

Water for life and livelihoods

River Basin Management Plan
Northumbria River Basin District

Annex C: Actions to deliver
objectives

Contents

C.1 Introduction	2
C. 2 Actions we can all take	8
C.3 All sectors	10
C.4 Agriculture and rural land management	13
C.5 Angling and conservation	29
C.6 Central government	38
C.7 Environment Agency	46
C.8 Industry, manufacturing and other business	61
C.9 Local and regional government	71
C.10 Mining and quarrying	77
C.11 Navigation	83
C.12 Urban and transport	90
C.13 Water industry	96

C.1 Introduction

This annex sets out tables of the actions (the programmes of measures) that are proposed for each sector. Actions are the on the ground activities that will be implemented to manage the pressures on the water environment and achieve the objectives of this plan.

Further information relating to these actions and how they have been developed is given in:

- Annex B Objectives for waters in the Northumbria River Basin District
This gives information on the current status and environmental objectives that have been set and when it is planned to achieve these
- Annex D Protected area objectives (including programmes for Natura 2000)
This gives details of the location of protected areas, the monitoring networks for these, the environmental objectives and additional information on programmes of work for Natura 2000 sites.
- Annex E Actions appraisal
This gives information about how we have set the water body objectives for this plan and how we have selected the actions
- Annex F Mechanisms for action
This sets out the mechanisms - that is, the policy, legal, financial and voluntary arrangements - that allow actions to be put in place

The actions are set out in tables for each sector. For the purposes of this plan this is the sector that may be causing the pressure or is being affected by an action. 'Being affected' may mean that the sector is the one taking action or that the sector's activities are affected by an action implemented by others. Some actions will be noted against more than one sector, as one sector may be implementing action that requires another to take action in response.

The sectors are set out in table C1a below.

The tables set out the list of actions established at the outset of this plan period. It is expected that further measures will be identified during the implementation period for this plan. The plan includes many investigations that will help identify future actions, where it has not yet been possible to define these (see annex E). In some cases investigations are needed to confirm the pressure that is causing a problem, even before it will be possible to define an action. We also encourage sectors to put forward other measures so that these can be considered during the period of this plan.

Table C1b sets out an explanation of the headings in the actions tables. The subsequent tables set out specific actions relevant to each sector. For some measures we have included an example of the type of project that the action might generate. This does not mean the application of the measures is limited to the example only. It could apply in many locations across the RBD.

Table C1a: **Sectors**

Standard list of sectors			
Sector	Activity included	Sector	Activity included
Agriculture and rural land management	Dairy / beef, sheep, pig and poultry (including outdoor pigs) Mixed Arable Horticulture Forestry Land drainage (including Inland Drainage Boards) Other rural land development	Local Government	Local and regional government including planning authorities and national parks (including local authority urban drainage not covered by Water Industry)
Angling & conservation	Fisheries (angling) management Other habitat management (including conservation)	Mining and quarrying	Active mines and quarries Abandoned coal mines Abandoned other mines
Central Government	Defra Natural England Other central government organisations and agencies	Navigation	Ports / marinas Maritime shipping / boating Inland navigation
Environment Agency		Urban and transport	Private potable water management Private sewage management (inc. caravan parks etc) Road, air & rail transport Contaminated land Flood risk management Other development activities
Industry, manufacturing & other business	Power generation Chemical industry Oil industry SMEs / Industrial estates Construction Aquaculture Commercial fisheries (fresh, transitional & coastal waters – not angling) Waste management Retail industry Food & drink industry Recreation & tourism (not covered by boating or angling e.g. parkland / amenity)	Water industry	Sewage - treatment Sewage - collection (including intermittent discharges from combined sewage overflows) Sewage - other drainage (inc flooding & leaking sewers) Sewage - trade effluent management Sludge recycling to land Potable supply – treatment Potable supply – storage & transfer (inc. leakage) Potable supply - planning

Table C1b: **Example table of headings and descriptions**

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
<i>The pressure being managed</i>	<i>The action that will be taken</i>	<i>The location or geographical extent of the action</i>	<i>The date by which the action will be put in place. ("implemented" means that the action is already in place and able to have a beneficial effect)</i>	<i>The organisation responsible for delivering the action and other organisations that may be involved</i>
Investigations				
<i>Sets out investigations measures that will be put in place</i>				
Natura 2000 protected areas and SSSIs				
<i>Sets out measures that will be put in place for Natura 2000 protected areas and Sites of Special Scientific Interest</i>				

Strategic environmental assessment and actions

The purpose of the River Basin Management Plan is to improve the ecological status and potential of water bodies and so the environmental effects of the plan are predominantly positive. A Strategic Environmental Assessment was carried out that also considered the wider environment and identified potential adverse effects associated with some of the actions, as well as enhancements to add value to the measures included in the plan. Whilst many of the proposals to mitigate negative impacts are specific to the proposed action, others are applicable across a range of actions and will be considered at a project level. These generic mitigation measures are described in the table below. Further information is included in the statement of particulars – see <http://www.environment-agency.gov.uk/research/default.aspx> and go to Water Framework Directive.

Table 1c: **Generic mitigation to be applied when implementing actions**

Impact	Mitigation
Population and human health	Avoid adversely affecting existing routes of public access to the countryside and water bodies.
	Identify opportunities to improve public access to the countryside, water bodies or water based recreation
Biodiversity	Target any actions designed to improve biodiversity to those locations where the gains can be maximised.
	Identify opportunities to link with existing ecological networks, sites or features or proposed improvements.
	Identify opportunities where biodiversity improvements can also benefit local populations.
Cultural heritage	Before undertaking an action, determine whether there are any historical features that are likely to be adversely affected and undertake an appropriate level of project level assessment and mitigation.
Sustainability	Adopt a sustainable procurement policy
	Reuse materials or use recycled materials or those from renewable sources where possible
	Implement a waste management plan to minimise waste directed to landfill.
	Take steps to minimise the 'carbon footprint' of the action by reducing energy demand and the 'embedded energy' of any materials used.
Agriculture & biodiversity	Align agri-environment schemes to achieve biodiversity benefits and complement other biodiversity initiatives.

Habitats Regulations Assessment

A Habitats Regulations Assessment of this Plan was carried out by the Environment Agency in 2009. Natural England was consulted on the assessment and we have had regard to their advice.

Many of the measures in the Plan, most specifically those in Annex D, are designed to improve the water environment and help to maintain or restore Natura 2000 habitats and species at favourable conservation status. The overall purpose of the plan is to ensure no deterioration of the water environment and deliver the objectives

of individual water bodies (normally 'good ecological status'). However, the Habitats Regulations Assessment has identified certain types of measure in the plan with potential to negatively effect Natura 2000 sites. Whether a negative effect is likely depends on the exact location, spatial scale, nature and timing of the measure. The details necessary to make reasonable predictions about the effects on Natura 2000 sites will not be developed until the measures are progressed towards implementation.

We have concluded that the plan itself is unlikely to have any significant negative effects on any Natura 2000 sites. The Plan itself does not require further assessment under the Habitats Regulations. This conclusion is reliant on the fact that before any measures in the plan are implemented they must be subject to the requirements of the Habitats Regulations. Any plans, project or permissions required to implement the measures must undergo an appropriate assessment if they are likely to have a significant effect.

Responsibility for Habitats Regulations Assessment of plans, projects or permissions required to implement the measures in this Plan remains with the relevant competent authority, for example if the measure requires planning permission the Local Authority will be the relevant competent authority. In most circumstances, a competent authority can only agree to a plan, project or permission when it has ascertained that it will not adversely effect the integrity of a Natura 2000 site. Changes to the measures in this plan may be required to avoid adverse effects on the integrity of any Natura 2000 sites.

C. 2 Actions we can all take

There are actions that we can all take to help protect and improve the water environment.

Table C2: **Actions we can all take**

Pressure	What will happen
Abstraction and other artificial flow pressures	Ask your water company to fit a meter. On average, this could reduce your household water bill.
Abstraction and other artificial flow pressures	Choose plants that tolerate dry conditions for your house, balcony or garden. To help lawns through dry periods, don't cut them too short.
Abstraction and other artificial flow pressures	Fix dripping taps, and lag pipes to avoid them bursting in freezing weather.
Abstraction and other artificial flow pressures	Consider installing a grey-water recycling system in your home, block or workplace. This can save one third of domestic mains water usage.
Abstraction and other artificial flow pressures	Install a 'hippo' or 'save-a-flush' in your toilet cistern.
Abstraction and other artificial flow pressures	Install a low-flush toilet, put flow regulators on your taps and showers, and install waterless urinals at work.
Abstraction and other artificial flow pressures	Run your dishwasher or washing machine with a full load on economy setting, and boil the minimum you need in kettles or saucepans.
Abstraction and other artificial flow pressures	To save water in your garden, collect rain in a water-butt, water at the beginning or end of the day, mulch plants, and avoid sprinklers or hosepipes without trigger nozzles.
Abstraction and other artificial flow pressures	Turn off the tap when brushing your teeth, and take short showers rather than baths.
Abstraction and other artificial flow pressures	Wash fruit and vegetables in a bowl rather than under the running tap - and use the remainder on your plants.
Direct biological pressures	Adopt-a-beach to help keep beaches clean and stop litter at source.
Direct biological pressures	Eat fish from sustainable sources, caught using fishing methods that don't cause damage to marine wildlife and habitats.
Direct biological pressures	Eliminate invasive non-native species, such as Himalayan Balsam and the aquatic plant: Parrot's Feather, from your garden. They can have a negative effect on native species and the water environment. Please dispose of them responsibly.
Direct biological pressures	Put cotton buds and other litter in the bin, not down the toilet. It may end up in the sea where it can harm wildlife.
Nutrients, Organic pollution, Sediments, Priority Hazardous Substances, Priority Substances and Specific Pollutants	Check that your household appliances connect to the foul sewer, not the surface water drain.

Pressure	What will happen
Nutrients, Organic pollution, Sediments, Priority Hazardous Substances, Priority Substances and Specific Pollutants	Ensure your septic tank or private sewage treatment plant is well maintained and working effectively.
Nutrients, Organic pollution, Sediments, Priority Hazardous Substances, Priority Substances and Specific Pollutants	Use kitchen, bathroom and car cleaning products that don't harm the environment, such as phosphate-free laundry detergents, and use as little as possible. This helps prevent pollution at source.
Nutrients, Organic pollution, Sediments, Priority Hazardous Substances, Priority Substances and Specific Pollutants	When you see pollution or fly-tipping, phone us on 0800 807060.
Nutrients, Organic pollution, Sediments, Priority Hazardous Substances, Priority Substances and Specific Pollutants, Direct biological pressures	Adopt-a-river to spot pollution, invasive non-native species, and take part in practical tasks.
Priority Hazardous Substances, Priority Substances and Specific Pollutants	Ensure your household oil storage is in good condition, with an up-to-date inspection record.
Priority Hazardous Substances, Priority Substances and Specific Pollutants	Take waste oil and chemicals such as white spirit to your municipal recycling facility: don't pour them down the sink or outside drains.
Save water: in your house or office	Ensure extensions or conservatories have their roof water draining into a soakaway or sustainable drainage system and are not connected to the combined sewer.
Save water: in your house or office	Ensure that any off-road parking or patio around the house use permeable materials so rain can soak into the soil.

C.3 All sectors

Many actions will apply to all sectors.

