



Adapting to coastal change at Charmouth and North Swanage

DCF Conference

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The Dorset Coast Forum is an independent strategic coastal partnership working to deliver social, economic and environmental benefits to the Dorset coast from Lyme Regis to Christchurch

Presentation content

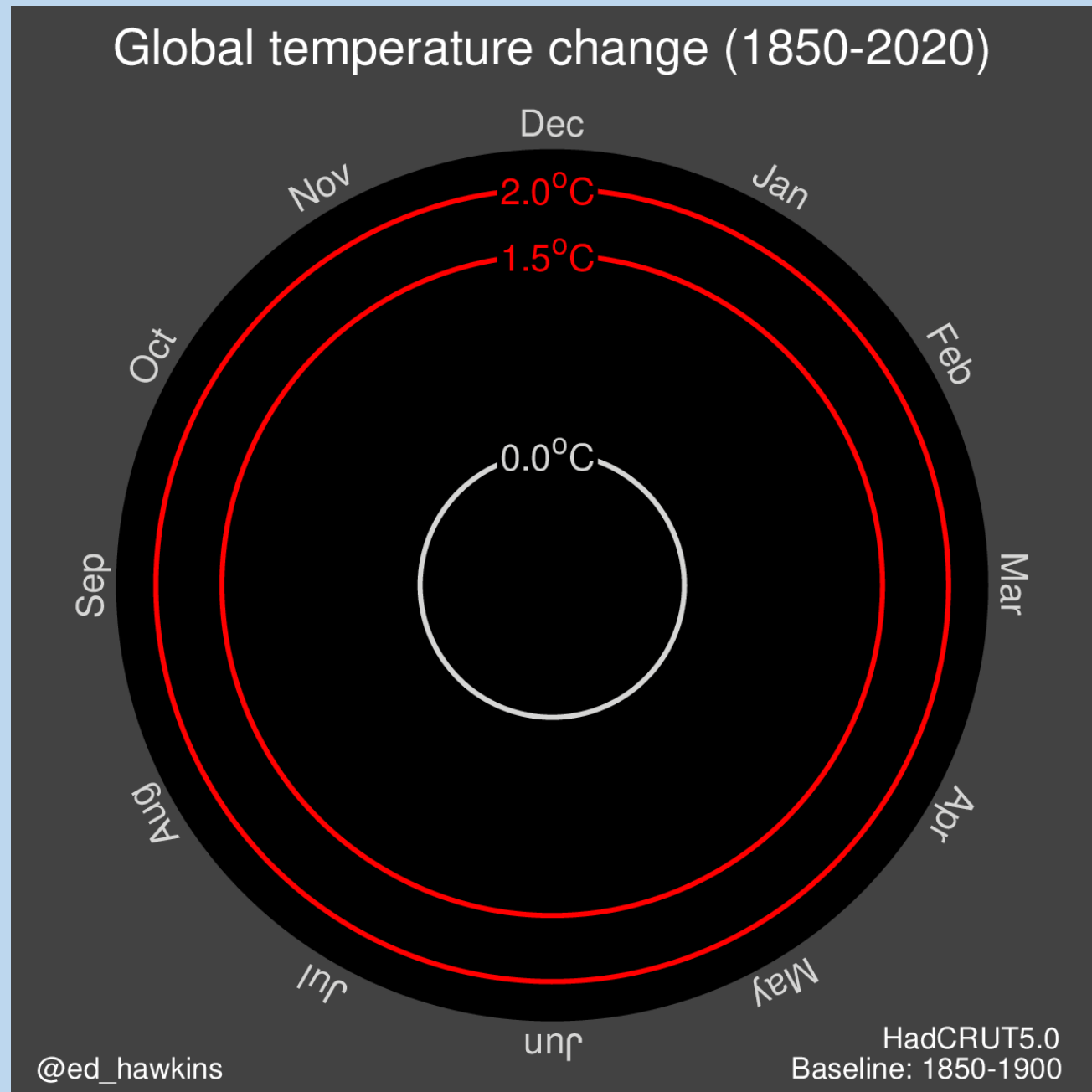
- **What is coastal change?**
- **The challenges at Charmouth and Swanage North Cliff**
- **Coastal Transition Accelerator Programme and Cliff Management Strategy**
- **Adaptation and resilience to coastal change**



