

April 2020

Updated prospects for irrigation - forecast for 2020

Summary Overview

This document provides an update to the document we produced in February 2020 and shows the main prospects for irrigation across areas of England where irrigation is most significant.

Figure 1 shows an updated map of irrigation prospects for 2020. The insert shows the position in February 2020 for comparison. While a few Areas are still classified as good, it is generally a deteriorating situation compared to February with more of England now being good to moderate or moderate. This reflects the generally dry conditions that have been prevalent from mid-March to late April. Areas previously mapped as ‘no significant irrigation abstraction’ have been updated with the latest irrigation prospects information.

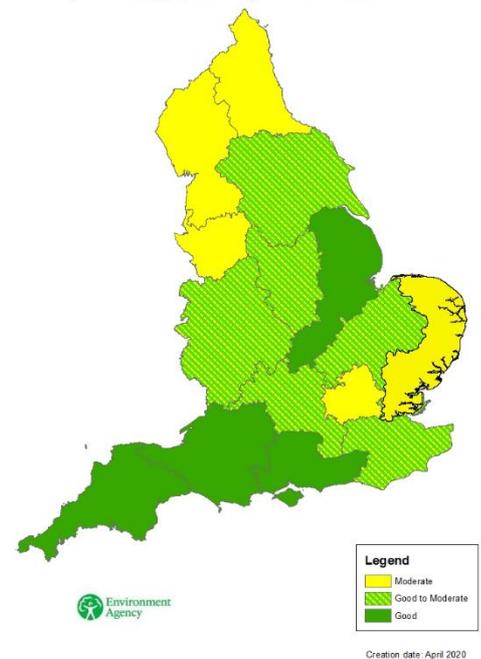
Cumulative rainfall totals for the past six months to March 2020 are exceptionally high within catchments in much of central England and parts of south-west, east and north-east England. Following a very wet winter that brought water resources back into a normal position, very dry and sunny conditions have dominated the weather since mid-March.

The latest three month Met Office forecast for May is below-average rainfall is moderately more likely than above-average precipitation. For May - July as a whole the forecast is below-average rainfall is moderately more likely than above-average precipitation. Above-average temperatures are more likely than below-average temperatures for this three month period.

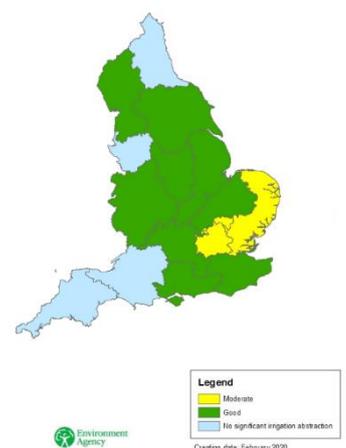
The updated irrigation prospects reflect the current hydrological conditions and latest available weather forecasts. We are seeing a decline in irrigation status in some Areas since February. The position is however, generally better than this time last year when most of the country was moderate. Many Areas are classed as good or good to moderate while others are moderate under the most likely rainfall scenarios. Groundwater levels have typically recovered to normal levels for the time of the year, although in some catchments levels are below average. Groundwater levels are generally currently in decline due to the continuing dry weather since mid-March, with the recharge season to aquifers now over.

Some Areas have provided detailed prospects which are contained later in this document, including should the remaining summer rainfall scenarios turn out to be more pessimistic (drier) than expected. Therefore a range of prospect forecasts are presented for some Areas.

Figure 1
Updated Irrigation Prospects for Summer 2020



Initial prospects for irrigation for relevant areas, spring - summer 2020



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Following a wet winter will not be allowing flexible abstraction this year unless we go into prolonged dry weather situation later in the season. We will be actively monitoring the situation and if the remaining spring / summer turns hot and dry we will review our position.

Definitions

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

Good	Water levels are average or above average and supplies are expected to be safe. There is a possibility of minor local controls on abstraction from surface water in late summer if the weather is exceptionally hot and dry.
Moderate	Water levels are low. Some controls on surface water abstraction are possible by 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.

Paul Hammett, NFU's water specialist said "Many farmers have felt the effects of a dry April and the irrigation season has started early for some. Fortunately, as a result of widespread heavy winter rainfall which was a problem for many farms, reservoirs are full and there is generally good water availability from both groundwater and surface water sources. Farmers are closely following predictions of possible hot, dry spells in the weeks ahead and what they could mean for water availability as the irrigation season builds".

Important Water Resources Information during the Coronavirus outbreak

Hands off flows

The Environment Agency will be continuing to provide timely information to abstractors on how current river and stream flows and levels are in comparison to hands off flow conditions within their abstraction licences. This routine practice helps protect water supplies for people, business, industry and the environment. These conditions are activated in periods of dry weather, when river flows and levels fall below certain limits. Hands-off flow conditions are a standard part of some abstraction licences – they usually mean abstractors must stop or reduce the amount of water they are taking.

2019/2020 winter & all year abstraction returns

In response to Coronavirus and in line with government guidance, the Environment Agency has taken the decision to delay the planned end of March 2020 winter & all year abstraction returns collection cycle. The Environment Agency will contact licence holders to explain the approach being taken. This is an administrative change. Abstractors are expected to continue to comply with their abstraction licences. Abstractors will be formally notified by the Environment Agency of the requirement to submit their returns for the reporting period 1 April 2019 to 31 March 2020, subject to the Coronavirus situation, later in the year. In the meantime abstractors registered with the ['Manage your water abstraction or impoundment licence'](#) service can, if safe to do so, submit their returns online.

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Water abstraction charges

The Environment Agency recognises the wide range of challenges Coronavirus (COVID-19) is causing across the country and that some customers are particularly affected by the recent moves to restrict the impact of the virus. The Environment Agency are writing to customers who pay bills to offer changes to payment plans if they will experience difficulties paying on time. Further information on this will be included with bills.

