

27 February 2023

Initial prospects for irrigation – Area forecasts for 2023

Our initial prospects for irrigation across England in 2023 range from [GOOD through to MODERATE to POOR](#). 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 possible to minimise the impacts of prolonged dry weather 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. We have provided local Environment Agency contacts within this report.

Abstraction Licences

- Understand your licence conditions. If you don't, please get in touch and we can help you.
- Check your licence details and, always:
 - adhere to licence conditions ensuring that abstractions are only taken from authorised locations during authorised periods
 - ensure volumes and rates are not exceeded and keep accurate records of meter readings
- 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.
- Review your water needs. Make sure that you apply to make any changes to your water rights so that your abstraction is more resilient.
- Register to manage your licences online
 - 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:
 - View your licence online and view previous returns submitted
 - Submit your abstraction returns online
 - Give permission to a named contact to manage your licence
- The Environment Agency is moving towards using the online Water Resources Licensing Service system to provide e-alert notifications to abstractors who have hands-off flow or level conditions in licences. This will improve access to water when it is available and better protect water rights and the environment when it is not. Not all abstractors will receive email alerts from March, but they are an important step in helping abstractors to adapt to river and groundwater levels as the climate changes. We will provide more information on the water abstraction alerts in the spring.

Voluntary Restrictions

- Support voluntary restrictions if and when they are requested. This will delay and may avoid the need for more formal restrictions. If you voluntarily reduce your abstraction, this will not count against you if you apply to renew your licence.

customer service line
03708 506 506

incident hotline
0800 80 70 60

floodline
03459 88 11 88

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;
- 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.
 - If you are in an Environment Agency Area which is in drought or prolonged dry weather status, we may consider requests for Local Enforcement Positions to allow an extension to the reservoir refill season beyond March 2023. This will only be supported where flows are above winter hands-off flow conditions so that protection of the environment and other water users remains in place. We will not consider requests where a similar proposal has previously been made by the same abstractor and no subsequent action has been taken to improve future resilience of supplies. Details of Environment Agency contacts are given in the area-specific sections below.
- Continue to plan for the future. Is there an opportunity to convert from direct summer abstraction to high flow storage? Any planning permission or abstraction licences for Tranche 1 reservoir grant applications must be in place by 31 March 2023, and for Tranche 2 applications by 31 May 2023 to be eligible for Farming Transformation Funding. If applicants cannot meet the relevant deadline they should contact the Rural Payments Agency as soon as possible – please email FTF@rpa.gov.uk. The Rural Payments Agency is currently looking to roll out a new round of reservoir grants in the spring.
- Ensure your reservoir is regularly maintained, checking for cracks and leaks.

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.
- 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.
- See also the document: [Guidance on the planning and design of irrigation reservoirs in Kent](#), jointly produced by Environment Agency, Kent County Council and EMR.

Abstractor Groups and Guidance

- Where appropriate, discuss issues and share ideas with neighbouring farmers. Several 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 (such as e.g. NFU, UKIA, Cranfield University etc.).

Other useful links and guidance

- We have a range of literature available to help support your business including Rainwater Harvesting; Adopting Best Metering Practice; and Think About Installing an Irrigation Reservoir (please request these from our local Environment Agency area – contacts below).

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- Keep updated on the latest water situation reports at <https://www.gov.uk/government/collections/water-situation-reports-for-england> (national and area specific reports are available).

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.
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

To jump to specific areas, please click the links below:

[Cumbria and Lancashire](#)

[Devon, Cornwall and Isles of Scilly](#)

[East Anglia \(East – covering Essex, Norfolk and Suffolk\)](#)

[East Anglia \(West – covering Cambridgeshire and Bedfordshire\)](#)

[East Midlands](#)

[Greater Manchester, Merseyside and Cheshire](#)

[Hertfordshire and North London](#)

[Kent, South London and East Sussex](#)

[Lincolnshire and Northamptonshire](#)

[North East](#)

[Solent and South Downs](#)

[Thames](#)

[Wessex](#)

[West Midlands](#)

[Yorkshire](#)

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Area detail

Environment Agency - Cumbria and Lancashire

Cumbria and Lancashire will not be providing a formal spray irrigation prospects report at this time. The current situation is 'normal' and if we have average rainfall then the irrigation prospects for the summer are likely to be [GOOD](#). Cumbria and Lancashire have received above average rainfall over the last three months (November 2022 to January 2023). Over this period, rainfall was 128% of the long-term average and was classed as 'above normal'. Soil moisture deficits were low across Cumbria and Lancashire by the end of January, as expected for the time of year. Cumbria and Lancashire area has quick responding rivers and therefore the surface water situation can change relatively quickly. There are no concerns regarding irrigation from groundwater.

