

30th April 2022

# Updated prospects for irrigation – Area forecasts for 2022

This document contains our detailed updated prospects for irrigation across England in 2022 which show an overall decline in status since February. There were nine Areas which were previously good or good to moderate and now there are no Areas in good status and only four classified as good to moderate, with the rest moderate. Further detail of the prospect for your local area can be found in this document.

## Ensuring a successful irrigation season

We encourage all irrigators to understand the risks of a period of prolonged dry weather on your abstraction. We ask all irrigators to take such actions as they can to minimise the impacts on the environment and their businesses. If you believe your abstraction is at risk this summer, please talk to us about actions you can take. If you don't know your local Environment Agency contact, please call our customer service line on 03708 506506 and ask to speak to your local water resources member of staff dealing with irrigation prospects. For some areas we have provided contacts within this report.

### Abstraction Licences

- Check your licence details and, at all times, adhere to licence conditions ensuring that abstractions are only taken from authorised locations, volumes are not exceeded and accurate records are kept of meter readings. In particular, where third parties undertake irrigation, licence holders should ensure contractors fully understand the abstraction licence conditions. Those who have licences with compensation discharges and re-abstraction conditions should ensure that water is released at the same time as abstraction is taking place
- We are continuing to determine licences for previously exempt activities, including trickle irrigation, by the end of December 2022.
- We have developed a [secure online Water Resources Licensing Service](#), which can be found by searching GOV.UK for 'Manage your water abstraction or impoundment licence'.

As part of the Water Resources Licensing Service you can now:

- Submit your abstraction returns
- View your licence and previous returns
- Receive letter notifications (expiry reminders, HoF warnings and irrigation bans)
- Give permission to a named contact to manage your licence

From April 2022, we started emailing water abstraction e-alerts to some abstractors to help them manage their hands off conditions. These more timely alerts will help abstractors make better use of water when it is available and improve protection of water rights and the environment when it is not. Not all abstractors will receive email alerts from April, but they are an important step in helping abstractors to adapt to river and groundwater levels as the climate changes. We will contact abstractors to ensure a smooth transition to e-alerts.

### Voluntary Restrictions

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

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## Storage Reservoirs

- Manage winter storage reservoirs carefully to ensure sufficient water volumes are maintained for use over the whole irrigation season. Those abstractors not restricted by seasonal constraints should take advantage of any high flow periods authorised by their licence documents.
- Continue to plan for the future. Is there an opportunity to convert from direct summer abstraction to high flow storage? The Rural Payments Agency is currently inviting farmers to submit full applications for reservoir grant funding.
- Ensure your reservoir is regularly maintained, checking for cracks and leaks.
- We have 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.
- Keep updated on the latest water situation reports at <https://www.gov.uk/government/collections/water-situation-reports-for-england>
- Read our latest abstraction and dry weather advice in the [Farming Advice Service newsletters](#);
- [A Water Rights Trading Map](#) is available for East Anglia, Midlands and Lincolnshire and Northamptonshire areas.

## Abstractor 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 joining or setting up a group.
- Maintain an awareness of developing guidance from academic institutions and farming organisations (e.g. NFU, UKIA, Cranfield University etc.);
- We have a range of literature available to help support your business including, Think about Installing an Irrigation Reservoir and adopting Best Metering Practice.

## Definitions

|      |  |
|------|--|
| 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. |
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|          |  |
|----------|--|
| Moderate | Water levels are low. Some controls on surface water abstraction are possible by midsummer 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.  |

## Prospects for individual areas

### Area detail

#### Environment Agency - Cumbria and Lancashire (CLA)

##### Background

Following intermittent rainfall in the initial months of the year, Cumbria and Lancashire saw a dry March. This led to a decline in river flows to between 'notably low' and 'normal'. The first half of April has seen slightly drier than average rainfall and river flows are continuing to decline as a result. Irrigation Prospects are now [MODERATE](#).

##### Rainfall/Soil Moisture Deficit (SMD)

Exceptionally high rainfall in February resulted in the cumulative rainfall totals for January, February and March being classed as either 'normal' or 'above normal' for most hydrological areas. March has been relatively dry with only 43% of the long term average (LTA) rainfall.

Rainfall for the first three weeks of April was slightly below average across Cumbria and Lancashire – at 61% of the monthly LTA. There is little rainfall in the Met Office forecast for the remainder of the month to increase this percentage. The main surface water irrigation area is Crossens, which lies in the Douglas hydrological area. The rain gauge at Crossens had observed around 36% of the LTA for March. At the end of March, Soil Moisture Deficits were slightly above expected values for the time of year.

##### River Flows

River flows fell in March following the dry weather, and the Derwent, Eden, Wyre, and Ribble recorded flows "below normal" by the end of the month. The Lune was particularly low at 47% of LTA and the Leven will likely fall to below normal following slightly drier April weather. At the end of March the Weaver and Mersey were least affected with the Weaver at 111% of the LTA.

For the Alt and Crossens catchments with the current and forecast dry weather, we have now moved to maintaining water in the level dependent area at summer values. In doing this we have to take into account various priorities, including flood risk management, as well as maintaining water levels to support abstraction for irrigation. We will monitor the situation but do not envisage changing to running on the lower winter levels unless there is significant rainfall forecast.

##### Groundwater

There are no issues with groundwater resource availability in Cumbria and Lancashire at the present time. In the principal aquifers groundwater levels are all classed as normal or above and generally take a long time to decline, although groundwater reacts more quickly in shallow aquifers.

