



Department
for Environment
Food & Rural Affairs

Abstraction reform report

Progress made in reforming the arrangements for managing water abstraction in England

May 2019

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2014



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Ministerial foreword

In England, we take for granted a plentiful supply of water. Yet our high population density means the available water per person is actually less than in many Mediterranean countries.

It is clear that the planet and its weather patterns are changing before our eyes. The experience of the summer of 2018, where for six weeks daytime temperatures consistently topped 30°C, and crops wilted in parched fields, reinforces the need to make our water supplies more resilient to a changing climate in the future. We know that by the 2050s summer temperatures are likely to increase while summer rainfall decreases, leading to increased risks of short-duration droughts. The population in England is forecast to grow by over 10 million people over the same period, with a large part of this growth occurring in areas where water is already scarce. We must therefore act now to ensure the resilience that is needed for the future.

In some places we are already taking too much water from the environment. As many as one-in-five of our surface water bodies are over abstracted, leading to physical changes that, along with other changes we make to watercourses, risk reducing our diverse range of plant and animal life.

Our 2017 plan for reforming water abstraction management is vital to ensuring resilient water supplies for the future, whilst protecting the environment. Through modernising the service and adopting a stronger catchment focus, we are able to support abstractors to access the water they need to operate efficiently, whilst addressing unsustainable abstraction and encouraging innovation.

I am pleased to publish this statutory report, which outlines the work that government has done since 2014 to reform water abstraction management in England.

Thérèse Coffey MP

Parliamentary Under Secretary of State for the Environment



Executive summary

This report covers the five year period since the passing of the Water Act 2014, which requires us to lay a report before Parliament on the progress made in reforming the arrangements for managing water abstraction in England.

Whilst this report covers England only, the cross-border nature of some of our rivers mean we share some water resources with Wales. We are working closely with Welsh Government to take account of any cross-border issues.

This report shows that in the five year period between 2014 and 2019 there has been significant progress in reforming abstraction management, and in making improvements to protect the environment and ensure the availability of water for those who need it. The publication of the government's water abstraction plan¹ in 2017 consolidated this direction of travel and committed us to an ambitious set of targets.

Table 1 below summarises the progress that has been made against the key milestones of abstraction reform.

Timescale	Action	Status	Notes
May 2014	Water Act 2014 passed	Completed	Passed 14 May 2014
January 2016	Government responds to consultation on reforming abstraction management	Completed	Response published 15 January 2016
January 2016	Government consults on ending abstraction licence exemptions	Completed	Launched 15 January 2016
October 2017	Government implements legislation to end exemptions	Completed	Coming into effect 1 January 2018
December 2017	Develop plan for reforming abstraction management	Completed	Published 15 December 2017
January 2018	Start testing digital abstraction licences	Completed	Digital platform live since March 2018
January 2018	Application process for previously exempt abstractors opens	Completed	Opened 1 January 2018
April 2018	The Environment Agency begins work in four priority catchments to test the	On track	Work has started in four priority catchments: the Cam and Ely Ouse, East Suffolk,

¹ <https://www.gov.uk/government/publications/water-abstraction-plan-2017>

	approaches to improve access to water and begin to address local pressures		South Forty Foot, Idle and Torne
By end of 2018	The Environment Agency to have revoked around 600 unused abstraction licences	Exceeded	More than 650 licences have either been revoked for non-use or reduced in the quantity of water they abstract
During 2019	Consultation on moving water resources licensing to Environmental Permitting Regulations (EPR)	Revised	Technical work has started and is being shared with our external advisory group. Consultation anticipated early 2020.
By end 2019	Two year application window closes for New Authorisations as set out in the Regulations. 4,500 applications originally expected for validation.	On track	Many abstractors are yet to submit an application, the Environment Agency is working with stakeholders to encourage all applications before the window closes.
By end 2019	Majority of licences available digitally and approach to submitting records online is improved	On track	Summary details of all abstraction licences are now online. Records of actual abstraction can also be submitted online
During 2020	The Environment Agency publish four updated abstraction licensing strategies from initial catchments	On track	First four updated abstraction licensing strategies to be published before December 2020
March 2020	The Environment Agency completes restoring sustainable abstraction programme	On track	Currently 282 licences changed; 147 still to change.
During 2021	Abstraction licences become environmental permits (subject to consultation)	Revised	Following advice from our external advisory group, move to EPR is expected in 2021. Quality engagement will be undertaken with stakeholders before the formal consultation process, while continuing to support other priority pieces of work.
During 2021	The Environment Agency publish an additional six	On track	Work has started on further potential priority catchments

	updated abstraction licensing strategies		including the Otter, Arun and Western streams, Wye and Brue
During 2021	2,300 time limited licences reviewed	On track	Currently 1077 licences have been reviewed
During 2021	The Environment Agency report on progress against environmental targets	On track	Progress will be reported as part of the River Basin Planning process
By end 2022	All previously exempt abstractions permitted	On track	By the end of 2022 all New Authorisations (previously exempt abstractions) will have been determined.
By end 2027	The Environment Agency updated all abstraction licensing strategies	On track	Update of all abstraction licensing strategies expected to be complete by December 2027

Table 1 – Key milestones in abstraction reform

The passing of the Water Act 2014 marked an important turning point in abstraction reform. The removal of water companies' compensation rights for revocation or changes to their abstraction licences, unblocked the progress of the Restoring Sustainable Abstraction programme and meant that challenging targets could be committed to in the abstraction plan.

In 2013-14 the UK and Welsh governments also consulted on proposals for abstraction reform and a government response was published in 2016. This helped to formulate the abstraction reform plan in England.

On improvements to the environment, action is on track to deliver the ambition of moving 90% of surface water bodies and 77% of groundwater bodies to the required standards by 2021. Since 2014, 23 billion litres of water in total has been returned to the environment, and a further 217 billion litres has been recovered from unused or underused licences, helping to reduce the risk of further deterioration.

In 2018, projects started in four catchments to develop a stronger catchment focus and to maximise sustainable access to water. All four catchments are characterised by having unmet demand for additional water and have potential for water to be better shared amongst abstractors. The Environment Agency has established catchment groups (across a range of stakeholders) and they have discussed potential innovative solutions. The groups will now refine and prioritise the ideas that have emerged and the Environment Agency will have a key role to advise on technical and regulatory feasibility. The result of these trials will inform the updated abstraction licensing strategies during 2020. The Environment Agency will continue to identify additional catchments that can be progressed and engage with catchment partnerships and stakeholders. Longer term, government

would like to see implementation of the Catchment Based Approach for water resource management across England, alongside successful solutions to improve access to water where they are needed.

The prolonged dry weather in 2018 highlighted the importance of improving access to water for abstractors and business whilst continuing to protect the environment. During this period, the Environment Agency trialled a number of flexible licensing approaches. The Environment Agency will learn from the approaches taken during this time (such as rapid trading and abstracting at high flows) and look to build them into everyday water resource management where it is environmentally sustainable to do so.

The Environment Agency is modernising the abstraction licensing service by moving away from the outdated paper-based system to a digital one. There has been significant progress in setting up a digital platform for abstraction and impoundment licensing that includes functionality to view licences online (live since March 2018) and the ability to send 'hands off flow' (or hands off level) notifications² faster and more easily than before. The Environment Agency has also trialled linking the service to gauging stations, allowing abstractors to see real-time flow and level information, thus enabling more timely decisions about their abstraction. During the prolonged dry weather in the summer of 2018, the Environment Agency was instrumental in providing information on where trades could happen. The Environment Agency also worked with farmers and other water users who abstract water to seek to ensure they could access the water they needed whilst sustaining environmental needs. This was a great success in East Anglia and will be developed for other areas of England.

As part of modernising the service, abstraction and impoundment regulations are being moved into the environmental permitting regulations (EPR) to provide a more modern and consistent legal framework for the day-to-day management of abstraction. The Environment Agency are drawing on experience from those regimes that have previously transitioned to inform the timetable and process for the move. The Environment Agency has a cross-sector external advisory group in place to discuss and test proposed technical approaches on a regular basis, and is meeting with sectors to discuss and factor in specific concerns and to ensure that the move to EPR will work for abstractors.

On previously exempt abstractions, the new authorisations regulations came into force on 1 January 2018 meaning a number of previously exempt activities now require an abstraction licence. The Environment Agency are receiving applications and the application window will close on 31 December 2019, after which they will have three years to determine the applications and issue licences. The Environment Agency are working with the previously exempt abstractors so that they apply within the two-year application window and qualify for the light touch transitional process; this includes the Environment Agency's own applications for flood defence activities that were previously exempt and now require a licence.

² Hands off flows conditions in abstraction licences require abstraction to reduce or cease when river flows and/or levels fall below a pre-determined threshold set out in the licence.

In addition to the progress made to deliver the abstraction plan, in August 2018 Defra, the Environment Agency, the Drinking Water Inspectorate and Ofwat set the expectation that water companies should take a genuinely regional approach to producing plans that transcend company boundaries and include the water needs of other sectors. In combination with the increased focus on catchment solutions signalled in the abstraction plan, these regional plans will allow greater sharing of water supplies, resilience to climate change and growth, and better protection of the environment.

Background

The impacts of abstracting water directly from rivers or aquifers can be wide-ranging. It can affect the environment, including important nature conservation sites, and public access to rivers for leisure purposes. Water is vital to the economy and access to clean, safe and secure water supplies is fundamental to society.

