24th February 2021

Initial prospects for irrigation - forecast for 2021

Summary

Overview

This document provides the initial prospects for irrigation across England – with all Areas classed as good. We will be updating these prospects into the spring. Figure 1 shows a map of irrigation prospects for 2021. The insert shows the position this time last year. We are seeing a similar position to last year with the exception of East Anglia and Herts & North London Areas which are much improved.

Cumulative rainfall totals for the past six months to January 2021 are higher than average or above, reflecting the wet winter experienced so far up to the end of January. February rainfall is looking variable across the country, but several catchments in East Anglia have received above average rainfall for the month.

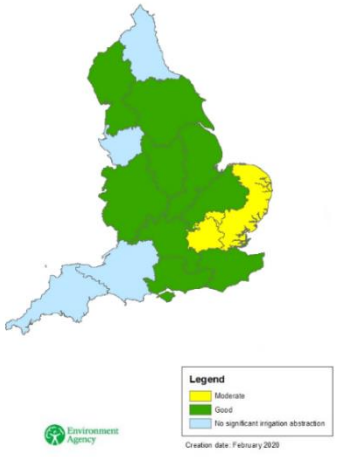
The irrigation prospects reflect the current hydrological conditions and latest available weather forecasts. River flows were normal or higher in January. By the end of January groundwater levels were classed as normal or higher for the time of year across the country, with the expectation for more recharge of aquifers through to the spring given saturated soils.

The latest three month Met Office forecast up to May indicates there is an increased risk of a dry March. The chance of near average temperatures is close to normal, although the chances of colder weather in March is greater than the last few years. Over the three months as a whole to the end of May there is a slight increase in the likelihood of dry conditions (and more chance of a warm spring), although average rainfall is still the more expected scenario over this whole period.

Some areas have provided detailed prospects which are contained later in this document, including should the remaining winter rainfall scenarios turn out to be more pessimistic (drier) than expected continuing into the summer. Therefore a range of prospect forecasts are presented for some areas. Given the good irrigation prospects we don't expect the need for prolonged dry weather abstraction requests such as refilling winter storage reservoirs beyond the licensed winter season. If the remaining winter/spring turns dry and/or the summer is hot and dry we will review our position.

Figure 1 - Initial Irrigation Prospects
Spring - Summer 2021

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



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 “Widespread cases of flooded fields and saturated soils mean that farmers are having to cope with significant wet weather challenges at the start of the farming year. We welcome early indications of good water availability for the 2021 irrigation season from both groundwater and surface water sources. However, weather patterns remain unpredictable and exceptionally hot and dry weather last spring resulted in rapid changes in water availability. With last year’s experience in mind, farmers will undoubtedly continue to closely monitor weather and water availability as the year unfolds”.

Prospects for individual areas

Yorkshire

Prospects for water resources availability for spray irrigation in Yorkshire for 2021 are GOOD.

Kent, South London and East Sussex (KSL)

Initial irrigation prospects for water resources availability for spray irrigation in Kent, South London and East Sussex for 2021 are GOOD.

East Anglia (East)

The overall summer prospects for water resources availability for spray irrigation in East Anglia (East) are currently GOOD.

East Anglia (West)

The overall summer prospects for water resources availability for spray irrigation in East Anglia (West) area are currently GOOD.

Hertfordshire and North London

The Hertfordshire and North London Area consider spray irrigation prospects potentially GOOD for summer 2021.

Lincolnshire and Northamptonshire

Prospects across Lincolnshire and Northamptonshire area are GOOD for 2021.

East Midlands

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

West Midlands

The summer prospects for water resources availability for irrigation in the Environment Agency's West Midlands area are currently GOOD.

Solent and South Downs

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

Thames

The overall summer prospects for water resources availability for spray irrigation in Thames Area are currently GOOD.

Devon, Cornwall and the Isles of Scilly

The overall summer prospects for water resources availability for spray irrigation in Devon, Cornwall & Isles of Scilly are currently GOOD.

North East

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

Cumbria and Lancashire

Cumbria and Lancashire will not be providing a formal spray irrigation prospects report at this time but the current situation is influenced by high levels of rainfall and flooding rather than any concerns related to lack of rainfall. If we have average rainfall then the irrigation prospect for the summer is GOOD. The last three months rainfall was classed as between normal and exceptionally high, with soils remaining saturated by the end of January. Cumbria and Lancashire has quick responding rivers and therefore the situation can change relatively quickly. The main spray irrigation area is in Crossens and we will be monitoring the situation as appropriate given river levels. There are no concerns with regard to spray irrigation from groundwater.

Greater Manchester, Merseyside and Cheshire

Greater Manchester, Merseyside and Cheshire will not be providing a formal spray irrigation prospects report at this time but the current situation is influenced by high levels of rainfall and flooding rather than any concerns related to lack of rainfall. If we have average rainfall then the irrigation prospect for the summer is GOOD. The last three months of rainfall were classed as between notably high and exceptionally high, with soils remaining saturated by the end of January. Greater Manchester, Merseyside and Cheshire has quick responding rivers and therefore the situation can change relatively quickly. There are no concerns with regard to spray irrigation from groundwater.