Table C3: **Actions for all sectors**

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Abstraction and other artificial flow pressures	Extension of abstraction control to include previously exempt areas	Tees; Tyne; Wear; Northumberland Rivers Catchment	2012	Environment Agency
Microbiology; Nutrients; Organic pollutants; Priority Hazardous Substances, Priority Substances and Specific Pollutants; Sediments (as a direct pollutant)	Make use of the Town and Country Planning Act authorisation process to help minimise risk of diffuse pollution from new developments (e.g. implement sustainable drainage systems (SuDS) and use of Water Resource Act Planning Guidance)	Northumbria RBD	Implemented	Local Authorities

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Organic pollutants; Acidification; Direct biological pressures; Nutrients; Physical modification; Priority Hazardous Substances, Priority Substances and Specific Pollutants; Sediments (as a direct pollutant); Microbiology	Where appropriate, subject to the Environment Agency carrying out a 12 week public consultation and making an appropriate case to the Secretary of State, designate a limited number of Water Protection Zones (WPZ). These are a regulatory tool to control diffuse pollution in high risk areas where other mechanisms are not working or are unlikely to work. Initially around 8 candidate locations across England. Potential for designation from 2010 with a possibility of further WPZs by 2012	Northumbria RBD	2012	Environment Agency
Physical modification	Plans, processes and programmes (such as the Environment Agency's Navigation and Recreation strategies) will be aligned to the requirements of hydromorphology to achieve WFD objectives (especially ecological potential). This will be two fold i) mitigation measures required to reach good ecological potential to be delivered through such plans will be identified and ii) the prioritisation of environmental improvements will be influenced by the specific requirements to reach WFD objectives.	Northumbria RBD	Implemented	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Physical modification	The Environment Agency will develop and share a GIS linked hydromorphological database. This will supply data to help better understand the hydromorphological impacts of modifications to water bodies. It will feed information into the approval/assessment processes to ensure new modifications comply with WFD requirements, especially those related to Article 4 (7).	Northumbria RBD	2010	Environment Agency
Investigations				
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Saltburn Gill feasibility study	Tees Mercia Mudstone & Redcar Mudstone	2015	Voluntary sectors
Physical modification	Monitoring and investigation into mitigation measures techniques to establish the effectiveness of these measures and improve understanding of hydro-morph-ecological interactions. Outcomes will have a national application.	Northumbria RBD	2011	Environment Agency

C.4 Agriculture and rural land management

The Northumbria River Basin District is one of contrasts ranging from the remote upland areas of the North Pennines and Cheviots with their extensive blanket bogs, grouse moors and conifer plantations, to the industrial lowlands of south east Northumberland and the Tyne, Tees and Wear estuaries.

The rural areas of the Northumbria River Basin District are also diverse with a number of distinctive features, around 67% of the total land area is farmed or used for forestry. These range from outlying areas with small, isolated settlements and a continuing reliance on hill farming, forestry, fishing and quarrying, through small settlements which are also important as service and employment centres, to the urban fringe areas and communities which mining, extraction and heavy industries once supported. The lowlands in the east and river valleys such as the Coquet, Tyne Wear and Tees support a wide range of productive arable and livestock farming.

Agriculture, forestry and moorland management all have the potential to impact on the water environment. Although overall the number of direct pollution incidents from agriculture and forestry has decreased in recent years, in some areas there is the need to reduce the impact of diffuse pollution on rivers and ground waters from manures, sediment, fertilisers and pesticides. Much can be achieved by improved soil management, optimum resource efficiency (including nutrients and water) and adoption of best practice.

Tourism is an important element of the rural economy, supported by some of the most valuable natural resources and cultural assets in England, with many historic buildings and settlements. These include, Hadrian's Wall, a World Heritage site which crosses the region and some of the largest areas of uninterrupted space and tranquillity in England. The majority of the upland areas, and some of the northern coastal areas, are of national and international environmental importance; many of the region's rivers also fall into this category. The River Tyne has recovered to become one of the best salmon rivers in England. Clearly improved land management practice can reduce the impact on the water environment, provide cost savings for farmers as well as benefits for the wider rural economy.

Table C4: **Actions for the agriculture and rural land management sector**

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Abstraction	Extension of abstraction control to include previously exempt uses (abstractions by Ports and Harbour authorities from tidal waters under certain conditions likely to remain exempt)	Northumbria RBD	2012	Environment Agency
Abstraction and other artificial flow pressures	Encourage farmers to build winter storage reservoirs.	Northumbria RBD	2012	Regional Development Agencies; Environment Agency; Industry leads; National Farmers' Union
Abstraction and other artificial flow pressures	Registration for previously exempt activity: abstraction of water within water meadow systems	Northumbria RBD	2012	Environment Agency
Abstraction and other artificial flow pressures	Targeted work with key abstracting groups to promote water efficiency.	Northumbria RBD	2012	Environment Agency; National Farmers' Union

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Abstraction and other artificial flow pressures; Microbiology; Nutrients; Organic pollutants; Physical modification; Sediments (as a direct pollutant); Temperature	Large scale restoration of peat moorlands to benefit biodiversity, water resources, water quality and potentially help manage peak flows. For example the Peatscapes Initiative in the North Pennines.	Northumbria RBD	2012	Water companies; National Park Authorities; Environment Agency; Environmental NGOs
Cadmium and its compounds	Adoption of best practice farming to reduce pollution from fertilisers (Cadmium is a contaminant)	Allen from Source to West Allen; Derwent from Nookton Burn to Burnhope Burn; Nent from Source to South Tyne; Rookhope Burn from Source to Wear; South Tyne from Allen to North Tyne; Wear from Ireshope to Middlehope Burn; West Allen from Wellhope Burn to Allen	Implemented	Environment Agency
Cypermethrin	UK-wide suspension (temporary) on use as sheep-dip	Northumbria RBD	Implemented	Veterinary Medicines Directorate
Diffuse sources; Sediments (as a direct pollutant); Physical modification	Joint working across the river basin to identify opportunities for ecological enhancement through restoration of a more natural inundation regime in washlands and / or wider river restoration projects resulting in a more natural flow regime and ecological functionality.	Northumbria RBD	2012	Natural England; British Waterways; Environment Agency; Environmental NGOs; Land managers and owners; Local Authorities

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances and Specific Pollutants	Continue to provide development planning advice on minimising the risk of development to the water environment.	Northumbria RBD	Implemented	Environment Agency
Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances and Specific Pollutants	Enforcement of Groundwater Regulations, Sludge Regulations and, where appropriate, Nitrate Vulnerable Zone action programme through Cross Compliance.	Northumbria RBD	Implemented	Environment Agency
Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances and Specific Pollutants	External education on groundwater pollution prevention	Northumbria RBD	Implemented	Land managers and owners; Environment Agency
Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances and Specific Pollutants	Comply with site specific notices (served under Water Resources Action Section 86 and Section 161, Groundwater Regulations or Silage, Slurry, Agricultural Fuel Oil Regulations), where issued by Environment Agency, to reduce agri-chemical and nitrate pollution risk to groundwater.	Northumbria RBD	Implemented	Land managers and owners

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances and Specific Pollutants	Contribute to development of planning structure plans, to influence location of development to protect groundwater.	Northumbria RBD	Implemented	Environment Agency; Water companies
Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances and Specific Pollutants	Follow the Code of Good Agricultural Practice - advice for operators on minimising the risk of harm to the environment, for example on control of agri-chemicals and nitrate	Northumbria RBD	Implemented	Land managers and owners
Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances and Specific Pollutants; Sediment (as a direct pollutant)	Local agricultural partnerships e.g. LEAF, NGOs such as Rivers Trusts, Wildlife Trusts, Landcare, Farming & Wildlife Advisory Group – advice on use of agri-chemicals and nitrate control and promote take up of agri-environment schemes and the England Catchment Sensitive Farming Initiative.	Northumbria RBD	Implemented	Land managers and owners; Environmental NGOs

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances and Specific Pollutants	Make use of site specific notices (served under Water Resources Action Section 86 and Section 161, Groundwater Regulations or Silage, Slurry, Agricultural Fuel Oil Regulations) to reduce pollution risk to groundwater.	Northumbria RBD	Implemented	Environment Agency
Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances and Specific Pollutants	NetRegs (environmental guidance to business) - external advice and education on environmental legislation, including groundwater pollution legislation	Northumbria RBD	Implemented	Environment Agency
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Environmental Permitting – regulate disposal of sheep dip and pesticides to minimise pollution risk	Northumbria RBD	Implemented	Environment Agency
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Follow Statutory Codes of Practice for Pesticides and Sheep Dip - comply with published advice for operators on control of chemicals	Northumbria RBD	Implemented	Land managers and owners

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Groundwater protection advice to Chemicals Regulation Directorate (formerly the Pesticides Safety Directorate) approvals process	Northumbria RBD	Implemented	Central Government; Environment Agency
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Comply with new EC Sustainable Use of Pesticides Directive to control use of plant protection products	Northumbria RBD	2012	Land managers and owners
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Environmental Permitting – regulate effluent discharges to ground	Northumbria RBD	Implemented	Environment Agency
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	EU review of approvals for plant protection products	Northumbria RBD	Implemented	EU
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	General guidance to reduce the environmental impact of pesticide use through the Voluntary Initiative.	Northumbria RBD	Implemented	Voluntary Initiative Partnership

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Groundwater protection advice to Veterinary Medicines Directorate products approvals process	Northumbria RBD	Implemented	Central Government
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	New EC Sustainable Use of Pesticides Directive to control use of plant protection products	Northumbria RBD	2012	Central Government
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Permitting - regulate disposal of sheep dip and pesticides to minimise risk to the environment.	Northumbria RBD	Implemented	Environment Agency
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Support to Chemicals Regulation Directorate (formerly the Pesticides Safety Directorate) research into amenity use of pesticides	Northumbria RBD	Implemented	Central Government
Isoproturon	Recently introduced UK-wide restrictions will see decreasing trend in emissions and probable compliance by 2015 with no further action	Northumbria RBD	Implemented	Chemicals Regulation Directorate

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Microbiology; Organic pollutants; Nutrients	Targeted campaigns to raise awareness of issues with septic tanks and village drains.	Northumbria RBD	2012	Environment Agency; Local Authorities; Water companies; Environmental NGOs
Microbiology; Organic pollutants; Nutrients; Priority Hazardous Substances, Priority Substances and Specific Pollutants; Sediments (as a direct pollutant)	Progress the Entry Level Stewardship Scheme offering farmers an incentive to achieve environmental benefits on agricultural land. Entry Level Stewardship is open to all those farming in England and aims to reward good land management and address some of the environmental issues affecting the wider countryside including diffuse pollution, soil erosion and the conservation of farmland birds	Northumbria RBD	Implemented	Defra; Natural England
Nitrate	Advise farmers on nutrient planning and best practice to reduce nitrogen loading to land - England Catchment Sensitive Farming Initiative	Northumberland Carboniferous Limestone and Coal Measures; Northumberland Devonian and Lower Carboniferous; Tees Carb Limestone & Millstone Grit; Tees Mercia Mudstone & Redcar Mudstone; Tees Sherwood Sandstone; Tyne Carboniferous Limestone; Tyne Carboniferous Limestone and Coal Measures; Wear Magnesian Limestone	2010	Environment Agency; Natural England; Land managers and owners
Nitrate	Comply with the Nitrate Vulnerable	Northumbria RBD	Implemented	Land managers and owners

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
	Zone Action Plan within the designated Zones			
Nitrate	Development planning - planning liaison. Site specific groundwater pollution prevention advice and recommendations	Northumbria RBD	Implemented	Local Authorities
Nitrate	Implement DCLG Planning Policy Guidance Statement 23 (PPS23) on controlling pollution of groundwater that may arise from development of land	Northumbria RBD	Implemented	Local Authorities
Nitrate; Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Registrations (in conjunction with Standard Rules) - Implement new regulatory approach (via Environmental Permitting Regulations) arising from implementation of new Groundwater Directive (2006/116/EC)	Northumbria RBD	2012	Environment Agency; Industry leads; Land managers and owners; Water companies
Nitrate; Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Agri-environment schemes/ Environmental Stewardship - payments for best practice to limit nitrate input and control agri-chemicals	Northumbria RBD	Implemented	Natural England; Land managers and owners

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Nitrate; Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Proactive targeted farmer education on control of agri-chemicals and nitrate	Northumbria RBD	Implemented	Environment Agency
Nitrate; Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Re-engineer existing discharges to avoid direct discharges of pollutants to groundwater	Northumbria RBD	Implemented	Environment Agency; Water companies
Nutrients	Establish and enforce Nitrate Vulnerable Zones in catchments at a high risk from nitrate pollution, requiring farmers to follow a programme of measures to reduce nitrate entering the water from farmland. (see map D6 in annex D)	Northumbria RBD	Implemented	Defra; Environment Agency
Nutrients; Sediments (as a direct pollutant); Organic pollutants	Work in partnership to deliver habitat improvements through land management solutions. For example, the Belford Catchment Solutions project aims to reduce flood risk and address diffuse agricultural pollution issues and the impact on Budle Bay SPA and SAC, also creating habitats and enhancing biodiversity.	Northumbria RBD	2012	National Farmers' Union; National Park Authorities; Environment Agency; Land managers and owners; Water companies; Natural England

