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# Coastal Change Adaptation Planning Guidance: Supporting Information

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East Riding of Yorkshire Council

June 2013

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## East Riding of Yorkshire Council

June 2013

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## Document history

### Coastal Change Adaptation Planning Guidance: Supporting Information

Services to develop a coastal change adaptation planning guide

East Riding of Yorkshire Council

This document has been issued and amended as follows:

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Consultation draft

# 1 Introduction

This document contains the supporting information that has informed the development of the Coastal Change Adaptation Planning Guidance (CCAPG).

Specifically, this document contains:

- **Appendix A: Data Review** – summary of all of the available data that has been identified and reviewed as part of the development of the CCAPG.
- **Appendix B: Consultation Responses** – records of all responses from a number of consultees interviewed as part of the development of the CCAPG.

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# Appendix A

Data Review

## Appendix A Data Review

This appendix provides a review of existing available information relevant to coastal change adaptation planning that forms part of the evidence base that has informed the development of the Coastal Change Adaptation Planning Guidance (the Guidance). Specifically, this appendix provides a summary of each item of evidence reviewed in developing the Guidance and where each item was sourced from.

The evidence base is separated into five sections:

1. Government Policies and Strategies
2. Existing Guidance
3. Evidence and Examples
4. Halcrow Authored Papers
5. Other Information

To aid the reader in locating information contained in this appendix, the table below provides a list of all items discussed, along with a unique reference number.

REF #	Document Title
<b>1. Government Policies and Strategies</b>	
1.1	National Planning Policy Framework (March 2012)
1.2	National Planning Policy Framework Technical Guidance (March 2012)
1.3	Planning Policy Statement 25: Development and Flood Risk (March 2010)
1.4	Planning Policy Statement 25 Supplement: Development and Coastal Change (March 2010)
1.5	Planning Policy Statement 25 Supplement: Development and Coastal Change – Practice Guide (March 2010)
1.6	Planning Policy Statement 9: Biodiversity and Geological Conservation (August 2005)
1.7	Planning Policy Statement 7: Sustainable Development in Rural Areas (August 2004)
1.8	Planning Policy Guidance Note 20: Coastal Planning (September 1992).
1.9	Neighbourhood Planning - Introduction
1.10	Making space for water: Taking forward a new Government strategy for flood and coastal erosion risk management in England; First Government response to the autumn 2004 Making space for water consultation exercise
1.11	Appraisal of flood and coastal erosion risk management. A Defra policy statement; June 2009
1.12	Understanding the risks, empowering communities, building resilience: the national flood and coastal erosion risk management strategy for England
1.13	Flood and Coastal Resilience Partnership Funding: Defra policy statement on an outcome-focused, partnership approach to funding flood and coastal erosion risk management, 23 May 2011
1.14	Principles for implementing flood and coastal resilience funding partnerships
1.15	Partnership Pays – Guides for Local Authorities, Local Communities, and Developers and Investors
1.16	Defra website ARCHIVE: Sea flooding and coastal erosion overview
1.17	Maintenance of Uneconomic Sea Flood Defences: A Way Forward. Policy statement by Sarah Nason
1.18	Adapting to Climate Change, House of Commons Environmental Audit Committee, Sixth Report of

REF #	Document Title
	Session 2009–10
1.19	Localism Act (November 2011)
1.20	UK Marine Policy Statement (March 2011)
1.21	Marine and Coastal Access Act (November 2009)
1.22	Climate Change Act 2008
1.23	Flood and Water Management Act 2010. CHAPTER 29
1.24	Planning Act 2008, Chapter 29
1.25	National strategy for flood and coastal erosion risk management in Wales. November 2011
1.26	Local Flood Risk Management Strategies: Local Strategy. November 2011
1.27	Sustainable Development: Guidance to Risk Management Authorities Section 27 – Sustainable Development
1.28	Adapting to Climate Change Guidance: Guidance for Flood and Coastal Erosion Risk Management Authorities in Wales. December 2011
1.29	Flood and Coastal Erosion Risk Management in Wales - written statement by the Welsh Assembly Government (WAG). Jane Davidson, Minister for Environment, Sustainability and Housing. 31 March 2011
1.30	Community Infrastructure (Amendment) Regulations 2011, England and Wales
1.31	Marine Licensing: Licensable activities and exemptions
1.32	Coastal Access Natural England's Approved Scheme
1.33	A Strategy for promoting an integrated approach to the management of coastal areas in England
1.34	Wildlife and Countryside Act 1981 (as amended)
1.35	Climate Change: The UK Programme
1.36	Circular 04/06 (Communities and Local Government) The Town and Country Planning (Flooding) (England) Direction 2007
1.37	Community Infrastructure Levy Regulations 2010 and Community Infrastructure (Amendments) Regulations 2011
1.38	Adapting to Coastal Change: Developing a Policy Framework. March 2010.
1.39	Technical Advice Note 14: Coastal Planning
<b>2. Existing Guidance</b>	
2.1	Shoreline management plan guidance; Volume 1: Aims and requirements; March 2006
2.2	Coastal and Estuarine Managed Realignment – design issues. Project FD2413. Report produced for Defra/Environment Agency by CIRIA under the Flood and Coastal Erosion Risk Management Research and Development Programme
2.3	National Planning Policy Framework – Flood and Coastal Change Risk Management Quick guide 364_12 Issued 08/05/2012
2.4	Adapting to Climate Change: Advice for Flood and Coastal Erosion Risk Management Authorities, 1 September 2011
2.5	Managing the environment in a changing climate: A report to Defra and the Welsh Assembly Government in response to a direction to report under the Climate Change Act 2008. November 2010
2.6	Flood and Coastal Erosion Risk Management Appraisal Guidance (FCERM-AG). March 2010
2.7	CIRIA Beach Management Manual
2.8	CIRIA 'Flood Resiliency' advice sheets, May 2003



REF #	Document Title
2.9	Cliff Instability and Erosion Management in Great Britain: A Good Practice Guide
2.10	Translating Shoreline Management Plans into Spatial Plans Volume 1
2.11	Temporary and Demountable Flood Protection Guide. Flood and Coastal Erosion Risk Management R&D Programme Project SC080019, August 2011
2.12	Improving the Flood Performance of New Buildings: Flood Resilient Construction. May 2007.
2.13	Identifying Adaptation Options
2.14	A Local Climate Impacts Profile: How to do an LCIIIP
2.15	Coastal Defence and the Historic Environment
2.16	Flooding and Historic Buildings
2.17	Managing adaptation: linking theory and practice
2.18	Guidance on Water and Adaptation to Climate Change
2.19	Common Implementation Strategy for the Water Framework Directive (2000/60/EC). Guidance Document No. 24: River Basin Management in a Changing Climate. Technical Report 2009 040
2.20	Accounting for the Effects of Climate change: Supplementary Green Book Guidance. June 2009
<b>3. Evidence and Examples</b>	
3.1	Defra webpage - Coastal Change Pathfinders
3.2	Coastal Pathfinder Evaluation: An Assessment of the Five Largest Pathfinder Projects. Final Report, November 2011
3.3	Coastal Change Pathfinder Review, Final Report, January 2012
3.4	Coastal Adaptation Community Engagement Toolkit Draft v4
3.5	Understanding the process for community adaptation planning and engagement (CAPE) on the coast. R&D technical report FD2624/TR. Joint Defra/Environment Agency flood and erosion risk management R&D programme. November, 2009
3.6	Community Adaptation Planning and Engagement (CAPE) on the coast: Guidance. Report FD2624. Joint Defra/Environment Agency flood and erosion risk management R&D programme. November, 2009
3.7	The appraisal of adaptation options in flood and coastal erosion risk management. Project FD2617/TR. Report produced for Defra/Environment Agency by Risk Solutions Ltd under the Flood and Coastal Erosion Risk Management Research and Development Programme. March, 2010.
3.8	Flooding in England: A National Assessment of Flood Risk
3.9	The future of food and farming. Executive summary
3.10	First generation National Coastal Erosion Risk Mapping
3.11	Futurecoast – Predicting future shoreline evolution
3.12	22 Shoreline Management Plans for England and Wales
3.13	Summary of the Key Findings from the UK Climate Change Risk Assessment 2012
3.14	Chesil Beach (Portland to Small Mouth) Management Plan
3.15	Lyme Regis Beach Management Plan
3.16	West Dorset, Weymouth and Portland Coastal Risk Planning Guidance
3.17	Land use planning – Assessing the quality and influence of Strategic Flood Risk Assessments (SFRAs). R&D Technical Report FD2610/TR Final Report (June 2009).
3.18	Improving institutional and social responses to flooding: Synthesis report (work package 5). Science Report SC060019/SR6, May 2009

REF #	Document Title
3.19	Foresight Land Use Futures: Making the most of land in the 21st century: Final project report.
3.20	Foresight Future Flooding: Executive Summary. Part of the Foresight Flood and Coastal Defence Project. April 2004
3.21	Revision of SSSI boundaries to accommodate coastal erosion: Methodology and Case Study. February 2012
3.22	Cowes to Gurnard Coastal Slope Stability Study Ground Behaviour Assessment, August 2000
3.23	Shifting Shores: Living with a changing coastline
3.24	Land use planning and adaptation: Royal William Yard, Plymouth
3.25	Falmouth Tourist Information Centre – Ensuring business continuity after flooding
3.26	South Milton Sands project
3.27	Chichester Pathfinder Project: Integrated Coastal Zone Management
3.28	Towards ICZM on the Manhood Peninsula
3.29	Brownsea Island: The Shoreline Restoration Project. Project report for Defra and Natural England. June 2012
3.30	Summary of case study on South Milton Sands, Devon: Removing sea defences and allowing natural processes (November 2009)
3.31	Summary of coastal adaptation case study on Mullion Harbour, Cornwall: Adapting to a stormier future (June 2010).
<b>4. Halcrow Authored Papers</b>	
4.1	Deriving the benefits of strategic shoreline management
4.2	Futurecoast: Assessing Future Coastal Evolution
4.3	Managing coastal change: Walberswick to Dunwich
4.4	The Exe Estuary Coastal Management Study – Working Together
4.5	Techniques for long-term coastal change prediction and the significance of ‘inheritance’
4.6	Easton Broad: Achieving Sustainable Flood Management for Nature Conservation on the Suffolk Coast
4.7	An Awareness of Geomorphology for Coastal Defence Planning
4.8	Managing Coastal Dunes: Lessons from Cornwall, UK
4.9	Coastal change analysis: a quantitative approach using digital maps, aerial photographs and LiDAR
4.10	Climate Change Impact on Cliff Instability and Erosion
4.11	The adaptation toolkit: Developing sustainable policy.
4.12	A review of coastal risk management in the UK.
4.13	CoastRanger MS: A tool for improving public engagement.
4.14	Mississippi to Medway: climate destabilisation and strategic risk management
4.15	A new way of engaging coastal stakeholders: CoastRanger MS.
4.16	Adaptation as part of sustainable shoreline management in England and Wales.
4.17	Managed realignment in low lying coastal areas: Experiences from the UK.
4.18	Management implications coastal change on the Suffolk coast
4.19	Coastline change and implications for habitat loss.
4.20	Possible Implications Of Localisation and Austerity Measures Flood And Coastal Risk Management
4.21	National Coastal Erosion Risk Mapping – The Final Furlong

REF #	Document Title
4.22	National Coastal Erosion Risk Mapping – The First National Run
4.23	National Coastal Erosion Risk Mapping – The Story So Far”
4.24	ComCoast: Socio Economic Assessment of Multifunctional Coastal Schemes
4.25	Introducing the concept of Decision Pathways to help make Adaptive and Robust Flood Risk Management Decisions under Uncertainty
<b>5. Other Information</b>	
5.1	Stern Review executive summary
5.2	Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks
5.3	Facing up to rising sea levels: retreat, defend, attack? The Future of our coastal and estuarine cities
5.4	Country Land and Business Association Press Release: CLA helps define cost-effective sea defences; report produced by Halcrow “Optimal Stable Bay Morphological Modelling, July 2010”
5.5	Impacts of Climate Change on Disadvantaged UK Coastal Communities. March 2011
5.6	Natural England’s Climate Change Risk Assessment and Adaptation Plan (NE318)
5.7	Preparing for Change - Climate-proof your tourism business
5.8	Resilient Tourism: Preparing for extreme weather and climate change in the South West. Presentation given by ClimateSouthWest and The South West Tourism Alliance, July 2011.
5.9	Adapting to Climate Change: Future Worlds images
5.10	Reculver Masterplan Report: Volume 1
5.11	ESPACE – Planning in a Changing Climate 2007: Example Plans and Policies
5.12	Climate Resilient Infrastructure: Preparing for a Changing Climate
5.13	Coastal Adaptation Project: Review of International Best Practice
5.14	Sector seeks facilities vow
5.15	Scaling Adaptation: Climate Change Response and Coastal Management in the UK. Tyndall Centre for Climate Research. Working Paper 60. October 2004.
5.16	Potential Implications of Sea-Level Rise for Great Britain
5.17	Towards Successful Adaptation to Sea-Level Rise along Europe’s Coasts
5.18	Adapting to Climate Change in the Severn Estuary Area: The Corporate Response by Local Government
5.19	Climate change impact, adaptation and associated costs for coastal risks in France
5.20	New Car Park at Aberafan Seafront: Method Statement for Dune Grass Translocation
5.21	Coastal Adaptation Strategies – A Guidance Note (June 2008)
5.22	The Householders’ Guide to a Changing Coast: Old Castle Road, Belle Vue Road and Redcliff View.
5.23	Isle of Wight Core Strategy Adopted March 2012
5.24	Coastal Communities Adapting to Change (CCATCH) - The Solent
5.25	Sefton Coastal Adaptation Study, October 2010
5.26	IMCORE project website

## B.1 Government Policies and Strategies

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
1.1	National Planning Policy Framework (March 2012)	Department for Communities and Local Government (DCLG)	Available online at: <a href="http://www.communities.gov.uk/planningandbuilding/planningsystem/planningpolicy/">http://www.communities.gov.uk/planningandbuilding/planningsystem/planningpolicy/</a> . Date accessed: 22/10/2012	<p>The National Planning Policy Framework (NPPF) published in March 2012 sets out the planning policy framework to be applied by Local Planning Authorities (LPAs) in England when developing local plans that reflect the needs and priorities of their communities. The NPPF, and local plans aligned to it, has sustainable development at its core; this strives to achieve balance between economic, social and environmental issues in the planning system.</p> <p>Of particular relevance to this guidance, Sections 94 and 99 of the NPPF state that LPAs should adopt proactive long term strategies to mitigate and adapt to climate change, including taking full account of flood risk, coastal change water supply and changes to biodiversity and landscape, in line with the requirements of the Climate Change Act 2008. New developments in particular should be planned to avoid increased vulnerability to the range of impacts arising from climate change.</p> <p>With regards to managing and adapting to coastal change, Section 106 of the NPPF states that LPAs should reduce risk from coastal change by avoiding inappropriate development in vulnerable areas or adding to the impacts of physical changes to the coast. LPAs should identify Coastal Change Management Areas (CCMAs) in any area likely to be affected by physical changes to the coast. These CCMAs should be clear as to what development will be appropriate and in what circumstances, and make provision for development and infrastructure that needs to be relocated away from CCMAs.</p> <p>Section 107 of the NPPF states that LPAs should consider applications for development in CCMAs (including applications to renew time-limited planning permissions in the CCMA where erosion <i>[or other coastal change drivers]</i> has progressed at a lower rate than predicted) to be appropriate where it is demonstrated that:</p> <ul style="list-style-type: none"> <li>• It will be safe over its planned lifetime and will not have unacceptable impacts on coastal change;</li> <li>• The character of the coast including designations is not compromised;</li> <li>• The development provides wider sustainability benefits; and</li> <li>• The development does not hinder the creation and maintenance of a continuous signed and managed route around the coast (in accordance with the Marine and Coastal Access Act 2009).</li> </ul> <p>Section 108 of the NPPF states that LPAs should also ensure appropriate development in a CCMA is not impacted by coastal change by limiting the planned life-time of the proposed development through temporary permission where development must occur in the CCMA; and restoration conditions where necessary to reduce the risk to people and the development (and on the natural and historic environment).</p>
1.2	National Planning Policy Framework Technical Guidance (March 2012)	Department for Communities and Local Government (DCLG)	Available online at: <a href="https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6000/2115548.pdf">https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6000/2115548.pdf</a> . Date accessed: 22/10/2012	Defines Sequential and Exception testing requirements to determine future planning decisions such that development is generally directed away from areas at risk of flooding.
1.3	Planning Policy Statement 25: Development and Flood Risk (March 2010)	Department for Communities and Local Government (DCLG)	Available online at: <a href="http://www.communities.gov.uk/documents/planningandbuilding/pdf/planningpolicystatement25.pdf">http://www.communities.gov.uk/documents/planningandbuilding/pdf/planningpolicystatement25.pdf</a> . Date accessed: 22/10/2012	<p><i>Now superseded by NPPF as official national policy (refer to REF #1.1).</i></p> <ul style="list-style-type: none"> <li>• Defines Sequential and Exception testing requirements to determine future planning decisions such that development is generally directed away from areas at risk of flooding.</li> <li>• This document is an expanded guide to the NPPF Technical Guidance for guiding development away from areas of greatest flood risk.</li> </ul>
1.4	Planning Policy Statement 25 Supplement: Development and Coastal Change (March 2010)	Department for Communities and Local Government (DCLG)	Available online at: <a href="http://www.communities.gov.uk/documents/planningandbuilding/pdf/1498576.pdf">http://www.communities.gov.uk/documents/planningandbuilding/pdf/1498576.pdf</a> . Date accessed: 22/10/2012	<p><i>Now superseded by NPPF as official national policy (refer to REF #1.1).</i></p> <p>Provides guidance on how CCMAs should be developed and defined.</p> <p>Contains guidance on development management policies for CCMAs, including the need for planning applications to be supported by “assessment of the vulnerability of the proposed development to coastal change and any impact on coastal change. The level of information required by local planning authorities should be proportionate to the vulnerability and scale of impact. Applications should not be validated without this information.”</p> <p>Other development management policy guidance includes:</p> <ul style="list-style-type: none"> <li>• “Applications for development (including applications to renew time-limited planning permissions in the CCMA where erosion has progressed at a lower rate than predicted) should be considered appropriate where, following the outcome of consultation with relevant agencies and bodies, particularly the Environment Agency and local communities, it can be demonstrated that: <ul style="list-style-type: none"> <li>○ The assessment of vulnerability shows that the development will be safe over its planned lifetime and will not have an unacceptable impact on coastal change</li> <li>○ The character of the coast including designations is not compromised</li> <li>○ The development provides wider sustainability benefits</li> <li>○ The development does not hinder the creation and maintenance of a continuous signed and managed route around the coast<sup>6</sup>.</li> </ul> </li> <li>• So that appropriate development in a CCMA is not impacted by coastal change, local planning authorities should limit the planned life-time of the proposed development to reduce the risk to people and the development, taking account of the assessment of vulnerability. Planning conditions should be applied where there is a need to: <ul style="list-style-type: none"> <li>○ Manage the risk to the proposed development during its planned life-time, and</li> </ul> </li> </ul>



REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<ul style="list-style-type: none"> <li>Manage the removal of the development to minimise the impact on the community and on the natural and historic environment.”</li> </ul>
1.5	Planning Policy Statement 25 Supplement: Development and Coastal Change – Practice Guide (March 2010)	Department for Communities and Local Government (DCLG)	Available online at: <a href="http://www.communities.gov.uk/documents/planningandbuilding/pdf/1499049.pdf">http://www.communities.gov.uk/documents/planningandbuilding/pdf/1499049.pdf</a> . Date accessed: 22/10/2012	<p><i>Now superseded by NPPF as official national policy (refer to REF #1.1).</i></p> <ul style="list-style-type: none"> <li>Expands on the PPS25 Supplement with further detail on how to develop CCMA and associated policies for addressing a variety of situations including infrastructure, development and habitat.</li> <li>Includes ‘policy hierarchy’ &gt;&gt; 1. Appraise Risk; 2. Identify Risk Areas; 3. Avoid Risk; 4. Manage Risk; 5. Mitigate Impact.</li> <li>Contains a number of case studies &gt;&gt; 1. Sefton ICZM; 2. Alde and Ore Futures Pilot Project, Suffolk; 3. Lincolnshire Coastal Study; 4. Waveney District Council; 5. North Norfolk District Council; 6. Isle of Wight; 7. East Riding of Yorkshire; 8. Arkwright Town, Derbyshire; 9. Military Road, Isle of Wight; 10. Frampton Habitat Creation Scheme, Lincolnshire.</li> </ul>
1.6	Planning Policy Statement 9: Biodiversity and Geological Conservation (August 2005)	Department for Communities and Local Government (DCLG)	Available online at: <a href="http://www.communities.gov.uk/documents/planningandbuilding/pdf/147408.pdf">http://www.communities.gov.uk/documents/planningandbuilding/pdf/147408.pdf</a> . Date accessed: 22/10/2012	<p><i>Now superseded by NPPF as official national policy (refer to REF #1.1).</i></p> <ul style="list-style-type: none"> <li>Defines 6 key principals that planning authorities should adhere to “to ensure that the potential impacts of planning decisions on biodiversity and geological conservation are fully considered”: <ul style="list-style-type: none"> <li>Development plan policies and planning decisions should be based upon up-to-date information about the environmental characteristics of their areas.</li> <li>Plan policies and planning decisions should aim to maintain, and enhance, restore or add to biodiversity and geological conservation interests.</li> <li>Plan policies on the form and location of development should take a strategic approach to the conservation, enhancement and restoration of biodiversity and geology, and recognise the contributions that sites, areas and features, both individually and in combination, make to conserving these resources.</li> <li>Plan policies should promote opportunities for the incorporation of beneficial biodiversity and geological features within the design of development.</li> <li>Development proposals where the principal objective is to conserve or enhance biodiversity and geological conservation interests should be permitted.</li> <li>The aim of planning decisions should be to prevent harm to biodiversity and geological conservation interests. Where granting planning permission would result in significant harm to those interests, local planning authorities will need to be satisfied that the development cannot reasonably be located on any alternative sites that would result in less or no harm. In the absence of any such alternatives, local planning authorities should ensure that, before planning permission is granted, adequate mitigation measures are put in place.</li> </ul> </li> </ul>
1.7	Planning Policy Statement 7: Sustainable Development in Rural Areas (August 2004)	Department for Communities and Local Government (DCLG)	Available online at: <a href="http://www.communities.gov.uk/documents/planningandbuilding/rtf/155046.rtf">http://www.communities.gov.uk/documents/planningandbuilding/rtf/155046.rtf</a> . Date accessed: 22/10/2012	<p><i>Now superseded by NPPF as official national policy (refer to REF #1.1).</i></p> <ul style="list-style-type: none"> <li>Sets out government policy with regards sustainable development in rural areas of England.</li> <li>4 key objectives stated are: <ul style="list-style-type: none"> <li>To raise the quality of life and the environment in rural areas through the promotion of:</li> <li>To promote more sustainable patterns of development</li> <li>Promoting the development of the English regions by improving their economic performance so that all are able to reach their full potential.</li> <li>To promote sustainable, diverse and adaptable agriculture sectors.</li> </ul> </li> <li>Identifies 6 key principles for planning policy in regards this topic.</li> </ul>
1.8	Planning Policy Guidance Note 20: Coastal Planning (September 1992).	Department for Communities and Local Government (DCLG)	Available online at: <a href="http://www.communities.gov.uk/documents/planningandbuilding/pdf/147498.pdf">http://www.communities.gov.uk/documents/planningandbuilding/pdf/147498.pdf</a> . Date accessed: 22/10/2012	<p><i>Now superseded by NPPF as official national policy (refer to REF #1.1).</i></p> <ul style="list-style-type: none"> <li>Defines 4 main types of coast: <ul style="list-style-type: none"> <li>Undeveloped coast of high conservation value</li> <li>Other areas of undeveloped coast</li> <li>Developed coast</li> <li>Despoiled coast.</li> </ul> </li> <li>Identifies 4 key coastal planning policy issues: <ul style="list-style-type: none"> <li>Conservation of natural environment</li> <li>Development, particularly that which requires a coastal location</li> <li>Risks, including flooding, erosion and land instability</li> <li>Improving the environment, particularly of urbanised or despoiled coasts.</li> </ul> </li> <li>Includes policies for conservation, development, risks, improving the environment.</li> <li>Includes specific policies for developments requiring a coastal location such as: <ul style="list-style-type: none"> <li>Tourism</li> <li>Recreation</li> <li>Major Developments (e.g. power stations; oil/gas terminals)</li> <li>Mineral Extraction (e.g. beach mining)</li> </ul> </li> </ul>

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<ul style="list-style-type: none"> <li>○ Energy Generation (e.g. marine renewables)</li> <li>○ Waste water and sewage treatment plants.</li> </ul>
1.9	Neighbourhood Planning - Introduction	Department for Communities and Local Government (DCLG)	Available online at: <a href="http://www.communities.gov.uk/planningandbuilding/planningsystem/neighbourhoodplanningvanguards/">http://www.communities.gov.uk/planningandbuilding/planningsystem/neighbourhoodplanningvanguards/</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>• Neighbourhood Plans are enabled by the Localism Act 2011.</li> <li>• Neighbourhood planning empowers communities to shape the development and growth of a local area through the production of a neighbourhood development plan, a neighbourhood development order or a Community Right to Build Order.</li> <li>• Neighbourhood development plans will become part of the local statutory development plan and will form the basis for determining planning applications in that area. A neighbourhood development order enables the community to grant planning permission for the development it wishes to see.</li> <li>• Local people can choose to draw up <b>either</b> a plan, <b>or</b> a development order, or <b>both</b>. It is entirely up to them. Both must follow some ground rules: <ul style="list-style-type: none"> <li>○ They must generally be in line with local and national planning policies</li> <li>○ They must be in line with other laws</li> <li>○ If the local planning authority says that an area needs to grow, then communities cannot use neighbourhood planning to block the building of new homes and businesses. They can, however, use neighbourhood planning to influence the type, design, location and mix of new development.</li> </ul> </li> </ul>
1.10	Making space for water: Taking forward a new Government strategy for flood and coastal erosion risk management in England; First Government response to the autumn 2004 Making space for water consultation exercise	Department for Environment, Food and Rural Affairs (Defra)	Available online at: <a href="http://archive.defra.gov.uk/environment/flooding/documents/policy/strategy/strategy-response1.pdf">http://archive.defra.gov.uk/environment/flooding/documents/policy/strategy/strategy-response1.pdf</a> . Date accessed: 22/10/2012	<p><i>Now superseded by FCERM Strategy 2011 (refer to REF #1.12).</i></p> <ul style="list-style-type: none"> <li>• Promotes a risk-driven holistic approach to catchment and shoreline management of flood and coastal erosion risks, within which climate change risks are integrated into the assessment and decision making process.</li> <li>• Engagement and consultation with all stakeholders is vital to ensuring that risks are managed in sustainable way, achieving a balance between economic, social and environmental needs.</li> <li>• Emphasises the need for proper consideration of flood risk through the planning system.</li> <li>• Promotes better management of risk supported by: <ul style="list-style-type: none"> <li>○ Expanding our flood warning and flood awareness activities;</li> <li>○ Encouraging measures to improve resistance and resilience to flooding; and</li> <li>○ Working to improve the evidence base in the case of coastal erosion.</li> </ul> </li> </ul>
1.11	Appraisal of flood and coastal erosion risk management. A Defra policy statement; June 2009	Department for Environment, Food and Rural Affairs (Defra)	Available online at: <a href="http://www.defra.gov.uk/publications/files/pb13278-erosion-manage-090619.pdf">http://www.defra.gov.uk/publications/files/pb13278-erosion-manage-090619.pdf</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>• Sets out the principles that should guide decision making on the sustainable management of flood and coastal erosion risk in England.</li> <li>• The operating authorities in England (the Environment Agency, local authorities, and internal drainage boards) are required to follow these principles when developing a case for investing taxpayers' money in flood and erosion risk management projects.</li> <li>• The Policy Statement also sets out the risk-based context within which appraisal should take place.</li> <li>• In particular it emphasises the need to ensure that appraisals for all activity (whether strategic level plans or individual projects): <ul style="list-style-type: none"> <li>○ Give more consideration to 'risk management' and 'adaptation', as opposed to only protection' and 'defence';</li> <li>○ Are undertaken consistently, transparently, with value for money in mind and in a way that complies with the Treasury guidance on appraisal and evaluation in central Government (The Green Book);</li> <li>○ Help achieve better social and environmental outcomes as part of sustainable development, both by considering a broader range of issues and by using a broader range of analysis techniques;</li> <li>○ Adopt a risk-based approach, whilst considering impacts within the whole of a catchment or shoreline process area.</li> </ul> </li> <li>• Highlights that the development of Shoreline Management Plans and Catchment Flood Management Plans should be used to make early links with other relevant planning initiatives. In turn the findings from flood and coastal erosion plans should also influence other planning initiatives in an interactive cycle.</li> </ul> <p>There should be a two-way dialogue during the development of flood and coastal erosion risk management plans and Regional Spatial Strategies, Local Development Framework documents and Strategic Flood Risk Assessments. Flood and coastal erosion risks should influence long term redevelopment proposals as well as new developments.</p> <ul style="list-style-type: none"> <li>• Page 18 of the document includes diagram that illustrates the relationship between high level plans, strategies, schemes and other planning initiatives.</li> <li>• Section 4.5 deals with "Climate change and adaptation risks". This promotes consideration of all possible risk management options at the outset, including <i>precautionary</i> (one off single intervention that addresses future climate change risks) and <i>managed adaptive</i> (several interventions over time to adapt defences/management as more data on actual climate change effects emerges) approaches.</li> <li>• Section 5.4 defines how to value options (i.e. costs of implementing different options) and how to value impacts (i.e. costs of not intervening, aka benefits).</li> <li>• Section 6 emphasises the need to effective and planned consultation and engagement with stakeholders throughout the development of high level plans, strategies and schemes.</li> <li>• Recommends information should be conveyed to stakeholders in a transparent way, using plain language to enable stakeholders to gain a better understanding of the appraisal decisions that affect them.</li> <li>• Also recommends that "From the outset, it should be explained to communities and other beneficiaries that the availability of public funds for delivering</li> </ul>

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				<p>flood and erosion risk management is dependent on national priorities for investment and how the project compares with the benefits achievable by investment in other parts of the country. However, it is equally important that people understand that constraints on public funds may not prevent beneficial local projects being developed, partly or wholly funded by local beneficiaries. This is subject to the impacts being acceptable to the whole community and such projects complying with any relevant regulations.</p> <p>As part of the consultation process, the potential benefits and the beneficiaries should be clearly identified. This should enable stakeholders to understand the distribution of costs and benefits. It may also encourage contributions towards projects which could enable measures to be promoted that otherwise might not be afforded or allowed to proceed sooner. Such contributions should allow public funding to go further and deliver improved risk management in areas that otherwise would not benefit.”</p> <ul style="list-style-type: none"> <li>• With regards agriculture, rural development, biodiversity, landscape and forestry, new approaches to managing risk, particularly resilience measures, land management measures which slow runoff and adaptation, may be suitable for dispersed rural or coastal communities.</li> <li>• Defines “Adaptation Approach” as “the approach required to cost-effectively manage risks arising from climate or other change drivers such as shoreline evolution in the UK. The principle is to assess potential impacts by considering different future scenarios and then develop strategies, where appropriate, which enable society to adapt in a planned and appropriate manner and rate.</li> </ul>
1.12	Understanding the risks, empowering communities, building resilience: the national flood and coastal erosion risk management strategy for England	Defra/Environment Agency	Available online at: <a href="http://www.official-documents.gov.uk/document/other/9780108510366/9780108510366.pdf">http://www.official-documents.gov.uk/document/other/9780108510366/9780108510366.pdf</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>• This strategy builds on existing approaches to flood and coastal risk management and promotes the use of a wide range of measures to manage risk. Risk should be managed in a co-ordinated way within catchments and along the coast and balance the needs of communities, the economy and the environment. This strategy will form the framework within which communities have a greater role in local risk management decisions and sets out the Environment Agency’s strategic overview role in flood and coastal erosion risk management (FCERM). This approach is aligned with the recommendations made by Sir Michael Pitt in his review of the summer 2007 floods.</li> </ul> <p>The strategy encourages more effective risk management by enabling people, communities, business, infrastructure operators and the public sector to work together to:</p> <ul style="list-style-type: none"> <li>○ Ensure a clear understanding of the risks of flooding and coastal erosion, nationally and locally, so that investment in risk management can be prioritised more effectively;</li> <li>○ Set out clear and consistent plans for risk management so that communities and businesses can make informed decisions about the management of the remaining risk;</li> <li>○ Manage flood and coastal erosion risks in an appropriate way, taking account of the needs of communities and the environment;</li> <li>○ Ensure that emergency plans and responses to flood incidents are effective and that communities are able to respond effectively to flood forecasts, warnings and advice;</li> <li>○ Help communities to recover more quickly and effectively after incidents.</li> </ul> <ul style="list-style-type: none"> <li>• The strategy shows how communities can be more involved in local flood and coastal erosion risk management. It also emphasises the need to balance national and local activities and funding. In setting out future approaches to FCERM, this strategy considers the level of risk and how it might change in the future, the risk management measures that may be used, roles and responsibilities, future funding and the need for supporting information.</li> <li>• Identifies that managing flood risk and coastal erosion involves: <ul style="list-style-type: none"> <li>○ Knowing when and where flooding and coastal erosion are likely to happen;</li> <li>○ Taking reasonable steps to reduce the likelihood of them happening;</li> <li>○ Forecasting and providing warnings of floods so that people, businesses;</li> <li>○ Infrastructure providers and public services can take effective action to minimize the consequences of floods;</li> <li>○ Adapting to coastal change and acting to reduce the risk to life, damage and disruption caused by flooding;</li> <li>○ Transferring risk to other areas where the consequences are low, for example by allowing land to flood and contain floodwater to prevent flooding elsewhere; or by sharing part of the risk with others with their agreement, for example by sharing the cost of flood damage through insurance;</li> <li>○ Tolerating a residual level of risk, for example by accepting that a flood may cause some disruption that is prepared for or is dealt with when it occurs.</li> </ul> </li> <li>• Section 2.3 identifies a number of future Pressures such as climate change, deterioration in the condition of risk management assets, new development and changes in land use can increase the probability and consequences of flood and coastal erosion.</li> <li>• With regards Land Use Planning, in Section 2.3 it states that it is essential that spatial planning ensures that new developments take flood and coastal erosion risk fully into account, and are safe from, do not increase, and where possible reduce risk over their lifetimes. It is also essential that appropriate flood forecasts and warnings are provided to enable individuals and communities to respond effectively.</li> </ul> <p>It also identifies that land management and development can have significant effects on the movement of water within a catchment. Development or changes in land use in areas that themselves may not be at risk of flooding can reduce or prevent rainwater infiltration into the ground, speed up surface water run off and as a result increase the risk of flooding downstream. This can also apply to rural and agricultural land use where changes in vegetation may cause similar impacts.</p> <p>It goes on to identify that the cost of damages caused when properties are flooded is also likely to increase with inflation and in line with general increases in wealth over time as the value of goods and fittings in households and businesses increases. As a result, even if the likelihood of flooding</p>



