

20<sup>th</sup> September 2021

# CCC needs for information on future sea-level rise

Richard Millar

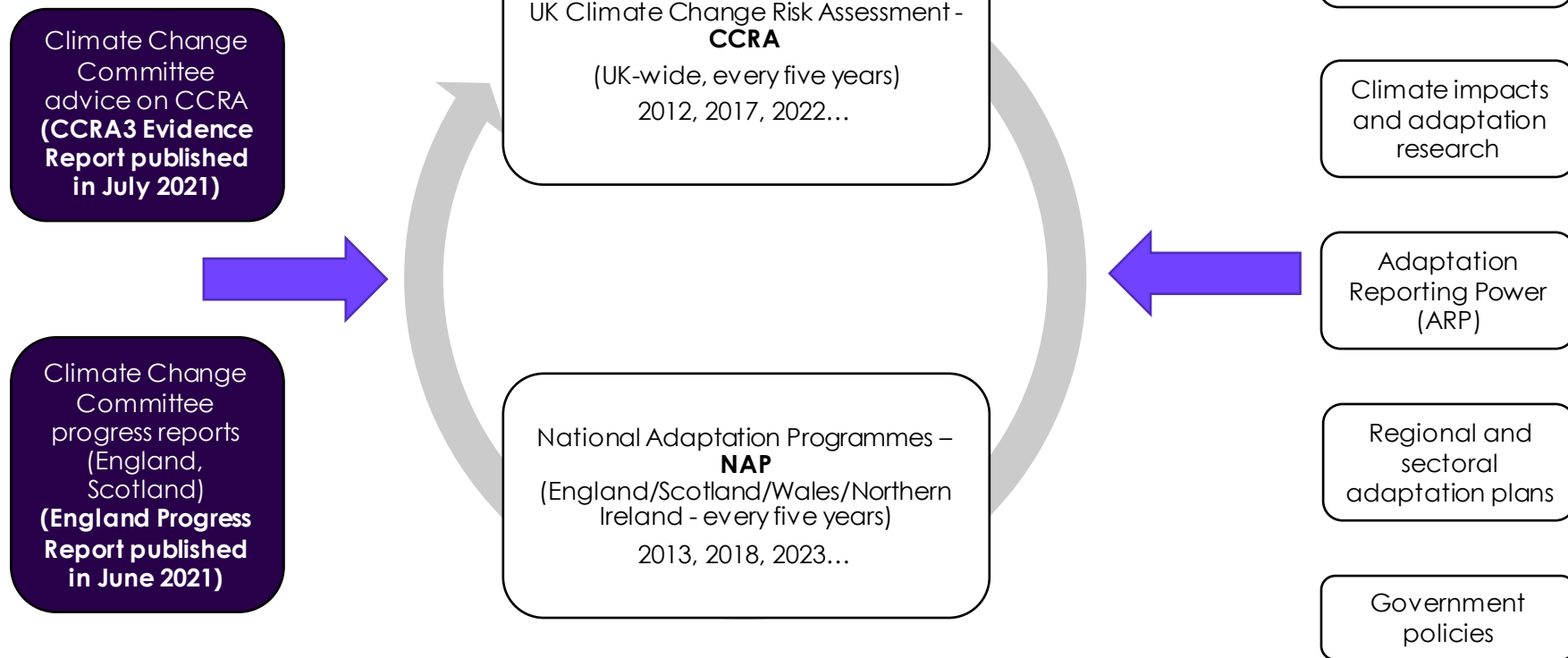
## CCC needs for information on sea-level rise

### Why is information on future sea-level important?

- Coastal communities, infrastructure and landscapes already face threats from flooding and coastal erosion
- Difficult decisions are required to manage the coast in future:
  - Sea level rise is inevitable – rises over 1 m will have to be adapted to at some point
  - Without further adaptation existing coastal defences are vulnerable to failure in the future
  - Some coastal communities and infrastructure are likely to be unviable in their current form given future sea-level rise
- Opportunities exist for effective adaptation action today

