Diffuse water pollution theme plan

Developing a strategic approach to diffuse water pollution for England's Natura 2000 sites

'Improvement Programme for England's Natura 2000 Sites – Planning for the Future'

www.gov.uk/government/publications/improvement-programme-for-englands-natura-2000-sites-ipens

Preface

IPENS and theme plans

The Improvement Programme for England's Natura 2000 sites (IPENS), supported by European LIFE+ funding, is enabling Natural England, the Environment Agency, and other key partners to plan what, how, where and when to target their efforts on Natura 2000 sites and the areas surrounding them. As part of the IPENS programme, themed action plans are being developed (Annex 2). 'Theme plans' are high-level plans which aim to improve the way in which a key issue for the Natura 2000 network is managed. Theme plans can provide an over-arching direction, recommendations or outline approaches to achieve target conservation status of Natura 2000 sites in England, to complement work already underway on individual sites. The plans do not have a legal or political status and do not constitute a systematic evidence review. They are to inform action and initiatives of Natural England and its partners to help achieve the objectives of Natura 2000.

It is anticipated that Natural England and others, working with stakeholder and partners, will all play a role in implementing the theme plan. In the process of developing the theme plans Natural England has approached key partners and delivery bodies to seek input and agreement on the roles in delivering the improvements, although in some cases these discussions have not yet been concluded. Recommended actions and next steps identified in the theme plans are not necessarily committed or resourced but aimed at informing future resource decisions. Implementation of the theme plan recommendations will be via local prioritised delivery plans and coordinated through the IPENS After-Life Steering group, working with national and local delivery partner organisation.

Audience

The Diffuse Pollution Theme Plan is aimed at those that play a key role in taking forward the actions identified in this plan, and with whom further discussion is needed, in particular (but not exhaustively); Defra, Natural England, Environment Agency, Forestry Commission, agricultural sector and non-agricultural sector partners eg Catchment Based Approach (CaBA) partners.

Executive summary

Diffuse water pollution (DWP) is derived from multiple, often intermittent, sources that individually may be relatively minor but which collectively can have a significant impact on water quality. The sources typically comprise of unlicensed and dispersed land-use activities. A significant proportion (63%) of water dependent Natura 2000 sites is reported in Site Improvement Plans (SIPs) to be affected by water pollution. Ninety three percent of these specifically identify diffuse water pollution.

Overview

In freshwater Natura 2000 sites, eutrophication due to phosphorus enrichment and the adverse effects of excessive siltation are the principle concerns, whilst in estuaries and coastal waters the issue is chiefly one of eutrophication due to excess nitrogen loading. As the control of regulated discharges (mainly point sources) has become increasingly effective, diffuse contributions have become proportionately more significant. In practice attributing adverse impacts back to individual activities can be very difficult. The main mechanisms currently available to tackle diffuse pollution include: regulation; advice, including the Catchment Sensitive Farming programme; grants and annual payments under the Rural Development Programme for England; and industry and third sector lead initiatives. Whilst some actions to tackle DWP using these mechanisms are underway or planned, implementation in many cases involves complex and costly measures with uncertain habitat responses, and the timescales for recovery are often lengthy or unknown.

Key elements of a strategic approach

A strategy for addressing DWP on Natura 2000 sites requires an appropriate (long term) perspective and must be based upon a flexible adaptive approach that can respond to improving evidence and understanding and allow for new or improved mechanisms. Key elements of a strategy would involve:

- The development of detailed catchment plans to drive local delivery (eg Diffuse Water Pollution Plans).
- The application of existing available mechanisms underpinned by good local evidence.
- A review process for Natura 2000 sites that tracks their rate of progress against Water Framework Directive requirements for Protected Areas and identifies any shortfalls in existing mechanisms. For example identifying sites where 'pollution gaps' are likely to occur i.e. the gap between reductions in pollution reasonably achievable using existing mechanisms and the level of reductions required to meet favourable condition.
- Development of new or enhanced mechanisms to address the 'pollution gap'.

As action to tackle diffuse pollution has progressed, the nature of additional work needed to reduce the diffuse pollution sufficiently to meet Natura 2000 Protected Area requirements is becoming clearer. Tackling DWP requires an approach that can respond to these challenges so there can be confidence that the necessary measures will be secured over timescales which are practicable, justifiable and in accordance with Water Framework Directive requirements for timescale extensions.

Recommendations

The Theme Plan includes proposals for 16 priority actions for reducing the impacts of diffuse pollution on Natura 2000 sites. Many of these are based on developing or improving current approaches or mechanisms, including for example:

- list advice provision;
- spatial prioritisation of agri-environment and woodland measures;
- risk based inspections;
- the enforcement of existing regulations; and
- and the use of the WFD funds;

- Catchment Partnerships.

In addition, a review is required to better understand the contribution that non-compliance with basic (regulatory) measures makes to DWP and the extent to which dealing with non-compliance can help bridge the pollution gap. Actions to strengthen links with agricultural and non-agricultural sector partners are also proposed, as efforts to tackle diffuse pollution benefit from good local partnerships.

Contents

1. Introduction

The majority of water dependent Natura 2000 sites, (that is Special Areas of Conservation (SAC) and Special Protection Areas (SPA)), are affected by diffuse water pollution (DWP). Consequently, it has been it has been identified as an important theme for IPENS to address at a national and strategic level. Often sites are affected by multiple sources of pollution, many of which have proved difficult to tackle in the past. However, the inclusion in River Basin Management Plans (RBMP) of water dependent Natura 2000 sites as 'Protected Areas' under the Water Framework Directive (WFD) provides increased impetus for understanding the sources of diffuse pollution and progressively addressing these using a range of measures.

2. Description of the issues and scale of the problem

Diffuse pollution is the release of potential pollutants from a range of activities that individually may have little or no discernable effect on the water environment, but at the scale of a catchment can have a significant cumulative impact. The sources of diffuse water pollution are varied and include agriculture, urban run-off, highways drainage and non mains sewage discharges. The pressures and impacts from diffuse pollution are described in the consultation document for the 2nd cycle River Basin Management Plans. They include eutrophication, loss of biodiversity, silting of fish spawning grounds, and impacts on human health through drinking water or bathing water pollution (Wentworth, 2014).

2.1 Scale of the issue

Water pollution is identified as a priority issue (i.e. pressure or threat) in 87 Site Improvement Plans (SIPs) prepared as part of IPENS. This equates to 63% of Site Improvement Plans (SIPs) covering water dependent Natura 2000 sites – see Annex 3, table 2. Water pollution mainly affects freshwater Natura 2000 sites (71 SIPs) though marine and estuary sites are also affected (16 SIPs). In the majority of cases (92%), diffuse water pollution is specifically identified. Diffuse water pollution plans are identified as a key mechanism for directing action to address this pressure and/or threat. As a result of existing work, 43 Natura 2000 sites (underpinned by 78 component Sites of Special Scientific Interest covering a total unit area of 13,109 ha) had been identified where a DWP plan would be beneficial (Annex 3, table 2). In addition to this a further 11 Natura 2000 sites are identified in SIPs where the preparation of a Diffuse Water Pollution Plan is a necessary action. SIPs have also identified a further 25 sites that require a site level investigation to confirm whether or not water pollution is a significant issue and if so what action is required to address it (Annex 3, table 2). In particular, risks posed from DWP are less well understood with regard to 'terrestrial' wetland habitats and transition and coastal (TRAC) waters. This is likely to change as condition assessment information is updated and improves.