##### Forward look

Prospects across Cumbria and Lancashire are [MODERATE](#) for 2021.

##### Please contact for more information:

**Edward Potter – Water Resources - Integrated Environmental Planning**  
[IEP\\_CLA@environment-agency.gov.uk](mailto:IEP_CLA@environment-agency.gov.uk)

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## Environment Agency - Devon, Cornwall and Isles of Scilly (DCIS)

The overall summer prospects for water resources availability for spray irrigation in Devon, Cornwall & Isles of Scilly are currently [MODERATE](#).

### Background

Sufficient irrigation water availability will depend on rainfall, water abstraction and temperatures during the season in the Devon, Cornwall & Isles of Scilly catchments. We therefore expect abstractors to be prepared and encourage applications for winter storage reservoirs to help longer term water resilience.

### Rainfall/Soil Moisture Deficit (SMD)

Rainfall totals for Devon and Cornwall for March 2022 were 'normal' for the time of year at 83% of the LTA. Three-month rainfall totals ending March 2022 were 71% of the LTA. January and March 2022 received less rainfall than their month's LTA while February's rainfall was just above the LTA. Soil moisture deficit for Devon and Cornwall was close to its historic maximum for the time of year at the end of March. Rainfall in the first few weeks of April may have reduced SMD in some locations.

### River Flows

Daily mean flows were 'normal' to 'notably low' at the end of March for the time of year, however with significant rainfall events at the beginning of March, the average daily mean flow values for the month were 'normal' for the time of year. Generally, northern and eastern catchments were experiencing lower flows for the time of year.

### Groundwater

As of mid-April 2022, groundwater levels at 6 of the 7 'indicator boreholes' are classified as 'normal', with the remaining one being on the boundary between 'normal' and 'below normal'. By the end of April, levels at 4 of the boreholes are predicted to fall to 'below normal'. Three of the boreholes are on the recession limb of their hydrographs, while the other 4 are close to their peaks. Groundwater recharge since the autumn has been noticeably low, but groundwater levels did start the recharge season at a high base, hence the current generally 'normal' status.

### Forward look

With the groundwater levels not unduly low, average daily mean flows for March being 'normal' for the time of year and the limited environmental benefit of placing restrictions in Devon, Cornwall & Isles of Scilly, we do not anticipate any restrictions regarding irrigation. Rivers in Devon and Cornwall are likely to respond quickly to any rainfall. However, due to the nature of the geology and landscape in Devon, Cornwall & Isles of Scilly, it is difficult to predict water shortages for irrigation in the coming season. We will continue to monitor the situation and update abstractors should the position change. The spray irrigation prospects for Devon, Cornwall & Isles of Scilly are [MODERATE](#) for 2022.

**Please contact for more information:**

**Debbie Peareth – Deputy Drought Coordinator DCIS**  
[Drought.DCIS@environment-agency.gov.uk](mailto:Drought.DCIS@environment-agency.gov.uk)

## Environment Agency - East Anglia (East)

The overall summer prospects for water resources availability for irrigation in East Anglia East are currently [MODERATE](#).

### Background

Overall, the current risk remains normal despite a drier than average winter and early spring. Early groundwater recharge following a wet October has not been sustained, with only slow recovery throughout the winter. Nevertheless the healthy state of aquifer storage in late autumn has in most areas kept levels close to normal leading into the summer. We therefore believe there to be little enhanced risk of dry weather

incidents occurring this summer based on current hydrological conditions. Since our February Irrigation prospects forecast conditions have been closer to our 80% rainfall scenario. Whilst we expect the majority of aquifers to remain at normal levels there are likely to be some localised areas receding to below normal levels notably the confined Suffolk and Essex chalk. Dry weather flow triggers dependent on chalk baseflow could be met in late summer if it remains notably dry. Drought level triggers should not be observed unless extreme dry summer weather is accompanied by concentrated demand for direct irrigation

### Rainfall / Soil Moisture Deficit (SMD)

Whilst October was notably wet, drier than normal conditions have persisted over the winter and into early spring. Since November accumulations as low as 75 % of LTA have been recorded in some parts of Essex and along the coastal tract. Generally higher totals have been recorded inland and in the northern East Anglian rivers. Soil moisture falling early in October had been conducive to gradual recharge. Following drier / warmer settled conditions during the Spring SMD is now above 25mm with further recharge unlikely.

### River Flows

Lower than average rainfall over winter has resulted in run off totals between 80% and 95% of average sufficient to replenish reservoirs without any notable flood incidents. Flows are currently below normal except in groundwater dominant catchments where normal conditions persist. This is in line with our forecast for 80 % rainfall.

### Groundwater

The low seasonal SMD in late November allowed for recharge to commence in the major chalk, minor sand, gravel and crag aquifer units. This recovery can at best be described as steady. The chalk of north Norfolk and the coastal gravels of Essex continue to report above normal levels following two notably wet winters. The confined chalk of Suffolk continues to show below normal conditions in some areas heavily influenced by abstraction and the very dry period between 2016 and 2019. However, overall there are no notable or exceptional problems to report with groundwater levels.