# CCC needs for information on sea-level rise

## The adaptation policy cycle



## CCC needs for information on sea-level rise

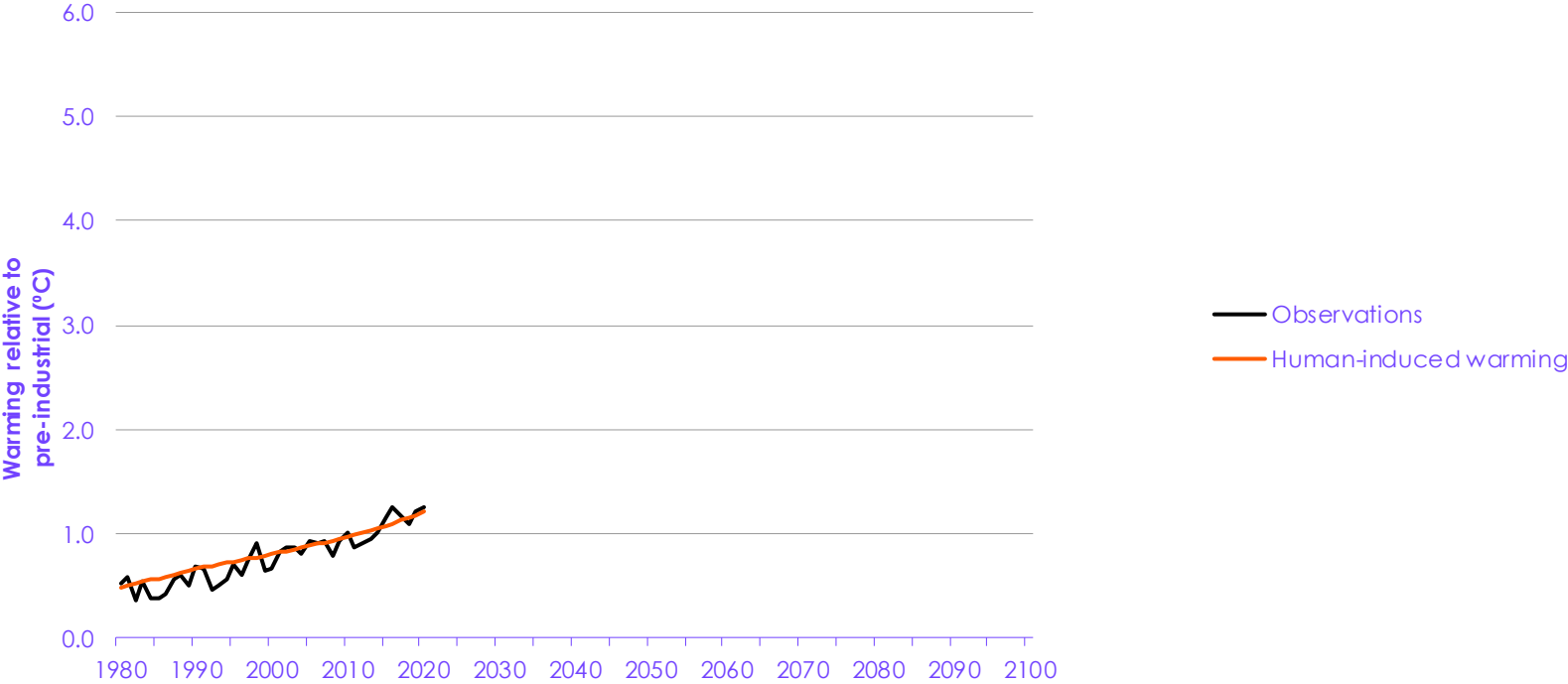
### Current exposure to coastal flooding and erosion

- Coastal environments provide ecosystem services such as flood and erosion protection, climate regulation and tourism opportunities (valued to be worth at least £48 billion in the UK in 2007)
- The current percentage of coastlines vulnerable to erosion across the UK are 28% in England and Wales, 19.5% in Northern Ireland and 19% in Scotland
- A considerable amount of industrial and commercial activity and infrastructure exists along the coast for most of the UK. 35 power stations, 22 clean water facilities and 91 sewage treatment works across the UK have been identified as being located in areas at significant risk from coastal flooding