Jacobs



Context: Climate Change IPCC6*

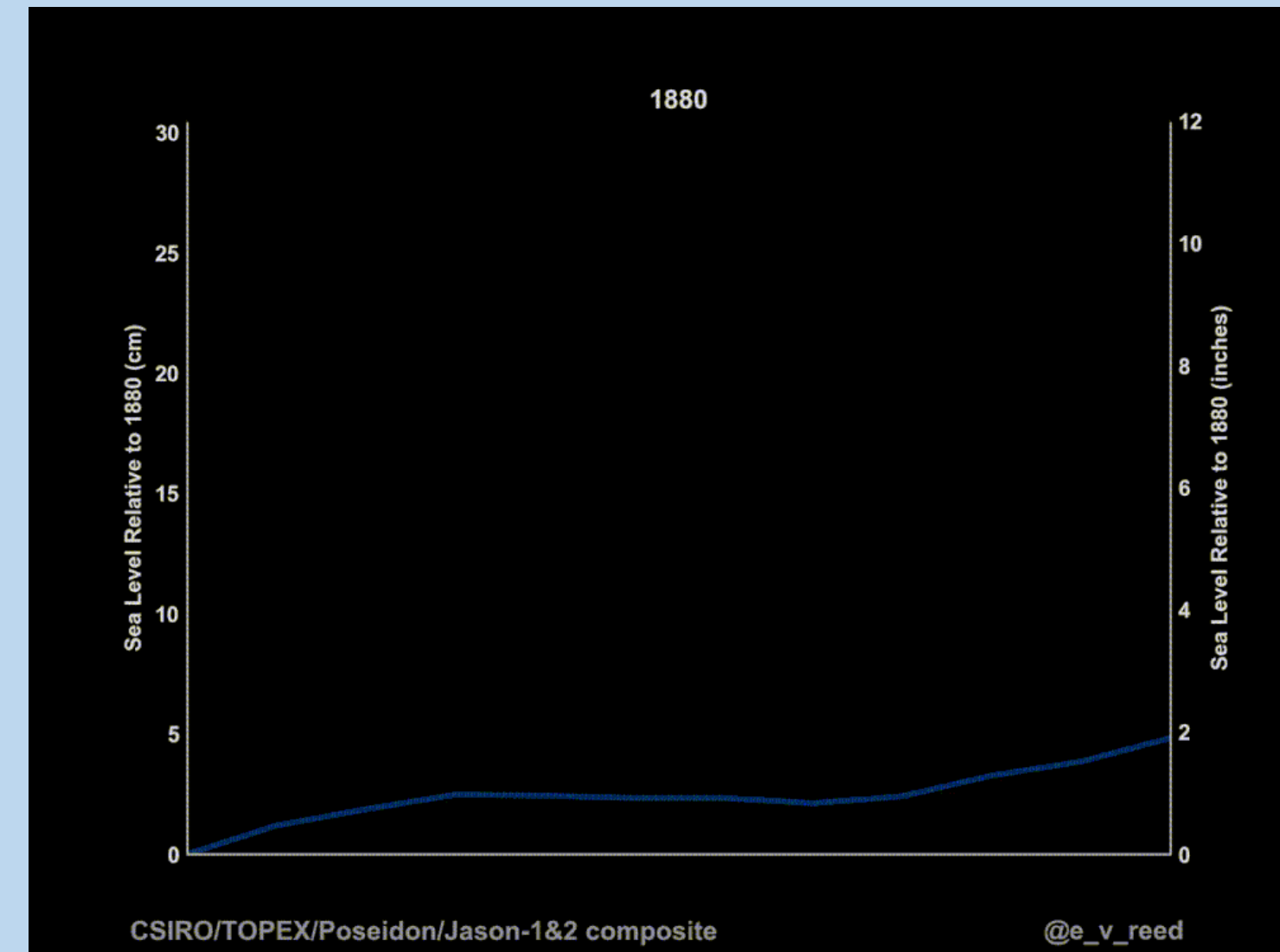


↑ greenhouse gases =
↑ 1.3°C

SLR = ↑ 25cm. Could reach 2.5m* by 2100

Exaggerated by ↑ storm power and pressure extremes

Causes extreme episodic coastal flood and erosion events



* IPCC 6th Assessment Report – 9th August 2021; Interactive Atlas interactive-atlas.ipcc.ch