### Forward look

Based on our current assessment, prospects across East Anglia East are **MODERATE** for 2022. The current resource state of the Norfolk, Suffolk and Essex catchments is very close to normal for the time of year and there is nothing to report that would cause particular concern for irrigation prospects in 2022. Dry weather flow triggers could be met in late summer if it is notably dry. There should not however be prolonged or extreme periods of low flow. Limited operation of river support schemes is expected but widespread implementation of Section 57 spray irrigation restrictions is not. With only a moderate recovery of groundwater we have some concern that an exceptionally dry and hot spell at the peak of the irrigation season could cause serious environmental risk to the ecology of a number of vulnerable watercourses, particularly those with a low natural groundwater contribution and high direct river irrigation demand. This includes the rivers from South Norfolk (Waveney) to South Essex (Mardyke). As such we cannot preclude the possibility of Section 57 restrictions under extreme heatwave conditions and could respond with focussed irrigation reductions should these conditions arise.

Please contact for more information:

Anna Mason – East Anglia East

[easterniep@environment-agency.gov.uk](mailto:easterniep@environment-agency.gov.uk)

Peter Willett – Technical Specialist – Hydrology

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## Environment Agency - East Anglia (West)

The overall summer prospects for water resources availability for irrigation in East Anglia (West) are currently **GOOD to MODERATE**.

### Background

The area has received average rainfall of 48 mm - which is 99% of Long Term Average (LTA) during the recharge season (last six months up to the end of March). However, this average has been achieved with

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three months well above average and three months well below average, with October and February above 150% LTA and November and January below 50% LTA. Rainfall has been below the long term average in March and during the start of April, with a corresponding rise in soil moisture deficit to slightly above normal for the time of year. There has been a drop in flows across the area, particularly in the Bedford Ouse catchment. Groundwater levels generally remain at normal conditions.

### Rainfall

Rainfall in the last 12 months has been within the normal range with exception of the middle level catchment that has been below the long-term average. The driest months were April, November 2021 and January 2022. November 2021 was the sixth driest November since record began in 1892 in East Anglia West and January 2022 was the seventh driest. February rainfall has been above normal with 140% of the long-term average rainfall for February in the first 20 days of the month.

### River Flows

River flows were normal in the Ely Ouse catchment and below normal in the Bedford Ouse catchment by the end of January 2022, reflecting the exceptionally dry January. River flows recovered to normal conditions in the whole area at the end of February due to the very wet month which was sustained in this category at the end of March. By mid-April flows in the clay catchments of the Bedford Ouse had dropped to below normal. Flows in the Ely Ouse catchments continued to be sustained by baseflow contributions from the Chalk, with exception of the Cam and Wissey catchments which have reached below normal conditions.

### Groundwater

Groundwater levels started to rise at the end of October 2021, as expected, continued to do so during the autumn-winter months. The recharge rate was reduced during the months of November and January due to the low rainfall, but it increased again following more significant rain. At the end of March groundwater levels were normal or above in the whole area. By the middle of April, groundwater levels have stopped recharging and started to drop as expected for the time of year. However, the levels continue to be in the normal levels.

### Forward look

Prospects across the East Anglia (West) area are GOOD to MODERATE for 2022. Soil moisture deficit has been normal during the winter months but has increased to above normal in April. River flows and groundwater levels are likely to be in normal conditions with average rainfall over the summer. But if weather conditions turn dry, river flows could reach below normal levels in the Ely Ouse catchment, and notably low levels at the end of summer. The Bedford Ouse and Nene catchments will see notably low levels during summer. Groundwater levels are expected to fall to below normal range at the end of summer.

It is likely that local water management actions, using existing licence conditions, will 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. These actions will most likely be required in the Middle Level, South Level, Counter Drain and/or the Hundred Foot catchments.

**Please talk to us now about actions you can take by contacting:**

#### East Anglia (West)

Andy Chapman 02030 251786 [iep\\_ang\\_central@environment-agency.gov.uk](mailto:iep_ang_central@environment-agency.gov.uk)

## Environment Agency - East Midlands

The overall summer prospects for water resources availability for irrigation in East Midlands Area are currently GOOD to MODERATE.

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## Background

East Midlands has experienced moderately dry conditions over the winter.

## Rainfall / Soil Moisture Deficit

Following a wet February, March was a relatively dry month with monthly rainfall totals around 71% of long term average. As a result, soil moisture deficit increased and was above the long term average at the end of March. April has also been a dry month with monthly rainfall totals at 40% of long term average as of 19/04/2022.

## River Flows

Following the relatively dry March, river flows receded across the area. River flow recession has continued in April as a result of the dry weather experienced so far (as of 19/04/2022). As such, surface water flows are generally 'Normal' or below compared to the long term average.

## Groundwater

The hydrogeology of the Nottinghamshire Sherwood Sandstone means that there is a delay before groundwater levels respond to seasonal wetter weather. Water levels have started to recover from the annual low point in recent weeks. Levels are expected to continue to rise over the coming months in response to the seasonal wetter weather experienced over winter.

Water levels in the Carboniferous Limestone of Derbyshire and Magnesian Limestone in west Nottinghamshire respond more rapidly to rainfall. Groundwater levels responded well to winter recharge, although peak levels were not quite as high as they have been in previous years. Water levels are expected to show the typical declining trend due to drier weather heading into the summer months.

Groundwater levels in key monitoring boreholes across the East Midlands are showing in the normal range for the time of year.

## Forward look

Prospects across East Midlands Area are [GOOD to MODERATE](#) for 2022.

There has been an adequate recharge of the aquifers. Although we had wetter weather in February, in November, January and March the rainfall was below the long term average. April has also been a dry month with monthly rainfall totals at 40% of long term average as of 19/04/2022. If spring and early summer remain drier than average, the irrigation prospects may change.

