



Delivering the programme of measures in the first River Basin Management Plan

A progress report for the Scotland River Basin District 2012

Date: January 2013

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Executive summary

Across the Scotland river basin district we are broadly on track to implement the measures we identified as necessary by 2015. This interim report summarises the good progress made to date in putting in place the programme of measures described in the first river basin plan.

This success is a result of the co-ordinated efforts of the responsible authorities, members of the advisory groups and the many businesses that use the water environment. Some of the measures completed so far have delivered multiple benefits, including biodiversity enhancement and improved fisheries. Securing such social, economic and environmental benefits - services that the water environment's ecosystems provide - is an important goal of river basin management planning and one that the advisory groups have assisted in achieving.

It is clear however, that discussions are still ongoing in many areas to develop and implement the appropriate solutions, and that work is still required to make the necessary environmental improvements.

In particular, increased effort and resource is required to progress all the measures needed to improve the physical characteristics of our rivers, estuaries and coastal waters. Tackling modifications of the beds, banks and shores of surface waters is challenging technically and also because it requires co-ordinated partnership action across catchments.

Tackling rural diffuse pollution in a systematic way, with effort focused on priority catchments, was also a new challenge. This approach is proving very successful; however we need to develop greater capacity to introduce these measures in other catchments.

Our legislative framework now provides supporting powers to help underpin our approach to invasive non-native species and we are in the process of finalising new working arrangements between the various public bodies that contribute to tackling this pressure. Action is also happening on the ground, such as efforts by rivers and fisheries trusts to remove infestations of invasive plants from river banks. However, dealing with invasive species once they have become established is always difficult and for many species impossible with currently available techniques.

This report demonstrates that we are moving in the right direction but maintained momentum and action is still required to meet both our short and long term objectives, and ensure our use of the water environment is sustainable.

1. Introduction

The first river basin management plan (RBMP)¹ for the Scotland river basin district was published in 2009. It set out targets for the protection and improvement of the water environment within the district, and described how we, in Scotland, planned to achieve those targets² through the implementation of measures to prevent deterioration and to tackle the impacts of existing pressures.

This interim report is for responsible bodies and stakeholders. It summarises progress to date in putting in place the programme of measures described in the first river basin plan.

A report has been submitted to the European Commission as required by the Water Framework Directive (WFD) outlining our progress to date of implementing the measures.

The implementation of the programme of measures is the responsibility of a wide range of stakeholders including; Scottish Government, the Scottish Environment Protection Agency (SEPA), responsible authorities and other public bodies.

The types of measure needed to improve and protect the water environment are very diverse; they range from buffer strips, nutrient management, changes in sewage treatment, control of chemical use and removal or easement of fish barriers to techniques to control invasive non native species. We have a long history of managing some of the pressures, with clear planning processes and well defined roles and responsibilities. For a key pressure - diffuse pollution - we have developed a supplementary plan³ to ensure key stakeholders and measures come together to meet the objectives set out in the river basin management plan. We are in the process of developing two additional supplementary plans to address physical pressures on beds, banks and shores⁴ and the invasive non native species pressures. We will continue to work with stakeholders in these key areas to ensure efficient and effective delivery of our 2015 targets.

¹ www.sepa.org.uk/water/river_basin_planning.aspx

² This information has been submitted to Europe as required for an interim report on the progress of implementing measures for the first plans at the end of 2012.

³ www.sepa.org.uk/water/river_basin_planning/diffuse_pollution_mag.aspx

⁴ Documents currently available to view at www.sepa.org.uk/about_us/consultations.aspx

2. Improving the water environment

2.1 Managing pressures on water quality

The programme of measures builds on pollution reduction and control programmes co-ordinated by us, Scottish Water and the Scottish Government. It also includes the requirements of European legislation relating to the protection of bathing waters, waters used for shellfish production, waters affected by nitrate pollution from agriculture, waters subject to discharges of urban waste water and waters important for the conservation of protected habitats and species.

At the heart of the programme is a comprehensive new legislative framework for ensuring action is taken to control the most significant pressures on the water environment. The Water Environment (Controlled Activities) (Scotland) Regulations 2011 enable controls over a wide range of activities having, or likely to have, a significant adverse impact. These include point source and diffuse pollution, abstraction and impoundment of water and engineering within the water environment.