The Environment Agency will continue work to provide the appropriate level of regulation and services for customers to ensure the environment is protected. Ways of working for Environment Agency field teams to reduce the risk of contracting Coronavirus have been agreed. Regulation must continue, to protect the environment and the public. The basis for funding the Environment Agency's regulation activities remains fees and charges

Prospects for individual areas

Yorkshire

Prospects for water resources availability for spray irrigation in Yorkshire for 2020 are [GOOD to MODERATE](#).

Kent, South London and East Sussex (KSL)

Over the winter period (Oct 2019 to Mar 2020) we received 150% of the Long Term Average (LTA) rainfall however since mid-March more recent dry conditions have persisted. As a result in Kent and South London (KSL) Area the water resource availability for the 2020 irrigation season is: [GOOD to MODERATE](#).

East Anglia (East)

The overall summer prospects for water resources availability for spray irrigation in Essex Norfolk and Suffolk currently range from [MODERATE](#) to [MODERATE to GOOD](#).

East Anglia (West)

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

Hertfordshire and North London

The Hertfordshire and North London Area consider spray irrigation prospects remain [MODERATE](#) during summer 2020 based on the present weather forecasts.

Lincolnshire and Northamptonshire

The overall summer prospects for water resources availability for spray irrigation in the majority of Lincolnshire and Northamptonshire are currently [GOOD](#); however the River Nene in the South of the area is currently [MODERATE](#) after the past couple of months of dry weather.

East Midlands

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

West Midlands

The summer prospects for water resources availability for irrigation in the Environment Agency's West Midlands area are currently [GOOD to MODERATE](#).

Solent and South Downs

The overall summer prospects for water resources availability for spray irrigation in Solent and South Downs (SSD) are currently [GOOD](#). Above average rainfall over the winter period has seen groundwater levels rise substantially. As a groundwater dominated area this should provide a buffer should rainfall over the summer period be below the Long Term Average (LTA). At the start of April river levels ranged from normal to exceptionally high.

Thames

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

Devon, Cornwall and the Isles of Scilly

Devon, Cornwall and the Isles of Scilly do not anticipate any restrictions with regards to irrigation this summer due to the high levels of rainfall in winter and early spring. This position will be reviewed during 2020 dependent on the rainfall patterns and river / groundwater levels. The indicative spray irrigation prospects for summer is currently [GOOD](#).

North East

The current irrigation prospects for the North East area are [MODERATE](#).

Cumbria and Lancashire

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

Greater Manchester, Merseyside and Cheshire

The overall summer prospects for water resources availability for spray irrigation in Greater Manchester, Merseyside and Cheshire are currently [MODERATE](#).

Wessex

Wessex area is 'no significant irrigation abstraction' with the prospects defined as [GOOD](#).

Currently soil deficit moisture is at zero, with farmers being able to fill their winter storage facilities without constraint. Looking forward conditions still appear wetter than average with high groundwater levels and higher than long term average flows. It is not expected issues occurring this year at this stage.

Area detail

Yorkshire

Background

2019 was a year of changeable weather throughout the region, ending with a period of very wet weather. Following the very dry summer of 2018, surface water stocks recovered during 2019, but groundwater stocks struggled to reach the highs of April 2018. The summer of 2019 did not result in any significant water scarcity across the region. However in the mid-summer of 2019, groundwater stocks in the East of the county were at risk. This was in contrast to surface water stocks which remained at a consistent level throughout the summer.

The above average rainfall in autumn and early winter saw unprecedented recharge, with many rivers and groundwater levels ending 2019 with high flows and levels. With February 2020 recording heavy rainfall throughout the county, reservoirs for all purposes were 100% full and river flows were high enough to cause widespread flooding.

Despite the wet weather in the winter of 2020, it has been exceptionally dry since late March. To date, April has been warm and recorded virtually no rainfall. This has led to declining river flows, groundwater levels and water stored in reservoirs. Soil Moisture Deficit (SMD) is a measure of how dry the soils are and how much rainfall would be required to reach saturation, allowing recharge to the groundwater and run off to the rivers. The higher the SMD, the drier the soil. SMD, throughout Yorkshire has been rising since late March but is currently within the normal range expected for the time of year. Reservoir stocks are currently healthy but are declining fast due to the warm dry weather in April. Should the dry weather continue, there will be less run off and continued reservoir declines. Reservoirs regulate the flows in many of the rivers in South and West Yorkshire, such as the Don, Aire, Calder and Holme.

Spring 2020 groundwater levels in the Chalk, Sherwood Sandstone, Magnesian Limestone and Millstone Grit are all still above average with the Corallian Limestone at Average. Water levels are now dropping in all aquifers, the Sherwood Sandstone more slowly than the others. With little prospect of rain, these levels will continue to drop and this may mean there are reductions in groundwater baseflows by late Spring/early Summer.

The Met Office is currently forecasting a continuing pattern of fine and dry weather in all parts of Yorkshire. Temperatures in particular are likely to be significantly above average in the coming weeks with the odd cold morning in the North East. In terms of overall rainfall in the upcoming three month period, it is expected to be dry for the remainder of April. May could see a return to the seasonal norm of sporadic showers and cooler temperatures but currently there is low confidence in this long range predication. Without significant rainfall in May surface water flows, in particular will be at a greater risk than the equivalent point in 2018, this will result in widespread hands off flow restrictions in the worst possible case.

Forward look

Spray irrigation prospects are currently [GOOD to MODERATE](#) for spring / summer 2020.

Our previous update issued in February of 2020 said – “A dry start to the spring this year however, will not provide stocks with the additional pre summer top up they have had in the last two years”. The current information from our monitoring sites mimics this scenario exactly.

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 highly likely that we may need to implement 'Hands Off Flow' (HOF) or 'Hands Off Level' (HOL) conditions on licences in the coming weeks. 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.

Conclusions

The prospects for spray irrigation for spring - summer 2020 are currently assessed as [GOOD to MODERATE](#) for all catchments across Yorkshire.