A range of mechanisms have been identified in SIPs to address DWP (Annex 3, table 1). These include in order of their frequency of occurrence in all SIPS: Investigation; Diffuse Water Pollution Plan; Catchment Sensitive Farming; Rural Development Programme for England eg agri-environment schemes, water industry Asset Management Plans, Advice, Regulation, Enforcement and Partnership.

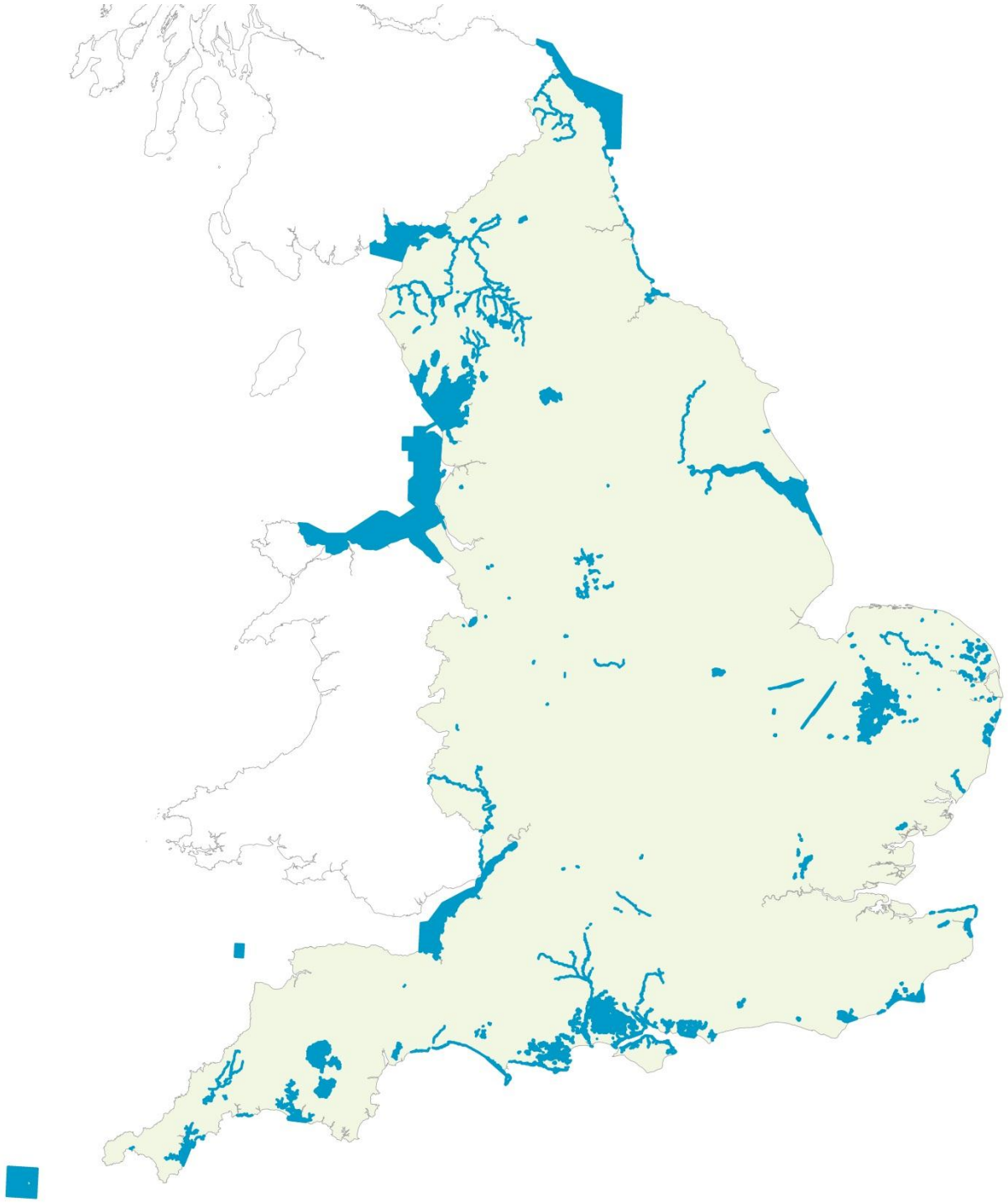

Figure 1 Distribution of Natura 2000 sites in England affected by water pollution

2.2 Pollutants and Natura habitats

In freshwater Natura 2000 sites, eutrophication due to phosphorus enrichment and the adverse effects of excessive siltation are the principle concerns, whilst in estuaries and coastal waters the issue is chiefly one of eutrophication due to excess nitrogen loading (Source: Natural England IPENS Site Improvement Plans and N2K Diffuse Water Pollution Plans, unpublished reports).

Increasingly, Nitrogen is also becoming recognised as a significant pressure impacting the ecology of freshwater Natura 2000 sites, including wetlands irrigated by polluted groundwater bodies (UKTAG 2014). However, our understanding has not yet developed to the point where Common Standards Monitoring Guidance for protected sites includes Nitrogen targets for freshwaters as they do for Phosphorus.

The largest source of phosphorus in rivers nationally is sewage, whilst for lakes agriculture is dominant (Environment Agency, 2014). However, in river Natura 2000 sites, significant investment in sewage treatment (driven by the Habitats Directive) has meant diffuse contributions have become proportionately more significant.

At the coast, coastal waters themselves have been identified as a significant source of nitrogen to estuaries and harbours (Natural England, 2014). The apportionment of these elevated background levels of nitrogen is unclear but it is likely to reflect a much larger scale issue of nitrogen pollution of the marine environment requiring a strategic, even international response.

2.3 Key sources of diffuse water pollution

Source apportionment modelling identifies agriculture as a significant contributor to the diffuse component of phosphorus, nitrogen and sediment load within the catchments of Natura 2000 sites (UK Water Industry Research 2014, Collins and Zhang 2014, Defra 2014). Diffuse contributions from non-agricultural sources (such as urban run-off and septic tanks) can also be locally significant but are generally less important overall which simply reflects the largely rural nature of Natura 2000 site catchments. Consequently the principle focus of this Theme Plan will be addressing Diffuse Water Pollution from Agriculture, however, the need for action to tackle non-agricultural sources is also recognized and further action identified.

The nature of DWP is such that adverse impacts are often delivered through a cumulative effect of multiple sources. Consequently, attributing adverse impact to individual locations can be difficult in practice. This can present a barrier to engaging key catchment stakeholders in voluntary delivery of remedial measures and to effective enforcement of regulation.

Measures and mechanisms to tackle DWP from agriculture such as agri-environment advice and incentive schemes rely on voluntary participation. Consequently, without concerted effort to encourage positive engagement, achieving uptake of advice and measures at the requisite scale and in the critical locations can be challenging, thereby limiting overall effectiveness.

There is a good body evidence for the effectiveness of measures at the field scale (Defra 2011) but predicting catchment scale responses is less certain and the subject of ongoing research (Demonstrating Catchment Management). Although it is difficult to be definitive, modelling approaches (eg ADAS FARMSCOPER, Catchment Sensitive Farming, Natural England, 2015) are increasingly being used to provide an indication of the likely impact of measures implemented at the catchment scale. This is beginning to reveal a significant challenge around adequately reducing diffuse water pollution pressure on Natura 2000 sites using currently available measures and mechanisms.

