator y
2	Fraserburgh (Philorth)	Guideline
5	Peterhead (Lido)	Guideline
2		
6		

Monvof	Dething water	Decult
мар гет.	Batning water	Result
4	Cruden Bay	Mandator y
2	Balmedie	Guideline
4	Aberdeen	Guideline
3	Stonehaven	Mandator y
4	Montrose	Guideline
4	Lunan Bay	Guideline
4	Arbroath (West Links)	Guideline
5	Carnoustie	Guideline
4	Monifieth	Mandator y
6	Broughty Ferry	Guideline
4	St Andrews (West Sands)	Mandator y
7	St Andrews (East Sands)	Mandator y
4	Kingsbarns	Guideline
8	Crail (Roome Bay)	Guideline
4	Anstruther (Billow Ness)	Guideline
9	Elie (Ruby Bay)	Guideline
5	Elie (Harbour) and Earlsferry	Guideline
0	Leven	Guideline
5	Kirkcaldy (Seafield)	Mandator y
1	Kinghorn (Harbour Beach)	<u>Mandator y</u>
5	Kinghorn (Pettycur)	Guideline
2	Burntisland	Guideline
5	Aberdour (Silversands)	Guideline
3	Aberdour Harbour (Black Sands)	Mandator y
5	Portobello (West)	Mandator y
4	Portobello (Central)	Guideline
5	Fisherrow Sands	Mandator y
5	Seton Sands	Guideline
5	Longniddry	Guideline
6	Gullane	Guideline
5	Yellow Craig	Mandator y
7	Broad Sands	Guideline
5	North Berwick (West)	Guideline
8	North Berwick (Milsey Bay)	Mandator y
5	Seacliff	Guideline
9	Dunbar (Belhaven)	Guideline
6	Dunbar (East)	Guideline
0	Whitesands	Guideline
6	Thorntonloch	Guideline
1	Pease Bay	Guideline
6	Coldingham	Guideline
2	Eyemouth	Mandator y
6		

С

New Microbiology Laboratory for Southern Scotland

During the summer of 2013, we opened a new microbiology laboratory in our state of the art scientific facility, The Angus Smith Building at Eurocentral, Holytown, Lanarkshire.

This spacious modern laboratory suite encompasses our traditional microbiology service plus our developing genomics capability, and complements our other microbiology laboratory at Inverdee House in Aberdeen, which covers all bathing waters north of the River Tay.

The new lab replaces two smaller laboratories that were located in Edinburgh and East Kilbride, and brings together the staff from these two locations. In November 2013, our new laboratory was visited by the United Kingdom Accreditation Service (UKAS) and granted ISO 17025 Quality Accreditation, for our main microbiology methods.

The new laboratory was designed to have designated areas for each work activity, which greatly improves the work environment for our microbiologists, and reduces chances of cross contamination from competing work streams. Within the microbiology suite there is a dedicated media preparation laboratory, equipped with a high throughput

media preparator. By using this new equipment we plan to produce the bulk of all microbiology culture media used at both sites, Inverdee and the Angus Smith Building, freeing up time for other activities and improving media batch quality control.

The new Angus Smith facility enhances our capabilities, providing a much improved working environment for our staff and gives the potential for increased sample throughout.



2.2 Summer weather

The summer of 2013 was largely dry and hot. A Met Office climate summary report in July stated it was the UK's most notable heat wave since 200614.

June was a drier than average month for the majority of Scotland. The Forth area recorded its lowest June rainfall since 1996 and June was the sixth month in a row with monthly totals below average in the area. The only notable rainfall in June was in the North West during the 22 and 23 where, for example, 47mm was recorded over the two days at Kinlochewe.

The settled theme continued throughout July with high pressure established over the UK and plenty of sunshine in most areas. It was a drier than average month for the whole of Scotland with the exception of the Clyde area, which received approximately 105% of the monthly average rain. The North Highlands received the least rainfall at just 53% of the monthly average.

The settled weather continued into August, which was a drier than average month for the majority of Scotland. The Forth area received the least amount of expected rainfall at just 49% of the average. This was the eighth month in a row with monthly totals below average in the Forth area. Orkney, Shetland, West Highland, and Argyll were the only areas to receive more rainfall than the monthly average.

Note: Average figures based on 1996-2012 data

Inverboyndie Beach, Aberdeenshire



2.3 Bathing waters signage: providing daily forecasts of predicted bathing water quality

In 2013 we provided live daily water quality forecasts at 23 locations (highlighted on map 1 on Section 2.1) across Scotland during the bathing season via our daily water quality prediction and signage system.

We are now in the transition period between directives and by 2015 we will be making our water quality predictions against the tighter standards of the revised Bathing Water Directive. Work is ongoing on the development and testing of

new smarter prediction models using decision-tree systems and on building platforms for their daily implementation. These will enable us to predict more accurately against the standards required by F the revised directive. validation of daily predictions (classified as a count of 1000 or more *E. coli* and/or 10 bring us towards these tighter standards, for 2013 our current models were recalibrated with the decision trigger value for poor water quality predictions being lowered from a count of 2000 or more *E. coli* (cfu/100ml), the formal reporting limit in the 1976 Directive, to a count of 1000 or more *E. coli* and/or intestinal enterococci (cfu/100ml).

Against these tighter limits, this season the daily advice given to the public on water quality was still correct or precautionary on over 99% of days. We correctly predicted 60% of poor samples at locations with bathing water signs against this new S limit, rising to 75% against the older limit. Signage poor and poor water quality **1.3%** The revised directive allows us to discount samples taken on dates under predicted short-term pollution where there has been appropriate public signage and information. Under the phased implementation S this has been allowed from 2012. As such six samples were discounted at different sites and, where necessary, replaced as required by EU rules and the 2008 Bathing Water (Scotland) Regulations.



¹⁴ http://www.metoffice.gov.uk/climate/uk/summaries/2013/july

Our responsibilities

We are fully responsible for the real-time prediction and electronic signage system. We use our in-house scientific information and technical systems to run the daily operation of the sign network. We are assisted by subcontractors for civil engineering consultancy, installation and technical maintenance of the electronic signs.

Although generally of a high quality, these locations were selected for bathing waters signage because they were previously found to be at risk of not meeting European standards during, or after, wet weather. The electronic signs are updated daily with water quality forecasts, indicating either mandatory quality ('good') or risk of water failing to meet the mandatory standard ('poor'), using our extensive rainfall and hydrological information network to inform decisions. Further information on the background to the system and details of the advisory messages are available on our website15.

The signs are not intended to be an alternative to environmental improvements or action to reduce pollution, but to provide additional public information. Efforts to reduce, or eliminate, potential sources of pollution are continuing and are reducing the frequency with which potential poor quality warnings have to be issued.

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 are happy to include appropriate bespoke messages. 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). We are available to discuss with local authorities or beach managers further ideas for useful information that can be displayed using this resource.