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

Kent, South London and East Sussex

Background

Conditions covering the summer of 2019 overall was relative normal but the LTA rainfall figures masked observed periods of particularly warm dry conditions which were subsequently off set by periods of heavy rainfall. The onset of wetter conditions witnessed from October throughout the winter months resulted in exceptionally high rainfall across catchments, causing ground conditions to be heavily saturated with subsequent flood events being experienced across the Area providing high groundwater levels as we head into summer.

Rainfall / Soil Moisture Deficit

Rainfall in March was normal over most of the Area, with 103% LTA overall. However the first two weeks were particularly wet, but then dry weather set in, allowing a Soil Moisture Deficit (SMD) to develop. The healthy winter's recharge that had prevailed ceased in mid-March as drier conditions dominated. The prevailing drier conditions have continued through April further developing soil moisture deficits these deficits are now double those expected for the time of year, as a consequence it is anticipated early irrigation will be needed and at greater rates (dependant on crop type).

River Flows

Flows in March continued to remain exceptionally high. But since the prevailing dry conditions from mid-March flows have responded, in particular impermeable rainfall sensitive catchments are rapidly receding due to the lack of rainfall and will be more susceptible to the impacts of drier conditions. Catchments where the summer flow component is predominately composed of groundwater baseflow will, for the short to medium term remain resilient should drier conditions continue into the summer months.

Groundwater

Up until mid-March groundwater levels continued to sharply rise as a continuation of a period of rapid recharge that was initiated in mid-February, elevating groundwater levels to be exceptionally high. Dry weather in the second fortnight of March allowed groundwater levels to stabilise, and in the more responsive catchments start to recede. As a result of the healthy groundwater conditions there are no expected risks for those irrigators that are dependent upon abstraction boreholes this summer.

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

Forward look

Whilst there is greater uncertainty in the three month weather outlook, the latest weather forecast by the Met Office indicates a moderately higher chance of below average rainfall and a stronger signal for warmer temperatures forecast for May-June-July.

Irrigation prospects for the summer are [GOOD to MODERATE](#) across the Area.

Constraints

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Generally there is a resource risk in the supported areas through to those catchments where the flow is more rainfall dominated, with the legacy of last winter's rains rapidly diminishing. Within rainfall sensitive catchments such as; the Medway, Mole, Rother and Upper Stour, it is expected agricultural abstractors with Hands off Flow (HoF) conditions will be reached late spring and remain in place throughout the summer with more similar abstractors likely to be progressively triggered through the summer with continuing dry weather. Supported marsh water level dependant areas can likely expect constraints to typically apply from mid-summer in the Stour and Rother Marshes, with increasing pressure on resources expected during peak irrigation periods. Those abstractors from groundwater or that have antecedent rainfall constraints are not expected to see constraints applied this summer.

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 telephone: 03708 506 506

East Anglia (West)

Background

After a wet autumn-winter, spring has started dry. The 2019-2020 autumn-winter rainfall was notably high, receiving on average 145% of long term average (LTA). At the end of September 2019 the groundwater levels in the chalk aquifer had reached either notably low or exceptionally low categories across the majority of the catchments. The soil moisture deficit (SMD) was above normal for the time of year and the rainfall deficit had reached 150mm. The wet autumn-winter reduced this SMD deficit, while river flows and groundwater levels returned to normal conditions with the exception of the Cam catchment which remains at below normal.

Rainfall

The area received above average rainfall from September to February, an average of 145% of LTA. The wettest month was February with 213% of LTA. The 6 months rainfall accumulation was the 7th wettest in the area since 1892. After this wet period, the spring started with a dry March, with rainfall only 47% of LTA and in the first 19 days of April the area only received 8mm of rainfall - 18% of LTA. The latest forecast (low confidence) suggests unsettled, showery conditions for the beginning of May. Towards the middle of May we will see a return to drier and brighter weather.

River Flows

The wet autumn recovered river flows to normal conditions by the end of November, with the exception of the Cam catchment that was delayed until December. The dry start to spring has caused river flows to decrease, with the rivers Tove and Cam now below normal conditions.

Groundwater

The recovery of the groundwater levels was more gradual. By November only the Ivel Sandstone had recovered to normal conditions. By December, 40% of monitoring sites were normal and by the end of January only the Cam Chalk remained below normal. Groundwater recharge continued in March, despite the reduced rainfall and high SMD. However, during April receding groundwater levels have been observed, although they still remain in the normal and below normal range.

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

This is updated shortly after the 10th of each month.

Forward look

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Prospects across East Anglia-west area are GOOD for 2020. River flows and groundwater levels recovered to normal conditions over winter at most sites. Average rainfall during this summer would mean river flows are likely to be normal in the groundwater fed catchments throughout the irrigation season while groundwater levels are expected to remain in normal levels at most sites.

If weather conditions turn dry in the summer, river flows will return to below normal levels, or notably low at the end of summer. Therefore prospects could be MODERATE if dry conditions occur, particularly in the Cam catchment, where flows are lower than other catchments.

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:

East Anglia (West), Andy Chapman, 02030 251786

andrew.chapman@environment-agency.gov.uk

East Anglia (East)

Background

By the start of the autumn in 2019 groundwater levels and river flows had fallen to exceptionally low levels. The worst affected catchments were the mid Essex to North Suffolk rivers. Catchments to the north of the river Waveney had experienced greater rainfall during the previous winter and were not as seriously affected. The winter of 2019/2020 saw 120 % of long term average rainfall over most of the area.

Although we would classify hydrological conditions as very close to the average for this time of year it is only possible to rule out the potential for section 57 irrigation bans across the area if groundwater recovery has been well above the long term average.

Rainfall below 30 % of long term average over the next 12 weeks could result in a high risk of flow related environmental incident. The probability of this occurring is however extremely low - less than 1 year in 40.

Rainfall / Soil Moisture Deficit

The winter saw 120% long term average (LTA) rainfall over the area. However, in March, the area received 57% LTA and April's rainfall is only 6% (2.7mm).

Soil moisture deficit has risen rapidly from an area average of 24mm at the end of March to 50mm in a fortnight.

River Flows

Rivers have recovered due to the wet winter and as of the end of March all but one were at normal or above. The Hollesley Black Ditch remains at below normal. This is not unusual. However, river flows can decline rapidly during an intense spring/ early summer heatwave.

