

Scottish Environment Protection Agency: Biodiversity Duty Reporting 2011-2014

NON-TECHNICAL SUMMARY

The Scottish Environment Protection Agency (SEPA) is Scotland's principal environmental regulator and environmental monitoring body. This report presents the actions that SEPA has taken to further the conservation of biodiversity in the course of carrying out its responsibilities during the period 2011-2014, as required by the Nature Conservation (Scotland) Act (2004) and Wildlife and Natural Environment (Scotland) Act (2011).

SEPA makes its greatest contribution to conserving and enhancing biodiversity through delivery of its regulatory functions. We do this both directly, where we take specific account of potential impacts on a species or habitat when assessing an environmental licence application, and indirectly through the overall reduction of potentially damaging pollutants and regulation of potentially damaging activities.

Our roles as the lead for Flood Risk Management Planning (FRMP) and River Basin Management Planning (RBMP), and as a statutory consultee in the Town and Country Planning system, present us with duties and opportunities to further the conservation of biodiversity.

SEPA monitors and reports on the state of the environment, including direct measures of biodiversity. We have produced an annual classification which summarises the quality of water bodies in Scotland. Considerable improvements to the quality of water bodies have been secured by requiring licensed operators to reduce impacts, and by working with partners to remove barriers to fish migration.

SEPA is a member of several local partnerships and a wide range of national and regional groups working for biodiversity. We have led development of Scotland's Environment website, which provides access to reliable information on Scotland's environment from trusted sources. SEPA is the habitat lead for invasive non-native species occurring in freshwater (still and flowing water) habitats, which confers powers relating to the prevention, eradication and control of non-native invasive species and responsibility for strategic priorities.

Our internal environmental policy has promoted actions to enhance biodiversity on SEPA grounds, and to encourage other businesses to do likewise. Practical actions and outreach work are being coordinated through office-specific Biodiversity Action Plans, and implemented by staff volunteers.

As part of the SEPA Change Programme, we are embedding a framework to enable us to take account of the broad range of benefits people receive from the environment in the decisions we make. We are creating and testing methods to assess how ecosystems and the benefits they confer are affected by activities proposed in flood risk management and river basin management planning.

Biodiversity Highlights of the Past Year

- Ongoing protection for the water, soils and air of Scotland through our regulatory processes
- Significantly improving the ecological status of 100 water bodies (including approximately 1000 km of river), which were restored to good ecological status by the end of 2013
- Setting up River Basin Management Plan pilot catchment projects where biodiversity improvements will be one of the multiple benefits secured
- Successfully trialling a new sampling method based on surveying presence and abundance of plant species on 16 Special Areas of Conservation, to determine resilience to air pollution
- Updating SEPA's Position Statement on Biodiversity
- Drafting our 2020 Challenge Delivery Agreement with Scottish Government
- Successfully developing an ecosystem services assessment method & incorporating it into the Strategic Environmental Assessments for the new Flood Risk Management Strategies
- Establishing the Scottish Biodiversity Strategy's Natural Capital Group (NCG) (secretariat support and chaired by SEPA) and achieving good progress against its priority tasks
- Creating and contributing to funding of two new partnerships to develop tools to enable consideration of impact on ecosystem services in decision-making (VALUES; EcoServ-GIS).

Looking ahead, the main challenge for SEPA will be to make our contribution to delivering the 2020 Challenge; our Delivery Agreement with Scottish Government will define and identify the key opportunities for this task.

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Introduction

Under the Nature Conservation (Scotland) Act (2004), all public bodies in Scotland are required to further the conservation of biodiversity when carrying out their responsibilities. The Wildlife and Natural Environment (Scotland) Act (2011) requires public bodies in Scotland to provide a publicly available report, every three years, on the actions which they have taken to meet this biodiversity duty. This report provides SEPA's response to that reporting duty for the period 2011-2014.

Section 1. Introductory information about SEPA and biodiversity

The Scottish Environment Protection Agency (SEPA) is Scotland's principal environmental regulator and environmental monitoring body. Our purpose is to protect and improve the environment, including the sustainable management of natural resources. We also contribute to improving the health and wellbeing of people in Scotland and to achieving sustainable economic growth. We do this by being an excellent environmental regulator, helping business and industry to understand their environmental responsibilities, enabling customers to comply with legislation and good practice and to realise the many economic benefits of good environmental practice. We protect communities by regulating activities that can cause harmful pollution and by monitoring the quality of Scotland's air, land and water. The regulations we implement also cover the keeping and use, and the accumulation and disposal, of radioactive substances.