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Organic pollutants; Priority Hazardous Substances, Priority Substances and Specific Pollutants; Sediments (as a direct pollutant); Nutrients; Microbiology	Establish and maintain a nationally funded advice-led partnership under the Catchment Sensitive Farming Programme to reduce diffuse water pollution from agriculture in at risk catchments.	Aln; Northumbria RBD	2010	Environment Agency; Natural England
Physical modification; Nutrients; Sediments (as a direct pollutant); Microbiology	Restoration of plantations on ancient woodland sites and plantations on semi-natural habitat in upland headwaters to improve water quality and habitat.	Northumbria RBD	2012	The Woodland Trust
Sediments (as a direct pollutant); Nutrients; Organic pollutants	Promote good practice initiatives and implementation of codes of good practice for all types of rural land management.	Northumbria RBD	2012	Land managers and owners; Natural England; National Farmers' Union; Environment Agency; Defra; National Park Authorities; Forestry Commission

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Sediments (as a direct pollutant); Nutrients; Organic pollutants; Microbiology; Priority Hazardous Substances, Priority Substances and Specific Pollutants	Maintain the Higher Level Stewardship Scheme offering farmers an incentive to achieve environmental benefits over and above those required under the Entry Level Stewardship Scheme. Higher Level Stewardship is targeted by Natural England to maximise environmental and other public benefits in targeted areas within the RBD.	Northumbria RBD	Implemented	Natural England; Defra
Sediments (as a direct pollutant); Nutrients; Organic pollutants; Microbiology; Priority Hazardous Substances, Priority Substances and Specific Pollutants	Progress delivery of cross-compliance inspection and enforcement	Northumbria RBD	2010	Rural Payments Agency; Environment Agency; Defra
Investigations				
Nitrate; Hazardous substances and non-hazardous pollutants; Phosphate; Priority Substances and Specific Pollutants	Further investigation - characterise groundwater-surface water interactions	Wear Magnesian Limestone	2012	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Nitrate; Hazardous substances and non-hazardous pollutants; Phosphate; Priority Substances and Specific Pollutants	Investigation of Groundwater Dependent Terrestrial Ecosystems to assess if they have been significantly damaged as a result of groundwater pollution	Northumbria RBD	Implemented	Environment Agency
Pressures on groundwater dependent ecosystems	Further investigation - Awareness of chemical passage into drains/waterways e.g. through car washing, Awareness to domestic customers on fats/oil/chemicals down drains.	Tyne Carboniferous Limestone	2012	Environment Agency
Natura 2000 protected areas and SSSIs				
Abstraction and other artificial flow pressures; Direct biological pressures; Nutrients; Physical modification	Contribute to maintenance of, or restoration to, favourable conservation status on Natura 2000 Protected Areas through SSSI Management Agreement (See Annex D)	Northumbria RBD	2012	Natural England

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Abstraction and other artificial flow pressures; Direct biological pressures; Nutrients; Physical modification; Sediments (as a direct pollutant)	Contribute to maintenance of, or restoration to, favourable conservation status on Natura 2000 Protected Areas by implementing agri-environment scheme (See Annex D)	Northumbria RBD	2012	Natural England
Nutrients	Contribute to achieving favourable condition on River Coquet and Coquet Valley Woodlands SSSI by developing pollution action plan	Northumberland Rivers Catchment	2012	Environment Agency; Natural England
Abstraction and other artificial flow pressures	Contribute to maintenance of, or restoration to, favourable conservation status on Natura 2000 Protected Areas by revoking or amending abstraction licences (See Annex D)	Northumbria RBD	2012	Environment Agency
Sediments (as a direct pollutant); Nutrients	Contribute to maintenance of, or restoration to, favourable conservation status on Natura 2000 Protected Areas by developing a pollution action plan for protected areas (See Annex D)	Northumbria RBD	2012	Environment Agency; Natural England

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Sediments (as a direct pollutant); Nutrients	Contribute to maintenance of, or restoration to, favourable conservation status on Natura 2000 Protected Areas by revoking or amending Discharge/PPC Consents (See Annex D)	Northumbria RBD	2012	Environment Agency

C.5 Angling and conservation

The Northumbria River Basin District contains a wide variety of habitats which in turn support a rich diversity of wildlife. The area retains a significant proportion of the UK's overall resource of important wildlife sites, habitats and species, with a large proportion being designated as nationally (over 13% of the area) and internationally important wildlife sites. Some habitats are particularly important because of their extensive nature or rarity. For example the River Basin holds 40% of England's upland hay meadows, 19% of England's upland heathland, and England's largest juniper wood. At a more local level, areas of wildlife value are designated as local nature reserves, county wildlife sites (second tier sites) or non-statutory nature reserves. However, there have been significant declines in certain habitats and species in past years and much of our wildlife is still under threat. Biodiversity in the Northumbria River Basin District is particularly threatened by land use changes (development, agriculture and water management), climate change (coastal squeeze and rising temperatures), environmental pollution and invasive non native species.

Fish are one of the best indicators of the state of the water environment. The North East boasts some of the finest stocks of migratory salmon and sea trout as well as high quality brown trout fisheries and a very healthy coarse fish in many of its rivers. The River Tyne is noted as being the best salmon river in England and Wales with the Rivers Coquet and Wear also noted for significant salmon and sea trout catches. The lower reaches of the Tyne, Wear and Tees also hold good stocks of coarse fish such as dace, roach and chub.

As well as being indicators of environmental quality, fisheries play a significant role in the social and economic well being of the Region. Anglers expenditure in the Region is approximately £45.5 million per year and supports nearly 1000 jobs. Social schemes based in the Region have shown great success in helping vulnerable young people avoid becoming involved in anti-social behaviour. It is crucial that we conserve the stocks on which angling depends through preventing illegal exploitation, controlling disease and preventing the introduction of inappropriate fish species.

Please note that measures relating to commercial fisheries can be found within the 'industry, manufacturing and other business sector'.

Table C5: **Actions for the angling and conservation sector**

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Abstraction	Extension of abstraction control to include previously exempt uses (abstractions by Ports and Harbour authorities from tidal waters under certain conditions likely to remain exempt)	Northumbria RBD	2012	Environment Agency
Abstraction and other artificial flow pressures	Registration for previously exempt activity: abstraction of water within water meadow systems	Northumbria RBD	2012	Environment Agency
Abstraction and other artificial flow pressures; Microbiology; Nutrients; Organic pollutants; Physical modification; Sediments (as a direct pollutant); Temperature	Large scale restoration of peat moorlands to benefit biodiversity, water resources, water quality and potentially help manage peak flows. For example the Peatscapes Initiative in the North Pennines.	Northumbria RBD	2012	Water companies; National Park Authorities; Environment Agency; Environmental NGOs

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Alien species	Establish invasive non-native species forum for the RBD to: improve communications, identify existing work, share information and best practice, identify key people, coordinate projects, prioritise key species. For example British Waterways, the local authority and the Environment Agency have been working to treat Hydrocotyle ranunculoides on the inlets and canals adjoining the Tees Navigation.	Northumbria RBD	2012	British Waterways; Environment Agency; Environmental NGOs; Land managers and owners; Local Authorities; Natural England
Alien species	Promote existing codes of practice and guidance to the public and / or industry and trade to minimise the spread of invasive non-native species. For example, "All Choked Up" information postcard for garden centres and the Environment Agency information "Guidance for the control of non-native invasive weeds in or near fresh water".	Northumbria RBD	2012	British Waterways; Natural England; Local Authorities; Land managers and owners; Environment Agency; Environmental NGOs

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Alien species	Work in partnership to develop species management plans for prioritised known invasive non-native species to improve identification, control and disposal. For example the Tyne Rivers Trust is working with partners and community groups to tackle Himalayan balsam to eradicate the non-native species.	Northumbria RBD	2012	Natural England; Environment Agency; Environmental NGOs
Biota removal (including commercial fish take and weed control)	Introduction of national byelaws to require mandatory catch and release of all rod and line caught eels (subject to public consultation and implementation of byelaw)	Northumbria RBD	2012	Environment Agency
Diffuse sources; Sediments (as a direct pollutant); Physical modification	Joint working across the river basin to identify opportunities for ecological enhancement through restoration of a more natural inundation regime in washlands and / or wider river restoration projects resulting in a more natural flow regime and ecological functionality.	Northumbria RBD	2012	Natural England; British Waterways; Environment Agency; Environmental NGOs; Land managers and owners; Local Authorities

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Habitat manipulation (restoration/improvement)	Trout in the Town - Partnership project between Tees Rivers Trust, Durham County Council and Environment Agency to run an educational and awareness raising programme that brings about habitat and wider biodiversity improvements and access improvements	Tees Catchment	2010	Local Authorities; Environmental NGOs; Environment Agency
Habitat Manipulation (restoration/improvement)	Creation of new wetland habitats through partnership working to deliver benefits for biodiversity, water quality, water resources and help manage peak flows. For example, the Preston Farm Habitat Creation project, in collaboration with Tees Valley Wildlife Trust is creating open water, reedbeds, grazing marsh and woodland.	Northumbria RBD	2011	Environment Agency; Environmental NGOs; Natural England
Nutrients; Organic pollutants; Sediments (as a direct pollutant); Habitat Manipulation (restoration/improvement)	Tyne and Tees Rivers Trusts are operating the Passport Fishing Schemes in the catchments of the Rivers Tyne and Tees. The scheme works with farmers to develop new sites for fishing. Anglers purchase tokens to access the sites and farmers can exchange tokens for cash	Tyne Catchment; Tees Catchment	Implemented	Environmental NGOs

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
	payment. This approach promotes access and encourages land owners to value the river as a resource. A similar scheme has seen improvements to water quality and fisheries in Cornwall.			
Organic pollutants; Sediments (as a direct pollutant); Alien species; Habitat Manipulation (restoration/improvement); Nutrients	River Watch groups (facilitated by Tyne Rivers Trust) adopt waterbodies for participation, assessment, monitoring and habitat improvements (siltation, non native species etc)	TYNE	Implemented	Environmental NGOs
Physical modification	Initiatives to promote community involvement in environment will educate and raise profile of ecological status and importance of river basin's rivers. For example, the Living Waterways project is supporting better management of urban watercourses through working with the community to create habitats and support initiatives for UK BAP species.	Northumbria RBD	2012	Local Authorities; Natural England; Environmental NGOs; Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Physical modification	All new hydropower schemes allow free movement of fish and eels without damage to the fish and are fish friendly to all species. Identify opportunities where schemes could be beneficial in providing solutions to current fish barrier problems	Northumbria RBD	2012	Environment Agency; Industry leads
Physical modification	Develop three year rolling programme of bankside and in-river habitat improvements to allow for sustainable fish stocks working with partner organisations and local communities	Northumbria RBD	2012	Environment Agency; Environmental NGOs; Fisheries and Angling Interests; Land managers and owners
Physical modification	Installation of eel passes at sites identified within the Northumbria eel management plan	Northumbria RBD	2012	Fisheries and Angling Interests; Environment Agency
Physical modification; Nutrients; Sediments (as a direct pollutant); Microbiology	Restoration of plantations on ancient woodland sites and plantations on semi-natural habitat in upland headwaters to improve water quality and habitat.	Northumbria RBD	2012	The Woodland Trust

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Sediments (as a direct pollutant); Nutrients; Organic pollutants	Promote good practice initiatives and implementation of codes of good practice for all types of rural land management.	Northumbria RBD	2012	Land managers and owners; Natural England; National Farmers' Union; Environment Agency; Defra; National Park Authorities; Forestry Commission
Investigations				
Alien species	Investigate ability to share data between partners and map non-native species across the RBD. Ecological Records Centres currently hold much of this information.	Northumbria RBD	2012	Environment Agency; Natural England; Environmental NGOs; British Waterways; Local Authorities
Alien species	Monitor future trends and new species to enable a rapid response to new incidents of invasive non-native species.	Northumbria RBD	2012	Environment Agency; Natural England
Direct biological pressures	Core fisheries monitoring programme to be complemented by data provided through the Rivers Trusts volunteers - trained and accredited by the Environment Agency	Tees Catchment	2010	Environment Agency; Environmental NGOs; Fisheries and Angling Interests

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Habitat Manipulation (restoration/improvement)	Eel and salmonid habitat availability assessment and improvement through joint working between the Rivers Trusts and Environment Agency	Tees Catchment	2010	Environment Agency; Environmental NGOs
Physical modification	The Environment Agency will conduct a feasibility and design study for development of fish passage facilities at Broken Scar Weir on the River Tees	Tees Catchment	2010	Environment Agency

C.6 Central government

Defra (Department for Environment, Food and Rural Affairs) is a UK Government Department and is responsible for the Water Framework Directive in England. Defra champions sustainable development, and helps Government as a whole to deliver economic, social and environmental sustainability. Defra is also the focal point for rural policy. Defra has several delivery partners that have important actions in our Draft River Basin Management Plan, including the following:

- Marine and Fisheries Agency
- Centre for the Environment, Fisheries and Aquaculture Science (CEFAS)
- Rural Payments Agency
- Environment Agency (see separate section)
- Forestry Commission
- National Park Authorities

Other Government Departments

- Department of Communities and Local Government (CLG)
- Office of Government Commerce (OGC) - an independent office of HM Treasury
- Health and Safety Executive (part of the Department of Work and Pensions), which includes the Pesticides Safety Directorate
- Highways Agency (part of Ministry for Transport)
- Defence Estates (part of Ministry of Defence)

The Crown Estate is a government organisation with a property portfolio encompassing many of the UK's cityscapes, ancient forests, farms, parkland, coastline and communities. It has an important role as influencer, manager, guardian and facilitator. Working in partnership with others, the Crown Estate enables and nurtures productive commercial opportunities, protects vulnerable environments, and enables social integration.