Please contact for more information:

*East Midlands Integrated Environment Planning team*

[WaterResources.DBNTLS@environment-agency.gov.uk](mailto:WaterResources.DBNTLS@environment-agency.gov.uk)

## Environment Agency - Greater Manchester, Merseyside and Cheshire

The overall summer prospects for water resources availability for irrigation in GMMC Area are currently [MODERATE](#).

## Background

Rainfall has been observed with mixed patterns since the start of the year. January's rainfall was 'Notably low' for both hydrological areas. February's rainfall was 'Exceptionally high' for Irwell and Mersey catchments and 'Notably high' for the Cheshire Rivers Groups. March's rainfall was 'Notably low' for the Mersey and Irwell catchments, and 'Below normal' for the Cheshire Rivers Group. Although the river flows were showing 'Normal' in March across minimal rainfall has started to see rivers decline.

## Rainfall / Soil Moisture Deficit

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Rainfall totals for the previous 3 months (January to March) ranged between 'Exceptionally high' and 'Notably low' across Greater Manchester Merseyside and Cheshire, with February recording 248% of the LTA rainfall.

April's rainfall up to and including the 19<sup>th</sup>, was below average for the month, ranging between 28% to 66% of the LTA. Any limited April rainfall is expected to fall on the driest catchments. The main irrigation areas of Cheshire, Lower Mersey and Alt catchments have experienced an average of 36% of the LTA rainfall up to the 19<sup>th</sup> April. At the end of March, Soil Moisture Deficits were generally as expected for the time of year. SMD levels are within the range of between 11mm and 40mm.

### River Flows

We are starting to see river levels drop in some catchments with flows reaching Q95. Given continuing low rainfall we would expect to see more rivers fall below Q95 across Greater Manchester, Merseyside and Cheshire towards the end of April.

### Groundwater

There are no issues with groundwater resource availability in Greater Manchester, Merseyside and Cheshire at the present time. In the principle aquifers groundwater levels are all classed as normal or above and generally take a long time to decline, although groundwater reacts more quickly in shallow aquifers.

### Forward look

Given the forecast of minimal precipitation and rivers responding to current conditions, prospects across Greater Manchester, Merseyside and Cheshire are [MODERATE](#) for 2022.

### Please contact for more information:

**Emily Gardner – Water Resources - Integrated Environmental Planning**  
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## Hertfordshire and North London (HNL)

The overall summer prospects for water resources availability for irrigation in Hertfordshire and North London remain [MODERATE](#).

### Background

February 2022 saw above average rainfall totals, whilst March saw a return to below average. Overall, rainfall amounts across the area to the end of March were 10% below the winter average. This could result in further implications for river flows across the Chilterns and Upper Lee areas. These watercourses are heavily reliant on those winter rains to replenish groundwater levels. This in turn provides groundwater flow to many of these watercourses in the summer months. Higher seasonal temperatures with increased evaporation rates and lower groundwater flow inputs could all combine to result in lower river flows.

### Rainfall / Soil Moisture Deficit (SMD)

The SMD deficit has started to increase linked to the general drier conditions and the start of the growing season. Rain now will need to be significant to make a meaningful difference to the groundwater situation. Drier soil conditions could be further influenced by an extended period of higher temperatures. Effective rainfall, or recharge to the groundwater was 86% of the winter average to end of March. This will solely provide a modest buffer against any extended drier summer conditions.

### River Flows

Monitoring locations are generally showing flows within their normal range. This does mask some wider variation from our local river source inspections. Early signs of headwater and flow decline can be seen in a number of HNL Chalk streams. The Rivers Misbourne, Ver, Beane, Ash and Stort are showing these signs of decline. The urban and clay based rivers have a far greater fluctuation in flows closely linked to rainfall events. An extended dry period could result in a noticeable decline in flow patterns across these river systems.



### Groundwater

Groundwater levels are presently within the lower end of the normal range. There is the potential for levels to decline over the summer period into the below normal range. The precise timing of the decline is not likely until early summer. This could change depending on how dry the spring/summer period becomes.

### Flow Constraints

The winter abstraction period has ended. There have been no reports that winter storage reservoirs have remained unfilled. This should provide sufficient reassurance to those abstractors about their summer irrigation plans. Summer river flow constraints are presently not active but are likely to be activated during parts of the drier months. The extent of these restrictions will depend on how dry conditions become.

### Forward look

Further rain will slow the drying out of soil conditions and will assist in supporting river flows. This could help in off-setting any extended activation of local flow constraints. Individual abstractors can contact us should they have any particular irrigation concerns.

We will continue to monitor river flows and groundwater levels. This data is published and available to irrigators via <https://www.gov.uk/government/publications/water-situation-local-area-reports>

If you would like further information please contact: [alastair.wilson@environment-agency.gov.uk](mailto:alastair.wilson@environment-agency.gov.uk) or call 0203 025 8953.

## Environment Agency - Kent, South London and East Sussex

In Kent and South London (KSL) Area the water resource availability for the 2022 irrigation season is: MODERATE.

### Background

Below normal winter rainfall has supported average rates of groundwater recharge, which has resulted in below normal flows in groundwater dominated catchments and normal flows in clay catchments. Water level dependant areas are reported to be healthy, heading into the irrigation season. Despite the relatively dry winter so far, groundwater resources which support many catchments, remain in a favourable condition. There are no imminent concerns from a Water Resources perspective and irrigation outlook. However, if the drier than normal period persists and with the aquifer recharge season widely concluded this may translate into flow constraints being triggered earlier than normal in the irrigation season for groundwater catchments.