Please contact for more information:

Integrated Environment Planning team - drought.northwest@environment-agency.gov.uk

Environment Agency - Devon, Cornwall and Isles of Scilly

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

Background

Because of 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. Whether there is sufficient water will depend on rainfall, water abstraction and temperatures during the season. We therefore expect abstractors to be prepared and encourage applications for winter storage reservoirs.

Rainfall/Soil Moisture Deficit

Devon and Cornwall received above average rainfall totals between October 2022 and January 2023. Over this period, rainfall was 136% of the Long-Term Average (LTA) and was 'notably high' for the time of year. Soil moisture deficit for Devon and Cornwall was close to zero on 17 January 2023, which is wetter than the LTA.

River Flows

Monthly mean river flows for January 2023 were 'above normal', 'notably high' or 'exceptionally high' for the time of year at all reported sites. There will always be a risk that flows will drop off quickly if we have below average rainfall over the coming months. 2023 has begun with some storage reservoirs across the region below the normal level for the time of year. As of 15 January 2023, total storage is 71%, compared to 90% in January 2022.

Groundwater

As of January 2023, groundwater levels are healthy. The level at one indicator borehole is 'notably high', levels at two boreholes are 'above normal' and levels at three are 'normal'. Groundwater levels in our Isles of Scilly monitoring borehole continue to rise in steps in response to rainfall events.

Forward look

With the groundwater levels remaining healthy and the limited environmental benefit of placing restrictions in Devon, Cornwall & Isles of Scilly, we do not anticipate any restrictions regarding irrigation in the coming

months. 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. This position will be reviewed during 2023, dependent on the rainfall patterns and river/groundwater levels.

The continuing dry weather since the end of January and the low reservoir levels have led us to lower our assessments, therefore the indicative spray irrigation prospects for Devon, Cornwall & Isles of Scilly are [MODERATE](#) for 2023.

Please contact for more information:

Debbie Peareth – Deputy Drought Coordinator DCIS 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 to POOR](#).

Background

The summer of 2022 was exceptionally hot and dry with many of the eastern coastal rivers experiencing less than 50% of average rainfall and a large swathe between the Yare and the Deben recording less than 30%. That extreme spell broke unevenly across the area, with north-west and parts of north-east Norfolk continuing dry through to November.

Most catchments experienced average or slightly above average rainfall during the autumn, a pattern that continued into early January. A more intense period of rain in late November and December resulted in soil moisture deficits falling to low levels, conducive to a rapid river response and some recharge of groundwater – in line with what we would normally expect for the time of year.

The drier autumn experienced across north Norfolk delayed the recovery of groundwater by 3-4 weeks in affected catchments, but recovery by late December was established in all areas.

Rainfall / Soil Moisture Deficit

Overall, the 3 months up to 1 February 2023 saw average rainfall in Norfolk and above average rainfall in Suffolk and Essex, with soil moisture deficits (SMD) mostly falling to 0-5mm. Since the latter half of January very little rain has occurred and soil moisture deficits have begun to creep back up. We are only partway through the normal season for groundwater recharge so much depends on rainfall patterns between now and April.

Average (100%) rainfall accumulations should see recovery of most river baseflows to a normal level by the spring, with a possible exception of the groundwater dominated rivers in north Norfolk where recharge has only just commenced. These catchments could remain below normal and there are some indications from the Suffolk Crag that 'above normal' rainfall will be required for complete aquifer recovery. Irrigation prospects for rainfall between 80-100% are therefore currently considered moderate, with groundwater levels providing some natural resilience to summer drought. It should be noted, however, that levels would commence lower than in the spring of 2022 so the effects of a repeat of the 2022 extreme event would be more severe. The most likely situation in this scenario is that no formal demand reductions will be required.

Rainfall totals much lower than 80% would significantly truncate the recharge season, but with SMD at current low levels, 80% rainfall should be sufficient to start the summer in a reasonable condition and be sufficient to buffer the impacts of any moderate dry spells. However, a more intense, hot, dry month during the summer, precipitating high demands, would be difficult to manage without voluntary demand reduction measures in the more heavily pressured catchments. We would classify prospects for this situation as moderate to poor. We estimate there is less than a 15% probability of this occurring.

Extremely low rainfall (60% or less) between now and early summer has a low probability (less than 5%) of occurring but would have significant consequences. Most catchments would, at some point, experience

flow rates that would initiate demand reduction through formal Section 57 spray irrigation restrictions. Partial recovery of groundwater in the baseflow dominant rivers of north Norfolk could yield prolonged periods of summer flows below hands off flow control levels. In 2022 these catchments were spared the impact of drought due to higher-than-normal groundwater levels post spring. These rivers would be much less robust following a very low rainfall scenario this year. Most groundwater fed rivers north of the Yare would be significantly more vulnerable.

