



Cynllun Gweithredu Thematig Natura 2000 Llygredd Dŵr Gwasgaredig

Natura 2000 Thematic Action Plan Diffuse Water Pollution

Rhaglen Natura 2000 LIFE yng Nghymru
LIFE Natura 2000 Programme for Wales



LIFE N2K Wales: LIFE Nat11/UK/385
Supported by LIFE, a financial instrument of the European Community

Published by:
Natural Resources Wales
Cambria House
29 Newport Road
Cardiff
CF24 0TP

0300 065 3000 (Mon-Fri, 8am - 6pm)

enquiries@naturalresourceswales.gov.uk
www.naturalresourceswales.gov.uk

© Natural Resources Wales

All rights reserved. This document may be reproduced with prior permission of
Natural Resources Wales

Contents

Acknowledgements.....	3
1. Cyflwyniad.....	4
2. Introduction	6
3. Background.....	8
4. Issues and risks	10
5. Policy and legislative context	12
6. Current mechanisms and planned actions on sites to 2020.....	13
7. Rationale for strategic actions.....	15
8. Development of strategic actions	16
9. Strategic actions for Natura 2000 in Wales: Diffuse Water Pollution.....	17
Appendix A:.....	21
Appendix B:.....	23

Acknowledgements

Many thanks to everyone within Natural Resources Wales and externally who contributed to the development of strategic actions for this Thematic Action Plan during the LIFE Natura 2000 Programme workshops or subsequent engagement period.

In particular thanks go to the following specialists who reviewed and refined the strategic actions: Helen Cariss, Tristan Hatton-Ellis, Sarah Hetherington, Helen Millband, Brian Pawson, Wendy Price, Nicholas Salter, Rob Thomas, Geraint Weber

October 2015

1. Cyflwyniad

Rhaglen Natura 2000 LIFE yng Nghymru

Mae 92 Ardal Cadwraeth Arbennig (ACA) ac 20 Ardal Gwarchodaeth Arbennig (AGA) Cymru'n cynnwys 123 o nodweddion cynefinoedd a rhywogaethau dynodedig. Gyda'i gilydd, y rhain yw rhwydwaith Natura 2000.

Mae Rhaglen Natura 2000 LIFE yng Nghymru wedi datblygu blaen-gynllyn strategol i reoli ac adfer Natura 2000 yng Nghymru. Drwy weithio â rhanddeiliaid mae wedi pennu'r prif heriau sy'n wynebu'r safleoedd, y rhywogaethau a'r cynefinoedd hyn a warchodir gan Ewrop, a nodi'r camau gweithredu sydd eu hangen, y blaenoriaethau, y costau a'r cyfleoedd cyllido i fynd i'r afael â nhw. Cafodd y rhaglen ei chynnal gan Cyfoeth Naturiol Cymru a'i hariannu gan gynllun LIFE+ Nature yr Undeb Ewropeaidd.

Y pwrpas yw galluogi Cymru i wneud cynnydd sylweddol tuag at sicrhau bod rhywogaethau a chynefinoedd Natura 2000 mewn cyflwr ffafriol a helpu i gyflawni ei hymrwymadau o dan Gyfarwydddeb Cynefinoedd ac Adar yr Undeb Ewropeaidd. Mae'r Rhaglen yn ceisio darparu llwyfan hefyd i sicrhau rhagor o gyllid ar gyfer prosiectau sy'n gysylltiedig â Natura 2000 o bob ffynhonnell bosibl, ac i integreiddio cyllid Natura 2000 mewn offerynnau ariannol a meysydd polisi eraill.

Mae manylion llawn Rhaglen Natura 2000 LIFE a rhwydwaith Natura 2000 yng Nghymru yn Ffeithiau a Ffigurau, Rhaglen Natura 2000 LIFE yng Nghymru: Adroddiad 1.

Cynlluniau Gweithredu Thematig

Mae Rhaglen Natura 2000 LIFE wedi creu 11 Cynllun Gweithredu Thematig, pob un yn ymdrin â chamau gweithredu strategol blaenoriaeth i fynd i'r afael â'r prif broblemau a'r risgiau¹ a nodwyd fel y rhai sy'n cael effaith andwyol ar nodweddion Natura 2000 ledled y rhwydwaith.

Y Cynlluniau Gweithredu Thematig yw:

- Mynediad a hamdden
- Llygredd aer: Gwaddodi nitrogen
- Newid yn yr hinsawdd a chwalu cynefinoedd
- Llygredd dŵr gwasgaredig
- Rheoli perygl llifogydd ac erydu arfordirol
- Rheoli pori a da byw
- Rhywogaethau a phathogenau estron goresgynnol
- Newidiadau gan ddyn i amodau hydrologig
- Sbwriel y môr
- Pysgodfeydd morol
- Rheoli coetiroedd

¹ Problemau (neu bwysau) yw adweithiau andwyol i nodweddion Natura 2000 sy'n digwydd ar hyn o bryd ar neu yng nghyffiniau ACA neu AGA sy'n rhwystro'r rhywogaeth neu'r cynefin dynodedig rhag cyrraedd cyflwr ffafriol. Risgiau (neu fgythiadau) i nodweddion Natura 2000 sy'n debygol o ddigwydd erbyn 2020.

Y brif gynulleidfa ar gyfer y Cynlluniau Gweithredu yw rheolwr, pobl sy'n gwneud penderfyniadau a chyllidwyr yn Cyfoeth Naturiol Cymru, Llywodraeth Cymru a sefydliadau partner allweddol.

Mae'r camau gweithredu i'w gweld yn y tabl yn Adran 9. Camau yw'r rhain y gellir eu cyflawni ar lefel genedlaethol neu ranbarthol, i ategu camau gweithredu ar safleoedd o fewn Cynlluniau Gwella â Blaenoriaeth. Maent yn ceisio mynd i'r afael â rhwystrau sylfaenol, a'u hachosion lle bo'n bosibl, a datblygu fframwaith strwythurol sy'n cefnogi ac yn hyrwyddo trefniadau rheoli priodol yn lleol. Mae'r camau gweithredu'n cynnwys y rhai sydd eu hangen i fynd i'r afael â bylchau mewn tystiolaeth sy'n atal dealltwriaeth lawn o anghenion rheoli.