2.4 Ecosystem service benefits

Reducing diffuse pollution impacts on Natura 2000 sites is associated with a range of ecosystem service benefits including water quality, biodiversity, fisheries and recreation. Pollution reduces water quality, necessitating additional treatment before it is fit for human consumption. For example, South West Water (Wentworth, 2014) estimates that 17% of their customer's bills is for water treatment costs and Natura 2000 sites cover a high proportion of upland catchments where 70% of UK drinking water is collected from (Natural England, 2009) (Mapping values: the vital nature of our uplands – an atlas linking environment and people (NE209) 2009). Diffuse pollution also damages fisheries and ecosystems, as well as reducing the recreational and cultural amenity of landscapes. Land-use and land management associated with the prevention and reduction of diffuse water pollution (such as avoidance of or low fertiliser usage and minimal cultivation, tree planting, buffer zones etc.) can result in other benefits such as water regulation and erosion regulation.

3. Current policy drivers

Key policy drivers for diffuse water pollution affecting Natura 2000 sites are:

- **Habitats and Bird Directives** (EU Biodiversity 2020 Strategy) - The Habitats Directive contains a wide range of obligations designed to protect a range of habitats and species. Similarly the Wild Birds Directive provides protection to all naturally occurring bird species, and singles out the rarest, and regularly occurring migratory species, for additional protection. They allow for the establishment and protection of Natura 2000 sites.

- **England Biodiversity 2020** (targets for SSSI and priority habitat condition) – This is a national strategy for England's wildlife and ecosystem services. It sets out the Government's ambition to halt overall loss of England's biodiversity by 2020. Outcome 1A of the strategy states that, by 2020, better wildlife habitats will be established, with at least 50% of SSSIs in favourable condition, while maintaining at least 95% in favourable or recovering condition.

- **Water Framework Directive (WFD)** Water dependent Natura 2000 sites are classed as 'Protected Areas' under WFD. Many (but not all) are also classed under WFD as 'water bodies' or Ground Water Dependant Terrestrial Ecosystems so are integrated to a greater or lesser extent into the WFD monitoring and reporting of 'Ecological Status'. Although there are deadlines within the Directive to achieve Protected Area outcomes (and 'Good Ecological Status' of water-bodies) there is a recognition that given the timescales involved in water dependent habitat recovery, many Protected Sites will require time extensions. Where targets for 'Good Ecological Status' and Protected Area conservation objectives differ, the Directive states that the most stringent target shall apply.

4. Current mechanisms

4.1 Regulation

There are a number of regulatory provisions which in principle provide a mechanism for some degree of control of diffuse water pollution pressures.

Table 1 Key legislation that relates to the control of diffuse water pollution

Key Legislation	Competent Authority
Water Resources Act 1991 allows for anti-pollution works notices to be served under section 161A	Environment Agency
The Environmental Permitting Regulations (England and Wales) 2010 - regulation of discharges to ground and surface waters including discharge to ground by spreading on land.	Environment Agency
Nitrate Pollution Prevention Regulations (bring into force the European Commission Nitrates Directive) - mandatory measures for farms in designated Nitrate Vulnerable Zones.	Environment Agency
Water Resources (control of pollution) (silage, slurry and agricultural fuel oil) (England) Regulations 2010 and as amended 2013 (SSAFO) - These regulations aim to prevent water pollution from stores for silage, slurry and agricultural fuel oil.	Environment Agency

Water Protection Zones - the Water Resources Act 1991 allows designation of areas of England as a Water Protection Zone to effect changes in polluter behaviour where voluntary initiatives have been unsuccessful (to date one pilot Water Protection Zone has been designated on a stretch of the River Dee in 1999).	Environment Agency
Wildlife and Countryside Act 1981 (as amended by CROW 2000) - Power to serve notices on owner/occupiers of SSSIs that undertake a damaging operation without consent. Third parties intentionally or recklessly causing damage may also be prosecuted. Byelaw-making powers under section 28R prohibit anyone (mainly third parties) undertaking specified activities in order to protect a site.	Natural England
Conservation of Habitat and Species Regulations (as amended) 2010 - A Special Nature Conservation Order and Stop Notice can be made under regulation 25-29 to control or prohibit specific onsite or offsite operations which may impact on a European site. It becomes an offence for anyone subject to an Order and Notice to carry out specified operations without NE consent. Bylaw making powers under regulation 30 prohibit anyone (mainly third parties) undertaking specified activities in order to protect a site.	Natural England
Environmental Impact Assessment (Agriculture) (England) (No. 2) Regulations 2006 - applies to projects that aim to increase the agricultural productivity of uncultivated or semi-natural land. In particular a screening decision is required from Natural England for land greater than 2 ha which has been uncultivated for more than15 years and/or meets the criteria for a priority Biodiversity Action Plan habitat.	Natural England
'Cross Compliance' - Eligibility for the Single Farm Payment (to become Basic Payment Scheme in future) is dependent upon compliance with a set of Statutory Management Requirements (SMRs) and Good Agricultural and Environmental Conditions (GAECs). This includes compliance with various other existing regulations (eg Nitrate Regulations) but includes some additional requirements eg Soil protection. Woodland and forestry management is required to comply with the UK Forestry Standard.	Rural Payments Agency

4.2 Advice

Advice has a key role to play in raising the environmental performance of the agricultural and forestry sector in Natura 2000 site catchments by:

- Supporting compliance with minimum regulatory standards and Cross Compliance requirements (SMRs & GAECs) and UK Forestry Standards.
- Raising performance above the regulatory minimum.
- Reinforcing the synergy between improved environmental performance, improved resource efficiency and farm competitiveness and other benefits.
- Facilitating participation in agri-environment schemes (including woodland creation) to improve environmental outcomes.

Advice may be provided through self-service eg Farm Advice Service (*www.farmingadviceservice.org.uk)*, Tried and Tested (www.nutrientmanagement.org) or through pro-active initiatives such as Catchment Sensitive Farming.

Catchment Sensitive Farming (CSF) is an existing Defra funded advice programme which has been running since 2006. Its operations are currently directly benefiting 29 of the 43 Natura 2000 sites impacted by DWP though SIPs have identified additional Natura 200 sites that would benefit from CSF.

In addition to government led initiatives, advice may be provided through private providers such as agronomists,

industry led initiatives or the non-governmental sector. These are considered further below.

4.3 Incentives – RDPE grants/annual payments

The current Farming and Forestry Improvement Scheme (to be replaced by the Countryside Productivity Scheme) provides grant funding to assist with certain on-farm infrastructure measures that can improve nutrient and manure/slurry management, for example the roofing of yard areas and slurry tanks.

Catchment Sensitive Farming (CSF) delivers a capital grant scheme. CSF has invested £86.5 million of RDPE funds through grants with at least the same amount contributed to by farmers providing a total investment of £155 million. In protected site catchments CSF funded £35 million of practical projects (eg relocation of gates, watercourse fencing and yard works to separate clean and dirty water) to tackle DWP between 2007/8 and 2012/13.