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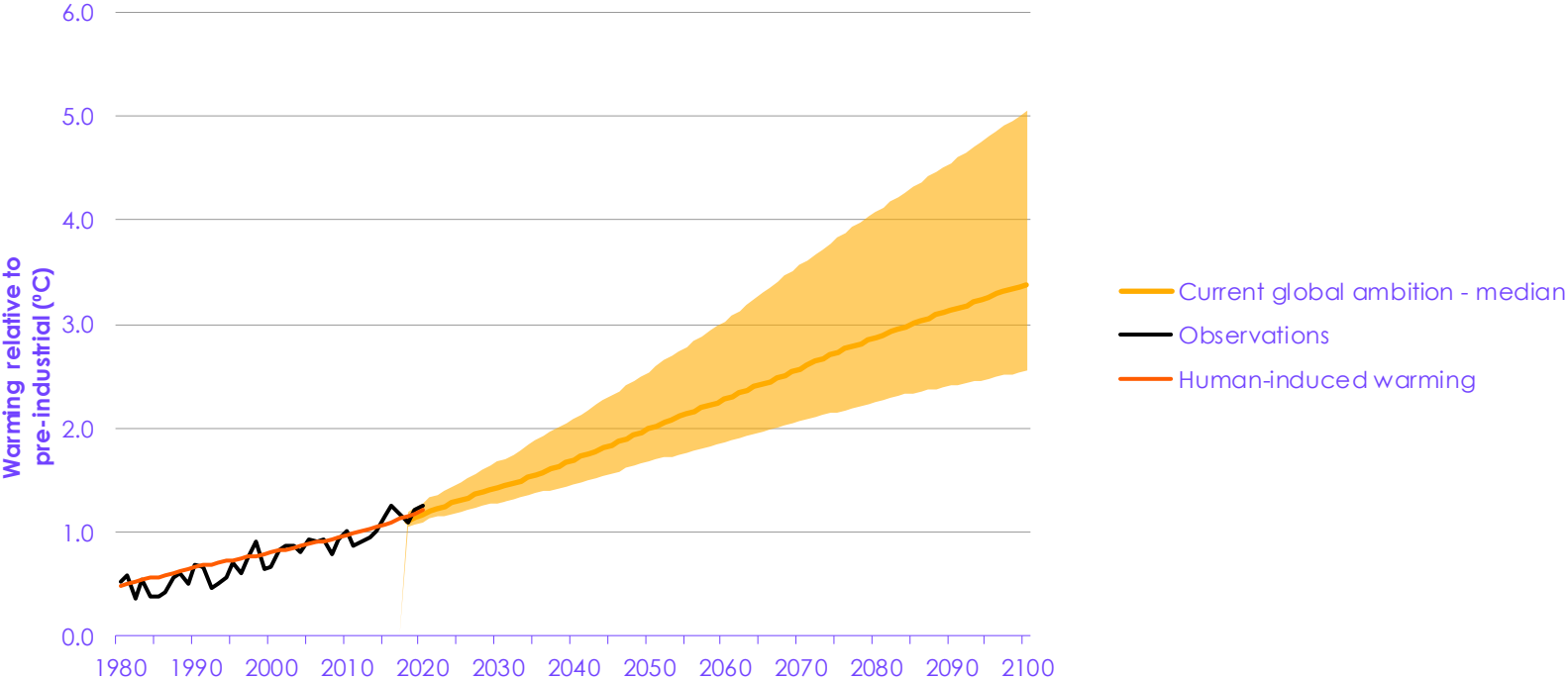
## Possible climate futures