We already face challenges in water availability. Our indicators suggest that as many as one-in-five of our surface waters are over abstracted. Many catchments have no spare water that can be allocated for further abstraction due to a need to protect the environment. Managing our available water resources is likely to become more of a challenge in the future with an increasingly varied climate and increased demand for water from a growing population. The recent climate change projections predict that by 2070 summer temperatures could be up to 5.4°C hotter and summer rainfall could decrease by up to 47%.³ This means a significant likelihood of more frequent and severe droughts. The projections also suggest that rainfall will increase in the winter.

It is therefore vital that we take a long term approach to managing our water resources. We must create a system that can withstand the impacts of a changing climate as well as population growth, and makes the best use of water when it comes.

The system for managing abstraction of water from rivers and aquifers was introduced in the 1960s. Most abstractors were given a licence to take a fixed volume of water, regardless of availability. This has resulted in three main problems:

- older licences allowing for abstraction that can damage the environment;
- an inflexible approach not able to cope with the pressures of increasing demand for water and climate change in the long term, or to allow abstractors access to additional water when it is available; and
- an outdated and paper-based service.

Government committed to reform the water abstraction management system in England in 2011 in the Natural Environment White Paper⁴, and set out the proposed direction, principles and process for reform in the Water White Paper, *Water for Life*⁵.

The Water Act 2014 was passed with measures that would enable the government to implement the proposals of the *Water for Life* White Paper. This included removing the right to compensation for water companies where abstraction licences are revoked or changed through the Restoring Sustainable Abstraction programme. This programme had been in place since 2008, but progress had been slow. The passing of the Act has meant

³<https://www.metoffice.gov.uk/research/collaboration/ukcp>

⁴<https://www.gov.uk/government/publications/the-natural-choice-securing-the-value-of-nature>

⁵<https://www.gov.uk/government/publications/water-for-life>

that ambitious targets for completing the programme could be included in the abstraction plan.

Alongside the drafting of the Water Act 2014, the UK and Welsh governments published a joint consultation in December 2013⁶ to seek views on a range of proposals for reforming the abstraction management system. A government response to the consultation was published in 2016, which included a range of approaches to address abstraction issues designed to reveal the value of water and to help businesses respond better to short term low flows as well as enable a focus on long term investment and growth. The reforms were designed to ensure all abstractors can access the water they need for their businesses and that there is enough water left in our rivers and groundwater to maintain habitats and water quality.

In December 2017 the abstraction plan was published explaining how these approaches would be implemented over the coming years. The abstraction plan has three main elements. It aims to:

- make full use of existing regulatory powers and approaches to address unsustainable abstraction and move around 90% of surface water bodies and 77% of groundwater bodies to the required standards by 2021;
- develop a stronger catchment focus – bringing together the Environment Agency, abstractors and catchment groups to develop local solutions to existing pressures and to prepare for the future. These local solutions will:
 - protect the environment by changing licences to better reflect water availability in catchments and reduce the impact of abstraction;
 - improve access to water by introducing more flexible conditions that support water storage, water trading and efficient use;
- support these reforms by modernising the abstraction service, making sure all significant abstraction is regulated and bringing regulations in line with other environmental permitting regimes.

In January 2019 we also launched a consultation⁷ to seek views on additional powers that could help the Environment Agency to protect the environment from unsustainable abstraction and improve access to water. These powers would increase the circumstances in which the Environment Agency can vary or revoke a licence without paying compensation. These circumstances would include where abstraction is causing environmental damage and where licences are underused.

⁶<https://www.gov.uk/government/consultations/reforming-the-water-abstraction-management-system-making-the-most-of-every-drop>

⁷ <https://www.gov.uk/government/consultations/improving-our-management-of-water-in-the-environment>

The 25 Year Environment Plan

In January 2018 the government published its 25 year environment plan, *A Green Future*,⁸ which set out how we plan to improve the environment over the next 25 years, leaving it in a better state than we inherited it. One of the key drivers of the plan is 'clean and plentiful water'. The 25 year environment plan reiterates the importance of the abstraction plan in achieving overall environmental targets.

A large proportion of the water that is abstracted is for public drinking supplies. Water companies therefore have a responsibility to create plans that help to maintain sustainable supplies of water for future generations. The 25 year environment plan recognises that will require a 'twin track' approach of both reducing demand and increasing supply. This involves reducing leakage and usage, and delivering new water resources infrastructure – including transfers and reservoirs.

Since 1994 water leakage has fallen by a third. However, it remains at around 22% of supply and progress has slowed in recent years. To tackle this Ofwat, the economic regulator, supported by government in our strategic policy statement⁹ and the 25 year environment plan, set expectations for companies to reduce leakage by 15% by 2025. The water industry has also committed to reducing leakage by 50% by 2050 at the latest. This would reduce overall leakage to 10% of supply. The government endorses this ambition.

To support the 25 year environment plan commitment to reduce personal water consumption we are working with the water industry to determine appropriate targets for personal water consumption and the measures needed to achieve them.

To support the delivery of nationally significant water resources infrastructure, the government is developing a national policy statement for water resources infrastructure (NPS). This will facilitate and streamline the planning process for the development of large water resources infrastructure, to enable a timely delivery to meet water supply needs. The draft NPS was consulted on between November 2018 and January 2019¹⁰. A final version of the statement is expected to be laid later in 2019.

River Basin Management Plans

River Basin Management Plans are created by the Environment Agency and set out how organisations, stakeholders and communities will work together to improve the water environment in each river basin district. They are a core component of the EU Water Framework Directive (WFD). The planning involves setting environmental objectives for all groundwater and surface waters (including estuaries and coastal waters) within the river basin district, and devising programmes of measures to meet those objectives. First

⁸ <https://www.gov.uk/government/publications/25-year-environment-plan>

⁹ <https://www.gov.uk/government/consultations/water-industry-strategic-policy-statement-to-ofwat-2017>

¹⁰ <https://consult.defra.gov.uk/water/draft-national-policy-statement/>

published in 2009, the plans are reviewed and updated every six years. The 2015 plans (cycle 2) include measures to address unsustainable abstraction.

The next update in 2021 will align with and build on the government's 25 year environment plan. The plans are the main vehicle government will use to achieve the water quality ambitions in our 25 Year Environment Plan to return at least three quarters of our waters to be close to their natural state as soon as possible. They will include commitments from the abstraction plan such as strengthening our catchment focus to improve access to water and catchment sustainability. These plans should enable sectors and local communities to find more cost-effective ways to take action to further improve our water environment.

Water company responsibilities

In 1999, water companies in England and Wales started to develop Water Resources Management Plans on a non-statutory basis. The purpose of these plans was to ensure that companies plan fully how to maintain secure water supplies for customers for a 25 year period.

Amendments to the Water Industry Act 1991 in 2003 made these plans a statutory requirement for companies to complete every five years, to cover at least a 25 year period. The plans have since developed and companies now also consider the implications of climate change, the environment and population growth.

These plans require companies to identify all the options that are available to them to meet water demand sustainably over the long term and show how they have decided which options to pursue. This planning framework has helped water companies understand future needs and maintain the balance of supply and demand. In the latest draft plans that are to be finalised this year we are seeing a vastly improved understanding and improvements in the resilience of water supplies to drought.

To help protect the environment, water companies are required to have regard to the delivery of the environmental objectives set out in River Basin Management Plans. The Environment Agency also specifies what measures are required through the Water Industry National Environment Programme (WINEP). These measures may be investigations, options appraisals or schemes to improve and protect the water environment and meet statutory obligations. It is supported by WISER (Water Industry Strategic Environmental Requirements), which is the Environment Agency's strategic steer to water companies on the environment, resilience and flood risk for business planning purposes.

The abstraction plan set out the government's expectations that water companies engage in catchments. Their WINEP investigations provide an opportunity for the companies to engage with catchment partners to find innovative solutions to the challenges they face.

The government, regulators and water companies have learnt a lot from the Water Resources Management Plan process since 1999, including ways in which it could be improved to make companies' plans more resilient and offer added benefit for the environment.

Greater coordination of water resource planning is required to meet the challenges we face from climate change, population growth, societal expectations and increasing environmental aspirations. The next round of Water Resource Management Plans will need to demonstrate a high level of ambition for the environment.

In August 2018 Defra, the Environment Agency, the Drinking Water Inspectorate and Ofwat sent a joint letter¹¹ to water companies to set out the expectation that water companies should take a genuinely regional, cross-sector approach to producing plans that transcend company boundaries and identify optimum solutions for the region as a whole. This planning should then inform individual water company plans.

Regional groups now exist across the country. The letter explained how government and regulators expect these groups to:

- produce regional plans that feed directly into individual water company plans and explore inter regional transfers as part of the planning process;
- engage with other water users to develop cross-sector solutions; and
- work with regional groups such as the Northern Powerhouse and Local Economic Partnerships (LEPs) to understand regional economic and population forecasts.

Following the letter, all of the organisations met with each regional group to provide more detail on their priorities. One of these priorities was that regional groups should '*be inclusive and bring together water companies, industry and farming to solve local problems from a regional position*'. Water Resources East has demonstrated innovation in this area by taking a cross-sector approach and is making important links with the initial priority catchments identified in the abstraction plan (see page 31).

This approach will be guided by the national framework, currently being developed by the Environment Agency. The national framework will articulate strategic water needs, nationally and regionally, up to 2050. In doing this it will consider the impact of changes to abstraction licences to protect the environment, population and climate change. This understanding will be used to set expectations of the contributions needed from each regional group to meet this national need. These expectations will include:

- indicative needs for strategic solutions such as water transfers and new sources of supply nationally and regionally to improve resilience to drought; and
- strategic direction on leakage and water demand.