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

To protect the signs from the potential harsh conditions of a Scottish winter, and to undertake any necessary

winter maintenance at the end of the bathing season, the electronic display section is removed for indoor storage. The external posts remain and for the 2013-2014 out of season period a fixed winter signage board has been designed and commissioned. Made of aluminium panels and with a full colour laminated print on the facing side the sign gives:

• information about the bathing water, beach safety and enjoying Scotland's outdoors responsibly;

- advice that if you see someone in difficulty in the water dial 999 and ask for the coastguard;

• information on Floodline, to access any SEPA flood warning information available for the area and the SEPA Pollution Report line;

• a warning that 'High waves can be dangerous - take extra care'.



15 www.sepa.org.uk/water/bathing_waters/bathing_water_signage.aspx



Microbial source tracking, membrane filtration

2.4 Analytical developments

In 2013, we established a new Microbial Source Tracking (MST) service.

This genomic analytical service, based on quantitative (Real Time) polymerase chain reaction (qPCR), allows us to apportion the relative sources of faecal pollution impacting upon Scotland bathing waters, and will enable us to better target resources and ensure more efficient remediation.

The MST technique first requires extraction of the bacterial DNA from a water sample. A volume of the water sample is filtered through a porous filter membrane. The membrane retains the bacteria contained within the sample. The bacteria are then broken down to release their DNA, which is then cleaned and extracted from the sample.

The extracted DNA sample is then ready to undergo qPCR. This technique amplifies and quantifies the target genetic sequences from the DNA sample. This is achieved by using sequence specific, fluorescent DNA probes. Using this technique, we can calculate the amount of target DNA in the original sample.

To date, this service uses 'markers' that allow us to provide information on whether sources of faecal pollution are of human, agricultural or 'other' origin. It is hoped, in the future, to develop the service further, to include markers for other potential sources of faecal pollution, for example from birds and dogs.





3 Working with our partners

3.1 Investment by Scottish Water

Previous bathing water reports have highlighted the accelerated investment by Scottish Water in its Quality and Standards (Q&S) programmes since 2000. The Q&S programmes are 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—Q&S I (2000–2002), Q&S II (2002–2006) and Q&S IIIa (2006–2010)—with the aim of improving bathing waters compliance. In October 2013, Scottish Water set out their draft business plan proposals for the period 2015 – 2021 (Q&SIV).

The main focus of the Q&S IIIa investment programme was to identify and reduce the effects of unsatisfactory intermittent discharges in Ayrshire (Meadowhead and Stevenston sewerage networks) and in Edinburgh. Although solutions were implemented in Edinburgh by 2010, not all the improvements in Ayrshire were completed by 2010 and as such, this work was carried forward into the current investment period, Q&SIIIb (2010–2015).

In addition to improvements to the Meadowhead and Stevenston sewerage network, the Q&SIIIb investment period

includes 39 bathing water studies. These are being undertaken to determine whether improvements to Scottish Water assets are required to achieve compliance with the revised Bathing Waters Directive. Scottish Water will begin to implement any required solutions during this investment period but some of these are unlikely to be completed before Q&SIV. Some of the Q&SIIIb BW studies have generated a requirement for further detailed investigations to confirm asset impacts and these have also been initiated during the Q&SIIIb period.

A list of the bathing waters being studied by Scottish Water as part of the Q&SIIIb (2010–2015) investment programme is presented in Table 1.

Aberdeen	Kinghorn (Harbour Beach)	North Berwick (West)
Ayr (South Beach)	Kirkcaldy (Seafield)	Portobello (Central)
Broad Sands	Largs (Pencil Beach)	Portobello (West)
Carnoustie	Leven	Prestwick
Cruden Bay	Loch Morlich	Rockcliffe
Dhoon Bay	Lossiemouth (East)	Rosehearty

Table 1: Q&SIIIb (2010-2015) Scottish Water bathing water studies

		ALCOLO IN	
EyemouthLunderston BayRosema	kie		
	FindhornLuss BaySaltcoats/Ardros	san	
Ganavan Maidens Seamill			
GirvanMillport BaySoutherness			
Heads of AyrNairn (Central)Stoneh	aven		
InverboyndieNairn (East)Thurso			
IrvineNorth Berwick (Milsey Bay)T	roon (South Beach)		
The second se			

The results of these studies have shown that previous investment to meet the requirements of the current Bathing Water

Directive will allow most bathing waters to meet the new minimum standards of the revised directive. However, in six bathing waters (Largs, Seamill, Saltcoats /Ardrossan, Irvine, Kirkcaldy and Portobello West) the studies have identified improvements to Scottish Water assets that are needed to support these locations achieving the minimum sufficient status under the revised directive. By 2015, asset enhancement at four of these six bathing waters (Largs, Seamill, Saltcoats /Ardrossan, Irvine) will have been delivered.

Portobello West and Kirkcaldy bathing waters have also been identified as requiring Scottish Water asset enhancement

and these will continue to be progressed through the Q&S process. The bathing water studies indicate that significant improvements to the existing collection, transfer and discharge facilities may be required to meet the minimum 'sufficient' status of the revised directive. Further investigation of Scottish Water assets at these bathing waters is required in Q&SIIIb to confirm the extent of asset enhancement. As such, the completion of improvements at Portobello West and Kirkcaldy bathing waters are expected to be delivered after 2015. The draft business plan for Q&SIV (2015-2021) takes this into account and makes allowance to complete all enhancement works.

At Prestwick, Heads Of Ayr and Ayr (South) bathing waters, there is a complex interaction of diffuse and point source contributions which require further modelling. A detailed river modelling study of the River Ayr and River Doon is being progressed in Q&SIIIb and will inform possible asset enhancement requirements in Q&SIV.

Q&SIIIb bathing water studies at Rockcliffe and Southerness bathing waters have still to be completed. It is yet to be established whether Scottish Water investment is required at these bathing waters.

A further Q&SIIIb bathing water study has been initiated at Dunbar East as performance at this bathing water has been deteriorating over recent years. It is anticipated that this study will be completed and recommendations made before the end of Q&SIIIb.

Fisherrow bathing water was designated for the first time in 2013. An additional Q&SIIIb study of this bathing water has still to commence as this awaits the completion of the Edinburgh Integrated Catchment Study.

Q&SIV (2015-2021) investment is planned to update the water quality models at 11 bathing waters. The Q&SIIIb studies

have demonstrated that these bathing waters are prevented from achieving the required 'sufficient' status under the revised Bathing Water Directive due to the bacterial contribution from agricultural runoff and Scottish Water discharges. The interactions between these sources are complex and require more detailed investigation to clarify the relative contribution from these sources. The updated modelling in Q&SIV will support future decision making with regard to Scottish Water asset enhancement and will follow a monitoring programme by both SEPA and Scottish Water. We will monitoring the success of their innovative catchment management programme on diffuse pollution levels, and Scottish Water will install flow/event monitors on key discharges by 2015, to confirm how these operate and that current modelling assumptions are robust.