SEPA is a non-departmental public body, accountable through Scottish Ministers to the Scottish Parliament. SEPA has been advising Scottish ministers, regulated businesses, industry and the public on environmental best practice for nearly two decades. We protect the environment and human health through the work of our 1200 employees who cover a range of specialist areas including environmental regulation, planning, chemistry, ecology, hydrology, engineering, environmental modelling, quality control, data analysis, communications, business support and management functions. Our 24 offices enable us to work across the whole of Scotland, from the Highlands and Islands to the Borders.

We monitor and report on the state of Scotland's environment and use that sound scientific understanding to inform our independent regulation of activities that may affect its quality. We also publish a wide range of environmental reports. We are responsible for delivering Scotland's flood warning system, helping to implement Scotland's National Waste Strategy and controlling, with the Health and Safety Executive, the risk of major accidents at industrial sites.

SEPA has clear statutory duties to protect biodiversity through its regulatory and other functions. SEPA's lead roles in River Basin Management and Flood Risk Management Planning and as a statutory consultee in the Town and Country Planning system also present us with duties and opportunities to further the conservation of biodiversity. Our contribution through these functions during 2011-14 is described in section 3 below. SEPA also monitors and reports on the state of the environment, including direct measures of biodiversity (see section 4 below).

Biodiversity initiatives/groups in which SEPA is active:

In summer 2013, Scottish Government launched a refreshed Scottish Biodiversity Strategy (SBS) '2020 Challenge for Scotland's Biodiversity'. SEPA is a key partner in the delivery of the Strategy, working with statutory agencies and NGO partners to influence policies and delivery plans at the national level. SEPA participates in the Scottish Biodiversity Committee and its working groups (Delivery & Monitoring, Science & Technical, Habitats & Species, Marine, Communications), and chairs and organises the Natural Capital Group. SEPA is working with Scottish Government to develop a Biodiversity Delivery Agreement to set out the contribution that SEPA will make to the SBS.

SEPA is also a member of a wide range of national and regional groups working for biodiversity, for example the National Species Reintroduction Forum and its Beaver and Salmonid Working Group; the Scottish Biodiversity Information Forum; the Healthy Biodiverse Seas Evidence Group; Scottish Forum on Natural Capital; the Ecosystem Services Community (ESCom) partnership; the Phytophthora Scotland Steering Group, and several local biodiversity partnerships. SEPA participates in the Metropolitan Glasgow Strategic Drainage Partnership, the Scottish Green Infrastructure Forum, the Glasgow Clyde Valley Green Network Partnership and the Edinburgh Living Landscape Initiative

to promote the benefits of green networks and green infrastructure in Scotland, including the important benefits for biodiversity. In this topic area, we also work with a range of partners such as Greenspace Scotland and the Central Scotland Green Network Trust. Our work with many of the above partnerships (and others) is described in Section 5 below.

SEPA preparations for contributing to the 2020 Challenge:

During 2014, SEPA has been revising its Biodiversity Position Statement (from 2010) to take account of the new priorities for Scotland's biodiversity in the Scottish Biodiversity Strategy's 2020 Challenge document. This revised position statement will be published early in 2015. SEPA has also been identified by Scottish Ministers as a key delivery organisation for the 2020 Challenge. As such, along with other key partners, SEPA is working to develop a Delivery Agreement with Scottish Government on the contribution it will make to delivering the 2020 Challenge's objectives. This document will also be completed early in 2015.

Leadership

SEPA Internal Environmental Policy – biodiversity:

SEPA seeks to deliver an exemplary internal environmental policy and this includes the area of biodiversity. SEPA's published Internal Environmental Policy¹ states that: "SEPA will lead by example by encouraging and enhancing biodiversity on its own estate." Detailed information on our performance and work on the ground in this area is provided in Section 2 below.

Non-Native Species - lead role for freshwaters:

There are in excess of 900 non-native species recorded as released or escaped into the Scottish environment. The great majority of these cause few or no problems, ecologically or economically. A small number, however, have great potential to damage habitats and species, human health or the economy. These are generally referred to as invasive non-native species (or invasive alien species). Under Scottish law, certain organisations have responsibilities for coordinating responses to invasive non-native species; these are detailed in the [Code of Practice on Non-Native Species](#) published by the Scottish Government. While Scottish Natural Heritage is identified as the overall lead coordinating body, and also has specific responsibility for terrestrial habitats, SEPA is the lead body for standing and running freshwater habitats. SEPA contributes to the work of the NNS Statutory Group, developing procedures and guidance to enable lead bodies to fulfil their roles under the Code of Practice. The Scottish Non-Native Species Action Group (formerly the NNS Working Group) now acts as the SBS delivery group for NNS issues.