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				<p>were to decrease over time, the consequences may still increase as the value of property and contents continues to rise.</p> <ul style="list-style-type: none"> <li>Page 20 (under Section 3.3.1) includes a diagram of how FCERM policy interacts with other planning initiatives.</li> <li>Page 40 (under Section 5.4) contains a diagram showing multiple funding streams potentially available to FCERM projects.</li> </ul>
1.13	Flood and Coastal Resilience Partnership Funding: Defra policy statement on an outcome-focused, partnership approach to funding flood and coastal erosion risk management, 23 May 2011	Department for Environment, Food and Rural Affairs (Defra)	Available online at: <a href="http://archive.defra.gov.uk/environment/flooding/funding/documents/flood-coastal-resilience-policy-statement.pdf">http://archive.defra.gov.uk/environment/flooding/funding/documents/flood-coastal-resilience-policy-statement.pdf</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>This policy statement sets out the arrangements that will apply for the allocation of capital Flood Defence Grant-in-Aid (FDGiA) to flood and coastal erosion risk management projects in England from now until the end of the 2012/13 financial year. <i>Refer also to 2012 guidance "Principles for implementing flood and coastal resilience funding partnerships" (Ref # 1.14)</i></li> <li>Highlights the need to attract additional (external) contributions beyond the FDGiA budget, in order to deliver schemes to reduce flood and coastal erosion risk.</li> <li>Defines four categories under which projects can attract FDGiA. These are: <ul style="list-style-type: none"> <li>All benefits arising as a result of the investment, less those valued under the other outcome measures (Outcome Measure 1).</li> <li>Households moved from one category of flood risk to a lower category (Outcome Measure 2)</li> <li>Households better protected against coastal erosion (Outcome Measure 3)</li> <li>Statutory environmental obligations met through flood and coastal erosion risk management (Outcome Measure 4)</li> </ul> </li> <li>The maximum amount of funding on offer to each project will be based on the value of qualifying benefits under Outcome Measures 1, 2 and 3, plus the number of environmental outcomes achieved under Outcome Measure 4, each multiplied by the relevant payment rate.</li> <li>All projects supported under the new approach will need to achieve an OM Score of 100% or above. Many projects will achieve this, and qualify for full funding. In other cases, cost savings and/or other sources of funding may need to be found. Both of these reduce the whole-life costs of the project to national budgets. Where an OM Score is below 100%, the deficit describes the amount of cost savings and/or contributions necessary in order for the scheme to proceed.</li> <li>Risk management authorities should be encouraged to consider all future investment needs, for all sources of flood risk (and coastal erosion if appropriate), as part of the local flood risk management strategy required under the Flood and Water Management Act. Some investments within a local strategy will score more highly than others against the new funding criteria, with some projects qualifying for 100% funding, and others less. To help meet any funding shortfalls for lower scoring projects, risk management authorities could seek to leverage external contributions from all investments that proceed, including those qualifying for full funding. Any contributions secured towards projects scoring 100% or above can either a) reduce the cost of the scheme to the national taxpayer, making it more likely to go ahead sooner rather than later, or b) be used to help fund other schemes in the local strategy that score less than 100%. In this way, more schemes can proceed than otherwise would be the case, and the costs and benefits of all the investments within an area or region can be spread more evenly between groups and sectors.</li> </ul>
1.14	Principles for implementing flood and coastal resilience funding partnerships	Defra/Environment Agency	Available online at: <a href="http://www.environment-agency.gov.uk/research/planning/134732.aspx">http://www.environment-agency.gov.uk/research/planning/134732.aspx</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>Builds on the 23 May 2011 policy statement on this subject (REF# 1.13).</li> <li>Emphasises that the new policy allows any worthwhile flood and coastal erosion risk management (FCERM) project to be eligible for Flood Defence Grant-in-Aid (FDGiA). A worthwhile project is one that would produce benefits greater than the costs involved over its useful life. The amount of grant available will depend on the outcomes and benefits that a project achieves over its lifetime. The success of the new policy depends on: <ul style="list-style-type: none"> <li>Creating strong partnerships to lead the agreed changes;</li> <li>Clearly defining the roles for the responsible organisations and their partners;</li> <li>Realising and managing contributions to help reduce flood and coastal erosion risks.</li> </ul> </li> <li>This guidance describes the actions, conduct and obligations - the principles - that will help make the policy a success.</li> <li>Clearly identifies roles and responsibilities; that partnerships should be developed and grown as soon as FCERM needs, and possible projects to address them, are identified; and steps to be taken to establish partnerships.</li> <li>In regards to the planning system, the guidance is clear that "if a developer relies on a project to improve an existing defence, the developer will be expected to make a contribution towards that project. The contribution should be in proportion to the benefit realised by the developer as a result of the project. Development in locations without existing defences, or where development is the only beneficiary, must pay for the full costs of all the required FCERM measures. New development must meet the aims of overall Government planning policy to be considered appropriate. A development cannot be made appropriate just because a developer will fund the required FCERM measures, but contributions from a developer can form part of the suite of measures for delivering safe and resilient development.</li> <li>Figure 1 on page 7 provides a diagram of the interaction between organizations/plans/policies etc in relation to FCERM.</li> </ul>
1.15	Partnership Pays – Guides for Local Authorities, Local Communities, and Developers and Investors	Defra/Environment Agency	Available online at: <a href="http://www.environment-agency.gov.uk/research/planning/134732.aspx">http://www.environment-agency.gov.uk/research/planning/134732.aspx</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>Three separate documents that explain partnership funding objectives etc to relevant audience.</li> <li>Supported with case-studies including for 1. Lyme Regis; 2. Morpeth; 3. Happisburgh; 4. Bridgwater; 5. Warrington; 6. Portsmouth; 7. St Blazey; 8. West Wittering; 9. Orton, Peterborough; 10. Loddon Valley, Wokingham. These case studies demonstrate a range of approaches to funding (or contribution in kind) and/or voluntary arrangements to managing flood and erosion risks.</li> </ul>
1.16	Defra website ARCHIVE: Sea	Department for	<a href="http://archive.defra.gov.uk/en">http://archive.defra.gov.uk/en</a>	Gives overview of roles and responsibilities in sea defence and coast protection matters in England and Wales following implementation of Environment



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	flooding and coastal erosion overview	Environment, Food and Rural Affairs (Defra)	vironment/flooding/policy/strategy/coast.htm. Date accessed: 22/10/2012	Agency strategic overview role for all coastal matters.
1.17	Maintenance of Uneconomic Sea Flood Defences: A Way Forward. Policy statement by Sarah Nason	Department for Environment, Food and Rural Affairs (Defra)	Available online at: <a href="http://archive.defra.gov.uk/environment/flooding/documents/policy/guidance/seadefence.pdf">http://archive.defra.gov.uk/environment/flooding/documents/policy/guidance/seadefence.pdf</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>Sets out policy for when it is acceptable to consider withdrawal of maintenance of existing defences funded by public funds (i.e. FDGiA).</li> <li>Identifies need to establish 'exit strategies'</li> <li>Identifies options available to landowners if public funding for defences is to be withdrawn.</li> <li>Also provides legal context in terms of habitat regulations, human rights etc.</li> <li><i>Principles of statement are included in the current FCERM-AG (see REF #2.6).</i></li> </ul>
1.18	Adapting to Climate Change, House of Commons Environmental Audit Committee, Sixth Report of Session 2009–10	House of Commons Environmental Audit Committee	Available online at: <a href="http://www.publications.parliament.uk/pa/cm200910/cmselect/cmenvaud/113/113.pdf">http://www.publications.parliament.uk/pa/cm200910/cmselect/cmenvaud/113/113.pdf</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>The summary states that “adapting to climate change is expensive. But if we do not take action now, adaptation is likely to become even more expensive, and we will impose greater burdens on future generations. The Government must address the question of how the costs of adaptation should be shared between current and future generations. The taxpayer will bear some of the costs but additional sources of predictable and sustainable funding are needed. Communities and individuals have been willing to pay, for example for flood defences when they have understood the reasons for action, and have been involved in deciding what should be done.... ....The planning system has a key role in adapting the built environment. New developments should only be approved if they are suited to future climates and do not increase risks to others. Developers should be required to make a greater contribution to improving the general resilience, and thus the sustainability, of communities..... ..... While the planning system addresses new homes, existing homes also need to be adapted so they are habitable and comfortable during hotter summers and better protected against the increasing risk of flooding. The Government should strengthen incentives for people to adapt their properties and should help them take action. Local agencies should be enabled to provide integrated retrofitting programmes covering adaptation, water efficiency and energy efficiency.”</li> <li>Item 82 on page 31 expands on the above &gt;&gt; “The planning system is central to tackling adaptation. The potential of the planning system to build community resilience to climate change impacts is not being realised due to weaknesses in planning guidance, some local authorities not treating adaptation as a priority, and gaps in skills. In revising its guidance on planning and climate change, the Government must make adaptation and mitigation more central to the planning system. New developments should only be permitted if they are suited to future climates, and support the overall resilience of the built environment. Past experience clearly demonstrates that issuing planning guidance is not enough to ensure change. The Government needs to make sure that revised planning guidance, and action to improve the skills and capacity of planning departments, improves decision making.”</li> </ul>
1.19	Localism Act (November 2011)	HM Government	Available online at: <a href="http://www.legislation.gov.uk/ukpga/2011/20/pdfs/ukpga_20110020_en.pdf">http://www.legislation.gov.uk/ukpga/2011/20/pdfs/ukpga_20110020_en.pdf</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>Part 6 (page 103) of the Act deals with planning.</li> <li>Part 6 Chapter 1 deals with plans and strategies; modifying part of the Planning and Compulsory Purchase Act 2004.</li> <li>Part 6 Chapter 2 deals with Community Infrastructure Levy; modifying parts of the Planning Act 2008.</li> <li>Part 6 Chapter 3 deals with Neighbourhood Planning</li> <li>Part 6 Chapter 4 deals with Consultation.</li> <li>Part 6 Chapter 5 deals with Enforcement.</li> <li>Part 6 Chapter 6 deals with Nationally Significant Infrastructure Projects; modifying parts of the Planning Act 2008.</li> </ul>
1.20	UK Marine Policy Statement (March 2011)	HM Government	Available online at: <a href="http://archive.defra.gov.uk/environment/marine/documents/interim2/marine-policy-statement.pdf">http://archive.defra.gov.uk/environment/marine/documents/interim2/marine-policy-statement.pdf</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>Joint policy developed and signed up to be HM Government, Northern Ireland Assembly, Scottish Government and Welsh Assembly Government.</li> <li>It provides the high-level policy framework for preparing Marine Plans and taking decisions affecting the marine environment. It will contribute to the achievement of sustainable development in the United Kingdom marine area<sup>1</sup>. It has been prepared and adopted for the purposes of section 44 of the Marine and Coastal Access Act 2009.</li> <li>The Marine and Coastal Access Act 2009 requires all public authorities<sup>7</sup> taking authorization or enforcement decisions<sup>8</sup> that affect or might affect the UK marine area to do so in accordance with the MPS unless relevant considerations indicate otherwise. It also requires that Marine Plans must be in conformity with any MPS in effect in the marine plan area, unless relevant considerations indicate otherwise. Once adopted Marine Plans will have the same effect on authorisation or enforcement decisions in the UK marine area as the MPS, including the requirements and conditions attached to authorisations and the enforcement action that will be taken to ensure compliance.</li> <li>The jurisdiction of Marine Plans is up to the level of Mean High Water Springs; thereby overlapping with terrestrial planning boundaries that generally extend to mean low water spring tides, the marine plan area will physically overlap with that of terrestrial plans. This overlap ensures that marine and land planning will address the whole of the marine and terrestrial environments respectively, and not be restricted by an artificial boundary at the coast.</li> <li>Integration of marine and terrestrial planning will be achieved through: <ul style="list-style-type: none"> <li>Consistency between marine and terrestrial policy documents and guidance. Terrestrial planning policy and development plan documents already include policies addressing coastal and estuarine planning. Marine policy guidance and plans will seek to complement rather than replace these, recognising that both systems may adapt and evolve over time;</li> <li>Liaison between respective responsible authorities for terrestrial and marine planning, including in plan development, implementation and review stages. This will help ensure, for example, that developments in the marine environment are supported by the appropriate infrastructure</li> </ul> </li> </ul>