Action to address point source pollution is agreed and secured through reviews, and subsequent variations, of the authorisations for discharges. Our progress to date in reviewing authorisations is summarised in Table 1. The majority of the measures planned up to 2015 relate to discharges of sewage. The necessary works have been planned into Scottish Water's capital investment programme, known as Quality and Standards.

Table 1: Progress on managing point source pollution

Industry sector	Status of measure as estimated for the end of 2012		
	Not started	Ongoing	Complete
Sewage discharges	0	173	300
Mining and quarrying	1	4	1
Aquaculture	0	6	1
Distilleries	0	5	2
Landfill leachate	0	1	1
Total	1	189	305

Notes: 'Ongoing' means that the authorisation review is underway but not yet complete. The figures in the table are the numbers of pressures (individual discharges) being addressed by licence review. A single authorisation may cover a number of discharges.

During the first RBMP cycle, 300 measures have now been delivered that improve water quality through upgrades to wastewater treatment works and eliminating unsatisfactory intermittent discharges. A further 173 measures are ongoing. Of these, 23 are proving particularly challenging for technical reasons and there is a risk that they may not be completed by 2015.

In addition, over 100 environmental studies to inform future capital investment programmes are being undertaken by Scottish Water, including strategic sewerage studies for the River Clyde, River Almond and Water of Leith area. Of these, 33 studies have been completed to date and the remainder are due to be completed by 2013. Investment requirements are being determined for 39 studies, under the revised Bathing Waters Directive and 10 have been completed. The results of the studies will inform the detailed programmes of measures for second and third river basin management planning cycles. Discussions are currently being held on investments required by 2015. The results of the studies will inform the detailed programmes of measures for second and third river basin management planning cycles.

A wide range of activities that have the potential to cause diffuse pollution must be carried out in accordance with the practices defined within the General Binding Rules (GBRs) set out in The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR). These activities include:

- storage and application of fertilisers;
- keeping of livestock;
- cultivation of land;
- discharge of surface water run-off;
- construction and maintenance of waterbound roads and tracks;
- application of pesticide;
- operation of sheep dipping facilities.

In addition to these controls, targeted action plans have been established⁵ in areas at risk of pollution from agricultural nitrates, known as Nitrate Vulnerable Zones.

Financial support for environmental improvement measures has been made available to rural land managers via Scotland's Rural Development Programme⁶.

To promote and support adoption of land management practices consistent with the CAR general binding rules by rural land managers, we established the Diffuse Pollution Management Advisory Group (DPMAG)⁷ in 2009. The group includes representatives from a variety of organisations with rural interests.

The group has helped develop and coordinate a partnership approach to tackling rural diffuse source pollution. The strategy developed by the group⁸ sets out a tiered approach comprising a national awareness raising campaign and targeted work with land managers in priority catchments.

The national campaign has been delivered using the media, information provision at shows and other events organised by rural land managers, and through the work of Area Advisory Groups, for example the North Highland, West Highland, Argyll and Lochaber joint diffuse pollution focus group. Measures to reduce diffuse pollution are also delivered by compliance with Good Environmental and Agricultural Condition (GEAC) standards, rural development contracts and Scottish Agricultural College (SAC) advisory services which cover the whole of Scotland.

A targeted approach has been taken in priority catchments most affected by diffuse pollution in the water environment. Twelve priority catchments were selected for the first RBMP cycle on the basis of the severity of the diffuse pollution impacts on the water environment and risks to human health (drinking water, bathing and shellfish protected areas) and Natura sites⁹.

Catchment walks have been carried out to gather evidence of the exact nature and location of diffuse pollution pressures. This was combined with an awareness raising campaign in which we engaged with land managers and the local community, explaining the causes of any problems within the catchment and the types of measures which could be taken to address these. Site visits and one to one engagement with land managers to achieve remedial action combined with follow up visits were carried out to ensure continued compliance with GBRs and assess whether the required improvements have been delivered. Engagement has been well received and land managers are responding well to our advice.