Gall rhai camau gweithredu strategol gynnig ffrydiau gwaith newydd a mentrau mawr; mae eraill yn cyd-fynd i raddau helaeth â pholisïau, strategaethau a rhaglenni gwaith sy'n bodoli eisoes neu sydd wrthi'n cael eu datblygu.

Cafodd y camau gweithredu strategol eu nodi yn ystod gweithdai a gynhaliwyd gyda gweithwyr proffesiynol arbenigol yn y maes, o Cyfoeth Naturiol Cymru a sefydliadau eraill. Roeddynt yn seiliedig hefyd ar grynodedau o gamau gweithredu ar safleoedd a oedd yn deillio o'r Cynlluniau Gwella â Blaenoriaeth a'r Gronfa Ddata Camau Gweithredu (gweler isod). Cafodd y rhain eu hadolygu a'u dilysu gan weithgor bychan a buont yn destun proses ymgysylltu a thrafod gyda rhanddeiliaid hefyd. Gweler Adran 8 am ragor o fanylion.

Y camau gweithredu strategol yw'r rhai a nodwyd sydd eu hangen i gael y nodweddion i gyflwr ffafriol. Maent yn amodol ar y graddau y mae adnoddau ar gael ac ar gytundeb rhanddeiliaid. Nid ydynt yn cynrychioli cynllun gweithredol sydd wedi'i ariannu'n llawn nac wedi ymrwymo'n llawn iddo. Fodd bynnag, y bwriad yw defnyddio'r camau gweithredu i lywio amrywiaeth o gynlluniau gweithredol a rhaglenni gwaith yn y dyfodol.

Er bod y camau gweithredu strategol yn canolbwyntio ar gyfres Natura 2000, gellir defnyddio llawer ohonynt yn eang a gallent fod o fudd i Safleoedd o Ddiddordeb Gwyddonol Arbennig a helpu i warchod bioamrywiaeth a chryfhau'r ecosystem yn yr amgylchedd ehangach.

Cynlluniau Gwella â Blaenoriaeth a Chronfa Ddata Camau Gweithredu

Mae Rhaglen Natura 2000 LIFE wedi cynhyrchu Cynlluniau Gwella â Blaenoriaeth ar gyfer pob safle Natura 2000 yng Nghymru. Mae'r cynlluniau hyn yn nodi'r prif broblemau a risgiau sy'n effeithio ar nodweddion Natura 2000 ac yn disgrifio'r camau gweithredu â blaenoriaeth, wedi'u costio, sydd eu hangen i gael a chynnal nodweddion y safle mewn cyflwr ffafriol. Mae'r cynlluniau'n defnyddio gwybodaeth o Gronfa Ddata Camau Gweithredu Cyfoeth Naturiol Cymru sy'n cynnwys yr holl gamau gweithredu (blaenoriaeth uchel, canolig, isel) ar gyfer safleoedd Natura 2000. Datblygwyd y camau gweithredu gan Swyddogion Cadwraeth Cyfoeth Naturiol Cymru ar y cyd â rhanddeiliaid a phartneriaid. Cafodd cynnwys y Gronfa Ddata ei ymestyn a'i ddiweddarau'n llawn yn ystod 2014/5.

2. Introduction

LIFE Natura 2000 Programme for Wales

There are 123 designated habitat and species features on the 92 Special Areas of Conservation (SACs) and 20 Special Protection Areas (SPAs) in Wales. Together these comprise the Natura 2000 network.

The LIFE Natura 2000 Programme for Wales has developed a strategic forward plan to manage and restore Natura 2000 in Wales. Working with stakeholders it has determined the key challenges facing these European protected sites, species and habitats and identified the actions required, priorities, costs and funding opportunities to address them. The Programme was run by Natural Resources Wales (NRW) and funded by the European Union scheme LIFE+ Nature.

The purpose of the Programme is to enable Wales to make significant progress towards bringing Natura 2000 species and habitats into favourable condition and help meet its commitments under the European Habitats and Birds Directives. The Programme also aims to provide a platform to seek further funding for Natura 2000 related projects from all potential sources, and to integrate Natura 2000 funding into other financial instruments and policy areas.

Full details about the LIFE Natura 2000 Programme and the Natura 2000 network in Wales can be found in the *LIFE Natura 2000 Programme for Wales: Fact and Figures Report 1*.

Thematic Action Plans

The LIFE Natura 2000 Programme has created 11 Thematic Action Plans, each of which detail priority strategic actions to address major issues and risks² which have been identified as having an adverse impact on Natura 2000 features across the network.

The Thematic Action Plans are as follows:

- Access and recreation
- Air pollution: Nitrogen deposition
- Climate change and habitat fragmentation
- Diffuse water pollution
- Flood and coastal erosion risk management
- Grazing and livestock management
- Non-native invasive species and pathogens
- Man-made changes to hydraulic conditions
- Marine litter
- Marine fisheries
- Woodland management

² Issues (or pressures) are adverse impacts to Natura 2000 features which are currently taking place on or around SACs or SPAs and which act as barriers to the designated habitat or species features reaching favourable condition. Risks (or threats) are adverse impacts to Natura 2000 features which are likely to occur by 2020.

The primary audience for the Actions Plans are managers, decision makers and fund holders within Natural Resources Wales, Welsh Government and key partner organisations.