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				<ul style="list-style-type: none"> <li>on land and reflected in terrestrial development plans, and vice versa; and <ul style="list-style-type: none"> <li>Sharing the evidence base and data where relevant and appropriate so as to achieve consistency in the data used in plan making and decisions.</li> </ul> </li> <li>Chapter 2 defines the vision and 5 high level objectives to be delivered through marine planning. It goes on to present a range of diverse issues covering a wide range of sectors all of which are of relevance to the development of marine plans.</li> <li>Section 2.6.8 on page 24 deals specifically with Coastal Change and Flooding matters, identifying a range of marine activities that could interact/impact on coastal change and flood risk. To ensure that these matters are considered in developing marine plans, marine plans should liaise with terrestrial</li> <li>Planning authorities, drawing on Shoreline Management Plans and equivalent plans where available, any relevant Flood Directive Flood Risk Management Plan or supplementary plan once developed and any other relevant evidence and coastal policies or strategies.</li> </ul>
1.21	Marine and Coastal Access Act (November 2009)	HM Government	Available online at: <a href="http://www.legislation.gov.uk/ukpga/2009/23/pdfs/ukpga_20090023_en.pdf">http://www.legislation.gov.uk/ukpga/2009/23/pdfs/ukpga_20090023_en.pdf</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>Part 1 established the Marine Management Organisation, including defining its role and powers.</li> <li>Part 2 defines the UK EEZ.</li> <li>Part 3 provides the basis for implementation of Marine Planning, including establishment of the Marine Policy Statement and Marine Plans.</li> <li>Part 4 deals with Marine Licensing.</li> <li>Part 5 deals with Nature Conservation, including the establishment of a network of Marine Conservation Zones.</li> <li>Part 6 deals with Management of Inshore Fisheries, including establishment of IFCA's to replace Sea Fisheries Committees.</li> <li>Part 9 deals with coastal access, including placing a duty on Natural England to establish and maintain a national path around the coast of England (the English Coast Path).</li> </ul>
1.22	Climate Change Act 2008	HM Government	Available online at: <a href="http://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga_20080027_en.pdf">http://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga_20080027_en.pdf</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>Part 4 deals with 'Impact of and Adaptation to Climate Change'.</li> <li>Requires Secretary of State to regularly provide assessment of risks to the UK associated with current and predicted climate change. Assessment is to be done every 5 years.</li> <li>Requires Secretary of State to set out: <ul style="list-style-type: none"> <li>The objectives of Her Majesty's Government in the United Kingdom in relation to adaptation to climate change,</li> <li>The Government's proposals and policies for meeting those objectives, and</li> <li>The time-scales for introducing those proposals and policies,</li> <li>Addressing the risks identified in the most recent climate change risk assessment report.</li> </ul> </li> </ul>
1.23	Flood and Water Management Act 2010. CHAPTER 29	HM Government	Available online at: <a href="http://www.legislation.gov.uk/ukpga/2010/29/pdfs/ukpga_20100029_en.pdf">http://www.legislation.gov.uk/ukpga/2010/29/pdfs/ukpga_20100029_en.pdf</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>Defines requirements for National and Local Flood and Coastal Erosion Risk Management Strategies in England and Wales. These requirements include the need to consider the current and predicted impact of climate change on flood and coastal erosion risk management.</li> <li>Part 1, Section 16, defines funding arrangements (The Environment Agency/Welsh Ministers may make grants in respect of expenditure incurred or expected to be incurred in connection with flood or coastal erosion risk management in England; these grants may be subject to conditions).</li> <li>Part 1, Section 17, states that the Environment Agency may issue levies to the lead local flood authority, in accordance with regulations under section 74 of the Local Government Finance Act 1988, for an area in respect of the Agency's flood and coastal erosion risk management functions in that area.</li> <li>Part 2, Section 38 defines conditions under which the Environment Agency can carry out works that are likely to cause incidental flooding or coastal erosion.</li> <li>Part 2, Section 39 defines conditions under which Local Authorities can carry out works that are likely to cause incidental flooding or coastal erosion.</li> <li>Part 2, Section 40 "Building Regulations: Flood Resistance", modifies paragraph 8(5) of Schedule 1 of the Building Act 1984 thus &gt;&gt; "The provision that may be made by building regulations includes provision imposing on a person carrying out work of any type in relation to a building (whenever erected), or in relation to any service, fitting or equipment provided in or in connection with a building (whenever erected), a requirement to do things for the purpose mentioned in section 1(1)(a) of this Act in so far as it relates to the resistance or resilience of buildings in respect of flooding."</li> </ul>
1.24	Planning Act 2008, Chapter 29	HM Government	Available online at: <a href="http://www.legislation.gov.uk/ukpga/2008/29/pdfs/ukpga_20080029_en.pdf">http://www.legislation.gov.uk/ukpga/2008/29/pdfs/ukpga_20080029_en.pdf</a> . Date accessed: 22/10/2012	<p><i>Note, parts of this act are modified by the Localism Act 2011 (refer to REF #1.19).</i></p> <ul style="list-style-type: none"> <li>Part 2 allows Secretary of State to designate a statement as a National Policy Statement if it sets out national policy in relation to one or more specified descriptions of development.</li> <li>Part 3 defines what are considered to be "Nationally Important Infrastructure Projects".</li> <li>Part 9 (Section 175 (page 91) deals with 'Blighted Land' and amendments to the Town and Country Planning Act 1990 made by the Planning Act 2008 in this regards.</li> <li>Part 11 provides for the imposition of a charge known as the Community Infrastructure Levy. The overall purpose of CIL is to ensure that costs incurred in providing infrastructure to support the development of an area can be funded (wholly or partly) by owners or developers of land.</li> </ul>
1.25	National strategy for flood and coastal erosion risk management in Wales. November 2011	Welsh Assembly Government	Available online at: <a href="http://wales.gov.uk/topics/environmentcountryside/epq/waterflooding/flooding/nationalstrategy/?lang=en">http://wales.gov.uk/topics/environmentcountryside/epq/waterflooding/flooding/nationalstrategy/?lang=en</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>Sets out policies on flood and coastal erosion risk management in Wales.</li> <li>Establishes a delivery framework that meets the needs of Wales now and in the future.</li> <li>Sets four overarching objectives for managing flood and coastal erosion risk in Wales: <ul style="list-style-type: none"> <li><b>Reducing the consequences</b> for individuals, communities, businesses and the environment from flooding and coastal erosion;</li> <li><b>Raising awareness of and engaging people</b> on flood and coastal erosion risk;</li> </ul> </li> </ul>

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<ul style="list-style-type: none"> <li>o <b>Providing an effective and sustained response</b> to flood and coastal erosion events; and</li> <li>o <b>Prioritising investment</b> in the most at risk communities</li> <li>• Implementing these objectives will be the responsibility of everyone involved in or affected by flood and coastal erosion risk management. This includes local communities and raising community awareness of risks and measures they can take.</li> <li>• Sections 27 to 32 (and Sections 111 and 112) define a risk management approach that works with local communities and natural processes (an ecosystem approach). This will involve use of traditional defence measures to reduce flood and erosion risk, alongside other options such as: <ul style="list-style-type: none"> <li>o Making more use of the natural environment, like wetlands or salt marshes;</li> <li>o Deploying sustainable drainage systems much more widely;</li> <li>o Incorporating greater resilience into the design of developments (houses, buildings, roads and paved areas);</li> <li>o Identifying areas suitable for inundation and water storage;</li> <li>o Enabling those at risk of flooding to play a proactive role in shaping the flood risk management service they receive;</li> <li>o Supporting people in taking actions to make their buildings, land and activities more resilient to flooding; and</li> <li>o Ensuring wider awareness of individual risk to increase levels of preparedness and planning for flooding events.</li> </ul> </li> <li>• Section 95 (page 14) states that “it is important that Risk Management Authorities consider the range of possible future climates when proposing ways to manage the risks of flooding and coastal erosion. Building in an ability to adapt approaches to address future changes in risk should also be considered.”</li> <li>• Annex A provides a useful, concise, guide to the sources of different flood and coastal erosion risks.</li> </ul>
1.26	Local Flood Risk Management Strategies: Local Strategy. November 2011	Welsh Assembly Government	Available online at: <a href="http://wales.gov.uk/topics/environmentcountryside/epq/waterflooding/flooding/nationalstrategy/guidance/localstrategy/?lang=en">http://wales.gov.uk/topics/environmentcountryside/epq/waterflooding/flooding/nationalstrategy/guidance/localstrategy/?lang=en</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>• Guidance document for Lead Local Flood Authorities, with following specific objectives: <ul style="list-style-type: none"> <li>o To provide information and advice to support all LLFAs in Wales in developing a Local Strategy consistent with Section 10 of the Act;</li> <li>o To ensure consistency in determining the detail and objectives for each LLFA in managing their identified flood risk;</li> <li>o To link to the National Strategy and comment upon how Local Strategies will inform ongoing development;</li> <li>o To provide a link to the work being completed under the Flood Risk Regulations 20092;</li> <li>o To consider data and information sharing and management, and co-operation;</li> <li>o To provide guidance on how to communicate with the public, raise awareness and encourage local leadership;</li> <li>o To provide advice on the scale of the Strategic Environmental Assessment (SEA) and Habitats Regulations Assessment (HRA) needed; and</li> <li>o To provide advice on partnerships and governance arrangements.</li> </ul> </li> <li>• Section 3 defines what should be included in Local FRMS. Also defines roles and responsibilities for LLFAs, EA, IDBs, Water and Sewage Companies.</li> <li>• Section 3.3.3 requires Local FRMS' to ensure that the strategic aims and objectives provided within the National Strategy are translated into meaningful objectives for their own particular area, focusing on the Prevention, Protection and Preparedness (including Climate Change Adaptation) elements.</li> <li>• Section 3.4.3 requires Local FRMS' to seek to deliver multiple benefits where ever possible.</li> <li>• Section 3.4.4 requires LLFA should consider measures under the following high level themes: <ul style="list-style-type: none"> <li>o Development planning and adaptation (encompassing both new and adaptations to existing developments / landscapes);</li> <li>o Flood forecasting, warning and response;</li> <li>o Land, cultural and environmental management;</li> <li>o Asset management and maintenance;</li> <li>o Studies assessments and plans;</li> <li>o High level awareness and engagement (to increase individual and community resilience); and</li> <li>o Monitoring (of the local flood risk issues).</li> </ul> </li> <li>• Even if no measures have been identified under a particular theme, LLFA should record this to reflect the fact that they have all been considered.</li> <li>• Figure 2 on page 21 (of 55) contains a useful guide to the above high level themes</li> <li>• Annex C states that “Both <b>Planners</b> and <b>Developers</b> have an important role to play in delivering the outcomes of the Local Strategies. Where appropriate, new developments should contribute to delivering the objectives of Local Strategies. Local Planning Authorities should use Local Strategies as part of the evidence base to inform the formulation and review of Local Development Plans so that future developments have proper regard to the local flood risk management strategy and the need for climate change adaptation.”</li> <li>• Annex F provides discussion on the importance of communicating with the public, raising awareness and encouraging local leadership.</li> </ul>
1.27	Sustainable Development: Guidance to Risk Management Authorities Section 27 – Sustainable Development	Welsh Assembly Government	Available online at: <a href="http://products.ihs.com/cis/Doc.aspx?AuthCode=&amp;DocNum=299865">http://products.ihs.com/cis/Doc.aspx?AuthCode=&amp;DocNum=299865</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>• Sections 5.2 to 5.5 identify how FCERM can contribute to the long-term economic, social and environmental wellbeing of people and communities in Wales, whilst living within environmental limits. Key points include: <ul style="list-style-type: none"> <li>o Using whole life cycle analysis and eco-foot printing in the procurement of Flood &amp; Coastal Erosion Risk Management (FCERM) services;</li> <li>o Seeking opportunities to include social clauses through FCERM procurement, to reduce inequalities and support less well-off communities;</li> <li>o Working with developers and local planning authorities in flood risk areas to prevent inappropriate development in areas of flood risk;</li> <li>o Working with developers and local planning authorities to design in resilience and resistance to future flooding and increase sustainable</li> </ul> </li> </ul>



REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<p>drainage;</p> <ul style="list-style-type: none"> <li>○ Use FCERM projects and activities to enhance local economies, for example increasing local tourism through improved public access and habitat creation;</li> <li>○ Consider plans for managed retreat in coastal areas to avoid damage from flooding or erosion.</li> <li>○ Greater use of working with natural processes to reduce flood and coastal erosion risk, for example, by restoring the natural capacities of soil and vegetation to hold water or enhancing habitats such as salt marshes that help dissipate wave energy at the coast;</li> <li>○ Identifying areas suitable for inundation and water storage to reduce the risk of flooding elsewhere;</li> <li>○ Reducing flood and coastal erosion risk in ways which create and link habitats and promote green infrastructure, thus adding to the total stock of biodiversity, as well as conserving important wildlife sites, and the ecosystem services this provides;</li> <li>○ Flood defences that are adaptable and flexible as risk changes over time and resilient to extreme weather events and the longer term projected impacts of climate change;</li> <li>○ Using ecosystem services valuation in project appraisal to better understand the value of the natural environment to society and the economy</li> <li>○ Ensuring development planning takes account of flood risk and coastal change and that developers make a contribution to the cost of defence;</li> <li>○ Ensuring that development is located in areas of lowest flood risk, away from areas at highest risk of flooding and the functional flood plain;</li> <li>○ Ensuring that the development does not increase the risk of flooding elsewhere;</li> <li>○ Ensuring inter-generational equity, for example avoiding complex, expensive flood defences that future generations may struggle to maintain and replace;</li> <li>○ Developing economic recovery contingency plans in case the local area is impacted by flooding;</li> <li>○ Using an appropriate range of climate change scenarios (such as UKCIP Climate Change Projections) and adapting to climate change;</li> <li>○ Developing a sound evidence base for the level of local risk and an understanding of which sections of the community are most exposed to this risk;</li> <li>○ Basing decisions on a good understanding of local surface water, fluvial and coastal processes and how these might change in the future;</li> <li>○ Base decision on a sound understanding of interconnectivity of land drainage network of culverts, ordinary water courses, sewers and highway drainage to allow a better assessment of the impact of development on the drainage network;</li> <li>○ Working with insurance companies prior to building so that developers are aware of the insurance assessment of the flooding ‘risk’ prior to building;</li> <li>○ Increasing levels of awareness of flood and coastal erosion risks among individuals, businesses, and communities;</li> <li>○ Better warning systems for flooding events;</li> <li>○ Ensuring effective emergency plans are in place for flood and coastal erosion events;</li> <li>○ Improving the response to events by the emergency response organisations, as well as individuals, communities and businesses;</li> <li>○ Ensuring effective recovery arrangements are in place;</li> <li>○ Promoting flood resilience and resistance measures at property and community level;</li> <li>○ Involving local people and community groups in risk assessment to raise awareness of risk from all local sources of flooding and coastal erosion and empowering them to manage those risks;</li> <li>○ Giving local communities a greater stake in project design and delivery at an early stage, and seeking feedback at all stages;</li> <li>○ Developing a register of local businesses willing to help in the event of flooding;</li> <li>○ Managing flood and coastal erosion risk in ways which promote safe public access to open spaces and water bodies;</li> <li>○ Using FCERM projects and activities to increase community health and well-being. For example, by providing access to pleasant open green spaces;</li> <li>○ Using good design (such as promoted by Commission for Architecture and the Built Environment) to improve the look and feel of FCERM infrastructure, enhance river, wetland and coastal landscapes and respect the setting of historic buildings;</li> <li>○ Working with partners to improve the resilience of essential services to flooding and to ensure access to emergency services is maintained;</li> <li>○ Creating a ‘sense of place’ to help to promote sustainability through community buy in;</li> <li>○ Making use of multiple sustainability benefits through, for example, use of open areas for both flood storage capacity and public amenity;</li> <li>○ Increasing the use of resilience measures to conserve heritage assets;</li> <li>○ Working with local businesses to improve flood awareness and resilience;</li> <li>○ Being open about the costs and the benefits, including non-financial costs and benefits, (and the distribution of those cost and benefits across social groups, generations and geographical areas) of different ways of managing risk;</li> <li>○ Setting relevant local objectives, which local people clearly understand, and publishing clear reports on progress towards sustainability;</li> <li>○ Working with the community to encourage innovation in defences that achieve multiple objectives;</li> <li>○ Engaging in cross-boundary working to develop sustainable solutions to flood and coastal risk management at a range of regional scales;</li> </ul>