### Rainfall / Soil Moisture Deficit

Over the winter period (October 2021 to March 2022) rainfall was 86% of the Long Tem Average (LTA) with dry mild conditions dominating in March and early April. Rainfall in March was below normal across most of the Area, with 52% of LTA overall and with mid April having only received 30% of LTA, continuing the low rainfall trend over the winter period. The dry weather throughout March has allowed Soil Moisture Deficits (SMD) to develop ending above the monthly LTA. The prevailing drier conditions have continued through April enabling the SMD to increase further.

### River Flows

After a relatively dry winter, March/April flows declined but remain varied across the Area with groundwater dominated catchments remaining below normal and impermeable clay catchments generally within the normal ranges for the time of year. Impermeable catchments will typically be more susceptible to the impacts of drier conditions with subsequent abstraction constraints invariably following. Catchments where

the summer flow component is predominately composed of groundwater base flow will, for the short to medium term remain resilient should drier warmer conditions continue into the summer months.

### Groundwater

Following below normal rainfall in March there has been little effective recharge since then causing groundwater levels to plateau out with levels widely normal across the area. There is now an expectation that the current rates of decline will only start to accelerate over the coming months. As a result of the normal groundwater conditions there is limited risk for those irrigators that are dependent upon abstraction boreholes this summer.

### Forward look

Generally, there is a water resource risk in the water level marsh supported areas through to those catchments where the flow is more rainfall dominated. There is an increased likelihood of constraints being applied towards the end of summer in groundwater catchments as a result of below normal winter rainfall. Within rainfall sensitive catchments such as the Medway, Mole, Rother and Upper Stour, it is expected Hands off Flow (HoF) conditions for agriculture abstractors will be reached in early summer and remain in place throughout the summer as typically experienced. Additional HoF conditions are likely to be progressively triggered through the summer with continuing dry weather. Supported marsh water level dependant areas will benefit from the retained waters but they can likely expect HoF constraints to apply in late summer in the Stour and Rother Marshes, with increasing pressure on water resources expected during peak irrigation periods. Groundwater abstractions with antecedent rainfall constraints will be proportionally constrained due to the subdued winter recharge season, but other groundwater abstractions are not expected to see constraints applied this summer. As a result irrigation prospects for the summer are 'MODERATE' across the Area.

### Please contact for more information:

For further updates or advice please contact your local environment officer or the Groundwater Hydrology team on: [ksl.gwh@environment-agency.gov.uk](mailto:ksl.gwh@environment-agency.gov.uk) or telephone: 03708 506 506

## Environment Agency - Lincolnshire and Northamptonshire

The overall summer prospects for water resources availability for irrigation in Lincolnshire and Northamptonshire area are currently MODERATE.

### Background

Slightly above average rainfall between October and December meant that recharge began in late autumn and river flows and groundwater levels rose in line with the seasonal trend. The weather then turned dry in January with the area receiving just 19mm of rainfall, 36% of the long term average for January. This caused river flows to fall and stopped the seasonal rise in groundwater levels. February saw a return to wet weather with 70mm, (180% of long term average rainfall) leading to flows increasing and groundwater water levels rising again, before a return to drier than average conditions in March.

### Rainfall / Soil Moisture Deficit

After a wet February, March was drier than average with 39mm - 80% of long term average rainfall. April so far has been very dry with just 11mm in the first 18 days. In response to the dry weather soil moisture deficits have increased and are above normal for the time of year.

### River Flows

The wet weather in February meant that despite lower than average rainfall river in March flows were generally in the normal range. Flows have been falling during April but have stayed in the normal range in the more baseflow dominated catchments in Lincolnshire, but have started to head towards below normal in some sites in the more runoff dominated Welland and Nene catchments.

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## Groundwater

Groundwater levels at all reporting sites in both the oolitic limestone and chalk aquifer are classified as normal. The exceptionally dry January meant that groundwater levels either stopped increasing or started to fall. The wet weather during February caused recharge to start again and levels to rise again. Dry weather in March and April has caused levels to fall again and further significant recharge is unlikely.

## Forward look

Prospects across Lincolnshire and Northamptonshire area are **MODERATE** for 2022. With average rainfall we are likely to see normal or below normal groundwater levels leading to slightly reduced baseflows in groundwater fed rivers.

With 80% of long term average rainfall groundwater levels are likely to be below normal leading to reduced baseflows in the groundwater fed rivers. The River Welland and River Nene are also likely to have below normal flows. It is possible that local water management actions will be required across the area during the irrigation season. As even in average conditions any dry periods during the summer can result in some form of local water management actions.

**Please contact for more information:**

[Drought.LNA@environment-agency.gov.uk](mailto:Drought.LNA@environment-agency.gov.uk)

## Environment Agency - North East Area

The overall summer prospects for water resources availability for spray irrigation in *North East Area* are currently **GOOD to MODERATE**.

### Background

Summer 2021 was generally dry with both August and September's monthly rainfall totals below the LTA. Autumn brought some wetter weather, increasing reservoir stocks and saturating soils. The winter weather was quite variable with mainly above average rainfall recorded in December followed by an exceptionally dry January which was the 5<sup>th</sup> driest January for the North East in a 131 year record. Storms Dudley and Eunice brought heavy showers to the country in February increasing river flows and reservoir stocks. March monthly rainfall totals fell within the 'normal' range though all North East catchments recorded less than their LTA. River flows began receding in response as did reservoir stocks which sit below average for the time of year.

