

# Updated Prospects for spray\* irrigation - forecast for 2018 - Generally Good

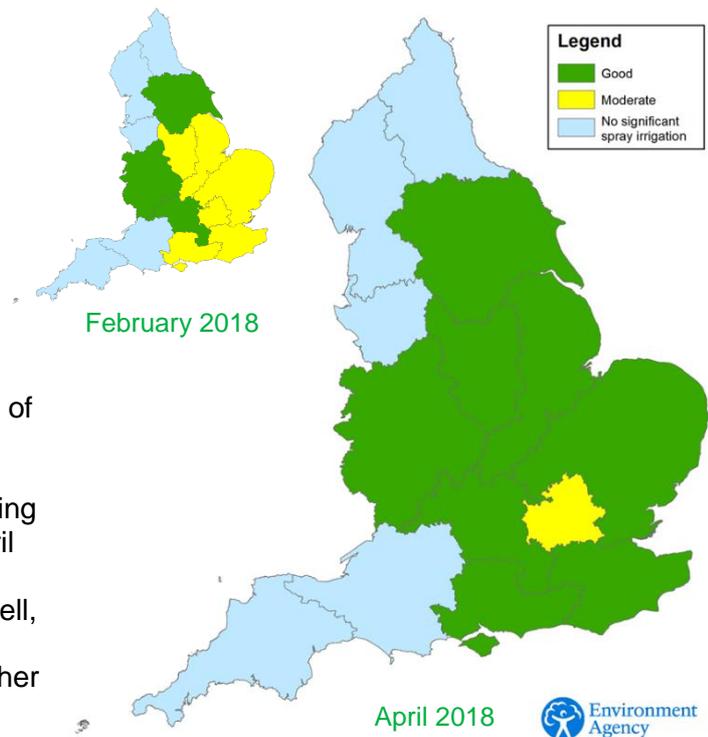
Figure 1: April 2018

## Summary

### Overview

This document provides the updated prospects for spray irrigation (SI) across England (for those Areas where irrigation is most significant). Figure 1 shows a map of SI prospects. We produced our initial SI prospects at the end of February which is also shown in Figure 1. The improving hydrological position since December 2017 has continued across the country generated from above average rainfall over the winter resulting in river flows and groundwater levels rising. Indeed, the above average rainfall particularly over March and early April 2018 has been causing operational problems for farmers at the start of the growing season. The vast majority of areas are now classed as good rather than moderate. As a result of this year's late winter recharge groundwater levels are continuing to rise in many areas and are now well above those of April 2017. Although groundwater levels in some areas are still below normal for the time of year they are all recovering well, even moving into the normal range in places. Some Areas have provided detailed prospects which are contained further into this document.

Prospects for spray irrigation for spring/summer 2018



## Definitions

Prospects for spray irrigation are defined as 'Good', 'Moderate' or 'Poor'.

- Good** Water levels are average or above average and supplies are expected to be safe. There is a possibility of minor local controls on abstraction from surface water in late summer if the weather is exceptionally hot and dry.
- Moderate** Water levels are low. Some controls on surface water abstraction are possible by mid-summer if the weather is hot and dry. Controls on abstraction from groundwater are possible in small, sensitive groundwater areas.
- Poor** Water levels are well below average. Soil moisture deficit is developing early and significant restrictions on abstraction from surface and groundwater are probable.

(\* The Environment Agency has historically provided Spray Irrigation Prospects. Trickle Irrigation has only recently been brought into regulation from the 1st January 2018. To date there are no trickle irrigation abstraction licences in the system).

Paul Hammett, NFU's water specialist, has welcomed the improvement in irrigation prospects announced by the Environment Agency.

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“This is a useful confirmation of where we stand although it won’t come as any surprise to farmers and growers,” said Paul

“Recent rainfall has allayed all lingering concerns about water availability, with growers struggling to get spring crops planted following unseasonably cold and wet conditions”.

“But it is far too early to predict where we will be at the height of the irrigation season and we are urging our members to look out for future Environment Agency updates so that they can keep on top of the situation as it develops”.

## Prospects for individual areas

### Yorkshire

The prospects for water resources availability for spray irrigation in Yorkshire for spring - summer 2018 are [Good](#).

### Kent and South London

Over the winter period (Oct 17 - Mar 18), we received 95% of the Long Term Average (LTA) rainfall. As a result, in Kent and South London Area the water resource availability for the 2018 irrigation season is now:

- [Good](#) in the 'Most likely' scenario (most likely being 100% of long term average (LTA) rainfall)
- [Moderate](#) in the 'Reasonable worst case' scenario (reasonable worst case being 80% of LTA rainfall)

### East Anglia

The updated overall summer prospects for water resources availability for spray irrigation in East Anglia are [Good](#).

