Water Company Proposed PR09 Catchment Management schemes
November 2009

Name of project	Metaldehyde at Bough Beech WTW	**Location**	River Eden & Bough Beech Reservoir, Kent
Water company	Sutton and East Surrey Water	**Contact officer**	Nicola Houlahan

Objectives and short description of the project

Objective – to reduce the concentrations of metaldehyde in Bough Beech reservoir requiring treatment, by the reduction of metaldehyde concentrations at the point of abstraction on the River Eden.

Activities being planned to influence the amounts of metaldehyde reaching water sources are:

Enhanced monitoring strategies to identify catchment areas (and times) of particular contamination risk;

supporting all national, regional and local initiatives that aim to influence metaldehyde usage (including work with the Metaldehyde Stewardship Group and Environment Agency) including the provision of monitoring data;

carrying out our own communication and education activities (with the assistance of appropriately qualified consultants) through the distribution of newsletters and presentation meetings to local agronomists and landowners.

What benefits is the project expected to deliver?

Reduced levels of metaldehyde in the raw water source leading to reduced requirements for treatment, hopefully leading to improved levels of treated water compliance, without the need for additional capital investment in the future.

What are expected to be the key challenges?

Ensuring that national messages are confirmed as real local issues to those in our particular catchment area of concern; identifying all those that need to be informed of the issues in our particular area of concern; ensuring that those we are trying to communicate with perceive us as suitably qualified to do so.

Key partners/stakeholders

Consultants are assisting with the delivery of our own initiatives and we are working with the Metaldehyde Stewardship Group on national initiatives

Stakeholders include the Environment Agency

Name of project	'Upstream Thinking'	**Location**	South West river catchments
Water company	South West Water	**Contact officer**	Martin Ross

Objectives and short description of the project

River protection by addressing farm management. The aim is to limit soil, fertilizer and pollutant releases to rivers which feed either reservoirs or river abstractions. Total sub-programme value £4.0m.

What benefits is the project expected to deliver?

Water quality from reduced erosion and damage caused by stock accessing streams and rivers. Provision of wetlands. Biodiversity opportunities resulting from water filtration and retention. Initial outputs relate to filtering of water before release to watercourses. Initially, operating costs for water treatment will be reduced; longer term the need to upgrade water treatment works, handle algal blooms and desilt reservoirs will be delayed or avoided.

Improvement areas: seven projects covering rivers Tamar, Fowey, Otter, and three catchments serving reservoirs at Wimbleball (Exmoor), Roadford (Mid Devon) and Drift (West Penwith).

What are expected to be the key challenges?

Stakeholder engagement and support;
Links to other initiatives such as the England Catchment Sensitive Farming Delivery initiative (ECSFDI) on selected catchments.

Key partners/stakeholders
Formal project partners: catchment management consultants and Rivers Trusts with specialist skills and extensive site specific knowledge of the areas to be improved.

Stakeholders: Individual land managers, owners, farmers, tenants, fisheries interests, EA, NE, RSBP and others.

Name of project	Mires	**Location**	Exmoor and Dartmoor
Water company	South West Water	**Contact officer**	Martin Ross

Objectives and short description of the project

Moorland re-wetting influencing water storage within 4,000 Hectares; majority on Exmoor with pilot projects being developed on Dartmoor. Project value approx. £4.0m over a five year period from 1 April 2010.

What benefits is the project expected to deliver?

Water retention in dry weather to increase base flows; water quality improvements by additional filtering and erosion reduction; some peak flow attenuation in storm events; carbon capture at double SWW's total emissions rate by 2015; biodiversity and habitat restoration.

Protection of water quality and quantity at two major abstractions.

Preliminary work includes extensive surveys and mapping which will reveal many previously undiscovered structures from Bronze Age onwards, based on current Exmoor pilot experience from 2007 to 2010.

What are expected to be the key challenges?

Stakeholder engagement and support;
Links to other initiatives on moorland areas;
Securing in-kind contributions value approx £1.9m by other project partners.

Key partners/stakeholders
Formal project partners: Environment Agency, National Park Authorities, Natural England, English Heritage - MoA to be concluded.

Stakeholders: Individual land managers, including Duchy of Cornwall and other owners, farmers, tenants, open access groups, Ministry of Defence, RSBP and others. Universities of Exeter and Plymouth involved for project benefit measurements.

Name of project	Catchment investigations	**Location**	Above 17 current abstractions
Water company	South West Water	**Contact officer**	Martin Ross

Objectives and short description of the project

Undertake prioritised investigations related to Water Safety Plans in three priority groups; carry out two years' duration of study for each one. Approximate value £05.m over five years.

What benefits is the project expected to deliver?