Wessex

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

Area detail

Yorkshire

Background

In 2021 things have been particularly wet in Yorkshire, several storms have passed over the county and flooding has occurred in several locations. In February 2021 the county faces a period of cold weather bringing frozen ground and heavy snowfall in places.

At the start of the winter period, January 2021, started with exceptionally high base flow and rising groundwater levels, levels have kept rising accelerated by Storm Christoph.

All the events highlighted above mean that the current Prospects for Spray Irrigation are GOOD this year, the graphics below show the Exceptionally High River and Groundwater Levels. These speak for themselves regarding how much water is available currently.

Hydrology Information

Rainfall

Despite November 2020 being relatively dry, the overall three month autumn period was wet with just above average rainfall totals. December 2020 saw above average monthly totals in East Yorkshire. In January 2021 snowfall on the 8th and 9th and again on the 14th were immediately followed by rainfall which ensured quick snowmelt. Conditions were unsettled over the 18th to the 22nd with the arrival of Storm Christoph resulting in a very wet 5-day period. The month itself was very wet with well above average monthly rainfall totals in the east.

Rivers

Flows on the Derwent during December 2020 rose significantly between the 4th and the 6th, then fluctuated above an elevated base flow, climbing further to a peak on the 29th. The West Beck response showed a strong increase in flows through the month as groundwater levels rose. In January 2021, flows on the Derwent moved from the notably high into the exceptionally high range at the beginning of the month and showed little change prior to Storm Christoph arriving. Further increases in flows occurred during the storm event, resulting in a peak flow within the top five ranked events on the EA's flow gauge. Flows briefly declined, although they remained in the exceptionally high range for the remainder of the month. On West Beck, the flows were rising very slowly during December 2020 as a result of rising groundwater levels and this trend continued during January 2021.

Groundwater

In terms of Groundwater, higher than average water levels in all aquifers, (with some exceptionally high), mean that prospects are good for water availability for spray irrigation in the spring. Some aquifers respond quickly to dry weather such as the Corrailian Limestone, while others such as the Sherwood Sandstone respond slower. Rivers that are fed mainly or exclusively by groundwater in the Easterly Chalk catchments are expected to have reserves to maintain a healthy flow throughout the upcoming summer.

Forward look

It is important in years such as this to look at past events as opposed to just the present situation. Spray Irrigation Prospects were initially reported as Good in February of 2018 and 2020. In these years heavy

rainfall in the early part of the year and into Easter meant water was plentiful but by May hot and dry weather took its toll and extremely low flows were observed in rivers fed by the Westerly moorlands. Yorkshire has several rapid response catchments - in terms of flooding and drought. In the East the current flows are supported by groundwater which are less likely to decline rapidly if a hot summer occurs. The exception is the Corrailian Limestone which responds more like surface water as opposed to groundwater. Climate change is predicted to bring more spells of intense wet and dry weather coupled with short sharp heatwaves in the summer, therefore any early season spray irrigation report could easily be flipped on its head by the kind of dry spell seen in June 2018 and April/May 2020. We will provide updates to this report should the weather forecast follow the same pattern as 2018 and 2020.

For the most up to date water situation reports please visit our website here:
https://www.gov.uk/government/statistics/water-situation-report-yorkshire-and-north-east
For more information please contact us by emailing AEPYorkshireandNE@environment-agency.gov.uk

Kent, South London and East Sussex

Over the winter period so far (October 2020 to 31st January 2021) we received 203% of the Long Term Average (LTA) rainfall to date with effective rainfall of 257%. As a result the water resource availability outlook for the 2021 irrigation season is: GOOD.

Favourable conditions this winter to date have been sufficient to address any residual deficits that had arisen over the previous dry years. The accelerated recharge season for aquifers observed to date has resulted in a significantly improved water resources situation and irrigation outlook throughout KSL Area.

Please read the latest **Water Situation Reports** to view Kent & South London Area's 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

East Anglia (West)

Background

By the end of May 2020, a three month period of very low rainfall had seen the area experiencing exceptionally high soil moisture deficits for the time of year and below normal river flows across the area, although groundwater levels were generally holding in the normal range after above average rainfall in the autumn and winter of 2019-20. Over the last summer, flows and groundwater levels fell below the long term average in the Cam and Ely Ouse catchment, but generally remained in the normal range or above across the rest of the area. Rainfall in October 2020 was over 200% of the long term average and triggered a sharp drop in soil moisture deficit, the start of groundwater recharge at many sites, and a rise in river flows to normal or above. Rainfall has continued to be significantly above average throughout the winter months to mid-February.

Rainfall

Apart from rainfall well below the long term average in March, April and May 2020, the majority of past 17 months (since September 2019) have experienced above average rainfall. The past six months have been the second wettest August-January period since records began in 1892, with 155% of the long term average rainfall. February has also started wet, with 76% of the long term average rainfall for February in the first seven days of the month.