### Rainfall / Soil Moisture Deficit

The 12 months up to and including March 2022 have been fairly dry with cumulative rainfall totals generally below the long-term average sitting in the 'normal', 'below normal' or 'notably low' categories. March rainfall totals ranged from 55% of the LTA in the Tyne catchment to 90% of the LTA in the Seaham catchment. Soils have been classified as 'wet' since November though deficits have started to increase slightly over the last month.

### River Flows

Summer flows were often in the lower classifications recording 'exceptionally low' or 'notably low' flows. Some recovery was seen in October through to December, though by January 2022 river flows had declined once more to below average flows. The storms in February saw river flows peak to 'exceptionally high' flows late in the month though once the storms cleared river flows quickly fell back within the 'normal' range. By March river flows had declined and so far the first 10 days of April have seen river flows remain in either the normal range or fall to the below normal range.

## Groundwater

Groundwater stocks have recovered to normal or above-normal levels for the time of the year.

customer service line  
03708 506 506

incident hotline  
0800 80 70 60

floodline  
03459 88 11 88

Groundwater levels have been seen to level-off from February into March 2022 within the Fell Sandstone aquifer, following an overall rising trend in level since late 2021. Groundwater levels in the Magnesian Limestone have seen a recent increase and this rise is most likely due to higher rainfall totals within the associated catchments across February beginning to now recharge the more confined parts of this aquifer.

### Forward look

Prospects across the *North East* are *good to moderate* for 2022.

The latest UK Hydrological outlook (published at the start of April) indicates that river flows are likely to be within the normal range in the North East, and more likely to be normal to below normal than above normal. This applies for both April and the three-month timeframe (April to June). For groundwater, normal to below normal levels are likely in most boreholes, both in April and until the end of June.

### Restrictions

Within the North East Area abstraction for irrigation purposes mostly takes place within the Till catchment of North Northumberland or the Lower Tees catchment of North Yorkshire and Tees Valley. There is only limited irrigation activity in the Tyne, Wear and Northumberland catchments.

Irrigators on the Tyne, Tees and Wear are mostly supported by reservoir releases. Recent changes to the EA's charging regime for abstraction may mean that cessation conditions previously applicable to some of these licences are no longer applicable as of the 1<sup>st</sup> April 2022. The EA will contact individual license holders in the coming months to inform them of any changes to cessation conditions and of any actions required to remove the conditions from existing licences.

Irrigators with licences that include cessation conditions associated with river level or flow (i.e., Hands off Flow conditions) will be contacted by EA area staff when restrictions are in place. Any queries about licence conditions should be sent to [water.resources.northeast@environment-agency.gov.uk](mailto:water.resources.northeast@environment-agency.gov.uk)

### Please contact for more information:

Water Resources: [water.resources.northeast@environment-agency.gov.uk](mailto:water.resources.northeast@environment-agency.gov.uk)

Hydrology: [hydrology.northeast@environment-agency.gov.uk](mailto:hydrology.northeast@environment-agency.gov.uk)

## Environment Agency - Solent and South Downs

The overall summer prospects for water resources availability for spray irrigation in Solent and South Downs remain **MODERATE**. Although, many groundwater levels are indicating “**normal**” values (as of 31<sup>st</sup> March). The lack of recharge this winter would mean that in most of the relevant catchments hot dry summer conditions could result in the need to implement licence restrictions.

### Background

Overall winter 2021-2022 has been drier than average. SSD is heavily dependent on groundwater so prospects for summer rely on the extent to which the Chalk and Greensand aquifers are replenished. There have been some wet periods throughout the winter but several occurrences of prolonged drier conditions have caused interruptions to the recharge process.

### Rainfall / Soil Moisture Deficit

The “recharge season” started well. Rainfall in October was well above average, but November was the second driest on record (back to 1910) and in some catchments the driest. This heavily curtailed the recharge process. The dry conditions continued into December but a very wet end to the month saw December figures attaining the average. The weather in January was dominated by high pressure systems. This resulted in another below average rainfall month with less than 40% of long-term average for SSD as a whole. Rainfall in February was around the monthly average but for March rainfall was below the average. Overall the

October 2021 to March 2022 period was drier than average. Soil Moisture Deficit at the end of March was higher than the average meaning that soils were on drier side for the time of year. April has been a drier month so far with 34% of long-term average rainfall for SSD Area (as of 18<sup>th</sup> April), which is likely to have implications on flows for a few of our responsive rivers and may result in the need to implement some hands-off-flow restrictions earlier in our impermeable catchments.

### River Flows

At the end of March, the majority of the main reporting sites had **normal** monthly mean flows. For the responsive rivers in the impermeable catchments month by month rainfall is more critical but lower than average groundwater levels have potential implications for the baseflow dominated catchments.

### Groundwater

Summer 2021 in SSD was wetter than average so groundwater levels ended the summer higher than average in most locations which has helped the situation to date. As mentioned above groundwater recharge is critical for SSD prospects and recharge has been below average. Despite the majority of reported groundwater levels being in the **normal** range at the end of March the groundwater levels at several sites are below the mean.

### Forward look

Prospects across Solent and South Downs are **moderate** for 2022 unless there is a significant increase in rainfall over the next few months.