The catchment walks have covered 4920 km of rivers and streams in the 12 priority catchments. On average, around one example of poor practice posing a risk of pollution was found per kilometre. In conjunction with the walks, meetings have been carried out with individual land-users, identifying problem areas and highlighting the necessary improvement measures. This work is ongoing with the aim of completing the engagement and farm visits in the first cycle priority catchments by the end of 2014.

⁵ www.sepa.org.uk/water/protected_areas/nitrates_monitoring/nitrate_monitoring.aspx

⁶ www.scotland.gov.uk/Topics/farmingrural/SRDP

⁷ www.sepa.org.uk/water/river_basin_planning/diffuse_pollution_mag.aspx

⁸ www.sepa.org.uk/water/river_basin_planning/diffuse_pollution_mag.aspx#DP_Plan

⁹ www.natura.org/

The Forestry Commission Scotland (FCS) has been working to use forest restructuring and the *Forests and Water Guidelines* to reduce and prevent diffuse pollution impacts from forestry on the water environment. Eight of the first cycle forestry measures are in diffuse pollution priority catchments and are being delivered as part of the priority catchment work.

The process of working with land managers in the first 12 priority catchments is therefore underway and will be completed within the first RBMP cycle.

Scottish Water has developed a Best Practice Incentive Scheme¹⁰, for the protection of drinking water sources from rural diffuse pollution within five catchments in Scotland. Land managers, owners and tenants can apply to the scheme for assistance in financing measures aimed at contributing to the improvement and protection of water sources within the catchment, over and above regulatory compliance. Through this approach, drinking water quality will be protected and improved to meet the required standards, public health will be protected and the most sustainable approach to treatment of drinking waters will be achieved. In order to manage urban diffuse source pollution, a number of measures have been implemented.

Since April 2006, planning policy requires all new developments to be equipped with a sustainable urban drainage system (SUDS), designed to avoid pollution of the water environment. SEPA set up the SUDS working party to support the implementation of SUDS, and which has produced guidance for developers, and for road engineers, on designing suitable SUDS.

Five Scottish Water surface water management plans have been produced for industrial estates where significant environmental impact has been recorded from urban surface water run off. These action plans outline working with property owners to assess drainage to ensure good practice and to mitigate against further pollution.

A UK wide ban in phosphates in laundry cleaning products was brought in by The Detergents Regulations 2012 which ban the use of phosphate or inorganic phosphate from 1 January 2015. This will benefit the water quality of the Scottish environment by reducing both point and diffuse source pollution at source.

¹⁰ www.scottishwater.co.uk/about-us/corporate-responsibility/sustainable-land-management

Case study – improving and protecting bathing waters

In Scotland, significant efforts have been made to improve the quality of our bathing waters. In 2011, 73 of the 76 designated bathing waters achieved the mandatory standard for bathing water quality required by the 1976 Bathing Waters Directive and just over half met the more stringent guideline standard.

The revised Bathing Water Directive, which must be implemented fully by 2015, seeks greater public participation in its implementation. Our water quality prediction system for bathing water quality has been expanded to 18 sites with daily water quality predictions made through electronic signage at beaches, our website and various phone apps.

In March 2011 we published online profiles for all of Scotland's 76 bathing waters. They provide information to the public including:

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

Summary information is now displayed at all bathing waters across Scotland on SEPA or local authority signs.

The revised Bathing Water Directive standards are significantly more stringent than those of the current directive and all bathing waters are required to be classed as 'sufficient', or better, by 2015. The data used for the annual classifications of bathing waters will change to a four year period. We plan to meet at least 'sufficient' at all waters by 2015. The rural diffuse pollution work described above will contribute to meeting these objectives.

Accelerated investment 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 (2010 to 2015) includes 39 bathing water studies.

A key project for Urban Waste Water Directive (UWWTD) upgrades affecting bathing waters is the Meadowhead and Stevenston Project. This project represents over £90 million of investment by Scottish Water. Work on the project started in October 2010 and is expected to be complete by November 2013, by which time some 70 individual storm water assets will have been improved.