The new Countryside Stewardship Scheme (which replaces the Environmental Stewardship (ES) scheme) includes a range of land management and land use change options which have the potential to deliver resource protection benefits and reduce DWP. Under the new scheme there is a much stronger emphasis on delivering water quality outcomes involving detailed spatial prioritisation and delivery of synergies between water quality, biodiversity and flood risk management. The provision of grants for woodland creation has also been brought under the umbrella of Countryside Stewardship. Targeted woodland creation can help address a range of agricultural pollutants (Nisbet and others, 2011).

4.4 Industry led initiatives

Water companies are increasingly taking an interest in catchment approaches to tackle diffuse pollution as a means of protecting the quality of key drinking water sources and reducing the need for expensive water treatment processes eg South West Water (http//www.upstreamthinking.org). Where Natura 2000 catchments overlap with water company interests this provides another potential mechanism for tackling DWP.

Other industry led initiatives include Campaign for the Farmed Environment (CFE) led by the National Farmers Union to encourage farmers and land managers across England to protect and enhance the environmental value of farmland (www.cfeonline.org.uk*)*.

Similarly, the long standing Voluntary Initiative was set up by the farming and crop protection industry to promote best practice in the use and management of pesticides and minimise their environmental impacts (www.voluntaryinitiative.org.uk*)*.

4.5 Third-sector led initiatives

Linking Environment and Farming (LEAF) (www.leafuk.org) is a high profile non-government organisation promoting sustainable agriculture, food and farming. It provides a valuable advice service and runs a well-known environmental accreditation scheme which facilitates important links with major retailers and their suppliers.

Non-governmental organisations such as the River Trusts can be highly effective at securing funding and driving forward research and delivery initiatives in catchments to tackle DWP, often in partnership with Government and/or industry. Examples include the Eden Rivers Trust and West Country Rivers Trust (www.theriverstrust.org/pinpoint). They are likely to be increasingly important contributors to 'Catchment Partnerships' as these evolve under the umbrella of the Catchment Based Approach (CaBA) to support delivery of the Water Framework Directive (see www.catchmentbasedapproach.org).

4.6 Local authority planning

Regeneration of brownfield areas and delivery of new greenfield development can, with intelligent planning, help to address risks to Natura 2000 sites from urban run-off through implementation of Sustainable Drainage Schemes or SuDS (www.susdrain.org). Strategic planning of green infrastructure provision in local planning has potential to deliver multiple benefits including the management of surface water drainage and flood risk, water quality, biodiversity and recreation. Developer contributions are being used as a funding mechanism in some instances eg River Mease (http://www.nwleics.gov.uk/pages/developments_within_the_catchment_area_of_the_river_mease_special_area_of_conservation).

Local authority maintained roads can also be a locally important source of diffuse pollution in rural catchments and local highways authorities can be important partners in identifying problem areas and implementing solutions often based on SuDS measures.

4.7 Bespoke WFD funding

Other funding pots can provide valuable pump priming funds for partnership projects and fund specific projects that fall between stools of other funding mechanisms, for example, Natural England and Environment Agency Water Framework Directive Grant-in-Aid (WFD GIA), the Catchment Restoration Fund, and Catchment Partnerships.

In Natural England, WFD GIA funding has proved to be enormously valuable in advancing efforts to tackle Diffuse Water Pollution impacts on Natura 2000 sites. It has enabled important projects to go forward which have no other obvious funding mechanism. These projects range from evidence gathering to options appraisal and delivery of on the ground mitigation. Potentially there may be future opportunities for the supply chain to also fund some aspects of this.

5. Gaps in current mechanisms and approaches

5.1 Evidence

To underpin efforts to tackle DWP, detailed and spatially explicit catchment information is needed on impacts, sources and pathways. This is important to secure stakeholder engagement and to target measures effectively.

In practice, this quality of information is often not readily available to those engaged in catchment delivery and where it is available it can be technically very challenging to integrate into local strategies. This can create a significant barrier to effective planning and exploring the evidence with the catchment community.

Diffuse Water Pollution plans are currently being developed for Natura 2000 sites to help overcome this barrier. A particular challenge for these plans is to be able to provide transparency at the catchment level around progress predicted towards Protected Area objectives based upon the existing and planned activity. There is a need to:

1. better track and report Protected Areas progress to meet WFD requirements and
2. identify where possible shortfalls in existing mechanisms will require an alternative or modified approach at the local and national level.

Improvements in modelling mean it should now be possible to build this picture for each site catchment.

5.2 Advice

Advice programmes rely on voluntary engagement by the agricultural sector. Catchment Sensitive Farming has demonstrated that significant improvements can be achieved through this route provided it is supported by a concerted and sustained delivery programme. It is predicted that current CSF activity reduces agricultural pollutant losses by between 4 and 12 per cent on average (Natural England, 2015). Nevertheless the experience of CSF demonstrates that some farms may choose not to engage on this basis. Currently there is limited incentive for farms to take advantage of advice services. Mechanisms such as earned recognition (eg reduced risk of compliance visits) are not currently operating but might help in future to incentivise engagement.

The importance of relationship building and development of trust between advisors and farmers is repeatedly cited by the farming community as being of key importance in securing positive change. Where advisors are too thinly spread or where short term appointments lead to rapid advisor turn-over, relationship building is hampered and the impact of advice programmes is put at risk.

Fear of prosecution for non-compliance is sometimes suggested as a barrier to farmer engagement with advice programmes, particularly those led by statutory agencies. To build trust, an approach to regulation is needed which is clearly led by the provision of appropriate support and advice.

Improvements planned as part of the introduction of the Countryside Stewardship scheme mean that the links between CSF advice and the local prioritisation of stewardship agreement funding will be more effectively integrated.

Government funded advice delivery will always have limited resources. There is a need to bolster advice delivery through partnership with non-Government organisations, Water Companies and the farming and food industry (previous examples include Catchment Sensitive Farming Partnership Catchments). There is also a need to raise the profile of protecting water quality with major food retailers and their supply chains (eg LEAF accreditation scheme).

5.3 Incentive payments

Uptake of advice and agri-environment grant aided measures to tackle DWP is based on a voluntary approach. Consequently, improvements can be temporary and spatially patchy which limits their overall impact. The scope for collaborative agreements under the new Countryside Stewardship scheme offers the potential for spatially more coherent approach in future.

Agri-environment payment rates are based on income-foregone. Consequently, whilst these measures may in principle be cost-neutral to the farm (notwithstanding the vagaries of commodity markets and input costs), this is not necessarily incentive enough to persuade farm businesses to make changes to land management practices that reduce diffuse water pollution. Farmers must be persuaded that adopting DWP mitigation measures will contribute to remedying a genuine problem.

Agri-environment funds are required to deliver across a range of important outcomes of which DWP is only one. Compared with the scale of the DWP problem, the available funding through agri-environment is limited and must be carefully prioritised.

Modelling undertaken by the Environment Agency in support of prioritising delivery of the new Countryside Stewardship scheme has estimated the impact that different levels of Countryside Stewardship uptake would have on closing the ‘gap to good status’ for phosphorus (that is the gap between current water quality and that required to achieve good status under the Water Framework Directive). It indicates that with the available Stewardship budget, 50% uptake in a select few ‘priority’ catchments may achieve change of up to 30% of the agricultural ‘gap to good status’ whilst a 10% uptake can achieve only up to about 5% of the gap to good status in most Natura

catchments. It is clear that agri-environment incentives can make an important contribution to reduce water pollution but cannot be solely relied upon to solve the problem (a range of other measures and mechanism are necessary alongside them). Constraints include:

- requirement for the scheme to deliver across a wide range of environmental outcomes;
- voluntary uptake of agreements cannot be assured; and
- the benefits of funded revenue options are secure for as long as the agreements remain live (woodland creation excepted).