SEPA has begun to put in place processes to deliver its habitat lead responsibilities. A key delivery mechanism will be the existing partnership working on programmes of measures through the RBMP process, for which a supplementary plan on invasive non-native species has been developed: [Managing Invasive Non-Native Species in Scotland's Water Environment: A Supplementary Plan to the River Basin Management Plans](#). SEPA is promoting good biosecurity practices, supporting national campaigns. [Be Plant Wise](#) gives advice to gardeners and pond owners, and the [Check Clean Dry](#) campaign provides information for water users such as anglers, boaters and canoeists. Through 2011-14, SEPA field staff have followed the [SEARS biosecurity protocol](#) to minimise the risk of spreading non-native species, pests and diseases during the course of their work.

In the case of terrestrial species, the lead organisation is Scottish Natural Heritage, but SEPA continues to have a role in relation to consulting on the [use of herbicides](#) in or near watercourses, and is responsible for ensuring that [Japanese knotweed waste](#) is managed and disposed correctly. We have produced and updated, during the period 2011-2014, regulatory guidance on [the on-site management of Japanese Knotweed and associated contaminated soils](#).

Organisational change for ecosystem services – SEPA Change Programme:

Ecosystem services are the benefits people receive from the natural environment. They include products that come from nature², processes that look after and help manage our environment³ and

¹http://www.sepa.org.uk/about_us/greening_sepa.aspx

² Products such as food, water, construction materials and energy. For example, woodlands provide timber, agricultural fields provide crops, flower-rich heaths provide a habitat for honey bees, the sea provides fish, rivers and lakes provide drinking water

positive experiences that people gain from the natural environment⁴. These services are recognised as being very important to human health, survival and wellbeing, and their provision relies fundamentally on a healthy functioning environment, as shown by the [UK National Ecosystem Assessment](#).

SEPA's vision is that Scotland's environment is clean, healthy, productive, diverse and well protected, and its (ecosystem service) benefits are valued by citizens, businesses and public bodies. We are developing a framework based on ecosystem services to allow us to take account the benefits of nature in the decisions we make and influence. This includes developing methods to assess how ecosystems and their services are affected by activities proposed in river basin management and flood risk planning. We are working collaboratively with the Scottish Government and other agencies and our partners in industry and business to develop this new way of working. A key element of SEPA's [Change Programme](#) since 2013 has been to begin to embed processes that take account of the value of benefits from nature into SEPA's core activities. This transformational change process is seeking to allow SEPA's staff to work in better, more effective ways, targeting resources where they are most needed, to deliver measurable outcomes for the environment and contribute to the health and wellbeing of Scotland's communities and the economy.

Section 2. Action taken to improve biodiversity conservation on the ground

SEPA's formal reporting of action for biodiversity on its own estate is published on our website [here](#). All of SEPA's offices with grounds under its control had a biodiversity action plan in place by March 31st 2011. By March 2014, SEPA operated from 24 offices, 19 of which have grounds. All 19 of these offices submitted a new biodiversity action plan in 2013-14. The content of all plans produced in 2013-14 includes proposed outreach work, links to national and local biodiversity projects and planned methods of measuring success. These include survey, photographic records and wildlife sightings. Staff use a bespoke form for uploading wildlife sightings at SEPA office grounds to [iRecord](#), a website for managing and sharing wildlife observations (and photos). Data submitted to iRecord will be publically accessible through the National Biodiversity Network Gateway in due course.

Practical actions taken on the ground include, most commonly, installing bird feeders, pollinator-friendly and/or native planting, and grassland meadows created through selective mowing. Other practical measures have included bird boxes, log piles, container planting, native species hedges edible gardens, bat boxes, planting of native hardy trees and shrubs, hedgehog hibernation boxes and pond creation. During 2013-14, SEPA reported that it also took forward a range of local activities and participated in outreach work to "spread the message" to other stakeholders.