Clear assessment of risks and threats to water abstraction which currently exist.
Allows opportunity to mobilise or target third party funds for remedies up to 2015.
Will assist the costing and specification of full scale improvements for further 'Upstream Thinking' projects for inclusion in PR14.
Outcomes will identify actions that support delivery of WFD 'good status' requirements.

What are expected to be the key challenges?

Stakeholder engagement and support;
Links to other initiatives such as the England Catchment Sensitive Farming Delivery initiative (ECSFDI) and South West Regional Development Agency water resource funding from agricultural support funds for selected catchments.

Key partners/stakeholders
Formal project partners: catchment management consultants and Rivers Trusts with specialist skills and extensive site specific knowledge of the areas to be improved.

Stakeholders: Individual land managers, owners, farmers, tenants, fisheries interests, EA, NE, RSBP and others.

Name of project	Catchment Aspects of Nitrates in AMP 5	**Location**	Cambridgeshire
Water company	Cambridge Water Company	**Contact officer**	Andy Cuthill

Objectives and short description of the project

A number of work programmes to provide better understanding of the control of Nitrate concentrations within the catchment.
The programmes will look at a number of areas such as

- Predictive modelling
- Identification of new sources
- Feasibility and cost-effectiveness of catchment management

What benefits is the project expected to deliver?

- Better understanding of the current and future risks of Nitrates to supplying wholesome water.
- Enable the company to effectively implement its proposed twin track approach to managing the rising concentrations. The work programme will provide key data to assist in the installation of the proposed nitrate treatment in AMP5.
- Improved liaison with key stakeholders within the catchment has the potential to identify synergies for future catchment monitoring.

What are expected to be the key challenges?

Wide variety of potential stakeholder involvement.
Unknown effectiveness of catchment management to control Nitrates
Accuracy of predicted Nitrate concentrations

Key partners/stakeholders
EA, DWI, NE, CCWater and Landowners.

Name of project	METALDEHYDE CATCHMENT INVESTIGATIONS	**Location**	1. HAZARDS GREEN 2. BARCOMBE 3. BRAY 4. PEMBURY 5. BEWL WATER 6. ARLINGTON RES 7. ARDINGLY RES 8. CROWHURST BR.
Water company	SOUTH EAST WATER	**Contact officer**	PAUL HOLMES

Objectives and short description of the project

The main focus of investigation will be catchment assessment using GIS, agricultural databases and remote sensing, to assess surface water risks and hazards, accompanied by stakeholder engagement and remedial action. Currently high concentrations of Metaldehyde are observed at the majority of the company's surface water intakes. Without suitable treatment options available, SEW will attempt to identify catchment management strategies.

What benefits is the project expected to deliver?

1. Identification and assessment of the extent of the threat, and hot-spots,
2. Confirmation of specific sources of contamination, by ground-truthing visits to farms in identified hot-spots,
3. Wide-spread communication programme highlighting the issues caused by diffuse pollution arising from agricultural practices , aimed at the farming community and land managers
4. Direct intervention of the contributing parties, through workshops involving local agronomists and farmers

What are expected to be the key challenges?

1. The difference in size of catchment: the approach is expected to be manageable at small areas up to 100 km2, but difficult at the Thames scale of catchment.
2. Motivation of farmers and land managers to cooperate with the investigation, and participate in the local workshops.

Key partners/stakeholders

1. Agronomists who advise farmers on farming practice
2. Local farmers in identified hot-spots
3. National holders of agricultural and land-use data

Name of project	Arnfield WTW (Woodhead Reservoir Colour and Turbidity)	**Location**	Woodhead Catchment
Water company	United Utilities	**Contact officer**	Kate Snow

Objectives and short description of the project

To restore areas of heavily degraded and eroding moorland in Woodhead reservoir catchment. This degradation can lead to increased colour, turbidity and suspended solids in the raw water.

Woodhead Reservoir catchment is in the Longdendale Valley and supplies Arnfield WTW. 46% of the Woodhead catchment area is not owned by UUW. 45% of this non-owned area is designated as a Site of Special Scientific Interest, of which nearly two thirds is classified as unfavourable – no change condition reflecting the degraded state of the moor.

The improvements are based on our AMP4 SCaMP approach and include bare peat stabilisation through re-vegetation and gully blocking to minimise erosion and prevent future deterioration in raw water quality.

We will work in partnership with the private landowners supported by Natural England, to improve raw water quality whilst enhancing the biodiversity, amenity and landscape value of the area. This will act as a model for future sustainable catchment management with other external landowners. The results will also be used to support future investment decisions to achieve water quality standards.

What benefits is the project expected to deliver?