There is an increasing focus on the link between reducing DWP and increasing resource efficiency and competitiveness of the farming sector. Techniques and technologies exist to greatly improve nutrient and manure management on farms, reduce waste and ultimately losses to the environment. However the reality for many farms is that despite grant provision, there can remain a significant investment hurdle to overcome to upgrade farm infrastructure or take up new 'precision farming' approaches such as the use of mapped soil nutrient data at the field-scale to guide optimal variable rate application of fertilisers. Moreover, certain major infrastructure upgrades such as slurry storage are not currently eligible for grant aid. These concerns can be compounded by security of tenure where tenancy arrangements mean farms may not feel confident that they will see the benefit of any investment they make.

5.4 Regulation

It is difficult to gauge the extent to which achieving universal compliance with existing regulations would contribute to reducing diffuse water pollution pressures on Natura 2000 sites. In part this is because levels of compliance with the existing regulatory baseline for protection of soil and water are not confidently known and only a very small proportion of farms will experience an inspection visit (National Audit Office 2010). The NFU has previously reported the difficulties faced by the Dairy sector in complying with Nitrate Vulnerable Zone (NVZ) requirements (NFU 2011).

Cross compliance (Statutory Management Requirements (SMRs) and Good Agricultural and Environmental Conditions (GEACs)) and the regulatory baseline combined currently set environmental performance at a level which, even with full compliance, is likely to fall short of what is required to adequately address DWP from agriculture. Consequently, there is an emphasis on additional voluntary measures and an incentive based approach to achieve further pollution reductions.

In addition, there are currently gaps in the existing regulatory framework. For example whilst phosphorus is a significant agricultural pollutant, it is not currently subject to any mandatory controls. Similarly, mandatory controls to limit sediment loss have been generally lacking though new Soil Protection requirements under GAEC 4 & 5 now provide a degree of control. From January 2015, all farmers in England will have to comply with new soils rules as part of cross compliance underpinning CAP payments. Of particular relevance is GAEC 5 which requires claimants to limit soil erosion, including from bankside trampling by livestock, and also GAEC 4 which requires crop cover to be maintained. As with all regulation the effectiveness of new Soil Protection requirements will hinge on adequate enforcement.

Anti-pollution works notices to address diffuse pollution have been rarely applied. Establishing clear cause and effect from diffuse pollution at specific locations can be difficult in all but the most acute cases. Application of SSSI regulation is similarly constrained. Byelaw making powers and Special Nature Conservation Orders could in principle help to address specific, local off site activities that generate pollution but their use is largely untested.

Water Protection Zones (WPZs) provide an additional regulatory tool that could be locally deployed to drive further reductions in DWP. To date one pilot WPZ has been established to address pesticide concerns. However, the current focus of effort is on identifying causes of failure due to DWP and seeking to address those through the

existing suite of regulatory and voluntary measures without recourse to WPZs.

6. Future strategic approach

The overall strategic objective is to reduce diffuse water pollution pressure on Natura 2000 sites and thereby contribute towards achieving Favourable Conservation Status and secure the long term integrity of the designated features.

The approach to addressing DWP pressure on Natura 2000 sites must set direction and a clear long term objective for water quality improvement but must also acknowledge the inherent uncertainties of outcome given the gaps and constraints outlined in this document. It requires an appropriate (long term) perspective and must be based upon a flexible adaptive approach that can respond to improving evidence and understanding and allow for new or improved mechanisms. Key elements of the strategy are proposed as follows:

- Requires strategic planning at the catchment scale if it is to be targeted and cost effective
- Detailed catchment plans based upon:
  - Robust evidence of sources and pathways.
  - A clear set of goals based upon a prediction of the type and scale of change required to achieve the objective.
  - Transparency around predicted effectiveness of planned actions.
  - Flexibility of approach.
- Application of available mechanisms:
  - Compliance with the regulatory baseline as a minimum.
  - Review and monitoring of cross compliance (i.e. Statutory Management Requirements (SMRs) and Good Agricultural and Environmental Conditions GEACs) to improve outcomes.
  - Beyond the regulatory baseline:
    - Additional improvements secured voluntarily through advice and incentives and support from non-governmental organisation (NGO) and industry partners.
    - Cost neutral to cost beneficial measures deployed without additional incentive.
    - Incentive based measures prioritised towards key source areas where measures are cost negative (and where other benefits can also be secured).
- A process for tracking and reviewing progress against WFD requirements for Protected Areas which considers the adequacy of existing mechanisms and sustainability of measures. It should provide:
  - A framework for addressing risks of a ‘pollution reduction shortfall’ in achievement of the objectives for Natura 2000 sites.
  - A process for identifying additional mechanisms or alternative approaches needed to address WFD requirements with greater clarity around timetables for delivery.

7. Key issues for further action under the theme plan

7.1 Diffuse water pollution plans

Detailed, well evidenced and spatially specific catchment based plans have a fundamental role to play in tackling DWP pressures impacting Natura 2000 sites in the following ways:

- Enabling effective targeting of measures (notably delivery of improvements through Catchment Sensitive Farming and Countryside Stewardship).
- Providing transparency about the evidence of the problem, tracking progress and the effectiveness of measures.
- A key document for engagement with Catchment Partnerships.
- Providing for a flexible management approach (for example, responsive to new evidence).
- Providing evidence to inform future national strategy.

Continued effort will be necessary to ensure plans remain live and effective and well integrated with the work of local delivery mechanisms such as Catchment Partnerships.

7.2 WFD related funding

It will be important to maintain funding support for DWP actions that:

1. cannot be delivered through conventional agri-environment routes; and
2. includes work on non-agricultural sources eg urban run-off.

The WFD GIA funding has for example, proved to be very effective at improving evidence to support local targeting, enabling local partnership initiatives and delivering collaborative solutions on the ground eg with local highways.

The effectiveness of the programmes like this can be constrained by a short term (1 year) planning horizon. Longer term funding commitments would enable projects requiring a longer timeframe to deliver.

7.3 Regulatory Compliance

There is a need to better understand the contribution that non-compliance with basic (regulatory) measures makes to DWP pressure and the extent to which dealing with non-compliance can help bridge the pollution gap.

It is likely that improved compliance will require an enhanced enforcement presence prioritised at the catchments of Natura 2000 sites. This must be done without undermining trust and so must be coordinated carefully with advice and support services.

The effectiveness of the existing baseline regulatory framework to support reductions in DWP needs to be kept under review in order to address key gaps (eg with regard to Phosphorus and sediment). Statutory Management Requirements (SMRs) & Good Agricultural and Environmental Conditions GEAC (under Cross Compliance) may need to be adjusted in future to achieve Natura 2000 site objectives and avoid over-reliance on agri-environment incentive schemes.

Greater use of other regulatory measures may be required in the future to secure environmental performance that

goes beyond current SMR and GAEC requirements.