River Flows

River flows are currently receding to a lower-than-average level following much drier periods in late December and January, seeing a reduction of run off through field drainage systems. However, autumn flow rates were generally at normal levels, with a strong recovery in most catchments. An exception to note has been the slower response of the groundwater dominated rivers in north Norfolk, from the Burn to the Ant, where recovery of flow remains slow, but not exceptionally so. All winter storage abstractions were able to abstract at some point by the new year and those abstracting from larger run off dominated catchments should be significantly refilled.

Groundwater

The rapid decline in storage during the summer left most aquifers below normal conditions despite a healthy start to the spring. Limited recovery of groundwater to date means that most aquifers outside of Essex remain below normal conditions but this is not at present of exceptional concern. The current soil moisture levels are highly conducive to allow further recharge. Should rainfall return to more average levels, further rapid recovery can be expected.

Forward look

Our overall assessment of prospects for the 2023 irrigation season is therefore moderate in the parts of Essex and Suffolk that have experienced a wetter autumn period, tending to poor in the Norfolk coastal rivers and streams where groundwater levels remain below normal in most parts. The poor assessment for parts of Norfolk is subject to significant uncertainty at this stage, with 2 more months of potential recharge to groundwater. The most likely outcome remains moderate with the caveat that we cannot rule out demand reduction measures following a more extreme period of low rainfall during the summer. The risk of formal Section 57 spray irrigation restrictions is only slightly elevated and currently remains at a low probability of occurrence.

Please contact for more information:

Tim Wojcik – East Anglia East

Peter Willett – Technical Specialist – Hydrology

easterniep@environment-agency.gov.uk

peter.willett@environment-agency.gov.uk

Environment Agency - East Anglia (West)

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

Background

Following the extremely dry spring and summer of 2022, above-average rainfall across the south and west of the Area during the autumn brought soil moisture conditions close to average for the time of year. Groundwater levels there had generally recovered by the early winter. However, west Norfolk and north-west Norfolk experienced lower rainfall totals and groundwater has not recovered fully from summer levels. The recent 5 weeks of dry weather means that there is a possibility that recharge for this winter has now largely ended.

Rainfall / Soil Moisture Deficit

customer service line
03708 506 506

incident hotline
0800 80 70 60

floodline
03459 88 11 88

Rainfall between March and August 2022 was only 50-60% of the long term average, leading to exceptionally dry conditions across all catchments. Between September and November rainfall totals were 110-170% of the long term average, with the highest totals in the Bedford Ouse catchment and the lowest accumulations in west Norfolk and north-west Norfolk. The Bedford Ouse and western Ely Ouse soils reached field capacity in early winter, but a soil moisture deficit persisted in Norfolk catchments. Rainfall accumulations during December and January were close to average, but the weather has turned dry since the middle of January and a soil moisture deficit is beginning to develop earlier than usual.

River Flows

The flows in the Bedford Ouse and the western catchments of the Ely Ouse initially responded positively to the heavy rainfall in autumn. Throughout the autumn the flow responses generally rose as the soil wetted up and as field drainage and aquifer discharge added increasing contributions. However, flows have receded in response to the dry weather since the peak flow responses in early January. In north-west Norfolk, flows have remained markedly lower than average for the time of year and lower than during the winter of 2021 to 2022. Across the area, the water available for winter storage reservoirs has not allowed all reservoirs to fill from the low storage carried over from last summer.

Groundwater

Groundwater levels began recharging during late autumn in the Sandstone aquifers and across the Chalk in the Ivel, Cam, Snail and Lark catchments. Groundwater in those catchments had reached approximately normal levels by January. In the Little Ouse and catchments of west and north-west Norfolk, recharge began later and groundwater has not recovered to normal levels. Recharge is likely to have stalled due to the dry weather since mid-January.

Forward look

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

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.

Average rainfall across the spring and summer would not lead to widespread restrictions on spray irrigation licences. However, many licences that abstract from surface water during summer have hands-off flow conditions, and an early end to the recharge season and a period of hot, dry weather during the summer could lead to those conditions coming into effect. The risk this summer is significantly higher than the usual risk. If those standard licence conditions are not sufficient to relieve the environmental stress during severe dry weather, the remaining licences, without hands-off flow conditions, could be requested to make voluntary reductions. Under more extreme conditions there would be formal Section 57 spray irrigation restrictions applied to surface water licences. The probability of formal restrictions to surface water licences is around 10% in the catchments of north-west and west Norfolk, and lower elsewhere in the Area.

Formal Section 57 spray irrigation restrictions are very unlikely to be used on groundwater licences across the Area this summer. However, a request might be made for voluntary reductions to groundwater licences if the spring is dry and if prolonged hot and dry conditions follow this summer. The request is more likely in the catchments of west and north-west Norfolk where groundwater levels are particularly low.

Please contact for more information:

Catherine Keey, East Anglia (West) Integrated Environment Planning Team

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 [MODERATE](#).