Context: Climate Change



- **↑ total rainfall and high intensity events**
- **↑ surface water flooding**
- **↑ landslide freq./mag. linked to antecedent rainfall**
- **Groundwater + coastal erosion are progressive and unnoticed, however...**
 - **Floods and landslides can be triggered by storms and groundwater**
- **SLR + ↑ rainfall means research into coastal adaptation / resilience needed**

Black Ven, West Dorset

Impacts

- **↑ coastal and river flooding, coastal erosion, winter rainfall, storm damage, landsliding and loss of land**
- **Threatens communities, infrastructure, services, business, tourism, heritage, environment**
- **UK: >500k properties at coastal flooding risk, >100k coastal erosion & cliff instability risk**
- **x2 by 2100**
- **We cannot afford to protect everything**
- **Sustainable/innovative solutions required**
- **Hence the need for CTAP**



Charmouth: Background

- **Site - River Char and Black Ven**
- **History of flooding, coastal erosion and cliff instability**
- **Rate slowed by coastal defences**
- **River mouth/cliff protected by shingle beach and defences**
- **Deteriorating condition + climate change = flooding, coastal erosion and cliff instability**
- **SMP 2025 = No Active Intervention – Cease to Maintain**
- **Heritage Coast Centre, and residential and commercial properties at risk.**



Swanage North Cliff: Background

- **Site - Ulwell Stream outfall and Sheps Hollow**
- **History of coastal erosion and cliff instability = landslides and rockfalls**
- **Rate slowed by coastal defences built early 20th century**
- **Sandy beach + defences protect cliff**
- **Deteriorating condition + climate change = cliff instability**
- **c.100 properties at risk.**
- **SMP = Hold the Line (south) Managed Realignment (north) and, in future, No Active Intervention**
- **CMS - manage or mitigate landslide/rockfall risks**
- **CTAP – research/develop coastal adaptation schemes**



What is the CTAP Project?



Schemes promoting adaptation actions to help communities adapt to and/or transition away from the eroding coastline



UK-wide £36m allocated under the resilience innovation fund

National CTAP Project Aims

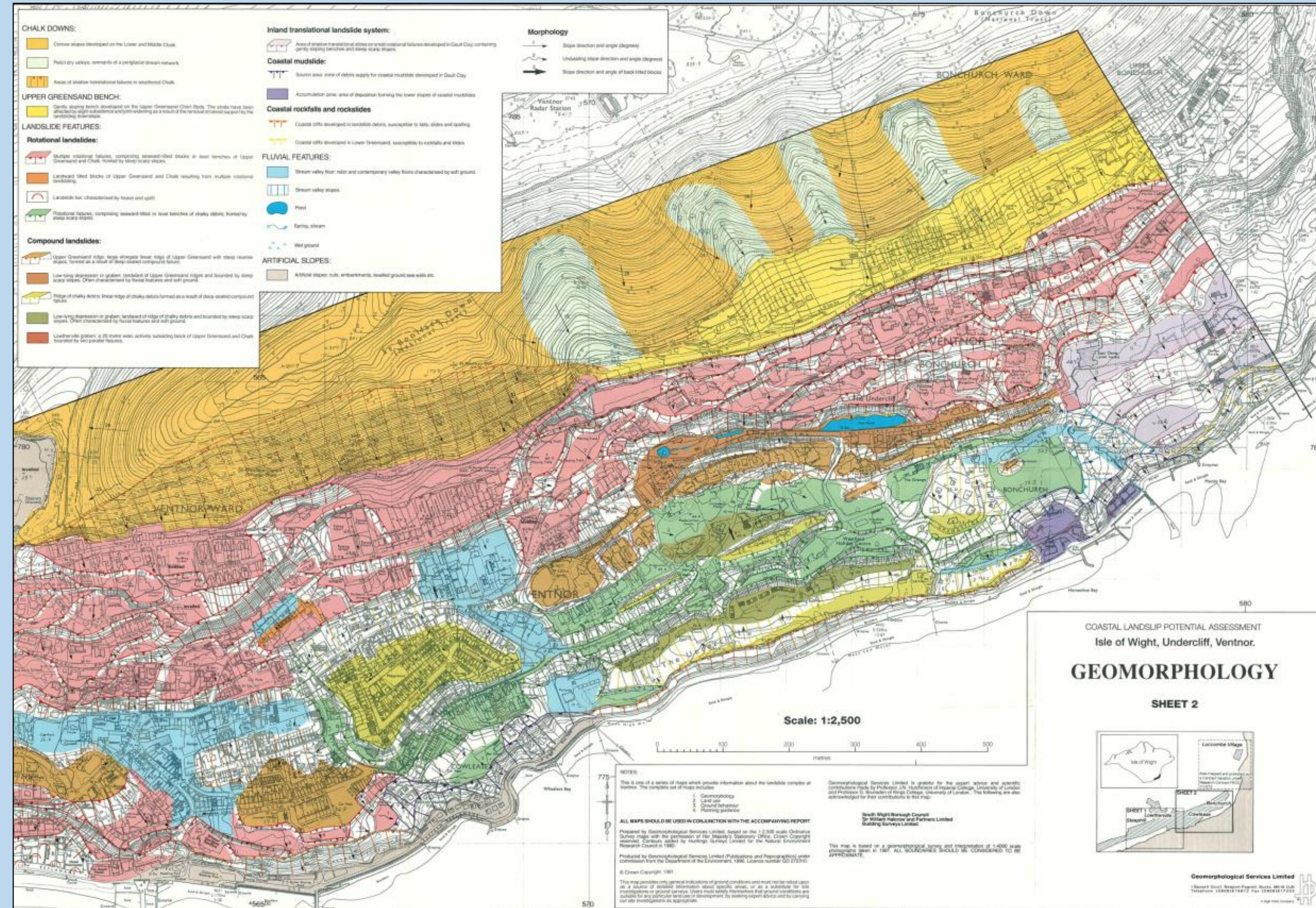
- **Test innovative coastal transition actions in areas at significant risk of coastal change**
- **Reduce risk to communities, and support them to respond and adapt**
- **Enable authorities to plan for and adapt to coastal change and share learning**
- **Produce long-term sustainable strategic plan to align with SMP**
- **Improve evidence on innovative actions to achieve coastal transition**