7.4 Advice delivery

There is a critical ongoing role for advice services to tackle Diffuse Water Pollution impacting Natura 2000 sites as demonstrated by the success of Catchment Sensitive Farming.

An effective advice programme to tackle DWP requires significant resource commitment over a sustained period. Continuity is important to build trust, secure voluntary change and ensure return from investments made to date.

Advice must be integrated with the delivery of the full raft of RDPE grant provision including Countryside Stewardship.

Advice is a key area for greater collaborative working with partners from NGOs, the agricultural sector and water companies. Government funded advice programmes will not be sufficient on their own and advice provision can be significantly enhanced through well coordinated and collaborative effort. Closer working with major retailers and their supply chains provide opportunities for raising the bar on water and soil protection through promoting operational standards and accreditation type schemes.

7.5 RDPE grant provision

It is anticipated that schemes such as Countryside Productivity, Countryside Stewardship and CSF style capital grants will continue to make an important contribution towards tackling DWP in the catchments of Natura 2000 sites.

Detailed DWP Plans will help drive prioritisation of future Rural Development Plan England (RDPE) funding to where the benefit is greatest. It will be important to ensure that reporting systems allow for clear tracking of soil and water protection delivery though Countryside Stewardship from the national to the catchment level. This should include where DWP measures options have been recommended, taken up and rejected.

Water quality outcomes are a clear priority for the next round of RDPE however funding is limited and must also deliver a range of other important outcomes.

Action under Countryside Stewardship to address Natura 2000 sites failing due to DWP is an obvious area of synergy with other outcomes such as flood risk management or protection of drinking water supplies. A concerted effort to deliver synergies from Countryside Stewardship is an agreed priority of the programme. Constraints outlined in this document eg funding and agri-environment uptake levels in catchments, mean that the RDPE programme alone cannot resolve all the DWP issues affecting Natura 2000 sites. There is a need to manage expectations and provide greater clarity as to the contribution it can be expected to make and the gap it will leave.

Ongoing review is needed of the balance between basic regulatory measures and incentive payments for reducing diffuse pollution. Improvements in farm environmental performance delivered through Countryside Stewardship revenue options are limited to the lifetime of those options and the underpinning voluntary agreement. To maintain those benefits in perpetuity will require land managers to be convinced of the importance of sustaining these practices. Commitment will also be needed to the ongoing resourcing of an incentive payment scheme.

7.6 Addressing the 'pollution gap'

Model predictions for the effectiveness of the mechanisms outlined above indicate that whilst current approaches will secure a margin of improvement, progress will not be sufficient to fully address the pressures from DWP on Natura 2000 sites[1] (see also Murdoch 2014). DWP Plans can be used as a vehicle for providing greater clarity at the

[1] Analysis of uptake scenarios for WFD prioritisation under NELMS (Countryside Stewardship) carried out by Environment Agency for Defra WQ

catchment scale of the predicted pollution gap and the additional change required to close it. Where the limits of measures currently deployed can be identified with reasonable confidence, a transparent process is needed by which the gap is acknowledged and addressed in accordance with WFD Protected Area requirements. This response might include enhancement of existing measures, use of available measures not currently deployed or the development of new measures.

7.7 Engagement with WFD Catchment Based Approach (CaBA)

Catchment Partnerships provide a valuable forum for exploring evidence with local communities and identifying synergies between Natura sites outcomes and other stakeholder objectives. This can also help identify innovative approaches and funding mechanisms to help tackle DWP. Natural England engagement with CaBA will need to be targeted and is likely to prioritise the catchments of Natura 2000 sites. It is important that the requirements of Natura 2000 sites are fully integrated with the work of catchment partnerships.

8. Priority action table

The table below includes proposals for 16 'high level' priority actions and associated timescales for reducing the impacts of diffuse pollution on Natura 2000 sites. Many of these are based on developing or improving current approaches or mechanisms. The recommended actions and next steps identified are not definitive nor are they necessarily agreed commitments or resourced, and further discussions are planned with potential partners to explore their potential roles and to identify others who may be able to contribute. Oversight of the Theme Plan actions will be coordinated through IPENS After-LIFE steering group.

Table 4 Priority actions

Action no.	Action description	Current status	Timescale	Potential Delivery Partners
1.	Continue to update and implement DWP Plans - ensure they provide a live, user-friendly evidence-led approach to delivery and link back to policy development. Ensure good links to CSF and Countryside Stewardship Delivery.	Existing part of Natural England Protected Sites delivery. Ongoing with increasing emphasis on plan implementation.	2015 onwards – must be kept live and up to date	Natural England/Environment Agency with CaBA partners
2.	Improve the understanding of risks from non-agricultural sources to the site condition of Natura 2000 sites (particularly private on-site small-scale sewage waste water treatment works that produce small sewage discharges and urban and road run-off).	Natural England project to develop a risk assessment tool and SSSI risk maps for small discharges; Environment Agency 'Reason For Failure' investigations at the local catchment-scale; Ongoing Highways Agency risk mapping of road outfalls. Defra led Strategy for Tackling water pollution from the urban environment.	WFD 2nd cycle investigations to 2021	Natural England / Environment Agency/ Local Authority/ Highways Agency/Defra with CaBA

Action no.	Action description	Current status	Timescale	Potential Delivery Partners
3.	Greater Engagement with Local Authorities to identify urban/non-agricultural sources of pollution impacting Natura 2000 sites and find solutions through infrastructure maintenance, use of SuDS, and other treatment technologies.	Ongoing work by Highways Agency looking at outfalls. Natural England WFD Grant-in-Aid/ CSF/Environment Agency funded local catchment projects (including rural SuDS) often in partnership with local authorities, water companies. Integration of water quality outcomes with surface water management planning for flood risk and wider strategic development planning. Defra led Strategy for Tackling water pollution from the urban environment.	2015 onwards	Natural England, Environment Agency, Local authorities Water Companies, Highways Agency
4.	Improved enforcement of existing regulatory baseline for agriculture: - Inclusion of Natura 2000 sites as priority areas in the targeting methodology - Review effectiveness of regulatory tools such as Anti-Pollution Works	Environment Agency improving compliance involving targeted approaches; Defra Water Quality and Agriculture Project; Natural England to explore opportunities for improvement with RPA; Catchment level co-ordination between Environment Agency and CSF.	2015-2021	Environment Agency, Rural Payments Agency
5.	Ensure effective implementation of revised Statutory Management Requirements (SMR) / Good Agricultural and Environmental Conditions (GEAC) and monitor and review through 2015; Consider the outcome of the review of Basic Measures and identify any gaps remain related to Natura 2000 sites.	Subject to the Defra Water Quality and Agriculture Project	Ongoing. Defra WQ and Agriculture Project	Defra, Rural Payments Agency
6.	Greater use of risk based inspections Work with Environment Agency to ensure local information informs risk based compliance assessment.	Improve data sharing as part of the EA's approach to improving compliance with regulation.	2015 onwards	Natural England (CSF), Environment Agency