Source  
UK Met Office, CCC 6<sup>th</sup> Carbon Budget

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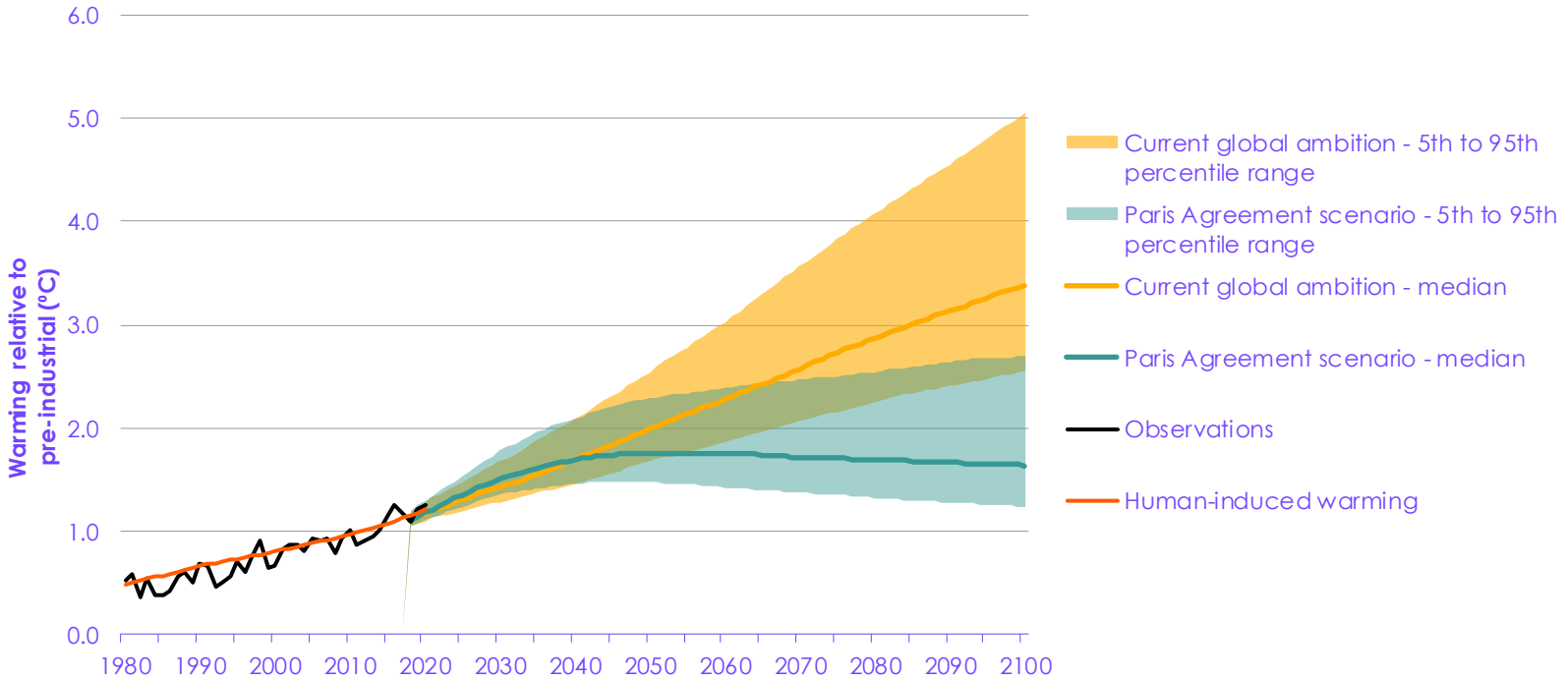
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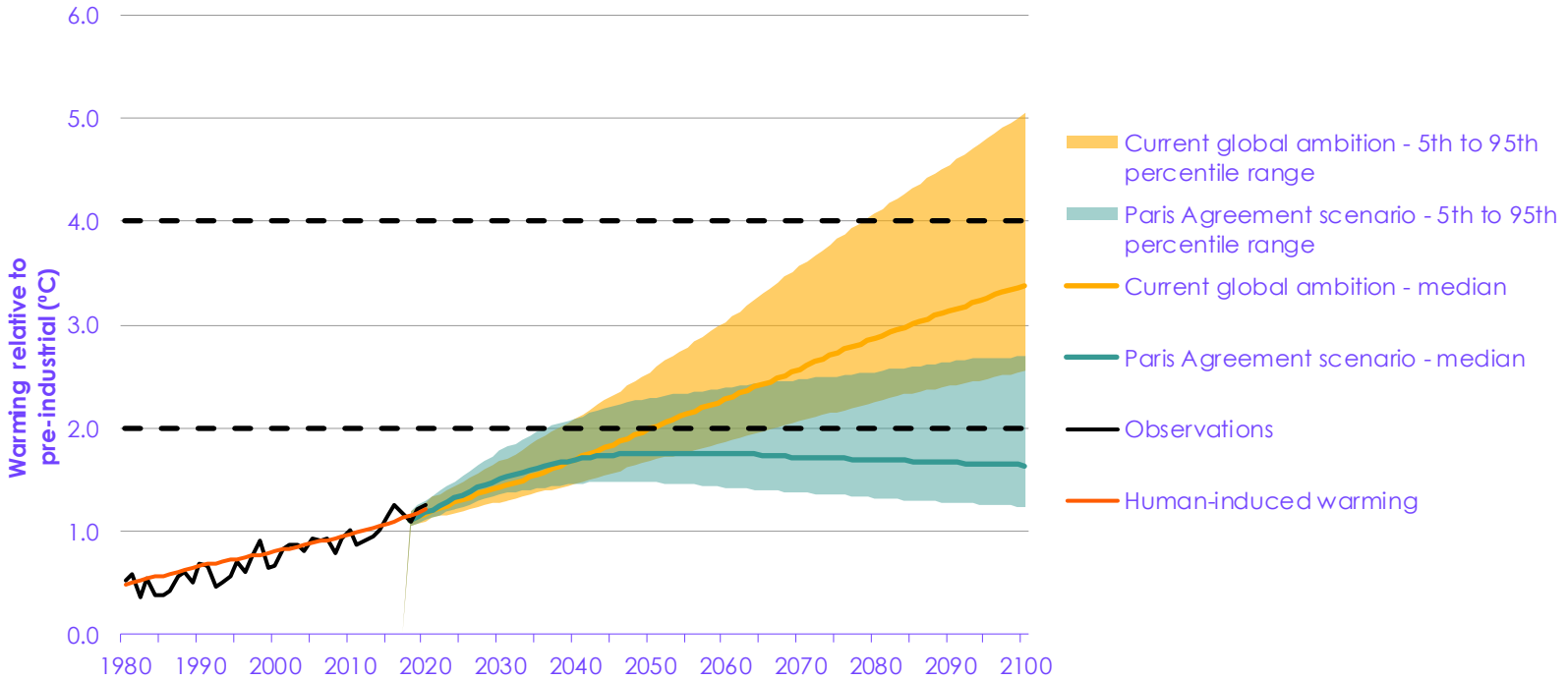
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## Possible climate futures



