

The summer prospects for water resources availability for spray irrigation in the east of England are still currently **MODERATE, but may become poor in some catchments if rainfall continues to be below average**. Recharge to groundwater over winter has been below average resulting in some aquifer levels being below normal for the time of year, and river flows are suffering as a result. A dry April has meant that soil moisture deficits have developed early.

## Background

A wet start to 2016 culminated in a June that saw near twice the long term average rainfall for the east of England. The wet start to the year meant that there was late recharge and groundwater was generally classified as normal and in some places above normal. Most rivers in June, particularly in the east of East Anglia, had well above average flows and soil moisture deficits were well below average. There then followed a sustained dry period from July to January with only November having higher than average rainfall. The dry autumn and early winter has delayed recharge and groundwater levels went from a healthy position in the summer to either below normal or the bottom end of normal by the end of January. River flows held up well at first but then failed to rise with the usual seasonal trend as the recharge to groundwater was below normal.

February saw generally average or above average rainfall with the highest totals in the north of Lincolnshire. This wet weather continued into the first week of March providing much needed recharge. Since then there has been a return to dry weather with April to date seeing just 20% of long term average rainfall. This led to an early end to the recharge season and soil moisture deficits have developed early.

The latest weather forecast suggests unsettled conditions over the coming week with the possibility of drier conditions in early May.

In response to the dry April most river flows are classified as below normal.

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 normal or below normal with the below normal sites tending to be towards the south.

More detailed information can be found in the Environment Agency Monthly Water Situation Report at <http://www.environment-agency.gov.uk/research/library/publications/104036.aspx>

This is updated shortly after the 10<sup>th</sup> of each month.

## Forward look

Spray irrigation prospects are moderate across the east of England. Some controls on surface water abstraction are probable if the weather is hot and dry. Controls on abstraction from groundwater are possible in small, sensitive groundwater areas.

## Lincolnshire and Northamptonshire area

Following the dry autumn, February and March rainfall has hovered around the average. April rainfall to date is very low (less than 10mm). This means that the prospects for spray irrigation remain **moderate** at this stage.

## East Anglia area (west)

Irrigation prospects across East Anglia area (west) are largely **moderate** but may become poor in some places for this year. The dry end to March and the lack of rainfall during April has led to a sharp recession in flows in the Cam, Rhee and Granta catchments. Unless we receive some significant rain it is very likely that Hands Off Flow conditions will come into force during May and remain in place until the situation improves. Prospects for other flowing catchments remain moderate.

It is also very likely that due to the recent lack of rainfall, Hands Off Flow conditions will be reached and local water management actions will be required in our Fenland catchments. Even in average conditions any dry periods during the summer can result in some form of local water management actions.

Groundwater levels are now below average for the time of year across most of our chalk aquifer. The soil moisture deficit has also increased and is now above average for this time of year. River flows have declined and are below normal in groundwater fed catchments. Groundwater levels and river flows are likely to remain below the normal range through the summer unless we experience very wet weather conditions.

## East Anglia area (east)

East Anglia (east) is split into four sectors based on the geology of the area and the prospects are as follows:

### **Norfolk north of the River Yare**

Prospects here are **moderate**. Most Norfolk Rivers are close to their normal flows with some catchments below normal for April. This below normal category reflects the current groundwater levels in Norfolk and the lack of surface runoff in April. Although conditions are not as favourable as they have been for the last 4 years, they remain outside of the range that will potentially lead to poor conditions this summer.

### **Suffolk - Crag**

Prospects here are **moderate**. Rainfall deficits have been greatest this winter on the Suffolk coastal margins and are significantly greater than have been experienced in Norfolk. The high storage afforded by the crag aquifer should however buffer the recession rates. Recent flow gaugings have extended our coverage of the crag catchment all indicate flows close to the normal range.

### **Suffolk - Inland**

Prospects here are **moderate** to **poor**. The inland catchments in Suffolk have only a moderate base flow and have experienced the greatest rainfall deficit over the last 9 months (up to 160 mm below average). Current groundwater levels would indicate summer flows may fall to notably low but are unlikely to fall to exceptionally low. The lowest reaches of these catchments are fed through contribution from the crag and sands and gravels. The middle reaches depending more on inflow from the confined chalk. It is therefore the middle reaches of these rivers that are in the main regulated by

Mill structures that are likely to experience the lowest relative summer flows in East Anglia (east). These catchments include the Waveney to the Stour but with a particular emphasis on the Dove to Gipping area. With a hot dry summer prospects here may become poor.

## Essex

Prospects here are **moderate**. The north Essex rivers are currently experiencing a slightly elevated level of base flow relative to the catchments further north. This is partly because of the better situation in the shallow aquifers. However, with high seasonal demands north and mid Essex rivers from the Stour to Can may experience flows into our notably low category in the summer. Flow in south Essex rivers from the Wid to the Mardyke may possibly fall into exceptionally low at any time of year if there is reduced runoff but are generally regulated by treated effluent discharges.

## 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.

### 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.

### Abtractor Groups and Guidance

- 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.);

customer service line  
03708 506 506

incident hotline  
0800 80 70 60

floodline  
0845 988 1188

- 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.

Paul Hammett – the NFU’s National Specialist in water resources says that it is important to “build resilience into water availability on farms so that they are in a better position to face future droughts. In particular, the NFU recommends that farmers review their abstraction licences now well before the next irrigation season starts”

## Conclusions

After one of the driest 10 months to April on record recharge has been below average and soil moisture deficits have started to build early. As a result the prospects for spray irrigation in 2017 are currently assessed as ‘MODERATE’.

*If you have any questions or would like to feedback comments about the prospects report please contact [daniel.burbidge@environment-agency.gov.uk](mailto:daniel.burbidge@environment-agency.gov.uk).*

*Our local office contacts are as follows:*

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## Definitions

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

<b>Good</b>	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.
<b>Moderate</b>	Water levels are low. Some controls on surface water abstraction are probable by mid-summer if the weather is hot and dry. Controls on abstraction from groundwater are possible in small, sensitive groundwater areas.
<b>Poor</b>	Water levels are well below average. Soil moisture deficit is developing early and significant restrictions on abstraction from surface and groundwater are probable.

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