National CTAP Project Aims

- **Use evidence to inform future approaches to coastal erosion risk management**
- **To inform both national policy and local interventions in other locations**
- **Additional to the existing activities, financial commitments and duties of the council**
- **Provide value for money**
- **Importance of community and stakeholder engagement in success**

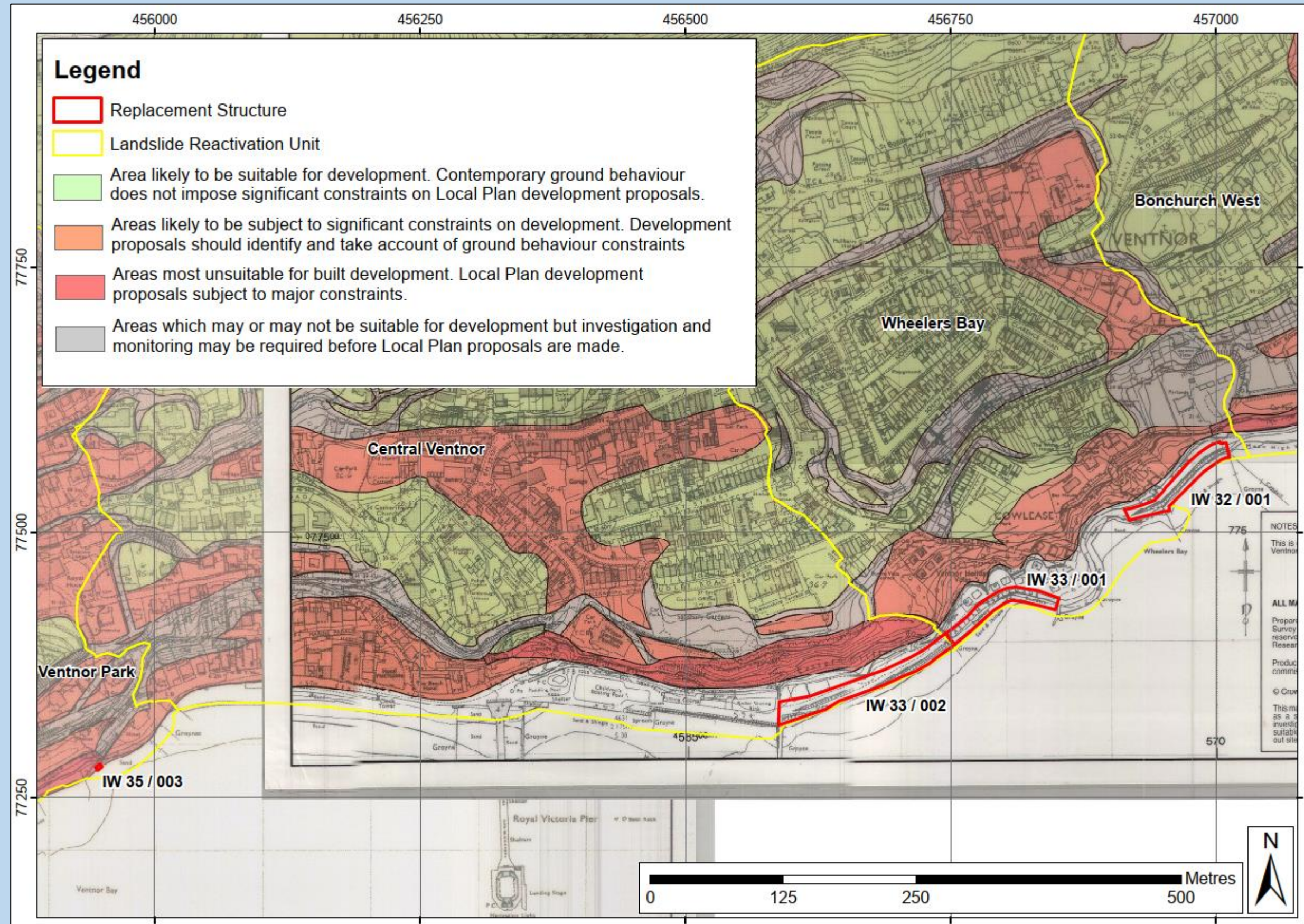
Options: Beach, river, cliff monitoring and behaviour assessments