The 2019 consultation also sought views on legislative proposals to strengthen collaboration in the water resources management planning process by allowing the

¹¹ <https://www.ofwat.gov.uk/publication/building-resilient-water-supplies-joint-letter-defra-environment-agency-drinking-water-inspectorate-ofwat-water-companies/>

Secretary of State a power to direct water companies to prepare joint plans at a regional or possibly larger scale. The power could also be used to require water companies to take the regional plans into account when drafting and delivering company level water resources management plans.

Dry weather in 2018

In 2018 England experienced the warmest summer on record; with temperatures reaching 35.3°C on 26 July 2019 in Kent. From the end of April 2018 there was a change from normal conditions to much drier and hotter conditions, with six months of below average rainfall across England. In many central and north-eastern catchments it was the driest May to October period since 1996, while in parts of Dorset and Somerset it was the driest since 1921.

The dry weather highlighted the importance of improving access to water for abstractors and business whilst continuing to protect the environment. The Environment Agency has trialled a number of flexible licensing approaches, some of which were approved for emergency situations. The Environment Agency can learn from requests that were approved and work to develop approaches to rapid trading and other innovative ideas that may come from catchment groups; this report goes into further detail about how they are doing this.

Impacts and solutions

Key environmental impacts related to a combination of low flows and high water temperatures led to many environmental incidents including fish kills and blue green algal blooms. Dry weather affected abstractors, particularly the agricultural sector, with concerns about water supplies needed for irrigation, potentially lower yields and drinking water for livestock.

Due to the dry weather and the need to protect the environment, restrictive conditions came in early in the summer which meant that abstractors were unable to take licensed water; this particularly affected farmers but also impacted other sectors. In response to this the Environment Agency produced a position statement on flexible abstraction. This included:

- enabling more frequent review of conditions that restrict abstraction to protect the environment, to allow abstractors to take advantage of any peak flows when significant rainfall occurred; and
- fast tracking water rights trades to access additional water (including a water rights trading digital platform for East Anglia – see ‘Digital service’ section below).

The Environment Agency’s position was underpinned by relaxing licensing administration but not environmental standards. Around 150 flexible abstraction requests were received, of which around two thirds were approved; this allowed abstractors access to water whilst

continuing to protect the environment (Figure 1). The flexible arrangements ranged from short term trading through to aggregating sources (such as boreholes) and abstracting from locations not currently contained in licences. Water companies assisted by managing their abstractions where possible to help farmers take water downstream, including in the fens. Water companies also offered the potential of effluent water re-use options, however due to potential quality issues this was not pursued at that time.

Compliance

The Environment Agency undertakes compliance inspections throughout the year to check that abstraction and impoundment licence holders are adhering to the conditions included in their licences. Undertaking compliance work ensures that the water environment is protected and lawful abstractors are not being undermined by water theft.

Completing these inspections takes on added importance during periods of dry weather, as the warm and dry weather puts pressure on the water environment, and the number of visits during such times will increase. Between April to October 2018, in those areas impacted by the dry weather, the Environment Agency refocused compliance checks to abstraction licences posing higher risk to the environment.



Figure 1 – Distribution of flexible licensing applications received and approved in 2018

Dry weather case study – flexible licensing approach

Tim Jolly is a Farmer based in Thetford, Norfolk, who benefitted from the Environment Agency's flexible licensing approach in summer 2018. He has a set of abstraction licences that enable him to take water from boreholes to irrigate crops. These boreholes are sourced from groundwater that also supports the flow of the river Thet in the Cam and Ely Ouse catchment. Tim worked with his local neighbours to discuss water availability and determine where there was 'spare water' (licensed water that was not required by the current licence holder).

'Having matched ourselves up with a willing seller, we agreed trading terms with them, and then contacted our local area Environment Agency office at Brampton to pitch our proposal. We phoned them and followed up with an email that included information about our abstraction licences so the Environment Agency could be sure we are all linked in the same hydrological unit. From beginning to end, the process was completed in five days with no paperwork, which is a fantastic achievement. I'm grateful to the Environment Agency team at Brampton for their help in making this happen.' **Tim Jolly, Thetford farmer.**



Photo by Brian Finnerty, NFU

Environment

Make full use of existing regulatory powers and approaches to address unsustainable abstraction and move around 90% of surface water bodies and 77% of groundwater bodies to the required standards by 2021 (Water Abstraction Plan 2017)

Defra published a summary of the responses received to its consultation on abstraction reform in July 2014. One of the main aims of reform was to protect water ecosystems in line with legal requirements, particularly ensuring that reform does not create risks of environmental deterioration.

Since 2014 the Environment Agency has used the range of the regulatory powers available to address unsustainable abstraction as an essential part of ensuring we are ready to meet the challenges of climate change and population growth whilst protecting water ecosystems and reducing the risks of environmental deterioration.

In the abstraction plan we said:

We want to end damaging abstraction of water from rivers and groundwater wherever it is cost beneficial to do so. By 2021 we expect existing approaches to increase the proportion of water bodies supporting local ecology.

Surface water

Latest data indicates that about 84% of surface water bodies now support the required flow standards (compared to 82% reported in the abstraction plan 2017), which equates to a change in about 110 water bodies. Changes include both outcomes of actions taken and revision of some previous assessments based on better information. When the water body classification is published in 2022 it is expected that there will be ecological improvement in some water bodies as a result of the action already taken in recent years to restore sustainable abstraction. This is not evident yet because the environment usually takes a number of years to respond to the improvement in flow and rebuild the ecosystem.

The abstraction plan also identified 10% of surface water bodies as 'potentially unsustainably abstracted' and stated that the Environment Agency would be collecting further information to confirm the position of these water bodies; an interim assessment in February 2019 indicates this has reduced to about 7%. The percentage of water bodies confirmed as unsustainably abstracted is about 9% (about 380 surface water bodies).

Table 2 below summarises the proportion of surface water bodies sustainably abstracted.

	Unsustainably abstracted	Potentially unsustainably abstracted	Sustainably abstracted
Abstraction plan data (2016)	8	10	82
Latest data (Feb 2019)	9	7	84
2021 target	6	4	90

Table 2 – Proportion on water bodies (as a percentage of the total) sustainably abstracted

The Environment Agency has an ambitious programme to implement measures to get water bodies to support good ecological status or potential by 2021. This is summarised in Table 3 below.

Water body type	Number of surface water bodies planned to be improved (2016 assessment)	Number of these water bodies with improvement measures	Number of these water bodies re-assessed as no longer requiring improvement	Remainder – water bodies without improvement measure planned ¹²
Surface water bodies heavily modified for water resources	44	34	4	6
Other surface water bodies	57	30	3	24
Total surface water bodies	101	65	7	30

Table 3 – Water resources improvement measures planned to support good ecological status or ecological potential by 2021

The Environment Agency has started to scope new work, in collaboration with abstractors and environmental groups, to improve its understanding of the environmental impacts of abstraction at a local scale to improve the tools used to manage flows and inform

¹² Note on remainder (column 4): Water body objectives were set in 2015, based on the information available at the time on planned actions and anticipated improvement by 2021. Since then, some actions have been found not to be cost-beneficial or feasible to implement before 2021, which means the water resources objectives for these water bodies are unlikely to be attained by 2021.

acceptable levels of abstraction. This will become increasingly important as the margin between water availability and acceptable levels of abstraction becomes tighter with climate change and growth.

Groundwater

The Environment Agency has reduced abstractions around damaged groundwater fed wetlands and is confident that given sufficient time for ecological recovery, these wetlands will be returning to favourable status. It has improved understanding of groundwater sustainability that has resulted in time limited abstraction licences being capped or modified at renewal. The Environment Agency continues to invest in its groundwater modelling programme that delivers integrated catchment management of river flows and groundwater levels.

To manage the risk of unsustainable abstraction the Environment Agency has adopted a balanced approach that focuses on achieving improvement measures to river flow and wetlands while maintaining a position of no deterioration in groundwater bodies. After improving river flow and wetlands, any additional changes to abstraction licences will be delivered to improve groundwater bodies. Table 4 below shows the remaining programme for groundwater bodies.

	Groundwater bodies currently sustainable		Groundwater bodies programmed to be sustainable by 2021		Groundwater Bodies that will remain unsustainable	
Groundwater Bodies (272 in total)	193	72%	210	77%	40	15%

Table 4 – Remaining programme for groundwater bodies

Action to address unsustainable abstraction and reduce the risk of deterioration

Since 2014 the Environment Agency has been addressing unsustainable abstraction and deterioration risk using the powers available to it through the following work programmes:

- **Restoring Sustainable Abstraction programme (RSA):** where damaging licences are changed either through voluntary agreement with licence holders or using compulsory legal powers under section 52 of the Water Resources Act 1991 by the Environment Agency.

- **Unused licences programme:** where licences that have not been used either at all, or to their full capacity in the previous 10 years, are revoked or reduced. The majority of changes are made voluntarily, but where there is risk of environmental damage in a catchment, the Environment Agency can propose the revocation of unused licences using existing legal powers under section 52 of the Water Resources Act 1991.
- **Programme of renewing time limited licences:** where licences are issued with new conditions or reduced quantities on renewal.
- **Asset Management Plans and the Water Industry National Environment Programme:** where water companies implement sustainability changes and environmental improvements through their Asset Management Plans (AMP) and the Water Resources Management Planning Process (WRMP).

The following section looks at each of these programmes in turn.

