Catchment Sensitive Farming

Phase 3 Delivery Report Update

April 2014 – March 2016

A clear solution for farmers

CATCHMENT SENSITIVE FARMING

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Introduction

2016 marks an important moment in the development of Catchment Sensitive Farming (CSF); it is now 10 years since CSF started as an experimental project to understand if farm advice could improve water quality on a voluntary basis. Over that time we have worked with a large number of individuals and organisations who have greatly contributed to the success of the project. Some people have been with us for the whole time and we will be taking the opportunity to celebrate theirs, and everyone else's contribution.

Over the life of CSF, evaluation and monitoring has shown not only the impact of our work but also the great contribution farms are making to their water environment. This latest report is an update on our work and the impact the project has had on water quality since the Evaluation Report and the associated description of project activities, both of which were published in 2014[1].

This period has been marked by new opportunities and associated uncertainties; 2015 saw the end of the very successful CSF capital grant scheme as it was integrated into the new Countryside Stewardship Scheme (CS). This has given us considerable opportunities to give our work a more land management focus and to integrate water quality with other environmental improvements. It has also led to changes in targeting.

Since the last report, CSF has been in transition as we developed our approach to the delivery of Countryside Stewardship and worked towards the development of the next programme of work. I am delighted to say that the next phase will now take us through to 2021 and we have been working with the project partners (Natural England, Environment Agency and Defra) and our wider stakeholder group to understand how we can improve our approach to maximise our impact. This report describes the lessons learnt; the transition process has guided us in this.

As we look forward to the next 5 years, this report gives us a good opportunity to reflect on the achievements of the last 2 years.

Bob Middleton – CSF Project Manager

[1] Evaluation Report: **http://publications.naturalengland.org.uk/publication/6510716011937792**
Delivery Report: **http://publications.naturalengland.org.uk/publication/6312755155959808**

Project overview

This report covers the last two years of CSF Phase 3. During this time there has been significant work to move from the approach and targeting developed since 2006, to new targeting and links with the Countryside Stewardship (CS) scheme from 2015 onwards. The two years are known as Phase 3 'transition' and reflect the work carried out to develop the new scheme and targeting and also to look at how the whole CSF approach could be improved in the future. An additional important change was the move to the new Farm Advice Framework (FAF) for the procurement of farm advice from the private sector; an opportunity to improve the depth and range of advice and training offered.

The core purpose of the project remained unchanged; to reduce diffuse pollution from agriculture by helping farmers take voluntary action. We do this through offering general and specialist advice on topics tailored to farm and catchment priorities. The range of this advice has been improved with the move to FAF.

The project focuses on long term behaviour change, so maintenance of core delivery activities in catchments was critical in this period. Delivery has been supported by a substantial training programme for CSF staff, increasingly focused on social science; how do we engage farmers and other land managers and how do we sustain that engagement?

This has been achieved through CSF Officers (CSFOs) in the catchments where CSF can make the greatest difference in terms of addressing diffuse pollution. CSF staff in Natural England (NE) work with other advisers and partners to increase our work throughout England. CSF also works with a range of partners through collaborative agreements, especially in 16/17 to help support the delivery of CS.

In addition to advice, CSF has offered a wide range of grants for infrastructure improvements which help farmers take action. Up to March 2015 this was through a dedicated CSF grants scheme funded through the Farm and Forestry Productivity elements of the Rural Development Plan for England (RDPE). Subsequently, the grant items, plus new ones, have been incorporated in CS. The first element of this was a standalone capital grant for water delivered by CSF and offered in March/April 2015. This was followed by the main scheme's application window from July to September 2015.

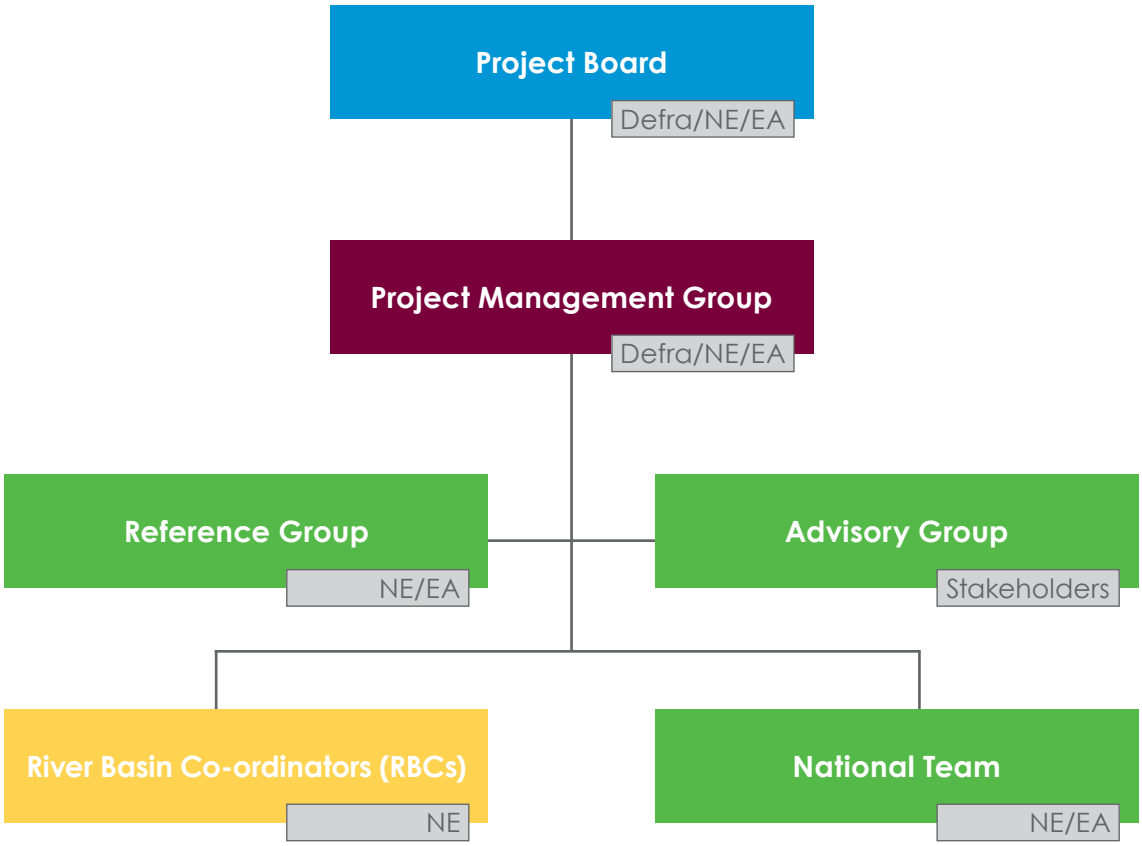
CSF has spent considerable time helping to develop CS, to build on the success of the previous grant schemes and bring together land management and capital works to meet multiple environmental objectives. CSF has a distinct way of working to support CS, especially for mid-tier agreements, which matches the measures to the environmental priorities on the farm that a farmer can meet, directly linked to CSF advice.

From 2015, CSF Officers and partners have worked with farmers in high priority areas in catchments to help support CS implementation. For some farmers this support was proactive, for others reactive. In both cases, farm visits were made to assess the potential for agreements, either capital only (2 year agreements) or a 5-year land management and capital agreement. CSF approval was necessary for some popular (and expensive) items to ensure value for money and CSFOs can improve the scores of applications through endorsements.

The focus of CSF has been to support farmers in the highest priority areas for the reduction of pollution due to the sensitivity of those areas and the importance of agriculture; a feature that continues under CS, although the development of schemes has meant a re-appraisal of CSF Phase 3 targeting to align with wider CS targeting for water. To allow for this transition, the 2015 water capital grants were offered in the Phase 3 pre-CS, CSF target areas while the main scheme was available in the new target CS high priority areas. These new areas (termed 'Water Priority Areas') will be used to focus Defra-funded CSF work from 2016 onwards in Phase 4.

The close integration of delivery in Natural England, with evidence and evaluation work undertaken by the Environment Agency (EA), has allowed us to apply many of the lessons learned from 10 years of CSF to current and future work. Further details on this are below. One immediate impact has allowed us to focus our work more closely than ever - we are now able to prioritise farms on the basis of their geography, enterprise and size related to local water quality issues. In 2015 this meant we were able to select farms with which we worked using national priorities, balanced with a need for flexibility to meet local demands.

This integration is reflected in the continuance of a project management approach; overall governance is as follows:



The roles of each element are:

- Project Board – strategic oversight of the project. Ensures escalation to Defra policy and/or NE/EA governance.
- Project Management Group – operation project management.
- Reference Group – drawn from across the project to help shape new work and ways of working.
- Advisory group – stakeholder group to help shape specific, strategic issues and provide feedback.
- River Basin Co-ordinators – leaders of regional delivery to escalate issues for resolution and ground truth decisions.
- National team – to bring forward the views of the national NE and EA teams.

- Local CSF steering groups – to provide the local direction and guidance to Catchment Officers in order to make their delivery strategies locally relevant and to provide crucial local / customer based feedback

- Natural England Areas – provide local direction and management of CSF delivery staff

This delivery report brings together all aspects of the project to provide an update on two years of delivery and evaluation. It describes the activities and themes in this section in more detail.

Lessons learned

The transition from Phase 3 (2011-2016) to Phase 4 (2016-2021) of CSF has allowed reflection of the lessons learned from existing delivery to allow us to improve cost effectiveness and the impact of our work. There have been two strands to this:

- Evidence: the project evaluation has shown the impact of CSF and why it works.

- Transition: this was a strand of work in 14/15 which looked across the project to learn lessons about how we can improve the delivery of all strands of work.

The lessons learned from both exercises are summarised in Annex 1.

The transition work identified the main areas where project staff, partners and other stakeholders felt the project could improve through the development of new ways of working, new offers for farmers or to reflect new arrangements since the project started. A list of key issues can be seen in Annex 1. Each issue was developed separately, depending on the nature of the required action. All have been factored into the plans for Phase 4, except for three areas; Hard to Action farmers, Catchment Based Approach and CSFO development profile, where work continues.

The large majority of the lessons are being taken forward in the planning for Phase 4 to improve impact and cost-effectiveness. Some issues, such as working with 'Hard to Action' farmers have been less straightforward but work will continue to refine and develop the offer in light of CS.

Partnerships and collaborative projects

The CSF partnerships formed part of the CSF evaluation, reported in 2014. The partnership programme was reviewed during the transition phase, together with planning for Phase 4. Partnerships were assessed for partnership working, project delivery, possible improvements and to gather feedback from partners. Results from the assessment showed the partnerships contributed well to CSF objectives, so the Catchment Partnerships and National Partnerships were extended with some changes described below. The collaborative project programme was found to be an effective way of working flexibly in partnership on smaller, short-term projects supporting CSF advice delivery, so this approach was continued.

The partners and CSF project officers developed an activity plan for advice delivery and grant support for each year for each partnership project. The Memorandum of Agreement for each partnership was extended to formally agree the project plan and contributions from, and responsibilities of, each partner.

The partner led CSF catchment partnerships have delivered CSF advice and grants to over 1000 farmers in 13 catchments.

Through joint events run through collaborative projects and national partnerships, the partners have provided expert speakers, event promotion and match-funding for events, making it a more cost-effective way of delivering high quality events. The joint farm events throughout have had record attendances, with excellent feedback.

The local collaborative projects have provided a more flexible way of setting up smaller partnership projects to supplement CSF activity in catchments and improve farmer engagement, and in particular have enabled CSF to cover the new CS scheme in new target areas.

Catchment Partnerships

Changes to the CSF catchment partnerships include:

- Developing the new CSF offline template to improve recording of farmer engagement and advice delivery via the catchment partnerships
- Developing criteria for setting up small collaborative projects
- Changes in partners due to the ability to provide funding or time to support the partnership project, employ the CSFO or to enhance delivery by linking local projects (Table 3)
- Changes to catchment areas covered to fit in line with CSF re-targeting to align with Countryside Stewardship high priority water quality areas in 2015-16 (Table 3)
- CSF catchment partnerships supported farmers interested in applying for Water Capital Grants in March-April 2015 in Phase 3 target areas and then Countryside Stewardship grants and agreements in the CS high water priority areas in July – September. This was a new scheme with new land management options for soil and water. Partners worked with CSF and Natural England land management advisers to develop better applications for mid-tier and higher-tier CS 5 year agreements and water capital grants

To achieve a more even spread of collaborative projects, each River Basin was allocated a budget for local projects and proposals were invited from CSFOs and RBCs. A range of topics for farm events were offered via the regional and national projects.

Between April 2014 and March 2016, the CSF Catchment Partnerships provided advice on reducing diffuse water pollution to over 1335 farmers (unique stakeholders) in total. Advice was provided to over 1000 farmers via 1:1 farm advice visits and over 1500 farmers via training events (Table 1).

Table 1: Farmer (stakeholder) engagement and advice delivered through Catchment Partnerships between 1 April 2014 to 20 March 2016, as reported in the CSF Reporter Database and partnership reports

Catchment	Unique stakeholders engaged	Stakeholders engaged for advice at a 1:1	Stakeholders engaged for advice at an event
A - Upper Great Ouse	232	114	296
B - Semerwater & Upper Lune* (Yorkshire Dales 15-16)	91	175	174
C - River Nidd*	53	56	71
D - River Nene* (Nene and upper Welland 15-16)	137	103	100
E - Taw, Torridge & North Devon streams*	203	96	120
F - Isle of Wight*	33	58	4
G - Downs & Harbours Clean Water Partnership*	67	143	74
H - Rivers Chelmer & Blackwater	297	184	575
I - The Leam and J- Cound brook	222	258	92
TOTAL	**1335**	**1187**	**1506**

**Figures from partnership reports due to under-reporting in CSF reporter database*

CSF catchment partnerships supported farmers applying for the CSF Capital Grant Scheme. This resulted in 138 grants, totalling £1.1m being awarded in 2014, and 146 grants totalling more than £1.2m in 2015 (Table 2). Support for Countryside Stewardship was also provided in 2015-16.

Table 2: CSF Capital Grant Scheme grants awarded by year

		2014-15	2014-15	2015-16	2015-16
	Catchment partnership	No. grants	Value £	No. grants	Value £
A	Upper Great Ouse	14	£118,086	12	£104,014
B	Semerwater & Upper Lune	18	£134,493	35	£281,136
C	River Nidd	13	£96,214	16	£142,876
D	River Nene	13	£92,186	12	£110,666
E	Rivers Taw & Torridge & North Devon Streams	45	£394,833	46	£394,332
F	Isle of Wight	2	£15,889	1	£5,238
G	Downs & Harbours Clean Water Partnership	6	£45,124	1	£6,866
H	River Chelmer & Blackwater	8	£68,272	6	£49,300
I	Upper Avon & River Leam	6	£55,661	6	£54,856
J	Cound Brook	13	£115,531	11	£96,319
	Total	**138**	**£1,136,287**	**146**	**£1,245,604**

National Partnerships

The four National Partnerships provided support to CSF on the themes of nutrients, soil and pesticide management and mitigation measures to reduce diffuse water pollution from agriculture. This was achieved through training CSF staff, technical support, running joint farmer training events and agricultural shows, media activity and developing and distributing advice materials through partners and partner websites.

The National Partnerships have developed some valuable advice resources, enabling CSF advice to be more widely available, including through partner websites. For example, 18% of farms with a nutrient management plan use Tried & Tested (6480 farms). Pesticides levels have fallen significantly in catchments where CSF and the Voluntary Initiative (VI) have worked closely with agronomists and farmers.

Key outputs from each National Partnerships include:

- Rivers Trust
    - Hosted 45 DWPA information sheets on **www.theriverstrust.org/pinpoint/** which have been viewed more than 7000 times a year.
    - Delivered four courses each year, training over 48 Rivers Trusts advisers and CSFOs working with farmers to reduce diffuse water pollution from agriculture (DWPA).
    - Developed a new advanced DWPA course on fluvial geomorphology and sedimentation.
    - Trained over 300 agricultural college students and young farmers each year.
- Professional Nutrient Management Group
    - Nutrient management guidance was provided to farmers and advisers, including the Tried & Tested publications revised in 2014 - 'Nutrient Management Plan', 'Think Manures, 'New to Nutrient Management' and Feed Planning for Sheep and Cattle'. A total of 15,702 Tried & Tested packs including these publications were distributed between April 2014 and March 2016. These publications and further guidance were also made available via the project website **http://www.nutrientmangement.org.uk/**, which has received over 18,000 visitors per year

- Developed national spreader testing scheme; national reports on soil status and nutrient management practices; calculator tool for feed nutrients

- Voluntary Initiative developed new guidance and press releases published on the **VI website**, including case studies on biobeds and biofilters; revised Water Protection Advice Sheets for key problem pesticides; oilseed rape herbicides;

  - Trained CSFOs and water company advisers in introductory and advanced pesticide management

  - Agronomists in six CSF catchments provided monthly pesticide monitoring bulletins, weekly spray-warning texts and seven workshops on best practice for grassland pesticides, metaldehyde and oilseed rape weed control

- Linking Environment And Farming (LEAF)

  - Produced four new video case studies on cover crops; integrated pest management, filter fences and biobeds: **LEAF - Video Library**

Collaborative Projects

In 2014/15, a total of 22 collaborative projects were delivered, including 15 with local partners for catchment-based projects and 7 with national partners.

In 2015/16, 15 collaborative projects were delivered, including 10 catchment and 5 national/regional projects.

Local projects supported farmer engagement, advice visits and events to extend the reach of CSF and complement delivery in large/vacant catchments with established local partners. In 2015/16 projects were set up in new target areas, primarily to support Countryside Stewardship.

The collaborative projects delivered over 115 joint events. CSFOs organised these locally, with partners providing guest speakers on topics such as precision farming, soil management and biology, soil organic matter, cover cropping, maize over-sowing and improving soil organic matter. See: **CSF workshops with Soil and Water Management Centre**.