River Flows
River flows, which had been low during the last summer, had recovered to normal or higher in October 2020, and by December had reached notably or exceptionally high. This reflects the significantly above average rainfall experienced over the past six months. River flows continued to be either notably or exceptionally high in January, and were exceptionally high across the whole area in the first week of February.

Groundwater
High rainfall totals in October 2020 (215% of the long term average for that month) significantly reduced the high soil moisture deficit, and by the end of October aquifer recharge started to take place across the majority of the area, with the exception of some parts of the Cam Chalk where the start of recharge was delayed until November. By the end of January the majority of groundwater levels were classified above normal, notably high or exceptionally high, and two groundwater flood alerts had been issued (for Newmarket and Bury St Edmunds).

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
Prospects across the East Anglia (West) area are GOOD for 2021. Soil moisture deficit is notably low, recharge is taking place at all sites and groundwater levels are above normal across most of the area. River flows are likely to be in the normal range in groundwater fed catchments throughout the irrigation season, even with below average rainfall.

If weather conditions turn dry for the remainder of the winter and spring, river flows could return to below normal levels in parts of the Bedford Ouse (the Kym and the Bedford Ouse at Roxton); if below average rainfall is accompanied by hot weather, flows could drop to below normal over the summer in the Ely Ouse. Groundwater levels are expected to remain in the normal range or higher throughout the irrigation season even with below average rainfall.

It is likely that local water management actions, using existing licence conditions, will be required in Fenland catchments during the irrigation season. Even in average conditions any dry periods during the summer can result in some form of local water management actions. These actions will most likely be required in the Middle Level, South Level, Counter Drain and/or the Hundred Foot catchments.

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

East Anglia (West)
Andy Chapman
02030 251786

East Anglia (East)

Background
The period from September 2016 to August 2020 was notably drier than average particularly over the Suffolk and Essex river valleys. This prolonged dry weather resulted in a gradual decline in ground water levels and some exceptionally low flows in the summers of both 2019 and 2020. A shift in weather patterns from September 2020 has seen exceptionally high rainfall totals being recorded through to January 2021.

Rainfall / Soil Moisture Deficit

Totals over the last four months have exceeded 180 % of the long term average at nearly all locations and have been over 170 % of average in parts of the Essex catchments. Soil moisture deficit has dropped rapidly and is currently 0 mm.

River Flows

Our prognosis for a Reasonable Worst Case (RWC) rainfall scenario at 80 % of average through to May is for normal groundwater levels and flows to prevail next summer with some catchments in Essex and Norfolk remaining above normal. A few local sites in the confined chalk of the East Suffolk river valleys may not sustain normal levels falling below normal by early summer.

An Actual worst case (AWC) rainfall scenario of 60 % should still deliver normal conditions to much of the area, but an increasing likelihood of below normal in the East Suffolk confined chalk. There is little possibility of levels anywhere declining to notably low or exceptionally low (dry weather of drought incident levels), even if the weather becomes exceptionally dry for the rest of the winter.

Groundwater

Recharge of groundwater commenced early in September and has at times been very rapid. Nearly all monitoring sites are now measuring levels which have recovered to normal or above. Areas within the Essex catchment chalk aquifer which had been more severely impacted by dry weather are now recording exceptionally high levels.

The ground conditions remain exceptionally wet and further significant recharge can be expected through to March even with below average rainfall for the rest of the winter.

Forward look

Prospects across East Anglia East are GOOD for 2021. Section 57 restrictions are an emergency response to reduce abstraction pressures. Catchments with a low natural groundwater contribution and a high demand for water direct from the river can and do fall rapidly in response to intense hot and dry summer conditions. These are typically the rivers south of the Waveney to the Mardyke in Essex (not including the coastal crag and gravel streams). Concentrated demand from these rivers during hot weather can lead to major environmental incidents. Abstraction pressures can be a significant contributory factor to these events. We cannot therefore preclude S57 as a necessary response to managing a rapidly deteriorating situation. There is however, now a very low likelihood of such measures being required in 2021.

Please contact for more information:

Clare Watkins, East Anglia (East) Drought Co-ordinator
Clare.Watkins@environment-agency.gov.uk

Hertfordshire and North London (HNL)

The Hertfordshire and North London Area consider spray irrigation prospects potentially good for summer 2021.

Background

Early rains received in autumn 2020, which continued into the winter has resulted in a much improved outlook for the local water resource situation. Soils were quickly saturated allowing an early start to local

groundwater recovery. Further significant rains in December resulted in groundwater levels continuing to rise.

Rivers responded with flows soon returning to upper stretches, and then into the winterbourne sections. Nearly all Chalk streams are now flowing from their source locations with good flows being observed. The clay based catchments have seen flows return, which allowed early filling of winter storage reservoirs. The ecology and aquatic life within our watercourses will take longer to fully recover. We will continue to monitor the situation.

The winter period of 2020-21 in hydrological terms should provide positive reassurance as we move into the spring. Groundwater projections infer levels should remain within their normal range during the summer period. This is expected to allow local Chalk streams to benefit from additional groundwater flows.