Section 3. Mainstreaming

Regulation:

Protecting habitats and species is an integral part of SEPA's regulatory remit. SEPA is responsible for setting standards in environmental licences that protect and help to improve the quality of land and soil, air and water. This area of SEPA business probably makes the greatest contribution overall to conserving and enhancing biodiversity, both directly where we take specific account of potential impacts on a species or habitat when assessing an environmental licence application, and indirectly through the overall reduction of potentially damaging pollutants and regulation of potentially damaging activities. In doing so, SEPA helps to protect both biodiversity and the natural services (ecosystem services) that ecosystems provide to individuals, businesses and wider society. Over the period 2011-14, SEPA has successfully operated its Nature Conservation Procedure for Environmental Licensing to ensure that our regulatory decisions, across the range of regulatory regimes for which SEPA is responsible⁵, implement our statutory duties to protect the designated features of European conservation sites (Special Areas of Conservation and Special Protection Areas)⁶ and Sites of Special

³ Processes such as managing climate and flooding, diluting and treating pollutants, and ensuring that crops are pollinated. Examples include rivers diluting and processing discharges from industry; peatlands storing carbon; floodplain woodlands slowing the flow of water, reducing flood risk to homes; and flower-rich meadows, sustaining insects, which allows the pollination of crops.

⁴ Positive experiences such as outdoor recreation, aesthetic experiences, and providing a setting for research and education.

⁵ For example, [Controlled Activities Regulations for the water environment](#), [Process Industry Regulation](#), [Waste Management Licensing](#) and [Radioactive Substances regulation](#).

⁶ Under the Conservation (Natural habitats, etc.) Regulations 1994 as amended

Scientific Interest⁷. We have continued to employ a set of freshwater standards agreed with Scottish Natural Heritage to ensure that licensing under the Controlled Activity Regulations regime protects the features of freshwater Special Areas of Conservation (especially rivers) during licensing.

The majority of applications of the Nature Conservation Procedure have been for controlled activities in freshwaters (under the CAR Regime, for point-source discharges, water abstractions for hydro power and other purposes, and engineering and impoundment works). We have, however, also undertaken many Habitats Regulations Assessments and SSSI damage assessments for marine cage aquaculture and emissions to air, including for energy from waste/ biomass facilities, pig or poultry farms and for one major coal-fired power station proposal at Hunterston.

During the period 2011-14, we have also continued to use regulation, steered by the River Basin Management Planning process and primarily through our first 14 [diffuse pollution priority catchments](#), to address diffuse pollution while delivering multiple benefits for freshwater and terrestrial biodiversity. The Lowes chain of lochs (between Dunkeld and Blairgowrie) are of conservation importance as designated sites (SSSIs and SACs). They are also part of the Tay Diffuse Pollution Priority Catchment. Action to improve the lochs for biodiversity and reduce diffuse pollution is driven by the Tayside Lochs partnership. As an example of work we are involved in to improve biodiversity through RBMP, the status of a rare, protected aquatic plant in the lochs, slender naiad *Najas flexilis*, is being studied using palaeoecological techniques through a 3-year PhD studentship.

Planning:

SEPA's duty to protect biodiversity applies to our role as a statutory consultee in the development planning process under the Planning etc. (Scotland) Act 2006. We provide formal environmental advice on development proposals across Scotland. Biodiversity protection is considered as a cross-cutting theme and will be integrated into SEPA staff guidance and subsequent advice to planning authorities. During the last three years, SEPA has developed guidance on how to assess impact upon wetlands and Groundwater Dependent Terrestrial Ecosystems as part of our Planning guidance on windfarm developments. We have created a wetland typology, an easily usable way of naming the various major types of wetlands in Scotland. The typology will help applicants to provide the right level of information to planners and regulators. Where wetlands are present, there may also be issues relating to surplus peat; we have produced a [Regulatory Position Statement – Developments on Peat](#). SEPA staff across the organisation have been kept up to date with changes to this planning guidance, and its supporting policies, through wetland and peat soil training programmes, to raise awareness of the environmental issues raised by development in wetland and deep peat soil habitats.

River Basin Management Plans (RBMP):

River Basin Management Planning is a statutory requirement arising from the European Water Framework Directive. River basin plans for the [Scotland](#), and [Solway Tweed](#) river basin districts set targets for improving water quality, impacts on flows and levels and the physical condition of the water environment and preventing deterioration. River Basin Management Planning provides a process through which SEPA and partners can work together to identify pressures, then prioritise and deliver biodiversity enhancement and protection of the water environment. Since 2008, the Scottish Government has provided funding for a [Water Environment Fund](#) (previously known as the Restoration Fund) to deliver non-regulatory improvements to the physical condition of the water environment. The fund has progressively increased to its current level of just over £2 million in 2013/14. Delivering improvements to the physical condition of the water environment is a key challenge in the delivery of the river basin management plans. The condition of the beds, banks and shores of 22% of Scotland's water bodies are not meeting good status or potential due to an historical legacy of pressures such as barriers to fish migration and engineering. The vast majority of these pressures fall out with the scope of current regulation. The primary delivery mechanism for required improvements is the provision of support and funding for voluntary improvements and working in partnership with others. Through the period 2011-2014, the [Water Environment Fund](#) has supported a wide range of projects to improve the physical condition of the water environment, restoring important habitats and, thus, delivering benefits for biodiversity.