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				<ul style="list-style-type: none"> <li>Ensuring public participation is core to decision-making. This is essential to ensure that local social and environmental concerns are addressed alongside economic issues; and</li> <li>Engaging in local partnership working</li> </ul>
1.28	Adapting to Climate Change Guidance: Guidance for Flood and Coastal Erosion Risk Management Authorities in Wales. December 2011	Welsh Assembly Government	Available online at: <a href="http://wales.gov.uk/topics/environmentcountryside/epq/waterflooding/flooding/nationalstrategy/guidance/climateguide/?lang=en">http://wales.gov.uk/topics/environmentcountryside/epq/waterflooding/flooding/nationalstrategy/guidance/climateguide/?lang=en</a> . Date accessed: 22/10/2012	<p>Section 1 of this document states the following:</p> <ul style="list-style-type: none"> <li>This guidance replaces the Welsh Government FCDPAG3 Economic Appraisal Supplementary Note to Operating Authorities—Climate Change Impacts, July 2007. It is provided as supplementary information to the Environment Agency’s Flood and Coastal Erosion Risk Management Appraisal Guidance (FCERM-AG) and Flood and Coastal Defence Project Appraisal Guidance. It also supports the National Strategy for Flood and Coastal Erosion Risk Management in Wales. It should be used to consider climate change within the development of all flood and coastal erosion risk management (FCERM) projects or strategies. The advice has not yet been tailored for the land use planning system. Local planning authorities and developers should continue to use the allowances in the Welsh Government FCDPAG3 Economic Appraisal Supplementary Note, July 2007, as directed within Technical Advice Note 15, (TAN15).</li> <li>One of the purposes of this guidance is to ensure that an economically credible appraisal, taking account of the uncertainties associated with climate change, can be made to support Welsh Government investment decisions.</li> <li>Given the long lifetime and high cost of the built environment and many FCERM measures, it is imperative that plans and investment projects take into account, in an appropriate way, the changing risks over the coming century. This includes accommodating adaptation to a changing climate where appropriate.</li> <li>Welsh Government recommends a “managed adaptive approach” where possible. A managed adaptive approach is based on taking action when particular trigger points are observed. It is most likely to be appropriate in cases where periodic review can track the change in flood or coastal risk, and the changing risk can be managed through pre-determined interventions. This provides flexibility to manage future uncertainties associated with climate change.</li> <li>In some circumstances, a managed adaptive approach may not be technically feasible. For example, it may not be possible to manage multiple interventions or it may be economically more efficient to build in a precautionary element at the outset. In these cases, a precautionary approach, with a one-off intervention, may be the only feasible or best option.</li> </ul> <p>The remainder of the document provides guidance on climate change allowances to be made in FCERM appraisal (links to EA guidance on this subject for England).</p>
1.29	Flood and Coastal Erosion Risk Management in Wales - written statement by the Welsh Assembly Government (WAG). Jane Davidson, Minister for Environment, Sustainability and Housing. 31 March 2011	Welsh Assembly Government	Available online at: <a href="http://wales.gov.uk/docs/cabinetstatements/2011/110331ffloodcoastalen.doc">http://wales.gov.uk/docs/cabinetstatements/2011/110331ffloodcoastalen.doc</a> . Date accessed: 22/10/2012	<p>Ministerial statement on the approach to Flood and Coastal Erosion Risk Management in Wales (links to National FCERM Strategy).</p> <p>Includes a section on ‘Land Use Planning’. Key points in this regard are:</p> <ul style="list-style-type: none"> <li>Land use planning also has an important role to play in managing flood risk.</li> <li>Proposes (following completion of a public consultation) provide permitted development rights for the provision of new or replacement hard surfaces within any part of the curtilage of a house, on the condition that porous materials are used, or provision is made to direct any water run-off to a surface or area that allows the water to drain naturally.</li> <li>No ‘area of allowance’ for the laying of non porous traditional hard surfacing is provided, as I think we need a firm commitment for householders to use porous materials when creating hard surfacing in their gardens. This does go further than the controls introduced in England.</li> <li>Making the Development Advice Maps accompanying TAN15 available online. These maps, previously only available upon request, will enable developers and the general public alike to easily view those areas within the flood plain and plan appropriately. In making these maps easier to access, we are promoting the transparency that is important for such planning matters, speeding up the application process and helping everyone to understand the precautionary approach that must be taken when it comes to development and flood risk.</li> </ul> <p>Also promotes raising public awareness of the risks of flooding and coastal erosion is important if we are to ensure that communities and individuals can prepare for events and recover from them faster and we are doing a lot of work on this.</p>
1.30	Community Infrastructure (Amendment) Regulations 2011, England and Wales	HM Government	Available online at: <a href="http://www.legislation.gov.uk/ukxi/2011/987/made">http://www.legislation.gov.uk/ukxi/2011/987/made</a> . Date accessed: 22/10/2012	Regulations for the implementation of Community Infrastructure Levy inline with Part 11 of the Planning Act 2008.
1.31	Marine Licensing: Licensable activities and exemptions	Marine Management Organisation	<a href="http://www.marinemangement.org.uk/licensing/marine/activities.htm">http://www.marinemangement.org.uk/licensing/marine/activities.htm</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>The new marine licensing system enables the MMO to fully consider the range of factors which can influence the marine environment, and if necessary ensure that any impacts are mitigated, as part of developments below MHWS.</li> <li>Licensable activities include construction works and deposits and the use of a vehicle, vessel, aircraft, marine structure or floating container to remove any substance or object from the sea bed within the UK marine licensing area. The MMO’s aim is to ensure that regulation is proportionate to the risks, recognising also the economic, social and cultural value of marine activities such as diving and archaeology. In determining all marine licence applications the MMO must have regard to the following: <ul style="list-style-type: none"> <li>The need to protect the environment</li> <li>The need to protect human health</li> <li>The need to prevent interference with legitimate uses of the sea</li> <li>Such other matters as we consider relevant.</li> </ul> </li> </ul>

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1.32	Coastal Access Natural England's Approved Scheme	Natural England	Available online at: <a href="http://publications.naturalengland.org.uk/publication/35035?category=50007">http://publications.naturalengland.org.uk/publication/35035?category=50007</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>The Scheme is the methodology that Natural England will use to carry out its coastal access duty. It sets out the key principles on which Natural England will base our access proposals at the local level, and explains how these principles will be applied in the main coastal scenarios. It explains the alignment approach on both the open coast and estuaries, and gives illustrative examples of how this might work in a range of coastal situations.</li> <li>Section 4.9 in particular sets out how the English Coast Path will be adapted in response to Coastal Change.</li> </ul>
1.33	A Strategy for promoting an integrated approach to the management of coastal areas in England	Department for Environment, Food and Rural Affairs (Defra)	Available online at: <a href="http://archive.defra.gov.uk/environment/marine/documents/protected/iczm/iczm-strategy-england.pdf">http://archive.defra.gov.uk/environment/marine/documents/protected/iczm/iczm-strategy-england.pdf</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>This Strategy aims to help everyone involved in the management of coastal areas to take a more integrated approach to their work, learning from good practice.</li> <li>Sets out the 8 key principles for ICZM as stated in the EU recommendation on ICZM: <ol style="list-style-type: none"> <li>1. A broad holistic approach</li> <li>2. Taking a long-term perspective</li> <li>3. Adaptive management</li> <li>4. Specific solutions and flexible measures</li> <li>5. Working with natural processes</li> <li>6. Participatory planning</li> <li>7. Support and involvement of all relevant administrative bodies</li> <li>8. Use of a combination of instruments</li> </ol> </li> <li>These principles should be embedded into all coastal planning and management processes.</li> <li>Pages 7 and 8 sets out the vision for ICZM and how it will be achieved.</li> <li>Page 13 provides diagram defining policy and strategic direction links.</li> <li>Pages 15 and 16 provide diagrams showing national and local planning policy links.</li> <li>Page 26 provides a diagram showing the national framework for policy integration.</li> </ul>
1.34	Wildlife and Countryside Act 1981 (as amended)	HM Government	Available online at: <a href="http://www.legislation.gov.uk/ukpga/1981/6">http://www.legislation.gov.uk/ukpga/1981/6</a> . Date accessed: 01/11/2012	<ul style="list-style-type: none"> <li>The Act consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the conservation of wild birds (Birds Directive) in Great Britain (NB Council Directive 79/409/EEC has now been replaced by Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version)).</li> <li>The Act makes it an offence (with exception to species listed in Schedule 2) to intentionally kill, injure, or take any wild bird; take, damage or destroy the nest of any wild bird while that nest is in use or being built (also [take, damage or destroy the nest of a wild bird included in Schedule ZA1] under the Natural Environment and Rural Communities Act 2006), or take or destroy an egg of any wild bird.</li> <li>The Act provides for the notification and confirmation of Sites of Specific Scientific Interest (SSSIs) – these sites are identified for their flora, fauna, geological or physiographical features – by the country conservation bodies in England (Natural England) and Wales (the Countryside Council for Wales).</li> </ul>
1.35	Climate Change: The UK Programme	HM Government	Available online at: <a href="http://www.official-documents.gov.uk/document/cm67/6764/6764.pdf">http://www.official-documents.gov.uk/document/cm67/6764/6764.pdf</a> . Date accessed: 01/11/2012.	The Climate Change Programme sets out policies and priorities for action in the UK and internationally. The Programme recognises climate change as a global problem, so the UK will strive to secure global action on the scale needed to tackle it. But will also take further action at home, to meet UK commitments and demonstrate that climate change can be tackled without damaging the UK economy.
1.36	Circular 04/06 (Communities and Local Government) The Town and Country Planning (Flooding) (England) Direction 2007	Department for Communities and Local Government (DCLG)	Available online at: <a href="http://www.communities.gov.uk/archived/publications/planningandbuilding/circularcommunities3">http://www.communities.gov.uk/archived/publications/planningandbuilding/circularcommunities3</a> . Date accessed: 01/11/2012.	This direction came into force on 1 January 2007 as an annex to the circular. It requires local planning authorities to notify the Secretary of State of any application for major development in a flood risk areas, where it is minded to grant permission against advice on flood risk grounds from the Environment Agency.
1.37	Community Infrastructure Levy Regulations 2010 and Community Infrastructure (Amendments) Regulations 2011	Department for Communities and Local Government (DCLG)	Available online at: <a href="http://www.legislation.gov.uk/ukdsi/2010/9780111492390/contents">http://www.legislation.gov.uk/ukdsi/2010/9780111492390/contents</a> and <a href="http://www.legislation.gov.uk/ukdsi/2011/987/made">http://www.legislation.gov.uk/ukdsi/2011/987/made</a> . Date accessed: 08/11/2012	The Community Infrastructure Levy is a new planning charge, introduced by the Planning Act 2008. It came into force on 6 April 2010 through the Community Infrastructure Levy Regulations 2010. Development may be liable for a charge under the Community Infrastructure Levy (CIL), if the local planning authority has chosen to set a charge in its area.
1.38	Adapting to Coastal Change: Developing a Policy Framework. March	Department for Environment, Food and Rural Affairs	Available online at: <a href="http://archive.defra.gov.uk/environment/flooding/documents/managecoastalchange-">http://archive.defra.gov.uk/environment/flooding/documents/managecoastalchange-</a>	Section 2 gives background to coastal change and that it has always been changing over centuries. Section 2 also sets the policy background to coastal management, including the use of SMPs to define CCMA's and linking to the planning system through application of PPS25.



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	2010.	(Defra)	policyframework.pdf. Date accessed: 09/11/2012	<p>Section 2.18 to 2.25 explains how FCERM measures are funded. Includes case study of multiple funding sources used to deliver scheme at Weston super Mare.</p> <p>Section 2.26 states “Government is committed to maintaining sustainable coastal communities. This means that, where coastal change happens, all aspects of the affected communities need to be supported to help ensure they remain attractive places for people to live in and visit, and support thriving local economies. Local communities need to be informed, engaged and enabled to take an active part in deciding what happens locally.”</p> <p>Sections 3 and 4 sets out ideas and guidance on how communities, including individuals, can adapt to coastal change now and in the future.</p> <p>Section 3 deals with preparing and planning for coastal change, covering:</p> <ul style="list-style-type: none"> <li>• Community adaptation and planning.</li> <li>• Joining up with wider community empowerment activity.</li> <li>• Raising awareness and creating capacity for change.</li> </ul> <p>Section 3.12 states “It is important that communities are closely engaged in any discussions about opportunities and options associated with adapting to coastal change. In order for this to happen it is important to recognise that (1) leading and being involved in community change initiatives is a skilled task and requires experience and support; and (2) similarly, that leading or being involved in these initiatives also requires appropriate resources.</p> <ul style="list-style-type: none"> <li>• The spatial planning system’s role in responding to coastal change</li> </ul> <p>Section 3.13 states “Coastal change, as exacerbated by climate change, has implications for development on the coast and is therefore a major consideration for spatial planning in shaping places that are resilient to climate change. Positive planning has an important role in helping communities to manage risk and adapt to an ever changing coastline.”</p> <p>Section 3.14 states “the existing arrangements for engagement surrounding the preparation of Local Development Frameworks and Sustainable Community Strategies, as opportunities for communities to consider future adaptation needs and options.”</p> <ul style="list-style-type: none"> <li>• New planning policy on coastal change (i.e. PPS25 supplement).</li> </ul> <p>Section 4 deals with managing change, covering:</p> <ul style="list-style-type: none"> <li>• Regeneration</li> </ul> <p>Section 4.5 states “in planning for and managing change with and for the community, there are also potential connections to be made with wider regeneration activities.” This refers to the Government publication <i>Transforming Places, Changing Lives – Taking Forward the Regeneration Framework (May 2009)</i>. “The Regeneration Framework points out that regeneration activity at local and regional level should take account of both a changing climate and future climate risks and opportunities which could, for example, include planning for coastal change adaptation. This will help to maximise the future benefits of regeneration investment, with a priority focus on improving economic outcomes. “</p> <ul style="list-style-type: none"> <li>• Local buildings and properties</li> <li>• Homes</li> <li>• Business (NB: section 4.27 to 4.29 highlight existing resources available to businesses)</li> <li>• Local and community infrastructure</li> </ul> <p>Section 4.30 states “coastal communities, like any other community, rely on a variety of infrastructure assets to support and maintain them.... When planning new infrastructure, coastal change risks will need to be taken into account.”</p> <ul style="list-style-type: none"> <li>• The natural environment</li> <li>• The historic environment</li> </ul> <p>Section 4.45 identifies three potential adaptation responses: (1) exploring other ways to conserve the asset in situ (e.g. by making it more resilient to flooding); (2) recording the asset to secure the evidence it represents before it is eroded or inundated, and publishing the advances in understanding this brings; and (3) in exceptional circumstances, relocating the asset to a more sustainable location.</p>
1.39	Technical Advice Note 14: Coastal Planning	Welsh Assembly Government	Available online at: <a href="http://wales.gov.uk/topics/planning/policy/tans/tan14/?skip=1&amp;lang=en">http://wales.gov.uk/topics/planning/policy/tans/tan14/?skip=1&amp;lang=en</a> Date access: 13/12/2012	<p>Advice on key issues relating to planning for the coastal zone, including recreation and heritage and shoreline management plans. The guidance is current and should be taken into account by Welsh Local Planning Authorities in the development of Development Plans. It may also be a material consideration of individual planning applications and appeals.</p> <p>Section 2 of the TAN defines the coastal zone of Wales in practical and character terms. Para. 4 confirms that it is the responsibility of each local authority to ‘consider and define the coastal zone in its area’ – this should be done in consultation with neighbouring local authorities.</p> <p>Para. 5 defines that development below the water line are generally outside of planning control and should be controlled related to their activity.</p> <p>Integration with hinterland should be fully considered.</p> <p>Section 3 defines the key issues related to coastal planning, as follows:</p> <ul style="list-style-type: none"> <li>• <i>Proposals for Development</i> - Needs to consider the nature of ground conditions and physical processes and potential for remedial/defences, impact on physical and biological processes, potential affects on mineral and water resources and agriculture, as well as visual impacts.</li> <li>• <i>Nature and Landscape Conservation</i> - The role of the physical and biological processes on coast, effects of statutory designations and policy and the importance of Marine Nature Reserves, candidate marine SACs, SPA and Ramsar Sites (born in mind).</li> <li>• <i>Recreation</i> - Impact of physical development or processes on creating, maintaining or altering recreation resources (e.g. beaches and sand dunes) and effects of recreation of coastal processes.</li> </ul>

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<p>The TAN identifies coastal areas likely to be suitable for development, and those subject to significant constraints or considered unsuitable should be defined. Development plan policies should not provide for development on the coast which does not require a coastal location. The degree of risk involved will have to be carefully considered and policies will specifically be needed to control or restrict development in: low-lying coastal areas; on land close to eroding cliffs or other eroding coastlines, and on land in coastal areas subject to instability.</p> <p>TAN sets out how coastal planning should form part of a the development plan and adopting coastal planning policy. Figure 3 sets out appropriate development plan and development control responses to different coastal issues, processes or situations. Figure 4 sets out a selection of key issues associated with earth sciences in different coastal environments.</p> <p>Sets out importance of heritage coasts and non-statutory designations.</p> <p>Identifies how SMPs should be used and their implementation.</p>