Background

East Midlands experienced a very dry spring and summer in 2022 which led to the area being in drought status from August until January 2023. In October 2022 there was a change in the weather which saw wetter conditions, with above average rainfall through to November.

Rainfall / Soil Moisture Deficit

Compared to the long term average, rainfall received in December 2022 and January 2023 was normal across the East Midlands. Rainfall during the first half of February has been below the long term average.

Soil moisture deficits in January were marginally above normal compared to the long term average. At the end of January soil moisture deficits have increased slightly (soils becoming drier) compared to the end of December.

River Flows

Monthly surface water flows in January were normal or above in comparison to the long term average, despite the dry weather conditions at the end of the month.

Groundwater

Groundwater levels are healthy with most sites reporting normal for January in comparison with the long term average.

Forward look

Prospects across East Midlands Area are [MODERATE](#) for 2023.

There has been good recharge in the fast-responding limestone aquifers. However, seasonal recharge has generally yet to be observed in the slow-responding sandstone aquifer. Although we have seen some wet weather over winter, significant rainfall into the spring would benefit a stronger response in sandstone groundwater levels. Nevertheless, prospects remain moderate. If spring and early summer turn dry, the irrigation prospects may change.

Please contact for more information:

East Midlands Integrated Environment Planning team at WaterResources.DBNTLS@environment-agency.gov.uk

Environment Agency - Greater Manchester, Merseyside and Cheshire

Greater Manchester, Merseyside and Cheshire will not be providing a formal irrigation prospects report at this time, but the current situation is normal and if we have average rainfall then the irrigation prospects for the summer are likely to be [GOOD](#). Rainfall for the last three months ending January 2023 was 121% of the long term average and was classed as above normal. Soil moisture deficits were relatively low across Greater Manchester, Merseyside and Cheshire by the end of January, and as expected for the time of year. Greater Manchester, Merseyside and Cheshire area has quick responding rivers and therefore the situation can change relatively quickly. There are no concerns regarding irrigation from groundwater.

Please contact for more information: Integrated Environmental Planning IEP_GMMC@environment-agency.gov.uk

customer service line
03708 506 506

incident hotline
0800 80 70 60

floodline
03459 88 11 88

Environment Agency - Hertfordshire and North London

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

Background

Rainfall amounts have exceeded the winter seasonal average at 142% for the period 1 October 2022 to 31 January 2023. This has allowed soils to become saturated, groundwater levels to begin their recovery, and river flows to improve. Further rain will be beneficial to provide additional resilience to prevent early drying out of local soils or premature decline in groundwater levels or river flows.

Rainfall / Soil Moisture Deficit

The Soil Moisture Deficit (SMD) reflects rainfall. The current SMD data show soils remain saturated. The January figures show a slight increase in SMD reflecting part of the month being dry. The effective rainfall totals continue to be above the winter seasonal average. This allows more of the rainfall to raise local groundwater levels. Rainfall will need to continue to allow a groundwater buffer to be established against any extended drier summer weather conditions.

River flows

Monitoring locations are generally showing flows are within their normal range for this time of year. This does mask some wider variation seen in our local river source inspections. Flow recovery in some headwater Chalk streams is still to occur. The Ver solely flows from Redbourn, and the Misbourne has a section between the Chalfont's that does not flow. The urban and clay-based rivers have a far greater fluctuation in flows closely linked to rainfall events.

Groundwater

Groundwater levels at our key indicator sites are presently within their normal range. Recovery has been more noticeable within the Mid-Chilterns Chalk than the Upper Lee Chalk. Present projections would indicate the decline in groundwater levels could start in mid spring to early summer. This is based on receiving at least 80% of the long term average winter rainfall. Rainfall totals either side of this could bring forward or defer any decline in water levels.

Forward Look

Prospects for Hertfordshire and North London are considered [MODERATE](#).

Further rain will provide better resilience for our groundwater resources which will also help maintaining river flows. The timing and on-set of any drier and warmer conditions can influence the demand for irrigation water. These drier conditions are likely to activate some flow and level restrictions. Individual abstractors can contact us should they have any 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 at HNLenquiries@environment-agency.gov.uk

Environment Agency - Kent, South London and East Sussex

Kent, South London and East Sussex (KSL) area is not producing a full area indicative irrigation prospects report prior to April, when we normally issue our irrigation prospects for the summer season.

Across the KSL area over the winter period to date (Oct 2022 to Jan 2023) we received 149% of the long term average (LTA) rainfall with effective rainfall for the same period at 181%. This contrasts to last year's dry winter that subsequently led to hot dry drought conditions in the summer. As a result, the Area's water resource availability outlook for the 2023 irrigation season is: [GOOD to MODERATE](#).