The strategic actions are set out in the table in Section 9. These are actions which may be delivered at national or regional level, to complement the site-level actions within Prioritised Improvement Plans (PIPs). They seek to address fundamental barriers and where possible their root causes, and aim to develop a structural framework which supports and promotes appropriate management at a local level. Actions include those needed to address evidence gaps which are hindering full understanding of management needs. Some strategic actions may propose new work streams and larger-scale initiatives; others align closely to existing or developing policies, strategies and work programmes.

The strategic actions were identified during workshops held with professionals with expertise in the field, from Natural Resources Wales and other organisations. These were also informed by summaries of site level actions derived from the PIPs and Actions Database (see below). These were reviewed and validated by a small working group and also subject to a process of engagement and discussion with stakeholders. See Section 8 for more details.

The strategic actions are those which have been identified as being required to bring features into favourable condition. They are subject to resource availability and stakeholder agreement. They do not represent a fully funded or committed operational plan. However, the intention is that the actions will be used to inform a range of operational plans and work programmes in the future.

While the strategic actions are focused on the Natura 2000 series, many have a broad applicability and may also be of benefit to Sites of Special Scientific Interest and other biodiversity conservation and ecosystem resilience work in the wider environment.

Prioritised Improvement Plans and Actions Database

The LIFE Natura 2000 Programme has produced Prioritised Improvement Plans (PIPs) for all Natura 2000 sites in Wales. The PIPs identify the main issues and risks affecting the Natura 2000 features on the site and describe costed, prioritised actions required to achieve and maintain the site features in favourable condition.

The PIPs draw information from the Natural Resources Wales Actions Database which hold all actions (high, medium, low priority) for Natura 2000 sites. Actions were developed by Natural Resources Wales Conservation Officers in association with stakeholders and partners. The content of the Database was fully extended and updated during 2014/5.

3. Background

Work carried out by the LIFE Natura 2000 Programme for Wales in 2014/15 has identified diffuse water pollution as a priority issue/risk affecting Natura 2000 features in Wales.³ This is consistent with the most recent round of UK level biodiversity reporting; the 10th UK 'Article 12 report'⁴ and the 3rd 'Article 17 report'⁵ show that diffuse water pollution is having (or has the potential to have) adverse impacts on the condition of SAC and SPA features in across the UK.

Diffuse water pollution is the release of pollutants from a range of activities, many of which do not require consent. While individual pollution incidents may be on a small scale, at a catchment level they can have a significant cumulative impact on water quality. The sources of diffuse water pollution are varied and include agriculture, run-off from infrastructure and non-mains sewage discharges⁶.

The impacts from diffuse water pollution include eutrophication, loss of biodiversity, silting of fish spawning grounds, and impacts on human health through drinking water or bathing water pollution. In freshwater Natura 2000 sites, eutrophication due to phosphorus enrichment and the adverse effects of excessive siltation are the principal concerns, whilst in estuaries and coastal waters the issue is chiefly one of eutrophication due to excess nitrogen loading.

In the past, water pollution from specific point sources such as sewage treatment plants, mines and industry was a significant issue in Wales, however, the Habitats Directive and other European legislation has driven improvements such as the stricter regulation of new discharges, a review of historic discharges and major investment in sewage treatment. Therefore, pollution from these sources has reduced in recent years and the contribution of diffuse sources to overall pollution burden has, therefore, become proportionately more significant. Tackling diffuse pollution remains a challenge because of numerous, small-scale, often unregulated activities and the difficulties of attributing adverse impacts back to individual activities.

Agricultural pollution was identified as one of the main reason for waterbodies in Wales failing to achieve good status under the Water Framework Directive⁷. Land management activities including agriculture are a significant contributor to the diffuse component of phosphorus, nitrogen and sediment load within many of the catchments of Natura 2000, which reflects the largely rural nature of the majority of these catchments. Specific causes include poor practice when spreading slurry, waste or fertiliser on fields, stock management (including excessive stocking, poaching and unmanaged access to rivers), supplementary feeding and run-off from farm waste (e.g. from slurry stores and silage clamps).

³ Natural Resources Wales, 2015. *LIFE Natura 2000 Programme for Wales Summary Report*.

⁴ Joint Nature Conservation Committee 2013. *10th Report by the United Kingdom under Article 12 on the implementation of the Directive on the conservation of wild birds (2009/147/EC) from January 2008 to December 2012*. JNCC, Peterborough.

⁵ Joint Nature Conservation Committee 2013. *Summary of conclusions & qualifiers – 3rd UK Habitats Directive Reporting*.

⁶ Welsh Government. 2014. *A Water Strategy for Wales. Consultation Document*. Welsh Government. Pg12. <http://gov.wales/docs/desh/consultation/140407water-strategy-consultation-document-en.pdf>

⁷ As reference 6.

Diffuse contributions from non-land management sources, such as misconnections, urban run-off, highway drainage and private sewage treatment plants, can also be locally significant within some sites or have a more dominant impact on sites with urban locations.

The principal focus of this Thematic Action Plan is to address diffuse water pollution from rural land management activities, however, the need for action to tackle other sources is also recognized.

4. Issues and risks

The LIFE Natura 2000 Programme data shows that diffuse water pollution is having (or likely to have) an adverse impact on 61 out of 123 different Natura 2000 habitat or species features (49%), on 39 out of 112 Natura 2000 sites across Wales (35%). Table 1 provides a list of features most frequently affected. For a full list of sites and features affected see Appendices A and B respectively.

A total of 110 instances of issues and risks related to diffuse water pollution were recorded across the Natura 2000 series (on individual units or on whole sites), out of a total of 3,090 records (for all types of issue and risk) (3%). However, many actions were identified at a site level (which indicates that the issue is affecting all or most of the units on the site).