3.2 Private sewage treatment systems

As highlighted in the results for individual bathing waters, not all sewage treatment facilities are part of the public network operated by Scottish Water. Improvements often have to be sought from privately run systems treating waste from caravan sites and even individual homes. Very often, the preferred solution is connection to a public system, but it may have to be paid for by a householder or a developer.

3.3 Our plans to reduce sources of diffuse pollution

Diffuse pollution is identified as the largest pollution pressure on the water environment in Scotland, accounting for 18% of our downgraded water bodies and impacting on many protected areas. Diffuse pollution is complex making it difficult to identify and control. The potential for diffuse pollution is increased during rainfall events resulting in nutrients, soil, chemicals and faecal bacteria being washed from land into the surrounding water environment. For individual or small areas this might not result in an issue, but combined across whole river catchments these pollutants can significantly affect water quality, including in EU designated bathing waters. Land management practices reducing land run-off and livestock access to the water environment play a pivotal role in diffuse pollution mitigation.

The rural diffuse pollution plan for Scotland has successfully been implemented, which has seen SEPA working with other members of the Diffuse Pollution Management Advisory Group (DPMAG)16. The implementation process has been acknowledge by the EU Environment Commissioner as an examplar of the Water Framework Directive (WFD) implementation. We are leading Europe with our collaborative approach, engagement within catchments and delivery of tailored guidance for land managers.

The rural diffuse pollution plan ensures key stakeholders in Scotland work in a co-ordinated way to reduce diffuse pollution from rural sources. A two tiered approach has been developed. It includes:

• a national campaign of awareness raising, guidance, training and inspections in relation to the effects of

diffuse pollution17;

• a targeted catchment approach (the priority catchment approach) with a sequential process of evidence

gathering, awareness raising and farm visits to identify hotspots, target measures and provide one to one advice.

Through the national campaign, DPMAG has ensured a co-ordinated approach for the implementation of measures to reduce the impact of diffuse pollution across Scotland. The national awareness raising campaign along with awareness raising work undertaken by The Scottish Government Rural Payment and Inspection Directorate, Scottish Natural Heritage (SNH) and Forestry Commission Scotland staff will, as part of Scotland's Environmental and Rural Services (SEARS), increase the awareness of diffuse pollution, help prevent deterioration of the water environment and enable water quality improvements. In November 2013, DPMAG launched 'Know the Rules' guidance, 'mind the gap' stickers and a website for land managers 'Farming and water Scotland'. The guidance and website provides an effective tool available to all land managers giving them a clear and succinct understanding on what their legal obligations are in terms of the environment. These tools have been fully supported by the National Farmers Union for Scotland (NFUS) and other land managers to meet the challenging targets they face.

The catchment approach has been on going in 14 diffuse pollution priority catchments (Box 1) since 2010.

www.sepa.org.uk/water/river_basin_planning/dp_priority_catchments.aspx



Buffer strip

Scottish bathing waters

¹⁶ www.sepa.org.uk/water/river_basin_planning/diffuse_pollution_mag.aspx 17

Box 1: Diffuse pollution priority catchments in the first river basin cycle

		CONTRACTOR AND
Buchan Coastal	River Doon	Sec. 1
Eye Water	River Garnock	and the second se
Galloway Coastal	River Irvine	
River Ayr	River South Esk	River Dee sampling points
River Dee (Grampian)	River Tay	Bern
River Deveron	River Ugie	Annant Charles and a
North Ayrshire Coastal	Stewartry Coastal	
and the second s		
· ETTER STREET		a - The of State
and the second		

Further information on individual catchments can be accessed via our website under diffuse pollution.

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 (positive partnerships have been developed between SEPA and members of the local branches of NFUS and Scottish Water). This partnership working has allowed knowledge transfer, developing methods to achieve compliance in all sectors with the diffuse pollution General Binding Rules (GBRs).

A three staged approach has been employed in all 14 catchments and has been achieved as being very successful in identifying issues and mitigation measures that will work on the ground to minimise diffuse pollution.

Stage one

All 14 catchments have been walked by our staff with help from Scottish Water and local fishery bailiffs. A total of 5600 km of named watercourses have been walked in these 14 catchments building an excellent evidence base of what is happening on the ground both in terms of good and bad practice. A significant number of non compliance with the diffuse pollution GBRs were recorded averaging out at approximately one non-compliance per kilometre.

Stage two: awareness raising

Awareness raising has been ongoing in the 14 priority catchments since 2011, with our staff attending over 300 events. These events have been attended by over 10,000 farmers, consultants, advisors and regulators. In catchments that impact upon bathing waters, the impacts of the catchment activities on these areas have been highlighted to land managers.

Stage three: engagement (one to one farm inspections)

We have been progressing with one-to-one farm visits in Scotland's priority catchments. To date, one-to-one visits have been completed or ongoing in 12 of the 14 catchments. Over 2,000 one-to-one farm visits have been completed by our staff, the findings of which were discussed with the land manager identifying possible methods of mitigation and funding for these. In the last nine months, 419 revisits have taken place in four priority catchments. The findings from these revisits have been very encouraging with approximately 79% of land managers having either completed or in the process of completing required mitigation measures on the ground. Significant changes have been observed in some of our bathing water catchments with land managers excluding livestock from the water environment by providing alternative watering facilities and fencing. Other changes have been seen to the grazing management of livestock and increased slurry provision on farms, enabling better timing of slurry applications.

Annex one: 2013 Monitoring data from Scotland's 83 identified bathing waters

Bathing water	Local Authority	No of sample results	Overall quality
Southerness	D&G	20	Guideline
Sandyhills	D&G	20	Mandator y
Rockcliffe	D&G	20	Mandator y
Dhoon Bay	D&G	20	Mandator y
Brighouse Bay	D&G	20	Guideline
Carrick	D&G	20	Guideline
Mossyard	D&G	20	Mandator y
Gir van	SA	20	Mandator y
Maidens	SA	20	Mandator y
Culzean	SA	20	Guideline
Heads of Ayr	SA	20	Mandator y
Ayr (South Beach)	SA	20	Mandator y
Prestwick	SA	20	Mandator y
Troon (South Beach)	SA	20	Mandator y
Irvine	NA	20	Mandator y
Saltcoats/Ardrossan	NA	19 (+1 disc)	Mandator y
Seamill	NA	19 (+1 disc)	Mandator y
Largs (Pencil Beach)	NA	20	Guideline
Lunderston Bay	Inv	20	Mandator y
Millport Bay	NA	20	Guideline
Luss Bay	A&B	20	Mandator y
Ettrick Bay	A&B	19 (+1 disc)	Mandator y
Machrihanish	A&B	10	Guideline
Ganavan	A&B	10	Guideline
Achmelvich	Н	5	Guideline
Thurso	Н	20	Guideline
Dunnet	Н	20	Guideline
Dornoch	Н	5	Guideline
Rosemarkie	Н	20	Guideline
Dores	Н	20	Mandator y
Nairn (Central)	Н	20	Mandator y
Nairn (East)	Н	20	Mandator y
Findhorn	Moray	20	Guideline
Loch Morlich	Н	10	Mandator y
Lossiemouth (East)	Moray	20	Guideline