After a dry autumn, a wet winter and early spring has seen groundwater conditions generally return to at least normal in most of the area, with river flows typically above average.

### Hertfordshire and North London

The prospects for water resources availability for spray irrigation in Hertfordshire and North London are currently [Moderate](#), and likely to remain [Moderate](#).

### Lincolnshire and Northamptonshire

The prospects for water resources availability for spray irrigation in Lincolnshire and Northamptonshire are currently [Good](#).

### East Midlands

East Midlands will not be producing a spray irrigation prospects but their initial spray irrigation outlook for spring - summer 2018 still remains [Good](#).

### West Midlands

West Midlands will not be producing a spray irrigation prospects but their initial spray irrigation outlook for spring - summer 2018 still remains [Good](#).

### Solent and South Downs

The prospects for water resources availability for spray irrigation in Solent and South Downs for spring - summer 2018 are [Good](#).

### Thames

Thames will not be producing a spray irrigation prospects as there is not a demand for it in their area and the situation is improving, but their initial spray irrigation prospects for spring - summer 2018 are still [Good](#).

## Area detail

### Yorkshire

#### Background

After a relatively dry period at the end of 2017, river flows have now returned to between the normal and exceptionally high ranges in all the rivers across Yorkshire as a result of the above average rainfall over winter 2017/18. The soils are also fully saturated.

As of the end of March 2018, groundwater levels in both the Chalk and Corallian Limestone aquifers are at average or above average for the time of year. The Magnesian Limestone aquifer within Yorkshire is below average for the time of year.

#### Forward look

Spray irrigation prospects for the Yorkshire Area for spring - summer 2018 are currently favourable. This does not rule out a return to lower river and groundwater levels should we have a hot, dry summer, but we currently expect that there will be good supplies of water to meet irrigation demands.

### Kent and South London

#### Background

After an exceptionally dry winter and spring in 2016/17, all of Kent and Southern London river flows and groundwater levels were well below average. Intermittent periods of rainfall over the 2017 summer period temporarily eased pressure on the environment and agriculture irrigation needs, but it did not improve the overall water resources situation. The exceptionally dry conditions returned in the autumn and first half of this winter, influencing a second groundwater recharge season.

Since February's Prospects Report the Area has continued to receive above average rainfall, with March receiving 143% of the LTA monthly rainfall.

River flows, groundwater and reservoir levels have all responded well, resulting in significant recovery in the overall water resources position since the middle of December. The generally cool, wet weather means conditions remain favourable to support further recovery in April. Currently, there are no constraints in place and given the wet ground conditions, we expect irrigation demands in spring will continue to be relatively low for the next few weeks.

More detailed hydrological information can be found in the Environment Agency's Area Water Situation Report at: <https://www.gov.uk/government/publications/water-situation-local-area-reports>

#### Forward look

Irrigation prospects for the summer are 'good to moderate' across the Area.

Under the reasonable worst case scenario, a hot dry summer, irrigation prospects are moderate. Flow/level constraints for abstraction licences would be likely to come into force for:

- Rainfall dependent catchments from mid-summer and remain throughout the summer. (Upper Medway/Medway, River Beult, Rother, North Kent Marshes, River Eden, River Bourne)
- Supported marsh water level dependant areas from mid to late summer onwards (Stour and Rother Marshes).
- Groundwater fed catchments from late summer onwards, for those abstractors assigned with higher flow constraints (River Stour).

However, under the most likely scenario of average rainfall, irrigation prospects are good. In this scenario, flow/level constraints for abstraction licences would likely come into force for rainfall dependent catchments from mid-summer as typically experienced in a normal year

There are currently no constraints in place. However, licensed abstractors with Hands off Flow conditions (HoFs) should continue to track daily river levels on our [website](#). They will then be well positioned to take advantage of any period in which increased flow, in excess of their HoF, which would support further abstraction (subject to their licence conditions).

More detailed guidance has been sent to licensed abstractors, explaining how they can make best use of this service.

If you are an abstractor, please provide us with your email contact details, using the email address below. This will enable us to give you more timely warnings if there is a need to impose restrictions later this summer, by e-mail. If you need any further advice please contact the Groundwater Hydrology team via [ksl.gwh@environment-agency.gov.uk](mailto:ksl.gwh@environment-agency.gov.uk)

## East Anglia

### Background

A dry end to 2016 and start to 2017 resulted in limited recharge of groundwater across East Anglia. This was followed by a wet summer in which much of the area received recharge that meant most rivers and aquifers were back within the normal range for the time of year. However, there were still parts of East Anglia with lower than normal groundwater and river flows. The autumn of 2017 saw a return to much drier conditions with some catchments in Suffolk experiencing their lowest recorded monthly flows for November. At the end of November a more unsettled weather pattern established across the UK. This was followed by a wet December with 160% of long term average rainfall - half of the rain falling during the last 6 days of the month. This rainfall dramatically reduced the soil moisture deficit and with a slightly wetter than average January 2018, groundwater levels have since been rising throughout East Anglia. River flows also recovered enabling irrigation and water supply reservoirs to fill at a steady rate. February saw near average rainfall.

