

To: Kent Flood Risk Management Committee – 9th November 2022

From: Rebecca Spore, Director of Infrastructure, Deputy Chief Executive's Department

Subject: Environment Agency and Met Office Alerts and Warnings and KCC severe weather response activity.

Classification: Unrestricted

Summary: To update Kent Flood Risk Management Committee on the current water situation, weather statistics, Environment Agency and Met Office Warnings, and flood response activity since the last meeting of the Committee on 5th July 2022.

1. Background

- 1.1 This report is the latest of the regular updates to the Committee addressing the current water situation and severe weather and flood response activity.
- 1.2 The KCC Resilience and Emergency Planning Service Duty Emergency Planning Officer (DEPO) and Contact Point receive Environment Agency (EA) and Met Office alerts and warnings regarding severe weather on a 24/7 basis. Any site-specific severe weather impacts are notified to the DEPO by the emergency services and other resilience partners, with reports from the public received by Contact Point and passed on to the DEPO and/or Kent Highways. DEPO further initiates multiagency reporting using the County Council's innovative Severe Weather Impacts System (SWIMS) to capture resources and costs arising from severe weather incidents.
- 1.3 Some 85,500 residential and commercial addresses across Kent are located within areas identified as at risk from fluvial (river) or tidal (coastal) flooding. Where possible, flood vulnerable properties are offered a Flood Warning Service by the EA. Early warning of flood risk to communities (including areas outside of floodplains) is delivered through Flood Guidance Statements, Severe Weather Warnings and mobilisation of the Kent Resilience Forum (KRF) Severe Weather Advisory Group (SWAG).

2. Kent water situation and weather statistics

- 2.1 Kent experienced an unusually dry spring in 2022, following a pattern established in 2020 and 2021, with this trend continuing into the summer. July saw the lowest monthly rainfall total on record for the county at just 11% of long-term average.¹ The month also witnessed record breaking temperatures,

¹ Please see appendix 1

exceeding 39 C in parts of the county, with an overall mean maximum temperature +2.8 C above the long-term average. The Met Office issued unprecedented Red Severe Weather and Level 4 Health Health Warnings on 15th July.

- 2.2 July's hot weather triggered widespread and sometimes prolonged water outages, which resulted from increased household demand, ground settlement and subsidence damaging pipework and associated technical faults impacting pumps and other infrastructure. Kent County Council worked proactively with the water utilities, Kent Districts and other partners establishing and chairing multiagency emergency management structures and ensuring affected communities, and especially potentially vulnerable individuals and groups, gained access to showers and bottled water, alongside other appropriate support interventions
- 2.3 Vegetation and crop fires also proliferated as temperatures rose and the county's landscape became tinder dry. Kent Fire and Rescue responded to more than 400 such fires in July. Some of the most significant conflagrations were seen in the Dartford area on the afternoon of 19th July, where more than 150 firefighters tackled vegetation fires in record-breaking heat. Road closures, public warning and informing campaigns, evacuation of at risk residential and commercial neighbourhoods and movement of livestock and horses to safer areas all added to the scale and complexity of the local fire-fighting response.
- 2.4 August was another hot and dry month, with a rainfall total in Kent equating to 54% of the long-term average and a mean temperature +3.1 C above the norm. It also saw the National Drought Group declare official drought conditions across parts of England, including Kent, on the 12th of that month. 'Temporary Use Bans' were introduced by South East Water on 12th and by Thames Water on 24th August.
- 2.5 In contrast, September was a wetter than average month and saw rainfall totals at 153% of long-term average, with temperatures +0.4% above the norm.
- 2.6 October has seen a return to unseasonably dry and warm weather conditions, with rainfall just 64% of the average and temperatures +2.6 C above the long-term figure for this month. However, October did see a number of storms accompanied by intense rainfall events, which resulted in localised highway and surface water flooding. On the morning of 20th October, torrential rain saw a recurrence of sewage pollution that affected a key pedestrian route for local schools and rail stations in Maidstone town centre.
- 2.7 The latest data available from the Environment Agency indicates that local river flows have recovered to some extent from the paucity of rainfall in the spring and summer months. The Rother and Upper Stour (predominantly rainfall fed)

have **normal** and **below normal** flows respectively. Rivers supported by chalk groundwater have **below normal** flows (the Darent, Great Stour and Dour). Navigation has now returned to normal self-service lock operation at all locks on Kent rivers. Further, long-awaited Allington Sluice gate repairs on the River Medway have now begun, after being on hold over the summer to reduce water loss.