Bathing water	Local Authority	No of sample results	Overall quality
Cullen Bay	Moray	20	Mandatory
Inverboyndie	Aber	20	Mandator y
Rosehearty	Aber	20	Guideline
Fraserburgh (Tiger Hill)	Aber	20	Mandator y
Fraserburgh (Philorth)	Aber	20	Guideline
Peterhead (Lido)	Aber	20	Guideline
Cruden Bay	Aber	19 (+1 disc)	Mandator y
Balmedie	Aber	20	Guideline
Aberdeen	ACC	19 (+1 disc)	Guideline
Stonehaven	Aber	20	Mandator y
Montrose	Angus	20	Guideline
Lunan Bay	Angus	10	Guideline
Arbroath (West Links)	Angus	20	Guideline
Carnoustie	Angus	20	Guideline
Monifieth	Angus	20	Mandator y
Broughty Ferry	DC	20	Guideline
St Andrews (West Sands)	Fife	20	Mandator y
St Andrews (East Sands)	Fife	20	Mandator y
Kingsbarns	Fife	20	Guideline
Crail (Roome Bay)	Fife	20	Guideline
Anstruther (Billow Ness)	Fife	20	Guideline
Elie (Ruby Bay)	Fife	20	Guideline
Elie (Harbour) and Earlsferry	Fife	20	Guideline
Leven	Fife	20	Guideline
Kirkcaldy (Seafield)	Fife	20	Mandator y
Kinghorn (Harbour Beach)	Fife	20	Mandator y
Kinghorn (Pettycur)	Fife	20	Guideline
Burntisland	Fife	20	Guideline
Aberdour (Silversands)	Fife	20	Guideline
Aberdour Harbour (Black Sands)	Fife	20	Mandator y
Portobello (West)	CofE	20	Mandator y
Portobello (Central)	CofE	20	Guideline
Fisherrow Sands	EL	20	Mandator y
Seton Sands	EL	20	Guideline
Longniddry	EL	20	Guideline
Gullane	EL	5	Guideline
Yellow Craig	EL	20	Mandator y
Broad Sands	EL	20	Guideline

Crail (Roome Bay), Fife

Bathing water	Local Authority	No of samples	Overall quality
North Berwick (West)	E	2	Guideline
North Berwick (Milsey Bay)	L	0	Mandatory
Seacliff	EL	Б	Guideline
Dunbar (Belhaven)	ĒL	ØO	Guideline
Dunbar (East)	EL	20	Guideline
Whitesands	EL	20	Guideline
Thorntonloch	EL	20	Guideline
Pease Bay	S	20	Guideline
Coldingham	В	20	Guideline
Eyemouth	S	19 (+1 disc)	Mandator y
	В		
Disc = Discounted	S		

20 (+x Disc) denotes 20 samples used for compliance, plus x discounted

Local Authority abbreviation codes

A&B	Argyll and Bute
Aber	Aberdeenshire
ACC	Aberdeen City Council
CofE	City of Edinburgh
D&G	Dumfries and Galloway
DC	Dundee City
EL	East Lothian
H	Highland
Inv	Inverclyde
NA	North Ayrshire
SA	South Ayrshire
SB	Scottish Borders



yhille

Annex two: Current legislation and results assessment

EU Bathing Water Directives 76/160/EEC and 2006/7/EC

Directive 76/160/EEC requires each member state to identify bathing waters and to take all necessary measures to bring these waters up to the quality standards prescribed. A 'bathing water' is defined as "... fresh or sea water where bathing is either explicitly authorised and is traditionally practised by a large number of bathers or is not prohibited".

The environmental quality standards are set to protect the environment and public health, and include safe limits for

microbiological measures. The directive lays down requirements for sampling frequency, analysis methods, bathing areas inspection and the interpretation of results.

The Bathing Waters (Scotland) Regulations 2008 introduces the requirements of the revised Bathing Waters Directive (2006/7/EC), and will come into effect in a phased manner over the coming years. The key features of the regulations will be tighter microbiological standards to be met by 2015 with monitoring started by 2012, and an increased provision of public information.

The period 2012 to 2014 is a transition phase where parts of both directives apply.

Related legislation

Under the Water Environment (Controlled Activities) (Scotland) Regulations 2005 as amended, we issue authorisations for discharges of sewage and trade effluent to controlled waters, including all coastal and inland waters. The conditions applied to each consent must be met by the discharger and are designed to enable compliance with relevant water quality objectives. The latest amendment, via The Water Environment (Diffuse Pollution) (Scotland) Regulations 2008, introduces further General Binding Rules (the lowest level of authorised activity), based on widely accepted agricultural and forestry standards of good practice.

The Urban Waste Water Treatment Directive (UWWTD) specifies minimum legal standards for the treatment of municipal

waste water. These standards are determined by the size of the community to be served by a sewage treatment works and by the nature of the receiving environment. This directive also requires treatment to ensure compliance with all other relevant EU directives, including the Bathing Water Directive. The Urban Waste Water Treatment (Scotland) Regulations 1994 implement this directive in Scotland.

The Water Framework Directive (WFD) will be the principal driver for water quality improvements in Scotland over the next decade and beyond. This directive requires member states to ensure attainment of good status in coastal waters, estuaries, rivers, lochs and groundwater by 2015 through the implementation of river basin management plans, the first of which was finalised in December 2009. The WFD will replace seven existing directives and will provide the context in which other directives, including the Bathing Water Directive, operate.

Interpretation of results and requirements for monitoring programmes

TThe requirements of the current Bathing Water Directive have been implemented in Scotland by the Bathing Waters (Classification) (Scotland) Regulations 1991. The directive contains two sets of water quality standards:

- · mandatory quality standards which member states must meet;
- more stringent guideline quality standards which member states must endeavour to achieve.

During this transition phase until 2014 we report each year against the standards prescribed in Directive 76/160/EEC, as per previous years. The data will also be used to report in 2015 to the standards prescribed in the revised directive using data from the four year period 2012 to 2015. We now measure using the revised directive parameters of *Escherichia coli* (*E. coli*) and intestinal enterococci (IE) that are transferable on a near 1:1 basis with the previous parameters faecal coliforms and faecal streptococci.

Mandatory standards (good quality)

Mandatory standards during the period 2012 to 2014 apply to the quality indicator *Escherichia coli*, previously known as faecal coliforms (FC). For the site to achieve a mandatory level pass, 95% of samples taken during the bathing season must comply with the mandatory coliform quality standards. Waters which do not meet this standard are classified as failing.