Abstraction situation

Winter abstractors who have often struggled to fill reservoirs, were able to start early and many have now ceased abstraction. No issues are expected linked to those abstractors who rely on reservoir storage for subsequent irrigation water.

Groundwater based irrigators are also likely to benefit from the recovery in groundwater levels. Their abstractions are likely to be more resilient to any drier conditions which could occur over the summer period.

Direct river abstractors may notice flows decline over the summer period. Rivers which flow over impermeable clay surfaces are likely to decline more quickly than groundwater supported rivers.

Hands off flow constraints are likely to be active at some stage during the summer period - most noticeably on the impermeable clay based river systems. Those rivers which are more reliant on groundwater may not see any immediate decline in flows but constraints are still possible during the summer period.

Forward Look

Irrigation prospects are looking promising with only normal seasonal restrictions expected based on the current water resource situation. 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

After a dry spring in 2020, a wet summer meant that conditions at the end of September were generally normal for the time of year. The wet weather continued into the autumn and the start of winter. From October to January 2021 the area received 155% of the long term average rainfall for the period. This led to exceptionally high river flows at most sites in January with all sites having above average flows. Groundwater is also classified as exceptionally high at most sites and is above the normal range at all sites monitored.

The wet weather has continued into February and rainfall data up to 7th February shows that most of the area has already received the long term average amount for the whole of the month.

More detailed information can be found in the Environment Agency Monthly Water Situation Report available at https://www.gov.uk/government/publications/water-situation-local-area-reports.This is updated shortly after the 10th of each month.

Rainfall / Soil Moisture Deficit

October 2020 saw nearly twice the long term average rainfall. This was followed by a drier than average November before a return to wet weather in December and January, with approximately twice the long term average rainfall. This pattern has been seen across the area with slightly more rain in the south of the area than the north. The wet weather led to soil moisture deficits being overcome in December.

River Flows

During December 2020 and January 2021 river flows have been above the normal range in both the base flow and runoff dominated catchments, with most monitoring sites recording exceptionally high flows. These exceptionally high flows have continued into the start of February.

Groundwater

Groundwater levels were around normal for the time of year at the start of the recharge season in October 2020. Significant recharge has occurred during December and January causing levels to be above the normal range at all reported on sites with most exceptionally high in both the limestone and chalk aquifers. With the soil moisture deficit near zero further recharge is likely.

Forward Look

Prospects across Lincolnshire and Northamptonshire are good for 2021.

With average rainfall we are likely to see **normal or above normal** groundwater levels leading to strong base flows in groundwater fed rivers. The River Welland and River Nene are likely to also see **normal** flows.

With 80% of long term average rainfall, groundwater levels are again likely to be **normal or above normal** this summer leading to strong base flow in groundwater fed rivers. The River Welland and River Nene are also likely to have **normal or slightly below normal** flows.

It is however still possible 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:

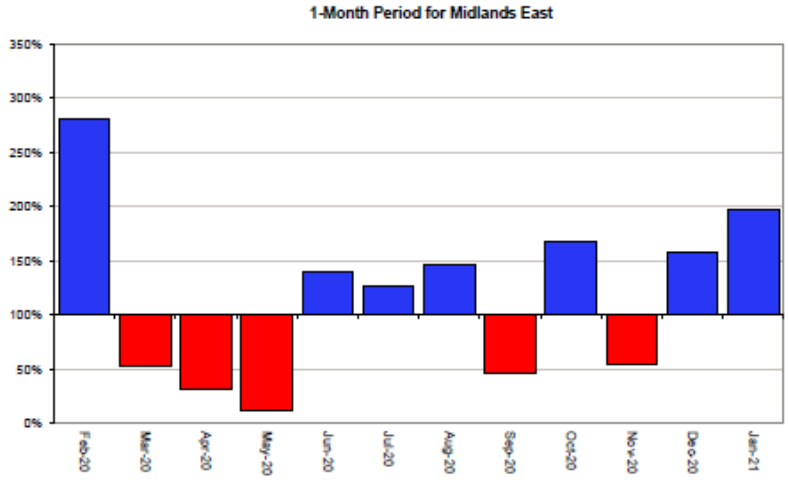
Drought.LNA@environment-agency.gov.uk

East Midlands

Background

The East Midlands has experienced an exceptionally wet December 2020 and January 2021.

Rainfall / Soil Moisture Deficit



The chart above shows the monthly rainfall in East Midlands Area compared to the Long Term Average (LTA). The blue bars indicate above average rainfall and the red bars represent below average rainfall. This shows that in October 2020 in the East Midlands Area the rainfall was over 150% of the LTA, as it was in December 2020 and in January 2021 it was almost 200% of LTA.

Soil moisture deficits in the East Midlands are almost nil and are below the LTA soil moisture deficit.

River Flows

Rivers have responded to the January rainfall and flows are above normal for the time of year.

Groundwater

Groundwater levels at all sites are reporting 'above normal' or higher in comparison to LTA.

Forward look

Prospects across East Midlands Area are currently good for 2021.

There has been some good recharge of the aquifers with the wet weather over the winter and there is plenty of water in the rivers at the moment. If the spring and early summer turn dry however, the irrigation prospects may change.