Table C6: **Actions for central government**

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Abstraction and other artificial flow pressures	Undertake education campaigns to targeted audiences to raise awareness of sustainable water use, including conservation and re-use.	Northumbria RBD	2012	Central Government; Environment Agency; Local Authorities; Water companies; water users
Abstraction and other artificial flow pressures	Encourage farmers to build winter storage reservoirs.	Northumbria RBD	2012	Regional Development Agencies; Environment Agency; Industry leads; National Farmers' Union
Abstraction and other artificial flow pressures; Microbiology; Nutrients; Organic pollutants; Physical modification; Sediments (as a direct pollutant); Temperature	Large scale restoration of peat moorlands to benefit biodiversity, water resources, water quality and potentially help manage peak flows. For example the Peatscapes Initiative in the North Pennines.	Northumbria RBD	2012	Water companies; National Park Authorities; Environment Agency; Environmental NGOs

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Alien species	Establish invasive non-native species forum for the RBD to: improve communications, identify existing work, share information and best practice, identify key people, coordinate projects, prioritise key species. For example British Waterways, the local authority and the Environment Agency have been working to treat <i>Hydrocotyle ranunculoides</i> on the inlets and canals adjoining the Tees Navigation.	Northumbria RBD	2012	British Waterways; Environment Agency; Environmental NGOs; Land managers and owners; Local Authorities; Natural England
Alien species	Promote existing codes of practice and guidance to the public and / or industry and trade to minimise the spread of invasive non-native species. For example, "All Choked Up" information postcard for garden centres and the Environment Agency information "Guidance for the control of non-native invasive weeds in or near fresh water".	Northumbria RBD	2012	British Waterways; Natural England; Local Authorities; Land managers and owners; Environment Agency; Environmental NGOs
Alien species	Make appropriate use of existing legislative powers eg prohibit the sale of high-risk species; Salmon and Freshwater Fish Act (S30); Import of Live Fish Act; Wildlife & Countryside Act 1981; Environment Agency Fisheries byelaws; Convention on biological diversity; NERC Act; Habitats Directive; IMO convention on ballast water)	Northumbria RBD	2012	Central Government; Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Alien species	Work in partnership to develop species management plans for prioritised known invasive non-native species to improve identification, control and disposal. For example the Tyne Rivers Trust is working with partners and community groups to tackle Himalayan balsam to eradicate the non-native species.	Northumbria RBD	2012	Natural England; Environment Agency; Environmental NGOs
Alien species	Increase awareness of the importance of the 'preventative approach' in addressing the threats posed by invasive non-native species. This would include 'horizon scanning' for new potentially invasive species.	Northumbria RBD	2010	Central Government
Alien species	Provide advice and training on identification, control and disposal of invasive non-native species to all relevant groups and encourage monitoring schemes.	Northumbria RBD	2012	Central Government; Environment Agency
Alien species	Draw up Individual Species Action Plans for species identified as presenting particular risk levels, to minimise the risks associated with them	Northumbria RBD	2012	Central Government; Environment Agency
Alien species	Contribute to the development of any EU level initiatives to improve legislation and controls relating to invasive non-native species.	Northumbria RBD	2012	Central Government

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Alien species	Draw together a database of projects to facilitate better information sharing and increase opportunities for partnership working	Northumbria RBD	2012	Central Government
Alien species	Work to raise awareness of the of the risks transferring non-native species to the wild amongst the public and target groups	Northumbria RBD	2010	Central Government
Alien species	Develop a national early warning system with contingencies for rapid response control measures to eradicate new invasions	Northumbria RBD	2012	Central Government
Alien species	Set up and maintain a website that acts as a "one stop shop" for information and advice on invasive non-native species.	Northumbria RBD	Implemented	Central Government
Alien species	Establish National Invasive Non-Native Species Forums to plan, prioritise and coordinate action	Northumbria RBD	Implemented	Central Government
Alien species	Develop and implement codes of practice to reduce the spread of invasive non-native species	Northumbria RBD	2012	Central Government; Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Alien species	Establish a central repository for holding data on invasive non-native species distribution.	Northumbria RBD	2012	Central Government
Alien species	Integrate invasive non-native species control measures across all policy areas	Northumbria RBD	2012	Central Government; Environment Agency
Nutrients; Sediments (as a direct pollutant); Organic pollutants	Work in partnership to deliver habitat improvements through land management solutions. For example, the Belford Catchment Solutions project aims to reduce flood risk and address diffuse agricultural pollution issues and the impact on Budle Bay SPA and SAC, also creating habitats and enhancing biodiversity.	Northumbria RBD	2012	National Farmers' Union; National Park Authorities; Environment Agency; Land managers and owners; Water companies; Natural England
Organic pollutants; Nutrients	Education and awareness raising with home owners, SME's and Traders regarding wrong drainage connections (when toilets, washing machines, dishwashers, baths etc are connected by mistake to the surface water drain instead of the foul sewer). For example the weekly Go Green newspaper supplement, aimed at the general public, which has featured issued such as cross connections.	Northumbria RBD	2012	Local Authorities; Water companies; Construction Industry; Developers

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Physical modification; Nutrients; Sediments (as a direct pollutant); Microbiology	Restoration of plantations on ancient woodland sites and plantations on semi-natural habitat in upland headwaters to improve water quality and habitat.	Northumbria RBD	2012	The Woodland Trust
Priority Hazardous Substances, Priority Substances and Specific Pollutants; Microbiology; Organic pollutants; Nutrients	Work to increase awareness of the implications of WFD and promote sustainable drainage systems in new and existing developments, re-use of grey and storm water and the value of green infrastructure in urban developments.	Northumbria RBD	2012	Central Government; Environment Agency; Local Authorities
Sediments (as a direct pollutant); Nutrients; Organic pollutants	Promote good practice initiatives and implementation of codes of good practice for all types of rural land management.	Northumbria RBD	2012	Land managers and owners; Natural England; National Farmers' Union; Environment Agency; Defra; National Park Authorities; Forestry Commission
Investigations				
Alien species	Investigate ability to share data between partners and map non-native species across the RBD. Ecological Records Centres currently hold much of this information.	Northumbria RBD	2012	Environment Agency; Natural England; Environmental NGOs; British Waterways; Local Authorities

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Alien species	Undertake risk assessments to identify priority invasive species for mitigation and control action at GB and national levels	Northumbria RBD	2012	Central Government
Alien species	Monitor future trends and new species to enable a rapid response to new incidents of invasive non-native species.	Northumbria RBD	2012	Environment Agency; Natural England
Alien species	Seek sustainable and cost-effective methods for managing established invasions, such as biological control	Northumbria RBD	2012	Central Government; Environment Agency
Natura 2000 protected areas and SSSIs				
Alien species	Eradication and control at selected SSSIs and Natura 2000 sites	Northumbria RBD	2012	Natural England

C.7 Environment Agency

The Environment Agency was established by the 1995 Environment Act and became fully operational on 1st April 1996. The Agency is a Non-Departmental Public Body of the Department for Environment, Food and Rural Affairs (Defra). The Secretary of State for Environment, Food and Rural Affairs has the lead sponsorship responsibility for the Agency as a whole and the Agency is accountable to the Secretary of State for its day to day operations in England.

The Agency's principal aim is to protect and enhance the environment and in doing so to contribute towards achieving sustainable development. In support of this aim, the Agency was identified as the "competent authority" for the implementation of the Water Framework Directive, a role which complements its broad range of functions which include Integrated Pollution Prevention and Control, Integrated Pollution Control, Waste Management, Water Quality, Land Quality, Water Resources, Conservation, Recreation, Fisheries, Flood Risk Management, Navigation and Radioactive Substances Regulation.

Regions and Areas ensure national priorities are delivered at a local level while taking account of the needs of local communities and stakeholders. Head Office is responsible for corporate management of the Agency, including policy development, strategic and operational objective setting and performance management.

Table C7: **Actions for the Environment Agency**

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Abstraction and other artificial flow pressures	Roll out delivery from the Reservoir Compensation release project to create more naturalised flows and improve ecology. Use this as best practice to apply to a wider geographic area where appropriate.	Northumbria RBD	2012	Water companies; Environmental NGOs; Fisheries and Angling Interests; Land managers and owners; Natural England; Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Abstraction and other artificial flow pressures	Under the Water Act 2003, the Environment Agency is able to revoke abstraction licences that have not been used for four years from April 2004, this will be done on a case-by-case basis.	Northumbria RBD	2012	Environment Agency
Abstraction and other artificial flow pressures	Undertake education campaigns to targeted audiences to raise awareness of sustainable water use, including conservation and re-use.	Northumbria RBD	2012	Central Government; Environment Agency; Local Authorities; Water companies; water users
Abstraction and other artificial flow pressures	Encourage farmers to build winter storage reservoirs.	Northumbria RBD	2012	Regional Development Agencies; Environment Agency; Industry leads; National Farmers' Union
Abstraction and other artificial flow pressures; Microbiology; Nutrients; Organic pollutants; Physical modification; Sediments (as a direct pollutant); Temperature	Large scale restoration of peat moorlands to benefit biodiversity, water resources, water quality and potentially help manage peak flows. For example the Peatscapes Initiative in the North Pennines.	Northumbria RBD	2012	Water companies; National Park Authorities; Environment Agency; Environmental NGOs

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Alien species	Establish invasive non-native species forum for the RBD to: improve communications, identify existing work, share information and best practice, identify key people, coordinate projects, prioritise key species. For example British Waterways, the local authority and the Environment Agency have been working to treat Hydrocotyle ranunculoides on the inlets and canals adjoining the Tees Navigation.	Northumbria RBD	2012	British Waterways; Environment Agency; Environmental NGOs; Land managers and owners; Local Authorities; Natural England
Alien species	Promote existing codes of practice and guidance to the public and / or industry and trade to minimise the spread of invasive non-native species. For example, "All Choked Up" information postcard for garden centres and the Environment Agency information "Guidance for the control of non-native invasive weeds in or near fresh water".	Northumbria RBD	2012	British Waterways; Natural England; Local Authorities; Land managers and owners; Environment Agency; Environmental NGOs

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Alien species	Make appropriate use of existing legislative powers eg prohibit the sale of high-risk species; Salmon and Freshwater Fish Act (S30); Import of Live Fish Act; Wildlife & Countryside Act 1981; Environment Agency Fisheries byelaws; Convention on biological diversity; NERC Act; Habitats Directive; IMO convention on ballast water)	Northumbria RBD	2012	Central Government; Environment Agency
Alien species	Work in partnership to develop species management plans for prioritised known invasive non-native species to improve identification, control and disposal. For example the Tyne Rivers Trust is working with partners and community groups to tackle Himalayan balsam to eradicate the non-native species.	Northumbria RBD	2012	Natural England; Environment Agency; Environmental NGOs
Alien species	Provide advice and training on identification, control and disposal of invasive non-native species to all relevant groups and encourage monitoring schemes.	Northumbria RBD	2012	Central Government; Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Alien species	Draw up Individual Species Action Plans for species identified as presenting particular risk levels, to minimise the risks associated with them	Northumbria RBD	2012	Central Government; Environment Agency
Alien species	Work to raise awareness of the of the risks transferring non-native species to the wild amongst the public and target groups	Northumbria RBD	2010	Central Government
Alien species	Develop and implement codes of practice to reduce the spread of invasive non-native species	Northumbria RBD	2012	Central Government; Environment Agency
Alien species	Reduction of extent of invasive non-native species during routine maintenance of assets	Northumbria RBD	2012	Environment Agency
Alien species	Integrate invasive non-native species control measures across all policy areas	Northumbria RBD	2012	Central Government; Environment Agency
Diffuse sources; Sediments (as a direct pollutant); Physical modification	Joint working across the river basin to identify opportunities for ecological enhancement through restoration of a more natural inundation regime in	Northumbria RBD	2012	Natural England; British Waterways; Environment Agency; Environmental NGOs; Land managers and owners; Local