Guideline values (excellent quality)

In addition to the mandatory standards, there are guideline values for *Escherichia coli* and intestinal enterococci (previously reported as faecal streptococci) bacterial quality indicators. These guideline values are more stringent than the mandatory standards and, if achieved, indicate very good bathing water quality.

Abnormal situations

An abnormal situation is defined by the revised Bathing Water 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 which assess compliance 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 by the beach controller warning the public of the nature and expected duration of the pollution

One abnormal situation was declared in Scotland in 2013. This was at Stonehaven when a local pumping station was damaged by a lightening strike.

Short term pollution

The revised bathing water directive defines short term pollution as "microbiological contamination that has clearly identifiable causes (and) is not normally expected to affect bathing water quality for more than approximately 72 hours". The directive allows us to disregard samples taken during short term pollution if "adequate management measures are being taken, including surveillance, early warning systems and monitoring, with a view to preventing bathers' exposure by means of a warning."

The directive says that up to 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. Six samples from six sites across Scotland were discounted using this provision in 2013.

Sampling frequency

The minimum frequency of sampling is prescribed in the Annex to the Bathing Water Directive. Normally, checks must be made at least once every two weeks during the bathing season. Additional samples must be taken if there are grounds to suspect that the quality of the waters is deteriorating, or is likely to deteriorate, as the result of any discharge. Given this requirement, and the historically poor compliance record of Scottish bathing waters, additional samples are generally taken from all waters so that they are sampled 20 times during the bathing season.

The Bathing Water Directive also permits sampling frequency to be halved for waters where quality is consistently good.

Following the improvements made to Scottish bathing waters, the European Commission indicated a list of Scottish sites where this provision may be applied. As described in earlier reports, we implemented this provision for the first time in 2004. We will only apply the provision to waters that meet a much higher quality hurdle than that required by the EU. This hurdle requires high statistical confidence that the directive's guideline quality standards have been met over the preceding three-year period. Thus, it includes results from years before the most recent quality improvement schemes were completed. Sites selected for reduced sampling are sampled five times during the bathing waters season. Details of sites where the reduced sampling provision was applied in 2013 are identified in Annex 1.

Interpretation of microbiological values

The Bathing Water Directive sets standards for microbiological quality indicator organisms that are all naturally present in the guts of humans and all other warm blooded animals. The presence of these indicators of faecal contamination in excess of the values in the directive indicates that waters may have received discharges of sewage that have not received adequate treatment or dilution. Large concentrations of seabirds or livestock slurries and manure also give rise to these microbiological indicators in bathing waters. The latter must therefore be properly applied to agricultural land in order to avoid pollution. The bacteria and viruses present in sewage and animal excreta may cause illness, especially as a result of ingestion or infection through wounds or cuts.

Table 2: Interpretation of microbiological values for bathing waters in the period 2012 to 2014

	Escherichiα coli (previously faecal coliforms)	Intestinal enterococci (previously faecal streptococci)
Mandatory / Imperative pass (M)	 95% of samples should not exceed 2,000 <i>E. coli</i> per 100 ml If a site is sampled 20 times, at least 19 samples must meet this criteria. If a site is sampled less than 20 times, all samples must meet this criteria 80% of samples should not exceed 100 	The 1976 directive contains no mandatory standard for this parameter
Guideline pass (G)	<i>E. coli</i> per 100 ml If a site is sampled 20 times, at least 16 samples must meet this criteria Proportional reductions apply at sites with reduced sampling	90% of samples should not exceed 100 intestinal enterococci per 100 ml If a site is sampled 20 times, at least 18 samples must meet this criteria Proportional reductions apply at sites with reduced sampling



Annex three: Sources of additional information on bathing water quality

Our website18contains current bathing water profiles and previous Scottish bathing waters reports. The results from the monitoring programme for identified bathing waters are published on our website as they are produced throughout the bathing water season.

Several other organisations complement our role in promoting high standards of bathing water quality. The Scottish Government is responsible for implementing the directive in Scotland and for establishing policy and strategy. It has also funded and co-funded research to help achieve compliance.

The Marine Conservation Society (MCS), the UK charity dedicated to protecting the marine environment and its wildlife, publishes the Good Beach Guide every year. It lists all identified and many non-identified bathing waters around the entire UK coastline. The recommended beaches can be viewed online19.

Keep Scotland Beautiful runs the Seaside Awards scheme, which recognises excellence at rural and resort beaches, and has water quality standards tied in to the current EU Bathing Water Directive. Many Scottish beaches held this award in 2013.

In Scotland, Keep Scotland Beautiful also administers the International Blue Flag Campaign on behalf of the Foundation for Environmental Education (FEE), who set the award criteria. The Blue Flag programme rates beaches on water quality as well as other categories, including safety, facilities, and environmental management. In 2013, FEE required beaches to meet a new global bathing water quality standard for the first time, meaning beaches had to reach a water quality standard even higher than in previous years to gain the award. In 2013, three Scottish beaches achieved the Blue Flag Award:

- Aberdour (Sliversands);
- Burntisland;
- Elie (Ruby Bay);

Information on bathing water quality in England and Wales can be obtained from the Environment Agency and, in Northern Ireland, from the Northern Ireland Environment Agency.

Environment Agency Northern Ireland Environment Agency Marine Conserv	vation Society
National Customer Contact Centre NIEA	Wolf Business Park
Rotherham, S60 1BY Lisburn, Co Antrim, BT28 3AL	Herefordshire. HR9 5NB
03708 506 506 0845 302 0008	01989 566017
enquiries@environment-agency.gov.uk/waterinfo@doeni.gov.uk	info@mcsuk.org
bathingwaters quality/bathingqualityni.htm	www.mcsuk.org

¹⁸ www.sepa.org.uk

¹⁹ www.goodbeachguide.co.uk

Gan

Annex four: Individual bathing waters information

A dash in the right hand column indicates that there were no significant changes in this catchment that would affect bathing water quality.