The groundwater resources that support many of our catchments have responded to the initial wet winter so far, although recent dry conditions have stabilised groundwater level recovery rates. Conditions remain favourable and there are no imminent concerns from a water resources perspective and irrigation outlook. However, if the current drier than normal conditions persist with a reduced aquifer recharge period, this is likely to cause widespread flow constraints being triggered earlier than normal in the irrigation season, particularly for rainfall sensitive catchments. A more detailed irrigation prospects report will be developed in April, ahead of the summer irrigation season.

Please read the latest Water Situation Reports via <https://www.gov.uk/government/publications/water-situation-local-area-reports> to view the KSL Area water resource situation in more detail.

For further updates or advice please contact your local environment officer or the Groundwater Hydrology team at: ksl.gwh@environment-agency.gov.uk

Environment Agency - Lincolnshire and Northamptonshire

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

Background

A very dry spring and summer 2022 saw the area starting autumn (September-November) in relatively poor condition, with the area having been in drought throughout the summer. As a result, all river flows and groundwater levels were well below yearly averages. The weather then turned wet during the autumn, most notably in October and November which saw 90mm and 94mm -160% and 167% of the long term average (LTA) rainfall respectively. This caused river flows to recover and groundwater levels to increase, with most then being at normal or above, with the only exceptions being in the chalk aquifer to the north-east of this area. Rainfall in December and January helped to maintain river flows at normal levels, albeit at the lower end. Groundwater levels ended January at normal to above normal levels, although there are some signs that groundwater levels may have peaked slightly earlier than usual.

Rainfall / Soil Moisture Deficit

January was slightly drier than average with 43mm (84%) of the LTA. Nearly all the rain fell in the first half of the month. The first half of February has been very dry, classing it as an exceptionally low rainfall month so far, with an average of 2-3mm, 7-8% LTA, falling in February as of the 20 February. Soil Moisture Deficits (SMD) were at normal to below normal levels in mid-January. Following the dry end to January and the dry February so-far, SMD levels are now above normal for the time of year.

River Flows

River flows returned to normal or above normal following the autumn rainfall. River flows mostly stayed at normal to above normal flows throughout December and January. Following the dry end to January, a lot of sites finished the month at the lower end of their normal range. The dry start to February has seen river flows decrease further, with most sites currently below normal to notably low levels at the halfway point of the month.

Groundwater

Groundwater levels are at normal to above normal levels at all sites in both the Oolitic limestone and chalk aquifers. The recovery from last summer's low levels have generally been slower in the chalk aquifers. Although groundwater levels are currently good, recharge has paused and some sites are showing

groundwater levels peaking earlier than expected. When groundwater levels start to drop in the spring you don't normally expect further recharge.

Forward look

Prospects across Lincolnshire and Northamptonshire area are [MODERATE](#) for 2023.

We are likely to see below normal river flow conditions and mostly below normal groundwater levels this summer with 100% of the LTA rainfall. The only exception is in the chalk aquifer, which could see notably low levels, resulting in reduced baseflow for the rivers in this location.

However, groundwater levels and river flows are likely to be at below normal to notably low values this summer across the area with 80% of the LTA rainfall. Additionally, the chalk aquifer shows potential for groundwater levels being at notably low to exceptionally low levels throughout the summer with 80% of the LTA rainfall

It is likely that local water management actions will be required across the area during the irrigation season. 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

Environment Agency - North East Area

The overall summer prospects for water resources availability for irrigation in North East Area are currently [GOOD to MODERATE](#)

Background

After a dry spring and summer, the wet weather returned in September 2022 with monthly totals above average for the first time in 6 months. The wet weather continued throughout winter with an increase in river flows during this period. Soil moisture deficits decreased in response to the wetter weather and all soils were fully saturated by mid-December. Reservoirs began to refill during October and November and, although they have fallen slightly since mid-January, most stocks are healthy and are just 4% below average for the time of year. This is due to low levels in Derwent reservoir, although even here stocks are healthier than this time last year.

Rainfall / Soil Moisture Deficit

Rainfall across most of the North East, over the 12 months up to and including January 2023, has been in the normal range, with cumulative totals just below the long term average. Rainfall in January was variable, with below average totals recorded in all catchments. The Tweed catchment is the driest of all North East catchments with rainfall falling within the notably low category in January and the below normal category over the last 12 months.

For much of last summer soil moisture deficits were in the normal or dry ranges, rising to very dry in August. By October soil moisture deficits had started to decline and by the end of November all soils fell within the wet category, where they remain.

River Flows

River flows have generally been within the normal to above normal range over the past 5 months from September to January. Over the past 12 months mean river flows have frequently been below average with the lowest flows observed during the hot and dry spring/summer. Generally, the lowest flows were recorded in July and August with some flow sites registering just 20% of their long term average (LTA). Recovery began in September and continued throughout autumn and winter with river flows in January normal, above normal or notably high.