Consultation draft



## B.2 Existing Guidance

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
2.1	Shoreline management plan guidance; Volume 1: Aims and requirements; March 2006	Department for Environment, Food and Rural Affairs (Defra)	Available online at: <a href="http://archive.defra.gov.uk/environment/flooding/document/s/policy/guidance/smpguide/smpgv01.pdf">http://archive.defra.gov.uk/environment/flooding/document/s/policy/guidance/smpguide/smpgv01.pdf</a> . Date accessed: 22/10/2012	Defines the approach to developing Shoreline Management Plans (refer to Shoreline Management Plans in the 'Evidence' section).
2.2	Coastal and Estuarine Managed Realignment – design issues. Project FD2413. Report produced for Defra/Environment Agency by CIRIA under the Flood and Coastal Erosion Risk Management Research and Development Programme	Defra/Environment Agency	Available online at: <a href="http://www.ciria.org/service/AM/ContentManagerNet/Search/SearchRedirect.aspx?Section=Search1&amp;content=product_excerpts&amp;template=/contentmanager/contentdisplay.aspx&amp;contentfileid=1421">http://www.ciria.org/service/AM/ContentManagerNet/Search/SearchRedirect.aspx?Section=Search1&amp;content=product_excerpts&amp;template=/contentmanager/contentdisplay.aspx&amp;contentfileid=1421</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>Provides guidance on how to identify suitable sites for implementing managed realignment schemes. It goes on to discuss approaches to designing such schemes and the importance of communication with communities and stakeholders in doing so (Section 1.3.4 identifies common reasons for initial community opposition to Managed Realignment that need to be addressed through this communication).</li> <li>Focus is only on the “deliberate process of altering flood defences to allow flooding of a presently defended area. Managing this process helps to avoid uncertain outcomes and negative impacts and to maximise the potential benefits.”</li> <li>Identifies that Managed Realignment can also refer to additional coastal management process e.g. controlled retreat of a cliffed coastline, but these are outside the scope of this publication.</li> </ul>
2.3	National Planning Policy Framework – Flood and Coastal Change Risk Management Quick guide 364_12 Issued 08/05/2012	Environment Agency	Available from: <a href="http://publications.environment-agency.gov.uk/PDF/GEHO0512BUPI-E-E.pdf">http://publications.environment-agency.gov.uk/PDF/GEHO0512BUPI-E-E.pdf</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>Document summarises the pertinent details of the NPPF and its implications for FCERM.</li> <li>Pages 2 and 3 state that use of the PPS25 guidance should continue to be used in addition to the NPPF.</li> <li>Page 4 states “use the evidence base to identify land that needs to be safeguarded from development. This includes land needed to meet <u>Regional Habitats Creation Programme</u> targets, green infrastructure and sustainable drainage systems (SuDS). Local Plans should help deliver infrastructure, so they should contain policies that help us deliver the relevant CFMP, SMP or specific flood risk schemes. LPAs should liaise with the Lead Local Flood Authority (LLFA) to identify the potential for planning to reduce and manage flooding from all sources. “</li> <li>Page 5 states that the Environment Agency should “work with LPAs to identify where infrastructure improvement is required to deliver sustainable development. We should use proposals for Community Infrastructure Levy (CIL) charging schedules to secure funding for FCERM schemes that are unlikely to be wholly funded through Central or Local government funds”.</li> </ul>
2.4	Adapting to Climate Change: Advice for Flood and Coastal Erosion Risk Management Authorities, 1 September 2011	Environment Agency	Available online at: <a href="http://publications.environment-agency.gov.uk/dispay.php?name=GEHO0711BTZU-E-E">http://publications.environment-agency.gov.uk/dispay.php?name=GEHO0711BTZU-E-E</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>Supplementary guidance to FCERM-AG (<i>see REF #2.6</i>).</li> <li>Provides climate change factors that are to be applied in FCERM appraisal and decision making processes, including sea level rise and extreme rainfall allowances.</li> </ul>
2.5	Managing the environment in a changing climate: A report to Defra and the Welsh Assembly Government in response to a direction to report under the Climate Change Act 2008. November 2010	Environment Agency	Available online at: <a href="http://www.environment-agency.gov.uk/research/library/publications/130528.aspx">http://www.environment-agency.gov.uk/research/library/publications/130528.aspx</a> . Date accessed: 22/10/2012	<p>Executive Summary pg 2 defines key actions the Environment Agency has set itself for managing climate change risks. These include:</p> <ul style="list-style-type: none"> <li>Working with a wide range of partners to ensure that a sound evidence base underpins decisions and advice.</li> <li>Ensuring that climate change is considered in everything the EA does. Because of the inherent uncertainties in this work the EA take a flexible approach wherever possible so that plans can be adjusted as improved evidence becomes available. For example, the EAs approach to the management of flood risk incorporates the flexibility to adapt to future changes in a timely way but not prematurely.</li> </ul>
2.6	Flood and Coastal Erosion Risk Management Appraisal Guidance (FCERM-AG). March 2010	Environment Agency	Available online at: <a href="http://www.environment-agency.gov.uk/research/planning/116705.aspx">http://www.environment-agency.gov.uk/research/planning/116705.aspx</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>Technical guidance aimed at those who undertake and review appraisals for delivering FCERM solutions.</li> <li>All FCERM projects in England must be delivered in accordance with this guidance.</li> <li>The key principles of the FCERM-AG include: <ul style="list-style-type: none"> <li>Identifying and assessing sustainable, adaptable and flexible solutions that work with natural processes.</li> <li>Understand how change (including climate change) could affect future flood and erosion risk and how to identify and appraise options that enable adaptation to changing risk.</li> </ul> </li> </ul>
2.7	CIRIA Beach Management Manual	CIRIA	Available online at: <a href="http://www.ciria.org/service/knowledgebase/AM/ContentManagerNet/ContentDisplay.aspx?Section=knowledgebase&amp;ContentID=17714">http://www.ciria.org/service/knowledgebase/AM/ContentManagerNet/ContentDisplay.aspx?Section=knowledgebase&amp;ContentID=17714</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>Chapter 16 focuses on adaptive management approaches to beach and dune management.</li> <li>Section 16.1 states that “adaptive management advocates a cyclical approach, based on managing with current knowledge but building rigorous assessment, evaluation and improvement (including better information if it is needed) into a continuous process. The approach seeks to avoid the management paralysis that results from the perception of insufficient information, by making decisions on the basis of what you know, while acknowledging (and doing something about) the limitations of the approach.</li> <li>Page 838 states “Adaptive management solutions usually introduce small incremental changes to the system. These may include minor realignment, movement of materials, gradual changes to the geometry or removal of sediment control systems. Modification of existing structures or systems to change performance, such as groynes, may often be used in such an approach. Dynamic solutions such as movement and addition of beach material,</li> </ul>

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<p>beach realignment and abandonment of defences may all be considered in the context of adaptive management. Modification of existing systems to extend their life is often a target. Attempts to reduce or increase transport rates and change plan shape alignment may also feature in adaptive solutions.</p> <ul style="list-style-type: none"> <li>Page 838 also identifies that continuing local consultation throughout the adaptive management programme is important, as there is often uncertainty in the results.</li> <li>Sections 16.2 to 16.6 provide a number of different adaptive management examples, including case studies.</li> </ul>
2.8	CIRIA 'Flood Resiliency' advice sheets, May 2003	CIRIA	<a href="http://www.ciria.com/flooding/advice_sheets.html">http://www.ciria.com/flooding/advice_sheets.html</a> . Date accessed: 22/10/2012	<p>A series of 8 advice sheets for home and business property owners/developers on steps that can be taken to improve the flood resistance/resiliency of properties.</p> <ul style="list-style-type: none"> <li>Advice Sheet 1 – Identifying Flood Risk</li> <li>Advice Sheet 2 – How does floodwater enter a house above ground?</li> <li>Advice Sheet 3 – How does floodwater enter a house below ground?</li> <li>Advice Sheet 4 – Flood-resilient walls</li> <li>Advice Sheet 5 – Flood-resilient windows and doors</li> <li>Advice Sheet 6 – Flood-resilient floors</li> <li>Advice Sheet 7 – Flood-resilient services</li> <li>Advice Sheet 8 – Flood-resilient sewers and drains</li> </ul>
2.9	Cliff Instability and Erosion Management in Great Britain: A Good Practice Guide	Halcrow	Hard copy only (copy held by Halcrow)	<p>Guidance provides overview of coastal instability risks and how this is managed in the UK at a national and local level.</p> <p>Chapter 4 provides guidance on best practice for investigating coastal land instability in a robust way such that the risks of coastal land instability are adequately understood and reported as part of planning proposals.</p> <p>Chapter 5 sets out best practice guidance on how to manage coastal instability and erosion, with four key components for Landslide Management Strategies:</p> <ul style="list-style-type: none"> <li>Planning controls to avoid risk</li> <li>Building controls to reduce vulnerability</li> <li>Engineering measures to reduce likelihood of instability/erosion events occurring</li> <li>Monitoring to improve awareness of risks.</li> </ul> <p>Chapter 5 also contains advice for land/property owners on what activities they should and should not be undertaking in areas at risk of coastal instability.</p> <p>Chapter 6 provides case studies that include how the risk of coastal instability and erosion has been dealt with at 1. North Yorkshire Coastline; 2. Ventnor Undercliff, Isle of Wight; 3. West Dorset Coastline (Lyme Regis/Charmouth); 4. Fairlight, East Sussex.</p>
2.10	Translating Shoreline Management Plans into Spatial Plans Volume 1	The Planning Co-operative (for the Environment Agency)	<p>Available online at: <a href="http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98f72d550b.r19.cf3.rackcdn.com/geho0410bslc-e-e.pdf">http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98f72d550b.r19.cf3.rackcdn.com/geho0410bslc-e-e.pdf</a> and <a href="http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98f72d550b.r19.cf3.rackcdn.com/geho0410bsld-e-e.pdf">http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98f72d550b.r19.cf3.rackcdn.com/geho0410bsld-e-e.pdf</a>. Date accessed: 22/10/2012</p>	<p>Appendix 1 sets out a Summary Action Checklist for Spatial Planners in order to promote improved linkages between Shoreline Management Plans and Local Development Plans:</p> <ul style="list-style-type: none"> <li>Be aware of, and actively participate in, the production of SMPs (and related coastal studies and strategies)</li> <li>Consider the coastal management aspects of your Multi- or Local Area Agreement</li> <li>Designate “Areas of Coastal Change” in response to SMP recommendations and devise policies and strategies to manage future development in these areas in the light of predicted changes</li> <li>Include “Areas of Coastal Change” as an entry on the local land charges register</li> <li>Devise policies for the “roll-back” and / or relocation of existing development threatened by coastal erosion and rising sea-levels</li> <li>Consider new ways of regenerating coastal communities threatened by coastal change avoiding inappropriate / vulnerable development (such as new housing)</li> <li>Consider the use of Area Action Plans as a means of managing future development in coastal communities threatened by coastal change</li> <li>Identify “coastal champions” at (Leader Board and Cabinet) Member level to promote linkages and aid understanding between SMPs and Development Plans</li> <li>Appoint a “Coastal Development Officer” possibly in conjunction with other adjoining coastal authorities)</li> <li>Consider utilising the Community Infrastructure Levy as a means of funding coastal regeneration and “Coastal Development Officer” posts</li> <li>Consult appropriate bodies (such as The Environment Agency) on all development proposals within “Areas of Coastal Change”</li> <li>Bring to the attention of SMP authors the helpful Commentary - ‘Making More of a Splash!: Increasing the influence of Shoreline Management Plans on Local Government Development Plans</li> </ul> <p>Appendix 1 goes on to provide specific guidance for spatial planners in coastal areas. Key points from this include:</p> <ul style="list-style-type: none"> <li>Coastal erosion, flooding and land instability are matters that are familiar to spatial planners. They are also often important issues of community concern in coastal areas, reflected in Sustainable Community Strategies (SCS) and Local Area Agreements (LAA). (The National Indicator Set for LAAs includes indicators for climate change adaptation (NI188) and flood and coastal erosion management (NI189).)</li> <li>Development Plans that ignore SMPs run the risk of being found unsound at Examination.</li> <li>Development Plan policies will need to address the risks and issues raised by their regional SMP within the context of national planning policies and</li> </ul>

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				<p>related evidence. Plan-makers need to understand and tackle the SMP's key spatial implications. The regional and local spatial planning responses to SMPs need to be distinctive and tailored to the places and challenges concerned. However, in general Development Plans should provide clear, positive policies to help deliver sustainable outcomes for coastal communities e.g.</p> <ul style="list-style-type: none"> <li>- Promoting appropriate development wherever possible;</li> <li>- Avoiding development in areas of unacceptable risk, and;</li> <li>- Facilitating relocation (or 'roll-back') of existing development where necessary.</li> </ul> <ul style="list-style-type: none"> <li>• Policy development will require successful and robust engagement with coastal communities to explore the nature of coastal risks and the implications of certain options. In some cases, a package of new measures/initiatives may be required to achieve the desired outcomes of preferred policy approaches, beyond just development management. This provides an opportunity for innovative implementation techniques e.g. Coastal Development Officer posts. Policies to manage coastal change will also need monitoring arrangements to gauge their effectiveness, possibly linked to your LAA.</li> </ul>
2.11	Temporary and Demountable Flood Protection Guide. Flood and Coastal Erosion Risk Management R&D Programme Project SC080019, August 2011	Defra/Environment Agency	Available online at: <a href="http://evidence.environment-agency.gov.uk/FCERM/Libraries/FCERM_Project_Documents/flood_protection_guide.sflb.ashx">http://evidence.environment-agency.gov.uk/FCERM/Libraries/FCERM_Project_Documents/flood_protection_guide.sflb.ashx</a> . Date accessed: 22/10/2012	<p>The guide describes the range of temporary and demountable flood protection systems currently available and provides guidance for choosing the most appropriate option in different contexts or against different risk criteria. It also provides guidance on planning, management of operation and reliability. The guide is intended for use by:</p> <ul style="list-style-type: none"> <li>• Flood risk management practitioners and advisers, such as asset managers, emergency planners and responders, designers of flood alleviation schemes and local community groups;</li> <li>• Developers, manufacturers and other organisations involved with the development or improvement of temporary and demountable flood protection systems.</li> </ul> <p>The guide focuses on the whole life cycle of the design and management of the systems and associated products to ensure that the systems used are effective and reliable. This is underpinned by an understanding of the associated risk and performance issues, how risk can be minimised and performance enhanced.</p>
2.12	Improving the Flood Performance of New Buildings: Flood Resilient Construction. May 2007.	CIRIA (for DCLG, Defra, Environment Agency)	Available online at: <a href="http://www.planningportal.gov.uk/uploads/br/flood_performance.pdf">http://www.planningportal.gov.uk/uploads/br/flood_performance.pdf</a> . Date accessed: 22/10/2012	<p>From Executive Summary &gt;&gt; "provides guidance to developers and designers on how to improve the resilience of new properties in low or residual flood risk areas by the use of suitable materials and construction details. These approaches are appropriate for areas where the probability of flooding is low (e.g. flood zone 1 as defined by PPS 25) or areas where flood risk management or mitigation measures have been put in place. The guidance will also be useful to planners, building control officers and loss adjusters. Specifically this guidance document provides:</p> <ul style="list-style-type: none"> <li>• Practical and easy-to-use guidance on the design and specification of new buildings (primarily housing) in low or residual flood risk areas in order to reduce the impacts of flooding</li> <li>• Recommendations for the construction of flood resistant and resilient buildings."</li> </ul> <p>Based around the following hierarchy of building and site design (aligned to the PPS25 sequential testing:</p> <ul style="list-style-type: none"> <li>• Flood avoidance: constructing a building and its surrounds (at site level) in such a way to avoid it being flooded (e.g. by raising it above flood level, re-siting outside flood risk area etc)</li> <li>• Flood resistance: constructing a building in such a way to prevent floodwater entering the building and damaging its fabric.</li> <li>• Flood resilience: constructing a building in such a way that although flood water may enter the building its impact is reduced (i.e. no permanent damage is caused, structural integrity is maintained and drying and cleaning are facilitated).</li> <li>• Flood repairable: constructing a building in such a way that although flood water enters a building, elements that are damaged by flood water can be easily repaired or replaced. This is also a form of flood resilience.</li> </ul> <p><i>Note: see also CIRIA flood resiliency advice sheets (refer to ref #2.8).</i></p>
2.13	Identifying Adaptation Options	UKCIP	Available online at: <a href="http://www.ukcip.org.uk/wordpress/wp-content/PDFs/ID_Adapt_options.pdf">http://www.ukcip.org.uk/wordpress/wp-content/PDFs/ID_Adapt_options.pdf</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>• Provides guidance on the identification and selection of adaptation options that can be used to respond to climate risks.</li> <li>• This guidance note explores the nature and characteristics of adaptation in the context of climate risk and provides further background information and examples of adaptation strategies and options. It also presents a simple adaptation checklist which identifies certain key principles that our experience suggests are synonymous with good adaptation decisions.</li> <li>• This guidance note is aimed at supporting decision and policy makers who are faced with identifying and appraising the effectiveness of adaptation measures.</li> <li>• Section 2/Appendix 2 identify key principles that have led to good adaptation based upon review of a number of case studies (details of which are provided in Appendix 1). These principles are: <ul style="list-style-type: none"> <li>○ <b>Work in partnership</b> – identify and engage your community and ensure they are well informed.</li> <li>○ <b>Understand risks and thresholds</b>, including associated uncertainties.</li> <li>○ <b>Frame and communicate SMART objectives/outcomes</b> before starting out.</li> <li>○ <b>Manage climate and non-climate risks using a balanced approach</b> – assess and implement your approach to adaptation in the context of overall sustainability and development objectives that includes managing climate and non-climate risks.</li> <li>○ <b>Focus on actions to manage priority climate risks</b> – identify key climate risks and opportunities and focus on actions to manage these.</li> <li>○ <b>Address risks associated with today's climate variability and extremes</b> as a starting point towards taking anticipatory actions to address risks and opportunities associated with longer-term climate change.</li> </ul> </li> </ul>



REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<ul style="list-style-type: none"> <li>○ <b>Use adaptive management to cope with uncertainty</b> – recognize the value of a phased approach to cope with uncertainty.</li> <li>○ <b>Recognise the value of no/low regrets and win-win adaptation options</b> in terms of cost-effectiveness and multiple benefits.</li> <li>○ <b>Avoid actions that foreclose or limit future adaptations</b> or restrict adaptive actions of others.</li> <li>○ <b>Review the continued effectiveness of adaptation decisions</b> by adopting a continuous improvement approach that also includes monitoring and re-evaluations of risks.</li> </ul> <ul style="list-style-type: none"> <li>• Section 5 presents a framework for developing adaptation plans based around adaptation responses and decisions being characterized as measures and strategies that contribute either to: <ul style="list-style-type: none"> <li>○ <b>Building adaptive capacity</b> – creating the information (research, data collecting and monitoring, awareness raising), supportive social structures (organisational development, working in partnership, institutions), and supportive governance (regulations, legislations, and guidance) that are needed as a foundation for delivering adaptation actions; or</li> <li>○ <b>Delivering adaptation actions</b> – actions that help to reduce vulnerability to climate risks, or to exploit opportunities.</li> </ul> </li> <li>• Adaptation responses are targeted at: <ul style="list-style-type: none"> <li>○ Accepting the impacts and bearing losses.</li> <li>○ Preventing effects or reducing risks.</li> <li>○ Offsetting losses by spreading or sharing risks or losses.</li> <li>○ Exploiting positive opportunities.</li> </ul> </li> <li>• Section 6 states that when it comes to identifying appropriate adaptation measures, a prudent approach begins by recognising that there are several viable options that result in effective adaptation yet which minimise the risks associated with implementation (and are cost-effective) even in the face of associated uncertainties. These options are normally referred to as no-regrets, low regrets, win-win and flexible/adaptive management.</li> <li>• <b>Appendix 1 presents both Generic and Specific examples</b> of adaptation option types based around the two types of adaptation responses as follows: <ul style="list-style-type: none"> <li>○ Building Adaptive Capacity <ul style="list-style-type: none"> <li>▪ Research;</li> <li>▪ Data collecting and monitoring; Changing or developing regulations, standards, codes, plans, policy or programmes;</li> <li>▪ Internal organizational development;</li> <li>▪ Awareness raising;</li> <li>▪ Working in partnership.</li> </ul> </li> <li>○ Delivering Adaptation Actions <ul style="list-style-type: none"> <li>▪ Living with and bearing losses or risks;</li> <li>▪ Sharing responsibility for losses or risks;</li> <li>▪ Preventing effects or avoiding/reducing risks;</li> <li>▪ Exploiting opportunities.</li> </ul> </li> </ul> </li> </ul>
2.14	A Local Climate Impacts Profile: How to do an LCIP	UKCIP	Available online at: <a href="http://www.ukcip.org.uk/wordpress/wp-content/PDFs/LCLIP_guidance2009.pdf">http://www.ukcip.org.uk/wordpress/wp-content/PDFs/LCLIP_guidance2009.pdf</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>• The purpose of preparing a Local Climate Impacts Profile (LCLIP) is to raise awareness of current vulnerability to weather events in a particular locality. Understanding current vulnerability is an appropriate starting point for the preparation of an adaptation strategy.</li> <li>• This guidance sets out the main stages that should be taken in developing an LCIP, including what data is needed, how to go about developing an LCIP and types of outputs that can be delivered.</li> </ul>
2.15	Coastal Defence and the Historic Environment	English Heritage	Available online at: <a href="http://www.english-heritage.org.uk/content/publications/publicationsNew/guidelines-standards/coastal-defence-and-the-historic-environment/coastaldefenceeh.pdf">http://www.english-heritage.org.uk/content/publications/publicationsNew/guidelines-standards/coastal-defence-and-the-historic-environment/coastaldefenceeh.pdf</a> . Date accessed: 29/10/2012	<ul style="list-style-type: none"> <li>• Provides advice on the implications of coastal and flood defence for the historic environment to those involved in coastal planning and coastal defence and to local authority historic environment officers;</li> <li>• Sets out how the protection of historic remains can be fully integrated within the shoreline management planning process; and</li> <li>• Considers in detail the implications for the historic environment of the increasing number of managed realignment schemes likely to arise from a more sustainable coastal defence policy and provides guidance on appropriate responses (Section 5 deals with this specifically).</li> <li>• Section 6 provides an outline protocol for archaeological evaluation and mitigation in the coastal zone.</li> <li>• Section 7 provides a number of case studies.</li> <li>• NOTE: this document is in the process of being updated to reflect recent changes in planning policy – this document will be re-published as <i>Coastal Change and the Historic Environment</i>.</li> </ul>
2.16	Flooding and Historic Buildings	English Heritage	Available online at: <a href="http://www.english-heritage.org.uk/content/publications/publicationsNew/guidelines-standards/flooding-and-historic-buildings/flooding-and-historic-buildings-2nd-">http://www.english-heritage.org.uk/content/publications/publicationsNew/guidelines-standards/flooding-and-historic-buildings/flooding-and-historic-buildings-2nd-</a>	<ul style="list-style-type: none"> <li>• This guidance is designed to assist those who live in, own or manage historic buildings that are threatened by flooding. Advice is provided on preventative measures as well as on the inspection, conservation and repair of historic buildings after flooding.</li> </ul>

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
			ed.pdf. Date accessed: 29/10/2012	
2.17	Managing adaptation: linking theory and practice	UKCIP	Available on line at: <a href="http://www.ukcip.org.uk/wordpress/wp-content/PDFs/UKCIP_Managing_adaptation.pdf">http://www.ukcip.org.uk/wordpress/wp-content/PDFs/UKCIP_Managing_adaptation.pdf</a> . Date accessed:31/10/2012	<p>This guidance aims to help organisations with how to initiate their climate change risk assessments in a way that will enable them to go beyond raising awareness, to undertaking assessments that will lead to the implementation of practical adaptation actions and decisions. It does this by discussing key issues that should be considered when making the transition from awareness to action.</p> <p>It is aimed specifically at those undertaking a systematic climate change risk based assessment as part of an adaptation work programme and emphasises, in particular, the importance of the scoping phase of assessment, as some of the most important and difficult decisions and judgements in adaptation planning are made during the scoping phase, and that these can profoundly influence the depth and breadth of an assessment and the mechanisms and players involved in subsequent work. If this process is not actively and explicitly engaged with, tacit assumptions can be inadvertently made which strongly influence the outcomes, or create path dependency which limits the flexibility of adaptive planning.</p> <p>The key stages in developing, implementing and managing adaptation are defined as:</p> <ol style="list-style-type: none"> <li>1. Identify the problem and objectives</li> <li>2. Establish your risk tolerance level and decision-making criteria</li> <li>3. Identify and assess your risks</li> <li>4. Identify a range of adaptation options</li> <li>5. Appraise your adaptation options</li> <li>6. Make a decision</li> <li>7. Implement the decision</li> <li>8. Monitor the decision</li> </ol>
2.18	Guidance on Water and Adaptation to Climate Change	United Nations Economic Commission for Europe	Available online at: <a href="http://www.unece.org/fileadmin/DAM/env/water/publications/documents/Guidance_water_climate.pdf">http://www.unece.org/fileadmin/DAM/env/water/publications/documents/Guidance_water_climate.pdf</a> . Date accessed: 31/10/2012	<p>Key messages in the guidance are:</p> <ul style="list-style-type: none"> <li>• Adaptation needs to be flexible. This is required by the uncertainties which exist about the direction and nature of change the climate is causing. The measures taken should be capable of changing in step. Win-win, no-regret and low-regret measures should have priority. Another approach to uncertainty is to reduce the current sources of vulnerability, for example by increasing resilience and the capacity for adaptation. Ecosystems provide a wide range of services, including climate and flood regulation, so increasing their resilience is vital.</li> <li>• The process of developing and implementing adaptation measures should build on learning-by-doing. The steps taken may not achieve the desired results, or they may have unexpected side-effects, while the effects of climate change may also run counter to expectations. This again highlights the need for flexibility, and for continuous evaluation to see whether the actual results really match those desired. Only in this way can strategy changes be made in good time.</li> <li>• Effective adaptation to climate change requires a cross-sectoral approach in order to prevent possible conflicts between different sectors and to consider trade-offs and synergies between adaptation and mitigation measures.</li> <li>• Barriers to adaptation in the legal, institutional and policy spheres must be removed. Legislation should be developed flexibly, to be able to cope with different possible climate impacts.</li> <li>• Effective adaptation strategies are a mix of structural and non-structural, regulatory and economic instruments and measures, education and awareness-raising to tackle the short-, medium- and long term impacts of climate change. In many cases no single measure can fully address the effects of climate change. Successful adaptation strategies therefore combine a variety of measures that target different groups and timescales.</li> <li>• Any adaptation strategy should include measures in all the steps of the adaptation chain: prevention, improving resilience, preparation, reaction and recovery. Risk management should be made the priority, not crisis management.</li> <li>• Adaptation measures should strive to be cost-effective, environmentally sustainable, culturally compatible and socially acceptable. Prioritization of measures should be based on the results of vulnerability assessments, costs and benefits assessments, as well as on development objectives, stakeholder considerations and the resources available.</li> <li>• Adaptation may be costly, but it is much more cost-effective to start it now, because costs will be much higher once the effects of climate change are irreversible. Paying for adaptation should be done by a mix of public and private funding.</li> <li>• Stakeholder participation is crucial for all steps of the development and implementation of adaptation strategies and measures. From identifying information needs to vulnerability assessment, planning and choosing priority adaptation measures, the knowledge, capacity and views of everyone involved are crucial to ensure sound, effective and sustainable adaptation. Including utilities managers is also crucial, to ensure that the water supply and sewerage services continue to function under changing conditions.</li> <li>• Education, capacity-building and communication are imperative for effective adaptation. Ignorance or lack of awareness can be important causes of vulnerability. Working to ensure that both water professionals and society-at-large are well informed about causes and consequences of climate change will enhance their ability to cope and can also help to prevent unsuitable adaptation.</li> <li>• Climate change and the need for adaptation is also an opportunity for innovation and new technologies.</li> </ul>
2.19	Common Implementation Strategy for the Water Framework Directive	European Commission	Available online at: <a href="http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework">http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework</a>	<p>Section 6 deals specifically with Flood Risk Management and Adaptation. Within this, it sets out a number of guiding principles for adapting FRM, including:</p> <ul style="list-style-type: none"> <li>• Start adapting flood risk management to potential climate change as soon as possible, when information is robust enough, since full certainty will never</li> </ul>

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
	(2000/60/EC). Guidance Document No. 24: River Basin Management in a Changing Climate. Technical Report 2009 040		rk_directive/guidance_documents/management_finalpdf/_EN_1.0_&a=d. Date accessed: 31/10/2012	<p>be the case.</p> <ul style="list-style-type: none"> <li>• Understand and anticipate as far as possible climate change impact on flood patterns</li> <li>• Use best available information and data.</li> <li>• Understand and anticipate as far as possible increased exposure, vulnerability, and flood risk due to climate change, for establishing areas of potential significant flood risk.</li> <li>• When identifying the different flood scenarios, incorporate information on climate change</li> <li>• Present uncertainties surrounding climate change in maps transparently.</li> <li>• Incorporate climate change in setting flood risk management objectives</li> <li>• Ensure coordination at catchment level.</li> <li>• Include climate change scenarios in ongoing initiatives and in planning processes.</li> <li>• Favour options that are robust to the uncertainty in climate projections</li> <li>• Take account of a long term perspective in defining flood risk measures (e.g. with respect to land use, structural measures efficiency, protection of buildings, critical infrastructure, etc).</li> <li>• Assess other climate change adaptation (and even mitigation) measures on their impact on flood risks</li> </ul>
2.20	Accounting for the Effects of Climate change: Supplementary Green Book Guidance. June 2009	HM Treasury and Defra	Available online at: <a href="http://archive.defra.gov.uk/environment/climate/documents/adaptation-guidance.pdf">http://archive.defra.gov.uk/environment/climate/documents/adaptation-guidance.pdf</a> . Date accessed: 04/12/2012	<p>Section 2.2 of this guidance states that adaptation measures should be aimed at adjusting an activity to account for the effects of climate change, or at addressing market failures that provide barriers to individuals and organizations adapting in a socially optimal way.</p> <p>This section 2.2. goes on to state the principles that good adaptation measures should follow, namely that well-designed adaptation measures should be effective, efficient and equitable. It also states that adaptation measures should be flexible, and identifies a number of ways in which uncertainty can be dealt with.</p> <p>Section 2.2.3 identifies some potential adaptation options (but is clear that these are not an exclusive list and other options should be considered). These options are:</p> <ul style="list-style-type: none"> <li>• Helping others adapt in the right way by: <ul style="list-style-type: none"> <li>◦ Setting the right underlying framework for effective adaptation.</li> <li>◦ Creating information needed to make effective decisions.</li> </ul> </li> <li>• Delivering adaptation actions by: <ul style="list-style-type: none"> <li>◦ Bearing losses and managing impacts.</li> <li>◦ Sharing risks.</li> <li>◦ Preventing losses or reducing consequences.</li> <li>◦ Exploiting opportunities.</li> </ul> </li> </ul> <p>Section 3 sets out a process for assessing and evaluating adaptation options using a 'Real Options Approach'.</p>