- Reduce the risk of non-compliance
- Improving raw water quality, in terms of reducing organic and particulate concentrations and providing a reduced challenge on the receiving WTW
- Potentially reducing or delaying the need for future treatment interventions, which will minimise impact on our customer's bills
- Protecting and enhancing upland landscapes and improving the recreational value
- Enhancing biodiversity and delivering UK Biodiversity Action Plan (BAP) targets
- Securing, stabilising and potentially enhancing the significant carbon stores within the peat soil on the catchment
- Significantly improving the ability of some of the North West's most fragile habitats and ecosystems to withstand the challenge of extreme weather events associated with climate change.

What are expected to be the key challenges?
Ensuring UU aims are achieved as part of this larger European project

Key partners/stakeholders
Moors for the Future
Landowners
Natural England
Environment Agency

Name of project	Downs and Harbours Clean Water partnership	**Location**	Hampshire and West Sussex
Water Company	Portsmouth Water Ltd	**Contact officer**	Shelley Williams

Objectives and short description of the project

The project is collaboration between the Environment Agency, Natural England and Portsmouth Water called the Downs & Harbours Clean Water Partnership. The aim of the project is to influence land management and nutrient management practices in the project catchment to deliver the following key outcomes:

1. Protection of Portsmouth Water groundwater sources used for public water supply through a reduction in nitrate loss to groundwater, and to provide information for Drinking Water Safety Plans.
2. Delivery of WFD favourable or recovering conservation status to East Solent Harbours SPA's through a reduction in nitrate load derived from diffuse sources.
3. Delivery of Water Framework Directive water quality objectives for ground and surface water bodies (inc. transitional and coastal waters) through a reduction in diffuse pollution pressure.
4. Integration with biodiversity, landscape enhancement etc. objectives for the South Downs to maximise benefit from agri-environment targeting.

What benefits is the project expected to deliver?

Reduction in nitrates entering the water environment preventing the need for additional treatment. Improved risk management, data acquisition and stakeholder communication/engagement.

What are expected to be the key challenges?

- Engagement of the agricultural community– a key challenge is getting people to give up time particularly if they do not immediately see a benefit.
- Voluntary Take Up - Getting farmers to change farming practices through voluntary means is not always easy, at some point the 'stick' of legislation e.g. water protection zones, safeguard zones, may be the only way to change some practices
- Workshop Fatigue – Trying to keep workshops/seminars fresh and of interest to farmers – another example of the difficulty of getting their time.
- Seasonal Work – the pressures of essential seasonal farm work will restrict when farmers can be reached and are able/willing to spare time
- Giving difficult water quality messages without isolating yourself from the farmers and creating that 'us & them' response
- Trying to sell the message that changing farming practices does not need to be expensive, may save them money and will not be at the detriment of their farm business

Key partners/stakeholders

Natural England
Environment Agency

Name of project	Catchment Management – General (WFD5)	**Location**	Region
Water company	Anglian Water	**Contact officer**	Simon Eyre

Objectives and short description of the project

EA supported, WFD driven, package of catchment management measures to provide longer term benefits for all sources but particularly those impacted by diffuse pollution. Investigations under WFD5 include:

- office-based surveys
- modelling
- field surveys
- liaison with stakeholders in the catchment

What benefits is the project expected to deliver?

- Better understanding of the risks within the catchments feeding the sources
- Long term improvement in water quality (in line with the aims of WFD)
- Avoidance of the need to install new water treatment
- Reduction of the current level of treatment
- Reduction OPEX and CAPEX
- Development of an environmentally sustainable approach to water supply
- Support the DWSP raw water risk assessment process required by Regulation 27I
- Support the EA in the delineation of Safeguard Zones and the targeting of existing and new resources towards at-risk DrWPAs

Name of project	DWI supported groundwater quality schemes	**Location**	7 No. schemes across the Anglian Region
Water company	Anglian Water	**Contact officer**	Simon Eyre

Objectives and short description of the project

DWI supported package of catchment management measures aimed at stabilising and ultimately reversing upward raw water trends, particularly for nitrate and pesticides for specific Chalk groundwater sources. This will reduce the risk of future exceedances of drinking water standards and potentially avoid the requirement for additional treatment processes.

