

**From:** Rebecca Spore, Director of Infrastructure  
**To:** Kent Flood Risk Management Committee – 12<sup>th</sup> July 2023  
**Subject:** Environment Agency and Met Office Alerts and Warnings and KCC severe weather response activity.  
**Classification:** Unrestricted

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**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 21<sup>st</sup> March 2023.

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## **1. Background**

- 1.1 This report is the latest of the regular updates to the Committee addressing the current water situation and recent severe weather and associated emergency response activity in Kent.
- 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 March and April 2023 recorded rainfall above the long-term average in Kent, with temperatures around average. This wet spring assisted local recovery of groundwater, soil moisture deficits and river flows, following the extended period of drought experienced in 2022, which only saw Kent move into recovery status in January of this year. Significantly, the three-month period from March to May of 2023, was the fourth wettest since 1910 across the Medway catchment.
- 2.2 May was a much drier month, with just 45% of the long-term rainfall average recorded, with mean temperatures again around average. This dry trend continued into June, which had seen just 47% of long-term average rainfall by the 25<sup>th</sup>.

- 2.3 The key headline for June was its notably high temperatures, with Kent +2.1 C warmer than the long-term average by the 25<sup>th</sup>. The sustained hot conditions saw the UK Health Security Agency (UKHSA) issue Heat-Health warnings covering the period between 9<sup>th</sup> and 26<sup>th</sup> June. The release of Public Health communications and range of actions within care settings were triggered by these warnings.
- 2.4 The high temperatures experienced in June contributed towards unprecedented water consumption levels in Kent – with preliminary data provided by South East Water indicating usage levels were higher than those recorded during the severe heat event in July 2022. This record water consumption coincided with a small number of South East Water storage reservoirs being out of service for maintenance, while the hot dry weather also increased the incidence of pipe bursts from ground-heave (particularly on the Wealden clay). These factors all contributed towards some localised loss of pressure and associated water outages across parts of the South East Water supply network. Effectively, demand had outstripped available treated water supply. In response, South East Water introduced a mandatory temporary use (hosepipe) ban across their region from Friday 16<sup>th</sup> June, the first in the UK so far this summer, which became enforceable from Monday 26<sup>th</sup> June.
- 2.5 A Kent Resilience Forum multiagency Water Supply Disruption Tactical Co-ordinating Group was initiated on Thursday 15<sup>th</sup> June, chaired by KCC, and continues to meet to ensure effective information-sharing and communications, with a particular emphasis upon measures to support critical infrastructure, human and animal welfare. A bespoke threat and risk assessment for the latest episode of supply disruption has been developed by the County Council, which now informs local planning and response.
- 2.6 The latest river flow data available from the Environment Agency, covering the period from 14<sup>th</sup> to 20<sup>th</sup> June, indicates that the River Medway currently supports **exceptionally high flows**, while the Stour, Dour, Teise and Beult are **normal**, the Darent **above normal** and the Rother **notably high**.
- 2.7 Groundwater levels in Kent are now beginning to fall following a period of recharge during the winter and spring. The ephemeral Nailbourne in East Kent continues to flow along parts of its course but is receding. . Overall, at the end of May, aquifer levels were **normal** in the chalk and **above normal** in the lower greensand.
- 2.8 Levels at the Bough Beech and Bewl reservoirs were both **above normal** levels at the end of May.
- 2.9 20 flood alerts warnings were issued by the EA since the last meeting of the Committee (19 fluvial and 1 coastal)<sup>1</sup>. This contrasts with no flood alerts in the corresponding period in 2022.

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<sup>1</sup> Please see appendix 1

- 2.10 The Met Office issued 18 yellow weather warnings between March and June 2023 (three for snow / snow and ice, two for ice, four for wind and nine for thunderstorm)<sup>2</sup>. This contrasts with seven weather warnings (one for wind, one for snow and ice and five for thunderstorms) in the same period in 2022.
- 2.11 The Thames Barrier was closed on four occasions since the last meeting of the Committee (two for operational and two for test purposes)<sup>3</sup>. The figure for the corresponding period last year was three (all for test purposes).
- 2.12 Kent's 326 mile coastline encompasses iconic seascapes, internationally significant wildlife habitats and seaside towns with economies integrally linked with the health of our marine environment. This provides the local context for growing evidence that a record high marine heatwave is developing in the northeast Atlantic, leading to pockets of extremely warm water around parts of the UK, including in the North Sea and English Channel. The drivers of this phenomenon are complex but are likely to include weaker trade winds leading to lower evaporation and more uptake of solar radiation. An El Niño event is also developing in the tropical Pacific, which is the warm phase of the Pacific's natural cycle. During El Niño events the global oceans tend to store more heat than usual. Scientists are expecting many warm temperature records to be broken this year, both on land and sea.
- 2.13 There may also be other more complicated feedbacks involved in driving the UK's current marine heatwave. These natural warming events must be superimposed onto recent anthropogenic ocean warming, so the starting point is higher (around 1 C on average in the North Atlantic). The Centre for Environment, Fisheries and Aquaculture Science (Cefas) has recorded temperature anomalies exceeding 18 C through their network of WaveNet buoys, when the long-term average sea temperature for June around the UK is around 12-14 C. The implications for weather patterns, including storminess and precipitation, and marine ecosystems that are arising from the current marine heatwave are being monitored closely.