Groundwater

Groundwater stocks are at normal or above normal levels for the time of the year. In general, groundwater levels are stable although reduced rainfall totals throughout 2022 have resulted in generally lower aquifer recharge rates. Some increases in groundwater levels have been observed in the more responsive parts of our aquifers, in line with heavier rainfall in late 2022. More confined parts of our aquifers are yet to receive this rainfall and some level increases are expected into spring 2023.

Forward look

Prospects across the North East area are currently [GOOD to MODERATE](#) for 2023.

The Met Office 3-month outlook for the UK suggests that over the period March to May there is a higher than normal chance of a dry spring. From April, the chance of a warm period is higher than normal.

In the Coquet catchment, rainfall more than 80% of the LTA in February and March will result in flows in the normal range, whereas with just 60% of the LTA, flows would fall into the notably low range.

It is possible that the implementation of hands off flow conditions will be required across the area during the irrigation season as even in average conditions any dry periods can result in some form of local water management actions.

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.

For more information on licence conditions, please contact:

Water Resources: water.resources.northeast@environment-agency.gov.uk

Environment Agency - Solent and South Downs

The overall summer prospects for water resources availability for irrigation in Solent and South Downs (SSD) are currently [GOOD](#).

Background

Overall, the winter has been wet to date and SSD has made a good recovery from the effects of the hot dry summer experienced in 2022. The September to January 5 month period is the 5th wettest on record so overall recharge has been above average. SSD is heavily dependent on groundwater so prospects for summer rely on the extent to which the chalk and greensand aquifers are replenished over winter.

Rainfall / Soil Moisture Deficit

Rainfall in September and October was above average and November was one of the wettest on record. December started dry but ended very wet while January was the opposite with a wet start and a dry finish. Despite the dry periods in December and January overall rainfall totals for both months were above average. The dry end to January has meant that soils are drier than average but this is not a cause for concern at present.

River Flows

At the end of January 2023, the majority of reporting sites had normal or higher monthly mean flows. The higher than average recharge has helped to increase baseflows in the catchments with chalk and greensand aquifers. More responsive rivers dominated by impermeable geology, which only make up a small part of SSD, have summer flows largely dependent on the immediate weather conditions.

Groundwater

customer service line
03708 506 506

incident hotline
0800 80 70 60

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The wet autumn and winter to date has meant that so far recharge has been above average and most reported groundwater levels are higher than normal (as of 31 January).

Forward look

Prospects across Solent and South Downs are currently **GOOD** for 2023 unless there are significant dry and warm conditions over the next few months.

Please contact for more information:

Tony Byrne or Bethan Davies: HydrologySSD@environment-agency.gov.uk

Environment Agency - Thames

The overall summer prospects for water resources availability for spray irrigation in Thames area are currently **GOOD to MODERATE** for 2023.

Background

At the end of January, river flows and groundwater levels in the Thames area were normal or higher for the time of year at the majority of indicator sites. This is due to higher than average rainfall through the winter period so far (October 2022 to the end of January 2023). The winter rainfall conditions to date have resulted in flow and groundwater levels across catchments in the Thames area being in a better position than in February 2022 ahead of last year's hot dry summer.

Rainfall / Soil Moisture Deficit

Over the winter period so far (October to end of January), the Thames area received over 140% of the long term average (LTA) rainfall. The effective rainfall for the same period was 170% of the LTA. In January we received 121% of the LTA rainfall for the month (83mm), the majority of which fell in the first half of the month. Conditions since have remained notably drier. The average Soil Moisture Deficit for the area at the end of January was slightly drier than average for the time of year.

River Flows

As of the end of January, the majority of flow indicator sites were above normal or higher, with indicator sites on the Rivers Loddon, Wey and Cherwell recording exceptionally high flows for the time of year. River flows in the east of the area (Rivers Thame and Wye) were both normal for the time of year.

Groundwater

Groundwater levels at the end of January were normal at the majority of indicator sites, with the greensand in the south (The Flashes and Frith Cottage) and some chalk sites in the west (Tile Barn Farm and Rockley) being higher than normal. The only site below normal for the time of year is Stonor in the chalk. Levels at several groundwater sites experienced rapid seasonal recovery due to high rainfall totals at the start of the winter period. Slower responding sites such as the chalk at Stonor saw a delayed start to recovery which was also affected by the Chilterns receiving less recharge during the winter period compared to other locations. The rate of groundwater level recovery has reduced in response to recent drier conditions, although levels generally remain in a favourable condition for the time of year.

Forward look

If rainfall through the remainder of the winter period (to April) is around normal for the time of year, we expect to go into the summer with flow and groundwater levels at normal or higher. This will be a good position following the dry conditions of 2022 and will support abstraction into summer 2023. There are no imminent concerns from a water resources or irrigation perspective.