Since our last report we have seen a return to wet weather in March with 155% of long term average (LTA) rainfall helping to maintain river flows and provide significant late groundwater recharge. April so far has been slightly drier in the east with approximately 65% of the monthly LTA and wetter in the west with approximately 90% of the monthly LTA.

In response nearly all rivers are classified as above normal or higher.

Groundwater levels give a clearer indication of the overall state of water resources as they largely determine the level of baseflows in rivers during the summer months. Groundwater levels are generally currently classified as normal or above normal. An exception is Fringford in the limestone in the Upper Bedford Ouse which is classified as exceptionally high.

### Forward look

#### East Anglia area (west)

Prospects across East Anglia area (west) are good for 2018. Groundwater levels are higher than average for the time of year and the soil moisture deficits are lower than normal. Rivers are likely to be flowing at normal levels in groundwater fed catchments throughout the irrigation season. Groundwater levels are likely to remain normal or higher throughout the summer.

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It is possible that local water management actions may be required in Fenland catchments during the irrigation season. Even in average conditions any dry periods during the summer can result in some form of local water management actions.

### **East Anglia area (east)**

Across East Anglia area (east) February and March rainfall totals were notably higher than normal (140% of Long Term Average). Recharge to the major aquifers in the Norfolk catchments has resulted in recovery above the long term average monthly level for April. Prospects for Norfolk groundwater fed rivers are therefore now classified as good.

The major chalk and gravel aquifers in Suffolk and Essex have all responded well to the recent rainfall with most monitoring sites now measuring normal levels for March. Nevertheless the slow start to the recharge season and a 120mm deficit in rainfall over the last two winters continues to affect a number of monitoring sites where levels remain below normal. These are typically in the confined chalk areas to the south of the River Waveney and in Essex and Suffolk shallow aquifers. Despite these low levels there has been sufficient recovery to avoid the potential of formal restrictions this summer.

## **Hertfordshire and North London**

### **Background**

The Area's water resource situation is significantly influenced by how much rainfall is received over the winter period. The 2016-17 winter period was considered dry due to the Area receiving only 74% of the long term average rainfall. The 2017-18 winter period started-off as dry before a combination of snow and rainfall has resulted in the Area receiving 96% of the LTA rainfall. Not all this rainfall will percolate into the underlying geology however. As a consequence not all groundwater levels have fully recovered across the Area. Monitoring boreholes in the Colne and Upper Lee areas currently have readings which are below the normal range for this time of year. Rivers in some locations which are supported by this groundwater have as a consequence not seen flows recover throughout their full length.

### **Forward look**

The general recovery in groundwater levels does place us in a better position than previously reported but not all areas have seen sufficient recovery to counter all summer weather outcomes. If we have a dry summer we could still see environmental stress as groundwater levels decline. This could lead in some chalk streams to a reduction in the flowing length or the volume of water

Our summer abstractors primarily rely on groundwater resources to meet their irrigation needs. Groundwater levels in the Chalk have improved and the current situation should not adversely affect those abstractors. River flows in the chalk streams are also reliant on groundwater levels to maintain their flow regime. These rivers have seen improved but necessarily full recovery across their entire length. As a consequence individual flow constraints could be activated for periods over the summer.

## **Lincolnshire and Northamptonshire**

### **Background**

A dry end to 2016 and start to 2017 resulted in reduced recharge of groundwater. A wet summer in 2017 particularly in north Lincolnshire in which much of the area received recharge meant most rivers and aquifers were within the normal range for the time of year. Towards the south of the area, rivers flows were still below average. This autumn saw a return to drier conditions with some catchments in the south experiencing notably low flows in November. At the end of November 2017 a more unsettled weather pattern established across the UK that continued until the start of January 2018, allowing recharge to

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begin. February was drier than average but was followed by a very wet March with an average of 70mm of rainfall -156% of the Long Term Average. This very wet weather continued into April.

In response to the wet March and start of April river flows are higher than normal throughout the area.

Groundwater levels give a clearer indication of the overall state of water resources as they largely determine the level of baseflows in rivers during the summer months. Groundwater levels are currently classified as either in or above the normal range.

### **Forward look**

Groundwater levels are likely to remain normal or higher this summer. Rivers are likely to be flowing at normal levels throughout the irrigation season.