Table 1. Natura 2000 features most frequently adversely affected by diffuse pollution

Feature (common name)	Number of instances feature affected		
	Unit level	Site level	Total
Otter	22	7	29
River lamprey	17	11	28
Calcium-rich springwater-fed fens	19	3	22
Brook lamprey	18	4	22
Bullhead	18	4	22
Sea lamprey	12	10	22
Rivers with floating vegetation often dominated by water-crowfoot	17	4	21
Calcium-rich fen dominated by great fen sedge -saw sedge	16	2	18
Atlantic salmon	9	6	15
Reefs	6	5	11
Purple moor-grass meadows	7	2	9
Twaite shad	4	5	9
Marsh fritillary butterfly	7	1	8
Wet heathland with cross-leaved heath	7	1	8
Calcium-rich nutrient-poor lakes, lochs and pools	6	2	8
Geyer`s whorl snail	6	2	8
Grey seal	5	3	8
Naturally nutrient-rich lakes or lochs which are often dominated by pondweed	5	3	8
Very wet mires often identified by an unstable 'quaking' surface	7	-	7
Southern damselfly	5	2	7
Allis shad	4	3	7
Sea caves	5	1	6
Estuaries	-	6	6
Intertidal mudflats and sandflats	-	6	6
Freshwater pearl mussel	2	3	5
Great crested newt	1	4	5
Atlantic salt meadows	-	5	5

The 'number of instances' indicates the number of times diffuse water pollution is logged as an issue or risk for the feature at either a detailed management unit level or whole site level, on SACs and SPAs in Wales. This includes high, medium and low priority issues/risks.

Management units are sub-divisions of Natura 2000 sites based on landownership or ecological differences. Issues and risks are recorded as either at a 'site level' (if the affects occur across the site) or 'unit level' (if the impacts are localised).

The information is derived from the LIFE Natura 2000 Programme data held in the NRW Actions Database. Sourced September 2015.

The Natura 2000 sites predominantly affected by water pollution are freshwater sites (29 SAC/SPAs), and marine and estuary sites (10 SAC/SPAs). SACs most frequently listed as being impacted are those with fen and bog features (and associated species) such as Corsydd Llyn and Corsydd Môn and Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses SAC. Features on these sites are at risk from non-regulated point source pollution, groundwater pollution and surface water run-off causing eutrophication (nutrient enrichment). Due to the rural location of many of these sites the majority of the issues and risk identified relate to land management practices.

Affected river and lake SACs (and sites with river and lake features) include Afonydd Cleddau, Afon Teifi, Afon Tywi and Llangorse Lake. These sites are particularly at risk from diffuse pollution causing phosphorus enrichment and also siltation. Pesticides are also identified as an issue on some of the SAC rivers. The associated species features shown as affected are a number of fish species such as Salmon, Bullhead, Brook lamprey and Sea lamprey. Freshwater pearl mussel and Otter are also listed. The source of phosphorous in lakes SACs is generally agriculture, however, in rivers sewage outflows have historically been a significant source. However, reductions from these point sources, now means that diffuse pollution sources have become proportionately more significant.

Natura 2000 sites with marine and estuarine features affected by impacts of diffuse water pollution include Pen Llyn a'r Sarnau SAC, Kenfig SAC and Y Twyni o Abermenai i Aberffraw SAC, with the effects impacting particularly upon atlantic salt meadow, dune features, mudflats and sandflats, reefs and estuaries.

5. Policy and legislative context

There is a broad framework of policy and legislation at the international, UK and Welsh level which drives and supports the management of Natura 2000. The primary European legislation is the Habitats Directive and the Birds Directive which promote the conservation and management of natural habitats and wild species. Key UK legislation includes the Habitats Regulations, Wildlife and Countryside Act, and the Countryside and Rights of Way Act. Wales is developing a new approach to integrated and sustainable natural resource management, through for example, the Environment (Wales) Bill and the Nature Recovery Plan. Further information is provided in the *LIFE Natura 2000 Programme Facts and Figures Report 1*.

Policy and legislation which specifically relates to the issue of diffuse water pollution are as follows:-

- **EU Water Framework Directive (WFD) 2000** – the WFD established new and better ways of protecting and improving rivers, lakes, estuaries, coastal waters and groundwater. It provides the legislative driver for an integrated approach to water management. Water dependent Natura 2000 sites are classed as ‘Protected Areas’ under the WFD. Many are also classed 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 Areas 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.
- **Nitrate Pollution Prevention Regulations** – transpose the requirements of the **European Commission Nitrates Directive 1991**. They include mandatory measures for farms in designated Nitrate Vulnerable Zones.
- **Water Resources Act 1991** - enables anti-pollution works notices to be served under section 161A.
- **Environmental Permitting Regulations (England and Wales) 2010** - regulates discharges to ground and surface waters including discharge to ground by spreading on land.
- **Water Resources (control of pollution) (silage, slurry and agricultural fuel oil) (England) Regulations 2010 and as amended 2013 (SSAFO)** - aim to prevent water pollution from stores for silage, slurry and agricultural fuel oil.

6. Current mechanisms and planned actions on sites to 2020

During 2014/15, the LIFE Natura 2000 Programme identified and costed actions to address issues relating to diffuse water pollution on Natura 2000 sites for the period to 2020. These actions are held in full in the NRW Actions Database and summarised in Prioritised Improvement Plans (PIPs). A total of 184 proposed actions were identified across the Natura 2000 series, with an estimated total cost of nearly £13 million to 2020.

Actions expressed in terms of the main delivery mechanism are shown below in Table 2. This includes high, medium and low priority actions. These actions also include those which are planned or already underway. It shows the number of times mechanisms are listed against an action on a Natura 2000 site or management unit within a site and also specifies estimated costs and staff time.