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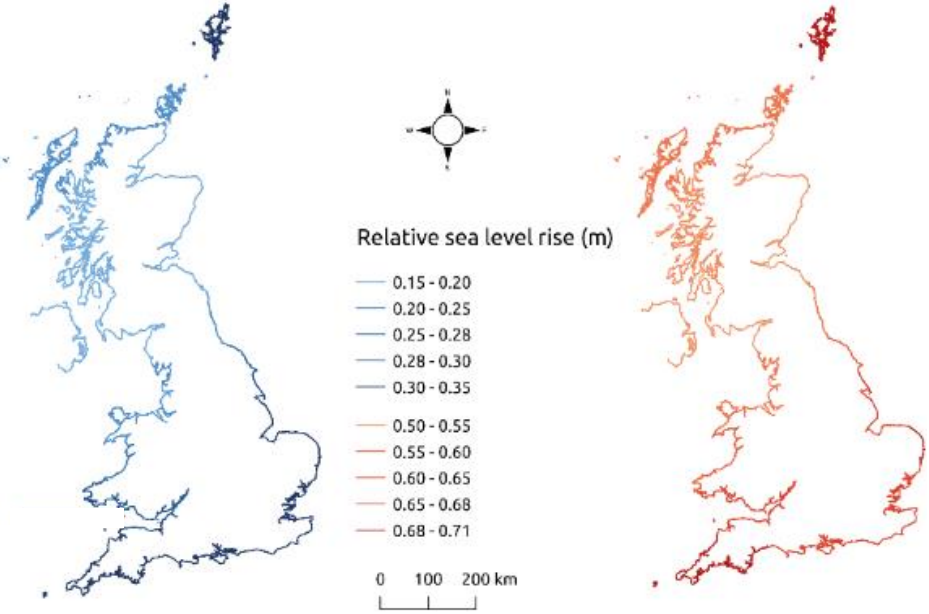


# CCC needs for information on sea-level rise

## Possible climate futures

2° GMST change by 2100

4° GMST change by 2100



Source: Sayers et al (2020)

## CCC needs for information on sea-level rise

### CCRA3: Seal level rise related risks

- N10: Risks to aquifers and agricultural land from sea level rise, saltwater intrusion
- N17. Risks and opportunities to coastal species and habitats
- I3. Risks to infrastructure services from coastal flooding and erosion
- I4. Risks to bridges and pipelines from flooding and erosion
- I5. Risks to transport networks from slope and embankment failure
- H3. Risks to people, communities and buildings from flooding
- H4. Risks to the viability of coastal communities from sea level rise
- B1. Risks to business sites from flooding
- B2. Risks to business locations and infrastructure from coastal change