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
	washlands and / or wider river restoration projects resulting in a more natural flow regime and ecological functionality.			Authorities
Habitat Manipulation (restoration/improvement)	The Environment Agency has identified priority obstructions on the Rivers Tyne, Wear, Tees and Wansbeck. The Environment Agency will seek funding and opportunity to improve passage either through provision of fish passes or removal of obstructions. The Environment Agency will take an opportunistic approach to removing other obstructions to fish migration as funds and opportunities permit.	Northumbria RBD	2012	Environment Agency
Habitat Manipulation (restoration/improvement)	Catchment Flood Management Plans, Shoreline Management Plans and System Asset Management Plans will show where flood risk management and coastal erosion management should continue, be increased or decreased. This could include or lead to habitat creation or river restoration.	Northumbria RBD	2012	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Microbiology; Diffuse sources	The North East Bathing Water Action Plan will identify and cost options to improve bathing waters, this is an Environment Agency led project, working with Aberystwyth University.	Northumbria RBD	Implemented	Environment Agency
Microbiology; Organic pollutants; Nutrients	Targeted campaigns to raise awareness of issues with septic tanks and village drains.	Northumbria RBD	2012	Environment Agency; Local Authorities; Water companies
Nutrients; Sediments (as a direct pollutant); Organic pollutants	Work in partnership to deliver habitat improvements through land management solutions. For example, the Belford Catchment Solutions project aims to reduce flood risk and address diffuse agricultural pollution issues and the impact on Budle Bay SPA and SAC, also creating habitats and enhancing biodiversity.	Northumbria RBD	2012	National Farmers' Union; National Park Authorities; Environment Agency; Land managers and owners; Water companies; Natural England

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Organic pollutants; Nutrients	Education and awareness raising with home owners, SME's and Traders regarding wrong drainage connections (when toilets, washing machines, dishwashers, baths etc are connected by mistake to the surface water drain instead of the foul sewer). For example the weekly Go Green newspaper supplement, aimed at the general public, which has featured issued such as cross connections.	Northumbria RBD	2012	Local Authorities; Water companies; Construction Industry; Developers
Physical modification	Consider where withdrawal of maintenance from flood defence structures, where there is no economic, environmental or risk related reason for continuing to maintain, could provide opportunities for ecological enhancement. For example, the Northumberland 4Shores project has identified suitable stretches of sea defences, in agreement with farmers, where it is cost beneficial to withdraw maintenance and repair. This will create habitat and visitor infrastructure.	Northumbria RBD	2012	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Physical modification	Environment Agency to produce a WFD mitigation measures manual for flood and coastal erosion risk management and land drainage activities. This manual will set out best practice options for measures to mitigate against the impacts of such activities upon ecology. This will be used to ensure that new and existing schemes and management activities will take into consideration WFD requirements and will results in minimal ecological damage.	Northumbria RBD	2010	Environment Agency
Physical modification	Initiatives to promote community involvement in environment will educate and raise profile of ecological status and importance of river basin's rivers. For example, the Living Waterways project is supporting better management of urban watercourses through working with the community to create habitats and support initiatives for UK BAP species.	Northumbria RBD	2012	Local Authorities; Natural England; Environmental NGOs; Environment Agency
Physical modification	Flood/Coastal Erosion Risk Management Measure - Sediment management strategies (develop and	Tees	2015	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
	revise) which could include a) substrate reinstatement, b) sediment traps, c) allow natural recovery minimising maintenance, d) riffle construction, e) reduce all bar necessary management in flood risk areas			
Physical modification	Flood/Coastal Erosion Risk Management Measure - Appropriate water level management strategies, including timing and volume of water moved	Tees	2015	Environment Agency
Physical modification	Flood/Coastal Erosion Risk Management Measure - Flow manipulation (e.g. construct structures to normalise flow; realign frontage)	Tees	2015	Environment Agency
Physical modification	Consider removing or amending the operation of barrages, where appropriate to improve ecology and amenity value.	Northumberland Rivers Catchment	2012	British Waterways; Environment Agency
Physical modification	Flood/Coastal Erosion Risk Management Measure - Preserve and, where possible, restore historic aquatic habitats	Tees	2015	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Physical modification	Flood/Coastal Erosion Risk Management Measure - Set-back embankments (a type of managed retreat)	Tees	2015	Environment Agency
Physical modification	Flood/Coastal Erosion Risk Management Measure - Undertake bank rehabilitation / reprofiling work	Tees	2015	Environment Agency
Physical modification	Flood/Coastal Erosion Risk Management Measure - Managed realignment of flood defence	Tees	2015	Environment Agency
Physical modification	Flood/Coastal Erosion Risk Management Measure - Improve floodplain connectivity	Tees	2015	Environment Agency
Physical modification; Nutrients; Sediments (as a direct pollutant); Microbiology	Restoration of plantations on ancient woodland sites and plantations on semi-natural habitat in upland headwaters to improve water quality and habitat.	Northumbria RBD	2012	The Woodland Trust

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Priority Hazardous Substances, Priority Substances and Specific Pollutants	Provide advice to small and medium sized businesses on obligations in relation to priority substances, priority hazardous substances and specific pollutants through NetRegs website	Northumbria RBD	2012	Environment Agency
Priority Hazardous Substances, Priority Substances and Specific Pollutants	Enforce REACH Annex 17 restrictions	Northumbria RBD	Implemented	Environment Agency
Priority Hazardous Substances, Priority Substances and Specific Pollutants; Microbiology; Organic pollutants; Nutrients	Work to increase awareness of the implications of WFD and promote sustainable drainage systems in new and existing developments, re-use of grey and storm water and the value of green infrastructure in urban developments.	Northumbria RBD	2012	Central Government; Environment Agency; Local Authorities
Sediments (as a direct pollutant); Nutrients; Organic pollutants	Promote good practice initiatives and implementation of codes of good practice for all types of rural land management.	Northumbria RBD	2012	Land managers and owners; Natural England; National Farmers' Union; Environment Agency; Defra; National Park Authorities; Forestry Commission

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Investigations				
Abstraction and other artificial flow pressures	The Environment Agency will carry out groundwater conceptual modelling to improve our understanding of the Magnesian Limestone aquifer.	Wear	2010	Environment Agency
Abstraction and other artificial flow pressures	Investigations at sites identified under the Restoring Sustainable Abstraction Programme (where funded)	Northumbria RBD	2012	Environment Agency
Abstraction and other artificial flow pressures	Improve flow estimates for surface water bodies	Northumbria RBD	2012	Environment Agency
Acidification; Microbiology; Organic pollutants; Physical modification; Priority Hazardous Substances, Priority Substances and Specific Pollutants; Nutrients; Sediments (as a direct pollutant)	Undertake investigations to better understand problems in waterbodies where extended deadlines have been put in place and identify actions to resolve them where possible.	Northumbria RBD	Implemented	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Alien species	Investigate ability to share data between partners and map non-native species across the RBD. Ecological Records Centres currently hold much of this information.	Northumbria RBD	2012	Environment Agency; Natural England; Environmental NGOs; British Waterways; Local Authorities
Alien species	Monitor future trends and new species to enable a rapid response to new incidents of invasive non-native species.	Northumbria RBD	2012	Environment Agency; Natural England
Alien species	Seek sustainable and cost-effective methods for managing established invasions, such as biological control	Northumbria RBD	2012	Central Government; Environment Agency
Physical modification	Investigations into the ecological outcomes of measures to mitigate against effects of FCERM activities, improving the understanding of the cost/benefit and technical feasibility of such measures and developing understanding of the underlying processes, ecological responses and applicability. Will use case studies, but outcomes will have a national application.	Northumbria RBD	2010	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Priority Hazardous Substances, Priority Substances and Specific Pollutants	Sediment monitoring, modelling and bioaccumulation studies on heavy metals which may be related to sediment movements.	Northumbria RBD	2012	Environment Agency
Natura 2000 protected areas and SSSIs				
Physical modification; Nutrients	Contribute to maintenance of, or restoration to, favourable conservation status on Natura 2000 Protected Areas through Investigation into hydrology and water quality pressures (See Annex D)	Northumbria RBD	2012	Natural England
Sediments (as a direct pollutant); Nutrients;	Contribute to maintenance of, or restoration to, favourable conservation status on Natura 2000 Protected Areas by revoking or amending Discharge/PPC Consents (See Annex D)	Northumbria RBD	2012	Environment Agency

C.8 Industry, manufacturing and other business

The largest contributing economic sectors in the region include tourism, business services, wholesale and distribution, and health. Manufacturing industries are important to the region, with the largest contribution to output from the chemicals, petrochemicals, food, drink, transport equipment and the metals sectors. Although agriculture only makes up a small part of the regional economy, it is a critical element of the rural economy. Tourism is also an important element of the rural economy, based on some of the most valuable natural resources and cultural assets in England. These activities have potential to affect the water environment directly as users of water or dischargers of pollutants or more subtly by affecting the hydrological characteristics of a catchment.

The Region also hosts a small but important commercial fishery noted particularly for crab and lobster catches. Also in the River Basin District are the largest commercial salmon and sea trout fisheries, although this is significantly smaller now than previously. As well as contributing to the economy through provision of jobs and the value of catches, these fisheries also help boost the tourist industry in coastal towns and ports.

Table C8: **Actions for Industry, manufacturing and other business**

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Abstraction	Reduction of demand through offering of tax incentives (enhanced Capital Allowances) for the purchase and use of efficient plant and fittings by commercial organisations	Northumbria RBD	Implemented	HM Revenue and Customs; Defra

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Alien species	Promote existing codes of practice and guidance to the public and / or industry and trade to minimise the spread of invasive non-native species. For example, "All Choked Up" information postcard for garden centres and the Environment Agency information "Guidance for the control of non-native invasive weeds in or near fresh water".	Northumbria RBD	2012	British Waterways; Natural England; Local Authorities; Land managers and owners; Environment Agency; Environmental NGOs
Benzo (ghi) perylene; Indeno (123-cd) pyrene; Benzo(a)pyrene; Fluoranthene	EU Restriction on use of PAH content in oil used in the manufacture of tyres	Northumbria RBD	Implemented	EU
Biota removal (including commercial fish take and weed control)	Introduction of national byelaws to restrict commercial fishing effort for eels and elvers through amendments to fishing seasons and gear restriction byelaws with appropriate enforcement (subject to public consultation and implementation of byelaws)	Northumbria RBD	2012	Environment Agency
Biota removal (including commercial fish take and weed control)	Review and replace current Net Limitation Order covering commercial salmon and sea trout netting on and off the coast	Northumbria RBD	2012	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances and Specific Pollutants	Registrations (in conjunction with Standard Rules) - Implement new regulatory approach (via Environmental Permitting Regulations) arising from implementation of new Groundwater Directive (2006/116/EC)	Northumbria RBD	2012	Environment Agency; Industry leads; Land managers and owners; Water companies
Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances and Specific Pollutants	NetRegs (environmental guidance to business) - external advice and education on environmental legislation, including groundwater pollution legislation	Northumbria RBD	Implemented	Environment Agency
Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances and Specific Pollutants	Contribute to development of planning structure plans, to influence location of development to protect groundwater.	Northumbria RBD	Implemented	Environment Agency; Water companies
Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances and Specific Pollutants	Continue to provide development planning advice on minimising the risk of development to the water environment.	Northumbria RBD	Implemented	Environment Agency
Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances and Specific Pollutants	Groundwater protection advice to Veterinary Medicines Directorate products approvals process	Northumbria RBD	Implemented	Land managers and owners

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Comply with site specific notices (served under Water Resources Act Section 86 and Section 161, Groundwater Regulations, contaminated land legislation), where issued by the Environment Agency/Local Authority to reduce pollution risk to groundwater	Northumbria RBD	Implemented	Land managers and owners
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Make use of site specific notices (served under Water Resources Act Section 86 and Section 161, Groundwater Regulations, contaminated land legislation) - to reduce pollution risk to groundwater	Northumbria RBD	Implemented	Environment Agency; Local Authorities
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Implement DCLG Planning Policy Guidance Statement 23 (PPS23) on controlling pollution of groundwater, including that which may arise from development of land	Northumbria RBD	Implemented	Local Authorities
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Development planning: land contamination - site specific advice and required action for remediation of contaminated land through planning liaison	Northumbria RBD	Implemented	Environment Agency; Local Authorities