SEPA is part way through delivering a [funded pilot catchment project](#) which aims to work with local landowners and land managers on a voluntary basis to demonstrate how we could combine

⁷ Under s.15 of the Nature Conservation (Scotland) Act 2004

improvements to river habitats, with measures that will help to reduce flood risk, whilst ensuring proper consideration of existing land use. The project is focusing on four catchments: River Dee; River South Esk; River Nith and Glazert Water (part of the River Kelvin catchment). Harnessing opportunities to achieve multiple benefits is an important part of the project. Designing measures in a way that can also help reduce diffuse pollution, improve biodiversity, contribute to climate change adaptation, deliver access opportunities, and protect and improve protected areas will all add considerable value to the project.

A significant new element of the RBMP process being developed as part of the RBMP2 is the incorporation of ecosystem services as a way of assessing and understanding the benefits that people, society and the economy receive from the water environment. SEPA has provided [an application on its RBMP web pages](#), to describe the many benefits that people receive from the water environment. These include the delivery of products, functions and processes upon which we depend for our quality of life. This is the first time that data of this kind have been collated and, as such, it will be subject to on-going refinement. This application supports the analysis as required under Article 5 of the Water Framework Directive. It is linked to its associated applications relating to the [impact of climate change and land use change](#) and [environmental characteristics, risks and issues](#), and also supports the implementation of the Scottish Biodiversity Strategy.

Flood Risk Management Planning:

SEPA's responsibilities under the Flood Risk Management (Scotland) Act 2009 include the development of a Flood Risk Management Strategy covering 14 Local Plan Districts in Scotland. The strategy summarises the main flooding issues and flood impacts within each District, and sets out a vision for how flooding should be managed. At the time of publishing this Biodiversity Duty Report (December 2014), SEPA is preparing a Strategic Environmental Assessment for the Flood Risk Management Strategy, ensuring that the envisioned measures to address flood risk are sustainable. Natural flood management can be a key component in providing sustainable flood management solutions. Natural flood management measures include restoration of functional wetlands, floodplains and associated habitats, strategic location of woodlands, riparian habitat creation to reduce bank erosion and restoration of the natural route of artificially straightened or canalised watercourses. The additional (multiple) benefits, including benefits for biodiversity, associated with natural flood management measures are currently being explored through three restoration projects - [The Allan Water](#), [The Eddleston Water](#), and [Firth of Forth Futurescapes](#).

Section 4. Monitoring and Reporting

SEPA has a duty to monitor and report on the state of Scotland's environment and to use that scientific understanding to inform our independent regulation of activities that may affect its quality. We publish a wide range of environmental information and advise Ministers, partner bodies, regulated industry and the public on environmental issues. We employ experts in many fields of science, including hydrology, chemistry, ecology, algology, ecotoxicology, hydromorphology, hydrogeology, and oceanography. Our scientists analyse a wide range of samples collected from across Scotland's air, land and water environments. We test for more than 500 individual chemical parameters and the diversity and abundance of 2,000 plant and animal species in marine, freshwater and terrestrial habitats. We also conduct analyses of solid waste arisings and audit check analyses of gaseous emissions to the atmosphere. In a typical year, we collect around 50,000 samples and deliver 700,000 determinations in supporting SEPA's statutory monitoring (EC directives) and its general duty to assess and report on the state of Scotland's environment.

SEPA maintains and operates a network of 418 gauging stations and 515 rain gauges and provides a national flood warning and forecasting service. This allows us to provide detailed sustainable flood management and planning advice. SEPA holds over 30 years of hydrometric data for Scotland's rivers. These data are invaluable in characterising the long-term pressures on Scotland's environment, particularly in relation to the assessment and management of the consequences of climate change. Our testing, analysis and interpretation covers a wide range of environments throughout Scotland, including contaminated land, fresh and saline waters, soils and sediments, sewage and industrial effluents, leachates, fauna and biota, and landfill gases. Data from our national wetland monitoring network (over 70 monitoring locations) has contributed to improving the scientific understanding of the hydroecology of these habitats in a Scottish setting. These long-term data are

being used to inform many conservation and flood management projects, such as the proposed floodplain re-connection works at RSPB Insh Marshes (RAMSAR, SAC, SPA).