Action no.	Action description	Current status	Timescale	Potential Delivery Partners
7.	Advice provision through CSF and related farm advice initiatives: - access to 'one to one' advice services and one-many in all Natura site catchments with agricultural DWP pressures to promote improvements to land management practices and deliver high quality CS agreements. - Ensure reinforced messages around DWP in Natura catchments are integrated into 'one to many' and other advice delivered by the Farming Advisory Service and the Campaign for the Farmed Environment. - Ensure data on advice offered, taken up and implementation is captured.	CSF ongoing. Ongoing work by Farming Advice Service and Campaign for the Farmed Environment.	2015 onwards	Natural England, Environment Agency, Forestry Commission, CaBA, Farming Advisory Service, Campaign for the Farmed Environment
8.	Prioritise RDPE incentives/grants to reduce DWP in the catchments of Natura 2000 sites and deliver synergies with other priority outcomes. Improved spatial prioritisation of agri-environment and woodland measures within catchments, supported by advice services. Ensure reporting mechanisms in place to capture advice, offer and uptake of options for water quality options. Ensure agri-environment advisers have appropriate training in DWP.	First Countryside Stewardship agreements to start from June 2015 with the main scheme agreements starting January 2016; prioritisation towards Natura 2000 sites agreed; Water Capital Grants Water grants launched March 2015; Training for Countryside Stewardship under development.	2015-2021 2021-2027	Natural England, Forestry Commission, Environment Agency
9.	Review balance of basic measures versus grant based incentives to reduce DWP from agriculture. Consider sustainability of an incentives dependant approach with respect to affordability and security of outcome.	Defra Water Quality and Agriculture Project	Ongoing. Defra WQ and Agriculture Project	Defra
10.	Improve understanding of the effectiveness of current approaches to reducing agricultural sources based upon basic measures and voluntary uptake of advice and incentives.	Defra Water Quality and Agriculture Project; explore the limits of voluntary approach;	2015 onwards	Environment Agency, Defra

Action no.	Action description	Current status	Timescale	Potential Delivery Partners
11.	Establish a transparent and agreed process for acknowledging and directly addressing any 'pollution gap' left by existing approaches to tackling DWP where this can be predicted with reasonable confidence.	Part of Biodiversity 2020 and WFD implementation	2015-17	Defra, Natural England
12.	Improved engagement with landscape partnerships including CaBA, NIAs, Countryside Stewardship facilitated projects and Local Nature Partnerships - Work closely with partnerships in the catchments of Natura 2000 sites to explore evidence, communicate site requirements and ensure delivery activity is coordinated and synergies between the efforts of different organisations are exploited.	Natural England planned refresh of engagement with CaBA.	2015 onwards	Natural England, Environment Agency, CaBA
13.	Continued provision of a WFD GIA fund to enable projects to advance action to tackle DWP to be pursued where this cannot be funded through other routes.	Natural England WFD Grant-in-Aid funding from Defra to April 2016 but subject to confirmation thereafter	2015 onwards	Natural England, Environment Agency, Defra
14.	Work with Agricultural Colleges to raise awareness of DWPA amongst new generations of agricultural professionals.	Integrate messages regarding Natura 2000 sites in CSF ongoing work with agricultural colleges	Ongoing	Natural England (CSF national partnership programme)
15.	Work with major retailers and suppliers to raise the profile of soil and water protection through setting operational standards and accreditation schemes.		2015 onwards	Defra/Environment Agency /Natural England (CSF)
16.	Work with industry partners nationally to provide guidance, improve awareness and raise standards of environmental performance in farming.	Via ongoing CSF Partnership Programme.	Ongoing	Natural England (CSF national partnership programme)

Annex 1. Key Evidence Sources

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V9; 23 June 2014.

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WENTWORTH, J (2014) Parliamentary Office of Science and Technology POST, note 478 October 2014, Diffuse Pollution of Water by Agriculture.

Annex 2. IPENS Theme Plans

The table below provides hyperlinks to the suite of IPENS theme plans, which are available on the Natural England publication catalogue.

Theme plan	Hyperlink
Atmospheric nitrogen deposition	http://publications.naturalengland.org.uk/publication/6140185886588928?category=5605910663659520
Climate change	http://publications.naturalengland.org.uk/publication/4954594591375360?category=5605910663659520
Diffuse water pollution	http://publications.naturalengland.org.uk/publication/5848526737113088?category=5605910663659520
Grazing	http://publications.naturalengland.org.uk/publication/4839898496368640?category=5605910663659520
Habitat Fragmentation	http://publications.naturalengland.org.uk/publication/5004101806981120?category=5605910663659520
Hydrological functioning	http://publications.naturalengland.org.uk/publication/6400975361277952?category=5605910663659520
Inappropriate coastal management	http://publications.naturalengland.org.uk/publication/6371629661683712?category=5605910663659520
Invasive species	http://publications.naturalengland.org.uk/publication/6130001713823744?category=5605910663659520
Lake restoration	http://publications.naturalengland.org.uk/publication/5583022327857152?category=5605910663659520
Public access and disturbance	http://publications.naturalengland.org.uk/publication/6621454219083776?category=5605910663659520
River Restoration	http://publications.naturalengland.org.uk/publication/5478339747774464?category=5605910663659520

Annex 3. Water Pollution and Site Improvement Plans (SIPs) for Natura 2000 sites

Water pollution is listed as a Prioritised Issue (i.e. pressure or threat)* in 87 out of approximately 268 SIPs.

Table 1 Priority actions - Top 10 mechanisms* identified in SIPS for addressing Water Pollution where it's listed as a priority issue

Mechanisms* ranked by number of linked SIP action occurrences	The frequency of occurrence of mechanisms in all SIP actions related to water pollution	The number of individual SIPs in which the mechanism is included	The number of occurrences of each mechanism in SIP actions as a % of total water pollution related SIP actions
Investigation	102	58	27%
Diffuse Water Pollution Plan	60	40	16%
England Catchment Sensitive Farming	29	26	7%
Rural Development Programme for England eg agri-environment schemes	28	24	7%
Asset Management Plans (5 yearly investment plans used by the water industry)	24	14	6%
Advice	23	17	6%
Regulation or enforcement	22	16	5%
Partnership	16	13	4%
Mechanism not identified	14	12	4%
Integrated Nutrient Management Plans	13	8	4%

* Mechanisms are the enabling structure for the implementation of actions contained in Site Improvement Plans for example, Agri-Environment Scheme, National Nature Reserve Management Plan, Diffuse Water Pollution Plan, and Enforcement. They are not the same as the action which they implement, for example the action 'reduce diffuse water pollution in surface water inflows' is not a mechanism.