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Local Authority contaminated land legislation notice powers. Make use of site specific notices to remove pollution risk to groundwater	Northumbria RBD	Implemented	Local Authorities
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Environmental Permitting - implement Process Industries Regulation to minimise pollution risk and harm to the environment	Northumbria RBD	Implemented	Environment Agency
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Follow the Sustainable Drainage Systems (SuDS) Interim Code of Practice - comply with published advice for operators	Northumbria RBD	Implemented	Industry leads
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Implementation of 'oil-filled cables' operating agreement with electricity transmission companies	Northumbria RBD	Implemented	Environment Agency; Industry leads
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Environmental Permitting – regulate effluent discharges to ground	Northumbria RBD	Implemented	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Total Oil Operating agreement	Northumbria RBD	Implemented	Environment Agency; Industry leads
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Implement Groundwater Protection: Policy & Practice - External education on groundwater pollution prevention	Northumbria RBD	Implemented	Industry leads
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Environmental Permitting - regulate waste disposal to minimise pollution risk and harm to the environment	Northumbria RBD	Implemented	Environment Agency
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Follow Petrol Retailing Code of Practice (Groundwater Regulations) - advice for operators	Northumbria RBD	Implemented	Industry leads
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Follow Solvents Code of Practice (Groundwater Regulations) - advice for operators	Northumbria RBD	Implemented	Industry leads

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Proposed oil pipelines Operating Agreement(s)	Northumbria RBD	2012	Environment Agency; Industry leads
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Comply with environmental permit conditions	Northumbria RBD	Implemented	Industry leads
Mercury and its compounds	Recently introduced restrictions across the UK will see decreasing trend in emissions and probable compliance by 2015 with no further action	Northumbria RBD	Implemented	Environment Agency
Nitrate	Development planning - planning liaison. Site specific groundwater pollution prevention advice and recommendations	Northumbria RBD	Implemented	Local Authorities
Nitrate	Waste exemptions - low risk approach to waste regulation activities	Northumbria RBD	Implemented	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Nitrate; Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Re-engineer existing discharges to avoid direct discharges of pollutants to groundwater	Northumbria RBD	Implemented	Environment Agency; Water companies
Organic pollutants; Nutrients	Education and awareness raising with home owners, SME's and Traders regarding wrong drainage connections (when toilets, washing machines, dishwashers, baths etc are connected by mistake to the surface water drain instead of the foul sewer). For example the weekly Go Green newspaper supplement, aimed at the general public, which has featured issued such as cross connections.	Northumbria RBD	2012	Local Authorities; Water companies; Construction Industry; Developers
Priority Hazardous Substances, Priority Substances and Specific Pollutants	General guidance to reduce the environmental impact of pesticide use through the Amenity Forum	Northumbria RBD	Implemented	Amenity Forum
Saline intrusion	Catchment Abstraction Management Strategies – Implement abstraction licensing controls to minimise and manage risks from saline intrusion	Northumbria RBD	Implemented	Environment Agency; Water companies
Trichloroethylene	EU-wide ban on use	Northumbria RBD	Implemented	EU

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Investigations				
Abstraction; Pressures on groundwater (GW) balance; Saline intrusion	Investigation to improve confidence in groundwater quantitative status result	Wear Magnesian Limestone	2010	Environment Agency
Dredging and trawling (commercial fishing and shellfish)	Investigation into the impact of commercial shell and fin fisheries to improve the risk assessment of the impact of these activities on ecology and to identify appropriate measures. Will use case studies, but outcomes will have a national application.	Northumbria RBD	2010	Environment Agency
Nitrate; Hazardous substances and non-hazardous pollutants; Phosphate; Priority Substances and Specific Pollutants	Further investigation - characterise groundwater-surface water interactions	Wear Magnesian Limestone	2012	Environment Agency
Salinity	Further Investigation - saline intrusion investigation	Wear Magnesian Limestone	2010	Environment Agency
Natura 2000 protected areas and SSSIs				
Abstraction and other artificial flow pressures	Contribute to maintenance of, or restoration to, favourable conservation status on Natura 2000 Protected Areas by revoking or amending abstraction licences (See Annex D)	Northumbria RBD	2012	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Sediments (as a direct pollutant); Nutrients	Contribute to maintenance of, or restoration to, favourable conservation status on Natura 2000 Protected Areas by revoking or amending Discharge/PPC Consents (See Annex D)	Northumbria RBD	2012	Environment Agency

C.9 Local and regional government

Local Government is responsible for working with the community to implement Government policy and maintain public services and facilities, from parks and education to social services and transport. In addition to the delivery of public services by individual councils and other statutory agencies, there is an increasing emphasis on the importance of organisations working in partnership with each other i.e. through Local Strategic Partnerships bringing together key service providers from the private, business, community and voluntary sectors into a single partnership.

There are 12 unitary authorities within, or partly within, the Northumbria River Basin District. These are single tier and deliver the full range of services, including education, social services, council tax and housing benefits, public libraries, museums and art galleries, traffic and transportation, refuse collection, recycling and disposal, planning, environmental health, swimming pools and leisure facilities, parks, open spaces and countryside including footpaths, cemeteries and crematoria, markets and fairs, registration of births, deaths, marriages and electorates, collecting council tax and business rates.

The remaining two tier authorities consist of 2 county councils and 14 district councils. The responsibilities laid out above are split between the two tiers. Town and Parish councils exist at the most local level across the whole of the district.

In April 2009 Regional Spatial Planning became the responsibility of Joint Regional Boards made up of representatives from the Regional Development Agencies and Local Authority Leaders. There are 3 Joint Regional Boards wholly or partly within the Northumbria River Basin District.

Table C9: **Action for local and regional government**

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Abstraction and other artificial flow pressures	Promote water efficiency in new development through regional strategies and local development frameworks. A Water Cycle Study may be used to identify policy advice on water efficiency measures.	Northumbria RBD	2012	Local Authorities; Central Government

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Abstraction and other artificial flow pressures	Undertake education campaigns to targeted audiences to raise awareness of sustainable water use, including conservation and re-use.	Northumbria RBD	2012	Central Government; Environment Agency; Local Authorities; Water companies; water users
Alien species	Establish invasive non-native species forum for the RBD to: improve communications, identify existing work, share information and best practice, identify key people, coordinate projects, prioritise key species. For example British Waterways, the local authority and the Environment Agency have been working to treat <i>Hydrocotyle ranunculoides</i> on the inlets and canals adjoining the Tees Navigation.	Northumbria RBD	2012	British Waterways; Environment Agency; Environmental NGOs; Land managers and owners; Local Authorities; Natural England
Alien species	Promote existing codes of practice and guidance to the public and / or industry and trade to minimise the spread of invasive non-native species. For example, "All Choked Up" information postcard for garden centres and the Environment Agency information "Guidance for the control of non-native invasive weeds in or near fresh water".	Northumbria RBD	2012	British Waterways; Natural England; Local Authorities; Land managers and owners; Environment Agency; Environmental NGOs

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Diffuse sources; Sediments (as a direct pollutant); Physical modification	Joint working across the river basin to identify opportunities for ecological enhancement through restoration of a more natural inundation regime in washlands and / or wider river restoration projects resulting in a more natural flow regime and ecological functionality.	Northumbria RBD	2012	Natural England; British Waterways; Environment Agency; Environmental NGOs; Land managers and owners; Local Authorities
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Fire service Memorandum of Understanding (MoU) on implementing pollution control measures in emergencies	Northumbria RBD	Implemented	Environment Agency; Local Authorities
Microbiology; Organic pollutants; Nutrients	Targeted campaigns to raise awareness of issues with septic tanks and village drains.	Northumbria RBD	2012	Environment Agency; Local Authorities; Water companies
Organic pollutants; Nutrients	Education and awareness raising with home owners, SME's and Traders regarding wrong drainage connections (when toilets, washing machines, dishwashers, baths etc are connected by mistake to the surface water drain instead of the foul sewer). For example the weekly Go Green newspaper supplement, aimed at the general public, which has featured issued such as cross connections.	Northumbria RBD	2012	Local Authorities; Water companies; Construction Industry; Developers

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Organic pollutants; Nutrients	Improved or more targeted street and drain cleaning and maintenance of storm water systems.	Northumbria RBD	2012	Local Authorities; Rail Authorities; Water companies; Highways Agency
Physical modification	Environment Agency to produce a WFD mitigation measures manual for flood and coastal erosion risk management and land drainage activities. This manual will set out best practice options for measures to mitigate against the impacts of such activities upon ecology. This will be used to ensure that new and existing schemes and management activities will take into consideration WFD requirements and will results in minimal ecological damage.	Northumbria RBD	2010	Environment Agency
Physical modification	Initiatives to promote community involvement in environment will educate and raise profile of ecological status and importance of river basin's rivers. For example, the Living Waterways project is supporting better management of urban watercourses through working with the community to create habitats and support initiatives for UK BAP species.	Northumbria RBD	2012	Local Authorities; Natural England; Environmental NGOs; Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Physical modification; Nutrients; Sediments (as a direct pollutant); Microbiology	Restoration of plantations on ancient woodland sites and plantations on semi-natural habitat in upland headwaters to improve water quality and habitat.	Northumbria RBD	2012	The Woodland Trust
Priority Hazardous Substances, Priority Substances and Specific Pollutants	General guidance to reduce the environmental impact of pesticide use through the Amenity Forum	Northumbria RBD	Implemented	Amenity Forum
Priority Hazardous Substances, Priority Substances and Specific Pollutants; Microbiology; Organic pollutants; Nutrients	Work to increase awareness of the implications of WFD and promote sustainable drainage systems in new and existing developments, re-use of grey and storm water and the value of green infrastructure in urban developments.	Northumbria RBD	2012	Central Government; Environment Agency; Local Authorities
Investigations				
Alien species	Investigate ability to share data between partners and map non-native species across the RBD. Ecological Records Centres currently hold much of this information.	Northumbria RBD	2012	Environment Agency; Natural England; Environmental NGOs; British Waterways; Local Authorities
Alien species	Monitor future trends and new species to enable a rapid response to new incidents of invasive non-native species.	Northumbria RBD	2012	Environment Agency; Natural England

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Physical modification	Investigations into the ecological outcomes of measures to mitigate against effects of FCERM activities, improving the understanding of the cost/benefit and technical feasibility of such measures and developing understanding of the underlying processes, ecological responses and applicability. Will use case studies, but outcomes will have a national application.	Northumbria RBD	2010	Environment Agency

C.10 Mining and quarrying

The varied geology of the Northumbria River Basin means that there has been considerable production of industrial and constructional minerals from quarries and underground mines. There has been extensive quarrying of magnesian limestone in the East of Wear area, of carboniferous limestone, sandstone and whinstone elsewhere and the Rivers Tyne and Coquet are a source of sand and gravels.

Pressure associated with historical metal mining activities is evident across the southern portion of the river basin. There are water quality issues as a result of lead mining in the upper Tees, upper Wear and South Tyne catchments. Fluorspar was also extracted in the upper Wear, Tees and Derwent catchments, sometimes by further exploitation of former lead mines. There was extensive underground coal mining, predominantly in the east of the river basin stretching from South Northumberland to the River Tees. Uncontrolled discharges from former mine workings are often acidic and contain metals and other toxic substances and can have significant impacts on ecology. Ochreous discharges were prominent and typified by orange staining of rivers. Many of these have now been treated under a programme run by the Coal Authority but several still need to be addressed.

Current mining and quarrying activity is well regulated. There is however an ongoing need to ensure that, when they close, arrangements are in place to manage future discharges as groundwater levels return to normal. Dealing with this and the environmental legacy of historic activities will be expensive and presents a major technical challenge. Although we will make progress, it is likely that in places we will need to continue to live with the impacts for years to come.