New guidance was published on Cover Crops and Field Drainage Guide with Agriculture and Horticulture Development Board (AHDB). Guidance and a new Countryside Stewardship item was developed for constructed wetlands with Wildfowl and Wetlands Trust: **www.wwt.org.uk/conservation/saving-wetlands-and-wildlife/influencing-action/guidance/constructed-farm-wetlands**

Table 3: CSF catchment partnerships - catchments and partners in 2014-5 and 2015-6

Catchment 2014-15	Catchment 2015-16	Partner(s) 2014-15	Partner(s) 2015-16
Upper Great Ouse	(NE-led catchment)	EA	-
Upper River Nene	River Nene (upper and lower) and upper Welland	EA and River Nene Regional Park	EA, River Nene Regional Park, Anglian Water, Wildlife Trust, Welland Rivers Trust
Isle of Wight	Isle of Wight	EA and Hampshire and Isle of Wight Wildlife Trust	EA and Hampshire and Isle of Wight Wildlife Trust
Downs and Harbours Clean Water Partnership	Downs and Harbours Clean Water Partnership	EA and Portsmouth Water	EA and Portsmouth Water
Rivers Chelmer and Blackwater	Rivers Chelmer and Blackwater	EA and Essex and Suffolk Water	EA and Essex and Suffolk Water
River Nidd	River Nidd	Harrogate Borough Council (Nidderdale AONB), Yorkshire Water and Yorkshire Dales Rivers Trust	Harrogate Borough Council (Nidderdale AONB), Yorkshire Water

Catchment 2014-15	Catchment 2015-16	Partner(s) 2014-15	Partner(s) 2015-16
Semerwater and Upper Lune	Yorkshire Dales (high water priority areas)	Yorkshire Dales National Park and Yorkshire Dales Rivers Trust	Yorkshire Dales National Park
River Leam (upper Avon), Rea (part of Teme) and Cound brook	River Leam and Cound brook (Rea NE-led catchment)	Severn Rivers Trust and Severn Trent Water Ltd	Severn Rivers Trust and Severn Trent Water Ltd
Rivers Taw and Torridge and North Devon Streams	Rivers Taw and Torridge	EA and Devon County Council (North Devon Biosphere Reserve)	EA, Devon County Council (North Devon Biosphere Reserve) and Devon Wildlife Trust

Table 4: National Partnership partners and themes

Partner(s)	Theme
Professional Nutrient Management Group (Agricultural Industries Confederation, British Grassland Society, Country Land and Business Association, National Farmers Union, Linking Environment and Farming)	Nutrient Management 'Tried &Tested'
Rivers Trusts	DWPA mitigation
Voluntary Initiative on Pesticides (VI)	Pesticide best practice
Linking Environment And Farming (LEAF)	DWPA mitigation

Collaborative Projects with local partners including

1. Action for the River Kennet
2. Arun and Rother Rivers Trust
3. Life and Livelihoods Group (Clun)
4. West Cumbria Rivers Trust
5. Ribble Rivers Trust
6. Trent Rivers Trust
7. Tees Rivers Trust
8. Norfolk Rivers Trust
9. Cornwall Wildlife Trust

10. Farming Life Centre

11. Bulmers Foundation

12. Shropshire Wildlife Trust

Collaborative Projects with National and Regional Partners

1. Harper Adams University College (Soil and Water Management Centre)

2. Control Traffic Farming (Europe) Ltd

3. Agriculture and Horticulture Development Board sector bodies:
   - Beef and sheep
   - Potatoes

4. Wildfowl and Wetlands Trust

5. Royal Agricultural Society of England (Innovation for Agriculture)

6. Campaign for the Farmed Environment (CFE)

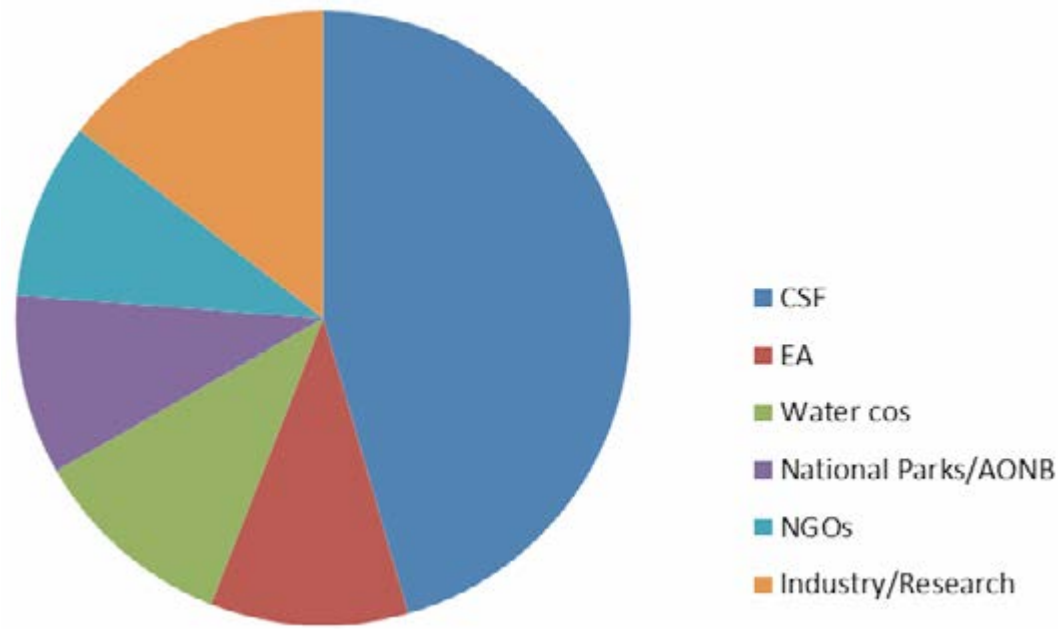
7. Cranfield University

8. National Institute of Agricultural Botany/The Arable Group Ltd

Table 5: CSF and Partner inputs to partnerships

	CSF cash contribution	Partners cash and in kind contribution
14/15 National Partnerships	£151,718	£274,335.00
14/15 Catchment partnerships	£238,786	£566,052.91
14/15 Collaborative projects	£149,278	£182,869.91
Total 2014-15	**£539,782**	**£1,023,258**
15/16 National Partnerships	£136,460.00	£303,475
15/16 Catchment partnerships	£217,042.06	£632,325
15/16 Collaborative projects	£106,202.46	£240,498
Total 2015-16	**£459,704.52**	**£1,176,298.00**

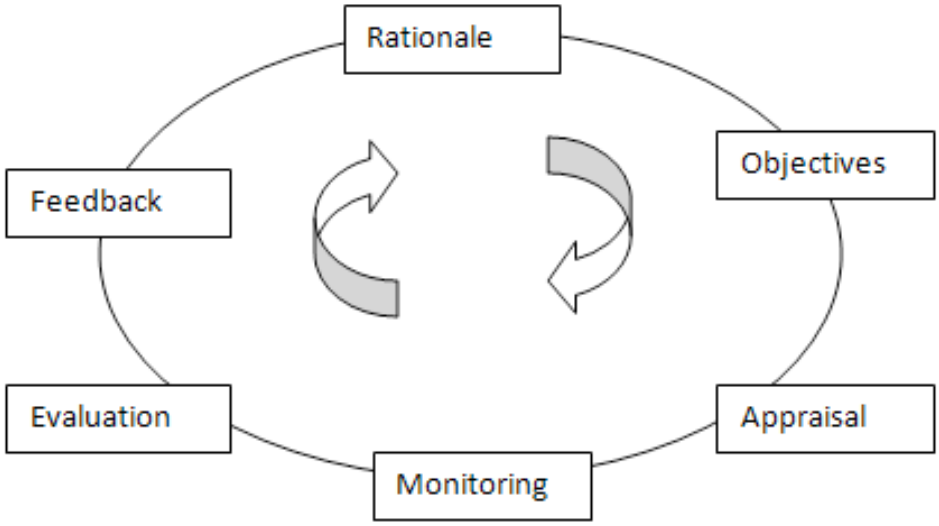
Figure 1: Proportion of funding from CSF and different types of partners into CSF partnerships 2014-16



Overall, partners have remained committed and supportive of CSF and have input substantially to both delivery and the costs of projects.

Evidence

Catchment Sensitive Farming is an evidence-based project. Evidence underpins project design, targeting, delivery and evaluation in line with HM Treasury's ROAMEF Cycle (explained below)



During this Interim Phase of the project, our focus has been to continue developing and providing the evidence to inform CSF delivery whilst planning and developing the evidence to support Phase 4.

Catchment targeting (for Phase 4)

The catchment areas targeted by the CSF Project during Phase 4 will be defined by the targeting work for Countryside Stewardship, itself informed through previous CSF evaluations and undertaken by the same team within the Environment Agency. By focusing on priority environmental outcomes in areas with significant agriculture pressures and where appropriate mitigation measures can be implemented through CSF and Countryside Stewardship, we will help ensure we maximise the environmental outcomes delivered through both approaches synergising advisory and incentive based mechanisms.

Decision support tools

The CSF Project needs decision support tools to target and design delivery within these broad areas. To support initial planning for Phase 4, we developed a National Priority Holding Spreadsheet and Catchment Appraisals (for each Water Framework Directive (WFD) Water Management Catchment):

The National Priority Holding Spreadsheet prioritises farm holdings for CSF advice delivery on the basis of modelled pollutant loadings. These priorities are

then subject to local ground-truthing by CSFOs.

Catchment Appraisals map priority environmental receptors (e.g. bathing and drinking waters); modelled pollutant source areas; and existing CSF delivery. They are used by CSFOs to plan coherent advice campaigns.

Early in Phase 4 we plan to provide further tools to support project delivery, including modelled breakdowns of the relative contribution of different farm pollution sources (e.g. soil, fertiliser and manure losses from arable, grassland and farm yards); identification of the most effective pollution mitigation measures; and quantification of potential environmental outcome targets, for each WFD Management Catchment.

Key Performance Indicators (KPIs)

The project defines a range of KPIs to help track and manage delivery. We have and will continue to provide the data needed to report specific KPIs (the Interim Phase KPIs of relevance are listed below)

2.1: To increase each year the proportion of farmers and land managers who feel and understand that agriculture contributes a great deal or a fair amount to water pollution in their catchment area. Covers all farmers in catchments
2.1a: To increase each year the proportion of farmers and land managers who feel and understand that agriculture contributes a great deal or a fair amount to water pollution in their catchment area. Covers engaged farmers only
3.1: % of targeted farmers to have taken action to make a significant contribution to mitigating diffuse pollution from their farms

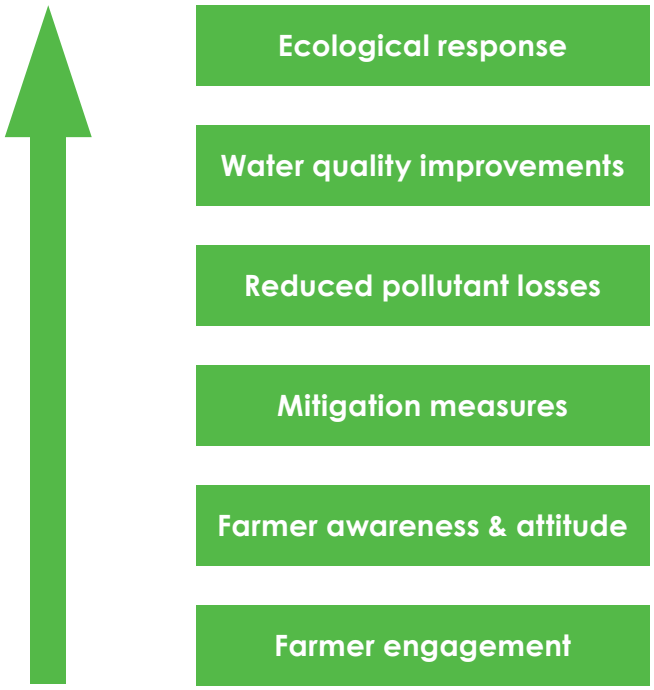
Local evidence to support CSFO delivery

We have and will continue to support advice delivery, led by CSFOs, by building the local evidence base to convince farmers of the need for action, through:

- Supporting a small number of existing evidence projects
- Further developing links with research/academia and facilitating knowledge exchange, including with Defra's Demonstration Test Catchments Project
- Using the CSF Evidence Prospectus as a 'one-stop-shop' for CSFOs to access the latest evidence

Project evaluation

CSF evaluation remains focused on 'six levels':



During the Interim Phase, we have focused on both maintaining and building existing long-term CSF datasets and developing elements of the approach in order to inform future evaluations of CSF and Countryside Stewardship. Specific activities during the Interim Phase have included:

- Annual assessments of CSF advice uptake – including an assessment of the 'quality' of implementation; farmers' understanding of advised mitigation measures; and the reasons for non- implementation

- Annual telephone surveys to assess farmers' awareness and attitudes to water pollution and the support available to help reduce it - including developing a baseline assessment of the awareness of Countryside Stewardship and CSF's role in supporting its delivery

- Reviewing the CSF Enhanced Water Quality Monitoring Programme (EWQMP) in order to streamline the programme in light of future requirements, understanding from the Phase 3 evaluation and to align with Phase 4 targeting. Expanding the spatial coverage to provide a pre-Countryside Stewardship baseline in priority areas that fall outside of the existing CSF Priority Catchments

- Designing Sediment Finger Printing surveys to assess changes in sediment source contributions resulting from CSF and Countryside Stewardship, at a subset of EWQMP monitoring sites

The CSF Evidence Work Strand is led by the CSF Evidence Team, supported by:

- CSFOs (recording farmer engagement, advice delivery and advice uptake)
- Wider Environment Agency (water quality and ecological monitoring)
- Independent consultants and academics (telephone surveys, analysis of monitoring data and research knowledge exchange)

Cost (£):

2014/15 - £1,069,000

2015/16 - £958,000

Results

The CSF Evidence Work Strand has continued to provide the robust evidence base needed to support project delivery. We have focused on supporting development and continuous improvement of the project in preparation for Phase 4, including project targeting and decision support tools. We have continued to build robust long-term datasets to evaluate CSF, whilst also developing our approaches so we are well- placed to evaluate Countryside Stewardship water quality outcomes alongside those derived from CSF during Phase 4.

The latest results from our on-going evaluation of the CSF Project are summarised in Annex 2 of this report.

Capital Grant Scheme (including 2015 Capital Grants)

During 2014/15, Catchment Sensitive Farming again had a dedicated Capital Grant Scheme (CGS) funded under the Rural Development Programme for England (RDPE) and processed by Natural England. The scheme continued to provide an important financial incentive for farmers and land managers in priority catchments, enabling them to engage with CSF and make relatively low-cost infrastructure investments to help reduce Diffuse Water Pollution from Agriculture (DWPA). A range of capital items were available, for example, preventing livestock access to watercourses by erecting watercourse fencing and providing drinking troughs.

During this transition Phase the grant scheme became part of the new Countryside Stewardship scheme. Delays in launching the main CS, led to a transitional water capital grant scheme being offered in 2015 using CS funds. This was very much along the lines of the previous CGS, with a similar range of capital items, but with defined payment rates and a more comprehensive set of terms and conditions. A requirement of the new RDPE meant there was a change of payment methodology from payment on the basis of the actual cost of each capital item, up to and no more than the published guide prices, to a fixed price basis. Paper based applications and claim forms continued.

Limited funds meant the scheme remained competitive, and acceptance depended on the quality of all applications assessed against the objectives of the scheme. During this transition period, the target areas remained the same.

Applications were more likely to be successful if they:

- Included the high-priority capital items shown on their Funding Priority Statement
- Hadn't previously received a CSF capital grant
- Were working to protect bathing waters in a catchment at risk of failing to meet EU standards
- Were taking action to protect a Natura 2000 (N2k) site in their catchment
- Had received advice from the CSF project in the last 2 years, for example during an on-farm visit or at a CSF workshop
- Were contributing to the reduction of targeted pollutants
- Had significantly engaged with the more specialist forms of CSF advice

The grant scheme is delivered with on farm advice and support through a network of CSFOs as well as a number of local and national partnerships.

The main and most popular items eligible for funding were roofing over livestock

yards; silage and manure stores; clean and dirty water separation including concrete yard renewal; new livestock and machinery tracks; pesticide handling facilities and fencing livestock out of water.

All applications and claims were processed centrally using the existing IT system, with grants capped at £10k/holding and subject to conditions which last 5 years. Over 2600 farmers and land managers received a grant during this transition phase.

The impact and value of having access to grant funding should not be underestimated as it offers not only a positive impact on farmers and local businesses, but is also an effective engagement tool. The close relationship of the grant scheme with advice demonstrates the synergies and additions that can be made when these strands are combined.

Feedback from agreement holders confirms that, without the grants, many would not have been able to carry out works, as the investment would have been too great for the business. The completed work can also have additional benefits such as improved animal health and welfare and the ethos that the right capital item in the right place delivers the most value remains true.

Table 6: Costs (including operational and IT costs)

F/Y	RDPE	Total
2014/15 CSF CGS	£ 9,300,780	£9,300,780
2015/16 CS water grants	£ 10,632,853	£10,632,853
Total	**£19,933,633**	**£19,933,633**

Natural England's Technical Services team is essential to the smooth running of the application and claim process. Grant scheme administrators deal efficiently with the problems arising from last minute applications and claims, and also a large number of incomplete application and claim forms. Despite best efforts, and particularly during 2015 due to the lateness and change of direction of some policy decisions by Defra and the Rural Payments Agency (RPA), some agreement offers were made later than the published date.

Overall, the grant scheme has been run and administered very efficiently, with the scheme administrative costs at around 2.4% of grant spend, thereby providing a low cost and very visible indicator for tackling diffuse water pollution and point source pollution from farms.

CSF no longer has its own dedicated grant scheme, and it is hoped that farmers and land managers will continue to make improvements to water quality through utilising the wider breadth of capital items and new land management options available through Countryside Stewardship.

Working with water companies

Working with and advising water companies can be very important for delivery of Natural England's objectives, and for some aspects of water company work, a statutory requirement.

During the transition phase, CSF has been working more closely with water companies, an approach which is strongly supported by Defra. We are currently working with around 20 water companies in England, having close working relations with about half and improving relations with others. Work includes running joint events, undertaking joint farm visits or having water companies sit on steering groups.

CSF has six catchment partnerships with water companies delivering catchment approaches (often driven by drinking water requirements). CSF is also involved in water company projects, for example, Upstream Thinking (South West Water) and Catchment Wise (United Utilities).

Charging is being explored by some National England area teams, although there are legal limits to what can be charged for. CSF has secured a commercial partnership with South East Water and is working with farmers to cut water treatment costs whilst improving biodiversity. Negotiations are taking place with other water companies, including Thames Water, Bournemouth Water and Yorkshire Water.

Water companies are increasingly using 'upstream thinking' management to achieve their environmental outcomes and, through working closely with them, Natural England has been successful in ensuring this is present in their five year business plans.