A working worst case scenario when considering the potential risk to irrigation supplies is 60% of average rainfall. This could cause some local stress in catchments between the Waveney and the Chelmer which have a lower groundwater contribution and higher seasonal demands for irrigation direct from the river. The probability of this working worst case is approximately once every 12 years. Our current forecasting indicates that groundwater has recovered sufficiently such that it will not be necessary to implement any formal section 57 in 2020 following this working worst case scenario.

Groundwater

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Groundwater levels are recovering to near normal levels across much of the chalk and shallow aquifer units. Local areas notably the North West Norfolk chalk have shown strong recovery with levels now above normal but a few local areas in the west of Essex have not fully recovered due to levels being more seriously depleted going into the Winter. Nevertheless even in these areas aquifer recovery has been sufficient to preclude the prospect of a serious widespread groundwater drought this coming summer, with conditions looking much more favourable than in the spring of 2019.

Forward look

Prospects across Essex Norfolk and Suffolk range from [MODERATE](#) to [MODERATE to GOOD](#) for 2020.

Due to spatial differences in groundwater recovery the prospects vary slightly across Essex Norfolk and Suffolk. North Norfolk rivers from River Wensum northwards - prospects remain [MODERATE to GOOD](#). To the south of these rivers we would classify prospects as [MODERATE](#). We have no rivers where we would currently indicate prospects to be [POOR](#).

Please contact for more information:

Peter Willett – Area hydrologist

Peter.Willett@environment-agency.gov.uk

Dawn Goodhall – Area drought co-ordinator

Dawn.Goodhall@environment-agency.gov.uk

Hertfordshire and North London (HNL)

Background

The Hertfordshire and North London Area received above average winter rainfall for the 2019-20 period. This allowed soils to become fully saturated and groundwater levels to recover into their normal range. The Mid-Chiltern Chalk did see a greater recovery than the Upper Lee Chalk. Further recovery in groundwater levels is now unlikely.

River flows responded with many chalk streams seeing continuous flows emerging from their sources. There remained a few watercourses like River Ver and the upper reaches of some East Hertfordshire Rivers which did not see full recovery in their flow regimes.

The winter period of 2019-20 in hydrological terms was a considerable improvement on recent years.

Abstraction situation

Winter abstractors were able to take advantage of higher winter rains to fill storage reservoirs before the summer irrigation season started. This was a marked improvement compared to previous years when reservoirs could not be fully replenished. The expectation is that stored water should be sufficient for irrigation needs this summer.

Groundwater based irrigators are also likely to have benefited from those winter rains. The recovery in groundwater levels should make these sources more resilient to drier conditions over this summer period.

Direct river abstractors may notice river flows decline over the summer period. Rivers which flow over impermeable clay surfaces are already recording below normal levels for this time of year.

Flow constraints are likely to be active at some stage during the summer period. Most noticeably on river systems which rely more heavily on summer rains. Those rivers which are more reliant on groundwater may not see any immediate decline in flows but constraints are still likely later on in the summer period.

Forward Look

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The present forecast is already indicating the potential for drier conditions and the likelihood of lower than average summer rainfall totals. This could place constraints on those irrigators who rely on direct rainfall and/or river sources over the summer.

The Hertfordshire and North London Area will continue to monitor river flows and groundwater levels. This data is 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 or call 0203 025 8953.

Lincolnshire and Northamptonshire

Background

From September to November 2019 the area received close to 200% of the long term average rainfall for each month. This led to exceptionally high river flows, exceptionally high groundwater levels and saw flooding from both rivers and groundwater. The area has received average rainfall in December and January which has led to river flows across the area being classified as normal for the time of year. Then the series of storms at the end of February led to the area once again receiving over 200% of the long term average rainfall and again the area saw exceptionally high river and groundwater levels.

In March however the area received only 30% to 50% of the long term average rainfall and with less than 10% of the long term average rainfall having fallen in April river flows and groundwater levels have begun to recess and soil moisture deficits increase.

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

This is updated shortly after the 10th of each month.

Rainfall / Soil Moisture Deficit

Till the end of February the areas rainfall has been exceptionally high, with over 200% of the long term average falling in multiple months. The area had a soil moisture deficit of 0 throughout this time.

However since February the weather has been drier with the area only receiving between 30% and 50% of the long term average rainfall in March and less than 10% of the long term average to date in April. During this time the soil moisture deficits have increased to close to 50mm and are classified as notably high for the time of year.

River Flows

Over the winter river flows have been exceptionally high and there have been a number of flood events across the area. However since the end of February as there has been less rainfall the river flows have decreased and are now classified as normal to below normal for the time of year. The impact of the decrease in rainfall has been felt more in the Nene catchment which is predominately a clay catchment and where river flows have been decreasing more rapidly than in the more base flow dominated chalk and limestone catchments.

Groundwater

With less rainfall and increasing soil moisture deficits the groundwater levels across the area have decreased over the past month and a half. From the exceptionally high levels seen at the end of February, many of the aquifers are now either notably high or above normal and continuing to decrease.

Forward look

Prospects across the majority of Lincolnshire and Northamptonshire are good for 2020; apart from the River Nene where prospects are moderate for 2020.