Table C10: Mining and quarrying sector

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Abstraction	Extension of abstraction control to include previously exempt uses (abstractions by Ports and Harbour authorities from tidal waters under certain conditions likely to remain exempt)	Northumbria RBD	2012	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances and Specific Pollutants (Metals)	Registrations (in conjunction with Standard Rules) - Implement new regulatory approach (via Environmental Permitting Regulations) arising from implementation of new Groundwater Directive (2006/116/EC)	Northumbria RBD	2012	Environment Agency; Industry leads; Land managers and owners; Water companies
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants (Metals)	Comply with site specific notices (served under Water Resources Act Section 86 and Section 161, Groundwater Regulations, contaminated land legislation), where issued by the Environment Agency/Local Authority to reduce pollution risk to groundwater	Northumbria RBD	Implemented	Land managers and owners; Industry leads
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants (Metals)	Develop and maintain a prioritised list of minewater pumping schemes to prevent intrusion of surface waters. As defined under Memorandum of Understanding (MOU) between the Environment Agency and Coal Authority	Northumbria RBD	Implemented	Coal Authority
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants (Metals)	Develop and maintain a prioritised list of minewater pumping schemes to prevent intrusion into groundwater. As defined under Memorandum of Understanding (MOU) between the Environment Agency and Coal Authority	Northumbria RBD	Implemented	Coal Authority

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants (Metals)	Make use of site specific notices (served under Water Resources Act Section 86 and Section 161, Groundwater Regulations, contaminated land legislation) to reduce pollution risk to groundwater	Northumbria RBD	Implemented	Local Authorities; Environment Agency
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants (Metals)	Coal Authority remediation - maintain all plant and equipment on current active remediation and preventative schemes	Tyne Carboniferous Limestone and Coal Measures	Implemented	Coal Authority; Defra
Priority Hazardous Substances, Priority Substances and Specific Pollutants (Metals)	Improve awareness of the issues associated with non-coal mines for example metalliferous mines and get involvement on solutions to resolve them. For example, North Pennines AONB project in the South Tyne catchment to identify non-coal diffuse pollution and treatment solutions.	Northumbria RBD	2012	Environment Agency
Priority Hazardous Substances, Priority Substances and Specific Pollutants (Metals)	Establish a non coal mine strategy for the RBD to address environmental risk. Pilot remediation works for example Welsh Metal Mine Strategy. Highlight benefits and promote development into a national programme over future cycles.	Northumbria RBD	2012	Defra; Environment Agency; Coal Authority

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Priority Hazardous Substances, Priority Substances and Specific Pollutants (Metals); Hazardous substances and non-hazardous pollutants	Implementation of best practice controls and remediation at abandoned coal mines	Cong Burn from Source to Twizell Burn; Coquet from Ridlees Burn to Tidal Limit; Gaunless from Source to Hummer Beck; Smallhope Burn from Source to Browney; Tipalt Burn from Source to South Tyne	2015	Coal Authority
Investigations				
Hazardous substances and non-hazardous pollutants; Priority Hazardous Substances, Priority Substances and Specific Pollutants (Metals)	Investigate discharges from abandoned metal, and other non-coal mines. Prioritise for inclusion in national agreement with relevant mines partner organisations.	Allen from Source to West Allen; Allen from West Allen to South Tyne; Burnhope Burn from Source to Kilhope Burn; Derwent from Burnhope Burn to River Tyne; Derwent from Nookton Burn to Burnhope Burn; Devils Water from Source to Tyne; Eggleston Burn Catchment (trib of Tees); Kilhope Burn from Source to Burnhope Burn; Kilton Beck from Middle Gill Beck to North Sea; Nent from Source to South Tyne; River Tees from Maize Beck to River Greta; Rookhope Burn from Source to Wear; Saltburn Gill Catch trib of North Sea; South Tyne from Allen to North Tyne; South Tyne from Black Burn to Allen; Tunstall Reservoir; Twizell Burn from Source to Cong Burn; Wear from Ireshope to Middlehope Burn; Wear	2012	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
		from Swinhope to Browney; West Allen from Source to Wellhope Burn; West Allen from Wellhope Burn to Allen		
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants (Metals)	Monitoring minewater plume and undertake treatment options appraisal	Wear Magnesian Limestone	Implemented	Environment Agency
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants (Metals)	MSc study on the minewater discharges on the Killhope Burn	Tyne Carboniferous Limestone and Coal Measures	Implemented	Universities
Nitrate; Hazardous substances and non-hazardous pollutants; Phosphate; Priority Substances and Specific Pollutants (Metals)	Further investigation - characterise groundwater-surface water interactions	Wear Magnesian Limestone	2012	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Priority Hazardous Substances, Priority Substances and Specific Pollutants (Metals)	Sediment monitoring, modelling and bioaccumulation studies on heavy metals which may be related to sediment movements.	Northumbria RBD	2012	Environment Agency

C.11 Navigation

Ports and marinas provide important regional infrastructure supporting local economies and businesses. Domestic coastal freight services contribute to reducing road congestion and can provide a more environmentally friendly mode of transport than road or rail. The Northumbria RBD has several important commercial ports at Tees, Tyne, Blyth and Sunderland. Examples of key trades at include coal, cars, petroleum products and animal feed. There are also a number of smaller ports, such as Hartlepool, which will host the Tall Ships in 2010, Amble and Seaham, and harbours and marinas.

The ports sector plays a key role as both regulators and undertakers of marine operations, including counter pollution responsibilities. Shipping relies on safe access to water of an adequate depth. The maintained depth is determined by the largest vessel that the port wishes to service: both Tyne and Tees are increasing their maintained depth and changes are proposed at Blyth. Dredging and disposal are highly regulated activities to minimise harm to the environment. Metal concentrations in estuarine sediments and levels of chemicals used as anti-foulants can be high and this contamination can be released into the water as a result of dredging or disturbance, leading to localised water quality issues. This is a particular issue around dock frontages on the Tyne.

The Tees barrage became operational in 1995 and reduced the length of the Tees estuary to 18 km, turning the upstream section into a freshwater river. One of its main purposes was to encourage the economic regeneration of Teesside. Other functions include increasing access to the river for recreational use, particularly for water sports and angling.

Table C11: **Actions for the Navigation sector**

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Abstraction	Extension of abstraction control to include previously exempt uses (abstractions by Ports and Harbour authorities from tidal waters under certain conditions likely to remain exempt)	Northumbria RBD	2012	Environment Agency
Alien species	Establish invasive non-native species forum for the RBD to: improve communications, identify existing work, share information and best practice, identify key people, coordinate projects, prioritise key species. For example British Waterways, the local authority and the Environment Agency have been working to treat <i>Hydrocotyle ranunculoides</i> on the inlets and canals adjoining the Tees Navigation.	Northumbria RBD	2012	British Waterways; Environment Agency; Environmental NGOs; Land managers and owners; Local Authorities; Natural England

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Dredging (sediment management)	Apply national guidance framework on dredging and dredged material disposal (ports sector) to provide guidance to all those undertaking or permitting navigation dredging and dredged material disposal activities to assist in achieving the statutory objectives of the WFD and related EQS Directive (2008/105/EEC) and refine local measures as appropriate (where not disproportionately costly or technically infeasible)	Aln; Blyth (N); Coquet; Farne Islands to Newton Haven; Hadston Links and Cresswell Ponds; Holy Island & Budle Bay; Northumberland North ; Northumberland South ; Tees; Tyne; Tyne and Wear; Wansbeck; Wear; Yorkshire North	2012	Environment Agency
Nutrients; Priority Hazardous Substances, Priority Substances and Specific Pollutants; Organic pollutants	Ports, harbours and navigation authorities to prepare a dredging and disposal strategy, such as the baseline document recommended under the Maintenance Dredging Protocol.	Northumbria RBD	2012	Ports and Harbours Authorities

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Priority Hazardous Substances, Priority Substances and Specific Pollutants	Apply national guidance framework on disposal of dredgings to refine local measures as appropriate (where not disproportionately costly or technically infeasible)	Aln; Blyth (N); Coquet; Farne Islands to Newton Haven; Hadston Links and Cresswell Ponds; Holy Island & Budle Bay; Northumberland North ; Northumberland South ; Tees; Tyne; Tyne and Wear; Wansbeck; Wear; Yorkshire North	2012	Marine and Fisheries Agency; Defra
Priority Hazardous Substances, Priority Substances and Specific Pollutants	Apply national guidance framework on dredging to refine local measures as appropriate (where not disproportionately costly or technically infeasible)	Aln; Blyth (N); Coquet; Farne Islands to Newton Haven; Hadston Links and Cresswell Ponds; Holy Island & Budle Bay; Northumberland North ; Northumberland South ; Tees; Tyne; Tyne and Wear; Wansbeck; Wear; Yorkshire North	2012	Marine and Fisheries Agency; Defra

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Priority Hazardous Substances, Priority Substances and Specific Pollutants	Develop national guidance framework on disposal of dredgings to inform Programme of Measures to meet WFD objectives	Aln; Blyth (N); Coquet; Farne Islands to Newton Haven; Hadston Links and Cresswell Ponds; Holy Island & Budle Bay; Northumberland North ; Northumberland South ; Tees; Tyne; Tyne and Wear; Wansbeck; Wear; Yorkshire North	2010	Defra
Priority Hazardous Substances, Priority Substances and Specific Pollutants	Develop national guidance framework on dredging to inform Programme of Measures to meet WFD objectives	Aln; Blyth (N); Coquet; Farne Islands to Newton Haven; Hadston Links and Cresswell Ponds; Holy Island & Budle Bay; Northumberland North ; Northumberland South ; Tees; Tyne; Tyne and Wear; Wansbeck; Wear; Yorkshire North	2010	Defra

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Priority Hazardous Substances, Priority Substances and Specific Pollutants	Review existing controls for disposal of dredgings inside and outside harbour limits as appropriate	Aln; Blyth (N); Coquet; Farne Islands to Newton Haven; Hadston Links and Cresswell Ponds; Holy Island & Budle Bay; Northumberland North ; Northumberland South ; Tees; Tyne; Tyne and Wear; Wansbeck; Wear; Yorkshire North	2012	Marine and Fisheries Agency; Defra
Priority Hazardous Substances, Priority Substances and Specific Pollutants	Review existing controls for dredging inside and outside harbour limits as appropriate	Aln; Blyth (N); Coquet; Farne Islands to Newton Haven; Hadston Links and Cresswell Ponds; Holy Island & Budle Bay; Northumberland North ; Northumberland South ; Tees; Tyne; Tyne and Wear; Wansbeck; Wear; Yorkshire North	2012	Marine and Fisheries Agency; Defra
Tributyltin (TBT) compounds	EU-wide non-application of TBT to boat hulls from July 2003. From January 2008 TBT should not be used on ship hulls or there should be a coating to prevent leaching of underlying TBT anti-foulants	Northumbria RBD	Implemented	EU

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Tributyltin (TBT) compounds	Help prevent illegal use of old TBT containing products	Blyth (N); Skerne US Demons Beck; Tees; Tyne; Wear	Implemented	British Marine Federation; British Waterways; Environment Agency; Royal Yachting Association
Tributyltin (TBT) compounds	EU-wide ban on marketing of TBT as a biocide in the EU	Northumbria RBD	Implemented	EU
Investigations				
Priority Hazardous Substances, Priority Substances and Specific Pollutants	Sediment monitoring, modelling and bioaccumulation studies on heavy metals which may be related to sediment movements.	Northumbria RBD	2012	Environment Agency
Tributyltin (TBT) compounds	Investigate the reason for failure: to assess the contribution from dredging or disposal activities on EQS compliance as appropriate	Blyth (N); Skerne US Demons Beck; Tees; Tyne; Wear	2012	Environment Agency

C.12 Urban and transport

Around 2.5 million people live in the Northumbria River Basin District. Although predominantly rural in character the district contains several major urban centres including Newcastle, Sunderland, Durham and Middlesbrough.

Current and historical land-use around the major towns and cities in the district gives rise to pollution pressures. Runoff and drainage from urban areas and transport infrastructure can contain a range of contaminants including sewage, metals, sediment and other substances that wash directly into rivers or enter via the sewerage network. Extreme runoff events are likely to become more frequent as climate change continues. The legacy of land contamination in some former industrial areas has led to pollution of groundwater resources and some of our rivers. Predicted housing growth in and around several towns and cities in the district will also increase pressure on the water environment unless the potential impacts are well managed.

Encouraging the sustainable use and management of water resources and a move to more sustainable drainage systems will help reduce the impacts associated with abstraction and urban runoff, with benefits for all water users. Sustainable and integrated drainage systems also offer potential benefits for managing the risk of flooding in urban areas.