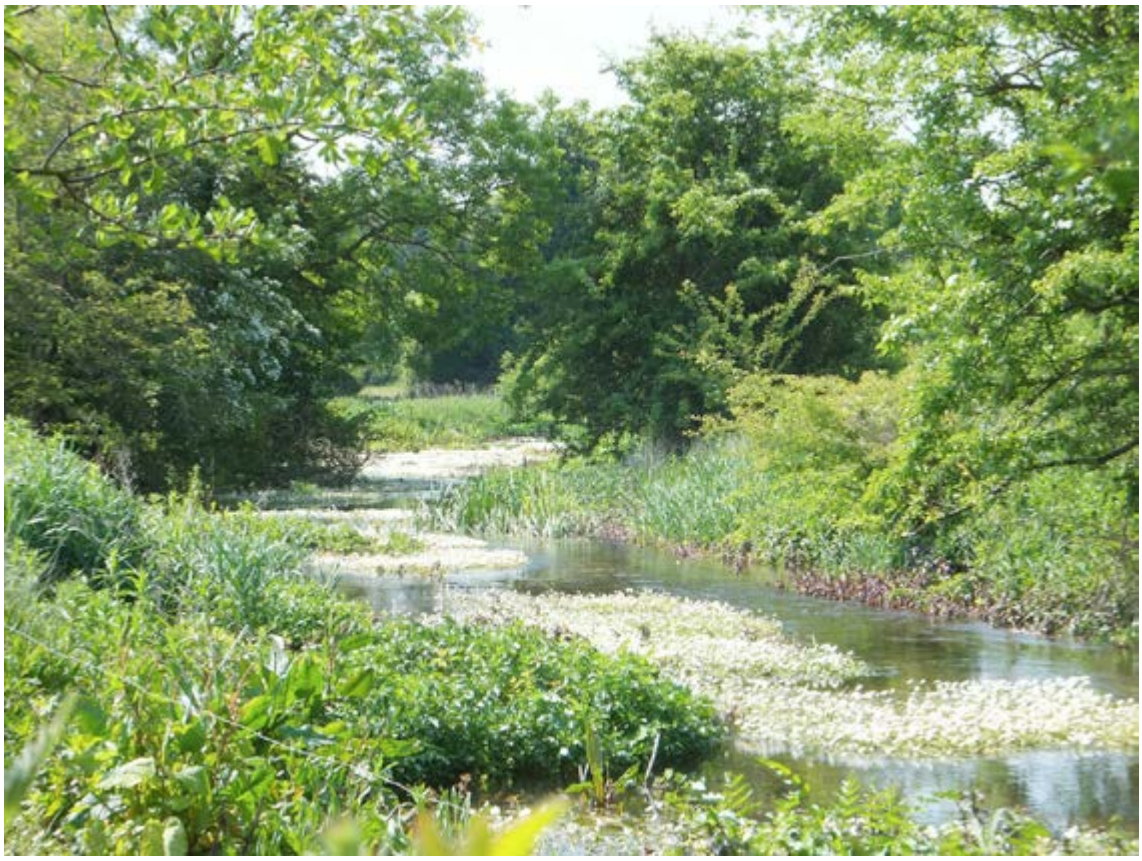
Building a partnership based approach, where CSF officers are delivering multiple objectives across the water company and Natural England agenda, such as Countryside Stewardship outcomes, was considered key. The work funded by the water company also enables CSF to deliver advice in areas that really need it and isn't covered by core funding.

The River Ouse story

South East Water's site at Barcombe, East Sussex, draws approximately 38m litres of water from the River Ouse every day which is equivalent to 15 Olympic-sized swimming

Protecting their water resources is the company's highest priority and the Upstream Thinking Project looks at all the issues which can influence water quality and quantity across entire catchments. South East Water wanted to work with farmers and land managers on practical ways to prevent soils, fertilisers and pesticides washing from fields into the river.

A formal partnership was set up with CSF in December 2014. The CSFO for Eden and Medway visited farmers in the catchment to help identify priorities and offer capital grants to improve water quality. These include bio-beds, to contain and treat pesticide residues from sprayer filling areas, replacement gutters and downpipes to help minimise contaminated water from livestock yards, and farm track improvements to cut down on soil erosion.



Chalkstream ranunculus (credit Andrew Fielder, Natural England)

In April 2015, Natural England and South East Water launched a five year Catchment Management Programme to look at four major rivers; the River Ouse, The Cuckmere, Waller's Haven and Eastern Rother. This is funded by South East Water and delivered by CSF officers from the Sussex and Kent area team, in an innovative partnership which will utilise the expertise of two experienced CSFOs.

In the longer term, the Upstream Thinking Project aims to deliver a wide range of support to help minimise the risk of water pollution from farms. This will include advice on soil husbandry, pesticide use, nutrient management and the handling of manures and slurries – all supported by a capital grant scheme.

Andrew Fielder, River Basin Coordinator, South East and Thames River Basin, said "*We needed to demonstrate our team could take this work forward in*

partnership. This is where having a strong brand (CSF) and well respected local CSFOs comes into play. South East Water recognised the team was well placed to make a difference quickly."

Water companies say working with CSF works better than doing it independently although the water companies do tend to have a narrower focus on drinking water.

CSF will continue to work with water companies and will be actively exploring opportunities for further hosting of Natural England staff with water companies for catchment working, especially to meet 'downstream' water quality requirements but also achieve 'wider' Biodiversity 2020 benefits where possible.

Partnerships such as the one with South East Water can help meet the objectives for both the water company and for Natural England through:

- Cutting water treatment costs for water companies
- Supporting NE income targets
- Improving water quality and biodiversity
- Supporting farmers and land managers' business performance and saving them money

Working with agricultural colleges

The majority of CSF advice delivery has been given to the current farm manager or owner. CSF recognises that agricultural students are the future of farming and, if we want to engage with them, we should start early on in their lives whilst they are still learning and forming their ideas and principles.

For the past few years CSF has been working with Severn Trent Water and the Environment Agency to influence and engage agricultural students in believing that environmental issues are of concern. With some simple measures they can improve their understanding of, and willingness to act on, DWPA risks.

The Great Farm Challenge involves agricultural students in Higher Education (16-18 year olds below degree level) learning more about DWPA and water quality issues. It gives CSF the opportunity to help improve the student's knowledge and skills in determining soil type, erosion and pollution pathways. All these skills will help them understand how and why pollution happens and how they can reduce the risk.

During 2015/16, after gauging interest from other water companies and colleges, the competition was expanded, with Anglian Water becoming a member of the delivery partnership.

A training day was arranged for each college taking part in the competition. Students were provided with a student pack which includes information about the main pollutants and details of the competition. The day consisted of a morning's interactive workshop with CSFOs and partners from the Environment Agency and each water company. Sessions included water quality, soils - including hands on soil texturing, diffuse pollution and funding and grant opportunities. This was followed by a farm walk where the farmer took an active role in explaining his practices on the farm and the students had an opportunity to ask questions which would help with their reports.

Students on farm walk (photo credit Andy Wagstaff)

Following the training day the students write a report based on a hypothetical case study and their farm visit, identifying the DWPA issues and recommending remedial actions.

The reports are then judged by representatives from each delivery partnership, with the top two submissions from each college being invited to present their findings to

the judging panel at the final. The final itself is a three-quarter day event with each group presenting for 10 minutes and judges asking 5 minutes of questions. Over lunch the judges compare notes/scores and agree the winners/runners up.

Winners and runners up receive certificates, trophies and Amazon vouchers which are presented by a high ranking individual from the agricultural industry; in 2015, this was the vice president of the NFU.

The existing work gains considerably from operating in partnership with the local water companies and the Environment Agency. Partners bring a breadth of knowledge/expertise, local contacts, and resource (both staff time and funding). The involvement of industry partners also brings added credibility to the competition.

CSF was responsible for national coordination and day to day management of the expanded competition. CSFO input is limited to finding suitable host farms, attendance at the training days usually one or two days per college plus attendance at the finals event.

The cost of the project was minimal and varies depending on who funds the work and who manages it: CSF, the Environment Agency or the water company. Natural England has contributed the following and was the major contributor. Both water companies pledged staff and funding to the project to enable a roll out into their area.

Table 7: Costs

F/Y ending 31/3	GIA
2015	£ 4,000
2016	£ 6,195*
Total	**£10,195**

*Plus financial input from Severn Trent Water and Anglian Water

Positive feedback was received from all of the events, directly from the students in the form of a feedback sheet which showed that 100% of the students felt they had learned more about soil, pesticide, nutrient and manure management as a direct result from the events. College lecturers said that the content of the competition ties in and complements their curriculum.

The water companies currently involved in the project are extremely keen to see the expansion of the competition within their own areas. A number of potential colleges (through CSFO links) across the country are also interested in taking part. There has also been interest from other water companies who would like to develop a similar project in their own regions.

Subject to available funds and resourcing CSF would like to roll out the project in more areas during the next few years.

Communications and advocacy

Engaging with farmers and land managers to raise awareness of diffuse water pollution from Agriculture and encouraging voluntary action, is the principal communication objective for Catchment Sensitive Farming. During Phase 3, we continued to build on the credibility and trust in the CSF brand which has developed since the project began in 2006.

Our vision is to support farmers in achieving clean water and a healthy diverse environment; to benefit people and the economy for future generations.

Our communication objectives

- Raise awareness amongst farmers and land managers of the impacts of diffuse water pollution from agriculture.
- Encourage farmers and land managers in catchments to take voluntary action to mitigate diffuse water pollution from agriculture.
- Encourage voluntary action to help achieve Water Framework Directive objectives.
- Facilitate synergy and integration with related programmes and mechanisms to tackle diffuse water pollution from agriculture.
- Work with stakeholders to develop and deliver partnerships to encourage action to address diffuse water pollution from agriculture.

Towards the end of Phase 3, we reviewed our communications to ensure we continued to reflect the current climate/situation. As a result we have a new strategy and have aligned our communications work more closely with Defra and the Environment Agency (EA). We are now working towards four main themes;

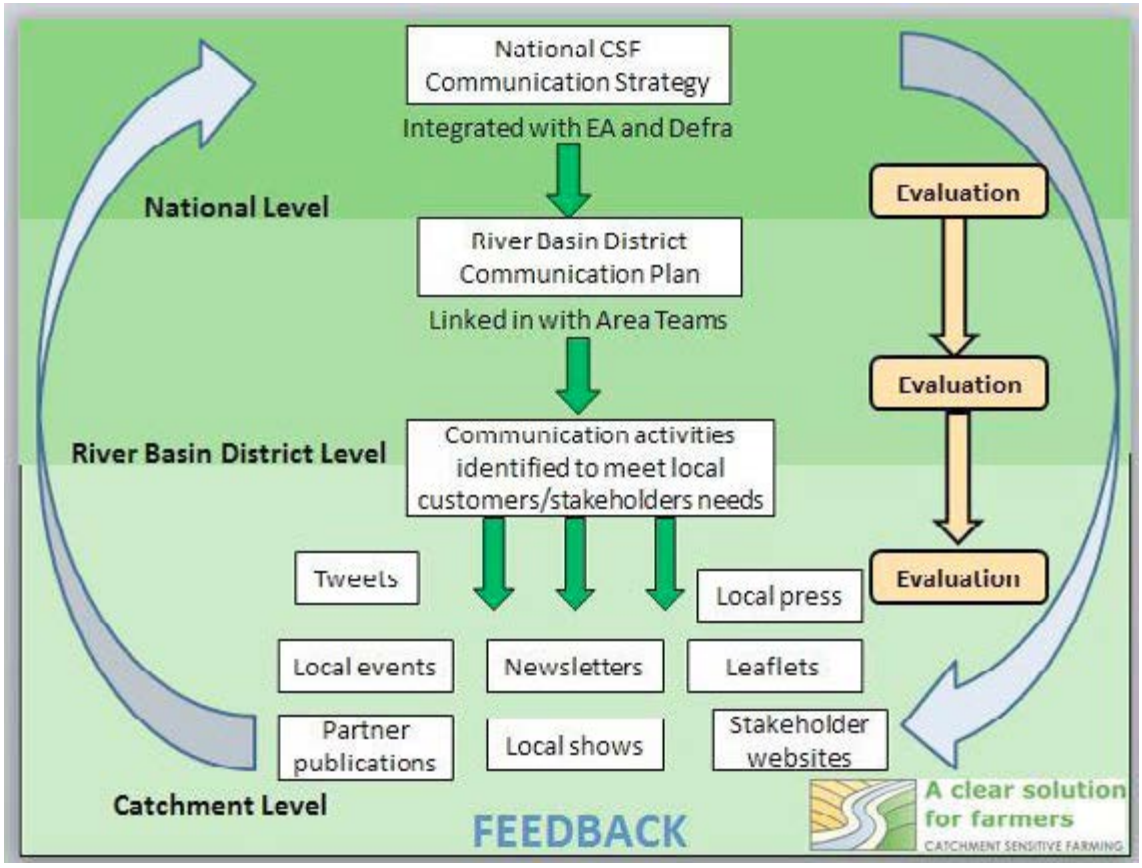
- **Cleaner water**
- **Boosting the economy**
- **Working in partnership**
- **Leading, inspiring and engaging**

Our new communication strategy reflects the 25 year Defra strategy and will deliver the following outcomes;

- More farmers are aware of the impacts and effects of diffuse water pollution

- Greater responsibility taken by stakeholders to continue the good work from previous CSF delivery
- Farmers and land managers understand our priority areas and where to go for support
- We play our part in achieving Defra's objective for a cleaner, healthier environment, benefiting people and the economy
- More farmers and land managers recognise the economic value of protecting the environment
- More farmers will engage in best practice
- We play our part in achieving Defra's objective for a world leading food and farming industry
- Will maintain and increase the environmental benefits of previous CSF delivery by working with local delivery partners
- A wider reach across catchments including the hard to reach audiences
- More partners want to be involved and are aware of the impacts and effects of diffuse water pollution
- New partners understand the support available from CSF
- Inspire trust and confidence in CSF internally and externally
- CSF work is understood and valued internally and externally
- Improved productivity through innovation
- People will be proud to work for CSF and all be working towards the same vision
- Integration and synergy with other policy outcomes

Figure 2: CSF Guidance and planning communication principles



We decided we needed to work following the principles below;

- Continue to produce evidence-based communications, particularly at a local level
- Share best practice, knowledge and advice to demonstrate our expertise and experience
- Use advocacy to influence partners and stakeholders
- Work in an integrated way with CSF project partners (Defra and EA) to produce joint communications activities, where appropriate
- Be consistent in our approach, everything we say and do must be mutually reinforcing

Communication Tools

- Case studies to demonstrate how CSF advice and incentives can help
- ebulletin to staff and partners

- Media activity including joint press releases with partners
- Website
- Twitter
- **Online publications catalogue** to share best practice, knowledge and advice
- Key national agricultural shows
- Advice and tools for CSFO engagement, for example, a local newsletter template
- Articles in Natural England's SSSI newsletter
- Joint activities with National Partnerships

Through the latter part of Phase 3 and the beginning of Phase 4 we have been, and will continue to, celebrate 10 years of CSF. We have many different communication activities planned with project partners and stakeholders.

To work effectively it is necessary to link up with existing farmer networks, partners, stakeholders and landowners. This includes raising awareness of CSF with farmers within the catchment area, agronomists, NFU, CLA, local authorities (including Highways), NGOs such as Wildlife Trusts and Rivers Trusts.

Setting up farmer-led steering groups at the start of the project has been very successful, with some members being around for the full 10 years. They are an important vehicle for our communications.

Cost (£)

With no communication budget and Natural England marketing restrictions in place, CSF has worked by developing 'no cost' communications channels, for example using social media. We make the most out of our partnership and stakeholder channels and work closely with the wider Defra-family, particularly with regards to attendance at key national agricultural shows.

The CSF National Partnerships allows us to promote information to farmers, partners and stakeholders.

Results

- Following a communication workshop, with the Project Management Group, we have a new strategy, outcomes and focus for the new current climate/situation

- CSF's increased web presence has resulted in increased levels of digitally available publications. A sample of digital downloads between April 2014 to February 2016 shows an average of 520 downloads of our case studies each month

- We have engaged with approximately 550 customers at eight agricultural shows in 2015, in collaboration with our Defra-family partners

- We have developed a local newsletter template to further enhance the CSF successful brand and to allow for local input to meet local customer needs. Our national template is pre-filled with some core national CSF news and information, whilst offering space for teams to add their own content. This is sent out to customers twice a year beginning April 16.

- We are developing our '#CatchmentSensitiveFarming' Twitter presence, as part of Natural England's Twitter account which has over 88,200 followers and are working with local teams to increase the audience

Lessons learned

- We need to continue to work innovatively and use existing networks to reach our audiences

- It is more important than ever to work in partnership to communicate CSF

- We need to continue to use our trusted brand

- We need to continue to work in an integrated way with CSF project Partners (Defra and Environment Agency) to produce joint communications activities.

Advice delivery

The request for advice, to increase farmer awareness and encourage voluntary action to reduce water pollution from agriculture, is initiated by and delivered through the trusted local Catchment Sensitive Farming Officers.

During this period CSFOs managed advice delivery in a number of stages of development as the project moved areas to align with Countryside Stewardship high water quality priority areas. This also saw a change in delivery to prioritising advice to farms that could provide the most benefit to the Water Framework Directive through both CSF advice and CS measures. This research was carried out by the CSF Evidence Team.

To cover the range of legacy, maturing and developing catchments, and to increase capacity of the CSF project, new visit and group event specifications were developed to be contracted through the Defra Farm Advice Framework (FAF) and delivered by private contractors within this framework.

Through FAF, the 1-1 advice visits and group events were contracted by CSF and delivered locally by tailoring information to suit local knowledge and issues. The contracts were funded primarily through Rural Development Programme - England (RDPE) and were managed by NE Lot managers who are part-funded by CSF. CSFOs planned local delivery using the new framework.

The new Farm Advice Framework built on the experience from the previous Farm Advice, Training and Information Framework (FATI), covering the established specialist 1-1 visits carried out in Phase 3 (see page 12 of Phase 3 delivery report) and also added eight new advice visits to cover new areas of interest to farmer customers, relevant to reducing water pollution. This included:

- Maximising Countryside Stewardship opportunities through CSF
- Water holding structure design and management
- On-farm review of faecal contamination – sources and pathways
- Soil & nutrient management hybrid
- Farm machinery management
- Managing land drainage to minimise diffuse pollution
- Follow up Farm Infrastructure audit
- CSF farm review

Moving into Phase 4, Machinery calibration for pesticide equipment was no longer available, as this was now a statutory requirement under the Sustainable Use Directive.

CSFOs also carried out advisory visits, including for Countryside Stewardship, offering further tailored specialist advice through FAF, where relevant. They also organised and worked with local stakeholders to deliver appropriate group events in their priority areas.

During this period CSF engaged with 6463 farms covering just over 1million ha in England. 5706 farms received 1-1 advice, 4058 farms attended an event and 176 farms received advice through 1-1 clinics.

The reason for this CSF engagement was recorded, as well as the recommended advice as described in the **Mitigation Manual**.