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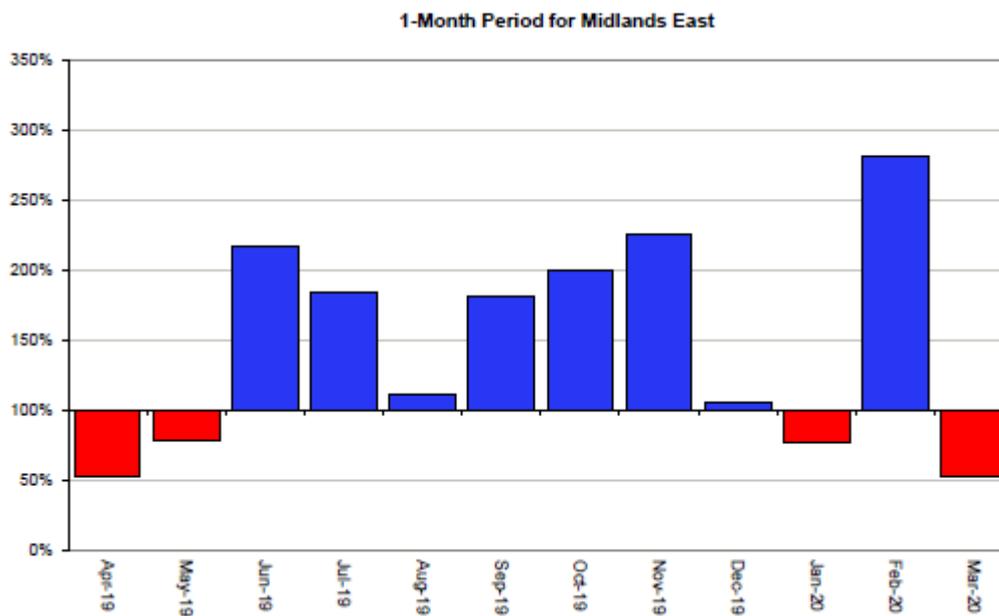
Drought.LNA@environment-agency.gov.uk

East Midlands

Background

The East Midlands Area experienced an exceptionally wet summer and autumn in 2019 and 137.9 mm of rain fell in February 2020 which was the second wettest February since records began in 1891. However March was a dry month and the dry weather has continued into April and therefore river flows and soil moisture deficits have responded accordingly.

Rainfall / Soil Moisture Deficit



The chart above shows the monthly rainfall in East Midlands Area compared to the Long Term Average (100%). The blue bars are above average rainfall and the red bars are below average rainfall. The Area had an exceptionally wet summer and autumn and February had over 275% of the LTA rainfall. However since then March was a drier month with 50% of LTA rainfall and the dry weather has continued into April.

The Soil Moisture Deficits have risen with the dry weather in March and April and are currently above LTA in East Midlands Area.

River Flows

Although river flows in the Area have been exceptionally high in the autumn and in February with a lot of flooding, they are now responding to the recent drier weather and flows are mainly within the normal range for the time of year.

Groundwater

The groundwater monitoring boreholes are showing that the aquifers in the Area have responded to the wet autumn and early spring. Levels in our monitoring borehole into the Sherwood Sandstone at Coxmoor, near Ravenshead, Nottinghamshire have risen by approximately 1.5m in the last 6 months. Water levels in the Carboniferous Limestone of Derbyshire reached exceptionally high levels however, as drier weather continues levels typically fall rapidly. In the Magnesian Limestone, as shown by our monitoring borehole at Southards Lane in Bolsover, water

levels are currently reacting to the recent drier weather and are now at normal levels for the time of year.

Forward look

Prospects across East Midlands Area are Good/moderate for 2020. There has been some good recharge of the aquifers with the wet weather over the last few months, but if the current spell of dry and warm weather continues into the summer, river flows will continue to fall which will affect the irrigation prospects.

Please contact for more information:

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

<https://www.gov.uk/government/publications/water-situation-local-area-reports>

If you would like further information or have a specific query about your abstraction licence please contact us at:

WaterResources.DBNTLS@environment-agency.gov.uk

West Midlands

Background

Between June and December 2019, all hydrological areas in West Midlands received rainfall above their monthly Long Term Average (LTA). In 2020 the area as a whole received rainfall below the LTA (90%) in January, above the LTA (277%) in February, and below the LTA (71%) in March. In February all hydrological areas received extensive rainfall of over 200% of their LTA and the Welsh Mountains area received the highest relative rainfall, 350% of the LTA. March was then drier, all areas except the Welsh Mountains received less than their LTA. The Avon area received the least at 53% of the LTA.

As a result of the consistent and widespread above average rainfall in 2019 and February 2020, river flows in all hydrological areas reached 'Exceptionally High' status multiple times throughout September 2019 to February 2020. Widespread flooding was seen during this time, and in February areas of the River Wye and River Severn reported their highest ever recorded flows and levels. By the end of March river flows in all areas reduced and the majority of West Midlands flow sites recorded normal flows. Some flow sites including ones on the Rivers Severn, Avon and Wye were close to the lower limit of the 'Normal' range. Therefore, if dry weather continues at least some flows are likely to become lower than 'Normal' in the coming months.

West Midlands soils overall have been wetter than the soil moisture LTA for the whole period of June 2019 to February 2020. However, at the end of March increased temperatures and a lack of rainfall led to soils becoming drier than the LTA for the time of year.

The consistent rainfall and wetter soils towards the end of 2019 and this February improved the status of all groundwater sites. In the summer of 2019 groundwater levels at most monitoring sites in the West Midlands were below their 'Normal' status. At the end of March 2020 all sites recorded at 'Normal' status or higher. Groundwater aquifer recharge can support watercourse flows during the summer, which may be necessary if the coming months are dry.

Ten major reservoirs that provide water to the Midlands have been above their LTA for at least the last six months. At the end of March 2020 all ten reservoirs were at or above the expected March LTA, with seven being full or near full. With reservoir stocks being healthy for the time of year and groundwater having had reasonable recharge over the winter, the water availability prospects are good for 2020. However, this may change depending on the future weather and amount of rainfall.

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Spray irrigation prospects are currently [GOOD to MODERATE](#) for spring / summer 2020.

Although current water availability is good due to higher than average rainfall over the winter months, the latest long term forecast from the Met Office predicts the likelihood for drier and warmer than average weather until the end of July. This means in the West Midlands that we could expect to see low flows into the summer and therefore the implementation of Hands off Flow restrictions on Surface Water abstraction, especially in late summer if the weather continues to be hot and dry.

The principal aquifers of the Permo-Triassic sandstones in the West Midlands are a large store of groundwater and relatively resistant to drought conditions. The key indicator Permo-Triassic sandstone sites across the West Midlands are all within normal ranges for the time of year having received good recharge following the months of wetter weather. The good recovery that has been observed will serve to provide good resilience to support surface water flows into the summer months.