## **Further hydrological information**

More detailed information for all the areas can be found in the Environment Agency Monthly Water Situation Report at:

<http://www.environment-agency.gov.uk/research/library/publications/104036.aspx>

These are updated shortly after the 10th of each month.

## **Met Office 3-month forecast**

The latest weather forecast for the next month indicate that the period will start off relatively wet and with temperatures slightly below average. Towards the middle of May temperatures are expected to recover to be slightly above average, with drier and brighter weather expected. However mixed weather with showers and heavier rain still remains possible especially in the south of England. For the next 3 months as a whole, above-average precipitation is slightly more likely than below-average.

## **Ensuring your business is resilient to drought**

Climate change predictions suggest the extremes of weather we have seen in the last few years are likely to become more frequent in the future. It will become increasingly important to ensure we are as resilient as possible to periods of reduced water resource and drought. The section below gives you some ideas on what you could consider before and during a drought to help make your business more resilient.

We will work with abstractors to minimise the impact of drought and related restrictions on businesses in the future. If you have ideas on things such as voluntary initiatives to conserve water whilst reducing the impacts of imposed restrictions in your area, or would like to set up an abstractor group in your area to work together to improve resilience, please get in contact, our details are at the end of this document.

We continue to recognise the importance of irrigation to the agricultural industry in the region and will aim to work with farmers and others to try to minimise, where possible, the impact of any dry weather on their businesses.

Abstraction is primarily controlled by conditions on licences and licence holders must ensure that they adhere to these at all times. We would encourage all abstractors to review their licences to ensure that they continue to meet their needs. In areas across England in 2009 and 2010, some farmers experienced difficulties lifting crops from dry ground and found that their abstraction licences didn't cover abstraction beyond the end of September. You may also need to extend the winter season on your licence from February to March.

For those farmers who wish to extend their licensed abstraction period, we strongly recommend that you apply now to formally vary your licence. In most cases these variations will be relatively straight forward and will provide you with long term drought resilience without the need to talk to us in the future for a

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temporary dispensation. This is particularly important as the allowances in the last few years are unlikely to be made in the future as more farmers formally vary their abstraction periods.

We would also encourage you to register on the “Manage my water abstraction licence” digital service on [GOV.UK](https://www.gov.uk) so that, as this system is enhanced, you will gain access to features which may help you manage your abstraction.

We do have powers to further restrict the abstraction of water for irrigation from rivers, streams and underground sources, and will use those powers should the situation become critical. If such a situation arises, however, we will always seek to achieve as much as possible through voluntary savings before imposing formal restrictions. Total bans will only be used as a last resort.

## What can irrigators do?

For their part, irrigators are encouraged to take such actions as they can to minimise the impacts on the environment and their businesses: Please talk to us now about actions you can take (Our contact details are at the end of this document):

### Abstraction Licences

- Check your licence details and, at all times, adhere to licence conditions.

### Voluntary Restrictions

- Comply with voluntary restrictions where they are requested. This will delay, and may avoid the need for more formal restrictions.

### Storage Reservoirs

- Take every possible opportunity to ensure that high flow storage reservoirs are as full as possible by the start of the irrigation season;
- Continue to plan for the future. Is there an opportunity to convert from direct summer abstraction to high flow storage? The Rural Development Programme for England (RDPE) may be able to help with funding.
- Ensure your reservoir is regularly maintained, checking for cracks and leaks.
- The Environment Agency has a range of literature available to help support your business including Rain Water Harvesting; Think about installing an irrigation Reservoir and adopting Best Metering Practice. Guidance on the planning and design of irrigation reservoirs in Kent, jointly produced by Environment Agency, Kent County Council and EMR.
- If you are currently having trouble filling your irrigation reservoirs, please contact us as early as possible to enable maximising any potential that may exist to fill your reservoir.

### Irrigation Management

- Make sure that meters are in good working order and properly fitted;
- Check irrigation systems and replace worn or broken items before the start of the season;
- Make sure that irrigation systems are properly set up and operated in accordance with an accurate and reliable irrigation scheduling system;
- Ensure you are prepared to change your irrigation plans if necessary;
- Prioritise crops and fields in terms of water need;
- Choose irrigation times carefully, e.g. avoid the heat of the day; irrigate at night, if possible;
- Undertake a water audit. Know the cost of your water, calculate crop per drop.

### Abstractor Groups and Guidance

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- Where appropriate, discuss issues, share ideas etc. with neighbouring farmers. A number of local liaison groups already exist for this purpose. Consider setting up a group?
- Maintain an awareness of developing guidance from academic institutions and farming organisations (e.g. NFU, UKIA, Cranfield University etc.);
- The Environment Agency has a range of literature available to help support your business including Rain Water Harvesting; Think about Installing an Irrigation Reservoir and adopting Best Metering Practice.