### Please contact for more information:

**Tony Byrne or Bethan Davies:** [HydrologySSD@environment-agency.gov.uk](mailto:HydrologySSD@environment-agency.gov.uk)

## Environment Agency - Thames

The overall summer prospects for water resources availability for spray irrigation in *Thames area* are currently **MODERATE**.

### Background

During March, Thames area received 78% of the Long Term Average (LTA) rainfall. Overall, the area received 90% of the LTA rainfall throughout the winter period (October – end of March). River flows were **normal** at the majority of indicator sites at the end of March, and groundwater levels were also **normal** at most indicator sites. The Soil Moisture Deficit (SMD) for the end of the winter period was 17mm.

### Rainfall / Soil Moisture Deficit

Over the winter period, the Thames area received 90% of the LTA rainfall, and 85% of the LTA effective rainfall. This meant that the recharge of aquifers during the winter period was below the long-term average. During March, the area received 46mm of rainfall, 78% of the LTA for the time of year. This fell mainly towards the start and middle of the month, with conditions generally warm and dry. By the end of March there was a SMD of 17mm, associated with warmer conditions and increased plant growth. This deficit is higher than the long-term average of 10mm. So far this April, rainfall has been below average for this time of year.

### River Flows

At the end of the winter period, the majority of flow indicator sites were **normal**, with the exception of the River Coln, which was **below normal**.

### Groundwater

At the end of winter period, groundwater levels at 7 of the 11 indicator sites were **normal** for the time of year. Three Chalk sites - Stonor Park, Gibbet Cottages and Rockley - were **below normal**. Groundwater levels at only one site (Ampney Crucis in Great Oolite) were lower than they were at the end of February. There was an improvement at three sites between the end of February and the end of March: Tile Barn Farm, in the

Chalk, increased from **below normal** to **normal**; Fringford, in the Great Oolite, increased from **normal** to **above normal**; and Jackaments Bottom, in the Inferior Oolite, increased from **notably low** to **normal**.

### Forward look

As rainfall was below the long-term average during March and the winter as a whole, river flows and groundwater levels are a little lower than we would expect for the time of year, particularly in the Chalk. It is expected that a number of Hands off Flow and Level restrictions on abstraction licences may come into force by mid-summer. Spray irrigation prospects across Thames area remain [MODERATE](#) for 2022.

Please contact for more information:

[IEP\\_THM@environment-agency.gov.uk](mailto:IEP_THM@environment-agency.gov.uk)

## Environment Agency - West Midlands

The overall summer prospects for water resources availability for spray irrigation in the West Midlands Area are [GOOD-MODERATE](#). This situation can change quickly. Please ensure you plan accordingly and maintain resilience in your water supply.

### Rainfall / Soil Moisture Deficit

Rainfall received so far in April in the Severn catchment is 20mm; 35% of the long term average (LTA). Rainfall totals for March were 'normal' at approximately 70% of the LTA apart from two areas (Welsh mountains and Dove catchments) which received 'Below Normal' totals. This contrasts with February 2022, during which three named storms contributed towards the area receiving rainfall totals over 180% of the LTA, and 'Above Normal' or higher totals were recorded across the region that month. January 2022 was a noticeably drier month in comparison, with monthly rainfall totals less than 40% of the LTA, and 'Below normal' or lower totals were recorded across the area. Soil moisture deficit has risen above the LTA meaning soils are drier than expected for this time of year. Following the February storms, soils across West Midlands were saturated, and soils were at or near saturation at the end of January.

### River Flows

Surface water monitoring sites are now recording 'Normal' and 'Below Normal' compared to the long term average for April. Two sites (Llanyblodwel on the R.Tanat and Redbrook on the R.Wye) are 'notably low'. Some abstraction licences have already been restricted in the West Midlands area and we are already having to support some of our watercourses which are more susceptible to low flows. The River Severn Regulation Alert has also been issued. This means we will now move to summer operations on the River Severn, monitoring low flows and liaising with abstractors to ensure legal minimum flows are maintained in the river and supporting water supply for the West Midlands.

### Groundwater

Groundwater levels have remained largely the same over the course of January to April 2022 with most monitoring sites 'Normal' or higher compared to the LTA. Only Anthony's Cross observation borehole in Gloucestershire has dropped to 'Below Normal' during this period. Groundwater supplies can support watercourse flows during the summer, which may be needed if the coming months are dry. The principal aquifers of the Permo-Triassic sandstones in West Midlands are a large store of groundwater and relatively resistant to drought conditions. The key indicator Permo-Triassic sandstone sites across West Midlands are nearly all within normal or higher ranges for the time of year. The recovery although not as significant as in recent years will serve to provide resilience to support surface water flows into the summer months.

### Forward look

The **Spray line service** for abstractors in the River Wye catchment has resumed for the summer season. We will contact licence holders when these thresholds and trigger levels for the Wye have been crossed to safeguard flows.

customer service line  
03708 506 506

incident hotline  
0800 80 70 60

floodline  
03459 88 11 88

**Water abstraction alert system** - We are currently trialling the use of emails to contact you about your abstraction licence. This will be a faster and more efficient way of communicating water availability. These email alerts will warn you when low river flows are reducing the availability of water and tell you to stop or reduce abstraction when water is not available or limited via hands off flow conditions. They will let you know when you can resume abstracting when water is available for abstraction. We are initially trialling this in the River Wye catchment. We hope to roll out more widely across the West Midlands at a later date.