Anthony's Cross observation borehole in Gloucestershire was within the notably high range and showing an upward trend at the end of March.

Weir Farm observation borehole in Shropshire was within the exceptionally high range and showing an upward trend at the end of March.

St. Mary's Church observation borehole in Worcestershire was within the exceptionally high range and showing an upward trend in February. Due to the COVID-19 situation recent data is unavailable for this site.

Four Crosses borehole in Staffordshire was within the notably high range and starting to display a slight downward trend at the end of March.

Ram Hall borehole is near Coventry and within the Permo-Carboniferous sandstone and mudstone. The levels were at the upper limit of the normal range and showing an upward trend in February. Due to the current coronavirus situation recent data is unavailable for this site.

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

Solent and South Downs (SSD)

Background

SSD experienced its tenth wettest 'winter period' on record for 2019/2020, including the wettest February on record. The winter period is defined as October to March. Effective rainfall was particularly high in comparison to the LTA due to a SMD of 0mm for the majority of the winter period. As a result, groundwater resources have recharged sufficiently to ensure the area will be resilient to long dry spells in the summer. Surface water flows also range from normal to exceptionally high at the start of April, with reservoir stocks at or near full capacity.

As a result of the wet winter period spray irrigation prospects remain GOOD despite a drier than average March and April (as of 20th April).

Rainfall / Soil Moisture Deficit

As earlier stated the 2019/2020 winter was wetter than average resulting in significant increases in river flow and groundwater recharge across SSD. SMD remained near 0mm for most of the winter resulting in higher than average effective rainfall.

Since the beginning of March SSD has experienced largely dry weather with below LTA rainfall recorded in March (87% of the LTA). As a result of sustained dry weather SMD is now slightly higher than the LTA for this time of the year. At the end of March the SSD SMD average was 20mm compared to the LTA of 9mm.

Despite a drier than average March and April (up till the 20th), water resource prospects remain **GOOD** due to the recharge during winter period.

River Flows

At the end of March 2020 river flows across SSD ranged from normal to exceptionally high after the fifth wettest winter on record. The River Lymington at Brockenhurst GS recorded monthly mean flows in the normal range. Flows on the River Medina at Blackwater were above normal. The River Test at Chilbolton GS, River Itchen at Allbrook & Highbridge GS, River Wallington at North Fareham, Western Rother at Iping Mill GS, and the River Arun at Alfoldean were notably high. All other reported sites recorded exceptionally high flows. All the monthly flows ranked in the top 10 highest for March (except for Brockenhurst GS).

At the end of March 2020 reservoir stocks were above average at Ardingly Reservoir (Ouse Catchment) with 99% of total capacity (LTA is 97%) and at Arlington Reservoir (Cuckmere catchment) with 98% of total capacity (LTA is 97%).

Groundwater

At the end of March 2020 month groundwater levels ranged from normal to exceptionally high across SSD. Levels Carisbrooke Castle (Isle of Wight) were normal. Cornish Farm and Youngwoods Copse levels were above normal. Clanville Gate (Test Chalk), Preston Candover and West Meon (East Hants Chalk) and Beeding Hill (west Sussex Chalk) levels were notably high. All remaining sites were in the exceptionally high category. The most notable levels this month were recorded at Harting Common and Houndean Bottom which represent the highest end of March levels on record for both sites. Levels at some sites (e.g. Test Chalk) continue to rise and have yet to peak.

Forward look

Prospects across Solent and South Downs are **GOOD** for 2020. The reason for this status is the groundwater recharge that has, and in some places is continuing to take place. Reservoirs remain near capacity and surface water levels all remain at Normal or higher.

Despite a higher than normal SMD for this time of year, and below average rainfall for March and April (as of 20th April), the replenished groundwater resources in the area will ensure the area remains resilient to prolonged dry periods in the summer. This is illustrated in Figure 1 at the end of this document.

A forward outlook for the water resources situation to September 2020 in SSD is provided in Figure 1 below.

Please contact for more information:

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

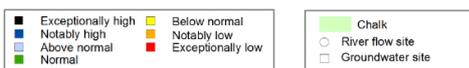
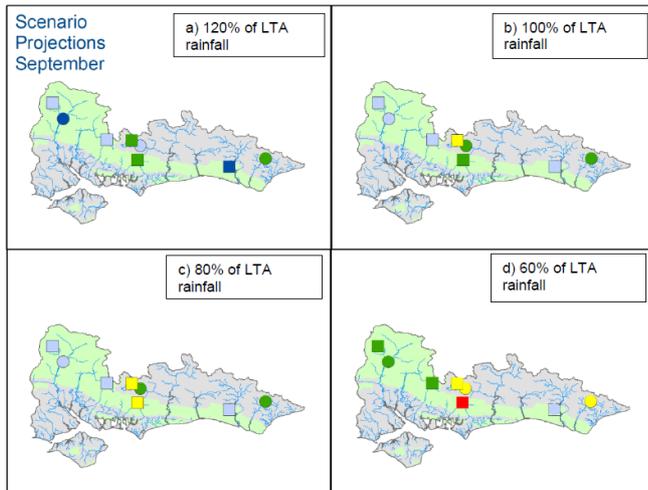
Figure 1

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Forward look- river flow and groundwater September 2020



Projected river flows at key indicator sites up until the end of September 2020.
 Projected groundwater levels at key indicator sites at the end of September 2020.
 Projections based on four scenarios: 120% (a), 100% (b), 80% (c) and 60% (d) of long term average rainfall (Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum BGS © NERC Crown copyright. All rights reserved.
 Environment Agency 100026380 2020.

Thames

Background

Following a prolonged period of dry weather during 2018 and 2019, the winter (October - March) of 2019/2020 saw a significant shift in the water situation with Thames area receiving 148% of the Long Term Average (LTA) rainfall. This has resulted in good recharge of our aquifers with the majority of groundwater indicator sites at above normal or higher for the time of year by the end of March. In addition, over much of the winter period, surface water flows have been supported by the rainfall and high groundwater levels.