Restoring Sustainable Abstraction (RSA)

Through the RSA programme, launched in 2008, the Environment Agency has been investigating and changing permanent abstraction licences that have caused environmental damage, reduced biodiversity and reduced ecosystem resilience. So far 282 of these licences have been amended or revoked to make them sustainable. This represents over two thirds of the original programme where unsustainable abstraction was identified. These licence changes have returned 40 billion litres of water to the environment in total (23 billion litres since 2014). 71 of these licence changes were to protect England's iconic chalk streams from over abstraction, returning over 16 billion litres of water to the environment and preventing a further 8 billion litres being abstracted. Chalk streams are a very rare habitat globally and are home to some of our most threatened plants and animals. 81 of these licence changes were also on salmon related rivers, safeguarding sufficient flows and specifically contributing to the Salmon Five Point Approach¹³ developed by the Environment Agency and partners.

Section 58 of the Water Act 2014 enables water companies to fund solutions to unsustainable abstraction through the Asset Management Plan process. Since January 2014, 99 licence changes were made to water company licences, returning 15 billion litres of water to the environment.

The Environment Agency plans to complete the RSA programme by the end of March 2020 and are on track to complete this.

¹³ [PDF - Salmon Five Point Approach - Angling Trust](#)

Case study - Haweswater and Thirlmere, Cumbria

At Haweswater and Thirlmere, now licensed as two separate reservoirs, our changes under the Restoring Sustainable Abstraction programme has meant water has returned to some of the dry streams and flow has been increased in others supporting fish migration. Sediment management agreements are in place to ensure appropriate quantities of material continue downstream past the water reservoir intakes to maintain the habitats vital for fish and other wildlife. There is now evidence of improvements to insect life, brown trout and salmon populations.



Photo: Impacted stream Heltondale Beck before and after licence changes

Unused licences

The abstraction plan committed the Environment Agency to revoking approximately 600 unused licences by the end of 2018. Following the publication of the plan the Environment Agency wrote to approximately 4,500 abstractors requesting they volunteer to surrender their licence or agree to reduce the quantities on their licences that they no longer use to their full capacity. This action will prevent increased abstraction from these licences creating new environmental pressures and potential risk of deterioration or free up water for other water users where it is safe to be re-licensed in future. Over 650 abstraction licences have now been revoked, lapsed or had licensed quantities reduced, exceeding the target in the abstraction plan and removing the risk of abstracting approximately 165 billion litres of water each year. The Environment Agency will continue to engage with licence holders to identify unused and under used licences with the aim of improving access to water and environmental protection further reducing the risk of deterioration.

Reviewing time limited licences

In the Abstraction Plan (2017), the Environment Agency said it would review the 2,300 time limited licences due to end between 2017 and 2021; changing them as necessary to make sure they do not allow environmental damage now or in the future. Since 2017, the Environment Agency has reviewed 1,077 time limited licences, changing 302 and recovering approximately 29 billion litres of water per year. On average, around 10-20% of licence holders do not apply for replacement licences when their existing licence ends. This allows the Environment Agency to reallocate the water to other abstractors or the environment.

The Water Act 2003 requires the Environment Agency to apply time limits to new licences. The Environment Agency also applies time limits to significant licence variations. This means a licence could be part permanent and part time limited. Around 5,000 out of the 17,500 licences currently in force are either partly or wholly time limited. Time limited licences end on a specific date. As a result, an abstractor must apply to replace all or the varied part of their licence to continue abstracting after the end date. The application process gives the Environment Agency the opportunity to review the abstraction to make sure it continues to be environmentally sustainable, abstractors have a need for the water and will use water efficiently. Time limited licences within a catchment usually end at the same time, allowing the Environment Agency to consider them together and equally from across the different sectors.

Water company action

Successive water company improvement programmes since privatisation of the industry have resulted in substantial benefits to the water environment.

In 2014 the National Environment Programme – now referred to as the Water Industry National Environment Programme (WINEP) – included improvement schemes and investigations that needed to be undertaken through the water company's Asset Management Plan 6 (AMP6) for 2015-2020. For the 2019 Price Review process, the WINEP sets out the water industry's environmental obligations for Asset Management Plan 7 for 2020-2025 (AMP7). The investigations carried out in AMP 6 have informed the improvement actions planned for AMP 7. As many of the current impacts of abstraction have been or are being investigated, there is a focus on assessing the potential for planned growth in abstraction to cause deterioration in the status of water bodies.

The tables below show the number of actions the water companies will be undertaking to address unsustainable abstraction in AMP 6 and AMP 7.

Total programme for AMP 6	
Sustainability reductions	159
Non-licence improvements	124
Investigations for improvements	246
Investigations for deterioration	10

Table 5 – Total programme for AMP 6 (2015 – 2020)

Total programme for AMP 7	
Sustainability reductions	473
Non-licence improvements	41
Investigations for improvements	153
Investigations for deterioration	664

Table 6 – Total programme for AMP 7 (2020 – 2025)

In collaboration with the water companies, environmental NGOs, and the Environment Agency, Ofwat introduced the abstraction incentive mechanism (AIM) in 2016¹⁴. The AIM is designed to encourage water companies to reduce water abstraction at environmentally sensitive sites during defined periods of low surface water flows, without needing to change water company abstraction licences. This helps to protect the environment and improve the resilience of water supply, ensuring that it is provided in a more sustainable way.

Originally the AIM was a reputational incentive seeking to harness a water company's aspiration to enhance its reputation by demonstrating that it is changing its operating practices in a way that benefits the water environment. For the 2019 Price Review¹⁵ Ofwat strengthened this mechanism by expecting the performance commitment to be adopted by all companies with financial incentives applying depending on outturn performance. Companies report on their AIM performance in their annual performance reports.

¹⁴ https://www.ofwat.gov.uk/wp-content/uploads/2016/02/gud_pro20160226aim.pdf

¹⁵ <https://webarchive.nationalarchives.gov.uk/20180601161155/https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Appendix-2-Outcomes-FM-final.pdf>

Case study – Affinity Water and AIM

Affinity Water started using AIM in 2016. It has the largest number of AIM sites of all the water companies at 23. In its annual report for 2017/18, Affinity Water showed that it had exceeded its target for sustainable abstraction reduction in the year and had abstracted 3,050 million litres less from the environment than previous years.

Affinity Water said: *‘We have been an industry leader in AIM since its inception in April 2016.*

‘Across our Central and South East regions, we put forward 23 potentially environmentally sensitive sources for inclusion in the mechanism, equivalent to almost 13 per cent of our resource base at the time.

‘Sites that were scheduled for sustainability reductions were to be included, up to the point of the sustainability reduction. In this way, AIM has the potential to make significant contributions to the natural environment, over and above our already challenging sustainability reduction programme.

‘As of March 2019, abstraction in six catchments has been reduced as part of planned sustainability reductions. The number of AIM sources assessed in 2017-2018 was 19.

‘We work closely with the Environment Agency and our operational teams to ensure that data is shared regularly and where we can, we reduce abstraction to be less than it was historically. This forms part of our shared commitment to improve the status of our globally important Chalk streams.’ **Daniel Yarker, Senior Asset Scientist, Affinity Water**

Next steps

The Environment Agency plans to complete its Restoring Sustainable Abstraction programme by the end of March 2020 changing an additional 120 abstraction licences returning water to the environment and removing the risk of that abstraction damaging the environment. In addition it plans to contact an additional 600 licence holders who are not currently using their abstraction licences and revoke or reduce the licence quantities. They will continue reviewing time limited licences in line with existing policy and secure improvements through the AMP 7 programme. And they will ensure that the stronger catchment focus is adopted in securing solutions where there is unsustainable abstraction through trialling approaches in priority catchments (see catchments section).

The Environment Agency has investigated groundwater responses under climate change predictions to understand variance in recharge¹⁶ and the adaptation needed to manage groundwater abstractions. They are also developing tools to include groundwater within Natural Capital accounting to identify catchment improvement options.

Longer term, the Environment Agency will ensure that the future water needs of the environment inform the national framework. This understanding will be used to set expectations of the contributions needed from regional groups to adapt to action likely to be needed to continue to protect the environment. The Environment Agency will explore a range of longer term environmental scenarios and produce outputs on the likely impacts of each. This will support regional groups as they develop long-term strategic plans to improve the resilience of their supplies and environmental protection. Alongside this, the Environment Agency will continue to improve its understanding of acceptable levels of abstraction.

¹⁶ Recharge is a hydrologic process, where water moves downward from surface water to groundwater. Recharge is the primary method through which water enters an aquifer.

Catchments

Bring together the Environment Agency, abstractors and catchment groups to develop local solutions to current and future pressures. Test approaches and publish the results in 10 catchments by 2021, rolling out to all catchments as required by 2027. (The Water Abstraction Plan, 2017)

Catchment based approach

The Catchment Based Approach (CaBA) was launched by Defra in England in 2013 and promotes collaborative working at a catchment scale to realise environmental, social and economic benefits. In 2017 Environment Agency catchment coordinators and water resources specialists completed questionnaires to indicate how successful the Catchment Based Approach was for water resources. In about half of catchments covered, the approach was described as moderately effective for water resources; in less than 10% of catchments it was described as really effective. The main issue was gaining abstractor involvement in order to realise catchment-wide benefits. Therefore, government set out the ambition in the water abstraction plan to push the development of catchment groups to focus on abstraction pressures and test the approach in a series of priority catchments.

The Environment Agency co-chair the CaBA water resources and abstraction working group alongside the Rivers Trust. This group is encouraging local Rivers Trusts and catchment partnerships and abstractor groups to drive an integrated approach to the planning and delivery of catchment measures to improve the quality and resilience of the water environment, with many measures providing direct water resources benefits.