The combined efforts of projects like these will improve the quality of local rivers and streams and reduce the faecal bacterial risk to nearby bathing waters. This will benefit the biodiversity and fisheries in the rivers and streams, as well as beach users and tourism.

2.2 Managing pressures on water flows and levels

Action to address pressures on water flows and levels is agreed and secured through reviews, and subsequent variations, of the authorisations for the abstractions and impoundments concerned. Progress to date in reviewing authorisations is summarised in Table 2. To undertake the reviews, SEPA has been working with hydropower companies, Scottish Water, farmers and distillery operators.

Table 2: Progress on implementing licence reviews to manage flows and levels

Industry sector	Status of licence review as estimated for the end of 2012		
	Not started	Ongoing	Complete
Hydropower	0	29	4
Public water supply	1	23	64
Irrigation	0	147	14
Distilleries	0	1	7
Total	1	200	89

Note: 'Ongoing' means that the authorisation review is underway but not yet complete. The figures shown are the numbers of pressures (individual abstractions/impounding works) being addressed by licence reviews. A single authorisation may cover a number of these pressures.

Gaining an understanding of the nature of the different pressures and the risk they pose has been a necessary step for implementing measures to address abstraction and impoundment pressures. With respect to irrigation abstractions, developing this understanding has proved particularly challenging because of the intermittent nature of the abstractions and the run of wet summers that have substantially reduced demand. By working with land managers, considerable progress has been made in developing a shared understanding of the issues and the need to use water efficiently.

Case study - improving water flows and levels at Allt Coire Eoin (River Cour)

This water body was assessed as 'poor ecological potential' in the first RBMP due to a change from the natural flow conditions, with no flows currently being released into the downstream river from three intakes.

The water body forms part of the larger Lochaber hydro power scheme operated by Rio Tinto Alcan. The scheme diverts and stores water from a number of catchments starting at the upper end of the River Spey and moving west to include parts of the River Spean and surrounding tributaries.

The water flowing down to the existing intakes on the River Cour is diverted into the tunnel which leads to the hydro power station near Fort William.

The measure due to be implemented by 2015 is:

- To control the pattern and timing of abstraction by introducing flows downstream of main intake.

SEPA and Rio Tinto Alcan have worked closely to deliver the river basin management plan objectives. The proposal would restore a flow to 6 km of the River Cour which should be accessible to migratory salmon under higher flows.

The proposal was subject to consultation with the Lochaber District Salmon Fishery Board, with their comments considered as part of the assessment and used to inform further discussions on improvements to the riparian habitat of the Cour catchment. The proposal has been brought within the CAR regulatory framework by way of a SEPA initiated variation to authorisation.

The measure is on track to meet the river basin management plan objectives.



Intake No.7 (left picture) and the River Cour (right picture) downstream with no flow.

During periods of extended dry weather, careful management of water use is important to protect the water environment and sustain public water supplies. To ensure we can act effectively when this happens, SEPA and Scottish Water have been working together to develop the National Water Deficit Plan that will go out for consultation in early 2013. This plan will contain more detail about how we should cope with pro-longed periods of dry weather. Sub-plans will be developed during 2013 to help organisations at a local level.

As part of that we are developing tools to help predict these events. We will work closely with partner organisations such as the Met Office to use the best available information.

Case study – Scottish Water’s water efficiency campaign

Scottish Water has started a water efficiency trial, set to run over several years, with analysis and reporting of results starting in 2015-16. The aim is to understand the relative costs, effectiveness and sustainability of the different measures that may reduce household water consumption. The results are to be reported through Scottish Water's Water Efficiency Plan. Participation in the trial is voluntary but Scottish Water is working with developers and housing associations to secure customer participation from new build developments. If Scottish Water does not get enough participants this way then they will try alternative measures.

The water efficiency measures will be a mixture of 'soft' measures, such as trialling a customer education and information programme that incorporates the potential customer savings in water usage, energy and carbon, and 'hard' measures installed in the home, such as:

- toilets with dual flush or low-flush cisterns, water-efficient showers, shower timers to help limit showering durations;
- water saving taps, water efficient washing machines and dishwashers;
- water butts, trigger hose guns and hosepipe flow restrictors.