If the drier conditions of recent weeks persist through the remainder of the winter, recovery of groundwater levels and river flows may be more limited. This will reduce the resilience of water resources into the summer and result in constraints on abstraction being triggered earlier than normal in the summer.

In this early assessment therefore, irrigation prospects across Thames area are GOOD to MODERATE for 2023. This will be updated in April ahead of the irrigation season.

Please contact for more information: IEP_THM@environment-agency.gov.uk

Environment Agency - Wessex

The overall summer prospects for water resources availability for irrigation in Wessex are currently GOOD.

Background

Following on from the second driest 10 month November to August period, Wessex Area has received above average rainfall between October and January 2023. This has greatly improved the water resource situation but has led to flooding in many areas due to high river flows and some high groundwater levels.

Rainfall / Soil Moisture Deficit

The 4 month period from October 2022 to January 2023 was the eighth wettest since records began in 1891. However, most of the rainfall in January fell in the first half of the month and it has been predominately dry since. The soil moisture deficit remains close to zero although it has increased slightly towards the end of January and is similar to the same time last year and long term average.

River Flows

The January monthly mean river flows were either notably high or exceptionally high for almost all of our key flow gauging stations due to the rainfall at the start of the month. With the current dry weather, daily mean flows have fallen in many surface water catchments but remain in the normal band. The river flows in the chalk catchments are above normal or notably high as they are supported by high groundwater levels. This includes the Hampshire Avon, River Wylfe and the River Piddle.

Groundwater

By the end of January, groundwater levels ranged from below normal to notably high after the wet winter. Some fast-responding aquifers, such as the Old Red Sandstone monitored at Chantry, have rapidly fallen during the recent drier weather from exceptionally high to below normal within 2 weeks. The limestone Inferior Oolite and Greater Oolite borehole water levels at Didmarton and Allington are much slower to respond to rainfall and continue to increase. Groundwater levels at most sites are higher than last winter although the Allington borehole indicates further recharge of the Greater Oolite would improve that resource.

Forward look

Prospects across Wessex are GOOD for 2023 and we are in an improved situation when compared to this time last year. However, if the current dry weather continues, river flows in the surface water dominated catchments will continue to fall.

Due to the high rivers flows and normal groundwater levels, there are currently no licences restricted from abstraction and all winter storage reservoirs are expected to be full.

Please contact for more information:

Jonathan Gilling, IEP, Area Drought Coordinator, jon.gilling@environment-agency.gov.uk

Environment Agency - West Midlands

The overall summer prospects for water resources availability for irrigation in West Midlands Area for 2023 are currently MODERATE.

customer service line
03708 506 506

incident hotline
0800 80 70 60

floodline
03459 88 11 88

Background

As we have seen in recent years this situation can change quickly and result in the need to restrict abstraction licences from early to mid-summer. Please ensure you plan accordingly and maintain resilience in your water supply.

Rainfall / Soil Moisture Deficit

During October and November 2022, most catchments received above average rainfall. From December through to the end of January 2023, almost all of the area received normal rainfall compared to the long term average (LTA). January's Midlands Water Situation Report showed rainfall totals ranging from 79% to 155% of the LTA which equates to normal for the time of year for most sites, and above normal for one location in the west of the area. However, in the first 2 weeks of February 2023, the majority of catchments have seen only 2% of rainfall totals for the month compared to the LTA.

Up until October, soils were drier than the LTA because of the drought experienced during the summer. However, as a result of the above average rainfall from October to November, soil moisture deficits returned to normal by December. At the end of January soils were near saturation.

River Flows

Following below average rainfall from the end of January and throughout February, the majority of sites are now recording below normal flows or lower. There is a risk that flows will continue to drop or be slow to recover if we continue to have below average rainfall over the coming months.

Groundwater

Groundwater supplies (e.g. springs) can help support watercourse flows during the summer, which may be needed if the coming months are dry. Currently most sites are normal or above for the time of year.

The principal aquifers of the Permo-Triassic sandstones in the West Midlands are a large store of groundwater and relatively resistant to drought conditions. Half of the key indicator Permo-Triassic sandstone sites are within normal or higher ranges for the time of year. However, 3 key indicator sites are below normal compared to the LTA for the time of year. This indicates that there has been some recovery over the winter, although the effects of the drought in 2022 continue to be observed.

Reservoir storage

By the end of January 8 sites had normal or above normal storage compared to the LTA. The remaining site, located in the north-east of the West Midlands, has just below average storage for the time of year. Clywedog reservoir is being managed according to agreed flood drawdown procedures and is expected to be full or near full by 1 May 2023.

Forward look

Abstraction and irrigation is primarily controlled by licence conditions associated with river flow and level. Licence restrictions are triggered by notification from the Environment Agency of "Hands off Flow or Level" (HoF/HoL) or are monitored and managed by the licence holder. During an average year it is likely that some licences will be restricted during dry periods. The proportion of licences restricted in the West Midlands and the duration they are affected depends on how resilient the catchment is to changes in water availability and whether or not we experience drier than average conditions.