Table 2. Key mechanisms identified in the LIFE Natura 2000 Programme data to address issues and risks associated with diffuse water pollution on Natura 2000 sites in Wales

Mechanism	Total number of instances of mechanism	Total cost (£)*	Total NRW staff days*
Investigation	78	£111,000	459
Direct management	40	£3,701,000	936
Management agreement (NRW)	24	£385,000	204
Management agreement (Glastir)	19	£7,809,000	895
Changes to policy &/or legislation	5	£0	100
Enforcement	4	£0	5
Fisheries enhancement projects	3	n/a	0
Risk surveillance	3	£1000	14
Targeted education, awareness raising & liaison	3	£750,000	22
Targeted land and /or rights purchase	1	£153,000	20

**The costs are broad estimated costs to deliver the action(s), rounded to the nearest thousand. In most cases the costs are calculated to 2020 except where longer term funding would be needed. The number of NRW staff days is the estimated number of annual staff days x 5 (for number of years until 2020) which would be needed, plus the number of one-off staff days until 2020. Note that there are a number of uncosted actions, due to the difficulty of estimating costs where more in-depth action specific information is required.*

The number of instances of a mechanism is influenced by the number of land holdings across the site or unit where it is required. The majority of Natura 2000 sites have numerous land owners and some units also have more than one land owner (i.e. some of the river units are several kilometres long).

The primary mechanisms used to address diffuse water pollution on Natura 2000 sites in Wales are described in more detail below:

- **Investigation** is the most frequently identified mechanism and is recorded where more information is needed to before appropriate action can be identified. Generally this would take the form of a survey or study to assess, for example, the source and nature of pollutants, the impact on the Natura 2000 features in question or a determination of water and sediment quality standards required to maintain SAC/SPA features in favourable condition and/or appropriate amelioration measures.
- **Direct Management** relates to work undertaken directly by NRW or other organisations on their own land/assets or on private land with the owner's permission. It may include site management such as the establishment of buffer strips, tree planting or riverside fencing to prevent stock access.
- **NRW Management Agreements** provide payment to landowners and occupiers for specific conservation management on protected sites, based on detailed prescriptions. They are flexible and can be designed to meet the specific requirements of the site, however, uptake is voluntary and limited budgets restrict their scope.
- **Glastir agri-environment scheme** is the Welsh Government sustainable environmental land management scheme available to farmers and landowners. It is well suited to addressing diffuse pollution issues related to agricultural practice, and can fund action over large areas. Prescriptions may relate to changes to management (such as reduced stocking levels or no-input buffer strips along river corridors) or capital actions.

Both Glastir and NRW Management Agreements are voluntary schemes so delivery of agreements is dependent not only on financial resources but upon landowners being able and willing to enter into a scheme. Some landowners, for example, may perceive payments for buffer strips to be financially unviable, or prescriptions inappropriate in for certain stretches of river.

- **Changes to policy and/or legislation** is identified as a mechanism when improvements in policy or legislation to deal with diffuse water pollution is required. Where changes to policy and legislation are required at a national level then these are identified in the strategic actions (Section 9).
- **Enforcement** is used if applicable legislation is in place but is not being adhered to. This is used, for example, where there is evidence to suggest that a land owner/licence holder is in breach of an environmental permit.
- **Fisheries enhancement projects** can sometimes address diffuse water pollution as part of a range of measures to assist fish populations but with associated benefit to other SAC features. Typical actions may include fencing-out riparian corridors or reducing livestock stock ingress in riverine SACs. This mechanism is mostly employed on river SACs which have active River Trusts that have a history of undertaking fisheries enhancement projects.
- **Targeted education, awareness raising and liaison.** Farm visits to provide advice on waste management, drainage and fertiliser/slurry/manure spreading are carried out by NRW and other organisations.

7. Rationale for strategic actions

The Natura 2000 actions identified in the Prioritised Improvement Plans and the Actions Database are predominantly site-based. While they can produce good results at a local level, they are limited in their ability to deliver at a regional or national level. Therefore, a set of strategic actions have been laid out in Section 9 of this plan.

As there is a broad legal and policy framework in Wales relating to pollution control, all strategic actions aim to be consistent with, and integrated into that framework, while at the same time placing emphasis on Natura 2000 needs.

In particular, the strategic actions are closely linked to the Natural Resources Wales' Diffuse Water Pollution Plan⁸ which outlines the measures required to improve Wales' water environment. Both plans will contribute to the delivery of the Wales Environment Strategy and targets in the Water Framework Directive (WFD).

Diffuse pollution is a complex issue to resolve and remains a challenge, even though there is a raft of regulations, policies and measures in place. Lack of evidence (e.g. the effect of pollutants on Natura 2000 features) also hampers progress in some areas. Therefore, many of the high priority strategic actions refer to the need to review and appraise existing practice (in terms of legislative regimes, current mechanisms, monitoring and investigations), and identify ways to adapt and integrate them to improve outcomes. The need to explore new approaches and techniques is also highlighted.

⁸ Thomas, R. April 2014. *Diffuse Water Pollution in Wales. Issues, solutions and engagement for action.* Natural Resources Wales. Accessed 29/09/2015 <https://naturalresources.wales/media/4059/diffuse-water-pollution-in-wales.pdf>

8. Development of strategic actions

The following table in Section 9 describes the strategic actions required to manage and address impacts from diffuse water pollution on Natura 2000 features.

The strategic actions were developed through a process of consultation in combination with analysis of the LIFE Natura 2000 Programme data. Summary outputs of the data from Natura 2000 sites was used to provide contextual background for workshops as follows:-

- Marine Workshop: 16 October 2014, Bangor
- Rivers Workshop: 12 February 2015, Aberystwyth
- Wetlands Workshop: 22 April 2015, Aberystwyth
- Lakes Workshop: 8 July 2015, Aberystwyth

Attendees were specialists from Natural Resources Wales and other bodies with an expertise in water pollution and conservation management. Participants were asked to consider existing management methods for issues arising from diffuse pollution and to identify new strategic actions which could address impacts regionally or at a Welsh or UK level. These actions were then reviewed by a small working group.

The draft strategic actions were made available for comment to a wider audience through a series of three workshops during the summer of 2015. The first workshop was open to sector leads from Welsh Government, while the second and third workshops (held on the 19 and 25 August 2015, in Garwnant and Bangor respectively) were attended by representatives of interested organisations in Wales, from, for example, the third sector, local authorities, farming unions and other user groups. There was a total of 84 attendees. The consultation drafts were also available to other organisations on request. The feedback received was reviewed and included in the actions as appropriate.