Examples of this include locally focused water efficiency campaigns and messaging; natural flood management; and sustainable drainage schemes that slow the flow and increase water infiltration – providing a natural buffer. In addition, widespread river restoration and water quality improvement projects increase the resilience of rivers and ecology to periods of low flow.

Priority catchments

In 2018 the Environment Agency selected four catchments to begin work in to encourage this collaborative approach to water management:

- East Suffolk in East Anglia Area
- Cam & Ely Ouse in East Anglia Area
- South Forty Foot in Lincolnshire and Northamptonshire Area
- Idle & Torne in the East Midlands Area

In all four catchments abstractors and stakeholders have highlighted that there is unmet demand for water and are keen to work together to test the potential for water to be better shared amongst abstractors. They are all located in the east of England, where rivers and groundwater bodies are heavily abstracted and drain to low lying areas, actively managed by Internal Drainage Boards (IDBs). Further priority catchments are currently being planned for 2019 (see map in Appendix 1 and detailed later in this section). The target is to update 10 abstraction licensing strategies by 2021 and all remaining strategies by 2027 to capture agreed solutions.

The Environment Agency is encouraging stakeholders in these catchments to work collaboratively to develop and trial new solutions to improve access to water and address sustainability issues using approaches such as rapid trading, enabling high flow abstraction and making flow information available online for abstractors. The Environment Agency is also encouraging the groups to develop other innovative ideas to improve access to water in a sustainable way.

Progress in the priority catchments

The prolonged dry weather over the spring and summer in 2018 highlighted how important water resources are, particularly in the east of the country and provided an excellent opportunity to trial a more flexible approach to abstraction, particularly licence trading. The first four catchments now have an Environment Agency project co-ordinator in place and stakeholder catchment groups that are made up of a wide range of abstractors and stakeholders such as farmers, water companies, internal drainage boards, rivers trusts, environmental groups, local authorities and umbrella organisations such as the National Farmers Union. The Environment Agency has made significant progress on engagement and is moving towards co-development of solutions. Developing a shared vision for each catchment and building relationships between stakeholders is now underway but establishing successful catchment groups will take time.

- In East Suffolk, there is a well-established group of abstractors working successfully with other stakeholders in the Deben catchment and planning for a trial is well-underway (see case-study below). These stakeholders were brought together with others from the wider **East Suffolk** and also **the Cam and Ely Ouse catchment** at a recent workshop as these two catchments are adjacent and share many stakeholders. The workshop focussed on identifying challenges and opportunities around access to water.
- The South Lincs Water Partnership are a well-established stakeholder group in the **South Forty Foot catchment**. In this catchment, the focus has been to broaden out stakeholder engagement with a series of small workshops focussing initially on those who manage the land (the agriculture sector), then looking at environmental needs, water availability and to bring this all together to formulate an approach to trials in the catchment.
- The **Idle and Torne** had an existing abstractor group which was led by Severn Trent Water and was originally set up to focus on water resource management

plans only. A new, broader catchment group has been formed to supersede this and an initial workshop focussed on bringing all stakeholders together to look at challenges and opportunities.

The Environment Agency has held stakeholder workshops (Figure 2) with the catchment groups. The workshops were extremely productive with attendees offering a range of ideas for improving access to water sustainably; the majority of which broadly fit under the approaches presented in the abstraction plan. Ideas span a large range of potential benefits from greater access to groundwater, through to artificial recharge schemes, and improved sharing of surface water resources by better communication amongst abstraction sectors. Other innovative ideas related to different sectors, educational interventions and suggestions on changing the regulation and charging for abstraction. The Environment Agency is working with the groups to refine the ideas and agree what moves to trials.



Figure 2 – South Forty Foot workshop ‘Ask the people who farm the land’.

The Environment Agency adopted a flexible approach to licensing during the prolonged dry weather in 2018. Of the 150 flexible licence requests received in England, 33% were from abstractors in the four priority catchments which reflects how critical water resources are in these catchments and the need for increased flexibility. The Environment Agency

approved over half of these requests in the four catchments, predominantly to support farmers to respond quickly to the developing situation.

The Environment Agency also prioritised enabling abstractors' access to near real-time river flow information in the four priority catchments and have plans to expand this further. In response to farmers' requests for support with identifying possible partners to trade with, the Environment Agency developed an online trading platform for East Anglia and they are working to develop this at a national scale (see the Digital Service section).

The Environment Agency are also partnering a separate Interreg (Fresh4Cs¹⁷) funded project in the East Suffolk catchment, which is looking to trial Aquifer Storage and Recharge approaches to improve access to water for abstractors.

An additional Interreg project, the Prowater Project¹⁸ was launched in September 2018. This four year project will see regional groups of partners across three countries learning from each other's unique geo-political situations, to tackle common water resource issues. The Rivers Trust will deliver the project on behalf of the Southern England partnership which includes the Environment Agency, Natural England, other non-governmental organisations, local councils and water companies.

¹⁷ <https://www.interreg2seas.eu/en/alternative-fresh-water-resources-saline-coastal-areas>

¹⁸ <https://www.interreg2seas.eu/en/PROWATER>

Case study – Felixstowe Peninsula Project, East Suffolk

For the past five years, Suffolk County Council have chaired a catchment group looking to maximise benefits of water management in the River Deben, which is part of the East Suffolk Priority Catchment. Abstractors have worked together and with other stakeholders, including the Environment Agency, Natural England, Water Company and Internal Drainage Board (IDB), to design the Felixstowe Peninsula Scheme, a multi-benefit project.

Water that would have been pumped out to sea by the IDB will be re-abstracted and piped back upstream to a number of abstractors with storage reservoirs. There is also going to be an offtake that the local water company can use to make use of surplus water. The IDB will be the abstraction licence holder and any money generated will be put back into managing the catchment and maintaining sea walls that protect the agricultural land. In addition, the discharge point where the IDB currently pump water out to sea is currently damaging designated salt marsh habitat (see photo below), and the scheme will see the discharge point moved. This will enhance and protect the environment and restore salt marsh. The licence was issued by the Environment Agency in February 2019 and the project can now be taken forward by the catchment group.



Kings Fleet sluice, the current discharge point to the salt marsh. The Felixstowe Peninsula project will now pipe water back to be used by farmers.

Catchment Sensitive Farming

Catchment Sensitive Farming (CSF) is a successful partnership between Natural England, Defra and the Environment Agency; working together with farmers and organisations in catchments across England to improve the quality of our water and air.

This partnership provides free expert advice, training for farmers and grant support to enable farmers to take voluntary action to improve the environment and their farm business.

In recognition of the links between water quality and quantity, work is now underway to pilot provision of integrated advice on water resources and quality in targeted catchments. Many of the measures currently recommended to address water quality also help protect water resources. In addition, over abstraction exacerbates the impact of pollution so CSF can have greater impact by adopting an integrated approach. Examples of core CSF measures that also support water resource management include: rainwater harvesting, water storage, good soil management, water storage and farm scale water management planning.

This approach is being pioneered in the Kent Stour with South East Water using a combination of the CSF advice, new products and innovation. These will help farmers review their business needs for water, its use and management and suitable crops to accommodate future climate scenarios. A comprehensive package is needed to help farmers develop a sustainable and proportionate approach to water use both individually and across catchments to protect and conserve our water supplies, businesses and the environment. CSF is working to develop this.

Water company action

As set out in the abstraction plan, the government expects water companies to engage in catchments to develop local catchment solutions for abstractors' water needs. This provides an opportunity for the companies to engage as catchment partners to find innovative solutions to the challenges they face, helping find the most efficient solutions as well as benefiting other local groups. Engagement in catchment partnerships will also help water companies understand the potential resource needs of others alongside their own, which could lead to the development of more efficient multi-sector solutions to improve access to water. The water companies can bring particular value because their water supply networks allow cross-catchment solutions not generally available to other abstractors.

Working with all water users increases the opportunities to find better ways to increase supply, reduce demand and address environmental issues. This is especially important where a lack of water availability in an area is causing environmental damage and limiting business growth.

Water companies also need to engage with those planning industrial growth in their regions, such as Local Economic Partnerships. This should enable a two-way conversation: water companies enabling industrial growth by developing joint water supply solutions and planners avoiding water-intensive industrial growth where water cannot be made available.

Working together enables all water users to contribute to solutions to address water needs, and the solutions themselves should be more efficient. We are already seeing how this can work. Water Resources East is taking an innovative cross-sector approach and making important links to improved water abstraction management.

Case study - Partnership working with Water Resources East

Water Resources East (WRE) are pioneering a multi sector approach to water resources planning in the east of the country and the Environment Agency is partnering with them on a number of projects that use the Catchment Based Approach to understand and plan for all water resources needs.

A Value of Water project bid (EU Interreg) is currently being prepared for submission in April 2019. The project aims to work with stakeholders and abstractors in a catchment, understand water needs (including for the environment) and simulate how to allocate water where and when it is needed. The project then seeks to deploy instrumentation to collect data that feeds into a web based catchment management system. The project will be run in three English catchments and two French catchments, where there are similar pressures on water resources. The English catchments include the Cam & Ely Ouse and East Suffolk.

Next steps

The current catchment groups will now refine and prioritise the ideas which have emerged. The Environment Agency and Government will have a key role to advise on feasibility from a technical and policy viewpoint. Project co-ordinators will work with the catchment groups to develop a plan for initiating trials and addressing other enablers as appropriate. The Environment Agency will agree and capture progress in updated Abstraction Licensing Strategies by 2020.