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

Rainfall / Soil Moisture Deficit

In December 2020 and January 2021 all hydrological areas in the West Midlands received rainfall above the monthly Long Term Average (LTA). This was preceded by above average rainfall in August and October, with below average rainfall in September and November 2020.

West Midlands soils overall have been wetter than the soil moisture LTA for the whole period of October 2020 to January 2021. At the end of January the soil moisture deficit for all hydrological areas was recorded as 0 mm with saturated soils.

River Flows

As a result of mostly above average rainfall since September, all river sites have been 'Above Normal' since September, with many sites having recorded higher flows in months with above average rainfall.

Groundwater

Consistent rainfall and wetter soils have improved the status of all groundwater sites with all sites being at 'Normal' status or higher in January 2021. Groundwater supplies can support watercourse flows during the summer, which may be needed if the coming months are dry.

Reservoir storage

All ten major public water supply reservoirs that provide water to the Midlands are currently (January 2021) above their LTA. At the end of January 2021 six reservoirs were recorded as being full, with two being above 90% full and two above 80% full.

With reservoir stocks being healthy for the time of year and groundwater having had reasonable recharge over the winter, the prospects are good for water availability for 2021. However, this may change depending on the weather and amount of rainfall received in future months.

Ongoing Impacts from Covid-19

We continue to review how we respond and adapt our regulation of Water Resources under the current COVID 19 restrictions and the following information provides some guidance as to how we will continue to support access to water over the coming months.

- The **Spray line service** for abstractors in the River Wye catchment is currently closed as flows are sufficient, but will resume again once river levels drop to trigger thresholds for abstraction restrictions. We will contact licence holders when these thresholds are crossed and the service becomes operational again. *For more information please call 07789397595 Monday to Friday 9am-5pm*

- **Hands off Flow restrictions -** Abstraction in the area is primarily controlled by conditions on licences and licence holders must ensure that they adhere to these at all times. We intend to operate water resource regulation and hands off flow restrictions as normal. We may still look to do as much regulation as possible remotely but will also undertake face to face inspections where needed.

Forward look

Although spray irrigation prospects are currently good across the West Midlands area, abstraction licence Hands off Flow restrictions may still be imposed on surface water abstractions, especially in late summer, if the weather becomes hot and dry. We will review this information and provide

an update at the end of April/early May. Prospects could change if the weather conditions are dry in the intervening period.

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 or higher ranges for the time of year having received good recharge following the 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 is currently at 'Exceptionally High' status and is showing an upward trend.

Weir Farm observation borehole in Shropshire is currently within the 'Exceptionally High' range and showing an upward trend.

St. Mary's Church observation borehole in Worcestershire is showing within the 'Notably High' range and is showing an upward trend.

Four Crosses borehole in Staffordshire is currently within the 'Notably High' range and is displaying an upward trend.

Ram Hall borehole is near Coventry and within the Permo-Carboniferous sandstone and mudstone. The levels are currently within the 'Above Normal' range and showing an upward trend.

Please contact for more information:

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

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 if rainfall over the summer period is below the Long Term Average (LTA). The Ardingly reservoir has returned to 100% storage capacity following historic lows in September 2020. At the start of February, river levels ranged from normal to notably high. A forward outlook for the water resources situation to March 2021 in SSD is provided in Figure 1 below.

Background

At the end of January 2021 SSD has experienced **above average** rainfall for the winter period to date (1st of December 2020 to 31st January 2021). This is 146% of the Long Term Average (LTA) for this period. It should also be noted that rainfall for October and November was above average. As a result, soil moisture deficits (SMD) have been 0mm for the majority of the winter period. Effective rainfall was particularly high in comparison to the LTA. 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 February, with reservoir stocks at or near full capacity.

As a result of the wet winter period spray irrigation prospects are GOOD for 2021.

Rainfall / Soil Moisture Deficit

The 2020/2021 autumn and winter to date have been wetter than the LTA resulting in significant increases in river flow and groundwater recharge across SSD. SMD remained near 0 mm for most of the winter resulting in higher than average effective rainfall.

SMD across SSD is currently 0mm.

River Flows

At the end of January 2021 the River Lymington at Brockenhurst GS recorded monthly mean flows in the normal range. Flows on the River Test at Chilbolton GS, River Wallington at North Fareham were also in the normal range. The River Itchen at Allbrook & Highbridge GS, Western Rother at Iping Mill GS, Cuckmere at Cowbeech and the River Arun at Alfoldean were above normal. Flows on the River Medina at Blackwater were notably high. All other reported sites are normal or above normal.

At the end of January 2021 reservoir stocks were above average at Ardingly Reservoir (Ouse Catchment) with 100% of total capacity (LTA is 93%) and at Arlington Reservoir (Cuckmere catchment) with 98.6% of total capacity (LTA is 95.4%).