- 2.8 Autumn has seen a reduction in the number of reports of fish kills and algal blooms/crashes in Kent's rivers, streams and other water bodies, exacerbated by prevailing low flows and reduced dilution of pollutants. The ecology of Kent's rivers, streams, ponds and other wetlands will inevitably take time to recover something approaching their former biodiversity following the current drought event.
- 2.9 Groundwater levels are generally much lower than is normal for November. Levels continue to **fall** at most key indicator sites, although some sites are now showing signs of stabilisation and recovery. Levels in the Chalk aquifers vary largely, ranging from **exceptionally low** to **normal**, while levels in the Lower Greensand aquifers are **below normal**. Abstraction licence constraints for agriculture and other groundwater users remain active across all Kent catchments. Targeted Environment Agency enforcement visits continue, with 32 drought-related visits in recent weeks.
- 2.10 Levels at Bough Beech and Bewl reservoirs are currently **notably low** and **below normal** respectively.
- 2.11 Nine flood alerts were issued by the EA since the last meeting of the Committee (four fluvial and five coastal)². This contrasts with 43 flood alerts and one warnings (26 fluvial and 18 coastal) in the corresponding period in 2021.
- 2.12 The Met Office issued 31 weather warnings covering Kent between June and October 2022 (21 yellow warnings and one amber warning for thunderstorms, four amber warnings and one red for extreme heat, three yellow warnings for rain and one yellow warning for wind).³ This contrasts with 41 Met Office weather warnings 2021 (11 yellow warnings and one amber warning for thunderstorms, 15 yellow warnings and one amber for rain, three yellow warnings for rain, two yellow warnings for wind and rain and one yellow warning for fog) in the corresponding period last year.
- 2.13 The Thames Barrier was closed on three occasions since the last meeting of the Committee in July (all for test purposes).³ The figure for the corresponding period last year was four (three for flood defence and one for test purposes).

² Please see appendix 2

³ Please see appendix 3

³ Please see appendix 4

3. Outlook

- 3.1 The Met Office three month outlook summary indicates a 25% chance that November to January will be cooler than average, a 60% chance that it will be near average and a 15% chance that it will be milder than average. In terms of rainfall, the summary indicates a 25% chance the season will be drier than average, 65% chance that it will be near average and a 10% chance it will be wetter than average. Stormy conditions, and impacts from high winds, are less likely than normal.⁴
- 3.2 The EA continuously runs surge forecasts, informed by astronomical tide calculations. If a risk of coastal flooding is forecast, then this information is communicated to partners. Indeed, the next notably high equinoctial spring tides, with a corresponding elevated risk of coastal flooding, if in combination with high winds, are forecast for 7th to 9th and 24th to 26th November and 24th to 26th December. However, coastal flooding can still occur outside of high spring tides, as a consequence of a storm or breach of defences.
- 3.3 To support local contingency planning for flood response, Exercise Manu took place on 4th November and tested the county council's recently updated Flood Response Emergency Plan.
- 3.4 Kent Flood Risk Management Committee will continue to receive regular updates on water resources, flood alerts, weather warnings and response.

4. Recommendations

- 4.1 The Committee is asked to note the warnings received since the last meeting of the Committee; and contribute to planning and response policy and practice through oversight and debate.