The Environment Agency is also continuing the programme by proposing further catchments to start in 2019. These are catchments where abstraction is causing flows to fall regularly below environmental requirements or where groundwater is over abstracted. The proposed locations are:

- The Wye catchment (Herefordshire)
- The Otter Catchment (Devon)
- The Arun and Western Streams (West Sussex)

For further description of these catchments see Appendix 1.

The Environment Agency will continue to identify additional catchments that can be progressed and engage with catchment partnerships and stakeholders such as water companies operating in these catchments. Longer term, government would like to see implementation of the Catchment Based Approach for water resource management across England, alongside successful solutions to improve access to water where they are needed.

Supporting reform

Digital service

Modernising the abstraction service to improve the user experience, support environmental protection and facilitate increased access to water

Modernising the abstraction licensing service by moving away from the outdated paper-based system to a digital one is a vital part of abstraction reform. Digital transformation will create a system that can be more flexible, better able to meet the needs of customers, improve access to water and better protect the environment. By investing in the digital service, the Environment Agency is also improving the management of its business and introducing efficiencies to its processes.

The long term aim of the service is to enable licence holders to:

- view licence details and manage contact information online;
- access information on local water availability more readily;
- submit water usage data online;
- apply for/renew licences online; and
- more effectively enable trades between users.

Progress on delivery

The development and use of the service is starting to deliver real outcomes in terms of environmental protection and improved access to water, and towards meeting the needs of users. As of April 2019, around 3,000 licence holders and their representatives have registered as users of the new digital service.

This work is being released in stages following the Government Digital Service Standard, where initially a minimum viable product is designed, built and released. This provides early value to both the customer and the business and allows the delivery team to iterate and improve the service based on feedback they receive. A number of functions added to the service have been designed with this in mind and will continue to be improved as the service evolves.

The 'Manage your water abstraction and impoundment licence' service has been live on GOV.UK since March 2018. It enables registered users to view their licence details and submit records of actual abstraction online. Additional features, such as online access to river flows and levels are being added and improved and will be rolled out to more licence holders.

View my licence

Once registered, licence holders can gain access to their portfolio of licences online. Licence information is only visible to licence holders themselves, although they can delegate access to others (e.g. staff within the company or to agents to manage licences on their behalf). Users can name their licences so they are more meaningful than just a reference number, and they can receive notifications of expiring licences or licence conditions.

User feedback

'Creating an online service is a sensible and relevant step and very welcome.'

'Once familiar with it easy and simple to use.'

'Fantastic, should have been done years ago.'

View and submit my abstraction returns

Most licence holders are required to send the Environment Agency records of actual quantities abstracted. Licence holders can now do this online through the service.

Since the launch of the service, around 9,000 licence holders have been required to send records of actual abstractions to the Environment Agency. They were requested to use the online service as a digital-by-default approach. There has been an excellent level of uptake with around half of licence holders using the online service to provide this information.

User feedback

'Once you get used to the form it is very straightforward to fill in and you can do it straight away at the end of your licence period and don't have to wait for paper copy to arrive. You can also easily access your account to get information.'

'Have wanted paperless returns for considerable time.'

'Quite like that I can combine the meters to one volume.'

Hands off flow (and hands off level) notifications

Around 3,300 abstraction licences contain conditions which require abstraction to reduce or cease when river flows and/or levels fall below a pre-determined threshold set out in the licence. These are called hands off flow and hands off level conditions.

The new service enables the Environment Agency staff to more easily send notification letters to licence holders – even if the licence holders are not registered on the service. Once licences are selected within the service, letters can be automatically generated,

printed and distributed. As licence holders choose email as their preferred communication route, this feature will become even more effective.

This frees up technical staff to deploy their skills on water resources management at times of heightened need, rather than undertaking the administration around generating and posting letters. It also enables the Environment Agency to provide more timely communications on the activation of licence conditions on:

- the need to cut back on abstraction (and therefore better protect the environment); and
- the ability to commence abstraction once flows and/or levels have started to recover (hence improving the ability to access water when it is available).

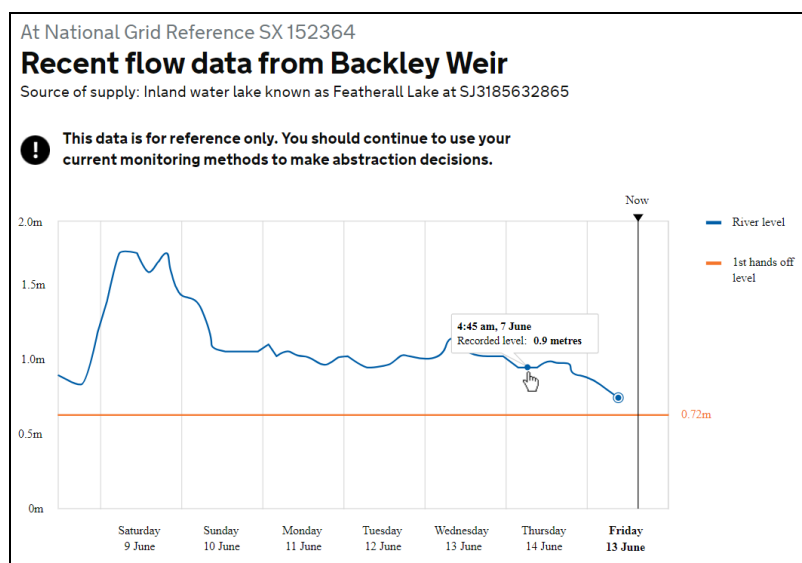
The development of this feature was brought forward during the summer of 2018, during the period of prolonged dry weather during which many abstractors were subject to 'hands off' conditions being activated on their licences. During this time the Environment Agency used the new service to send approximately 400 notifications (in relation to around 1,000 hands off flows being in effect) to inform licence holders that flows and/or levels were approaching thresholds, had crossed thresholds, or had recovered sufficiently to enable abstraction to resume.

Check my flows and levels online

It should be noted that the licence holder still has a legal responsibility to comply with licence conditions, and should not wait for notification from the Environment Agency to communicate activation of a hands off flow or level condition (unless it is specified in the licence that the Environment Agency will do so).

With this in mind, the Environment Agency has also developed the service so that it can be used by licence holders to better access relevant information on flows and levels online.

This involves linking licences to Environment Agency gauging stations, a task which is being managed on a phased and prioritised basis. As of January 2019, around 100 licence holders can view the near-real time flow or level online. By using this feature, licence holders are already making more informed choices around planning their water use.



Check my flows and levels feedback

'The new website has allowed us to access instantaneous and daily mean river flows data much more quickly and easily. Being able to instantly view flow values and trend graphs for any key river in the region allows us to share a common understanding with the Environment Agency of the current situation, which supports management of our abstractions and associated operations in a way that protects the environment.'

'It also helps us respond to queries and requests from external stakeholders, such as local environmental and riparian owner groups, including scheduling reservoir releases for optimal environmental benefit. Being able to download the data also assists our reporting and long term resource planning, by ensuring we are using the most up to date and reliable data available and that modelling results are comparable with that carried out by the Environment Agency.'

'We are looking forward to further developments in this tool which can assist us even further in working with the Environment Agency effectively to benefit the environment. The closer the data is to real time, particularly with an Application Programming Interface (API) that allows automation, the more it could be relied upon to trigger actions such as changing abstraction rates. Easy access to daily rainfall data would also be very useful both for modelling and predicting upcoming flow peaks in the catchments in our region which typically respond sharply to rainfall.' **South West Water**

Water rights trading

During the summer of 2018, a water rights trading platform was developed by the Environment Agency and trialled in East Anglia. The Environment Agency made data available highlighting licences which could potentially be made available for trade.

Information was displayed via a geographical information system indicating recent levels of actual abstraction for licences (excluding public water supply), and identifying the potential for trading to take place and for discussions with existing licence holders and the Environment Agency to be initiated.

The Environment Agency's information on licences having the potential for trade was promoted by the National Farmers' Union alongside its tools to facilitate trading. Following positive user feedback, proposals are in place to make this a permanent feature of the digital service and to roll it out nationally.

User feedback

'During the summer of 2018 I had a number of fields without irrigation. During the dry period my crops started to suffer. One field was near to a river and a canal but without an abstraction licence I couldn't do anything to irrigate the field. The National Farmers' Union put me in touch with the Environment Agency and they were able to help me find licence holders on the river who I could potentially trade with.'

'It happened quickly and I had an authorisation to abstract within a couple of days.'

'I support the Environment Agency's approach to develop an online trading platform which would enable me to identify licence holders who I could potentially trade with and make the application process much simpler and quicker.' **Richard Thompson, Potato Grower – West Midlands**

Feedback is actively gathered from users on their experience, which is used to identify improvements and to help plan for future needs. By understanding the user needs and collecting feedback, the team are ensuring that users enjoy using the service, would recommend it to other potential users and can get the desired outcome from the service on the first attempt. This will encourage more people to use the service to manage their water abstraction licences, which in turn allows the Environment Agency to better manage and protect water resources across the country.

During January 2019, 84% of recent users were either very satisfied or satisfied with the service, whereas 13% were dissatisfied or very dissatisfied. Most of the dissatisfaction was associated with the registration process, which involves sending a hard-copy access code to the licence holder's registered address for security purposes.

The team has been able to use this feedback to make improvements to the registration process, and also to improve the Environment Agency's communications around the need for secure registration.

Next steps

Future developments to the service are being planned and considered. For example, the service could be used to provide other supporting information associated with the management of a licence (e.g. submit meter calibration records, water audit reports and environmental monitoring data).

With data relating to hundreds more gauging stations being made available online, there is potential for thousands of licence holders registered on the service to have access to flow and level information. With further development, they will also be able to see recent trends and more relevant information relating to their licence conditions.