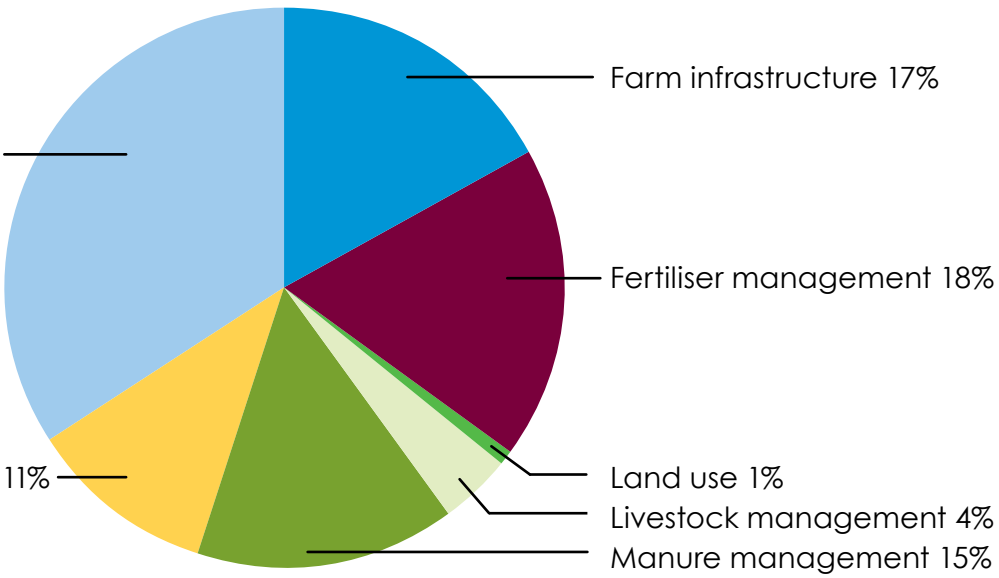
Contact Type (1-1 only)	Number
Non-CS visit	3301
Capital Grant scheme (2014 only)	1754
Mid-tier Countryside Stewardship (June 2015 onwards)	810

CSFOs not only delivered their own and RDPE funded advice, but worked with a number of local and national partners to link relevant advice and information in cost effective and innovative ways. This included water companies, Rivers and Wildlife Trusts, Campaign for the Farmed Environment, Farm Advice Service and agricultural industry advisers etc.

Cost (£):

The outcome of advice delivered is illustrated below showing the breakdown of recommended advice by theme:

Advice Delivered



Through CSF Evidence and CSFO follow up visits these recommendations are evaluated on farm on an annual basis to assess the uptake of advice into voluntary action to reduce water pollution from agriculture and to calculate the benefits of advice to water quality (see Annex 2 for the CSF Evidence report)

This advice has also led to RDPE funded grants totalling:

Year	Type of Application	Applications	Total funding
2014-2015	Capital Grant Scheme	1362	£11.20 million
2015 -2016	Mid-tier Countryside Stewardship	1330	£11.25 million

Countryside Stewardship

Until the end of Phase 3, Catchment Sensitive Farming was targeted to support delivery of the Water Framework Directive and SSSI objectives through the reduction of Diffuse Water Pollution from Agriculture, where agriculture and relevant pollutants have been identified as a significant reason for failure for specific water bodies. CSF has been successful at engaging with the farming community, encouraging farmers to take action to reduce DWPA. CSFOs work to form trusted relationships with farmers over the medium term, deploying highly skilled and farm specific training to farmers, accessing tools and specialist advice to facilitate these actions.

With the launch of Countryside Stewardship in July 2015, this prioritising was modelled further in order to appreciate the further benefits from the new scheme and to recognise the range of multiple benefits and policy priorities that help choose the high priority areas. This is the CS High Water Quality Layer, colloquially known as the 'lavender' areas. A further focus was possible by using the catchment change matrix model to assess and select those farms as posing the greatest risk of causing pollution and the most likely to cause environmental damage within the high priority areas. Holdings (tending towards the largest, most hydrologically connected and most productive/intensive) that are able to generate the most improvements to the water environment are prioritised to receive CSF support.

Countryside Stewardship targeting

The Water Priority Areas have been developed to target both Countryside Stewardship and CSF using a wide range of evidence. Water Priority Areas are places where DWPA represents a significant water quality issue and where CS and CSF has been modelled, or is predicted to be, effective in achieving Water Framework Directive outcomes. A range of evidence has been layered together to create a thorough understanding of each Water Priority Area in each water management catchment, using DWPA pressures, farm types, soil and rainfall.

The Environment Agency Evidence Team has developed a risk-based system to deliver targeted advice and some specific Countryside Stewardship grant funding to farm holdings, where the evidence suggests most WFD outcomes could be achieved. Local knowledge and ground-truthing in the River Basin District will be part of the process and where local initiatives occur, then these can form part of CSF delivery.

This brings about a change in the areas that CSFOs are working in, as the modelled layers are very different to the previous priority catchments and target areas.

Catchment Sensitive Farming Officers carried out a targeted approach with letters and visits based on Priority Farm lists. There were three main categories of farm:

1. Proactively engaged farmers

2. Reactive engagement where farmers requested advice and support

3. Farmers which have been modelled to be having limited environmental impact and as such required no additional support

Letters were written to Entry Level Scheme (ELS) agreement expiries to invite them to FAF contractor Mid-Tier events and clinics to promote the Countryside Stewardship scheme.

Partners involved are:

- Natural England land management advisers
- FAF contractors
- Lot managers
- Partnership catchments
- National partnerships
- Water companies

Technical Services in Nottingham assisted with the applications for the standalone CS water items. In future, we will not have access to this resource as the work will be shared across all the local Technical Services locations.

Lessons Learned

- A large number of both Mid-Tier and standalone CS water agreements received CSFO support and endorsement
- Improving the methodology of recording when a farm visit or similar engagement has led to a CS agreement is important
- Keeping track of what type of application is submitted and whether it is successful
- Adapting to a longer application window for 2017 start dates
- Improvements needed to the endorsement process, along with separating out the high value 'risky' items
- CSF Reporter database does not have the ability to record some of the engagement as it does not have the Customer and Land Database (CLAD) data for some of the new catchment areas targeted

Flood mitigation and work in Somerset

CSF is well established in Somerset with excellent engagement through trusted Catchment Sensitive Farming Officers and other advisers. This advice and support has focused on helping farmers improve water quality. However, following the flooding during winter 2013/14, CSF has worked with Defra, Environment Agency and Farming and Wildlife Advisory Group (FWAG) South West to develop the catchment element of the Somerset levels and moors Flood Action plan. This action plan sets out the following action:

'Somerset partners to pilot, with support from Defra, a new approach to Catchment Sensitive Farming that covers flood risk management as well as water quality, through integrated advice and support to assist land managers '

Developing the mechanism

CSF and Farming and FWAG SW worked together to develop and implement the pilot on integrated advice delivery and The Hills to Levels Project (H2L), was developed by FWAG SW to deliver the full range of catchment measures outlined in the 20 year plan. A CSFO (Roy Hayes) has been seconded to FWAG SW to develop this work; they have also employed two new farm advisers who have worked with the CSFO by helping to ground truth the targeting tools and provide greater capacity to deliver advice on flow attenuation measures.

CSF and FWAG SW identified the need for robust evidence to both help target measures effectively and broker discussions on farm. This has resulted in two evidence based projects being developed. These are:

- Flow pathway mapping, strategic assessment and visualisation
- Soil water storage potential assessment and development of supporting mapping, geodatabase and manual for advisers

CSF provides technical leadership of the targeting and tools that underpin advice on soil management and surface runoff retention and helped to develop and maintain links with NE and EA.

Targeting tools have been developed which comprise;

- Flow pathway maps and geodatabase
- Strategic slow the flow targeting tool that identifies the sub catchments where Natural Flood Management (NFM) could potentially make most difference
- Soils maps, report and geodatabase

- Manual on soil water storage potential and training to help advisers implement this work

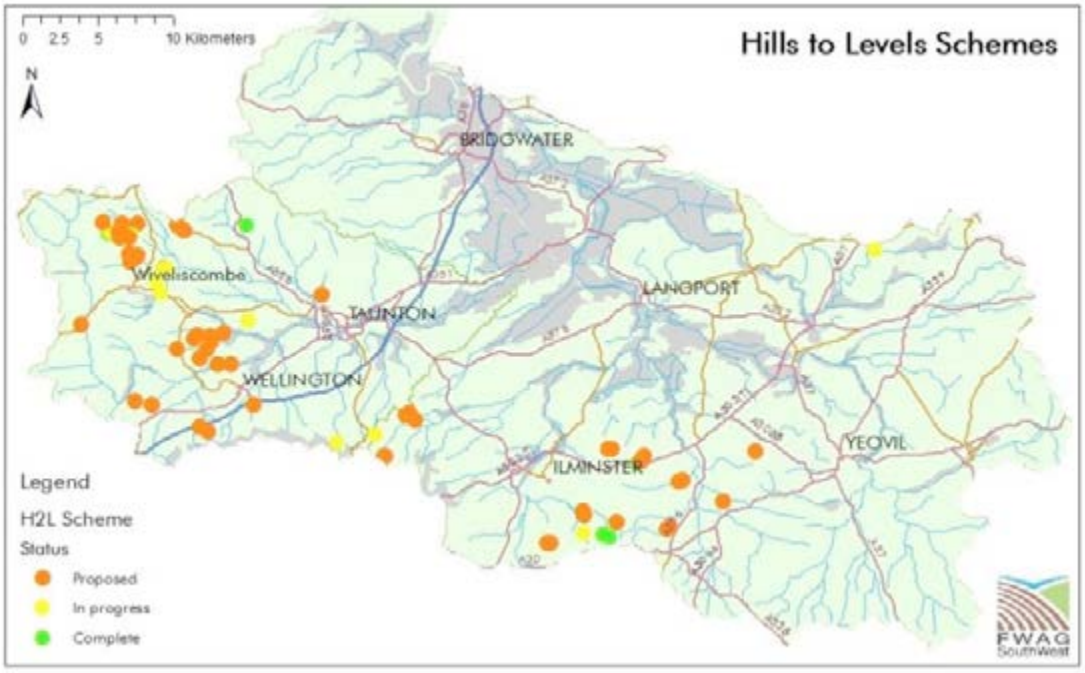
- Advisers can now map up relevant soil properties such as soil water storage potential and the ability to recover from compaction and use these maps on farm. They can also create maps of flow pathways which show the EA surface water flooding information which helps in site selection for natural flood management (NFM) measures on farm.

This has all been underpinned by data sharing licensing between NE, EA and FWAG SW.

An intensive programme of farm engagement has catalysed offers from farmers to accommodate some 200 runoff attenuation features and develop their own soil management best practice groups. Over 230 farm visits have been made and these have encouraged Countryside Stewardship uptake with wider benefits and synergies for water quality and flood risk. Flow pathway maps have been ground-truthed and information sheets, on a range of runoff attenuation features, have been created for farmers.

Two farmer-led soil best practice groups have been developed. The farmers plan to showcase a range of best management practices to local farmers using simple measures to assess their impact.

Figure 3: Map of runoff attenuation features



Runoff attenuation features:

- Proposed 141
- In progress 43
- Complete 13

These are a mixture of; Leaky woody dams, flow spreaders, silt traps, leaky ponds and soil bunds. Biodegradable geo-textile such as coconut coils and filter socks have been used as check dams, faggots and gabion baskets have been used in important locations.

Filter fences have been installed at nine farms to control runoff and silt losses on intensive arable land. These can be moved around the farm with the crops throughout the rotation.

The CSFO has developed some bespoke solutions on farms that use both the Countryside Stewardship (CS) funding through RDPE and the local funding through the EA - Catchment Partnership Action Fund, Local Enterprise Partnership (LEP) – Somerset Rivers Authority - Local Growth Fund, People's Postcode Lottery - Dream Fund. This has facilitated a range of measures that are flexible and appropriate to the sites and provide additional benefits as they build on the advice and grants available through CSF and CS.

As the Somerset Local Catchment Based Approach (CaBA) hosts, FWAG SW provide an excellent link between Water Framework Directive and flood risk management plan delivery. The CSFO has worked closely with a local contractor who has expertise in river restoration work and so has relevant expertise with the materials used in the small scale NFM measures deployed. Farmers have also carried out their own construction work working closely with the CSFO. The CSFO also works with the Local Authority, both on consenting for work on non-main rivers, and to prioritise measures that will help address key muddy flooding hotspots on local roads.

The tools have been developed through joint working with the EA, FWAG SW, contracts with JBA Associates and Robert Palmer, a Soil Assessment Specialist and were jointly funded by CSF and FWAG SW.

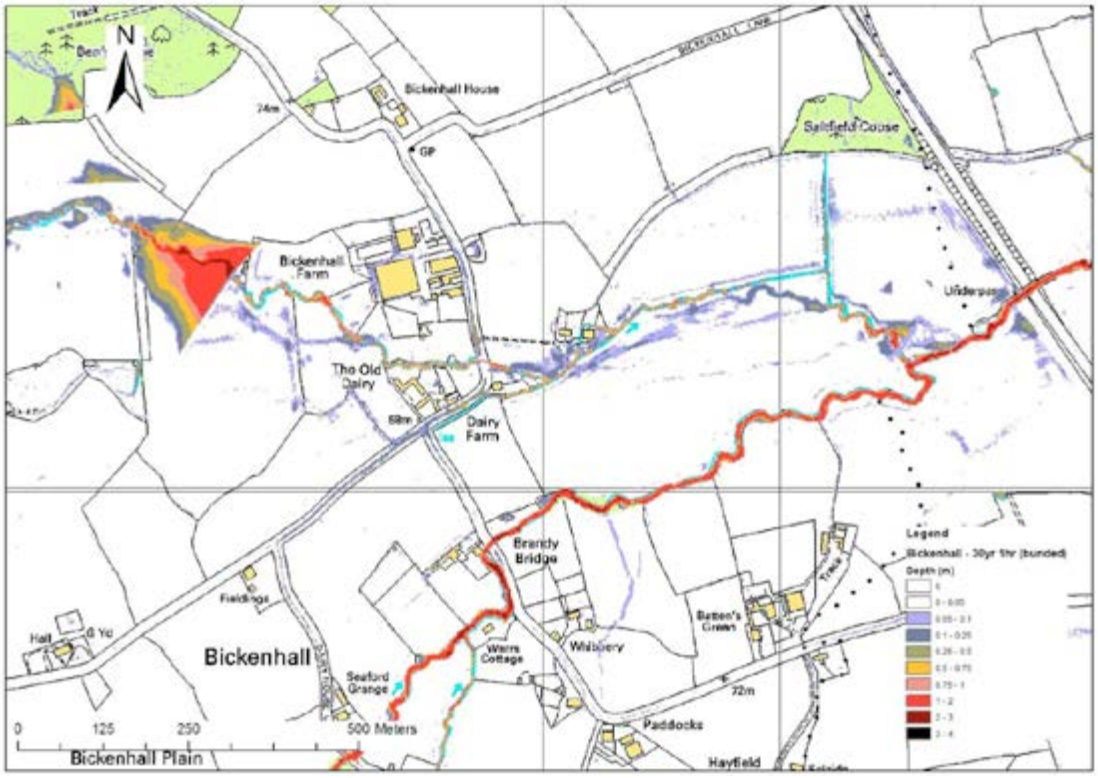
Cost (£): £20k

Engagement has been good and the CSFO has maintained the delivery for water quality whilst providing this additional benefit of local advice on managing surface water to reduce flood risk.

Flow pathway mapping and runoff modelling

JBA Consulting have modelled the impact of installing runoff attenuation features in the upper catchment for rainfall events of the 1 in 10 and 1 in 30 year return period. This work suggests that, for the 1 in 30 year rainfall event in the steeper catchments the peak flow can be reduced by up to 10% and delayed, whereas in the flatter areas this increases to a maximum of 40% for one site. Figure 4 illustrates the effect of an example flow pathway retention structure for the 1:30 year storm event.

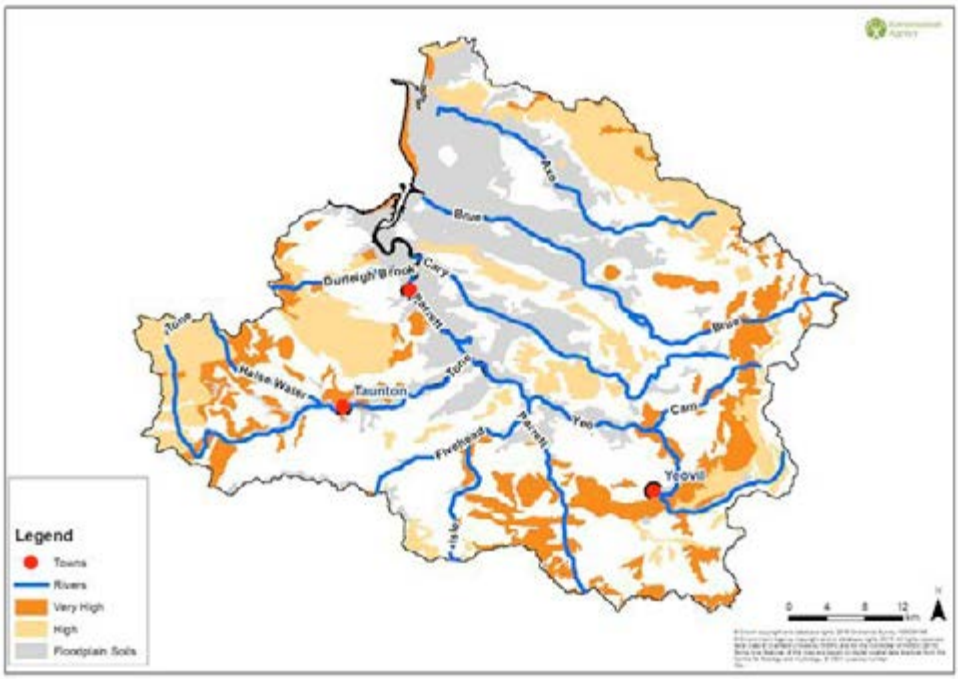
Figure 4: Flow pathway retention structure



Soil Analysis

Deep, freely draining soils cover 30 % (765km2) of the area and drain to underlying aquifers. These soils readily adsorb water and have the greatest potential to store water with between 15 and 30% by volume temporary storage capacity. These freely draining soils are susceptible to compaction and are least able to regenerate following structural damage. Currently, most of these soils are degraded and provide much reduced temporary water storage and locally generate runoff.

Figure 5: Soil winter storage potential



Soil compaction is widespread - 55% of cultivated fields are degraded and do not function as they should; compaction is also widespread on grassland generating accelerated runoff.