Scheme	Location	Description
Irby Reservoirs	North Lincs	4 No. Chalk sources variously impacted by elevated nitrates. Upward nitrate trends will make existing blend solution at Irby reservoirs non- viable during AMP6.
Risby	West Suffolk	Single high nitrate source currently blending with another Chalk source of lower nitrates. Upward nitrate trend and pesticides detected.
Barrow WTW	North Lincs	5 No. Chalk sources variously impacted by elevated nitrates and pesticides. Existing IX plant at Barrow WTW but upward nitrate trends. Currently no pesticide removal. Pathogen risk in sources, and regular detections of *E.coli* together with occasional *Cryptosporidium* positives.
Glandford	North Norfolk	Single source with predicted nitrate non-compliance. Currently no solution in place. Upward nitrate trend.
North Pickenham	Mid Norfolk	Single high nitrate source currently blending with another Chalk source of lower nitrates. Upward nitrate trend and pesticides detected.
Riddlesworth	South Norfolk	Single source with elevated nitrate and a range of pesticides. Treatment solutions on site for nitrate and some pesticides but clopyraild present and no poorly removed through treatment process. No current treatment solution.
Great Wratting	South west Suffolk	Satellite source at Wixoe picking up metaldehyde. No current treatment solution.

What benefits is the project expected to deliver?

- Better understanding of the catchments feeding the sources
- Long term improved water quality
- Avoidance of the need to install new water treatment
- Reduction of the current level of treatment
- Reduction OPEX and CAPEX
- Development of an environmentally sustainable approach to water supply
- Support the DWSP raw water risk assessment process required by Regulation 27
- Support the EA in the delineation of Safeguard Zones and the targeting of existing and new resources towards at-risk DrWPAs
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What are expected to be the key challenges?

- Planning, focussing and targeting measures
- Developing means of assessing the success of particular measures
- Engaging with the right stakeholders
- Acquiring and using appropriate modelling tools
- Expectation management
- Selecting and targeting appropriate measures for potential mitigation
- Implementing catchment measures without powers of entry or enforcement

Key partners/stakeholders

- Environment Agency
- Natural England
- English Catchment Sensitive Farming Delivery Initiative (Anglia)
- The Voluntary Initiative
- Consultants
- Farming organisations, particularly the NFU and CLA
- Land Managers
- Agronomists
- Local Biodiversity Groups

Name of project	DWI supported surface water quality schemes	**Location**	13 No. schemes across the Anglian Region
Water company	Anglian Water	**Contact officer**	Simon Eyre

Objectives and short description of the project

DWI supported package of catchment management measures to reduce levels of the pesticides metaldehyde and/or clopyralid in surface water sources to secure compliance with drinking water standards in the absence of a viable treatment solution.

Scheme	**WTW Location**	**Catchments**
Alton	South of Ipswich	Gipping, Mill River, Tattingstone Brook
Ardleigh	North east of Colchester	Colne, Northern Salary Brook, Western Salary Brook
Clapham	Bedford	Great Ouse
Covenham	South of Grimsby	Louth Canal, Great Eau
Elsham	East of Scunthorpe	Ancholme, Barlings Eau, Witham
Grafham	South west of Huntingdon	Great Ouse
Heigham	Norwich	Wensum
Marham	South east of Kings Lynn	Nar
Pitsford	North of Northampton	Nene, Holcott Steam, Walgrave Brook, Scaldwell Brook
Ravensthorpe	North west of Northampton	Coton Mill Stream, Crow Hill Stream
Saltersford	Grantham	Witham, Cringle Brook, Bath Springs
Stoke Ferry	East of Downham Market	Wissey
Wing	South east of Oakham	Nene, Welland, Gwash

What benefits is the project expected to deliver?

- Better understanding of the catchments feeding the sources
- Long term improved water quality
- Avoidance of the need to develop and install new water treatment
- Reduction OPEX and CAPEX
- Development of an environmentally sustainable approach to water supply
- Support the DWSP raw water risk assessment process required by Regulation 27
- Support the EA in the delineation of Safeguard Zones and the targeting of existing and new resources towards at-risk DrWPAs
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What are expected to be the key challenges?

- Planning, focussing and targeting measures
- Developing means of assessing the success of particular measures
- Engaging with the right stakeholders and maintaining communication
- Acquiring and using appropriate modelling tools
- Expectation management
- Selecting and targeting appropriate measures for potential mitigation
- Implementing catchment measures without powers of entry or enforcement
- Aligning with other catchment management initiatives
- Maintaining impetus through AMP5 and beyond

Key partners/stakeholders

- Environment Agency
- Natural England
- English Catchment Sensitive Farming Delivery Initiative (Anglia)
- The Voluntary Initiative
- Consultants
- Land managers
- Farming organisations, particularly the NFU and CLA
- Agronomists
- Suppliers
- Local Biodiversity Groups

Name of project	Blagdon Metaldehyde	**Location**	River Cam and River Frome Catchments
Water company	Bristol Water	**Contact officer**	Jon Scott

Objectives and short description of the project

The aim of the project is to work with key stakeholders to manage the metaldehyde input in the catchments of the River Cam and River Frome to:
- reduce the metaldehyde input into the Gloucester Sharpness Canal.
- reduce the risk of a subsequent exceedance of the drinking water standard.
- Delivery of WFD water quality objectives for surface waters.