#### **Urgency scoring**

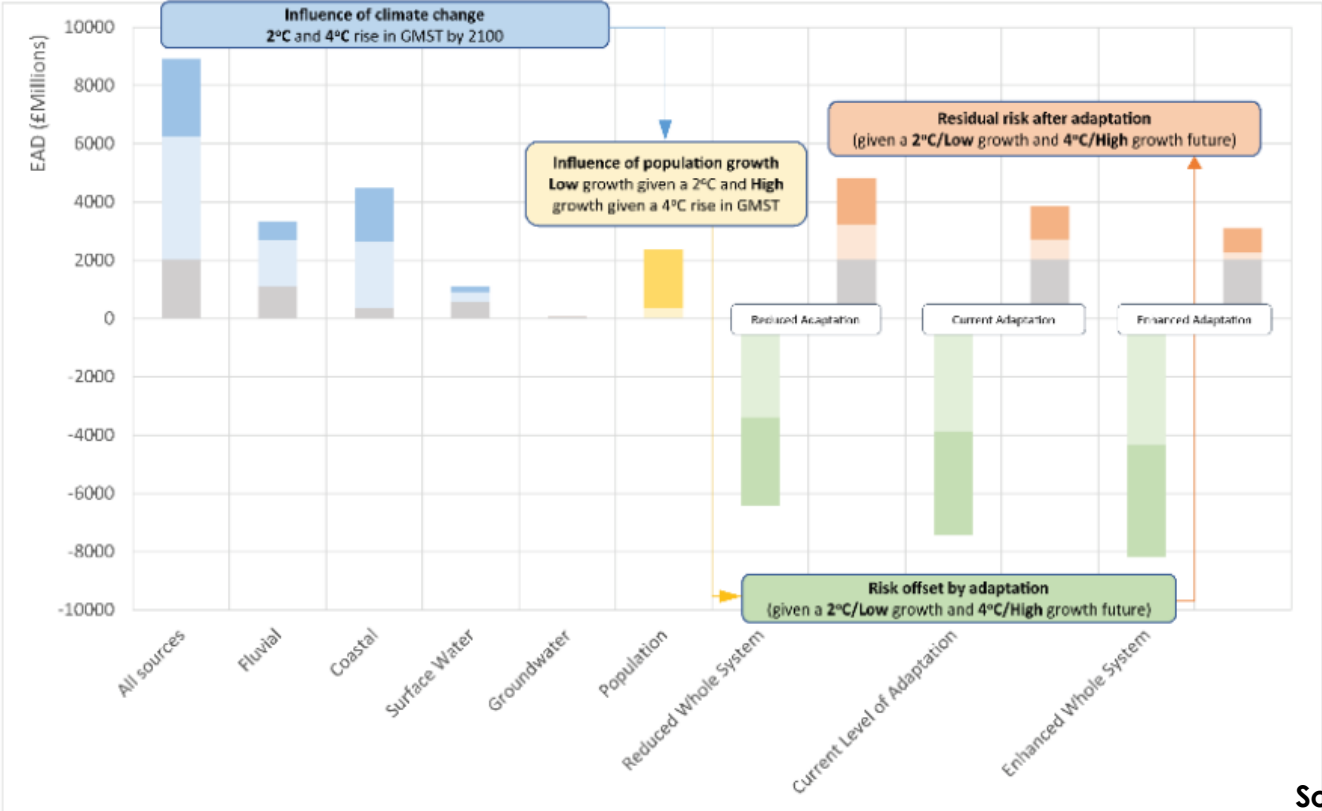
Red = More action needed (in next 5 years)

Amber = Further investigation priority

Green = Sustain current action/watching brief

# CCC needs for information on sea-level rise

## Damage associated with flooding



Source: Sayers et al (2020)

## CCC needs for information on sea-level rise

### Future work & evidence needs

- A vision for a well-adapted UK coastline
- A more quantified progress monitoring framework for the deployment of coastal adaptation options
- A better understanding of the role of policy in managed retreat and abandonment
- Timescales: when might certain sea level rise levels be reached and how do these compare to infrastructure/asset lifetimes?

## Contact us

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