Revised estimates of the safe working days are presented for the most significant soil series to take account of an average and a wet year, these show that during a wet year farmers could have some 6.5 weeks less time to safely work the land.

This evidence will help advisers challenge poor practice and recommend appropriate remediation so improving the soils storage capacity.

Findings of this pilot comprise;

- National funding streams and local projects need to be well integrated to enable advisers to offer joined up and practical messages on farm. This pilot sought to extend the CSF approach and test this out in practice. Using a CSFO for this role has reduced potential duplication and helped to link up national and local projects

- Using trusted advisers who understand the tools available builds on existing relationships and makes efficient use of advice and funding to develop solutions

- As FWAG SW host the Catchment Based Approach for Somerset this project has linked up delivery for WFD and Flood Risk Management Planning

- This partnership approach has enabled us to share data and resources so improving the targeting of appropriate sites. It has helped build on existing expertise, innovation and use a wide range of tools to provide multiple benefits

- An objective evidence base helps build credibility and underpins the advice provided

- Design and construction of runoff attenuation features needs both a contractor with relevant expertise and resources in the Lead Local Flood Authority (LLFA) and/or EA to manage any consent requirements. FWAG SW has made bulk applications to help streamline this process but constrained resources in the LLFA have delayed approval. Clear and proportionate guidance and processes are also needed from EA on consenting these measures

- There is a lack of suitably trained contractors to implement Natural Flood Management measures

Conclusion

Strong partnerships help make the best use of all available funding streams, provide room for creative problem solving and structure for on-going management. This model could be rolled out more widely to generate cost effective multiple benefits.

Staffing

The table below shows the number of delivery staff over the two years of the Interim Phase.

	2014/15	2015/16
No of Priority Catchments	80 (including 9 partnerships)	80 (including 9 partnerships)
Staffing budget	£3,993,941 NE £412,600 EA	£3,564,849 NE £412,600 EA
Total Project FTE	**95.2**	**93.1**
RBCs		
Number / FTE	8 (8 FTE)	9 (8.5 FTE)
CSFOs		
Number / FTE	68 (65.1 FTE)	68 (62.8 FTE)
CSF Support		
Number / FTE	9 (4.8 FTE)	8 (3.2 FTE)
CSF National Team NE		
Number/FTE	12 (11.7 FTE)	14 (13 FTE)
CSF National Team EA		
Number / FTE	6 (5.6 FTE)	6 (5.6 FTE)

Table 8: Staffing information Roles

Role descriptions are available for all project roles, of which the key ones are described below. Delivery roles have remained consistent from Phase 1 of the project;

River Basin District Co-ordinator (RBC): Senior Adviser. Responsible for advocating CSF and liaising with the EA River Basin Panels to ensure CSF is effectively contributing to WFD and SSSI priorities, overseeing delivery within the RBD including CSFOs, FATI/FAF contracts, partnerships and increasingly leading for NE on a range of other DWPA related projects including the Catchment Based Approach and SSSI Diffuse Water Pollution (DWP) Plans.

Catchment Sensitive Farming Officer (CSFO): Lead Adviser. Key delivery role responsible for overseeing and delivering farm advice within catchments. CSFOs are line managed within integrated local delivery teams and functionally managed by the River Basin Coordinator.

Catchment Sensitive Farming Support: Support Adviser. Supporting delivery in River Basin Districts e.g. producing farmer mailings, GIA procurement, and CSF Reporter data entry and event organisation.

CSF National Team: a mix of Senior Advisers, Lead Advisers and Advisers. Responsible for National coordination and delivery of the Capital Grant Scheme/ CS Water Grants, partnerships, collaborative agreements, training for CSF staff, internal and external communications and project promotion. Also, national projects such as demonstration farms and agricultural colleges work.

The EA National Team is responsible for the monitoring and evaluation programme including enhanced water quality monitoring, the annual CSF telephone survey and the CSF Reporter.

CSF budget also pays for a proportion of other roles in NE which contribute to CSF Delivery such as FATI/FAF Contracts staff (average 3% of total NE CSF staffing budget); FATI/FAF supplier staff (average 6% of total NE CSF staffing budget), customer services staff managing the Capital Grant Scheme/CS Water Grants (average 8% of total NE CSF staffing budget) and 1 FTE GIS specialist. A proportion of the total EA CSF staffing budget is also used to pay for other managerial roles within EA. These are not included in the table above.

Staff turnover and recruitment

Staff numbers have increased over the Interim Phase to enhance capacity to deliver the increase in project budget in both years, plus an increase in the Capital Grant Scheme/CS Water Grants budget.

As table 8 shows, staff turnover within NE and EA National Teams, RBCs and CSF Support has been low in the Interim Phase, with low levels of recruitment. There have been three RBC changes during the Interim Phase.

CSFO staff turnover has however been high, due to the number of staff on fixed term appointments (FTAs) or short term contracts, which has, at times, resulted in reduced delivery.

In 2015/16, approx. 37% of CSFOs are on FTAs, which is 10% higher than at the end of Phase 3. These FTAs have now been extended to 31 March 2017 to cover 16/17 delivery.

Staffing costs for the Interim Phase are shown in Table 8. Staffing is the highest cost for the programme accounting for about 70% of total project GIA budget.

The key lessons learned are as follows;

- Longer-term FTA or permanent staff are needed for effective delivery.
- In the Anglian River Basin Districts, staff churn has been high for a variety of reasons. This has created some challenges for local delivery which we are currently addressing.
- When fixed and short term contracts have been extended, confirmation of this has not been given until just a few months before the contract end dates, resulting in staff leaving before the end of their contracts due to the uncertainty.

It is sometimes difficult for CSFOs on fixed or short term contracts to build meaningful and lasting relationships with farmers.

Training

Catchment Sensitive Farming has always placed great emphasis on the training and development of its staff and this has continued throughout Phase 3. All staff across the project have access to relevant training and development opportunities. The CSFO role can be considered to be quite specialist when compared with other Lead Adviser roles in NE and this is reflected in the range of high-quality technical training available to CSFOs.

The aims of CSF training during Phase 3 were to;

- Bring new CSFOs to a common standard of knowledge in DWPA related issues and CSF delivery to allow them to carry out their role effectively
- Provide opportunities for established CSFOs and RBCs to further develop their technical knowledge and personal skills whilst fostering a sound understanding of corporate issues around DWPA and the technical agricultural solutions
- Provide training for CSF Support and National team staff to develop their particular specialisms and offer the opportunity to develop their knowledge and understanding of DWPA issues and their solutions

A draft skills profile for CSFOs has been developed outlining potential technical training and personal development; appropriate to the time in their role. The profile recognises the need for technical development in the early years of a CSFO, whilst supporting specialist training for more experienced CSFOs. The need for personal skills training including an understanding of social science is incorporated into this profile.

Each year a training plan is drafted with input from Project Management Group, River Basin Coordinators and the National Team. This plan includes a range of introductory courses; industry recognised courses and specialist topics. Allowance is made for development and maintenance of individual specialisms.

Training	2014/2015	2015/2016
Course	Attendance	Attendance
BASIS Soil & Water	13	2
FACTS	3	2
BASIS Conservation Management or BETA	5	1
RB209	15*	
Group facilitation	8	
CGS training day	20	
Fluvial geomorphology - introductory	24	1
Fluvial geomorphology – advanced		5
NVZ & SAFFO	17	

Training	2014/2015	2015/2016
Course	Attendance	Attendance
FACTS NMP/FQA		1
Intro to Social Science	45	
Prince 2 (requalification)		5
Prince 2 Foundation &/or Practitioner	1	5
Incident Categorization training		13
Outdoors First Aid training	8	
DWPA Introductory	2	3
DWPA Advanced	6	7
Pesticides Introductory	17	4
Pesticides Advanced		13
Introduction to soils		3
FAF training		75
Agri Awareness		2
Specialist one day courses (ARTIS)	10	2
Specialist conferences	12	7
CSF conference	117	110
EA e-learning	10	
ARTIS Arable e-learning package		8
Webinars (technical and programme updates)	1200+	1200+
Induction events	19	29

includes partners within total.

Table 9: Delivery of training activities and attendance

Regular webinars have been organised, with topics including monthly updates, CS training, agricultural updates, technical topics such as anaerobic digestion, Sustainable Drainage Systems (SUDs), and flooding. Webinars are opened up to NE staff and partners.

Technical training sessions have formed an integral part of the annual CSF Staff Conferences in 2014 and 2015. Topics have included:

- Woodland and water management – Woodland Trust
- Field drainage and bioreactors – Farm Services Ltd and Philippa Mansfield, NE
- Supermarkets – AB Sustain and David Burton, NE
- Soils workshops – Matthew Shepherd, NE
- Pollution from tramlines - Shamal Mohammed, HGCA

- Demonstration Test Catchments - Bob Harris DTC, Jennine Jonczyk DTC, Andrew Lovett DTC
- Advanced drainage – Ian Ball and James Grischeff, NE
- Ammonia - Alastair Burn, NE

New topics introduced into the CSF training programme include an Introduction to Behaviour Change in Farmers (led by Jilly Hall, NE) and Incident Categorization Training (led by Michelle Ellershaw, EA). Attendance on BASIS organised training including Soil & Water, Conservation Management/BETA & FACTs courses remains popular and provides delegates with an industry recognised qualification.

BASIS CPD points are applied for where applicable e.g. webinars, CSF Conference. CSF team members are encouraged to retain their membership of professional organisations (e.g. Prince 2 Practitioner, BASIS Professional Register) once obtained. CSF training successfully helped four CSF team members regain their membership of the BASIS Professional Register which had lapsed.

Every effort has been made to continue working with partners and deliver joint training. Working in partnership with the Environment Agency has allowed CSF to use pre-developed training modules (e.g. RB209, Nitrate Vulnerable Zones (NVZ) and Silage, Slurry and Agricultural Fuel Oil regulations (SAFFO) training) and access EA's training providers at a known cost derived from a competitive bid process. NE and EA have opened their courses to each other when spare training places exist.

Joint CSF and partnership training events have included delivery of DWPA training with Pinpoint; Fluvial Geomorphology training with the Rivers Trust and Pesticide Training with the Voluntary Initiative (VI). Advanced level courses in Geomorphology and Pesticides have been introduced by the Rivers Trust and VI respectively following feedback by delegates to develop their knowledge further following introductory level training.

Financial Year	GIA
2014/15	£88,875
2015/16	£67,176

Table 10: Cost (£) for training

The majority of spend is related to the individual courses listed above; however the training budget has also covered some other costs related to training.

Internal courses such as Social Science and Category Incident Training have been delivered at no cost. Where possible, in-house facilities and venues have been used.

All staff new to CSF have been offered a place on a CSF Induction Training course, many within 4 months of their start date.

NE staff transferring to the CSF programme have commented favourably on the presence of the training programme. The training programme has continued to evolve to meet the on-going needs of the CSF Team.

CSF's training plan, draft skills profile and links with the NE Skills Framework have been shared internally with NE colleagues and externally with partners and water companies.

CSF's philosophy of offering all CSFOs the same opportunity to gain nationally recognised qualifications and undertake technical training means that those on shorter term contracts can offer the industry a set of recognised skills and knowledge, helping staff find alternative employment whilst increasing the skill base of the industry as a whole.

It is recognised that for individuals to develop their career within CSF and maintain high satisfaction with their role, new challenges such as the development of specialist knowledge must be supported and furthered.

The on-going CSF training programme has created a large number of highly trained CSF staff in a wide range of different disciplines. Spend on training amounts to an average of £942 per CSF team member in 2014/15, reducing to £721 per CSF team member in 2015/16.

Financial statement

Interim Phase Delivery Report - Finance

Overall

F/Y	GIA	RDPE	Total
2014/15	£ 6,451,857	£ 15,828,667	£ 22,280,524
2015/16	£ 5,551,516	£ 11,510,545	£ 17,062,061
Total	**£ 12,003,373**	**£ 27,339,212**	**£ 39,342,585**

Partnerships

F/Y	GIA
2014/15	£ 507,234
2015/16	£ 416,016
Total	**£ 923,250**

Advice Delivery (including Farm Events Team)

F/Y	GIA	RDPE	Total
2014/15	£ 440,742	£ 1,018,915	£ 1,459,656
2015/16	£ 166,470	£ 877,692	£ 1,044,162
Total	**£ 607,212**	**£ 1,896,607**	**£ 2,503,818**

Evidence

F/Y	GIA	Total
2014/15	£ 815,630	£ 815,630
2015/16	£ 666,667	£ 666,667
Total	**£ 1,482,297**	**£ 1,482,297**

CGS (inc Ops costs & Catch)/CS Water Grants

F/Y	GIA	RDPE	Total
2014/15	£ 127,869	£ 14,809,752	£ 14,937,621
2015/16	£ 15,000	£ 10,632,853	£ 10,647,853
Total	**£ 142,869**	**£ 25,442,605**	**£ 25,585,474**

FATI Catchments/Great Farm Challenge

F/Y	GIA
2014/15	£ 19,263
2015/16	£ 6,195
Total	**£ 25,458**

Equipment

F/Y	GIA
2014/15	£ 8,262
2015/16	£ 0
Total	**£ 8,262**

Training

F/Y	GIA
2014/15	£ 89,652
2015/16	£ 67,176
Total	**£ 156,828**

Staffing

F/Y	GIA
2014/15	£ 4,443,205
2015/16	£ 4,213,787
Total	**£ 8,656,992**

Case studies

Raising awareness of natural flood management

CSF is supporting the ambitious Hills to Levels project and Roy Hayes, CSFO in Somerset, has been seconded to FWAG SW to work with partners; Somerset Wildlife Trust, RSPB and The Royal Bath & West of England Society. The project aims to raise awareness of natural flood management, help farmers throughout Somerset take steps to reduce flood risk while enhancing wildlife, and to coordinate approaches to 'join up' both lower and upper catchments. Their key message is that every field, every farm and every stream has a part to play. The project is well underway with over 200 farms now visited by Hills to Levels advisers on the upper catchment, all working to reduce the flow of water and sediment down the catchment.

Ben Thorne from FWAG SW spoke positively about their work saying: "Since the start of the Hills to Levels project we've contacted around 350 farmers in areas upstream of the Somerset Levels. We wanted to see if the farmers upstream could be part of a solution to prevent the sort of flooding that happened to farms on the levels in 2014. We found that the vast majority said yes, we'll do what we can."

On the upper catchments of the rivers Parrett, Tone, Brue and Axe, landowners and farmers are advised on methods that slow run-off, lower flood peaks, improve water quality and decrease soil erosion.

One method is the use of a filter sock, a geo-textile membrane into which compost can be blown creates a type of leaky dam. Roy explained how this has helped "Although the filter sock has only been positioned on the field for a few days we are already noticing good results. The material helps to hold water, slow the water down and filter out nutrients from the field itself,"

As well as the filter sock, measures such as planting woodland, silt traps and leaky ponds are being evaluated. This work is being carried out alongside detailed mapping of the county's soils according to their water storage capacities. Further research on flood resilient farming techniques is taking place on the Levels and Moors including the trial of new grass seed mixes.

The **Somerset 20 year Flood Action Plan** developed following the 2013 / 14 floods in Somerset set out commitments against the full range of tools to help reduce future flood and the importance of the 'Hills to Levels project in slowing the flow of water from catchment areas into rivers and improving land management is supported by the **Somerset Rivers Authority**.

How a catchment management partnership with South East Water is helping cut water treatment costs and improve biodiversity.

In April 2015, a 5 year Catchment Management Plan, funded by SE Water and delivered by Catchment Sensitive Farming Officers from the Sussex and Kent area team, was launched to look at four major rivers; the River Ouse, The Cuckmere, Waller's Haven and Eastern Rother. The partnership is helping to deliver multiple objectives across both the water company and the NE agenda, such as countryside stewardship outcomes, and means Catchment Sensitive Farming can deliver in areas not covered by core funding.

Charles Chantler, CSF Officer for Eden and Medway, visited farmers in the catchment to help identify priorities and offer capital grants to improve water quality. These include bio-beds, to contain and treat pesticide residues from sprayer filling areas, replacement gutters and downpipes to help minimise contaminated water from livestock yards, and farm track improvements to cut down on soil erosion.

One of the issues was around turbidity in the upper reaches of the River Ouse catchment. Sediment from tracks, field and yards was posing a challenge to water treatment works downstream and affecting the ecological status of the river. Funding was provided to improve 210m of cattle tracks, together with relocation of troughs to reduce soil mobilisation and silt traps were created to intercept suspended sediment. This has led to a significant reduction of sediment in this section of the stream, and has been used a demonstration site to promote our work to other farmers and land managers in the area.

In the longer term, the project aims to deliver a wide range of support to help minimise the risk of water pollution from farms. This will include advice on soil husbandry, pesticide use, nutrient management and the handling of manures.

By working together, not only will the water quality and biodiversity of the river benefit, but farmers and land managers can improve the performance of their business and save money.

Demonstrating how cover crops can reduce DWPA, improve water quality and ecology

Farmer interest in cover crops is growing, with new opportunities to grow them as part of the cross compliance 'greening' requirements and options in Countryside Stewardship. Catchment Sensitive Farming (CSF), Soil and Water Management Centre, Campaign for the Farmed Environment (CFE), NIAB and other partners worked in partnership during 14-15 to set up a series of cover crop field plots on farms to demonstrate the range of crops, how to grow them and the potential benefits for reducing diffuse water pollution from agriculture to improve water quality and ecology. Cover crops can capture and fix nitrogen and boost soil organic matter to improve soil fertility and condition. With their different rooting depths, they can improve soil structure and help reduce soil erosion compared with bare ground. Cover crops can also be used in arable rotations to help control blackgrass.

In the South East, CSF worked with CFE and partners to establish cover crop field plots at seven farm sites in CSF catchments to demonstrate a range of cover crops, including mustard, winter vetch and forage rye. Crop and soil assessments plus porous pots were used to monitor crop growth and nitrate losses. Farm demonstration events were then held at each site. These events, held over the winter, proved very popular, attracting record audiences of farmers and advisers, as well as Defra cross compliance leads.

"I have just attended the Cover Crop morning at Ramsbury Estates. It was absolutely brilliant – such expertise by the speakers and a joy to hear how all these people are working together, marrying science and economics for the benefit of the environment and looking to the future. Thank you so much for this opportunity."

The evidence gathered during the 2015/16 cover crop season clearly demonstrates the value of cover crops in keeping nutrients within the field: Nitrogen capture ranged from 21 to 62 KgN/Ha across the 9 sites. With current fertiliser prices, this equates to a £45/ha saving on the most successful sites, this is without all the other additional benefits of additional organic matter, improved soil structure and workability.