What benefits is the project expected to deliver?

The aim of the project is to minimise metaldehyde usage in the catchment area and reduce the amount reaching the raw water source. This will be demonstrated by a reduction of background and peak metaldehyde levels.

What are expected to be the key challenges?
Engaging with key stakeholders in a partnership they may not initially see any benefits in.
Maintaining the interest and momentum through the AMP period and beyond.

Key partners/stakeholders
Bristol Water
Land owners
Environment Agency
Natural England

Name of project	Blagdon Metaldehyde	**Location**	Blagdon Lake
Water company	Bristol Water	**Contact officer**	Jon Scott

Objectives and short description of the project

The aim of the project is to work with key stakeholders to manage metaldehyde input in the catchment to:
- reduce the risk of a subsequent exceedance of the drinking water standard.
- delivery of WFD water quality objectives for surface waters.

What benefits is the project expected to deliver?

The aim of the project is to minimise metaldehyde usage in the catchment area and reduce the amount reaching the raw water source. This will be demonstrated by a reduction of background and peak metaldehyde levels.

What are expected to be the key challenges?
Engaging with key stakeholders in a partnership they may not initially see any benefits in.
Maintaining the interest and momentum through the AMP period and beyond.

Key partners/stakeholders
Bristol Water
Land owners
Environment Agency
Natural England

Name of project	Anglesey and Lleyn Fens	**Location**	Anglesey, North Wales
Water company	Dwr Cymru	**Contact officer**	Tony Andrews

Objectives and short description of the project

The object of the project is to bring 751 ha of fen Corsydd Mon/Anglesey Fens SAC and Corsydd Llyn/Lleyn Fens SAC into favourable or recovering condition through measures aimed at tackling the factors adversely affecting their condition and by delivering more sympathetic management.

What benefits is the project expected to deliver?

751 ha of fen within the Corsydd Mon/Anglesey Fens SAC and Corsydd Llyn/Lleyn Fens SAC will be brought into favourable or recovering condition through a suite of measures aimed at delivering more sympathetic management and will include

- Management agreements to be negotiated on a minimum of 217 ha
- Constructed wetlands
- Water levels to be raised along 5800m of ditches
- 66 ha of land will be taken into conservation management
- 76 ha of firebreaks will be created
- Farm nutrient biodiversity and diversification management plans will be written for 40 farms
- 3479 m of hydrological pathways will be restored

This will all help reduce nutrient inputs and would directly benefit raw water quality in Llyn Cefni reducing the need for increased levels of treatment to meet potable water standards.

What are expected to be the key challenges?

1. Land linking component sites are ineligible for the project under LIFE
Action required between these sites to tackle critical factors would not be addressed and favourable conservation status would not be possible.

2. Prioritised land sales fall through
Purchase of high priority land to enable implementation of project actions is unsuccessful.

3. Management agreement scheme oversubscribed
This will reduce local community and farmer support.

4. Composting is shown to be uneconomic; or not possible

Alternative disposal methodologies could be costly and less environmentally desirable.

5. Increase in cost of materials/services/land
This would result in an increase in the cost of the project and/or less outcome delivered than expected.

6. Animal health/bio-security emergency, e.g. Foot and Mouth Disease, blue tongue, avian flu
Severe restrictions on stock, machinery and personnel movements within the project areas which could extend over substantial periods e.g. 6 months.

7. Breakdown in community relationships
The co-operation and active engagement of local communities, and especially the farming sector, is critical. Failure to achieve this could result in a delay in the start of the project or in the worst case, an abandoned project.

8. Intensification of production to meet food demands
Political and policy decisions on the use of marginal land could make conservation un-competitive compared with the potential income available from stock production. Less land is then available for conservation action.

9. Management agreement scheme under-subscribed
Under-subscription to the scheme will reduce its conservation impact and result in budget under-spend.

10. Planning permission for peat extraction refused
The ability to remove peat becomes restricted and the ability to use it as the basis of a local business would be removed.

11. Waste exemption licence not granted
This would prevent stockpiling of extracted peat on site and compromise the overall viability of peat removal.

12. Poor project management
This would result in poor project delivery, missed milestones, inadequate or incomplete delivery of project actions, and failure to deliver the project objectives.