- Develop geomorphological understanding of what will happen over a range of timescales
- Improve the granularity of change predictions
- Provide sound scientific basis for decision making
- Monitoring system to provide long-term refinement of change and impacts



Planning and building control mapping, and guidance

- Ensure future development is appropriate
- Reduce the risk of damage/loss of future investments in assets
- Improve decision making, save Council time



Adaptation plan



- **Research and development of adaptation measures, and plan to support transition and resilience**
- **Move assets out of the risk zone or make them more resilient**
- **Flood and cliff retreat warning system, emergency response plan, awareness campaign**
 - **Improve resilience and recovery**
 - **Reduce risk to life**
 - **Improve stakeholder awareness / acceptance**

Rollback

- Research the rollback of assets out of harm's way e.g.
 - Move the Heritage Coast Centre to the Primary school, grass carpark or out of town.
 - Replace beach front facility with popup Centre which can be moved to avoid significant storms.
 - HC upstairs only with popup catering.
 - Park and ride for HC.
 - Protect vital tourism revenue.



National Coast Science Wardens



- **Citizen science - community engaged to gather data on coastal change.**
- **Partnerships with local Uni for data management.**
- **Tie in with early warning system**
- **Data used in monitoring and behaviour assessments**
- **Wider societal benefits of volunteering and engaging with local authorities = empowerment, building trust, wellbeing, education).**

Access improvements:

- Upgrade/replace access to West Beach (Charmouth) and Sheps Hollow (Swanage)
- Innovative and sustainable design required
- Protects vital recreation value and tourism revenue



Nature based solutions

- **Assessment of potentially re-opening natural flood zones to reduce flash flooding in the town**



Nature based solutions



- **Research the potential impact of vegetation on shallow slope instability**

Surface and groundwater management

- Evaluate the viability of surface and groundwater management, and its impact on slope stability



Improve flood and erosion resilience

- Augment buildings such as the Heritage Centre with shutters, flood bunds etc. to reduce the impact of floods and erosion
- Reduce damage and closure losses



Challenges and Suggestions

- **Effectively communicating the impacts of climate change**
- **OBC emphasises ‘value for money’ which can mean good CTAP ideas, where benefits are intangible/unknown, don’t make the grade and are dropped**
- **Claiming losses avoided has the potential to give authorities unrealistic benefits targets**
- **Could the OBC be adjusted to encourage new/innovative ideas which require additional research to demonstrate benefits rather than committing to them early**



Acknowledgements



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