Information on how resilient your catchment is to changes in water availability can be found in the Abstraction Licensing Strategies [Abstraction licensing strategies \(CAMS process\) - GOV.UK \(www.gov.uk\)](#), by reviewing past restrictions to your licence and by contacting IEP_WMD_waterresources@environment-agency.gov.uk

Prospects across West Midlands area are [MODERATE](#) for 2023. This information will be reviewed and updated in April/May.

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If you would like further information please contact: IEP_WMD_waterresources@environment-agency.gov.uk

Environment Agency - Yorkshire

Prospects for water resources availability for spray irrigation in Yorkshire for 2023 are [GOOD to MODERATE](#).

Background

Yorkshire saw below average rainfall in 2022 for March to September in addition to a dry January starting that year. Last year's heatwaves combined with low rainfall resulted in the most significant dry weather event in the county since 1995. Above average rainfall returned in September, while November was the most significant recharge month with 141% of long term average (LTA). During 2022 Yorkshire Area issued numerous drought permits to Yorkshire Water. Many agricultural users encountered prolonged periods of "Hands off Flow" conditions affecting their licences. Surface water stocks recovered well due to heavy rainfall events in the autumn. Groundwater stocks, although mostly in normal ranges, are not at the elevated levels seen in winter 2020 to 2021. River flows at the end of the year were in the normal range reflecting the wetter weather.

Rainfall / Soil Moisture Deficit

The above average rainfall in autumn and early winter resulted in groundwater recharge, with many river flows and storage reservoirs refilling. Groundwater levels at the end of 2022 were mostly in normal ranges. 2023 began with most but not all storage reservoirs across the region at 100% full for all purposes (Navigation, Public Water Supply, and Agriculture). However, the first half of February 2023 started extremely dry (around 10% of monthly LTA), which has stalled the improvement to surface and groundwater stocks.

The [Met Office](#) is currently forecasting a continuation of settled weather for the remainder of February. More unsettled weather and possibly winter showers are forecast in the period from start of March. This forecast has high uncertainty. More information around water availability will be produced during April 2023. Longer term soil moisture deficit is important in terms of water availability. In 2018, 2020 and 2022, as soon as soils dried in the hot and dry events, the effect of rain that did fall was significantly reduced. This is particularly the case on the Pennine Moorland.

River Flows

Surface water recovers quickly in winter. With soil conditions still wet, any significant rainfall in March or April will be enough to top up surface water stocks and flows for the start of the summer.

Groundwater

January 2023 groundwater levels in the Chalk, Sherwood Sandstone, Magnesian Limestone and Millstone Grit are all normal for the time of year with the Corallian Limestone marginally below normal. These levels mean that reductions in groundwater supply are unlikely for the spring of 2023, but the remaining months of recharge will play a significant role in water availability during late summer. The recharge of October and November of 2022 showed how important this period is for groundwater recharge. The slow response time of some of the county's groundwater supplies means that impacts of dry weather are 12 months behind the above ground event, apart from some limestone sources that respond like a surface water system. It is likely that water availability risks for 2024 will need to be assessed in this autumn and not earlier.

Groundwater stocks are mostly in the normal range except for Sproxton on the East Yorkshire Corallian Limestone, which is currently below normal. This aquifer responds quickly to rainfall and is likely to reach normal levels following any significant accumulations in March or April.

Forward look

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Spray irrigation prospects are currently [GOOD to MODERATE](#) for spring/summer 2023.

The forecast above reflects the late recharge in winter 2022. Prior to this period, it was highly unlikely the forecast would have been anything other than “poor” or “moderate to poor”. In many ways this shows the greater frequency of exceptional weather hot/cold and dry/wet events. Slow recharge for the remainder of the winter and an early heatwave like 2020 or a cold and dry start to the year such as 2022, will not provide stocks with the additional pre-summer top up that bolstered the resilience of both surface and groundwater in 2018 and 2021. Therefore, the Environment Agency is still exercising caution at this stage, and more information about summer water resilience will be available once the winter period ends in April. Whilst groundwater levels remain mostly within the normal range for this time of year, reduced recharge over late winter 2022 to 2023, means recovery is beginning to stall across Yorkshire. This early groundwater flatlining due to the dry February means that if there is lower than normal precipitation in the coming months, groundwater levels are likely to decline.

Abstraction in the region is primarily controlled by conditions on licences and licence holders must ensure that they always adhere to these. If a dry summer does materialise, it is still possible that we may need to implement ‘Hands Off Flow’ (HOF) or ‘Hands Off Level’ (HOL) conditions on licences as we would in any normal year.

For more information please contact us by emailing ie_ne_yorks@environment-agency.gov.uk