The strategic actions are intended to be SMART (Specific, Measurable, Assignable, Realistic and Time-related) and therefore information has been provided on costs and time-scales where possible. A proposed lead delivery organisation is listed against each action. The intention is that this organisation will drive the action forward, collaborating with other partners and stakeholders as necessary. It is anticipated that the strategic actions will be used to guide future work programmes.

9. Strategic actions for Natura 2000 in Wales: Diffuse Water Pollution

The following represent a list of proposed actions needed to make progress towards favourable condition of Natura 2000 features. They do not represent a fully funded or committed operational plan.

While the actions in this table are specifically focused on Natura 2000 (N2K) sites and catchments, their adoption in the wider countryside may assist in providing improvements to the status of waterbodies in relation to the WFD. Note that actions relate to terrestrial, freshwater and marine Natura 2000 features.

No.	Action	Detail	Priority	Link to existing work programmes	Proposed lead organisation	Proposed partner organisation(s)	Estimated cost (£)	Proposed timetable
1	Integrate Natural Resources Wales' work to investigate diffuse pollution with Welsh Government's work on cross-compliance.	Raise the profile of breaches in cross-compliance affecting N2K habitats and features (terrestrial, freshwater and marine) and target compliance monitoring.	High	NRW Sustainable Land Management team Diffuse Pollution Action Plan, Water Framework Directive	Welsh Government	Natural Resources Wales	Staff time	2018
2	Carry out risk assessments of agricultural holdings using a standardised procedure. Use the risk assessment to identify and prioritise action on holdings.	Risk assessments to be carried out on catchments of N2K sites which have high priority diffuse pollution issues/risks and which are failing under the WFD. Standard procedure to include appraisal of, for example, stock numbers, supplementary feeding, infrastructure (e.g. silage clamps and slurry stores), land use and soil type, fertiliser and pesticide use, and hydrological connections to N2K sites.	High	NRW Special Sites Programme Diffuse Pollution Action Plan, Water Framework Directive	Natural Resources Wales	Rivers Trusts Welsh Government Farming Connect	Staff time	2018
3	Review and appraise existing non-legislative mechanisms used to address diffuse pollution issues on agricultural holdings which impact N2K features. Identify, improvements to existing mechanisms or potential new mechanisms, and where appropriate investigate, trial and monitor effectiveness of new/improved mechanisms.	To build upon work on appraisal of mechanisms already undertaken by LIFE Natura 2000 Programme. Examples of new or improved mechanisms may include: <ul style="list-style-type: none"> • Small-scale standalone capital grant scheme to address diffuse pollution issues. • Development of nutrient management initiatives. • Training for farmers/landowners regarding reducing diffuse pollution, waste management and farm nutrient budgeting. • Catchment level Rural SuDS pilot projects. Prioritise trials or studies on farms/catchments which impact upon on N2K sites with diffuse pollution as a high priority and WFD failing waterbodies.	High	Diffuse Pollution Group Rural Development Plan Planning policy Glastir Nitrate Vulnerable Zones	Welsh Government (Planning, Water and Nature Divisions)	Natural Resources Wales Farming Connect National Park Authorities	Staff time	2018

4	<p>Review and appraise relevant legislation and policy used to control diffuse pollution on N2K sites.</p> <p>Identify and where possible implement changes to improve effectiveness.</p>	<p>Review to include a gap analysis.</p> <p>Areas to consider include, for example:</p> <ul style="list-style-type: none"> • General Binding Rules • SAFFO regulations • Nitrate Vulnerable Zones • Enforcement regimes • SSSI legislation 	High	<p>Diffuse Pollution Action Plan, Water Framework Directive</p> <p>Diffuse Pollution Group</p>	Welsh Government	Natural Resources Wales	Staff time	2020
5	<p>Carry out a desk-based study of approaches to reduce and manage diffuse pollution from agriculture in other parts of the UK and Europe focusing on N2K sites.</p>	<p>Select countries which have similar farming systems, challenges and barriers (i.e. Demonstration Test Catchments in England).</p> <p>Identify the best ways to ensure environmental compliance and how to improve engagement with farmers. Identify novel mechanisms and approaches and effective legislation.</p> <p>Feed results into work on actions 3 and 4 above.</p>	High	<p>Diffuse Pollution Action Plan, Water Framework Directive</p> <p>Diffuse Pollution Group</p>	Natural Resources Wales	Universities (possible MSc project)	£20,000	2018
6	<p>Seek to strengthen integration between agri-environment prescriptions and targets, and N2K objectives on farms on N2K sites in order to reduce diffuse pollution impacts on N2K terrestrial, freshwater and marine features.</p>	<p>Review Glastir options and identify improvements to maximising Glastir's ability to deliver issues and risks on N2K sites, for example</p> <ul style="list-style-type: none"> • Glastir Advanced targeting maps • Payment rates • Need for compulsory prescriptions • Uptake of prescriptions <p>Provide information and training to help facilitate communication between NRW, WG and applicants to convey priorities in relation to diffuse pollution.</p>	High	<p>Glastir</p> <p>Diffuse Pollution Group</p>	Welsh Government	Natural Resources Wales NFU/FUW	Staff time	2020
7	<p>Review water quality monitoring to ensure that it is adequately targeted to be able to ascertain whether N2K features are reaching the targets set for favourable condition.</p> <p>Investigate the use of smarter monitoring to establish sources of pollution (e.g. using nitrate isotopes).</p>	<p>Ensure that monitoring needs of N2K features is adequately prioritised during the NRW monitoring review.</p> <p>Ensure that monitoring for acidification in upland SACs (i.e. lakes) is adequate.</p>	High	<p>NRW Monitoring Review</p> <p>WFD water body monitoring</p>	Natural Resources Wales		Staff time	2016