Key partners/stakeholders

Under the LIFE project key partners are Welsh Water, Countryside Commission for Wales, Environment Agency Wales and the North Wales Wildlife Trust.
Key stakeholders will include local farmers and communities

Name of project	See below	**Location**	Essex, Suffolk, Norfolk, Northumberland, County Durham
Water company	Northumbrian Water, Essex & Suffolk Water	**Contact officer**	William Robinson

Objectives and short description of the project

Northumbrian Water and Essex & Suffolk Water projects:

- Stour Pesticide Project (Suffolk / Essex): 1 Pesticide Officer
- Chelmer & Blackwater Strategic Partnership (Essex) : 1 Pesticide Officer
- General Catchment Management: Catchment Officers (1 Northumbrian Water and 1 Essex & Suffolk Water)

Project objectives are:

i. to identify emerging water quality issues;

ii. to influence land management practices within the catchments through monitoring, advice and advocacy; and

iii. to enhance the protection of public water supply abstractions with regards to pesticide and nitrate loss to surface and groundwater and colour (Dissolved Organic Carbon) to surface water.

What benefits is the project expected to deliver?

The project will deliver:

i. Improved risk management through stakeholder engagement and project data collection both of which will inform the water safety planning process:

Which ultimately influences:

ii. Pesticide, nutrient and Total Organic Carbon concentrations at abstraction points with the aim of preventing the need for additional treatment.

What are expected to be the key challenges?

Challenges are:

i. Initially, a lack of evidence to demonstrate the problem to landowners, farmers and growers.

ii. Improving stakeholder engagement and softening the “them and us” stance.

Key partners/stakeholders

National Farmers Union, Environment Agency, Natural England, England Catchment Sensitive Farming Delivery Initiative, Voluntary Initiative, Metaldehyde Stewardship Group and Broads Authority, Defra, North Pennines AONB Partnership Peatscapes Project, RSPB and CLA.

Name of project	Upper Avon Strategic Partnership	**Location**	Upper Avon and Leam - Warwickshire
Water Company	Severn Trent Water Ltd (STWL)	**Contact officer**	Jodie Whitehead

Objectives and short description of the project

STWL have identified ten surface water catchment investigations, engagement has already started in four of these catchments. The Upper Avon Strategic Partnership is an example of one of these surface water investigations.

The project is collaboration between the Environment Agency, Natural England and Severn Trent Water Ltd. The aims of the project are to:

1. Improve the understanding amongst farmers and land managers of diffuse water pollution from agriculture (DWPA), in particular its impact on biodiversity and the quality of water abstracted for drinking water.
2. To fund a Catchment Officer to support farmers and land managers in making changes to farming practices to mitigate diffuse pollution and to extend the availability of nutrient, soil and pesticide management advice to farmers in England outside the priority catchments in the ECSFDI.

What benefits is the project expected to deliver?

Reduction in nitrates, phosphate and pesticides entering the water environment preventing the need for additional treatment. Pesticides, including Metaldehyde are the key parameters to tackle from a water company perspective.

What are expected to be the key challenges?

- Engagement of the agricultural community– a key challenge is getting people to give up time particularly if they do not immediately see a benefit.
- Voluntary Take Up - Getting farmers to change farming practices through voluntary means is not always easy.
- Workshop Fatigue – Trying to keep workshops/seminars fresh and of interest to farmers – another example of the difficulty of getting their time.
- Seasonal Work – the pressures of essential seasonal farm work will restrict when farmers can be reached and are able/willing to spare time
- Giving difficult water quality messages without isolating yourself from the farmers and creating that 'us & them' response
- Trying to sell the message and provide evidence that changing farming practices does not need to be expensive, may save them money and will not be at the detriment of their farm business
- Identifying and reaching farmers that are less willing to engage.
- Reaching all the agronomists in the catchment (independents in particular)
- Attracting other local initiatives and capital grant funding to incentivise engagement and help changes in practice and infrastructure improvements to reduce pollution; the designation of voluntary water safeguard zones may assist in attracting other parties.
- Data sharing and confidentiality issues – will we have access to the data we need to evaluate risks?

Key partners/stakeholders

Natural England, Environment Agency, VI, NFU / CLA, Local land owners/managers/agronomists

Name of project	Charnwood Reservoirs Project	**Location**	Cropston, Leicestershire (see map below)
Water Company	Severn Trent Water Ltd (STWL).	**Contact officer**	Jodie Whitehead

Objectives and short description of the project

STWL have identified ten surface water catchment investigations, engagement has already started in four of these catchments. The Charnwood Reservoirs Project is an example of one of these surface water investigations.

