

# Kent Spatial Risk Assessment for Water: 2021/22 Update - Mapbook

Volume 2

Kent County Council

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## Revision History

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## 1. Introduction

AECOM were commissioned by Kent County Council (KCC) to undertake a Spatial Risk Assessment (SRA) of the impacts of changing climate, land use and population on water systems in Kent. This is an update on the previous Kent SRA for Water<sup>1</sup> produced in 2014 by AECOM (formerly URS Infrastructure and Environment Ltd) and Climate Change Risk Management (CCRM).

The 2014 SRA provided a sound evidence base to understand risk to water systems in Kent. The study output was used to understand the risks to water systems and subsequent consequences to a range of receptors as a result of future climate, land use and population induced change, and to support decision making around mitigation and adaptation to the water environment and water infrastructure systems in the County.

Some of the risks and consequences identified in 2014 have begun to materialise, and importantly, information sources on climate and population change have also advanced since the 2014 analysis was completed. Therefore, KCC and study partners require an update to the study to refresh risks with new information and to better understand some of the key risks, consequences and mitigation. In particular, there is a need to reconsider how risk is defined to allow a better understanding of the future physical impacts to water systems and facilitate a focus on how nature-based solutions (NbS) and working with natural processes can contribute to managing and mitigating the risk. Additionally, there is a need to understand the risks and mitigations in the Stour catchment specifically as part of the H2O:Source2Sea project to facilitate stronger partnership working in delivering those solutions.

### 1.1 Project Funding

This project has been funded by Interreg V A France (Channel) England 2014 – 2020, H2O:Source2Sea project which is co-financed by the European Regional Development Fund. The H2O:Source2Sea project aims to implement Natural Flood and Drought Management Measures on the Stour in the UK and the Authie in France to demonstrate how these solutions reduce water management costs, improve freshwater quality, reduce pollution and benefit the local wildlife and communities.

### 1.2 Study Reporting

The study has produced a large number of mapped outputs and hence has been reported in two volumes for ease of reference:

- Volume 1: Kent SRA Update Report – Methodology, mapping discussions; and
- Volume 2: Mapbook – presentation of maps produced for the Kent SRA update (*this Volume*).

The Mapbook presents all of the maps produced for the Kent SRA update including Context Maps, Change Source Maps, Change Response Maps and Water System Impact Susceptibility (WSIS) Maps. These are described and analysed in detail within Volume 1, Chapters 3, 4 and 5 which should be read in conjunction with this Volume to understand the full context of the information presented.

The maps in each section are listed in Table 1-1 to Table 1-3.

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<sup>1</sup> URS & CCRM (2014) Kent Spatial Risk Assessment for Water

Table 1-1: Context and Change Source Maps

Context Maps	CON1	River Systems in Kent
	CON2	Bedrock Geology
	CON3	Superficial Geology
	CON4	Water Framework Directive (WFD) Groundwater Resource Rating
	CON5	WFD Groundwater Quality Rating
	CON6	Bedrock Permeability
	CON7	Superficial Permeability
	CON8	Agricultural Land Classification
	CON9	Wastewater Treatment Works (WwTW) Locations
	CON10	Water Company Resource Zones (WRZ)
	CON11	Agricultural Pressures – Groundwater
	CON12	Agricultural Pressures – Rivers
	CON13	Slope Gradient
Change Source	CSO1	Water Company Supply and Demand Deficits to 2045
	CSO2	Future Population Change Per District to 2038
	CSO3	Potential Scale of Land Use Changes by 2080
	CSO4	Decrease in Summer Rainfall by 2080 (UKCP18 Projections)
	CSO5	Increase in Winter Rainfall by 2080 (UKCP18 Projections)
	CSO6	Increase in Maximum Summer Temperatures by 2080 (UKCP18 Projections)
	CSO7	Increase in Urbanisation
Receptor Map	REC1	Water Dependant Habitats

Table 1-2: Change Response Maps

Map Category	Map Reference	Map Name
Change Response	CRE1	Increase in Risk of Lower Summer River Flows
	CRE2	Increase in Tidal and Fluvial Flood Risk
	CRE3	Increase in Surface Water Flood Risk
	CRE4	Increase in Groundwater Flood Risk
	CRE5	Risk of Increase in Summer Demand and Abstraction - Surface Water
	CRE6	Risk of Increase in Summer Demand and Abstraction - Groundwater
	CRE7	Increase in Risk of Soil Erosion and Degradation
	CRE8	Risk of Increase in Pollution Load from Wastewater Treatment to Surface Waterbodies
	CRE9	Risk of Increase in Pollutant Load from Urban Sources
	CRE10	Risk of Increase in Rate of Coastal Erosion (No Active Intervention)

**Table 1-3: Water System Impact Susceptibility Maps**

<b>Map Category</b>	<b>Map Reference</b>	<b>Map Name</b>
Water System Impact Susceptibility	WSIS1	Increase in Frequency, Extent and Depth of Flooding
	WSIS2	Increase in Frequency of Summer Hydrological Drought
	WSIS3	Deterioration in Water Quality – Surface Water
	WSIS4	Deterioration in Water Quality – Groundwater
	WSIS5	Deterioration in Hydromorphological Condition - Fluvial
	WSIS6	Reduction in Summer Groundwater Levels