Groundwater

At the end of January 2021 groundwater levels ranged from normal to exceptionally high across SSD. Levels Carisbrooke Castle (Isle of Wight) were exceptionally high. Cornish Farm and Youngwoods Copse levels were normal. Clanville Gate (Test Chalk) was above normal and Preston Candover was notably high. West Meon (East Hants Chalk) was above normal. Beeding Hill (west Sussex Chalk) levels were normal. All remaining sites were normal or above normal.

Forward look

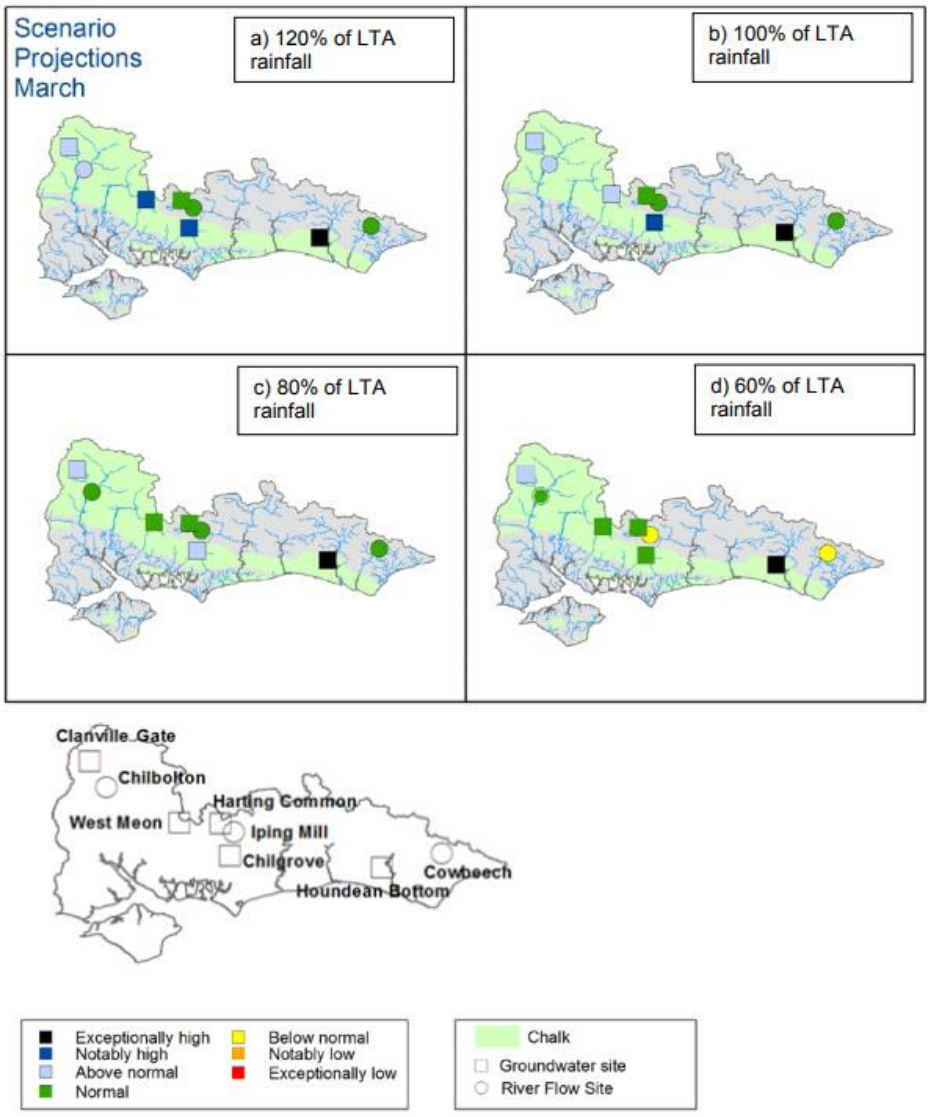
Prospects across Solent and South Downs are GOOD for 2021. The reason for this status is the groundwater recharge that is continuing to take place. Public water supply reservoirs remain near capacity and surface water levels all remain at normal or above normal.

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. The area position will be reviewed at the end of the winter period (March), but given the wet winter so far it is unlikely that the position outlined will change.

Please contact for more information:

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

Forward look- river flow and groundwater March 2021



Projected river flows at key indicator sites up until the end of March 2021. Projected groundwater levels at key indicator sites at the end of March 2021. 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.

Figure 1: SSD hydrological forward outlook to March 2021

Thames

Background

A wetter than average winter period so far (October to date) has resulted in generally higher than average surface water flows and groundwater levels as well as effective rainfall recharging the aquifers in the Thames

Area. Prolonged rainfall events have led to the catchment becoming and remaining saturated. Surface water and groundwater resources are currently high and we can expect to go into the spring/summer period in a good water availability position.

Rainfall / Soil Moisture Deficit

The winter period so far has seen the Thames Area receive almost 155% of the Long Term Average (LTA) rainfall (October to January). This has led to catchments being fully saturated. The effective rainfall (the proportion of rain that contributes to groundwater recharge) is estimated to be 169% of the LTA (October to January).

River Flows

Over the winter, rivers in Thames area have responded to a series of significant rainfall events, causing the majority of rivers in January to have flows **above normal** or higher for the time of year, with some being **exceptionally high** towards the end of January.