As part of the trial, Scottish Water will develop partnerships with organisations such as Waterwise and the Energy Saving Trust in order to raise awareness of water, energy and carbon efficiency in the home.

Scottish Water is also striving to reduce leakage from its infrastructure to improve the water use efficiency in its own operations. More widely, with research partners and developers, Scottish Water will develop and promote measures for new and refurbished housing.

The reduction in leakage between 2002-03 and 2011-12 is 44% with further reductions forecast for 2012-13.

2.3 Managing pressures from barriers to fish migration and pressures on beds, banks and shores

One of the key objectives of the RBMP is to tackle the impact of past modifications to the physical characteristics – the bed, banks and shores – of our rivers, lochs, estuaries and coasts. To do this effectively, we need to plan actions at appropriate scales. For rivers, this usually means we need to understand what actions are needed at a catchment scale. We need to engage the enthusiasm and cooperation of land managers and, where necessary, we also need to facilitate access to funding support.

To meet these challenges, we have established a three pronged approach that is being adopted to deal with these types of pressures:

- development of a supplementary plan;
- regulatory measures;
- voluntary measures – supported by Water Environment Fund.

In partnership with land managers and the Scottish Government, we are developing a detailed plan for improving the impacts on beds, banks, shores and fish passage. It outlines the scale of the task, actions required and funding sources in rural land management (land drainage and riparian vegetation), urban land management, coastal areas and action to remove fish barriers. It advocates an integrated, partnership approach making the most of opportunities for achieving multiple benefits as well as linking to measures required for flood risk management. This plan was published for consultation in November 2012¹¹.

¹¹ http://www.sepa.org.uk/about_us/consultations.aspx

Our existing legislative framework is used to ensure that any new activities are properly controlled to ensure delivery of our RBMP objectives. We are working with Scottish Water, hydropower generating companies and other operators to ensure that provisions for fish passage at existing dams are maintained in working order.

The Scottish Government is currently developing new regulatory tools to enable us to address the impact caused by existing engineering structures, such as culverts and bridges.

Since 2009, we have been encouraging delivery of voluntary projects to address such pressures by providing funding support from money identified by Scottish Ministers for supporting restoration initiatives (£1m per year). For the first programme of measures, this work has focused on supporting action to restore fish passage at man made barriers to fish migration.

The programme of measures included plans to restore fish passage at 79 fish barriers. Along with the Rivers and Fisheries Trusts for Scotland (RAFTS) we have also been working to improve understanding of the barriers to fish migration across river catchments. The scoping work and this improved catchment-scale understanding has led to action on a number of barriers being reprioritised and substituted by action on other barriers not known about, or not planned for action, when the RBMP was finalised. Overall, work has now started in relation to a greater number of barriers than identified in the RBMP but the barriers covered do not include all those originally targeted.

Table 3: Progress with implementing measures to remove barriers to fish migration

Delivery mechanism	Status of project/measures as estimated for the end of 2012		
	Not started	Ongoing	Complete
Collaborative projects	0	52	22
CAR	0	10	3
Total	0	62	25

Note: The figures in the table are the number of fish passage restoration projects. "Ongoing" means that the project is in the scoping phase or a CAR authorisation review is underway. "Complete" means that the works on the ground have been carried out or the authorisation review/variation has been finalised.

To date, 25 fish barriers have been addressed during the first cycle. Without a substantial reduction in the time it takes from project scoping to project completion, it is unlikely that all of the 62 projects still in scoping will be completed by 2015. This is due to the scale, cost, complexity and feasibility of delivering these measures, the need to address them at a catchment scale and the fact that implementation often depends on voluntary partnership working. However, we are working with the Scottish Government and partners to progress measures as efficiently as possible.

Table 4 shows the progress in delivering measures to improve pressures on beds, banks and shores through CAR (GBRs) and the Water Environment Fund, and measures that the Forestry Commission Scotland is taking to address the impact of dense tree planting on river banks.

Also a number of watercourses with pressures on their beds, banks and shores have been the subject of third party collaborative restoration projects, some of which are in diffuse pollution priority catchments and complement the work to reduce diffuse pollution.