The CSF project has helped farmers see for themselves the economic, environmental and agronomic reasons to growing cover crops.

Glossary

AHDB	Agriculture and Horticulture Development Board
AONB	Area of Outstanding Natural Beauty
BASIS	Professional Register
BETA	Biodiversity and Environmental Training for Advisers
CaBA	Catchment Based Approach
CFE	Campaign for the Farmed Environment
CGS	Capital Grant Scheme
CLA	Country Land and Business Association
CPD	Continues Professional Development
CS	Countryside Stewardship scheme
CSFO	Catchment Sensitive Farming Officer
CSFRD	CSF Reporter Database
CSG	Catchment Steering Groups
DTC	Demonstration Test Catchment
DWPA	Diffuse Water Pollution from Agriculture
EWQMP	Enhanced Water Quality Monitoring Programme
FACTS	Fertiliser Advisers Certification and Training Scheme
FAF	Farm Advice Framework
FAS	Farm Advice Service
FATI	Farm Advice Training and Information
FIOs	Faecal Indicator Organisms
FTE	Full Time Equivalent
GES	Good Ecological Status

GIA	Grant in Aid
H2L	Hills to Levels project, Somerset
HGCA	Home Grown Cereals Authority. A division of AHDB.
KPI	Key Performance Indicators
Legacy areas	these are Phase 3 areas where CSF can no longer provide advice in Phase 4, due to new Countryside Stewardship targeting. The approach will depend on individual circumstance, as CSF endeavours to support advice through partners
Legacy approach	See 'Legacy areas'
LFA	Less Favoured Area
Local campaigns	This will be unique to each water priority area and may only be targeted to specific areas and/or types of farms to improve water quality
MT	Mid-Tier Countryside Stewardship
N2K	Natura 2000 Sites
NFM	Natural Flood Management
NGO	Non Government Organisation
Non-priority farms	these are farms that have been identified through desk-based modelling to have the lowest risk to water quality. General advice on best practice will be made available to farms in this group
NVZ	Nitrate Vulnerable Zone
Phase 4	This the fourth phase of CSF from 2016 to 2021.
PMG	Project Management Group
PR19	Price Review 2019 (Ofwat)
Priority Farms	these are farms that have been identified through desk-based modelling to benefit most from CSF help and advice. Throughout Phase 4 advisers will be pro-active in working with these farms

Protected Area e.g. Shellfish Water, Bathing Water, Natura 2000 sites, Drinking Water

RASE Royal Agricultural Society of England

RBC River Basin District Coordinator

RBD River Basin District

RDPE Rural Development Programme – England

RB209 Fertiliser Recommendations for Agricultural and Horticultural Crops manual

RBMP River Basin Management Plan

Reduced Area Catchments - These are catchments that through new targeting have significantly reduced in water priority area in Phase 4.

RPA Rural Payments Agency

SAFFO Silage, Slurry and Agricultural Fuel Oil regulations

SGZ Safe Guard Zone

SSSI Sites of Special Scientific Interest

SUDs Sustainable Urban Drainage

TFA Tenant Farmers Association

VI Voluntary Initiative

Water quality elements of Countryside Stewardship – Options in CS Water Quality Issues – e.g. Sediment, phosphate, nitrate, FIO, pesticides

Water quality items grant measures available through Countryside Stewardship to reduce diffuse pollution

Water Quality Objectives – e.g. our aims to mitigate the water quality issues above
WFD - Water Framework Directive

WPA Water Priority Area; this is the area defined as having the highest priority for improvements in water quality through Countryside Stewardship. In each catchment, these are the core target areas for CSF Phase 4

Annex 1

CSF Delivery report 2014-16: Lessons learned summary

Evidence		Planned Implementation in Phase 4[2]
Work Area	**Lesson Learned**	
Overall Project Benefits	CSF is more effective for some pollutants (and hence Protected Areas) than others: Pesticides>Sediment>P>N>FIOs -	
	There is a ca. 3 year lag between advice delivery and 'full (i.e. 70%) uptake'	
	There is a ca. 3+ year lag between advice delivery and environmental outcomes – water chemistry and ecology	
	There are win-win opportunities to promote measures delivering multiple ecosystem services benefits i.e. over and above water quality	
	Modelling can be used to target CSF resources where they should be most effective	
	The increased use of autumn / winter OSR herbicides threatens CSF-driven pesticide reductions	
	Evidence needs to be specific, accessible and trusted to demonstrate the need for local action	
	CSFO delivery is most effective (i.e. advice uptake per catchment) whereas Catchment Partnership delivery is most cost-efficient (i.e. advice uptake per £)	
	Awareness of, and familiarity with, Catchment Partnerships has not developed at the same rate as within CSFO Priority Catchments operating for a similar length of time	
	Farmers cite financial barriers as the main barrier for taking action to reduce water pollution – in years of increased CGS funding there is evidence that this barrier is perceived to be less significant	
	CSF needs to make maximum use of the full range of measures and mechanisms available (incentive, voluntary, regulation) to expand the range of possibilities for behavioural change	
	Promoting farm reputation and financial benefits is important for encouraging action to address water pollution	

2 Green – fully embedded in plans | Amber – under development | Red – not being taken forward

Evidence		Planned Implementation in Phase 4[2]
Work Area	**Lesson Learned**	
Advice Delivery	High advice / measure coverage is key to achieving pollutant reductions, but there is some potential for 'quick wins' in headwaters of catchments	
	Detailed modelling results can help ensure advice strategies are effective / optimised	
	The extent of catchment advice delivery varies considerably due to: catchment size, farm type, farm size, water quality priorities, continuity and profile of CSFO	
	1:1 advice is most effective for implementing pollution reduction measures but events are important for: initial engagement; linking up catchment initiatives; and providing a practical setting for farmers to learn from others' experiences and visualise benefits	
	CSFOs need to better integrate the range of advice sources they give to farmers, to provide an authoritative source of advice	
	Farmers willingness to engage is strongly influenced by advisers having some key 'qualities'- commitment to farming community; understanding of farming; knowledge of funding sources; pragmatic, friendly and understanding nature; providing an authoritative source of advice	
	CSF can and should adapt and evolve its role in a catchment in response to a range of local factors, including: farming sectors; other advice sources; priority water quality issues	
Mitigation Measures	There is significant variation in the effectiveness of different measures – the most effective are those that are widely recommended; apply to a larger proportion of the farm; and have high uptake i.e. soil management plans / reduced cultivation systems (sediment); integrating fertiliser & manure supplies / cover crops (nutrients); and reducing grazing season / fencing / re- siting gateways (FIOs)	
	Some measures are potentially very effective but used to a limited extent within CSF e.g. artificial wetlands (FIOs & sediment); reduced stocking rates (nutrients & FIOs); and biomass crops (all pollutants)	
	CGS is key to CSF's success, its impact being much greater than the measures it directly funds, but the majority of grants are awarded in just half of the River Basin Districts	
	CGS funds a limited range of measures – 80% of funding is for just 6 items	
	Uptake of individual measures is influenced by their cost	
	Uptake of advice varies by farm type (e.g. high for mixed, cereals and general cropping; low for horticulture and Less Favoured Area (LFA) grazing)	
	Uptake of advice varies by the type of advice (e.g. high for fertiliser and pesticide management; low for infrastructure and land use change)	

2 Green – fully embedded in plans | Amber – under development | Red – not being taken forward

Evidence		Planned Implementation in Phase 4[2]
Work Area	**Lesson Learned**	
CSFO and partner training	Build on successful training programme Work to develop a multi-year trajectory for CSFO skills development	
Evidence requirements	Ensure the Project's High-Level Evidence Strategy and Framework is comprehensive but proportionate; builds on that for Phase 3; addresses the Project's underpinning evidence needs; aligns with the Phase 4 Project Objectives and Delivery Models; and is fit for purpose i.e. provides evidence to inform decisions on the future / future design of the Project	
Catchment Based Approach	Develop sustained and deeper links to CaBA (Catchment Based Approach) locally and nationally	
Hard to action[3] farmers	More needs to be done to engage farmers who are unable to take action through new tools (e.g. for those with Farm Business tenancies) and develop social science approaches to engage both farmers and people associated with holdings e.g. landlords	
Catchment Delivery	The current means of identifying target farmers is driven by local factors. Delivery of CS means more will need to be done to ensure clear, transparent and concise justification for working with specific farmers Better use needs to be made of the evidence from existing delivery to allow priority farms to be identified Develop approaches that promote the retention of staff in catchments to allow solid, long term development of relationships with the farming community Note additional specific lessons from the evidence review (above)	
Local aspects of CSF	Improving CSF's impact on water quality and cost-effectiveness through the delivery of campaigns more relevant to stakeholders and in particular the farming community	
Changing catchment requirements	Ensure CSF offer and resource is linked to the maturity of catchment delivery How do we leave a legacy in areas no longer targeted for CSF to ensure the existing benefits are not lost?	
Working with EA and regulation	To clarify the relationship between EA's regulatory approach and the CSF voluntary approach. Specifically, when CSF officers should report pollution from farms to EA	
Working with Water Companies	Build current working relationships to understand areas of common interest and seek catchment partnership working arrangement to address these	

2 Green – fully embedded in plans | Amber – under development | Red – not being taken forward

3 Farmers who would like to take action to mitigate diffuse pollution but are unable to owing to barriers such as tenancies, available finance, etc.

Annex 2

CSF Interim Phase Evaluation Report

Introduction

Our last comprehensive evaluation demonstrated that the CSF Project is achieving its primary objective of encouraging action from farmers to help achieve Water Framework Directive[4] (WFD) and SSSI objectives (CSF Evidence Team, 2015). We demonstrated this specifically through showing that:

- Pesticide levels have declined significantly in monitored river catchments as a result of the voluntary uptake by farmers of best practice and grant funding.
- Sediment pressures have been reduced. A clear relationship is evident between modelled load reductions from farms receiving CSF advice and monitored concentrations, across representative catchments.
- At a national scale, ecological communities are responding positively to reductions in sediment pressure resulting from CSF activity.
- Across a wider range of pollutants, including phosphorus and faecal indicator organisms, our modelling indicates CSF is making a significant contribution to meeting 'sector weighted or proportional targets' (based on the agricultural contribution) for Protected Areas, SSSIs and WFD good status.
- An initial analysis of national groundwater monitoring data provides an early indication that CSF is likely to be contributing to improved groundwater quality.

These outcomes were underpinned by effective farmer engagement and advice delivery, and the resulting uptake of mitigation measures to reduce water pollution.

This report provides an update to that published in 2015 and marks the end of reporting in terms of the 'CSF Priority Catchments'. Priority Catchments have been used to report trends in farmer awareness and behaviour since 2006 but, as the project enters Phase 4, delivery is now aligned to the new geography of Countryside Stewardship.

The current report is limited in scope and scale, focusing on project 'outputs' as opposed to 'outcomes'. It draws on three main sources of evidence:

[4] Primarily Protected Area objectives.

Farmer telephone surveys which are carried out annually to review farmers' attitudes to water pollution from agriculture and awareness of CSF.

Analysis of up-to-date figures from the CSF Reporter database. The database stores all advice on practices (mitigation measures) given by CSF Officers (CSFOs) and Catchment Partnerships logged by individual farms.

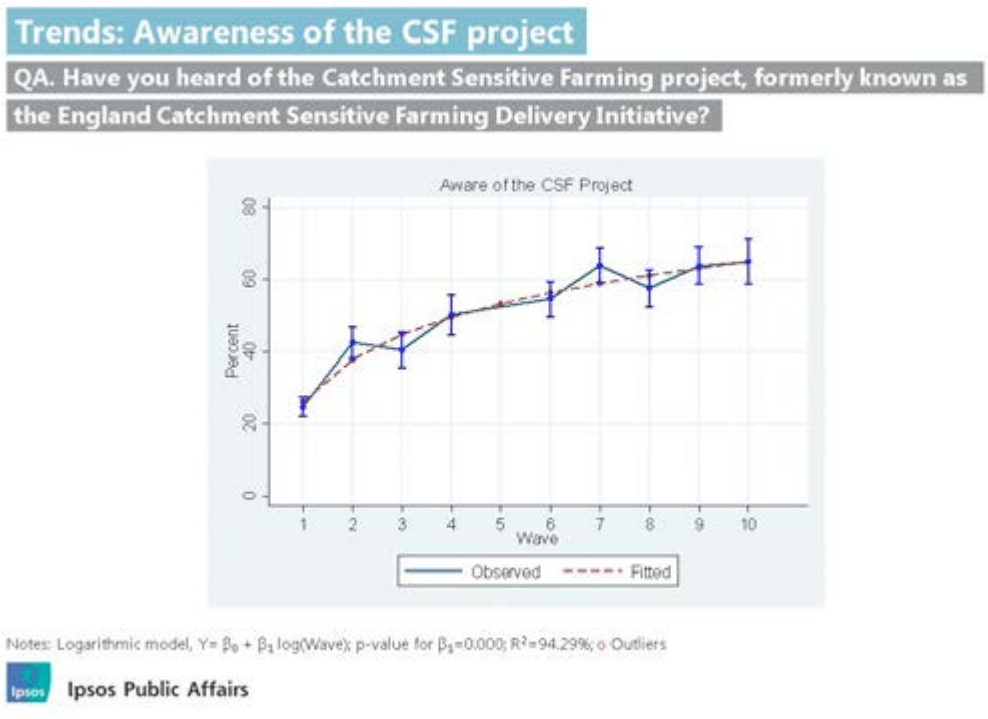
Annual assessments of advice uptake. In 2015/16, additional information was sought on the perceived effectiveness of implemented practices as well as the reasons why other practices had not been put in place.

A more comprehensive evaluation will be completed for Phase 4.

Awareness of CSF

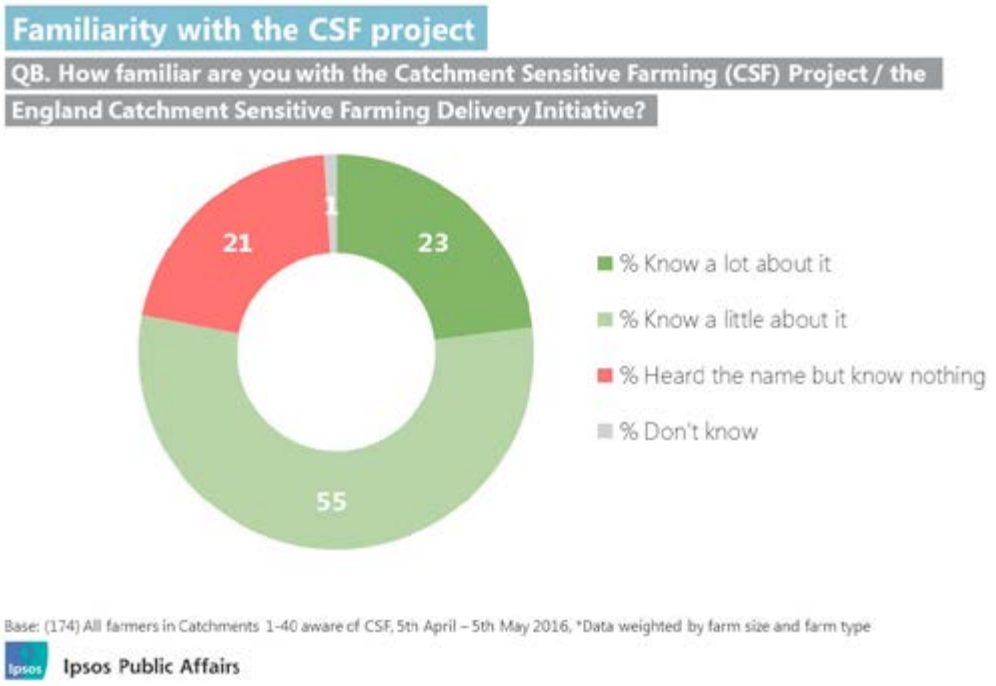
Raising awareness of CSF is essential to encourage farmers to engage with, and seek more detailed advice from the project. Results from the annual farmer telephone survey (Ipsos MORI, 2016) show that more than two-thirds (69%) of farmers in Priority Catchments 1:40 have now heard of the CSF Project, continuing the increasing trend observed since 2006 (Figure 1).

Figure 1. Awareness of CSF Project across Phase 1 farmers, 2006 (Wave 1) – 2016 (Wave 10) (Ipsos MORI, 2016)



The survey also shows that more than three quarters (78%) of farmers who are aware of CSF are familiar with it. 23% say they know a lot about it whilst 55% say they know a little (figure 2). Farmers who have met their CSFO are most familiar with the project; nine in ten saying they are familiar with it (90%), and 39% saying they know a lot about it. In comparison, of farmers who have not met their CSFO, 72% say they are familiar with the CSF project.

Figure 2. Familiarity with the CSF Project across Phase 1 farmers (Ipsos MORI, 2016)



Engagement with farmers

Our modelling has shown extensive farmer engagement is important to ensure water quality benefits are realised. Over the three phases[5] of the project until March 2016, CSF has provided advice to farms, within the CSF Priority Catchments, covering 2,494,681 hectares of land. This represents 45% of the total land covered by farms. Overall, 17,099 farm holdings have received CSF advice, through a combination of one- to-ones (13,786 farm holdings), group events (10,423 farm holdings) and clinics (1071 farm holdings). This compares to 16,133 farms at the end of June 2013. These figures alone underestimate the full extent of farmer engagement as a high proportion is focused at farms already visited in that year as well as in previous years (figure 3). To highlight this, 31% of farms have been engaged 5 or more times through the project (figure 4).

[5] Including two transitions years from 2014 to 2016 at the end of Phase 3.

Figure 3. Cumulative, repeat and new engagements across CSF catchments 2006 – 2015.