Groundwater

All groundwater level indicator sites are currently either normal (Inferior Oolites), above normal (Chalk and Lower Greensand) or exceptionally high (Great Oolites, Corallian and Upper Greensand) for this time of year. This leaves the area in a good position going into the spring/summer months.

Forward look

While conditions have turned a little drier at the start of February, flows are expected to be maintained into spring by groundwater levels. It is likely hands off flows and levels will come into force during the summer, but these are likely to be later in the year than we have seen over the last few years. We are not expecting to need additional constraints on irrigation during the summer period. Prospects across Thames Area are **Good** for 2021.

Please contact for more information:
Jess Barnes, jess.barnes@environment-agency.gov.uk

Devon, Cornwall and Isles of Scilly (DCIS)

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

The rainfall totals for December were ‘exceptionally high’ in the west of the area to ‘above normal’ in the east. The rainfall totals for 2020 were ‘exceptionally high’ for south, west and north Devon and ‘above normal’ or ‘notably high’ for the rest of the area. Soil moisture deficit was zero at the end of December 2020.

River Flows

The monthly mean flows were ‘exceptionally high’ for December. Monthly mean flows ranged from 150% to over 200% of the LTA during this period. Daily mean flows reacted to the high rainfall throughout the month of December with many Cornish sites finishing the month with ‘exceptionally high’ daily flows.

Groundwater

Groundwater levels remain healthy. All of the indicator groundwater sites showed as ‘normal’ for December, with the exception of a site in the west which showed ‘notably high’. The majority of these sites are currently showing recharge.

Forward look

In Devon, Cornwall & Isles of Scilly, we do not anticipate any restrictions with regards to irrigation in the coming six months due to the high levels of rainfall this winter so far and the limited environmental benefit that would be gained by doing so. This position will be reviewed during 2021 dependent on the rainfall patterns and river/groundwater levels.

The indicative spray irrigation prospects for Devon, Cornwall & Isles of Scilly are good for 2021.

Please contact for more information:

Emma Townsend – Drought Coordinator DCIS
Drought.DCIS@environment-agency.gov.uk

North East Area

Background

Last year began fairly mild with below average rainfall measured across the area in January 2020. February was the wettest month of the year and also the wettest February on record beginning in 1891 for the North East as a whole. Storms Ciara and Dennis produced heavy and persistent rainfall across the area which led to an increase in reservoir stocks at all reservoirs with most reaching full capacity. March was a month of recovery from February's flooding and brought fine weather.

April 2020 was the driest April since reliable records began in 1891 for the North East area. The dry weather was particularly noticeable in the Tyne, Tweed, Northumberland and Tees catchments which recorded their driest ever Aprils in the 130 year period of record. After 6 weeks of fine weather, the rainfall total for March and April in the North East area was the 6th driest on record. May was the sunniest month in a Met Office record stretching back to 1929 and saw a continuation of the dry weather.

The total rainfall for spring made 2020 the driest spring in the North East area since at least 1891. Reservoir stocks continued to fall across the area and NWL reduced the outputs from some of their smaller water supply reservoirs. Total stocks fell by 22% from the beginning of March and were 10% below the long term average at the end of May. The soil moisture deficit in all catchments across the North East increased, resulting in soils being classed as either 'dry' or 'very dry'.

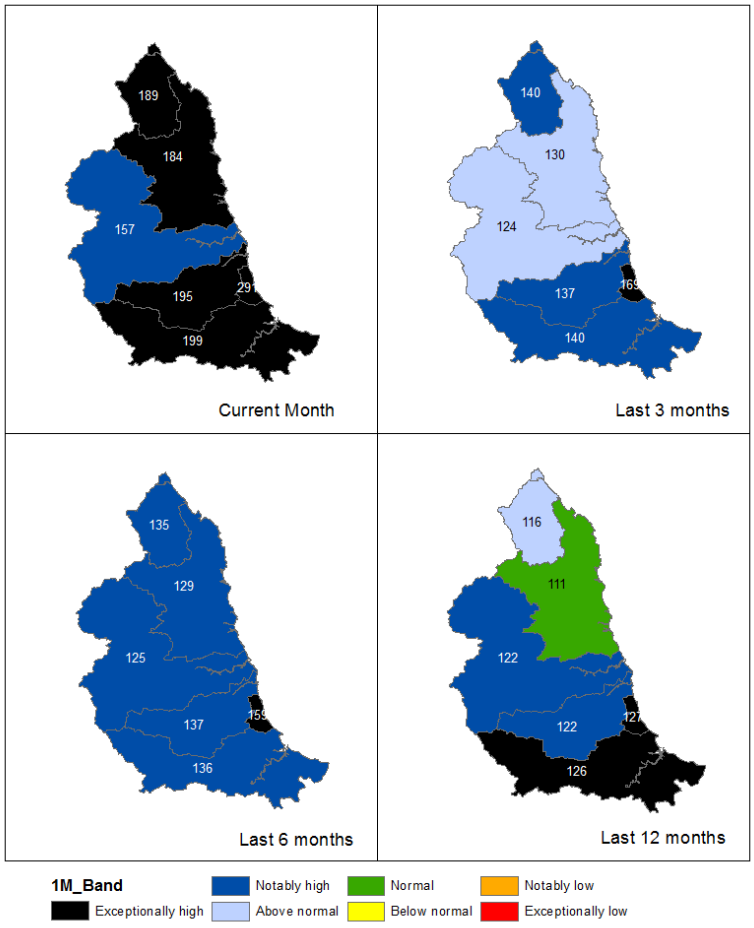
By the end of May all hydrological triggers signalling Prolonged Dry Weather (PDW) had been met, and so the area declared PDW for the first time ever.