Table 2 List of SIPs where Water Pollution related issue have been identified as a Priority Issue and those with a Diffuse Water Pollution Plan or an Integrated Nutrient Management Plan are identified as mechanisms for improvement*

	SIPs with Water Pollution as a Prioritised Issue (Bold text = water pollution identified in the top 3 of prioritised issues included in the SIP)	Pressure, Pressure/ Threat or Threat^	Investigation of the water pollution issue is required	SIPs with Diffuse Water Pollution Plan (ticks) and/or Integrated Nutrient Management Plans (INMP) identified as a mechanism	Part of existing DWP programme – (already have DWPP or INMP or the need for one already identified)
1	Abberton Reservoir	Threat	✓		
2	Arun Valley	Threat	✓		
3	Asby Complex	Pressure	✓		✓
4	**Avon River and Valley**	Pressure/ Threat	✓	INMP	✓
5	**Benacre to Easton Bavents**	Pressure	✓	✓	
6	Bolton Fell Moss	Threat			
7	Breckland	Pressure	✓		
8	Breney Common and Goss & Tregoss Moors	Threat	✓		
9	**Broadland**	Pressure	✓	✓	✓
10	**Brown Moss**	Pressure/Threat		✓	✓
11	**Cannock Extension Canal**	Pressure			
12	**Castle Hill**	Threat			
13	**Chesil Beach & The Fleet**	Pressure/Threat	✓	✓	✓
14	**Cothill Fen**	Pressure	✓	✓	✓
15	**Craven Limestone Complex**	Threat		✓	✓
16	Dartmoor	Pressure/Threat			
17	Deben Estuary	Threat	✓		
18	Dee Estuary/Aber Dyfrdwy & Mersey Narrows	Pressure/Threat	✓		
19	**Denby Grange Colliery Ponds**	Threat		✓	

	SIPs with Water Pollution as a Prioritised Issue (Bold text = water pollution identified in the top 3 of prioritised issues included in the SIP)	Pressure, Pressure/ Threat or Threat^	Investigation of the water pollution issue is required	SIPs with Diffuse Water Pollution Plan (ticks) and/or Integrated Nutrient Management Plans (INMP) identified as a mechanism	Part of existing DWP programme – (already have DWPP or INMP or the need for one already identified)
20	Dorset Heaths	Pressure/Threat		✓	✓
21	Dungeness	Threat	✓		
22	Durham Coast	Pressure			
23	East Devon Heaths	Threat	✓		
24	Epping Forest	Threat	✓		
25	**Fal & Helford**	Pressure		INMP	
26	**Fenland**	Pressure	✓	✓	✓
27	**Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses**	Pressure	✓		
28	Fens Pools	Threat			
29	**Hastings Cliffs**	Threat	✓	✓	
30	**Holme Moor & Clean Moor**	Pressure/Threat	✓		
31	**Hornsea Mere**	Pressure		✓	✓
32	**Humber Estuary**	Pressure/Threat			
33	Isles of Scilly Complex	Pressure			
34	**Lee Valley**	Threat	✓	✓	
35	**Leighton Moss**	Pressure/Threat	✓	✓	✓
36	Lundy	Threat	✓		
37	**Marazion Marsh**	Pressure	✓		✓
38	**Martin Mere**	Threat		✓	
39	Minsmere to Walberswick Heaths and Marshes	Threat	✓	✓	✓
40	**Morecambe Bay**	Pressure/Threat			

	SIPs with Water Pollution as a Prioritised Issue (Bold text = water pollution identified in the top 3 of prioritised issues included in the SIP)	Pressure, Pressure/ Threat or Threat^	Investigation of the water pollution issue is required	SIPs with Diffuse Water Pollution Plan (ticks) and/or Integrated Nutrient Management Plans (INMP) identified as a mechanism	Part of existing DWP programme – (already have DWPP or INMP or the need for one already identified)
41	Morecambe Bay Pavements	Threat	✓	✓	✓
42	**Mottey Meadows**	Pressure		✓	
43	**Nene Washes**	Threat	✓		
44	New Forest	Pressure/Threat	✓		
45	Norfolk Valley Fens	Threat	✓		✓
46	North East Kent (Thanet)	Threat	✓		
47	North Meadow & Clattinger Farm	Threat	✓		
48	**Northumberland Coastal**	Threat		✓	
49	**Oak Mere**	Pressure		✓	✓
50	**Ouse Washes**	Threat		✓	✓
51	**Pagham Harbour**	Threat	✓		
52	**Peak District Dales**	Pressure	✓	✓	✓
53	**Pevensey Levels**	Threat			
54	Plymouth Sound and Tamar Estuary	Pressure	✓		
55	Polruan to Polperro	Threat	✓		
56	**Poole Harbour**	Threat	✓	INMP	✓
57	**Portholme**	Threat	✓	✓	✓
58	Portland-Studland & St Albans-Durlston	Threat			
59	**River Axe**	Pressure	✓	✓	✓
60	**River Camel**	Pressure	✓	✓	✓
61	**River Clun**	Pressure		INMP	✓
62	**River Derwent**	Threat	✓	✓	✓

	SIPs with Water Pollution as a Prioritised Issue (Bold text = water pollution identified in the top 3 of prioritised issues included in the SIP)	Pressure, Pressure/ Threat or Threat^	Investigation of the water pollution issue is required	SIPs with Diffuse Water Pollution Plan (ticks) and/or Integrated Nutrient Management Plans (INMP) identified as a mechanism	Part of existing DWP programme – (already have DWPP or INMP or the need for one already identified)
63	**River Derwent & Bassenthwaite Lake**	Threat	✓	✓	✓
64	**River Eden**	Pressure/Threat		✓	✓
65	River Ehen	Pressure	✓	✓	✓
66	**River Itchen**	Pressure		✓	✓
67	**River Kent**	Pressure	✓	✓	✓
68	**River Lambourn and Kennet-Lambourn Floodplain**	Pressure	✓	✓	✓
69	**River Mease**	Pressure	✓	✓ + INMP	✓
70	**River Tweed**	Pressure/Threat		✓	✓
71	**River Wensum**	Pressure	✓	✓	✓
72	**River Wye**	Pressure/Threat	✓	✓ + INMP	✓
73	**Roman Wall Loughs**	Threat	✓		
74	Roydon Common and Dersingham Bog	Pressure/Threat	✓		
75	Rutland Water	Threat		INMP	
76	Severn Estuary Mor Hafren	Pressure/Threat	✓		
77	Sidmouth to West Bay	Threat			
78	Solent	Threat	✓	✓	✓
79	Solway Firth	Threat			
80	**Stodmarsh**	Pressure	✓	INMP	
81	Subberthwaite, Blawith & Torver Low Commons	Threat	✓	✓	
82	**Tarn Moss**	Pressure/Threat	✓		

	SIPs with Water Pollution as a Prioritised Issue (Bold text = water pollution identified in the top 3 of prioritised issues included in the SIP)	Pressure, Pressure/ Threat or Threat^	Investigation of the water pollution issue is required	SIPs with Diffuse Water Pollution Plan (ticks) and/or Integrated Nutrient Management Plans (INMP) identified as a mechanism	Part of existing DWP programme – (already have DWPP or INMP or the need for one already identified)
83	Teesmouth & Cleveland Coast	Pressure/Threat	✓		
84	**Wast Water**	Threat	✓		
85	Waveney and Little Ouse Valley Fens	Pressure	✓	✓	
86	**West Dorset Alder Woods**	Pressure		✓	
87	**West Midlands Mosses**	Pressure	✓	✓	✓

Note – table 2 excludes the River Dee as a SIP has not been produced for this site

*based on information held on the IPENS SIP database on 10/02/2015

^ Pressures - Factors which are currently causing adverse impacts on Natura 2000 interest features, eg excessive fertilizer application is causing elevated nutrient levels in a Natura 2000 lake.

^ Threats - Potential factors which may in the future cause adverse impacts on Natura 2000 interest features eg potential further loading of nutrients to a river flowing into the Natura 2000 site resulting from new housing development.

Annex 4. Authors and Contributors

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Contributors

The theme plan was informed by two specialist workshops held in London. The participants at the workshops held on the 5th September 2013 and 27th November 2014 were as follows:

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Angela Bartlett	West Country Rivers Trust	2014
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