SEPA operates a rigorous formal quality assurance system for its monitoring and assessment functions and, through this, delivers environmental measurements with a high level of robustness and credibility. Our Quality Assurance system is compliant with international standards ISO/IEC 17025, ISO 9001:2000, and ISO 14001, and is monitored and externally audited by UKAS and LRQA. We are accredited for 328 tests and, in some cases, have the only UKAS-accredited laboratory in the UK.

Air biomonitoring:

Compared with its monitoring regimes for the water environment, SEPA does not currently collect significant amounts of ecological data through air biomonitoring. We have recently begun to develop a strategic approach to identifying the designated sites at greatest risk of impacts from current and proposed emissions and targeting focused biomonitoring on these areas. Also, a number of SEPA biomonitoring method development initiatives have recently concluded (e.g. soil, lichen and higher plant bio-indicators), providing the basis for selecting a range of effective monitoring methods.

In 2014, we ran training for our Ecology staff to provide them with field survey skills to support this work. This training was then applied in Biomonitoring pilot monitoring work undertaken on 16 Special Areas of Conservation, trialling the methodology that we intend to extend in 2015 to include additional habitats and locations. This and our Biomonitoring Strategy should further support SEPA's statutory assessment of likely impacts during permit determinations. An air biomonitoring strategy will improve SEPA's understanding of the biomonitoring requirements of its operational regulatory activities and improve its scientific expertise to support regulation.

Earthworm and soil microbe monitoring:

Our soil scientists use a combination of chemical and biological indicators to try and establish whether the application of waste to land has a harmful effect on soil quality. The indicators used by our scientists include microbial biomass carbon and earthworm populations and diversity. SEPA's monitoring of earthworms is improving understanding in Scotland of the diversity and distribution of this important group of soil engineers. Earthworms fundamentally affect several soil characteristics, such as porosity, aeration, water holding capacity, density, recycling and distribution of organic matter and nutrients. Over the past three years, SEPA has typically collected 100 microbial biomass carbon samples and undertaken 30 earthworm surveys per year.

Water environment classification results:

SEPA produces an annual classification for all the water bodies in Scotland. The aquatic classification system covers rivers, lochs, estuaries, coastal and groundwater bodies, and is based on a classification system with five quality classes. It was devised following EU and UK guidance and is underpinned by a range of biological quality elements, supported by measurements of chemistry, hydrology (changes to water levels and water flows) morphology (changes to the beds, banks and shores of water bodies) and assessment of invasive non-native species.

The most recent report of SEPA's water classification results was [published on SEPA's website](#) in December 2014, covering classification of Scotland's water environment up to 2013. Real improvements have been made to the quality of many water bodies, with around 100 already restored to good ecological status at the end of 2013, including river water bodies representing around 1,000 km of river. In the main, the improvements have been secured by requiring licensed operators to reduce impacts arising from discharges of pollutants or water abstractions, and by working with partners, such as the Rivers & Fisheries Trusts for Scotland, to remove barriers to fish migration.

Section 5. Partnership working and Biodiversity Communications

SEPA is engaged in many partnerships which work to protect, improve and enhance the biodiversity of Scotland. Links and some additional descriptions are provided below for a wide range of examples.

Local Biodiversity Action Plans (LBAPs):

SEPA retains involvement in a number of LBAPs, where it is represented by both local operational staff (e.g. Orkney) or Ecology staff (e.g. Tayside Biodiversity Partnership). An example of an LBAP

biodiversity initiative where SEPA is a key partner is that in the North East LBAP which is working towards a large loch restoration project in Aberdeenshire.

Land and water management initiatives with biodiversity interests:

SEPA is engaged with several initiatives that aim to deliver a better integrated approach to land and water management. Chief among these are the two pilot projects of the Land Use Strategy, in the Scottish Borders and Aberdeenshire, and the SEPA-led SW Scotland catchment management initiative:

- **Pilot - Land Use Strategy (Scottish Borders)**
- **Pilot - Land Use Strategy (Aberdeenshire)**
- **SEPA SW Scotland catchment management initiative**- The South West Scotland Catchment Management Initiative began as a pilot project in 2000. It aimed to deliver the objectives contained within the wetland section of the **Dumfries & Galloway Local Biodiversity Action Plan**.

Data/ Information initiatives:

Scotland's Environment Web (SE Web) is a major environmental data and information initiative for Scotland, commenced by SEPA in early 2010, when work began on building a **wide partnership of government, agencies and non-governmental organisations**, and an initial pilot website, which went live in November 2011. Since September 2011, the development of SE Web has been supported by a four-year funding award from the **European Union's LIFE+ programme**.