Bathing water	Compliance 2013	Catchment changes affecting bathing water quality, 2013
Southerness	After meeting the mandatory standard for the last eight years, this beach met the more stringent guideline standard this year.	-
Sandyhills	Sandyhills again met the mandatory standard, for the second successive year, after a varied compliance history in previous years.	Individual farm visits were carried out in part of the Sandyhills catchment to help tackle diffuse pollution and reduce the potential risk of exceedances
Rockcliffe	Rockcliffe met the mandatory standard this season, as it has done every year since 2004.	Additional temporary treatment was provided at Rockcliffe during the bathing waters season to ensure consent compliance at the treatment works. This will reduce the potential risk of exceedances.
Dhoon Bay	Dhoon Bay has complied with mandatory water quality standards since designation in 2008.	
Brighouse Bay	Having met the mandatory standard for the last nine years, this beach met the more stringent guideline standard, for the first time since its designation in 1999.	-
Carrick	Carrick met the higher guideline standard this year, having met the mandatory standard for the past eight years. This is only the second time since its designation that this beach has met the highest bathing water standard.	The catchment associated with this bathing water has been identified as a diffuse pollution priority catchment in the first river basin cycle. Evidence gathering through waterbody walks has been completed; the awareness raising is now on-going and individual farm visits are programmed to start in 2013. Any improvements as a result of this work are likely to be seen in several years, when the measures identified as necessary are fully in place.
Mossyard	Mossyard met the mandatory quality standard this season. It has met this standard or the higher guideline standard since 2007.	
Girvan	In 2013 this bathing water again complied with the mandatory standard, as it has done since 2008.	-



Bathing water	Compliance 2013	Catchment changes affecting bathing water quality, 2013
Maidens	Maidens met the mandatory standard - in 2013. It has achieved this standard or better since 2003. There was a single mandatory exceedance this season. Despite our inspections of the beach, nearby burns and outflows, the cause of the fail could not be determined. All local Scottish Water assets were operating normally at the time. It was noted that there were heavy rain showers on the morning of sampling which may have mobilised pollutants, although the salinity of the sample did not indicate that there had been a freshwater impact.	
Culzean	guideline standards, as it has done consistently since 2005.	
Heads of Ayr	Heads of Ayr achieved the mandatory Works standard of bathing water quality in 2013, im having had a varied compliance history from over the preceding years. All individual samples taken this season met this standard or the higher guideline standard.	are ongoing at a local farm steading to prove the quality of the surface water run-off the site.
Ayr (South Beach)	In 2013 Ayr (South Beach) bathing water achieved mandatory compliance, for the third successive year.	-
Prestwick	Prestwick bathing water again achieved mandatory compliance in 2013, as it has done since 2008.	-
Troon (South Beach)	Troon (South Beach) met the mandatory standard this season. This bathing water has complied with either the mandatory, or the more stringent guideline standards, for over 10 years.	-
Irvine	Irvine met the mandatory bathing water standard for the second year in a row. All samples taken this season met this standard or the higher guideline standard.	Scottish Water completed the construction of a £50million storm sewage overflow improvement scheme which will significantly reduce the quantities of storm sewage discharged to the River Irvine.

Dores Beach, Loch Ness

Bathing water	Compliance 2013	Catchment changes affecting bathing water quality, 2013
Saltcoats /	Saltcoats met the mandatory standard in - 2013, as it has done since 2010.	
n	Seamill met the mandatory standard in -	
Seamill	2013. It has met this standard or better since 2006. There was a single mandatory exceedance in July. It is considered that the localised heavy rainfall mobilised pollutants to enter the watercourses that flow into this bathing water. Sample results showed the local Kilbride Burn to have elevated bacteria levels, and this is thought to be the reason for this exceedance.	
Largs (Pencil Beach)	guideline standard for the second year in a row, having consistently met mandatory standards or better since 2003.	
	Lunderston met the mandatory standard in -	
Lunderston Bay	2013. It has consistently met this standard, or the higher guideline standard, for over 10 years. Milloort met the higher guideline -	
Millport Bay	standard for the first time since 2010. It has consistently met either mandatory or guideline standards for over 10 years.	
	standard continuing an unbroken run of	
Luss Bay	compliance of over 10 years.	
	In 2013 Ettrick Bay achieved the The new se	wage system at the local tea room has
Ettrick Bay	mandatory standard for a fourth been installed consecutive year after failing for three dischar years prior to 2010. There was a single sample exceedance in late July. It is most likely that the failure is a result of heavy rainfall leading to increased runoff into watercourses that flow into this bathing water. Sample results also showed the local Drumachloy Burn, located to the north of the bathing water area, to have elevated bacteria levels on the same day. Our electronic sign at Ettrick correctly predicted and displayed a poor water quality warning on this occasion and bathing was not advised. This sample is therefore eligible to be removed from our compliance dataset.	ed and is fully operational with the arge now going to soakaway.

P afty Beach, Aberdeenshire

Bathing water	Compliance 2013	Catchment changes affecting bathing water quality, 2013
Machrihanish	Machrihanish returned to guideline - bathing water compliance in 2013, as it has been in eight of the previous ten years. This bathing water has consistently met either the mandatory or guideline bathing water standards for over 10 years.	
Ganavan	In 2013 Ganavan continued to achieve the - guideline water quality standard, as it has done since 2008.	
Achmelvich	Achmelvich again met the guideline - standard as it has done since sampling started in 2008.	
Thurso	Thurso met the guideline standard in 2013 The water quality at this site fluctuates between this and mandatory status.	
Dunnet	This beach met the guideline standard for - the fourth consecutive year. It has met this or the mandatory standard for over 10 years.	noch waste water treatment works (MM/TW) has
Dornoch	Dornoch, as it has been for over 10 years.rec discharge from the WWTW is now screened.	ently undergone improvement works. The storm
Rosemarkie	A new waste water treatment works (WWTW Rosemarkie again met the guideline commission 2013, It has met this or the failing membrane treatment plant system. mandatory standard consistently since monitoring started in 2008.) was he
Dores	Dores consistently achieves mandatory compliance, and did so again in 2013.	-
Nairn (Central)	standard in 2013. It has met this or the higher guideline standard for over ten years. There was a single sample exceedance in late June. This was most likely due to higher levels of diffuse pollution in the River Nairn and Auldearn Burn, which were exasperated by heavy rain after a long dry period. Our investigations did not determine any pollution incidents in the area at this time that would have influenced bathing water quality.	-

Bathing water	Compliance 2013	Catchment changes affecting bathing water quality, 2013
Nairn (East)	Nairn (East) met the mandatory standard in 2013. It has met this or the higher guideline standard since 2006. There was a single sample exceedance in late June. This was most likely due to higher levels of diffuse pollution in the River Nairn and Auldearn Burn, which were exasperated by heavy rain after a long dry period. Our investigations did not determine any pollution incidents in the area at this time that would have influenced bathing water quality. Findhorn returned to guideline bathing	-
Findhorn	water compliance in 2013, having met the mandatory standard in 2012. It has met either the mandatory or guideline standards every year since 2006.	-
Loch Morlich	for the second consecutive year, having met the more stringent guideline standard from 2008 to 2011. Lossiemouth (East) met the guideline	-
Lossiemouth (East)	standard in 2013, for the first time in its compliance history. Cullen Bay met the mandatory bathing	-
Cullen Bay	water standard in 2013, having met the more stringent guideline standard in the preceding five years. Inverboyndie met the mandatory standard	-
Inverboyndie	in 2013. This beach has fluctuated between mandatory and guideline compliance over the last 10 years. There was a single mandatory exceedance in late June. This exceedance was most likely due to diffuse pollution in the Boyndie Burn that discharges adjacent to the designated bathing waters. Diffuse pollution in the Boyndie Burn is known to be a risk to bathing water quality, particularly as in this case where heavy rain follows a long dry period. The local pumping station and treatment works in the area were checked, and are not thought to have contributed to this exceedance. Rosehearty met the guideline standard in 2013 for the fourth consecutive year.	-
Rosehearty		-