Table 4: Progress with implementing measures to reduce pressures on beds, banks and shores

Delivery mechanism	Status of project/measure as estimated for the end of 2012		
	Not started	Ongoing	Complete
Collaborative projects	0	27	6
Forestry pressures	0	4	1
Priority catchment strategic projects funded by water environment fund	0	87	0
GBRs	0	0	3
Total	0	118	10

Note: Ongoing means that scoping has been carried out and complete indicates restoration project complete.

Measures to tackle modifications to beds, banks and shores of our rivers, lochs, estuaries and coastal waters have been reprioritised since the RBMP was published. We originally proposed to implement 45 measures across 10 of the diffuse pollution priority catchments; we have instead focused on 87 stretches in three priority catchments (the Dee, South Esk and Ugie). We have identified the most effective measures for improvements for each of the catchments. The projects will proceed to deliver a small number of demonstration measures in the next phase. This means that some of the measures planned have not yet started and may be delayed until the next RBMP cycle. This is due to the cost, scale, complexity and feasibility of delivering these measures and the fact that implementation often relies on voluntary partnership working. Further measures delivery will be prioritised through the supplementary plan *'Improving the physical condition of Scotland water environment'*.

Finally, there are a number of catchment scale projects which deliver multiple benefits as well as addressing the physical structure of the water body. An example of this is the Forth multiple benefits project. This project has identified potential measures for improving the Boghead Burn, Braid Burn, Kennoway Burn/Back Burn and River Devon. The Braid Burn work is being taken forward by Edinburgh and Fife Green Network Partnership as part of a retrofitting climate change solutions project. The project steering group is looking to progress the other work over next few years in partnership with responsible authorities and water and land managers.

To prevent impacts from forestry on the banks and shores of water bodies, and ensure no deterioration, SEPA along with the Forestry Commission Scotland, FCS and their Scottish Environment and Rural Services (SEARS¹²) partners, will work to ensure that forestry management is undertaken in accordance with CAR and the 2011 version of the Forest and Water Guidelines¹³. Forest Plan, Forest Design Plan and felling approvals are only given to schemes that conform to the sustainable forest management practices required by the UK Forestry Standard¹⁴.

The key measure for improving pressures on banks and shores from excessively close planting is the felling of dense stands of conifers planted along watercourses.

Appropriately designed woodland planting along rivers and streams can contribute to improving ecological quality. Scottish Rural Development Programme (SRDP) provide financial incentives under the Rural Priorities scheme¹⁵ to encourage appropriate woodland planting along watercourses. The FCS website offers guidance on applying for this money, and this information is also disseminated to farmers and landowners via leaflets, sector media, local and national partnerships and events.

¹² Scotland's Environment and Rural Services (SEARS) is a partnership between eight public bodies aiming to improve the experience among land managers by working together to provide an efficient and effective service.

¹³ [Forests and Water Guidelines; http://www.forestry.gov.uk/website/forestry.nsf/byunique/infd-8bvgx9](http://www.forestry.gov.uk/website/forestry.nsf/byunique/infd-8bvgx9)

¹⁴ <http://www.forestry.gov.uk/theukforestrystandard>

¹⁵ <http://www.scotland.gov.uk/Topics/farmingrural/SRDP/RuralPriorities>

Case study - River Lundy weir removals

Two barriers on the River Lundy had been identified as a barrier to fish movement. The Water Environment Fund contributed to both the scoping of their removal and their actual removal. The removal phase of the work was done in partnership with the Lochaber Fishery Trust and the Forestry Commission. This was a low cost partnership project that has removed a pressure from the lower end of a significant catchment on the west coast of Scotland.



River Lundy before (left picture) and after (right picture) weir removal

2.4 Managing the risks posed by invasive non-native species

The approach to protecting water bodies from pressures and risks posed by invasive non-native species and improving them where required is delivered through the roles and responsibilities of identified organisations and the implications of the recent Wildlife and Countryside Act (WCA) 1981 amendments and voluntary measures.

Recent legislative changes¹⁶ have defined the roles of the regulatory authorities and clarified offences regarding invasive non-native species in Scotland.