The main driver for establishing Scotland's Environment Web was the recognition that data and information on Scotland's environment was scattered across a wide range of websites in differing formats. As a result, it was difficult to bring together the monitoring information collected by different organisations and develop a coherent understanding of the condition of Scotland's environment, the pressures on the environment and what we are doing to address these. The intention is that Scotland's Environment Web brings together information on Scotland's environment so that it is easily available and in a suitable form for all users. It aims to become the first place that anyone would choose to look for reliable and accurate information on Scotland's environment from known and trusted sources. An important element of Scotland's Environment Web is **the provision of maps** showing a wide range of environmental data and information, which can be tailored to the interests of the user. Improving access to biodiversity data on the National Biodiversity Network Gateway has been a key work area for SE Web during 2014.

Scotland's Environment Web also provides, for the first time, a **comprehensive State of The Environment report** for Scotland, prepared by the range of organisations responsible for monitoring and reporting on the environment, and updated in 2014. This also reports, for each major water and land type, on the state of Scotland's wildlife (biodiversity). As well as coordinating the editorial process for the whole State of Environment report, SEPA also authored the two chapters on the state of **freshwater** and **estuarine and coastal** biodiversity, and the chapter on **Benefits from the Environment (ecosystem services)**. In support of this latter chapter, SEPA also produced **an engaging diagram**, to illustrate in an accessible form what the environment does for people.

Scottish Biodiversity Information Forum (SBIF):

The **Scottish Biodiversity Information Forum (SBIF)** was established in June 2012 following discussions within the biodiversity community in Scotland. Its aim is to benefit biodiversity by improving the flow of biological information between organisations and individuals that collect data, and users of that data. SEPA provided a small amount of financial support for the establishment of an SBIF Officer post to help take forward the aims of the partnership, and also participates in the SBIF Executive and Steering Groups as well as the Data Flow sub-group.

Ecosystem Services and Natural Capital:

SEPA chairs and organises the **Natural Capital Group**, one of the working groups under the Scottish Biodiversity Strategy, which held its inaugural meeting in March 2014. The key five priorities are to: measure the state of Natural Capital; share information widely to underpin common objectives and targets; value and account for natural capital and ecosystem services; demonstrate improved natural capital management; and assess effectiveness of current policy and implementation mechanisms for improving natural capital management. One priority task is to assess and analyse current application of policies, implementation instruments and assessment tools for their utility in managing for natural

capital. This work is being taken forward as a joint task with the [Scottish Forum on Natural Capital](#), engaging directly with businesses in this assessment.

Following partnership building and project development through 2013-14, in 2014-15, SEPA is contributing funding to developing an ecosystem services mapping toolkit - EcoServ GIS - for application in Scotland. The project is co-ordinated by Scottish Wildlife Trust, and partners include: SEPA, SNH, Glasgow Clyde Valley Green Network Partnership, and North Lanarkshire Council. The aim of this project is to map and display local ecosystem services to improve understanding of ecosystem services provision to help inform and support management plans and policy, and to be used as an engagement tool for community and decision makers.

During 2014, SEPA became a partner in a collaboration with Scottish Hydro Electricity Transmission Plc in the VALUES project (“[VAL](#)uing [L](#)and [U](#)se change and [E](#)cosystem [S](#)ervices”). This project seeks to combine environmental data sets to build a prototype Geographical Information System (GIS) based tool which will support identification of optimum routes for large-scale, corridor-style infrastructure developments, in terms of the social, economic and environmental cost of land-use change, and also identifies areas of high ecosystem services value where mitigation action would be of particular benefit. The VALUES project was a joint bid in response to a funding call issued by Innovate UK for proposals under the theme “Solving Business Problems With Environmental Data”.

Green networks and Green Infrastructure:

Over the period 2011-14, SEPA has extended its involvement with partnership working to promote, encourage and develop green networks and green infrastructure in Scotland. SEPA is a member or advisor of several such partnerships:

- [Metropolitan Glasgow Strategic Drainage Partnership \(MGSDP\)](#) - The Partnership's overarching aim is to provide a holistic approach to managing surface water which will reduce flood risk and unlock development potential, while improving water quality and allowing residential areas to harmonise with the natural landscape and greenspace areas
- [Glasgow & Clyde Valley Green Network Partnership](#) – SEPA has been a funding member since 2013
- Edinburgh Living Landscape Partnership, which was [officially launched](#) in November 2014
- [Scottish Green Infrastructure Forum](#)