Table C12: **Actions for the urban and transport sector**

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Alien species	Establish invasive non-native species forum for the RBD to: improve communications, identify existing work, share information and best practice, identify key people, coordinate projects, prioritise key species. For example British Waterways, the Local Authority and the Environment Agency have been working to treat <i>Hydrocotyle ranunculoides</i> on the inlets and canals adjoining the Tees Navigation.	Northumbria RBD	2012	British Waterways; Environment Agency; Environmental NGOs; Land managers and owners; Local Authorities; Natural England
Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances and Specific Pollutants	Registrations (in conjunction with Standard Rules) - Implement new regulatory approach (via Environmental Permitting Regulations) arising from implementation of new Groundwater Directive (2006/116/EC)	Northumbria RBD	2012	Environment Agency; Industry leads; Land managers and owners; Water companies
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Comply with site specific notices (served under Water Resources Act Section 86 and Section 161, Groundwater Regulations, contaminated land legislation), where issued by the Environment Agency/Local Authority to reduce pollution risk to groundwater	Northumbria RBD	Implemented	Land managers and owners; Industry leads

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Make use of site specific notices (served under Water Resources Act Section 86 and Section 161, Groundwater Regulations), to reduce pollution risk to groundwater	Northumbria RBD	Implemented	Environment Agency
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Follow Sustainable Drainage Systems (SuDS) Code of Practice - comply with published advice for operators on sustainable drainage systems	Northumbria RBD	Implemented	Industry leads
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Follow Pesticides Code of Practice - advice for operators on control of plant protection products	Northumbria RBD	Implemented	Industry leads
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Comply with new EC Sustainable Use of Pesticides Directive to control use of plant protection products	Northumbria RBD	2012	Land managers and owners
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Comply with Water Resources Act consent conditions	Northumbria RBD	Implemented	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Highways Agency Programme to investigate soakaways	Northumbria RBD	Implemented	Highways Agency
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Implementation of Network Rail Pesticide protocol	Northumbria RBD	Implemented	Environment Agency; Industry leads
Microbiology; Nutrients; Organic pollutants; Priority Hazardous Substances, Priority Substances and Specific Pollutants; Sediments (as a direct pollutant)	Environment Agency and Highways Agency Memorandum of Understanding (MoU) and associated initiatives	Northumbria RBD	Implemented	Highways Agency
Microbiology; Nutrients; Organic pollutants; Priority Hazardous Substances, Priority Substances and Specific Pollutants; Sediments (as a direct pollutant)	National Fire Service Protocol to minimise the risk of pollution during fire emergencies	Northumbria RBD	Implemented	National Fire Service
Organic pollutants; Nutrients	Improved or more targeted street and drain cleaning and maintenance of storm water systems.	Northumbria RBD	2012	Local Authorities; Rail Authorities; Water companies; Highways Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Physical modification	Environment Agency to produce a WFD mitigation measures manual for flood and coastal erosion risk management and land drainage activities. This manual will set out best practice options for measures to mitigate against the impacts of such activities upon ecology. This will be used to ensure that new and existing schemes and management activities will take into consideration WFD requirements and will results in minimal ecological damage.	Northumbria RBD	2010	Environment Agency
Priority Hazardous Substances, Priority Substances and Specific Pollutants	General guidance to reduce the environmental impact of pesticide use through the Amenity Forum	Northumbria RBD	Implemented	Amenity Forum

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Investigations				
Physical modification	Investigations into the ecological outcomes of measures to mitigate against effects of FCERM activities, improving the understanding of the cost/benefit and technical feasibility of such measures and developing understanding of the underlying processes, ecological responses and applicability. Will use case studies, but outcomes will have a national application.	Northumbria RBD	2010	Environment Agency

C.13 Water industry

There is only one water and sewerage service company operating in the Northumbria river basin district; Northumbrian Water Ltd. In addition, drinking water is supplied by Anglian Water in the Hartlepool area.

Our rivers support a diverse ecology as well as providing water for use as a commodity and recreation. Protecting our waters and ensuring these uses can continue means that sewage and other effluents need to be treated to very high standards. Although the water industry is regulated consistently across the country as a whole, the challenges faced by individual companies vary.

Levels of urbanisation vary across the area. Proposed new housing growth in some parts of the river basin district will be challenging in terms of providing treatment and the environmental capacity of rivers to receive treated sewage effluent from the new development. New water supply, waste water and sewerage infrastructure will also be required.

Table C13: **Actions for the water industry**

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Abstraction	Extension of abstraction control to include previously exempt uses (abstractions by Ports and Harbour authorities from tidal waters under certain conditions likely to remain exempt)	Northumbria RBD	2012	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Abstraction and other artificial flow pressures	Roll out delivery from the Reservoir Compensation release project to create more naturalised flows and improve ecology. Use this as best practice to apply to a wider geographic area where appropriate.	Northumbria RBD	2012	Water companies; Environmental NGOs; Fisheries and Angling Interests; Land managers and owners; Natural England; Environment Agency
Abstraction and other artificial flow pressures	Undertake education campaigns to targeted audiences to raise awareness of sustainable water use, including conservation and re-use.	Northumbria RBD	2012	Central Government; Environment Agency; Local Authorities; Water companies; water users
Abstraction and other artificial flow pressures	Reduction of leakage through active leakage control and customer supply pipe repair policies	Northumbria RBD	2010	Water companies
Abstraction and other artificial flow pressures	Reduction of demand through installation of household meters on change of occupier	Northumbria RBD	2021	Water companies
Abstraction and other artificial flow pressures	Reduction of demand through promotion of free household meters	Northumbria RBD	2010	Water companies

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Abstraction and other artificial flow pressures; Microbiology; Nutrients; Organic pollutants; Physical modification; Sediments (as a direct pollutant); Temperature	Large scale restoration of peat moorlands to benefit biodiversity, water resources, water quality and potentially help manage peak flows. For example the Peatscapes Initiative in the North Pennines.	Northumbria RBD	2012	Water companies; National Park Authorities; Environment Agency; Environmental NGOs
Ammonia; BOD	No deterioration of continuous sewage discharges	Belford Burn from Source to Ross Low; Clow Beck from Source to Aldbrough Beck; Embleton Burn from Source to N Sea; Hedleyhope Burn from Source to Deerness; Hummer Beck from Source to Gaunless; South Low from Source to N Sea; Wear from Swinhope to Browney; Wreigh Burn from Foxton Burn to Black Burn; Lumley Park Burn	2015	Northumbrian Water
Ammonia; BOD	No deterioration of continuous sewage discharges	Twizell Burn from Source to Cong Burn	2012	Northumbrian Water

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Diffuse sources; Sediments (as a direct pollutant); Physical modification	Joint working across the river basin to identify opportunities for ecological enhancement through restoration of a more natural inundation regime in washlands and / or wider river restoration projects resulting in a more natural flow regime and ecological functionality.	Northumbria RBD	2012	Natural England; British Waterways; Environment Agency; Environmental NGOs; Land managers and owners; Local Authorities
Faecal indicator organisms	Improvements to assets to improve receiving bather water quality at Spittal Beach, Newbiggin North Beach, Blyth South Beach	Northumberland North ; Tyne and Wear	2012	Northumbrian Water
Hazardous substances and non-hazardous pollutants; Nitrate; Priority Substances and Specific Pollutants	Comply with discharge consent conditions	Northumbria RBD	Implemented	Water companies
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Comply with site specific notices (served under Water Resources Act Section 86 and Section 161, Groundwater Regulations, contaminated land legislation), where issued by the Environment Agency/Local Authority to reduce pollution risk to groundwater	Northumbria RBD	Implemented	Land managers and owners

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Control of minewater intrusion by reducing groundwater abstraction	Northumbria RBD	Implemented	Environment Agency; Water companies
Nitrate	Provision of first time rural sewerage schemes	Northumbria RBD	Implemented	Water companies
Nitrate	Sludge Regulations - advice to operators	Northumbria RBD	Implemented	Environment Agency; Water companies
Nitrate	Sludge Regulations – monitoring and enforcement	Northumbria RBD	Implemented	Environment Agency; Water companies
Nitrate; Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Registrations (in conjunction with Standard Rules) - Implement new regulatory approach (via Environmental Permitting Regulations) arising from implementation of new Groundwater Directive (2006/116/EC)	Northumbria RBD	2012	Land managers and owners; Water companies; Industry leads; Environment Agency
Nitrate; Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Re-engineer existing discharges to avoid direct discharges of pollutants to groundwater	Northumbria RBD	Implemented	Environment Agency; Water companies

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Nitrate; Hazardous substances and non-hazardous pollutants; Priority Substances and Specific Pollutants	Implement Groundwater Protection: Policy & Practice - External education on groundwater pollution prevention	Northumbria RBD	Implemented	Environment Agency; Land managers and owners
Nutrients; Sediments (as a direct pollutant); Organic pollutants	Work in partnership to deliver habitat improvements through land management solutions. For example, the Belford Catchment Solutions project aims to reduce flood risk and address diffuse agricultural pollution issues and the impact on Budle Bay SPA and SAC, also creating habitats and enhancing biodiversity.	Northumbria RBD	2012	National Farmers' Union; National Park Authorities; Environment Agency; Land managers and owners; Water companies; Natural England
Organic pollutants; Nutrients	Education and awareness raising with home owners, SME's and Traders regarding wrong drainage connections (when toilets, washing machines, dishwashers, baths etc are connected by mistake to the surface water drain instead of the foul sewer). For example the weekly Go Green newspaper supplement, aimed at the general public, which has featured issued such as cross connections.	Northumbria RBD	2012	Local Authorities; Water companies; Construction Industry; Developers
Organic pollutants; Nutrients	Improved or more targeted street and drain cleaning and maintenance of storm water systems.	Northumbria RBD	2012	Local Authorities; Rail Authorities; Water companies; Highways Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Saline intrusion	Catchment Abstraction Management Strategies – Implement abstraction licensing controls to minimise and manage risks from saline intrusion	Northumbria RBD	Implemented	Environment Agency; Water companies
Investigations				
Abstraction and other artificial flow pressures	Programme of investigation of ecological impacts of managed flows in Heavily Modified Water Bodies (HMWB's) with Water supply use	Northumbria RBD	2012	Environment Agency; Water companies
Abstraction and other artificial flow pressures	Investigation at Site of Special Scientific Interest perceived to be adversely affected by abstraction : Coquet estuary	Coquet	2012	Environment Agency; Northumbrian Water
Faecal indicator organisms	Investigations and modelling to provide the evidence base of the impact of Northumbrian Water's assets in the Seaham, Saltburn and Tynemouth area on designated bathing waters. Identification of the improvements required to secure 'sufficient/good/excellent' quality under the new Bathing Water Directive in the next round of company investment (PR09).	Tyne and Wear; Yorkshire North	2012	Northumbrian Water
Faecal indicator organisms; BOD; Ammonia	Investigation of sewage discharges potentially affecting freshwater fish designated water	Don from Source to Tidal Limit; Northumbria RBD	2012	Northumbrian Water

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
Nitrate; Hazardous substances and non-hazardous pollutants; Phosphate; Priority Substances and Specific Pollutants	Investigation of Groundwater Dependent Terrestrial Ecosystems (GWDTEs) to assess if they have been significantly damaged as a result of groundwater pollution	Northumbria RBD	Implemented	Environment Agency
Phosphate	R&D on fate and transport of P in groundwater to determine impact on surface water	Northumbria RBD	2012	Environment Agency; Water companies
Priority Hazardous Substances, Priority Substances and Specific Pollutants	Investigate emissions from Sewage Treatment Works (STW) and appraise options (to reduce at source or treat at STW) to meet EQS and reduce/cease emissions in this or subsequent rounds	Browney from Source to Pan Burn; Cong Burn from Source to Twizell Burn; Croxdale Beck from Source to Wear; Lumley Park Burn from Source to Herrington Burn; Old Durham Beck from Chapman Beck to Wear; Pont Burn Catchment (trib of Derwent)	2012	Northumbrian Water
Salinity	Further investigation - saline intrusion investigation	Wear Magnesian Limestone	2010	Environment Agency
Natura 2000 protected areas and SSSIs				
Abstraction and other artificial flow pressures; Nutrients	Contribute to maintenance of, or restoration to, favourable conservation status on Natura 2000 Protected Areas through Implementing AMP Schemes (See Annex D)	Northumbria RBD	2012	Water companies
Abstraction and other artificial flow	Contribute to maintenance of, or restoration to, favourable conservation	Northumbria RBD	2012	Environment Agency

Pressures	Description of the action			Lead organisation and partners
	What will happen	Where it will happen	Date	
pressures	status on Natura 2000 Protected Areas by revoking or amending abstraction licences (See Annex D)			
Sediments (as a direct pollutant); Nutrients;	Contribute to maintenance of, or restoration to, favourable conservation status on Natura 2000 Protected Areas by revoking or amending Discharge/PPC Consents (See Annex D)	Northumbria RBD	2012	Environment Agency