Cropston reservoir is part of a designated SSSI which has a requirement for low nutrient inputs. STWL have been working with other parties including the Environment Agency (EA) and Natural England to improve water quality. The EA are considering this catchment as a candidate Water Protection Zone where catchment measures could be imposed rather than taking a voluntary approach. However, catchment evaluation is required to better understand the sources of nitrate and to appraise catchment measures to improve water quality. As part of this evaluation STWL have funded a FWAG officer to offer advice to farmers within the catchment. More recently pesticide concentrations have become a significant problem, specifically Metaldehyde The farm advice has included:

- The production of soil, manure and nutrient management plans including routine soil sampling and analysis
- Assisting farms into stewardship schemes - ELS, Organic ELS and HLS
- Assisting with Capital Works grant applications
- 1-to-1 farm advice
- Organising and running events – calibration/servicing of fertiliser/muck spreaders and best practice for slug pellet applications.

What benefits is the project expected to deliver?

Reduction in nutrients and pesticides, particularly metaldehyde entering the water environment preventing the need for additional treatment as well stakeholder communication/engagement.

What are expected to be the key challenges?

- Engagement of the agricultural community– a key challenge is getting people to give up time particularly if they do not immediately see a benefit.
- Voluntary Take Up - Getting farmers to change farming practices through voluntary means is not always easy, it is hoped that the designation of safeguard zones may help attract more initiative to the catchments, however, at some point the 'stick' of legislation e.g. water protection zones may be the only way to change some practices
- Workshop Fatigue – Trying to keep workshops/seminars fresh and of interest to farmers – another example of the difficulty of getting their time.
- Seasonal Work – the pressures of essential seasonal farm work will restrict when farmers can be reached and are able/willing to spare time
- Giving difficult water quality messages without isolating yourself from the farmers and creating that 'us & them' response
- Trying to sell the message and provide evidence that changing farming practices does not need to be expensive, may save them money and will not be at the detriment of their farm business
- Attracting other local initiatives and capital grant funding to incentivise engagement and help changes in practice and infrastructure improvements to reduce pollution; the designation of voluntary water safeguard zones may assist in attracting other parties.
- Data sharing and confidentiality issues – will we have access to the data we need to evaluate risks?

Key partners/stakeholders

Natural England, Environment Agency, VI, FWAG, Local land owners/managers

Name of project	Groundwater Nitrate Investigations	**Location**	Throughout the Severn Trent Water Ltd region
Water Company	Severn Trent Water Ltd.	**Contact officer**	Jodie Whitehead

Objectives and short description of the project

Severn Trent Water Ltd will be undertaking a total of 31 groundwater investigations for nitrate. Each individual investigation will broadly follow a phased approach:

- **Phase 1 – Desk Study.** Within this Phase catchment characterisation will be undertaken using, where appropriate both present and historical data. This phase may also include calculations and modelling. Contact will also be made with some stakeholders and the need for enhanced monitoring will be assessed.
- **Phase 2 – Catchment Visits.** Catchment visits will be undertaken to validate the desk study assumptions. This may comprise of a catchment walkover using public assess or where needed visits to land managers in the catchment. Should the first two Phases show that catchment management initiatives are likely to lead to water quality improvements and will be cost beneficial to Severn Trent, these will then be prioritised and past onto to Phase 3.
- **Phase 3 – Catchment Management Initiatives.** Catchment engagement to influence activities in the catchment with the aim of improving water quality and will for trials for potential future catchment management initiatives that will involve Severn Trent Water and other stakeholders.

Due to the large number of groundwater nitrate investigations, there will be a pilot stage before commencing investigations for all the 31 sites. The pilot stage will consist of 9 catchments with the aim of Phase 2 being completed by 2012.

What benefits is the project expected to deliver?

Reduction in nitrates entering the water environment preventing the need for additional treatment. Improved risk management, data acquisition and stakeholder communication/engagement.

What are expected to be the key challenges?

- Obtaining appropriate historical data on land use and management within the catchment, requiring assistance from local land managers to obtain appropriate data.
- Engagement of the agricultural community– a key challenge is getting people to give up time particularly if they do not immediately see a benefit.
- Voluntary Take Up - Getting farmers to change farming practices through voluntary means is not always easy, at some point the 'stick' of legislation e.g. water protection zones, safeguard zones, may be the only way to change some practices
- Workshop Fatigue – Trying to keep workshops/seminars fresh and of interest to farmers – another example of the difficulty of getting their time.
- Seasonal Work – the pressures of essential seasonal farm work will restrict when farmers can be reached and are able/willing to spare time
- Giving difficult water quality messages without isolating yourself from the farmers and creating that 'us & them' response
- Trying to sell the message that changing farming practices does not need to be expensive, may save them money and will not be at the detriment of their farm business
- Monitoring short term improvements in groundwater nitrate concentrations.
- Data sharing and confidentiality issues – will we have access to the data we need to evaluate risks?