Native species:

Following the devolvement to Scottish Government of delivery of the UK's Biodiversity Action Plan in Scotland, SEPA has retained involvement in a number of species-specific partnerships:

- SEPA is a member of the Otter and Water Vole UK species action plan steering groups
- SEPA is a member and participates in meetings of the [National Species Reintroduction Forum](#) and its Beaver and Salmonid Working Group
- SEPA is also a member of the [Tayside Beaver Study Group](#) and has contributed environmental monitoring resource to the official beaver reintroduction trial in Knapdale, the [Scottish Beaver Trial](#), during the period 2011-14

Non-native species:

Following on from SEPA's habitat lead role for Invasive Non-Native Species in Freshwater habitats (See section 1 of this report), we have been involved in 2011-14 in a number of relevant partnerships:

- Scottish Statutory group on non-native species
- Scottish Non-Native Species Action Group
- UKTAG Alien Species Group
- GB non-native species media and communications group
- GB non-native species training (task and finish) group
- GB biosecurity working group
- GB non-native species freshwater biosecurity task group (Killer Shrimp and Quagga Mussel)
- British Irish Council working group on Invasive Non-Native Species

Marine groups:

[Marine Alliance for Science and Technology for Scotland \(MASTS\)](#) is a consortium of organisations engaged in marine science and represents the majority of Scotland's marine research

capacity. As well as having membership of the MASTS Advisory Board, of most direct relevance to biodiversity, during 2011-14 SEPA participated in working groups on Marine Biodiversity Structure and Function and on Coastal Ecosystems.

Awareness raising and communication about biodiversity:

- Phone apps – SEPA contributed to the development of non-native species recording apps: [PlantTracker](#), [AqualInvaders](#) and [Sealife Tracker](#)
- SEPA has, through 2014, been leading the development of a citizen science non-native species portal for SE Web, to be completed and launched in 2015
- SEPA is contributing to the development of [Ecosystem Health](#) Indicators and [Biodiversity](#) Indicators as part of the Scottish Biodiversity Strategy's "2020 Challenge"
- Between 2011 and 2014, SEPA was a partner in the organisation and running of several SNH Sharing Good Practice Events, including on:(a) [Invasive Non-Native Species](#) (b) [Biosecurity](#) (c) [Ecosystem Services for Land Managers](#) (d) [Citizen Science and Environmental Monitoring](#)
- SEPA commissioned a report from the Centre for Ecology and Hydrology on best practice in citizen science for monitoring the environment. The work was published in May 2014 [on the CEH website](#).

Building Capacity:

Through 2011-14, we built the capacity of staff across our offices to take biodiversity action the ground through our Greening SEPA policy. We also ran internal training for wetland typology, peat and windfarms and air biomonitoring methods. In 2014, we began revision of our internal biodiversity training, with the intention of creating online training modules.

Section 6. Biodiversity Highlights of the Past Year

As much of SEPA's contribution to the protection and enhancement of Scotland's biodiversity arises from our routine regulatory work, supported by high quality scientific advice and data, we would first and foremost wish to highlight the successful ongoing delivery of protection for the water, soils and air of Scotland through our regulatory processes. Other specific biodiversity highlights of the past year are:

- Significant improvements in the ecological status of 100 water bodies, restored to good ecological status at the end of 2013, including river water bodies (around 1000 km of river)
- The establishment of River Basin Management Plan pilot catchment projects where biodiversity improvements will be one of the multiple benefits secured
- Air biomonitoring pilot work undertaken on 16 Special Areas of Conservation, thus successfully trialling a methodology that we intend to extend in 2015 to include additional habitats and locations
- The updating of SEPA's Biodiversity Position Statement
- Drafting of our 2020 Challenge Delivery Agreement with Scottish Government
- The successful incorporation of ecosystem services assessments into the Strategic Environmental Assessments for all 14 of new Flood Risk Management Strategies for Scotland
- The successful establishment of the Scottish Biodiversity Strategy's Natural Capital Group (NCG), with chairing and secretariat provided by SEPA. The key priorities have been developed and agreed, the first two meetings held, and delivery sub-groups established and working well for several of the NCG's priority tasks
- The establishment of two partnerships, and contributory finding from SEPA, to take forward development of ecosystem service assessment tools (VALUES and EcoServ)

Key future challenges:

Looking ahead, the main challenge for SEPA will be to make our contribution to delivering the 2020 Challenge, and our Delivery Agreement with Scottish Government will define and identify the key opportunities for this task.