-

Thin

Bathing water	Compliance 2013	Catchment changes affecting bathing water quality, 2013
Fraserburgh (Tigerhill)	Fraserburgh (Tigerhill) met the guideline standard in 2012. It has consistently met this or the mandatory standard for over 10 years.	The catchment is part of the Buchan coastal priority catchment on which farm visits will be starting shortly to address diffuse pollution issues.
Fraserburgh (Philorth)	Fraserburgh (Philorth) met the guideline standard in 2013. It has consistently met this or the mandatory standard for over 10 years.	-
Peterhead (Lido)	Peterhead (Lido) met the guideline standard in 2013. It has consistently met this or the mandatory standard since 2003.	-
Cruden Bay	Cruden Bay met the mandatory standard in 2013 for the fifth consecutive year.	-
Balmedie	2013. It has consistently met this or the mandatory standard for over 10 years.	-
Aberdeen	Aberdeen met the guideline standard in 2012. It has met this or the mandatory standard for over 10 years, with the exception of 2008 when it recorded a failure.	-
Stonehaven	Stonehaven achieved the mandatory bathing water standard in 2013. With the exception of the wet summer of 2012, it has consistently met this standard since 2006.	-
Montrose	Having met the lower mandatory standard in 2012, which was attributed to the very wet conditions that year, Montrose again met the higher guideline standard in 2013 as it had done for over 10 years prior to the summer of 2012. Lunan Bay has consistently achieved	-
Lunan Bay	guideline compliance, with the exception of 2008, when the mandatory standard was met. Arbroath (West Links) achieved guideline	-
Arbroath (West Links)	compliance for the sixth successive year. Carnoustie met the guideline standard in	-
Carnoustie	2013. It has consistently met this or the mandatory standard for over ten years.	-

Burntisland, Fife

Bathing water	Compliance 2013	Catchment changes affecting bathing water quality, 2013
MonifiethNewly des met the mandatory mandatory exceeda exceedance was m to a number of factor of the Monifieth Bur bacteria levels, whi sea from combined the catchment area a period of heavy or investigations and t	signated in 2011, Monifieth standard for the second season in a row. There was a single ance in late July. This ost likely attributable ors, with monitoring rn showing elevated le discharges to the sewer overflows in took place following vernight rainfall. Our chose of our partner organisations found no on-going issues or pollution incidents in the area at this time that would have influenced bathing water	Investigations during the 2013 bathing season concentrated on a culverted section of the Monifieth burn as this appeared to be where levels of bacteria were increasing. Investigations have broadened and will continue in order to identify and remove sources of bacteria prior to the 2014 bathing season
Broughty FerryBrou	Ignty Ferry met the guideline standard	
mandatory, or the h standard, consister	igher guideline htly for over 10 years.	-
St Andrews (West S	at Andrews (West Sands) met the	
Sands)mandatory s more stringent guic 1999 to 2010. St Andrews (East St	tandard for the third consecutive summer, having achieved the leline standard from t Andrews (East Sands) met the	-
Sands)mandatory s guideline standard KingsbarnsKingsba	tandard in 2013. This site has consistently met the mandatory or higher for over 10 years. rns met the higher guideline	-
standard in 2013, a previous 10 years, of 2010 and 2012 v stringent mandator	is it has done over the with the exception when it met the less y standard.	-
Crail (Roome Bay)C	rail (Roome Bay) again met the highest	
guideline standard	as it has consistently done for over 10 years.	-
Anstruther (Billow)	Anstruther (Billow Ness) met the guideline	
Ness)standards in 2 mandatory standar Elie (Ruby Bay)Elie	2013, as it has done every year since 2005, with the exception of the very wet summer of 2012 when it met the d. (Ruby Bay) again met the highest	-
guideline standard	as it has consistently	
	done for over 10 years.	-

-

A COL

nobello Beach, Edinburgh

Bathing water	Compliance 2013	Catchment changes affecting bathing water quality, 2013
Elie (Harbour) and Easrsferryhigher gut third year in a row.	Elie (Harbour) and Earlsferry met the ideline standard in 2013 for the	-
LevenLeven again n guideline standard done for the three y wet summer of 201 mandatory standard	net the more stringent in 2013, as it had rears prior to the very .2, when it met the d.	-
Kirkcaldy Kirkcaldy (Seafield)2013. Thi the higher guideline years.	met the mandatory standard in s site has consistently met this or e standard for over 10	-
Kinghorn Kinghorn (Harbour Beach)ma consistently done s single mandatory e season. This exceed attributable to high pollution run-off in Scottish Water staff issues or pollution i at this time that wo bathing water quali	(Harbour Beach) met the indatory standard in 2013 as it has ince 2008. There was a xceedance during the dance was most likely er levels of diffuse the Kinghorn Burn, exacerbated by heavy rain after a long dry period. Investigations by both our staff and f found no on-going ncidents in the area uld have influenced ty.	-
(Pettycur)Kinghorn for over 10 years w 2007, when manda obtained.	(Pettycur), as has been the case ith the exception of tory standard was	-
meet the guideline over 10 years.	standard as it has for	-
Aberdour Aberdour (Silversands)higher of the very wet sum Aberdour Harbour	(Silversands) again met the guideline standard in 2013, as it has done for over 10 years, with the exception mer of 2012. In 2013 Aberdour Harbour (Black Sands)	-
(Black Sands)met ti All samples taken t standard or the high	he mandatory water quality standard. his season met this ner guideline standard.	-

Bathing water	Compliance 2013	Catchment changes affecting bathing water quality, 2013
Portobello (West)	Portobello (West) met the mandatory - standard in 2013 as it has consistently done for over 10 years. There was a single sample exceedance in late July. This was most likely attributable to CSO spills in the Braid/Figgate Burn caused by urban diffuse run-off after a period of sustained dry weather then subsequent heavy rainfall.	
Portobello (Central)	Portobello (Central) has achieved guideline - compliance for the last five years, following a departure from this standard from 2006 to 2008. Newly designated in 2013. Fisherrow Sands	
Fisherrow Sands	met the mandatory standard of bathing water quality. All samples taken this season met this standard or the higher guideline standard.	
Seton Sands	Seton Sands met the higher guideline - standard in 2013. This beach has fluctuated between this and the mandatory standard for over 10 years. Longniddry maintained guideline -	
Longniddry	compliance in 2013. With the exception of 2011, when it dropped to mandatory, it has achieved the higher standard every year since 2006.	
Gullane	bathing water standards every year since 1995; a consistency of excellence which reflects this bathing water's status as one of the cleanest in the UK.	
Yellow Craig	or mandatory standards and met the mandatory standard this season.	
Broadsands	standards each year since 2008 and is expected to continue to do so.	usust 2012 our officers observed the short see
North Berwick (West)	standard in 2013. This beach has met this ou or mandatory standard for over 10 years.ope We requested that Scottish Water carry out a investigation into the cause of this discharge. further during spring 2014, with the delay be due to Scottish Water concerns over health a safety implications.	tfall operating during dry weather conditions, an ration which is out with the licence conditions. n Scottish Water intend to progress the investigation ing nd