The new service will also support the transition of water resources into the Environmental Permitting Regulations, and will be developed so that it is the route for making applications for new and varied abstraction licences.

The incremental and agile approach is unlikely to stop with the initial functionality of the service described above. With pressure on water resources set to continue, there will be a continuing need for innovative policy thinking, improved flexibility in allocating water resources, and the ability for licence holders and third parties to access and use data to help improve the way that water resources are managed.

This could lead to digital permissions being the norm. It could enable 'earned recognition' to be a feature of the future licensing system (where evidence of good performance could result in a lower likelihood of compliance inspections or reduced charges). It could lead to a future of 'dynamic catchment management', where there is greater real-time information on the availability of water in the environment for abstraction.

Environmental permitting

We are planning to move abstraction and impoundment regulations into the Environmental Permitting Regulations. The move will provide a more modern and consistent legal framework for the day to day management of abstraction

Moving water abstraction and impoundment licensing into the Environmental Permitting Regulations (EPR) regime gives us the opportunity to update legislation to ensure it is fit for the future and supports a more flexible approach to licensing that allows improved access to water while protecting the environment. The Environment Agency wants to modernise the existing abstraction and impoundment processes, including increasing the use of digital services (such as electronic permits and online advertising), focusing regulatory efforts on a risk based approach and streamlining where possible.

Many abstraction licence holders hold environmental permits for other regulated activities. This means they have to operate under different definitions, processes and controls for different activities. The move into the EPR regime will rationalise and unify regulations to allow all environmental permissions to fit under one legal framework. The Environment Agency is drawing on experience from those regimes that have previously transitioned, to inform the timetable and process for moving abstraction licensing into EPR. A key lesson learned from moving other regimes into EPR is to take more time to explain to and consult with stakeholders about the proposed changes.

We are extending the timeline of the move of water abstraction and impoundment licensing into EPR by one year to 2021 as set out on GOV.UK (Figure 4). This is following advice from the Environment Agency's external advisory group who have raised concerns about the complexity of the move and taking the necessary time to migrate from one regime into the other. The additional time will also allow government to understand any potential policy differences between England and Wales, undertake quality engagement with stakeholders before the formal consultation process, while continuing to support the dry weather incident and other priority pieces of work. It also creates space for abstractors to understand other regulatory changes such as New Authorisations.

The External Advisory Group is a joint group for England and Wales, with many sectors of abstraction represented. The group are supporting development of the technical aspects of the move. So far the group has worked through some key EPR terms such as "operator" and "site", they have looked at a mocked up permit and started to consider how the future review process would work for reviewable permits. Alongside the engagement work, the Environment Agency is preparing for a consultation¹⁹, which it proposes to launch in early 2020.

¹⁹ Consultation is a requirement of the Water Act 2014¹⁹ before making EPR regulation. S61(5) Water Act 2014. <http://www.legislation.gov.uk/ukpga/2014/21/section/61/enacted>

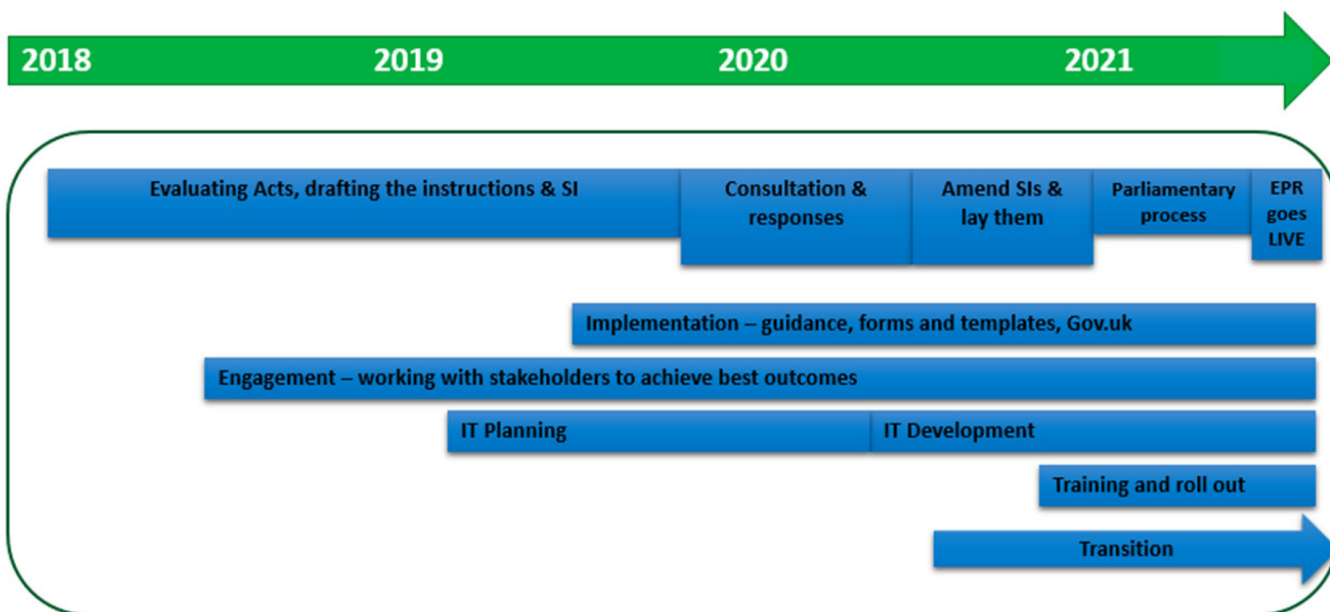


Figure 4 – Timeline for moving abstraction and impoundment into the environmental permitting regulations

New Authorisations

We will remove all significant remaining exemptions relating to purpose and geography. This will bring all significant abstraction under regulation and create a fairer system where no group of abstractors will be able to expand at the cost of another group, or the environment.

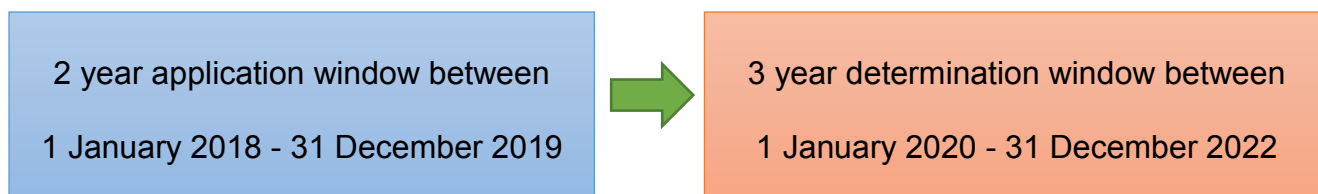
New regulations came into effect on 1 January 2018 to improve the management of water resources and to ensure protection of the environment. Licensing exemptions that previously allowed the use of water from ground or surface water sources without the need for a licence have been mostly removed. This process is known as New Authorisations and will bring remaining abstraction of 20 cubic metres per day or more under regulation. Certain types of abstractions that are still considered low risk will continue under exemption.

The previously exempt activities that now require a licence are:

- all forms of irrigation including trickle;
- transfers into managed wetland systems;
- abstractions within previously exempt areas;
- transferring water by a navigation, harbour or conservancy authority;
- abstracting water into and between internal drainage districts;
- dewatering mines, quarries and engineering works;
- warping (abstraction of water containing silt for deposit onto agricultural land); and
- the majority of abstractions covered by Crown and visiting forces.

Ending these exemptions will help create a level playing field for all existing licensed abstractors and those that will be licensed, it enables regulators to better manage water resources effectively and is part of a much wider effort to manage our natural water capital in a sustainable way.

Transitional arrangements have been put in place which means there is a light touch application process and licensing approach. All previously exempt activities must apply by 31 December 2019 and can continue to legally abstract until a decision is made on the application. If an application is not received and validated in time, the right to abstract is automatically lost and the abstractor will be liable for enforcement action if they continue to abstract illegally.



The Environment Agency is receiving applications from previously exempt abstractors and is leading a communications campaign to increase awareness of the change in regulations and the need to apply now. It is anticipated that there could be up to 4,500 previously exempt abstractors. The Environment Agency is encouraging abstractors to 'apply now' to ensure their application has been accepted as valid before the close of the application window.

Next steps

The Environment Agency will continue with the communications campaign and will work with abstractors to help them through the transitional process. The Environment Agency will determine applications and issue licences between 1 January 2020 and 31 December 2022, and intend to deal with the most damaged or unsustainable catchments first.

The Environment Agency is taking a light-touch, risk based approach to licensing these abstractions. Licences will be granted with conditions to protect rivers during very low flows and in line with volumes abstracted over the seven years preceding the exemption removal. Abstractions will only be significantly curtailed or refused where there is a risk of serious damage to the environment. The Environment Agency will grant licences with a time limit to the relevant common end date, in keeping with its usual licensing position. Once within the licensing system, these abstractions will be managed alongside all other abstractions. Charging provisions for previously exempt abstractors are the same as for all others applying for a water resources license as set out in the Environment Agency's current charging schemes.

Further measures to support reform

Assessing water resources

Enabling water trading and opening up access to higher water flows to abstractors are two expectations from abstraction reform that highlight the importance of the underpinning evidence of water availability. Abstraction licensing, water resources planning, and reporting require continuous assessment of the quantity of water resources including how much abstraction the environment can sustainably supply. Monitoring equipment provides the major input to that assessment. The equipment requires a whole life investment, management and maintenance approach to help build an historic as well as near real-time picture of the effective water resource available. It includes measuring rainfall, river flow, groundwater level and the other parts of the water cycle. The assessment also uses information gathered on the flora and fauna in our rivers and wetlands. Evidence from modelling also plays a part in assessments and requires monitoring data for calibration. Natural and human induced change in the underlying water environment mean models need re-calibration to remain effective and relevant.