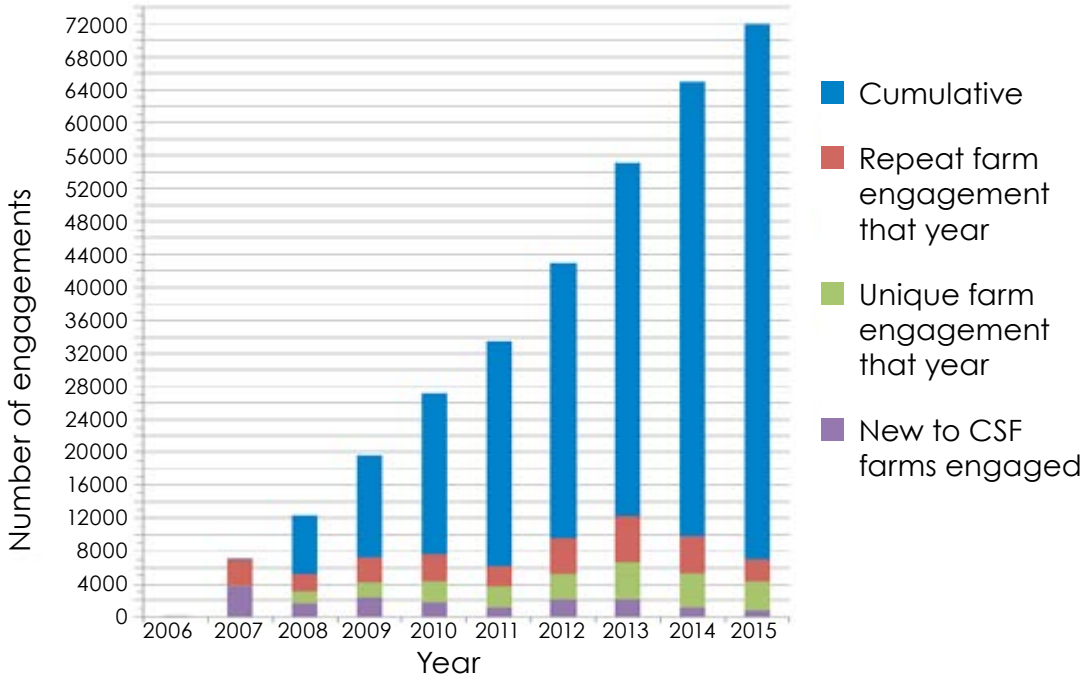
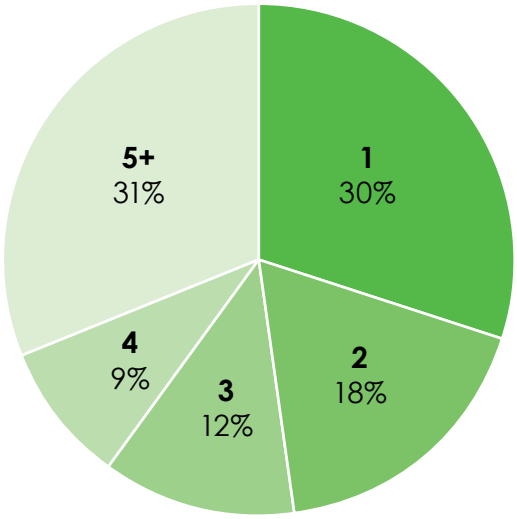


Figure 4. Percentage of farms receiving 1 to 5+ engagements[6] from 2006 to 2015.



There is significant variation in the extent of advice delivery across the CSFO-led catchments (figure 5) and Partnership Catchments (figure 6). Factors affecting this include catchment size and the number of farm holdings present; predominant farm type and farm size; length of time CSF has been present in a catchment; types of water quality issues; and the time and continuity of CSFO/partner presence (CSF Evidence Team, 2015).

[6] Engagements are counted when the CSFO has given specific advice to a farmer

Most advice is targeted towards general farm infrastructure improvements and cereals and general crop management (figure 7), although there are strong differences when regional farming patterns are taken in account.

Figure 5. Percentage engagement of total farm holding area across the CSF catchments

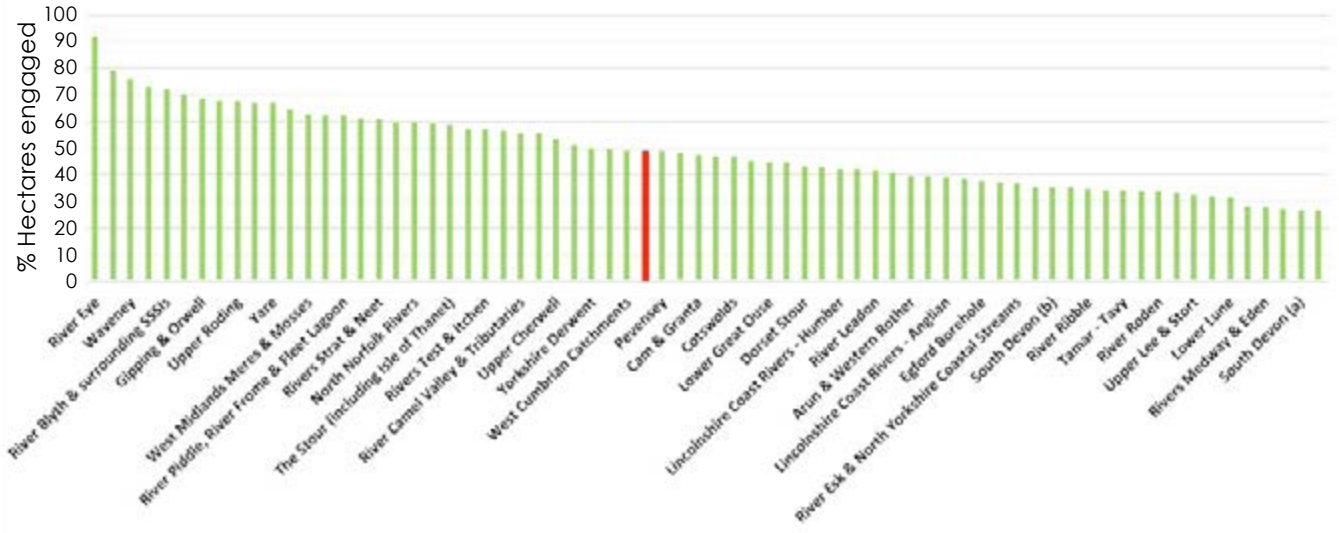


Figure 6. Percentage engagement of total farm holding area across the Partnership catchments

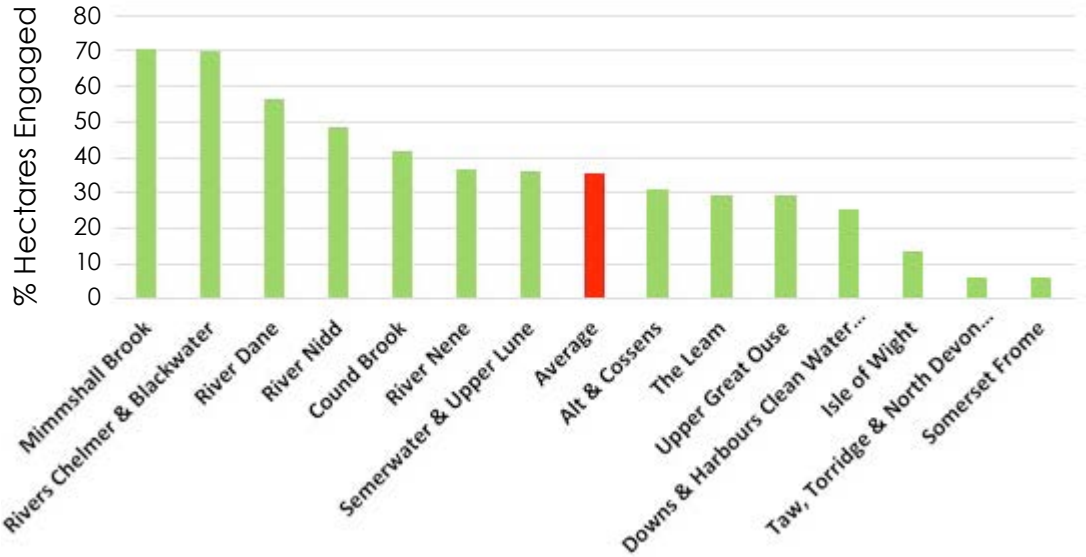
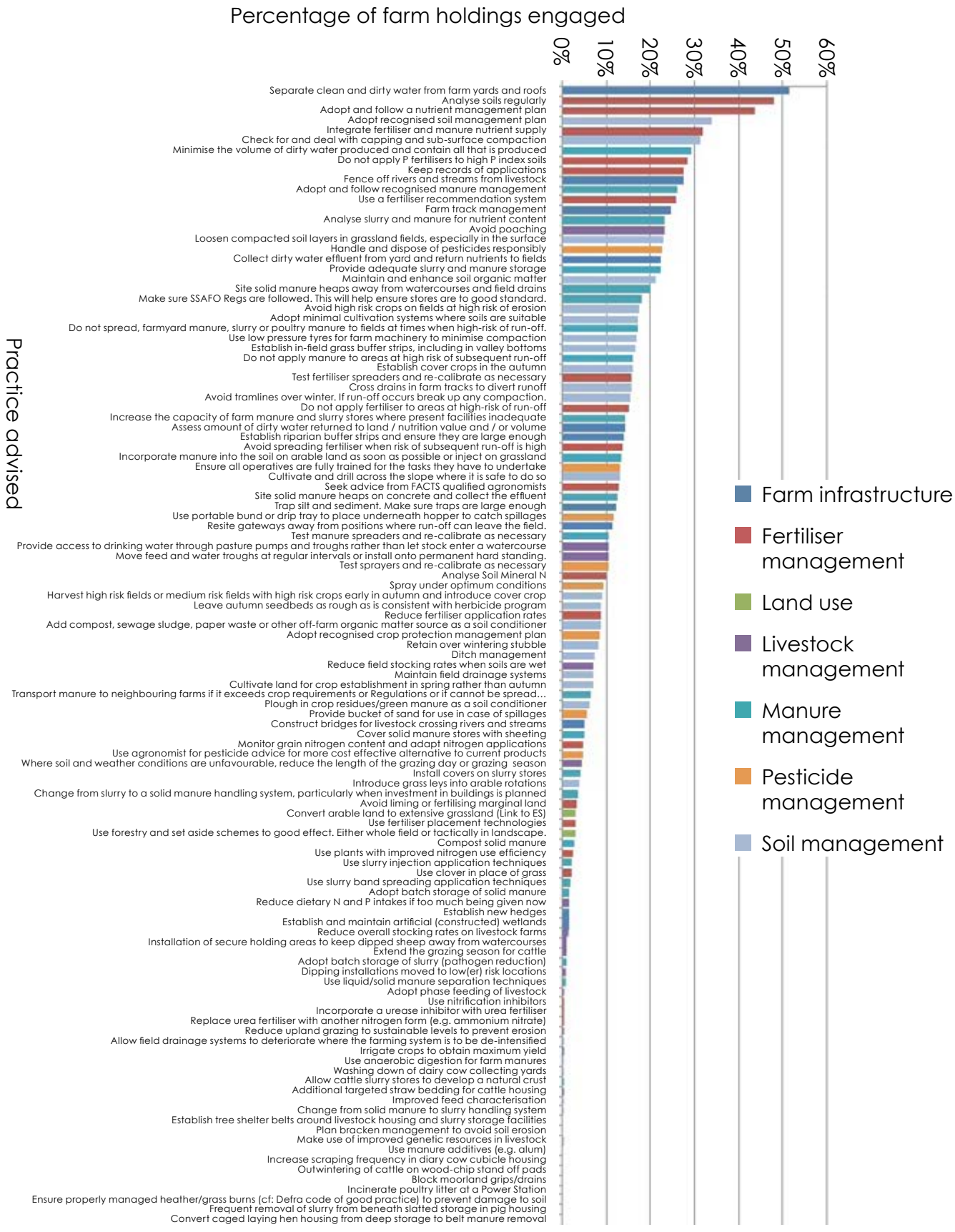


Figure 7. Farm holding engagement by practice and practice category



Farmer satisfaction with the CSF Project

Satisfaction amongst farmers that have received advice through the CSF Project is high. The project is generally seen by farmers as positive and effective in terms of raising their awareness of water pollution and providing relevant advice that helps them make changes to reduce it.

Our farmer survey (Ipsos MORI, 2016) shows that farmers who have met their CSFO are generally positive about their effectiveness. 65% strongly agree that their CSFO understands the needs of their farm; 69% strongly agree they had a good understanding of the issues relating to water pollution caused by agriculture; and 70% strongly agree that their CSFO understands the range of grants available to their farm. Most farmers agree that their CSFO provides trustworthy advice (65% strongly agree); is helpful and encouraging (64%); and a good listener (60%). Most farmers also state that their CSFO provided practical suggestions to improve their farm (80% tended to agree or strongly agreed) and that their CSFO provided information that was new to them (82% tended to agree or strongly agreed). As many farmers who have met their CSFO, have met them more than once, these results show repeat visits result in new, practical advice as well as reinforcing previous practical suggestions.

Attitudes towards water pollution from agriculture

Improving farmers' understanding and acceptance that water pollution from farming is a real issue helps drive changes to reduce the problem.

Most farmers acknowledge that agriculture contributes, at least a little, to water pollution in their catchment area and we have seen a statistically significant increase since the start of the project in the proportion of farmers who feel that agriculture contributes a great deal or a fair amount (Figure 8). The lower percentage stating this in the most recent survey goes against this trend and appears to be an anomalous result.

Since the start of the CSF Project, there has also been a steady decline in the proportion of farmers saying that activity on their own farm does not contribute to water pollution (Figure 9).

Figure 8. Response of Phase 1 farmers agreeing agriculture contributes to water pollution (Ipsos MORI, 2016)

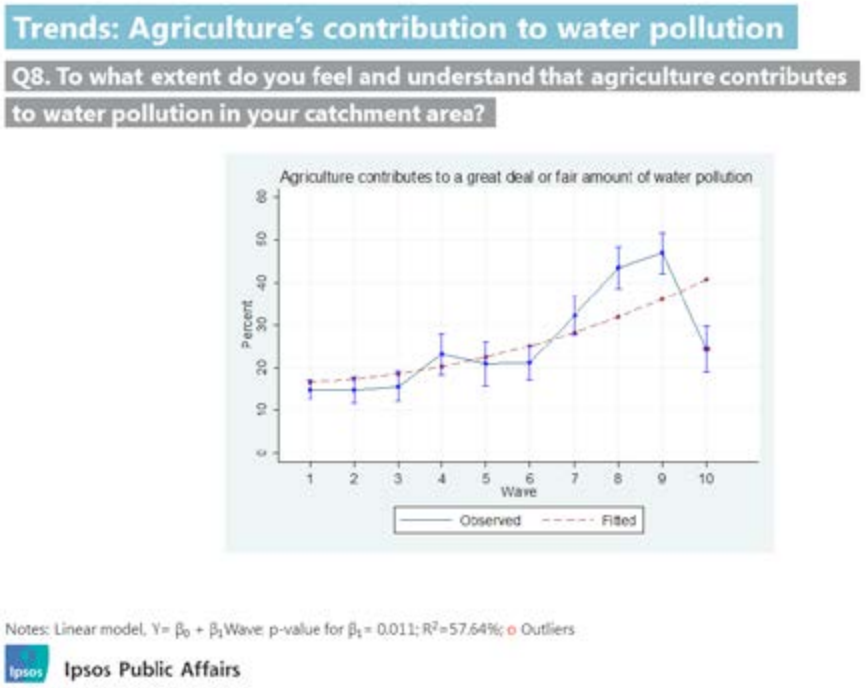
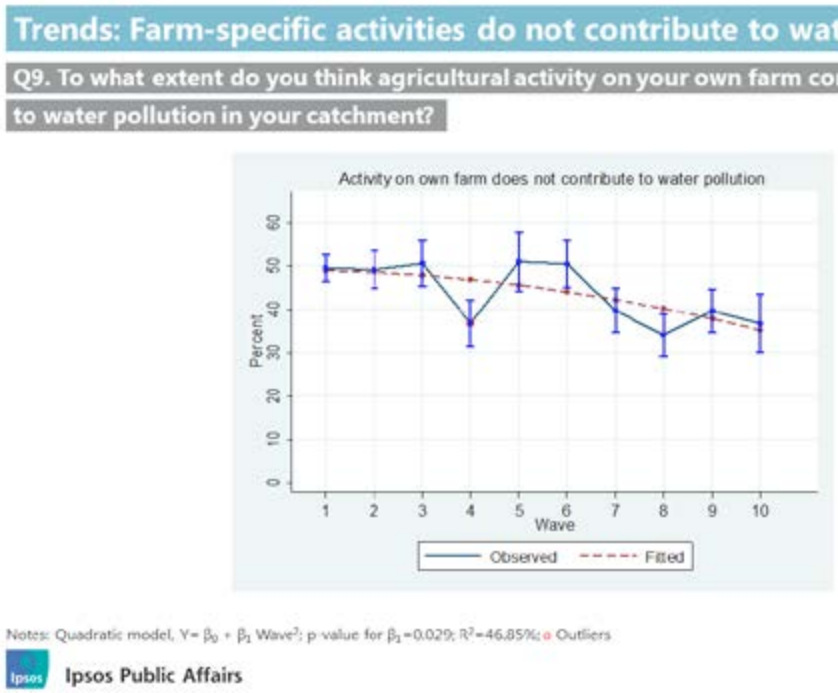
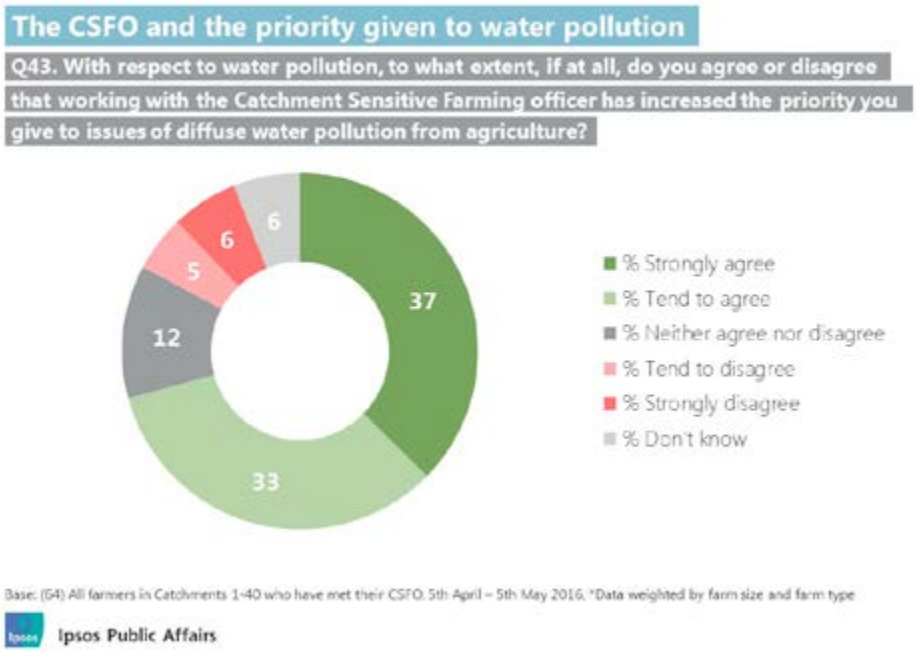


Figure 9. Response of Phase 1 farmers who think activity on own farm does not contributes to water pollution (Ipsos MORI, 2016)



71% of farmers, who have met their CSFO, agree that working with them has increased the priority they give to issues of water pollution. This proportion is unchanged from 2013, when we last asked this question, providing further evidence that farmers' attitudes to water pollution have been positively changed through contact with the project (figure 10).