With above average rainfall in June and around average in July there were signs of improvement in parts of the Tyne, Wear and Tees catchments. The three month cumulative rainfall totals were 'normal' across much of the North East. By the end of July overall reservoir stocks returned to average levels. All catchments within the North East area had moved out of 'Prolonged Dry Weather' and into the 'recovery' phase in September, before moving back to 'normal' status in October 2020. November was a dry month with monthly rainfall totals below average in all catchments. The year ended fairly wet with December recording 'above average' monthly rainfall totals.

The wet weather continued into 2021 with rainfall recorded on most days throughout January. Storm Christoph did produce some large daily rainfall totals around the 19th though these were not as significant as seen in other parts of the country. January 2021 was the fourth wettest January recorded in the North East and the second wettest January in the Seaham, Wear and Tees catchments in a dataset beginning in 1891.

Rainfall / Soil Moisture Deficit

Following the very dry spring in 2020, rainfall totals have increased significantly and over the last 6 months cumulative rainfall totals are now 'notably high' or 'exceptionally high' across the North East. January was a particularly wet month with 'exceptionally high' rainfall recorded in all catchments except the Tyne where 'notably high' rainfall was recorded.



Total rainfall (as a percentage of the long term average) for hydrological areas across the North East area for January 2021, the last three months, the last six months, and the last twelve months, classed relative to an analysis of respective historical totals.

Soil moisture deficits took a while to recover from last spring's. dry weather with parts of the North East (in particular the Northumberland Coast and Till catchments) continuing to have significant soil moisture deficits in September which placed them within the 'dry' category. By October deficits had greatly declined and in November all soils were saturated and fell within the 'wet' category where they continue to remain now.

River Flows

After several months of very low flows in the spring and summer, some recovery in flow was seen in September, with larger peaks occurring in the following months. At the start of December river levels increased rapidly and have continued to remain elevated into 2021 after several periods of rainfall, including two large storms (named Bella and Christoph) over the winter. Wintery conditions have also resulted in several periods of snowfall, starting on Christmas Eve and continuing into February. Periodic snowmelt has contributed to an increase in river levels with monthly river flows classed as 'above normal' or higher.

Groundwater

Groundwater levels have typically recovered to normal levels for the time of the year, with some catchments' levels above average. Groundwater levels are generally increasing in line with above average rainfall across all catchments in the last three months of 2020. This rising trend is expected to continue into early 2021 in the less responsive parts of the North East's aquifers as heavier than normal rainfall throughout the area in December 2020 will continue to recharge groundwater stocks.

Forward look

Prospects across the North East area are good for 2021. The rainfall outlook for February issued by the Met Office shows there is an increased likelihood of impacts from heavy rainfall. River flows are also expected to remain above normal to exceptionally high for February, and over the next three months though some localised catchments are expected to be within the normal range.

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 becomes 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.

In the Till catchment, any irrigators who need to abstract early to establish crops (if warm and dry weather prevails), should adhere to conditions previously imposed by Natural England consents. By April new trickle irrigation licences should be issued for this previously exempt activity, in the Till catchment, with conditions in place to prevent environmental damage.

Please contact for more information:

Water Resources: water.resources.northeast@environment-agency.gov.uk
and Hydrology: hydrology.northeast@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 keep their licensed quantities the same but 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.

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.

A 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?

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 ensuring that abstractions are only taken from authorised locations, volumes are not exceeded and accurate records are kept of meter readings. In particular, where third parties undertake irrigation, licence holders should ensure contractors fully understand the abstraction licence conditions. Those who have licences with compensation discharges and re-abstraction conditions should ensure that water is released at the same time as abstraction is taking place
- The Environment Agency are planning to determine the first batch of licences for previously exempt activities, including trickle irrigation, in the following catchments by the end of March: Till, Lower Wye, Upper Wye, Dee, Staffordshire Trent Valley, Cam and Ely Ouse, Tees, Cotswold, Wey, Northern Manchester, Severn Vale, Lower Trent and Erewash, Aire and Calder, West Cornwall, Torridge and Hartland Streams, Shropshire Middle Severn.
- The Environment Agency has developed a secure online Water Resources Licensing Service, which can be found by searching GOV.UK for 'Manage your water abstraction or impoundment licence'.

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

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

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
- Read our latest abstraction and dry weather advice in the Farming Advice Service newsletters;

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.