The key elements of the amendments are the introduction of:

- a 'no release' general presumption for all non-native species;
- a new offence for any person to direct an individual to carry out an action leading to a non-native species offence;
- powers enabling specific bodies to take reasonable action to control, contain or eradicate non-native species or species outside their native range.

A supplementary plan is being developed which outlines the measures being taken to prevent spread of and, where possible eradicate, invasive non-native species. It also defines the roles and responsibilities of organisations involved in managing water dependent invasive non-native species. The plan also identifies requirements for research or actions, and develops strategies to address these gaps.

Meanwhile a number of organisations have started implementation on the ground. RAFTs have already introduced measures aimed at preventing the introduction and spread of invasive species with the publication of 25 biosecurity plans that are implemented through them, with support from [Scottish Natural Heritage](#) (SNH), the [Esmée Fairbairn Foundation](#), EU Interreg, SEPA and the [Scottish Government](#). Key project outputs and actions were: bio-security plans for each of the member trusts, rapid response protocols and database, and awareness raising and training.

¹⁶ The Wildlife and Countryside Act 1981 was amended on 2 July 2012 through the commencement of the non-native species section of the Wildlife and Natural Environment (Scotland) Act 2011.

Many official projects have been started across Scotland to reduce spread and control existing species. One example is the SNH and South Lanarkshire Council funded work, in partnership with Clyde River Foundation, to trial a barrier to prevent crayfish spread to the River Annan from the upper River Clyde catchment.

Action to tackle invasive non-native species that have already gained a foothold include a number of species-specific eradication or control projects carried out by SNH to investigate potential management techniques for invasive aquatic plants. Also, we have been working with external groups to deliver catchment scale control and eradication programmes for non-native invasive plants that can infest river banks, such as Japanese knotweed and giant hogweed, Himalayan balsam and rhododendron. Eight projects have been funded since 2008. Four are currently being delivered by RAFTS over a four year period working across Scotland, coordinating 15 Trusts across over 73 catchments.

3. Conclusion and next steps

The report demonstrates that considerable progress has been made on the implementation of the programme of measures for the first cycle. The legislative framework, supported by economic incentives and funding to encourage and support action, and the use of education and advice has facilitated implementation of measures on the ground. The process has informed the responsible authorities and stakeholders of where successes have been achieved, but also highlighted complex areas that require more work to secure the targets set out in the plan.

Particular successes include a large body of work (300 measures) delivered through Scottish Water's Quality and Standards programme. In addition, 160 licence reviews are underway to control irrigation pressures, 25 fish barriers removed and several demonstration projects are underway to improve pressures on beds, banks and shores. The priority catchment work has also proved to be very successful with the initial follow-up visits indicating an encouraging rate of implementation.

Many of the measures completed so far have delivered benefits beyond those required by the legislation. The environmental improvements will have also contributed to biodiversity enhancement and benefits for fisheries, recreation and tourism for example. These achievements have been made possible by organisations and stakeholders embracing a coordinated partnership approach.

Although good progress has been made so far, more work is required to tackle complex issues and develop and implement appropriate solutions. Particular issues have been highlighted regarding improving the physical condition of the water environment due to scale, cost, complexity and feasibility of delivering these measures, the need to address them at a catchment scale and the fact that implementation often depends on voluntary partnership working. These challenges highlight the need for maintained momentum and action to meet our short and long term objectives and ensure sustainable use of our water environment.

Over the next year we will be updating the characterisation and risk assessment for the second river basin management plans which will be published in the *Current Condition and Challenges for the Future* report at the end of 2013. As part of this work, we will review the significant management issues we will face in achieving our objectives for 2021 and 2027. The review will take account of our experiences of implementing the first programmes of measures and will consider options for adding to, changing and improving our approaches as appropriate. We will consult on the outcome of the review from 22 December 2013.

We are currently running a consultation on how the second cycle river basin plans should be developed. This consultation, called "Getting Involved" is the first step in the process of writing the second plan. It is an opportunity for stakeholders to shape the plan itself, the way that river basin planning is delivered and for them to be involved in how improvements to the water environment are prioritised.