The winter rainfall addressed the recharge deficit that had cumulated over successive dry winters, and has led to a marked improvement in the water resources situation in Thames area and it is expected that this has supported good winter fill reservoir abstraction. A move to drier conditions in recent weeks has prompted the prospects for spray irrigation being classed **GOOD to MODERATE** in Thames area for the summer of 2020.

Rainfall / Soil Moisture Deficit

Coming into spring 2020, we have seen a reduction in rainfall, with 75% LTA rainfall received in March (most falling in the first two weeks), and around 40% of the LTA rainfall up to 20 April. While reduced rainfall is expected through spring and into summer, periods without rain have been prolonged with any rainfall received falling in short events.

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The change in conditions has resulted in an increase in the soil moisture deficit, which is now higher than would be expected for the time of the year.

River Flows

The notable shift to drier conditions since mid-March has resulted in river flows receding. A number of catchments have seen flows return to normal for the time of year. River flows that are supported by high groundwater levels such as the River Kennet, River Coln and River Wey remain exceptionally high for the time of year.

Groundwater

Groundwater is in a good position following the wet winter. Groundwater levels are currently all at above normal or higher for the time of year. In many places, high groundwater levels are supporting river flows.

Forward look

Spray irrigation prospects across Thames area are [GOOD to MODERATE](#) for 2020.

Groundwater projections show that groundwater levels are likely to remain at normal or higher over the summer irrigation period at the majority of our indicator sites even under an 80% LTA rainfall scenario.

Groundwater levels are also expected to support river flows into the summer in rivers that receive significant groundwater input such as the River Coln, River Kennet, and Upper River Wey. However as groundwater levels start to reduce towards normal in response to reduced spring/summer rainfall, this support of river flows will reduce.

Abstractors with restrictions based on groundwater or groundwater-supported rivers are likely to see [GOOD](#) irrigation prospects for the summer, with restrictions possible in the second half of the summer.

Rivers that do not receive significant groundwater support have already seen flows reduce in response to limited rainfall in recent weeks. It is expected that flows in these rivers will continue to drop if we see limited rainfall over the coming months. The 3 month outlook suggests rainfall is more likely to be below average, which is likely to contribute to reducing flows.

If we receive LTA rainfall over the summer, abstractors with restrictions based on other surface waters are likely to see Hands off Flow restrictions coming into force during the second half of the summer. Under lower rainfall scenarios, abstractors with restrictions based on other surface waters are likely to see Hands off Flow restrictions coming into force from June onwards. These abstractors are likely to see [GOOD to MODERATE](#) irrigation prospects for the summer.

Restrictions are not expected to come into force as early or for the duration seen over the last couple of summers.

Please contact for more information:

Thames area Integrated Environment Planning team mailto:iep_thm@environment-agency.gov.uk.

More detailed hydrological information can be found in the Environment Agency's Area Monthly Water Situation Report.

North East

Background

Summer 2019 was very wet with above average rainfall recorded in June, July and August. In particular widespread rainfall in early August saw high rainfall totals recorded across most of the North East increasing all major reservoir stocks to above average levels for the first time in 2019.

The wet weather continued into autumn with above average monthly rainfall totals recorded in September, October and November. Throughout November river levels remained elevated and groundwater levels recharged resulting in a good water resource availability. Most reservoirs in the Area reached capacity at some point during the month including Derwent reservoir which spilled for the first time since Storm Desmond in December 2015.

The year ended on a dry note with 83% of the monthly LTA rainfall recorded in December and notably low rainfall totals recorded in several catchments. The drier weather continued into January 2020 with 69% of the monthly LTA rainfall observed and most of the area recording notably low rainfall resulting in river levels receding. Despite the drier conditions soils remained wet and reservoir stocks remained above average with the exception of Kielder which was actively managed to provide winter flood storage.

February was a very wet month with the North East Area receiving 298% of the monthly LTA rainfall. Monthly rainfall totals were the highest on record since 1891 in the NCIC dataset in the Wear, Tees and Tyne catchments. In particular Storms Ciara and Dennis brought persistent and heavy rainfall for their duration with approximately 40% of the months rainfall recorded during these two events. In response to the storms, river levels increased at all monitoring sites. Reservoir capacity reached 100% in several reservoirs including Cow Green, Derwent and Kielder, all of which spilled during Storm Dennis despite extra flood alleviation releases been made in advance. Groundwater levels remained healthy and were classified as either normal, above normal or notably high at all indicator sites.

March was a drier month with river flows decreasing as a result. Reservoir stocks decreased slightly though the majority of reservoir groups remained above average for the time of year. The soils remained saturated and wet across the area. The coronavirus pandemic and resulting restrictions on field work meant that groundwater was measured at only one indicator site in March. That site monitors the semi-confined part of the Fell Sandstone aquifer and the groundwater level was 'above normal' for the time of year. The aquifer was likely to still be receiving recharge from high rainfall amounts in late 2019 and February 2020.

Current Situation

The first three weeks of April have been unusually dry with an average of only 2.6mm of rainfall recorded in the first 22 days equating to approximately 3% of the monthly LTA. The area has experienced an average of 21 dry days so far where less than 1mm of rainfall has fallen each day. In response rivers have receded and are now below average daily mean flows with some river monitoring stations falling to notably low flows and exceptionally low flows have been observed on the South Tyne at Haydon Bridge. For the first time this year total reservoir contents for the whole area are now below average (approximately 3.3% below average). Soils have begun to dry thus moisture deficits have increased throughout April and soils conditions are now classified as normal.

The current irrigation prospects are [MODERATE](#). Soil moisture deficits are normal though early signs show water retention is decreasing. River levels are falling and reservoir storage is slightly lower than average. If the weather remains warm and dry throughout spring and summer some additional measures may need to be taken such as extra releases from reservoirs and the use of HOFs.

Forward Look

Above average rainfall is required to improve the irrigation prospects from MODERATE to GOOD. The three month weather outlook for May to July issued by the Met Office predict both above average temperatures and below average rainfall are likely and so improvement of irrigation prospects is less likely.