On an annual cycle the Environment Agency reviews its evidence needs, methods and the state of its means of measurement with resultant short, medium and long term programmes of improvement. Abstraction reform is driving demands for improvements to monitoring data and assessment, for example as part of the digital licensing service providing licence holder access near real-time flow data.

Two examples of Environment Agency projects seeking to improve underpinning monitoring data services for multiple benefits are:

Flows on the internet

Complementing publishing water levels on the internet the Environment Agency have automated a means of publishing near real-time raw daily river flow data. This enables abstractors to see the latest water flows to make decisions. Starting in the south west this initiative will see 500 flow gauging station data feeds established and we will extend it to groundwater levels and rainfall.

Future approach to telemetry

Telemetry enables the transfer of monitored or sampled raw data from the water environment to archive systems, which can then be validated and used in assessments. This project will deliver better and cheaper services by converting all old landline style dial-up kit at monitoring stations to broadband style 'always available' connectivity.

Asset management

Ensuring the Environment Agency assets that support abstraction and regulation operate efficiently and effectively is important for abstraction reform. To this end the Environment Agency is implementing a Strategic Asset Management Plan to bring a consistent approach to the management and maintenance of their assets in line with the Flood and Coastal Risk Management department and the ISSO 55000 asset management standard. This is focussing on improving the resilience of key assets and the development of a corporate asset information system to be implemented over the next three years, which will ensure consistent processes, improve oversight and support the optimisation of asset investment across the business.

Forward look

As outlined in the sections above, the Environment Agency will continue its work to reach the targets of the abstraction plan, which sets out key milestones up until 2027.

Longer term, the government is considering future challenges for the water environment, particularly in the face of climate change and the potential for increased abstraction demands.

Following on from the 25 year environment plan, government announced that we will create an Environment Bill, which will put environmental ambition and accountability at the very heart of government. It will help us make good on our commitment to leave the natural world in a better condition than we inherited it, and create a new environment body to make sure that we succeed. Through the Bill we will make the statutory changes needed to implement our new approach, and enshrine in law a transparent series of checks and balances to map our progress towards our goal. Some of these statutory changes could result from the consultation that we launched this year on additional powers that could help the Environment Agency to protect the environment from unsustainable abstraction and improve access to water.

Future agricultural policy will also be vital to protecting the environment and improving access to water. Leaving the European Union and the Common Agricultural Policy has given government the chance for reform. We will be moving towards a system where farmers are paid according to the public goods they provide. Environmental Land Management is one part of future agricultural policy and focuses on public goods delivered through the environment. Ensuring clean and plentiful water is a public good. We expect farmers to be actively planning for a drier future and delivering measures to protect their water resources for the future. We are currently trialing work to reach a model where profitable farm businesses and Environmental Land Management can co-exist and complement one another.

As part of its work to produce a national framework for long term water resource planning, the Environment Agency will consider what action may need to be taken to manage abstraction to continue to protect ecosystems and access to water in the future. This involves understanding what effect climate change, population growth and other social, economic and environmental factors will have on the demand for water resources in the future in all water-using sectors, not just in the water industry. The Environment Agency and Defra have launched a project this year to analyse future demand on water supplies. This will feed into the national framework, enabling strategic solutions to be implemented in time to ensure future generations do not face a legacy of unsustainable abstraction.

In their next round of Water Resource Management Plans (WRMP24) the government is expecting companies to show that they are taking a leading role in the management of the natural environment. We want the environment's needs for water to be considered

alongside those of the water industry and other abstractors, with water companies working proactively with catchment groups and the regulators to improve the environment.

The evidence underpinning the national framework will be used to check that the plans developed do, in aggregate, meet the national need. Water companies will then need to show that their Water Resource Management Plans take account of the national framework and the regional plans. Greater regional planning should then lead to better solutions overall; it opens up a wider range of options for companies to pursue and therefore allows them to find the optimal economic, social and environmentally beneficial solutions for the region.

To support this regional water resource planning work, the water Regulators' Alliance for Progressing Infrastructure Development (water RAPID) team is being set up. The water RAPID team will bring together staff from Ofwat, the Environment Agency, and the Drinking Water Inspectorate into a new team that will ensure a smooth regulatory path for strategic water transfers and joint infrastructure projects. It will follow a range of projects for inter-regional water transfers and other joint infrastructure projects necessary to provide resilient water supplies into the future, ensuring that issues arising under the regulatory framework are addressed in a timely and co-ordinated way. The team will also make sure options are tested and available to meet the needs identified in the national framework. This will help create a 'responsive regulatory regime' to address barriers to collaboration as set out in the joint letter from Defra, the Environment Agency, the Drinking Water Inspectorate and Ofwat that was sent to water companies in August 2018.

Appendix 1 – Catchments

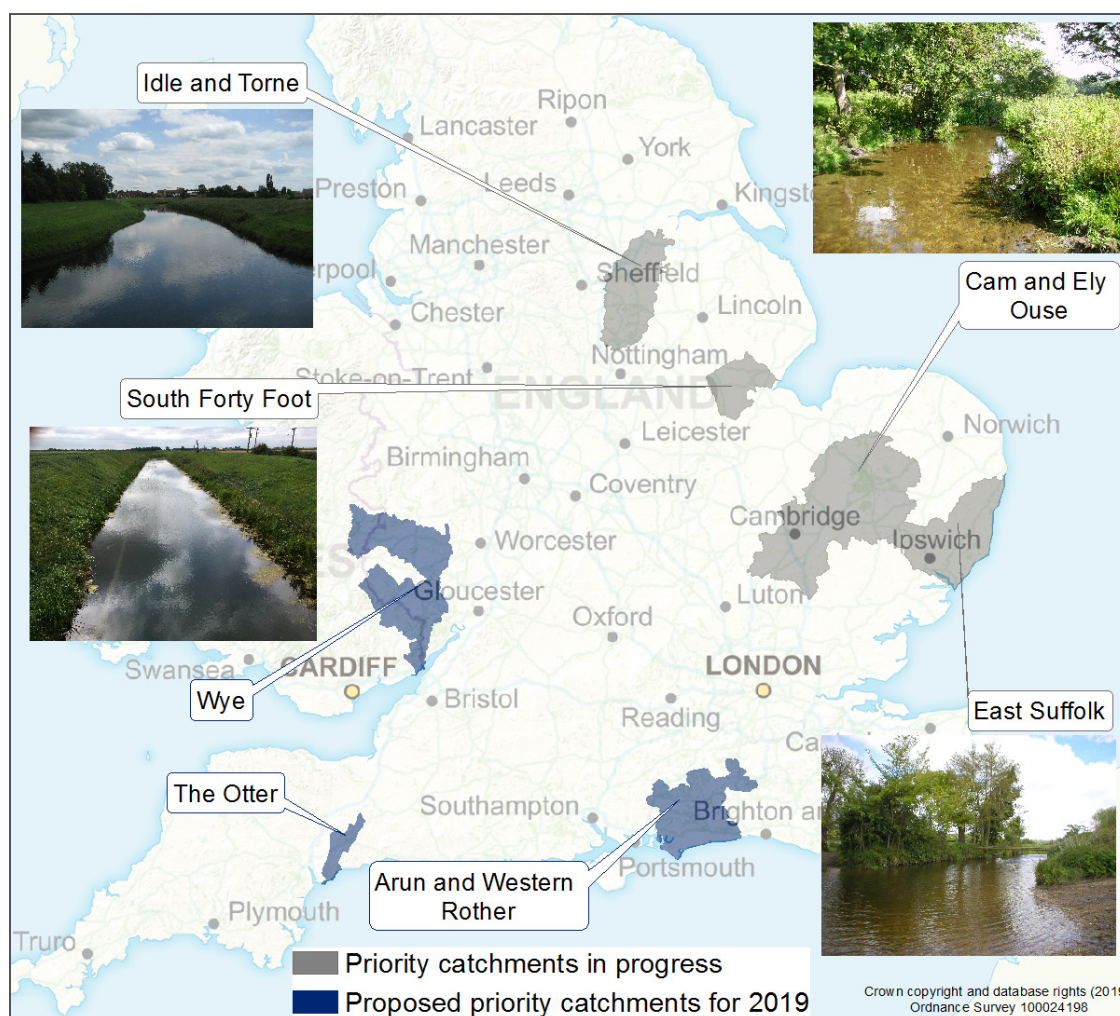


Figure A1 – The location of the current and proposed future priority catchments. Photos are of the current Priority Catchments only.

Description of the further catchments to start in 2019:

1. The **Wye catchment (Herefordshire)** supports abstractions for public water supply, agriculture and navigation. One sub-catchment includes a large number of abstractions for trickle irrigation, likely to cause challenges for future sustainability. There is potential to develop further catchment based working in the Wye. The English part of the Wye is currently proposed and the Environment Agency is seeking support from National Resources Wales to carry out a cross-border project.
2. The **Otter catchment (Devon)** includes a sandstone aquifer that is heavily abstracted for public water supply. There is potential to work with the water industry and other sectors to trial innovative solutions to improve the sustainability of the groundwater resource.
3. In the **Arun and Western Streams (West Sussex)** there is an opportunity for wider catchment working on water resources, involving the catchment partnership. Getting collaborative action between farmers and the water company has been difficult in the

past, but a fresh initiative involving the catchment partnership could help to make better progress and bring about innovation.