Key partners/stakeholders

Natural England, Environment Agency, NFU / CLA, Local land owners/managers/agronomists

Name of project	Pesticide investigations	**Location**	River Severn Catchment & Blithfield Reservoir Catchment
Water company	South Staffs Water	**Contact officer**	Stuart Jones 01922 618120

Objectives and short description of the project

To undertake investigations to determine the type, distribution, and seasonality of pesticide usage and their concentration within the catchments.
To use the information generated by the above investigations to instigate targeted catchment management measures and the need for safeguard zones.

Due to recent issues a significant proportion of the investigations will specifically be focused on the pesticide metaldehyde.

What benefits is the project expected to deliver?

Development of a more detailed and improved understanding of pesticide levels, usage etc. in the catchment areas.

A reduction in pesticides levels in potable water sources, following implementation of targeted catchment management measures or safeguard zone(s).

Reduced likelihood of the need for investment for an ‘end of pipe’ solution to treat pesticides threatening drinking water compliance.

What are expected to be the key challenges?

Ensuring that all sources of pesticides form part of data assessments – e.g. agriculture, amenity use etc.

Working with agriculture to ensure that catchment management measures are implemented and coverage is sufficient to impact on pesticide levels.

Understanding mechanisms of route to water for pesticides to ensure that advice to agriculture is effective in reducing pesticides.

Key partners/stakeholders

Environment Agency
Voluntary Initiative Group
Local Agronomists and other agricultural groups including farmers
Pesticide manufacturers and suppliers/distributors

Name of project	YWS AMP5 Catchment Management Full Scale Pilot	**Location**	Oldfield WTW catchment, Keighley West Yorks
Water Company	Yorkshire Water Services Ltd	**Contact officer**	Andrew C Walker

Objectives and short description of the project

YWS has undertaken 6 years of R&D to try to understand what drives colour (DOC) increases in our moorland reservoir catchments. The aerobic bacterial decomposition of deep peat is the source of DOC. This pilot is the first phase of land management interventions, aimed at:

1. Restoring the hydrology of peat moorlands, e.g. by blocking man-made drains
2. Manipulating vegetation types to encourage more bog forming species
3. Working in partnership with tenants & private landowners to develop more sustainable ways of managing peat in water catchments

What benefits is the project expected to deliver?

Stabilisation or reductions in DOC, thereby reducing the need for additional treatment. Building on YWS reputation for working with tenants & landowners to promote a balance between water, farming and sport.

What are expected to be the key challenges?

- Engagement with private landowners
- Demonstrating the changes in water quality in time to prove the concept works
- Understanding & quantifying the impact of catchment interventions on Grouse
- Developing the legislative framework to ensure water quality is protected if people won't work with us
- Understanding the impact of climate change – may dry the moors irrespective of our interventions
- Managing vegetation structures going forward
- Understanding the impacts of future agri-environment schemes

Key partners/stakeholders

Natural England
Environment Agency
Moorland Association
NFU

Name of project	YWS AMP5 Catchment Management Roll Out	**Location**	Langsett WTW, Loxley WTW, Chellow Heights WTW, Longwood WTW, Yorkshire
Water Company	Yorkshire Water Services Ltd	**Contact officer**	Andrew C Walker

Objectives and short description of the project

YWS has undertaken 6 years of R&D to try to understand what drives colour (DOC) increases in our moorland reservoir catchments. The aerobic bacterial decomposition of deep peat is the source of DOC. This pilot is the first phase of land management interventions, aimed at:

- Restoring the hydrology of peat moorlands, e.g. by blocking man-made drains
- Manipulating vegetation types to encourage more bog forming species
- Working in partnership with tenants & private landowners to develop more sustainable ways of managing peat in water catchments

This implementation of this phase will depend on a number of factors.

1. How successful negotiations with private landowners have been
2. Whether the findings from the Full Scale Pilot demonstrate the concept works

3Whether it is decided that engineering solutions will deliver a better solution

What benefits is the project expected to deliver?

Stabilisation or reductions in DOC, thereby reducing the need for additional treatment. Building on YWS reputation for working with tenants & landowners to promote a balance between water, farming and sport.

What are expected to be the key challenges?

1. Engagement with private landowners
2. Demonstrating the changes in water quality in time to prove the concept works
3. Understanding & quantifying the impact of catchment interventions on Grouse
4. Developing the legislative framework to ensure water quality is protected if people won't work with us
5. Understanding the impact of climate change – may dry the moors irrespective of our interventions
6. Managing vegetation structures going forward
7. Understanding the impacts of future agri-environment schemes

Key partners/stakeholders

Natural England & National Trust
Environment Agency
Moorland Association
NFU