Bathing water	Compliance 2013	Catchment changes affecting bathing water quality, 2013
North Berwick The (Milsey Bay)Berwic mandatory standar a single exceedanc conditions prior to f dry prior with low ra 23 July. This excee attributable to a dis Investigations by b Scottish Water staf identify the root can SeacliffThe bathing consistently of guid maintained this sta	identified bathing water at North See Nort k (Milsey Bay) achieved the d in 2013. There was e on 23 July. Weather this day were very ainfall (< 5mm) on dance was most likely scharge from an outfall. oth our officers and f are still on-going to use of this failure. water quality at Seacliff is - leline standard, and ndard this year.	th Berwick (West) above
Dunbar (Belhaven) guideline complian	Water quality at Dunbar (Belhaven) has, W with the exception of 2006, ach ce every year between This has led to fluc 1993 ar	Vorks were carried out on Dunbar STW this nieved summer to refurbish/replace the membrane filters. stuations in discharge quality ad 2013.due to the works operating on reduced treatment capacity but these have now been completed and
plant should be run	ning as normal.	
Dunbar (East)Dunb	ar (East) has achieved the more See Dunb	par (Belhaven) above
stringent guideline Having achieved ma the past three years guideline, which it a 10 years prior to 20	standard in 2013. andatory compliance for s, it has now reverted to achieved for more than 10.	
WhitesandsWhitesa	ands met the higher guideline -	
standard this seasc has complied with e the more stringent over 10 years.	on. This bathing water either the mandatory or guideline standards for	
	atning water at i norntonloch has -	
consistently compli	ed with guideline	

management to reduce the numbers of livestock having access to watercourses.

Coldingham -

With the exception of 2012, Coldingham has consistently achieved the higher guideline standard over the past 10 years	
guideline standard over the past 10 years.	

Bathing water	Compliance 2013	Catchment changes affecting bathing water quality, 2013
Eyemouth	Eyemouth again met the mandatory standard in 2013, following a period of mixed compliance. There was a single mandatory exceedance in late July. The exceedance at Eyemouth was most likely attributable to higher levels of diffuse pollution run-off in the Eye Water, caused by heavy rainfall in the region after a long dry period. The impact of the North Burn cannot be quantified, as it was not possible to sample, but it would also be expected to have impacted the bathing water. Investigations by our staff found no on-going issues or pollution incidents in the area at this time that would have influenced bathing water quality.	Significant improvements have been made by farmers in the Eye Water catchment. The vast majority of livestock poaching issues have been resolved by either fencing and provision of alternative watering arrangements or by management to reduce the numbers of livestock having access to watercourses.



Annex five: SEPA offices

Erskine Court, Castle Business Park, Stirling, FK9 4TR Tel: 01786 457700 Fax: 01786 446885

Aberdeen Office

Inverdee House, Baxter Street, Torry, Aberdeen Tel: 01224 266600 Fax: 01224 896657

Angus Smith Building

6 Parkland Avenue, Eurocentral, Holytown, North Lanarkshire ML1 4WQ Tel: 01698 839000 Fax: 01698 738155

Arbroath Office

62 High Street, Arbroath DD11 1AW Tel: 01241 874370 Fax: 01241 430695

Ayr Office 31 Miller Road, Ayr KA7 2AX Tel: 01292 294000 Fax: 01292 611130

Balloch Office

Carrochan, Carrochan House, Balloch West Dumbartonshire G83 8EG Tel: 01389 727770 Fax: 01389 755387

Dingwall Office

Graesser House, Fodderty Way, Dingwall Business Park, Dingwall IV15 9XB Tel: 01349 862021 Fax: 01349 863987

Dumfries Office

Rivers House, Irongray Road, Dumfries DG2 0JE Tel: 01387 720502 Fax: 01387 721154 East

Edinburgh Office

Clearwater House, Heriot Watt Research Park Avenue North, Riccarton, Edinburgh EH14 4AP Tel: 0131 449 7296 Fax: 0131 449 7277

Elgin Office

28 Perimeter Road Pinefield Elgin IV30 6AF Tel: 01343 547663 Fax: 01343 540884

Fort William Office

Carr's Corner Industrial Estate, Lochybridge, Fort William PH33 6TL Tel: 01397 704426 Fax: 01397 705404

Fraserburgh Office

Shaw House, Mid Street, Fraserburgh AB43 9JN Tel: 01346 510502 Fax: 01346 515444

Galashiels Office

Burnbrae Mossilee Road Galashiels TD1 1NF Tel: 01896 754797 Fax: 01896 754412

Glasgow Office

Law House, Todd Campus, West of Scotland Science Park, Maryhill Road, Glasgow G20 0XA Tel: 0141 945 6350 Fax: 0141 948 0006

Glenrothes Office

Pentland Court, The Saltire Centre, Glenrothes KY6 2DA Tel: 01592 776910 Fax: 01592 775923

Lochgilphead Office 2 Smithy Lane, Lochgilphead PA31 8TA Tel: 01546 602876 Fax: 01546 602337

Newton Stewart Office Penkiln Bridge Court, Minnigaff Newton Stewart DG8 6AA Tel: 01671 402618 Fax: 01671 404121

Orkney Office

Norlantic House, Scotts Road Hatston, Kirkwall, Orkney KW15 1RE Tel: 01856 871080 Fax: 01856 871090

Perth Offices

7 Whitefriars Crescent, Perth PH2 0PA Tel: 01738 627989 Fax: 01738 630997

Strathearn House

Broxden Business Park, Lamberkine Drive, Perth PH1 1RX Tel: 01738 627989 Fax: 01738 630997

Shetland Office

The Esplanade, Lerwick Shetland ZE1 OLL Tel: 01595 696926 Fax: 01595 696946

Stirling Office

Bremner House, Castle Business Park, Stirling FK9 4TF Tel: 01786 452595 Fax: 01786 461425

Thurso Office

Strathbeg House, Clarence Street, Thurso, Caithness KW14 7JS Tel: 01847 894422 Fax: 01847 893365

Western Isles Office

2 James Square, James Street, Stornoway Isle of Lewis HS1 2QN Tel: 01851 706477 Fax: 01851 70351