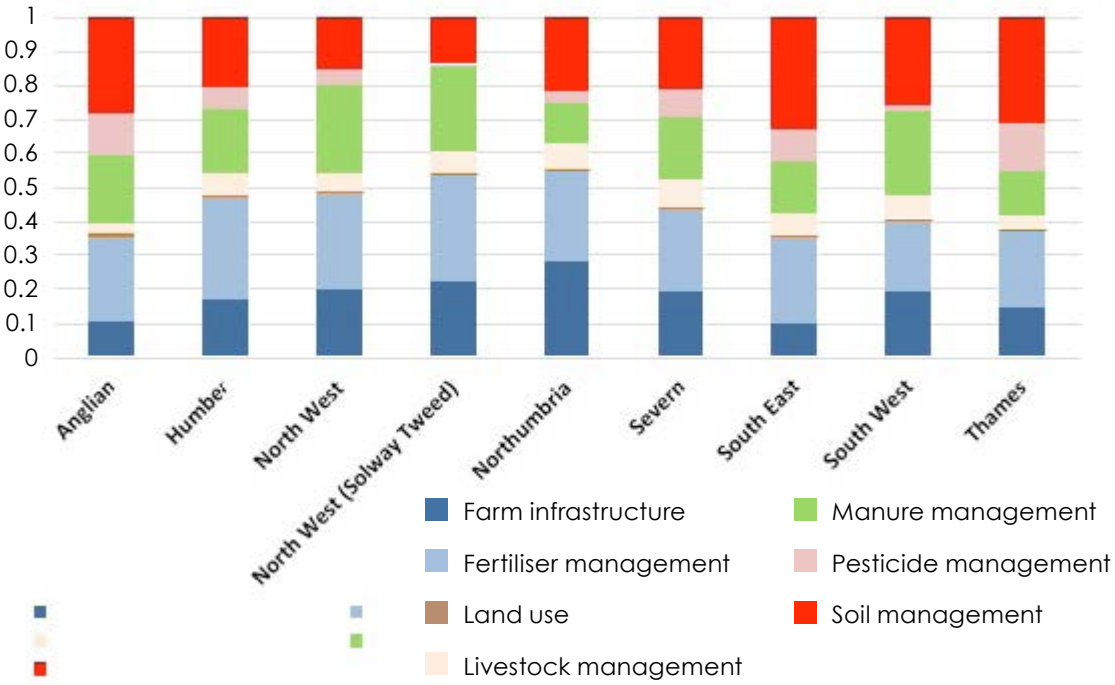
Figure 10. Views of Phase 1 farmers to their CSFO and the priority given to water (Ipsos MORI, 2016)



Recommended mitigation measures

Overall 203,054 individual mitigation measures have been advised to farmers engaged by the project. The majority relate to fertiliser management (25%), soil management (25%), manure management (21%), and farm infrastructure (16%). Pesticide management (7%), livestock management (5%) and land-use (1%) have been advised to a lesser extent. As expected, there is variation across the River Basin Districts (RBDs), though in total, 87% of measures were either related to manure management, soil management, fertiliser management or farm infrastructure across all RBDs (Figure 11).

Figure 11. Variation in recommended mitigation measures across RBDs



Of the 116 measures that CSFOs advise, and are recordable in the CSF Reporter database, the most popular ten are:

Measure	% of Total (203,054)
Separate clean and dirty water from farm yards and roofs	4
Analyse soils regularly	4
Adopt and follow a nutrient management plan	4
Adopt recognised soil management plan	3
Integrate fertiliser and manure nutrient supply	3
Check for and deal with capping and sub-surface compaction	3
Minimise the volume of dirty water produced and contain all that is produced	2
Do not apply P fertilisers to high P index soils	2
Fence off rivers and streams from livestock	2

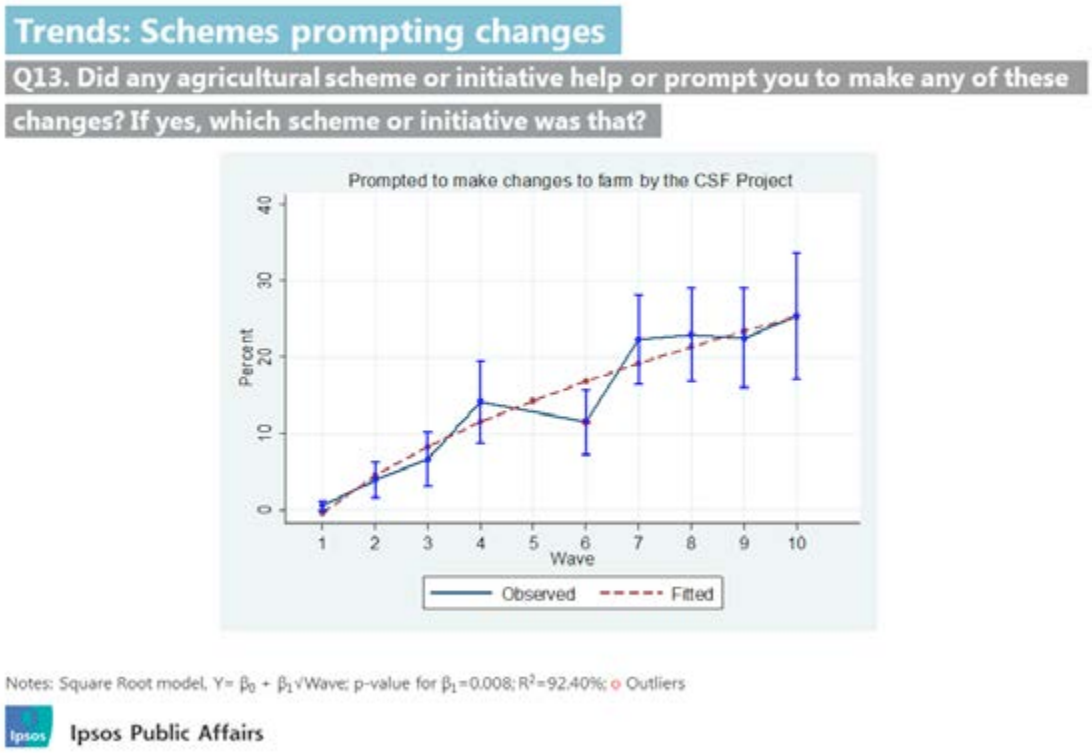
Making changes to control water pollution

Across Phase 1 catchments, farmers most commonly cite CSF as the scheme that has helped or prompted them to implement changes in the last 2 years to reduce water pollution. This has steadily risen since the project started (Figure 12).

Farmers who have had contact with CSF are much more likely to want to take action to reduce water pollution, as well as those who have already put in place changes. 67% of farmers, who have made changes to their farm in

the last two years, state they want to do more to tackle water pollution on their farm. This compares to 32% who have not recently made changes. Most farmers, who are considering making future changes to their farms, stated they are likely to fund future works themselves, with approximately one-third considering funding further changes using a Countryside Stewardship Agreement or Water Grant (previously a CSF Capital Grant).

Figure 12. The importance of CSF prompting change in Priority Catchments 1:40 (Ipsos MORI, 2016)

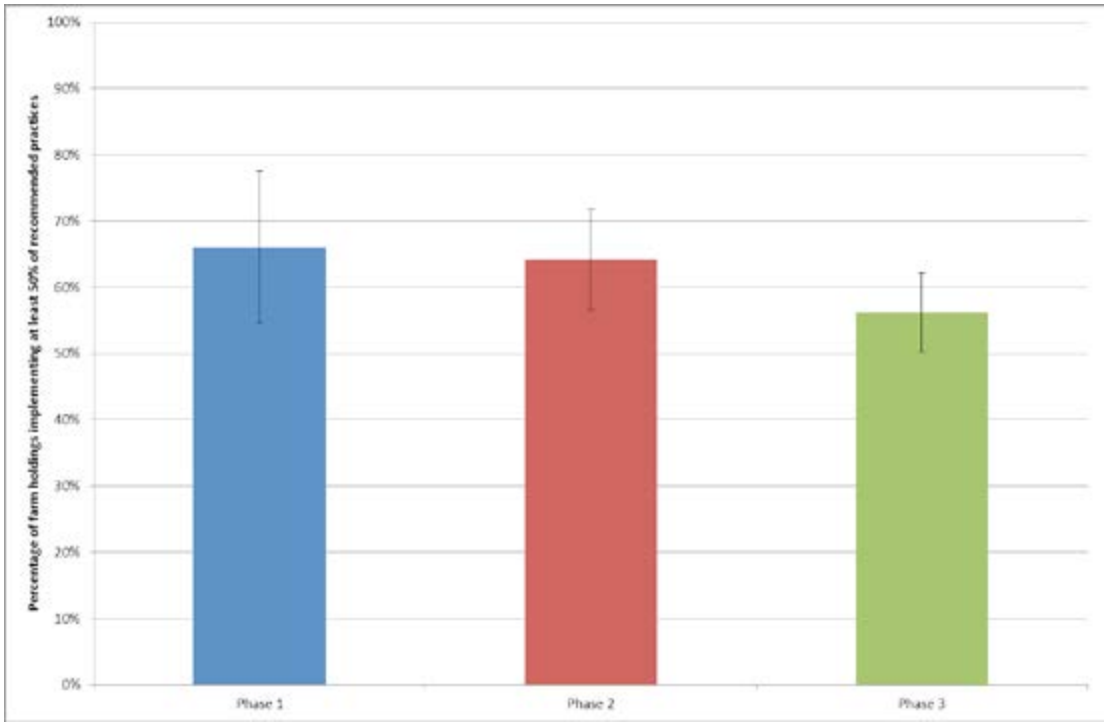


Implemented mitigation measures

Robust estimates of the uptake of CSF advice are important for assessing the effectiveness of the project. During 2015/16 the implementation of 2,875 mitigation measures, from one-to-one advice, was assessed across 482 farms (WRc, 2016).

At a national level, 61% of farm holdings had implemented at least 50% of recommended measures. The implementation rate was highest for advice from Phase 1, and lowest for Phase 3; likely reflecting the time available to farmers to build implementation into their planning. These differences were statistically significant (Figure 13).

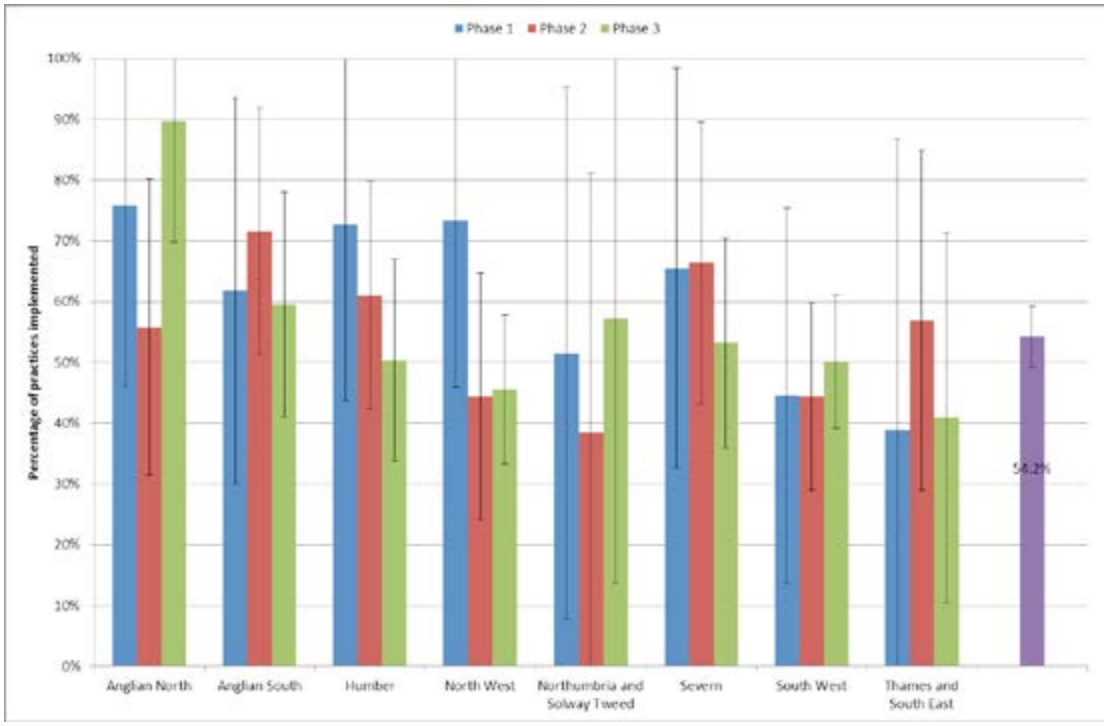
Figure 13. Percentage of farm holdings implementing at least 50% of recommended practices (mitigation measures), by CSF phase (with 95% confidence intervals) (WRc, 2016)



Across all Priority Catchments, an estimated 54% of recommended measures had been implemented (figure 13). Significant regional differences were apparent, with the highest implementation in Anglian North and Anglian South (65-69%) and lowest in the North West, South West, and the Thames and South East, (just under 50%).

These latest assessments of advice uptake were slightly lower than in previous years, but the differences were not statistically significant.

Figure 14. Percentage of recommended practices (mitigation measures) implemented, by CSF phase and geographic region (with 95% confidence intervals) (WRc, 2016)



Of the implemented practices, 52% were judged to be fully effective, and 87% at least mostly effective. 'Effectiveness' included whether the practice had been put in place appropriately and/or whether the practice was effective in reducing water pollution.

Practices were most commonly not implemented as they were no longer relevant to the farm (around 14%). Factors also found to affect implementation included the geographical region, farm profitability, practice type and the cost of the mitigation measure. Farmers who had a better understanding of how a measure reduces water pollution were much more likely to implement it.

Cost was a more common reason for non-implementation for measures that had high upfront and/or annual costs. Unsuccessful Capital Grant Scheme applications were cited as a reason for not implementing measures with high capital costs, but this was not a dominant reason. Implementation rates were lowest for farms estimated to make a loss, and highest for farm holdings estimated to be making profits of over £120,000 per year.

Advice supported by capital grants

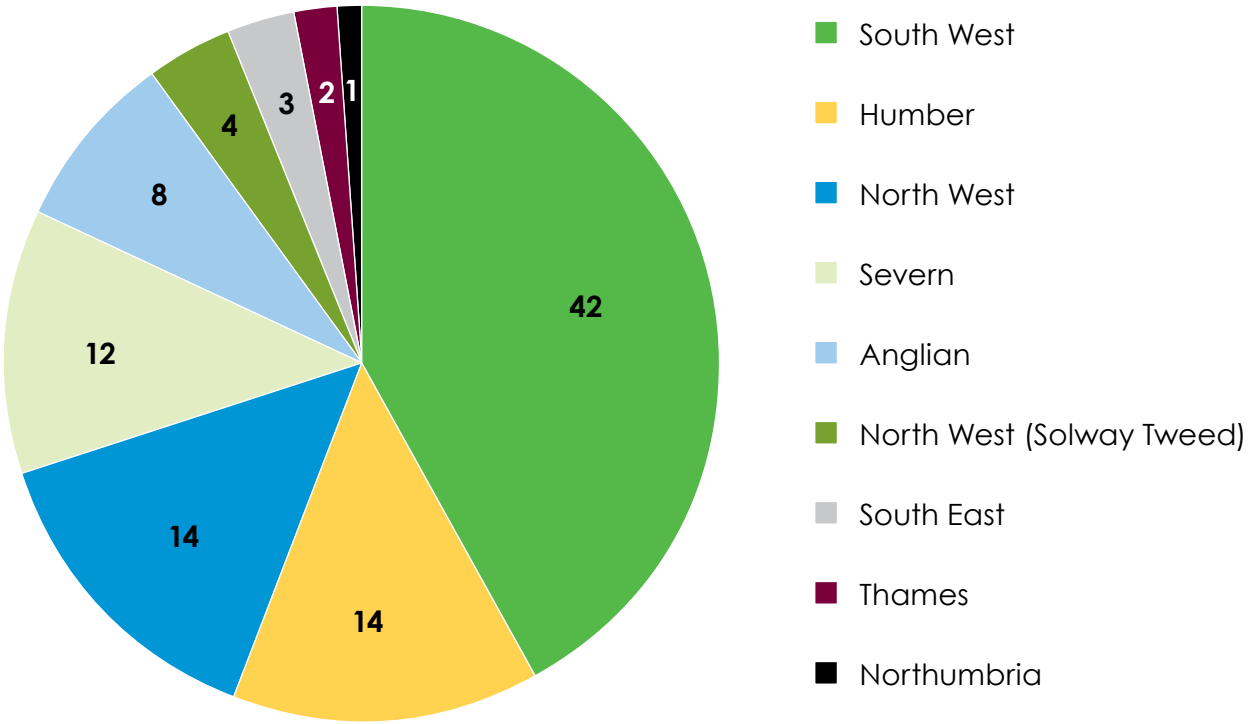
Between 2007 and 2016, the CSF Capital Grant Scheme (CGS) allowed farmers to match- fund relatively low-cost infrastructure improvements within specific priority areas of each catchment.

By 2016, the scheme has contributed to approximately £89M of improvements, a total that was at least match-funded by the recipient farmers. Although the CGS funds a range of farm improvements, the majority of funding has been for just five items:

- yard works for clean and dirty water separation
- roofing manure stores and livestock gathering areas
- watercourse fencing
- livestock and farm machinery tracks
- livestock troughs

There is clear variation across the RBDs in terms of both the scale and nature of CGS funding (Figure 15). Most grants were received in the South West (42%) with the least in Northumbria (1%).

Figure 15. Percentage distribution of CGS grants across the River Basin Districts



An estimated 32% of engaged farmers within the CSFO and Partnership Catchments have received a CGS grant(s) whilst approximately 12% of implemented CSF measures were funded through the scheme.

The influence of CSF grants was explored as part of the 2014 farmer telephone survey (Ipsos MORI, 2015). In this survey, in catchments 1-40, over 97% of farmers who had received a grant stated that it enabled them to make changes they could not otherwise have afforded. 71% indicated that receiving a grant spurred them on to make or plan further changes to their farm. Furthermore, over half (57%) of farmers who received a grant (in catchments 1:40) subsequently carried out further work to reduce water pollution, funded by other means. The most common funding sources being their own funds, business funds, or a loan, without a grant to match the funding. Overall, the survey revealed that the grants are a strong enabler and driver of action to reduce water pollution.

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