**Section 57 restrictions** A section 57 restriction can be served by the Environment Agency or Natural Resources Wales to protect the environment where there has been an exceptional shortage of rain and imposes a temporary restriction on abstraction for **spray irrigation** purposes. During the summer of 2018, spray irrigation abstractors in the R. Wye catchment were warned that we may need to restrict abstraction due to declining flows, under section 57 of the Water Resources Act 1991, to protect the flows in the Wye. If section 57 restrictions do become necessary we will liaise with all abstractors who may be affected.

We will continue to monitor river flows and groundwater levels.

If you would like further information please contact: [IEP\\_WMD\\_waterresources@environment-agency.gov.uk](mailto:IEP_WMD_waterresources@environment-agency.gov.uk)

## Environment Agency - Yorkshire

Prospects for water resources availability for spray irrigation in Yorkshire for 2022 remain [GOOD to MODERATE](#).

### Background

In February 2022 the Environment Agency issued the “[Prospects for Spray Irrigation](#)” report. Following a changeable winter Yorkshire area listed their prospects as [GOOD to MODERATE](#). February, March and early April have continued the trend of changeable weather in 2022.

### Rainfall

March and April have been months of mixed weather patterns with some extreme changes. March saw rainfall below 50% of LTA (long term average) followed by early April which has seen around 40% of LTA fall before the 10<sup>th</sup> day of the month. Many of Yorkshire’s catchments and in particular groundwater bodies are benefitting from the substantial rainfall that was seen in February.

### River Flows

The rivers in the western urban areas of Yorkshire did see some low flow figures reported for mid March with flows reaching the “exceptionally low” mark in South Yorkshire for example. Since mid March rainfall has returned most river flows to “normal” flow banding. As of the 10<sup>th</sup> of April only three Yorkshire catchments were “below normal” in classification: the Bedale Beck, River Rother and Costa Beck. The watercourses in the Swale, Ure, Nidd and Ouse basin that were listed as “below normal” in the March situation report have all returned to within “normal” flows for the time of year.

### Groundwater

The groundwater situation in Yorkshire remains in a stable position, the rainfall in February and March has meant that groundwater levels are now average for the time of year and in some cases above average. Groundwater levels are now (as is expected due to increased evapotranspiration), likely to decline over spring and summer. There is no concern over groundwater stocks in Yorkshire this summer and as ever the focus now switches the to recharge period of winter 2022 to 2023.

### Forward look

Irrigation prospects remain [GOOD to MODERATE](#) for spring/summer 2022 for the Yorkshire Area.

Our previous update issued in February of 2022 was issued after an extremely wet period where stocks were incredibly high. Following this review there will be no change in the status of Yorkshire Area but the area would remind abstractors it is still early season and dry weather impacts in 2020 and most importantly 2018 were not felt until well into the summer. Longer term forecasts for the remainder of April 2022 suggest a return to warmer and drier weather. Heatwaves have been much more common in the last four years therefore steep declines in stocks can never be ruled out. Further updates will be given by the Environment Agency should a hot dry event take place later in 2022.

Abstraction in the region is primarily controlled by conditions on licences and licence holders must ensure that they adhere to these at all times. It is possible that we may need to implement 'Hands Off Flow' (HOF) or 'Hands Off Level' (HOL) conditions on licences in the coming weeks should dry weather continue.

It is important to note that in early summer wet ground still allows flows to respond after rainfall. Should dry weather persist into May and June increased sunlight hours means that flow responses to rainfall becomes muted. It is important to note that rivers in Yorkshire fed by upland moorlands respond very quickly to hot and dry weather as opposed to those fed by groundwater (mostly in the East of the Area). We urge all abstractors to check the monthly water situation reports and take note of any warnings of a "Hands Off Flow/Level" being implemented in their catchment.

For the most up to date water situation reports please visit our website here:

<https://www.gov.uk/government/statistics/water-situation-report-yorkshire-and-north-east>

For more information please contact us by emailing [AEPYorkshireandNE@environment-agency.gov.uk](mailto:AEPYorkshireandNE@environment-agency.gov.uk)

## Wessex

The overall summer prospects for water resources availability for spray irrigation in Wessex are currently [MODERATE](#).

### Background

Wessex has experienced a drier than average winter.

### Rainfall / Soil Moisture Deficit

Whilst March rainfall was 'normal' for Wessex at 82% of long-term average, the majority (89%) of the rain fell in the first half of the month with a dry second half. This follows on from the driest November on record and a dry January which has resulted in below normal cumulative rainfall over the past 3 and 6 months. There is a small soil moisture deficit which whilst below long-term average, is similar to last year.

### River Flows

The average river flows for March are all 'normal' except the rivers Hampshire Avon, Wylde and Wey which are 'below normal'. However, the drier second half of March has reduced the daily flows in surface runoff rivers due to the lack of rainfall.

### Groundwater

Whilst some groundwater recharge has recently occurred, the below average cumulative rainfall over the past 6 months has meant the groundwater recharge since October 2021 is lower than the previous two winters. Four monitoring boreholes are 'below normal', three 'normal' and one 'notably high'.

### Forward look

Prospects across Wessex are [MODERATE](#) for 2022 and a drier than average April and May will continue the fall in river flows. However, there are no current major dry weather concerns. A small number of licences are currently restricted by the low river flows.



Please contact for more information:

Jonathan Gilling, IEP, Area Drought Coordinator, [jon.gilling@environment-agency.gov.uk](mailto:jon.gilling@environment-agency.gov.uk)

**customer service line**  
**03708 506 506**

**incident hotline**  
**0800 80 70 60**

**floodline**  
**03459 88 11 88**