8	<p>Assess the sensitivity and vulnerability of marine N2K features to water pollution.</p> <p>Use this to determine whether current water and sediment quality standards used for existing NRW statutory duties are fit-for-purpose. Review and update if required.</p>	<p>Appropriate standards allow for effective monitoring of feature condition and appropriate assessment of new permits.</p>	High	<p>NRW Special Sites Programme</p> <p>Article 17 Review</p>	<p>JNCC</p> <p>Natural Resources Wales</p>	<p>UK TAG</p>	<p>Staff time</p>	2017
9	<p>Map the location of registered and non-registered private sewage treatment plants within the catchments of N2K sites where diffuse pollution is a high priority issue.</p> <p>Target high risk plants for further investigation, monitoring, and where necessary enforcement.</p>	<p>High risk plants may be determined based on slope, proximity to the N2K site or catchment water course, capacity etc.</p>	High	<p>Diffuse Pollution Plan, WFD</p> <p>NRW Planning</p>	<p>Natural Resources Wales</p>	<p>Local Authorities</p>	<p>Staff time</p>	2018
10	<p>Carry out a scoping study for at least one targeted externally-funded project bid to address diffuse pollution issues across N2K site catchments for N2K lowland wetlands and lakes or rivers.</p>	<p>Project to focus on those sites where diffuse pollution is a high priority issue and the site contains a WFD failing water body</p> <p>Projects to include engagement/awareness raising for land owners/managers, influencing policy mechanisms, and direct management.</p> <p>Requires dedicated staff time to draw up/support the restoration plans/project bids.</p>	High	<p>NRW Operations Teams</p> <p>NRW Special Sites Programme</p> <p>Catchment management plans</p> <p>WFD</p>	<p>Natural Resources Wales</p>	<p>Wildlife Trusts</p> <p>National Trust</p> <p>RSPB</p> <p>National Park Authorities</p> <p>Rivers Trusts</p> <p>AONBs</p>	<p>Staff time</p>	2018
11	<p>Investigate location of misconnection hotspots. Identify options to resolve misconnections.</p>	<p>Work should target misconnection hotspots within catchments of N2K sites where diffuse pollution from urban/industrial areas are identified as a priority issue/risk.</p>	Medium	<p>WFD</p> <p>Diffuse Pollution Action Plan</p>	<p>Natural Resources Wales</p> <p>Water companies</p>	<p>Local Authorities</p> <p>UK National Misconnections Group</p>	<p>Staff time</p>	2019
12	<p>Explore changes to planning policy to require the use of Water Sensitive Urban Design (SUDs) on developments within catchments of N2K sites.</p>		Medium	<p>WFD</p> <p>Diffuse Pollution Action Plan</p>	<p>Welsh Government</p>	<p>Natural Resources Wales</p> <p>Local Authorities</p>	<p>Staff time</p>	2020
13	<p>Develop initiatives to improve the provision of education at agricultural and forestry colleges across Wales to promote good nutrient management and other measures to reduce diffuse water pollution.</p>	<p>To focus on the benefits of improved nutrient management for farm or forestry businesses.</p>	Medium	<p>WFD</p> <p>Diffuse Pollution Action Plan</p>	<p>Natural Resources Wales</p>	<p>Colleges</p> <p>Universities</p>	<p>Staff time</p>	2017
14	<p>Investigate current use of pesticides in Wales.</p> <p>Assess the effectiveness of pesticide regulation in relation to diffuse pollution and N2K, and means and effectiveness of monitoring.</p> <p>Identify changes in mechanisms to improve best practice and options to improve monitoring.</p>	<p>To include the identification of type of pesticides and level of use across Wales.</p> <p>Identify changes in mechanisms to improve best practice and options to improve monitoring.</p>	Medium	<p>WFD</p> <p>Diffuse Pollution Action Plan</p>	<p>Welsh Government</p>	<p>Natural Resources Wales</p>	<p>Staff time</p>	2017

15	<p>Carry out an investigation to identify where N2K sites downstream of commercial forestry, and affected by diffuse pollution and acidification, may most benefit from improvements such as riparian vegetation improvements, forest drain realignment and roadside drain disconnection from watercourses, to meet current UKFS standards.</p> <p>For Welsh Government Woodland Estate sites, develop an NRW prioritised programme of works to implement identified action.</p> <p>Implement Water Management Plans (WMPs) for all operations on WGWE (sites where the operation is within 5 miles upstream of an N2K site will be flagged as part of the Environmental Risk Assessment process).</p> <p>For private forests, provide education and training to owners/managers to encourage uptake of appropriate improvements.</p>	<p>Actions to ameliorate diffuse pollution and acidification effects, should also take into account flood risk objectives.</p> <p>The WMP will detail mitigation measures to be put in place to ensure the risk of diffuse pollution is minimised.</p> <p>Education and training may include, for example, water awareness events or advice on appropriate funding mechanisms such as Glastir.</p>	Low	Forestry Policy WFD	Natural Resources Wales		Staff time	2018
16	<p>Establish and support virtual networks between regional and central staff within NRW to assist in addressing diffuse pollution issues affecting N2K sites.</p>	<p>The networks would highlight diffuse pollution issues affecting N2K sites and share information (e.g. projects, techniques, best practice).</p>	Low	WFD NRW Operational Teams	Natural Resources Wales		Staff time	2017

Appendix A: Natura 2000 sites recorded as having diffuse water pollution as an issue or risk adversely affecting (or having the potential to adversely affect) features of that site

Data was derived from the NRW Actions Database following work by the LIFE Natura 2000 Programme. High, medium and low priority issues/risks are included. Instances may be recorded for the whole site or at a more detailed 'management unit' (sub-site) level.

Data from September 2015.