5. Contact Details

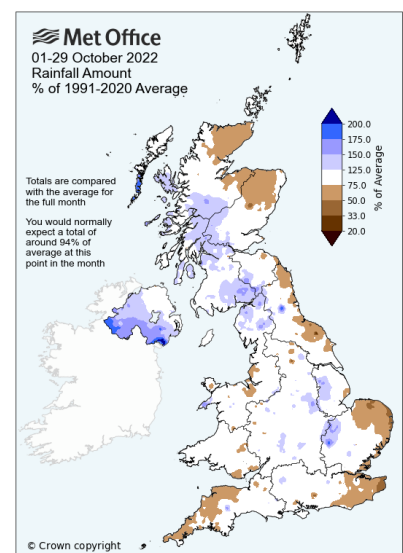
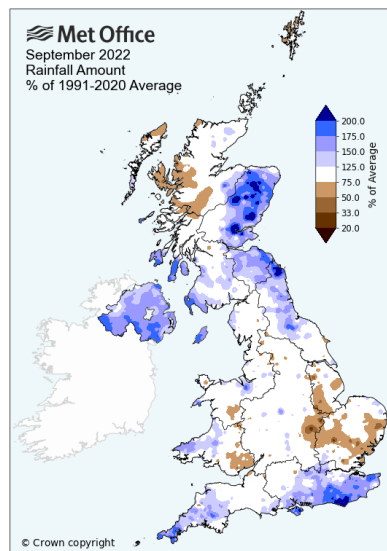
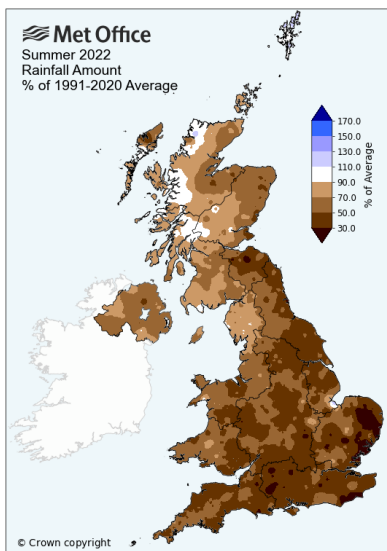
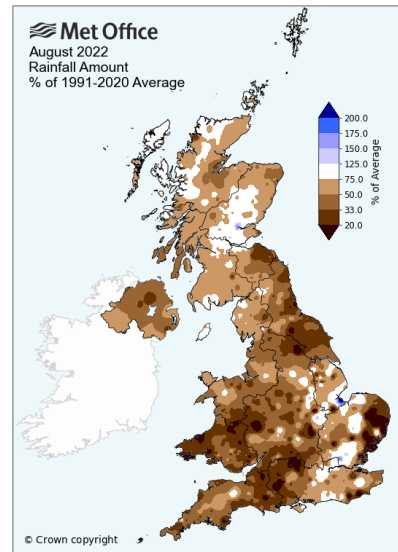
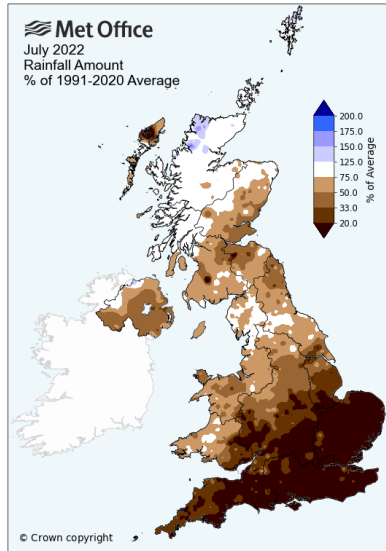
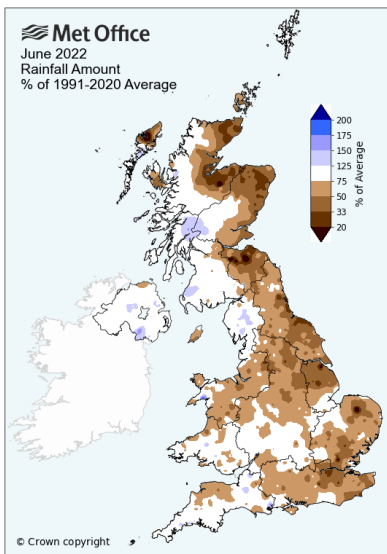
Report Author: Tony Harwood (Resilience and Emergency Planning Manager), Infrastructure, Deputy Chief Executive's Department, tel. 03000 413 386, e-mail tony.harwood@kent.gov.uk

Relevant Director: Rebecca Spore (Director of Infrastructure), Deputy Chief Executive's Department tel. 03000 412 064, email rebecca.spore@kent.gov.uk

⁴ Please see appendix 5

Appendix 1: Kent Rainfall Statistics – June to October 2022

Month	Rain	Mean Max Temp
June	51%	+0.9 C
July	11%	+2.8 C
August	54%	+3.1 C
September	153%	+0.4 C
October (1-29)	64%	+2.6 C
Summer (Jun-Aug)	40%	+2.3 C



Appendix 2: EA Flood Alerts and Warnings issued since 5th July 2022

Date issued	Flood Zone	Status
18/08/2022	Shuttle and Cray	Alert
25/08/2022	Shuttle and Cray	Alert
09/09/2022	Shuttle and Cray	Alert
10/09/2022	Lower Stour	Alert
13/09/2022	Coast from St Margaret's at Cliffe to Sandgate	Alert
13/09/2022	Coast from Ramsgate to Kingsdown	Alert
13/09/2022	Isle of Sheppey and Coast from Kemsley to Seasalter	Alert
24/09/2022	Tidal Thames riverside from Dartford Creek and The Mardyke to the Thames Barrier.	Alert
11/10/2022	Isle of Sheppey and Coast from Kemsley to Seasalter	Alert

Appendix 3: Met Office Severe Weather Warnings - June to November 2022

Weather Element	Number of Warnings	No of Different Events	Dates covered by Events
Thunderstorm	22	14	June: 03-05, 23 July: 20 August: 15-18 (Amber on 17 th), 24 September: 04-06, 08-09 October: 23-24
Extreme Heat	5	2	July: Amber 16-19, Red 17-19 August: Amber 10-14
Rain	3	2	September: 23-24 October / November: 31-01
Wind	1	1	1 November

Appendix 4: Environment Agency Thames Barrier closures since 5th July 2022

Thames Barrier closures	Date	Status
Thames Barrier closed	18/07/2022	Test
Thames Barrier closed	18/08/2022	Test
Thames Barrier closed	24/09/2022	Test

Appendix 5 – 3 month outlook – November to January

Temperature: Precipitation:



Wind:



Summary:

- The likelihood of a colder 3 month period overall is slightly greater than normal
- There is a reduced chance of wet conditions and impacts from heavy rainfall
- Chances of dry conditions are greater than normal
- Stormy conditions and impacts from high winds are less likely than normal