Restrictions

There is limited irrigation in the Tyne, Tees, Wear and Northumberland Rivers catchments. Irrigators on the Tyne, Tees and Wear are mostly supported by reservoirs and so HoF's are unlikely. If the weather remains dry, there is the possibility that reservoirs will need to release water and so water costs will increase as tariffs change. The EA will contact individual license holders to inform them if this occurs.

There are a number of irrigators that abstract from surface waters across the Till and Tweed catchment. Up until 2018 this catchment was exempt from licensing and the irrigators are not expected to be issued with licenses until later in the year. This catchment is more sensitive than others in the North East as it does not have a reservoir to support flows and much of the river is designated as a SSSI. Whilst HoF conditions are not in place in the catchment due to the absence of licensing, we ask that irrigators adhere to conditions previously imposed by Natural England consents in order to prevent environmental damage during low flows. We encourage abstractors to take and store more water during times of higher flow where possible.

Please contact for more information:

water.resources.northeast@environment-agency.gov.uk and
hydrology.northeast@environment-agency.gov.uk

Cumbria and Lancashire

Background

Following high rainfall levels since the start of the year, we have had very little rainfall since mid-March. This has affected rivers, which are fast reacting and we are now seeing river flows (particularly further north e.g. in the Derwent, Eamont and Lune catchments) that are classed as exceptionally low.

Rainfall / Soil Moisture Deficit

The cumulative rainfall totals for the previous 3 months (i.e. for January, February and March) were generally classed as 'Exceptionally high' across Cumbria and Lancashire (with the exception of the Esk (Dumfries) hydrological area where rainfall for the same period was classed as 'Above normal'). This is due to the continuing impact of the 'Exceptionally high' rainfall experienced in February. April's rainfall to date is well below average for the time of year i.e. it was between 5% to 12% of the LTA for April for the hydrological areas across Cumbria and Lancashire using data up until 14 April 2020. Since then, very little rain (generally zero) has fallen. The Met Office forecast up to the end of April does include the possibility of scattered showers, but is generally for relatively dry weather across Cumbria and Lancashire. The main spray irrigation area is Crossens, which lies in the Douglas hydrological area which had experienced 12% of the LTA for April up to, and including, 14 April 2020.

River Flows

We are starting to see river levels drop, already reaching Q95 in some catchments, and given continuing low rainfall we would expect to see more to fall below Q95 across Cumbria and Lancashire.

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With regard to the Alt and Crossens catchments due to the current and forecast dry weather, we have now moved to maintaining the water in the level dependent area at summer levels. 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 spray irrigation. We will monitor this but do not envisage changing this 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 2020.

Please contact for more information:

Alison McLean, Water Resources – Integrated Environmental Planning

IEP_CLA@environment-agency.gov.uk

Greater Manchester, Merseyside and Cheshire

Background

Following high rainfall levels since the start of the year, we have had very little rainfall since mid-March. This has affected rivers, which are fast reacting and we are now seeing river flows that are classed as 'Below normal'.

Rainfall / Soil Moisture Deficit

Rainfall totals for the previous 3 months (i.e. January, February and March) were generally classed as 'Exceptionally high' across Greater Manchester, Merseyside and Cheshire. This is due to the continuing impact of the 'Exceptionally high' rainfall experienced in February, however, rainfall to date (23/04/2020) is so far well below average for April i.e. between 11% to 13% of the LTA for April for the hydrological areas across Greater Manchester, Merseyside and Cheshire using data up until 14 April 2020. Since the 14 April very little rain (generally zero) has fallen and the Met Office forecasts for a little rain until the end of April. The main spray irrigation area is Cheshire and the Lower Mersey catchment which has experienced 11% to 13% of the LTA rainfall up to 14 April 2020.

River Flows

We are starting to see river levels drop, reaching Q95 in some catchments, and given continuing low rainfall we would expect to see more to 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 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 Greater Manchester, Merseyside and Cheshire are [MODERATE](#) for 2020.

customer service line
03708 506 506

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0800 80 70 60

floodline
03459 88 11 88

Please contact for more information:

IEP_GMMC@environment-agency.gov.uk

Ensuring your business is resilient to drought

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

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

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

Abstraction is primarily controlled by conditions on licences and licence holders must ensure that they adhere to these at all times. We would encourage all abstractors to review their licences to ensure that they continue to meet their needs following the experiences of 2018 and 2019. You may also need to extend the winter season on your licence from February to March.

For those farmers who wish to extend their licensed abstraction period, we strongly recommend that you apply now to formally vary your licence. In most cases these variations will be relatively straight forward and will provide you with long term drought resilience without the need to talk to us in the future for a temporary dispensation. This is particularly important as the allowances in the last few years are unlikely to be made in the future as more farmers formally vary their abstraction periods.

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

An up to date version of the Environment Agency Flexible Abstraction position can be found here: <https://www.gov.uk/guidance/water-abstraction-flexible-options-in-exceptional-dry-weather>

Water Rights Trading Map is available for East Anglia, Midlands and Lincolnshire and Northamptonshire areas.

More detailed hydrological information for all the areas can be found in the Environment Agency's Weekly and Monthly Water Situation Reports at:

<https://www.gov.uk/government/collections/water-situation-reports-for-england>

What can irrigators do?

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For their part, irrigators are encouraged to take such actions as they can to minimise the impacts on the environment and their businesses: Please talk to us now about actions you can take. If you don't know your local EA contact, please call our customer service line on 03708 506506 and ask to speak to your local water resources member of staff dealing with spray irrigation prospects.

Abstraction Licences

- Check your licence details and, at all times, adhere to licence conditions. The Environment Agency is developing its 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 digital 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

Voluntary Restrictions

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

Storage Reservoirs

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

Irrigation Management

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

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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.);
- The Environment Agency has a range of literature available to help support your business including Rain Water Harvesting; Think about Installing an Irrigation Reservoir and adopting Best Metering Practice.