

Future Trend: High River Flows

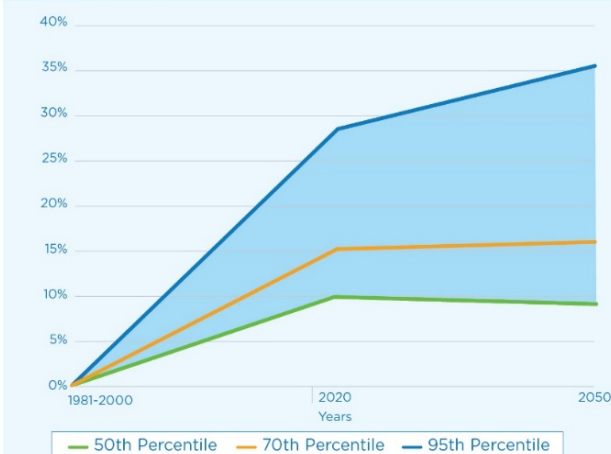
Trend definition and relevance to DWMP

River flows and water levels are strongly influenced by short-term weather events and seasonal rainfall patterns. As climate change alters rainfall intensity and distribution, rivers are expected to experience high-flow conditions more frequently and at greater magnitudes. This can interfere with the normal operation of our drainage and wastewater systems by increasing the risk of assets being inundated and damaged by floodwaters, or by reducing their functionality and performance where outfalls, particularly for surface water sewers and drainage, become surcharged due to elevated river levels for longer periods. This risk may be greater during the winter months as a result of wetter winters and more intense rainfall events.

The risk of flooding to our wastewater assets will be assessed as part of the DWMP resilience assessment. Responding to the trend within the DWMP is likely to require increased investment in the resilience of sewage treatment works and the functionality of wastewater networks, including pumping stations, to mitigate the impacts of river flooding on our assets, maintain operational performance and reduce the potential for environmental pollution.

Trend description, uncertainty and potential impact on our region

High river flows change predictions compared to 1981-2000 period



Source: Peak river flow climate change allowances by management catchment, Environment Agency, 2021

- The figure shows that high river flows in our region are projected to increase by 9% to 35% above the 1981- 2000¹ baseline by 2055, based on the central and upper climate change projections, respectively.
- Across England, the number of properties at high risk of flooding from rivers and the sea is forecast to increase by around 73% between 2036 and 2069 because of climate change². It is reasonable to assume that a significant proportion of wastewater assets will also face increasing flood risk. Currently, around one-third of water infrastructure assets are at high flood risk. In London and the South East, the number of properties at high risk is projected to rise from 96,000 to 166,000 under these scenarios.
- The Environment Agency's surface water flooding modelling and mapping, which have been used in this DWMP, assume a high runoff percentage across all urban areas, regardless of drainage type. This reflects a 'high urban creep' scenario and therefore provides a conservative assessment of flood risk for some systems.
- Climate and hydrological science provides strong confidence that high river flows will increase. However, there remains uncertainty around the precise timing and magnitude of these changes, and substantial year-to-year variability is expected.

Stage of DWMP used	
Risk assessment	✓
Plan development	✓
Impact/Importance	
Short term (2035)	Medium
Medium term (2045)	High
Long term (2055)	High
Example PIs affected by this trend	
	External flooding
	Internal flooding
	Storm overflow performance



References

- 1 [Peak river flow climate change allowances by management catchment \[dataset\]](#). Environment Agency (2022), GOV.UK. (Accessed: March 2025).
- 2 [National assessment of flood and coastal erosion risk in England 2024](#). Environment Agency (2024), GOV.UK. (Accessed: March 2025).