### **3. Recent Flood Incident Response and Exercises**

- 3.1 Prevailing weather and environmental conditions have resulted in a reduced threat and risk from riparian flooding since the last meeting in March. However, a series of short-duration intense rainfall events affecting Kent have seen some localised surface water and highway flooding. On 23<sup>rd</sup> April there were reports of property inundation in the Harrietsham area, while on 20<sup>th</sup> June surface water flooding prompted a temporary suspension of rail services between Ashford and Maidstone and saw property inundation at Staplehurst and Sittingbourne.
- 3.2 On 23<sup>rd</sup> May the County Council hosted and chaired a multiagency reservoir inundation exercise (Ex. Southern Emerald) involving a range of partners, including representatives of local authorities from East Sussex to test cross-

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<sup>2</sup> Please see appendix 2

<sup>3</sup> Please see appendix 3

border planning and response. The exercise scenario comprised a challenging 'cascade' event involving two large reservoirs in West Kent.

#### **4. Outlook**

- 4.1 The Met Office three-month outlook summary indicates a 40% chance that July to September will be hotter than average (double the usual chance of the period being hot), a 55% chance that it will be near average (0.9 times the usual chance) and a 5% chance that it will be cooler than average (0.3 times the usual chance). In terms of rainfall, the summary indicates a 25% chance the season will be drier than average, 60% chance that it will be near average and a 15% chance it will be wetter than average. As regards likely wind speeds, the summary suggests a 25% chance that it will be calmer than average, a 55% that they will be near average and 20% chance of windier than average conditions.
- 4.2 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 1<sup>st</sup> to 3<sup>rd</sup> September. However, coastal flooding can still occur outside of high spring tides.
- 4.3 Kent Flood Risk Management Committee will continue to receive regular updates on water resources, flood alerts, weather warnings and response.

#### **5. Recommendations**

- 5.1 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.

#### **6. 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](mailto: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](mailto:rebecca.spore@kent.gov.uk)

**Appendix 1: EA Flood Alerts and Warnings issued since 21<sup>st</sup> March 2023**

<b>Date issued</b>	<b>Flood Zone</b>	<b>Status</b>
23/03/2023	Isle of Sheppey and Coast from Kemsley	Alert
24/03/2023	Upper River Stour	Alert
24/03/2023	Lower River Stour	Alert
31/03/2023	Upper River Medway	Alert
31/03/2023	Lower River Medway	Alert
31/03/2023	River Darent from Westerham to Dartford	Alert
31/03/2023	Rivers Eden and Eden Brook	Alert
31/03/2023	River Bourne from Hadlow to East Peckham	Alert
01/04/2023	Middle River Medway	Alert
01/04/2023	River Beult from Pluckley and Bethersden to Hampstead Lock at Yalding	Alert
13/04/2023	Upper River Medway	Alert
13/04/2023	Rivers Eden and Eden Brook	Alert
13/04/2023	Lower River Medway	Alert
24/04/2023	Pent Stream in Folkestone	Alert
24/04/2023	Pent Stream in Folkestone	Alert
24/04/2023	River Bourne from Hadlow to East Peckham	Alert
24/04/2023	Upper River Medway	Alert
24/04/2023	River Beult from Pluckley and Bethersden to Hampstead Lock at Yalding	Alert
25/04/2023	Lower River Medway	Alert
25/04/2023	Upper River Stour	Alert

**Appendix 2: Met Office Severe Weather Warnings – March to June 2023**

Weather Element	Number of Warnings	No of Different Events	Dates covered by Events
Snow / Snow and Ice	3	2	06 – 07 & 08 – 09 March
Ice	2	2	10 – 11 & 15 March
Wind	4	3	13 & 30 – 31 March 12 April
Thunderstorm	9	6	09, 10 & 11 May 10, 18 & 20 June

**Appendix 3: Environment Agency Thames Barrier closures since 21<sup>st</sup> March 2023**

Thames Barrier closures	Date	Status
Thames Barrier closed	10/04/2023	Test
Thames Barrier closed	09/05/2023	Operational
Thames Barrier closed	29/05/2023	Test
Thames Barrier closed	07/06/2023	Test