Site name	SAC/SPA	Number of instances site affected		
		Unit level	Site level	Total
Corsydd Llyn / Llyn Fens	SAC	11	1	12
Corsydd Mon / Anglesey Fens	SAC	9	1	10
Afonydd Cleddau / Cleddau Rivers	SAC	8	1	9
Afon Teifi / River Teifi	SAC	6	1	7
Pen Llyn ar Sarnau/Llyn Peninsula and the Sarnau	SAC	6	1	7
Crymlyn Bog / Cors Crymlyn	SAC	6	-	6
Afon Eden-Cors Goch Trawsfynydd	SAC	2	3	5
Afon Tywi / River Tywi	SAC	4	1	5
North West Pembrokeshire Commons / Comins Gogledd Orllewin Sir Benfro	SAC	4	-	4
Fenn's,Whixall, Bettisfield, Wem and Cadney Mosses	SAC	2	1	3
Llangorse Lake / Llyn Syfaddan	SAC	2	1	3
Pembrokeshire Bat Sites and Bosherston Lakes / Safleoedd Ystum Sir Benfro	SAC	2	1	3
Y Twyni o Abermenai i Aberffraw / Abermenai to Aberffraw Dunes	SAC	2	1	3
Afon Gwyrfa i Llyn Gwellyn	SAC	2	-	2
Coedydd Derw a Safleoedd Ystumod Meirion / Meirionnydd Oakwoods and Bat sites	SAC	2	-	2
Glan-traeth	SAC	-	2	2
Kenfig / Cynffig	SAC	2	-	2
Llyn Dinam	SAC	1	1	2
Pembrokeshire Marine / Sir Benfro Forol	SAC	1	1	2
Preseli	SAC	1	1	2
Cadair Idris	SAC	1	-	1
Cardiff Beech Woods	SAC	-	1	1
Cardigan Bay / Bae Ceredigion	SAC	-	1	1
Carmarthen Bay and Estuaries / Bae Caerfyrddin ac Aberoedd	SAC	-	1	1
Cernydd Carmel	SAC	-	1	1
Dee Estuary / Aber Dyfrydwy	SAC	-	1	1
Deeside and Buckley Newt Sites	SAC	-	1	1
Glaswelltiroedd Cefn Cribwr / Cefn Cribwr Grasslands	SAC	-	1	1
Halkyn Mountain / Mynydd Helygain	SAC	1	-	1
Johnstown Newt Sites	SAC	-	1	1
Llwyn	SAC	-	1	1

Migneint-Arenig-Ddualt	SAC	1	-	1
Montgomery Canal	SAC	-	1	1
North Pembrokeshire Woodlands / Coedydd Gogledd Sir Benfro	SAC	-	1	1
River Dee and Bala Lake/Afon Dyfrydwy a Llyn Tegid	SAC	-	1	1
River Wye / Afon Gwy	SAC	-	1	1
Severn Estuary	SPA	-	1	1
Severn Estuary / Mor Hafren	SAC	-	1	1
The Dee Estuary	SPA	-	1	1
Total		76	34	110

Appendix B: Natura 2000 features recorded as being adversely affected (or having the potential to be adversely affect) by diffuse water pollution on sites

Data was derived from the NRW Actions Database following work by the LIFE Natura 2000 Programme. High, medium and low priority issues/risks are included. Instances may be recorded for the whole site or at a more detailed 'management unit' (sub-site) level.

Data from September 2015.

Feature (common name)	Number of instances feature affected		
	Unit level	Site level	Total
Otter	22	7	29
River lamprey	17	11	28
Calcium-rich springwater-fed fens	19	3	22
Brook lamprey	18	4	22
Bullhead	18	4	22
Sea lamprey	12	10	22
Rivers with floating vegetation often dominated by water-crowfoot	17	4	21
Calcium-rich fen dominated by great fen sedge -saw sedge-	16	2	18
Atlantic salmon	9	6	15
Reefs	6	5	11
Purple moor-grass meadows	7	2	9
Twaite shad	4	5	9
Marsh fritillary butterfly	7	1	8
Wet heathland with cross-leaved heath	7	1	8
Calcium-rich nutrient-poor lakes, lochs and pools	6	2	8
Geyer's whorl snail	6	2	8
Grey seal	5	3	8
Naturally nutrient-rich lakes or lochs which are often dominated by pondweed	5	3	8
Very wet mires often identified by an unstable 'quaking' surface	7	-	7
Southern damselfly	5	2	7
Allis shad	4	3	7
Sea caves	5	1	6
Estuaries	-	6	6
Intertidal mudflats and sandflats	-	6	6
Freshwater pearl mussel	2	3	5
Great crested newt	1	4	5
Atlantic salt meadows	-	5	5
Floating water-plantain	2	2	4
Degraded raised bogs	2	1	3
Humid dune slacks	1	2	3
Dunlin	-	3	3
Glasswort and other annuals colonising mud and sand	-	3	3
Subtidal sandbanks	-	3	3

Shelduck	-	3	3
Redshank	-	3	3
Desmoulin`s whorl snail	1	1	2
Lagoons	1	1	2
Gadwall	-	2	2
Russian white-fronted goose	-	2	2
Bewick's swan	-	2	2
Shifting dunes	-	2	2
Dune grassland	-	2	2
Shallow inlets and bays	-	2	2
Shifting dunes with marram	-	2	2
Bottlenose dolphin	-	2	2
Acid peat-stained lakes and ponds	1	-	1
Dry heaths	1	-	1
Petalwort	1	-	1
Pintail	-	1	1
Teal	-	1	1
Beech forests on neutral to rich soils	-	1	1
White-clawed -or Atlantic stream- crayfish	-	1	1
Knot	-	1	1
Depressions on peat substrates	-	1	1
Dunes with creeping willow	-	1	1
Oystercatcher	-	1	1
Black-tailed godwit	-	1	1
Curlew	-	1	1
Grey plover	-	1	1
Common tern	-	1	1
Turloughs	-	1	1