### B.3 Evidence and Examples

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
3.1	Defra webpage - Coastal Change Pathfinders	Department for Environment, Food and Rural Affairs (Defra)	Available online at: <a href="http://www.defra.gov.uk/environment/flooding/coastal-change-pathfinders/">http://www.defra.gov.uk/environment/flooding/coastal-change-pathfinders/</a> . Date accessed: 22/10/2012	Gives an overview of the 15 Coastal Change Pathfinder projects completed in 2011.
3.2	Coastal Pathfinder Evaluation: An Assessment of the Five Largest Pathfinder Projects. Final Report, November 2011	Regeneris Consulting for Defra	Available from: <a href="http://www.defra.gov.uk/publications/tag/flooding/">http://www.defra.gov.uk/publications/tag/flooding/</a> . Date accessed: 22/10/2012	Provides in-depth analysis of the performance of adaptation measures for the five largest Coastal Change Pathfinder projects (much of which is summarized in the Coastal Change Pathfinder Review Final Report, January 2012; <i>see Ref #3.3</i> ).
3.3	Coastal Change Pathfinder Review, Final Report, January 2012	Department for Environment, Food and Rural Affairs (Defra)	Available from: <a href="http://www.defra.gov.uk/publications/tag/flooding/">http://www.defra.gov.uk/publications/tag/flooding/</a> . Date accessed: 22/10/2012	<p>Working in partnership with their communities, the Pathfinders trialled new and innovative approaches to planning for and managing change. The programme objectives were to (a) improve understanding of how coastal communities can adapt to coastal change and what the costs and benefits of different approaches are (b) provide practical lessons and examples able to be shared with other practitioners. All the projects involved community engagement programmes and developed adaptation management plans alongside the implementation of site specific adaptive solutions.</p> <p>Exec Summary, Section 6 identifies that the pathfinder projects delivered a wide range of benefits, felt by individuals and the wider communities, as well as by local authorities and partner organisations, including:</p> <ul style="list-style-type: none"> <li>• Identification and delivery of adaptive solutions <ul style="list-style-type: none"> <li>○ Rollback/removal of properties/assets at risk – carried out in East Riding, North Norfolk and Tendring, with plans to in Scarborough and Waveney. Ideas include (1) consistent definition of ‘imminent risk’ to allow most vulnerable residents to be prioritized under East Riding’s Enhance Assistance Programme (a relocation and adaptation support package); (2) Special rights to build if property is affected by coastal erosion is demonstrated by Waveney DC planning policy.</li> <li>○ Delivery of other adaptive solutions – e.g. reinstatement of Selsey beach ramp (Chichester); and construction of boardwalk over sand dunes (Sefton).</li> <li>○ Adaptation planning – e.g. adaptation plan for Beaulieu to Calshot (Hampshire); and improved plans for implementation of targeted evacuation in the event of coastal inundation + promoting sustainable design solutions that incorporate flood resiliency (Lincolnshire).</li> </ul> </li> <li>• Lessons in adaptation that can inform future policy – e.g. rollback and buy and lease back (East Riding and North Norfolk); role of the planning system (North Norfolk and Scratby); and community engagement.</li> <li>• Increased knowledge and understanding of coastal change – e.g. by local communities and local authorities.</li> <li>• Development of tools and techniques for raising awareness of coastal change – e.g. scenario planning; visualisation; and historical timelines.</li> <li>• Other benefits, e.g. in relation to local amenities, future tourism and the wider economy.</li> </ul> <p>The Selsey Coastal Trust model is identified as a means of raising local contributions to defence schemes.</p> <p>A community-led approach in which the community is placed at the heart of the decision making and community workshops involving scenario planning, visualisation and historical timelines (amongst other tools) have been demonstrated to be valuable tools in the adaptation process.</p> <p>Planning policy is vital in supporting rollback as an adaptive solution. Needs to be supported by grants if property owners can not afford to do so on their own funds.</p> <p>Buy and lease back did not work well due largely to the costs involved (e.g. in bringing properties up to a suitable standard) and the perceived risks to local authorities. However, it could work in areas where properties are of a higher standard initially. Consider changes to housing regulations with regards properties affected by coastal change to encourage private investment in this sector.</p> <p>In March 2010, <i>Coastal Erosion Assistance Grant</i> was introduced at a fixed level of £6,000 per property. It is designed to provide practical assistance to homeowners as, at the point where a home is lost or becomes unsafe to live in because total loss due to erosion is imminent, the homeowner is also liable for the costs of demolishing the property to make it safe.</p> <p>Section 2.35 identifies The Coastal Communities Fund will be financed by the Government through the allocation of funding equivalent to 50% of the revenues from the Crown Estate’s marine activities. The new fund is designed to support the economic development of coastal communities and will support a wide range of projects, including those that support charities, the environment, education and health. <i>NOTE, this fund is now live.</i></p> <p><b>Section 4 of the report provides summary details on the achievements delivered by each individual pathfinder project. Section 5 provides detailed reports by each pathfinder project from which the data in Section 4 is drawn.</b></p> <p><i>Refer also to Pontee &amp; Parsons paper that summarises key adaptive approaches for all 15 pathfinders (REF #4.16).</i></p> <p>Loss of infrastructure has an immediate economic effect that can quickly result in loss of community confidence and blight. Therefore projects that replace lost infrastructure can reverse that trend, as demonstrated by North Norfolk at Cromer, Happisburgh and Trimingham.</p> <p>Section 4.63 &gt;&gt; There is potential for some rollback schemes to be self-funding, or at least partially so in the future. For example a re-sited car park (or any</p>



REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<p>other infrastructure) could be funded by takings from the car park (or other facility), although the initial capital cost might need seed funding. Housing rollback could generate a return if a higher value re-development site is chosen, but this might be at the expense of community cohesion if the new site is well away from the site being lost. However, this has not been a major factor for most communities.</p> <p>Section 4.81 to 4.87 demonstrate the way sin which local communities have been encourage to, and taken up, the challenge of planning for coastal change, including personal flood plans, community emergency plans, and greater awareness of the risks so they are empowered to contribute to future management decisions.</p> <p>Section 4.93 to 4.99 sets out specific adaptation lessons for the planning system. This includes exploring the role of Housing Associations in the implementation of rollback policies.</p> <p>Sections 4.100 to 4.104 highlight key lessons for planning policy in regards its roll in facilitating rollback as an adaption solution.</p> <p>Section 5.172 identifies that coastal change is often only seen as a threat but should also be seen as an opportunity in some cases.</p>
3.4	Coastal Adaptation Community Engagement Toolkit Draft v4	Slapton Line Partnership	Available on line at: <a href="http://www.slaptonline.org/library/index.php?cat_id=19&amp;search=Coastal+Adaptation+Toolkit">http://www.slaptonline.org/library/index.php?cat_id=19&amp;search=Coastal+Adaptation+Toolkit</a> . Date accessed: 22/10/2012	<p>Captures lessons learnt in the Slapton Line Partnership Adaptation project since April 2007.</p> <p>A Partnership was needed to create a forum where stakeholders could work together effectively on a solution to the initial road breach and life thereafter. The role of the Partnership has subsequently developed further to implement the agreed policy, as defined by subsequent terms of reference :</p> <ul style="list-style-type: none"> <li>• To promote a co-ordinated policy for managing coastal change in and around Slapton Sands;</li> <li>• To ensure that appropriate contingency plans and preparations are maintained for responding to erosion events;</li> <li>• To promote a range of adaptation activities and projects in anticipation of future change;</li> <li>• To ensure that suitable expertise, research and intelligence is available to inform decision making;</li> <li>• To promote public awareness and community engagement in the coastal management and adaptation process;</li> <li>• To assist the member organisations in meeting their statutory duties in the management of the area.</li> </ul> <p>Section 4 discusses development of the Coastal Adaptation Plan. The adaptation plan was a consequence of having adopted the policy as recommended of managed realignment The community-based coastal adaptation plan was developed through a series of public consultation events, resulting in a wide range of proposed actions for which funding was then sought. The adaptation plan included:</p> <ul style="list-style-type: none"> <li>• Establishment of a management framework (steering and advisory group)</li> <li>• Public communication programme</li> <li>• Adaptation of the local small business sector including setting up a business forum</li> <li>• Development of environmental tourism</li> <li>• Habitat adaptation</li> <li>• Policy integration</li> <li>• Contingency planning</li> <li>• Planning for managed re-alignment</li> <li>• Traffic adaptation planning</li> <li>• Development of options for alternative public access</li> <li>• Development of alternative inland coast path route</li> <li>• Coastal monitoring</li> <li>• Sharing best practice</li> <li>• Public attitude and awareness surveys</li> </ul> <p>The adaptation plan provided a clear publicly-available list of measures showing that much was being done to ensure that the commitment to keep the road going 'as long as possible' was real.</p> <p>Section 5 &gt;&gt; A contingency plan was also created working together with (Devon County Council ) Highways department which documented what happens in the event of road flooding and damage to the road.</p> <p>Section 6 &gt;&gt; Alternative Routes were also negotiated between the Highways department and a number of representatives of Parish Councils over a series of months. This involved staff driving around the routes with maps to assess the options. The overall solution is in fact made up of a combination of a number of measures:</p> <ul style="list-style-type: none"> <li>• Alternative routes avoiding the coast road (supported by fold-down signage as well as permanent signage for light good vehicles).</li> <li>• Advisory one-way inland alternative routes. Once having agreed these, they were locally signed and indicated on a map available in a leaflet distributed to households in the area, and on websites. A programme of improvements is now focussed onto these two routes.</li> <li>• The communication work of the Partnership has ensured that businesses are fully aware that the road is at risk and that suppliers/distributors will need to be notified when disruption occurs.</li> <li>• The messages put out by the project should help people to avoid making decisions that make them reliant on the road – this will be reinforced by the land charges message.</li> <li>• Adaptation planning work with local public transport operators has taken place, and outline plans for car park modifications which take into account the</li> </ul>



REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<p>severed road.</p> <ul style="list-style-type: none"> <li>Some preliminary work from Food and Drink Devon on collaborative supply and distribution (looking to see if transport movements could be aggregated as well as reducing costs) has looked at possible solutions.</li> </ul> <p>Costs of implementation include officer time and additional signage.</p> <p>Section 18 &gt;&gt; Future Proofing: Land Charges Information - A paragraph of text was sketched out and provided for the land charges office in 2007. It was later updated on the basis of feedback from local solicitors in 2009. It provides a long term and low key instrument which can inform people thinking of moving into the area and encouraging them to consider how dependent they might be on use of the road. The aim of this approach is to provide information into the conveyancing system to ensure that in time the majority of residents will have had to consider the coastal change issues and how it might affect them. It hasn't led to 'blight' despite a Daily Telegraph article. Rather, it appears it may even people to think about the long term when purchasing property.</p>
3.5	Understanding the process for community adaptation planning and engagement (CAPE) on the coast. R&D technical report FD2624/TR. Joint Defra/Environment Agency flood and erosion risk management R&D programme. November, 2009	Defra/Environment Agency	Available on line at: <a href="http://evidence.environment-agency.gov.uk/FCERM/Libraries/FCERM_Project_Documents/FD2624_Final_Technical_Report.sflb.ashx">http://evidence.environment-agency.gov.uk/FCERM/Libraries/FCERM_Project_Documents/FD2624_Final_Technical_Report.sflb.ashx</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>Technical report sets out barriers and opportunities for CAPE on the coast.</li> <li>Pg 16 defines CAPE as &gt;&gt; "CAPE is a long term, community centred planning process which aims to involve those most affected by the risks and opportunities presented by coastal change in order to develop understanding, forward thinking, practical and sustainable solutions for coastal communities and places".</li> <li>Pg 14 &gt;&gt; Identifies that communities need to be at the centre of discussions around how to adapt their area to coastal change, and that to do this, people are more likely to adapt if they have the awareness, knowledge, skills and experience to engage with the technical aspects of adaptation measures.</li> <li>Pg 14/15 &gt;&gt; Leadership on climate change issues in local communities is mixed; needs a dedicated person to act as a focal point for local communities. Pg 15 cites how Local Agenda 21 officers were used as an example for a model on how adaptation could be promoted by public bodies and local authorities in particular. Another useful suggestion is the establishment of a network of climate change champions to promote adaptation at the local level.</li> <li>Table 1 on Pg16 summarises 5 case studies covering: 1. Mabelthorpe (East Lindsey); 2. Happisburgh; 3. Suffolk coast; 4. Barrow; 5. Shaldon (Devon). <i>Further detail is provided in Appendix 6.</i></li> <li>Appendix 1 sets out what is meant by 'Adaptation'. Identifies that adaptation involves change of four major types: <ul style="list-style-type: none"> <li>Physical change relates to both the natural environment and the built environment (including homes, offices, schools and hospitals as well as the infrastructure on which they depend, such as drainage, water and energy supply, transport networks and communications);</li> <li>Financial environment (including businesses and services);</li> <li>Institutional environment (policies, strategies, plans and the systems for developing and implementing them, such as decision-making processes, regulatory structures, partnerships, etc); and</li> <li>Social environment: community networks and organisations, engagement processes, etc, as well as the social acceptance that change is happening and that some sort of response is needed.</li> </ul> </li> <li>It goes on to state that at least three different coastal policy objectives impact significantly on adaptation: <ul style="list-style-type: none"> <li>Resistance (slowing or stopping the harmful impacts of change);</li> <li>Resilience (making individuals and communities better able to cope with impacts); and</li> <li>Relocation (moving assets and activities to locations where they will not face the same degree of impact).</li> </ul> </li> <li>Appendix 2 reviews lessons learnt from urban regeneration and sets these out in terms of how they can be applied to engaging with coastal communities as part of developing adaptation strategies (pg 25/26). These lessons include: <ul style="list-style-type: none"> <li>Different stages of adaptation planning will probably require different leadership and facilitation styles.</li> <li>Different structures and approaches to engagement attract very different stakeholders.</li> </ul> </li> <li>Appendix 5 (Figure 1 on pg 37) provides a figure showing how sustainable community strategies, local plans/development frameworks and local area agreements inter-relate.</li> </ul>
3.6	Community Adaptation Planning and Engagement (CAPE) on the coast: Guidance. Report FD2624. Joint Defra/Environment Agency flood and erosion risk management R&D programme. November, 2009	Scott Wilson for Defra/Environment Agency	Available on line at: <a href="http://evidence.environment-agency.gov.uk/FCERM/Libraries/FCERM_Project_Documents/FD2624_CAPE_Final_Guidance.sflb.ashx">http://evidence.environment-agency.gov.uk/FCERM/Libraries/FCERM_Project_Documents/FD2624_CAPE_Final_Guidance.sflb.ashx</a> . Date accessed: 22/10/2012	<p>Sets out a 7 stepped approach to planning and delivering community engagement as part of coastal change adaptation planning:</p> <ul style="list-style-type: none"> <li>Step 1 – clarify adaptation aims, drivers and scope of decisions</li> <li>Step 2 – How much engagement do you need?</li> <li>Step 3 – Clarify aims and scope of engagement</li> <li>Step 4 – Identify who to engage</li> <li>Step 5 – Drafting an integrated engagement and project plan</li> <li>Step 6 – Publish your commitment to engage</li> <li>Step 7 – Choosing your engagement methods</li> </ul>
3.7	The appraisal of adaptation options in flood and coastal erosion risk management. Project FD2617/TR. Report produced for	Defra/Environment Agency	Available online at: <a href="http://randd.defra.gov.uk/Default.aspx?Menu=Menu&amp;Module=More&amp;Location=None&amp;ProjectID=16216&amp;FromSearch=Y&amp;Publisher=1&amp;SearchText">http://randd.defra.gov.uk/Default.aspx?Menu=Menu&amp;Module=More&amp;Location=None&amp;ProjectID=16216&amp;FromSearch=Y&amp;Publisher=1&amp;SearchText</a>	<ul style="list-style-type: none"> <li>Focus of report is on barriers to implementing coastal change adaptation.</li> <li>Section 2.2 states that "A key determinant of a system's ability to adapt to change, especially where the future course of change is uncertain, is flexibility."</li> <li>Defines adaptability (in the context of FCERM) as being "those characteristics of a plan, strategy or scheme that sustain and enhance the function of a system in the face of continuing change or uncertainty. Adaptability is about building in flexibility, not closing off future options prematurely but</li> </ul>

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
	Defra/Environment Agency by Risk Solutions Ltd under the Flood and Coastal Erosion Risk Management Research and Development Programme. March, 2010.		=FD2617&SortString=Project Code&SortOrder=Asc&Page=10. Date accessed: 22/10/2012	<p>enabling evolution of both the strategy or scheme, and also the function of the system. Change and uncertainty arise from many sources, and climate change is an important source.”</p> <ul style="list-style-type: none"> <li>Section 4 looks at a number of case studies and lessons learnt in respect of how the various barriers to implementing coastal change adaptation may be overcome. Some key lessons include:</li> <li>The emphasis should be on seeking solutions to preserve community function in the face of continuing change as far as possible, rather than focusing on the flood or erosion issues without this broader context.</li> <li>Including a need for active consideration of ‘future proofing’ rather than a strong focus on meeting the immediate need would set the scene for consideration of more adaptable options.</li> <li>Advice and good practice examples of how to successfully integrate and manage multiple funding streams would be of assistance.</li> <li>Lessons for multi-agency working: Guidance should encourage the examples of good practice identified at Borth, Cleveleys and Elgin, in particular: <ul style="list-style-type: none"> <li>Establishing clear leadership and responsibilities</li> <li>Early and on-going consultation seeking opinions and input from the beginning, not simply presenting solutions</li> <li>Partnership working for complex projects.</li> </ul> </li> </ul> <p>NB: refer to CAPE (REF #3.6) with regards these 3 points.</p>
3.8	Flooding in England: A National Assessment of Flood Risk	Environment Agency	Available online at: <a href="http://publications.environment-agency.gov.uk/PDF/GEHO0609BQDS-E-E.pdf">http://publications.environment-agency.gov.uk/PDF/GEHO0609BQDS-E-E.pdf</a> . Date accessed: 22/10/2012	<p>Summary highlights:</p> <ul style="list-style-type: none"> <li>Locating property outside the floodplain is a prime way to reduce flood risk. If this is not practical, siting new buildings in areas of lowest risk is the next choice. Local planning authorities must now consult the Environment Agency on planning applications where the proposed development is at risk from flooding or is likely to increase the risk of flooding elsewhere. <i>i.e. in accordance with PPS25.</i></li> <li>Ensuring the emergency services and the public know where and when it will flood, and how serious the flooding is likely to be, is a complex task. The Environment Agency has increased the number of households and businesses offered a flood warning service. We have also launched a new National Flood Forecasting Centre with the Met Office that will allow us to better predict the scale and timing of flooding events and monitor them as they happen. This will ensure that the emergency services and other local responders focus their efforts where the imminent risks are greatest – a difference that could save lives. In 2008-2009, 55 per cent of people living in flood risk areas knew they were at risk and, of these, three out of five had taken some action to prepare for a flood. This may have involved checking their insurance, signing up to the Environment Agency’s flood warning service, or installing flood resistance and resilience measures.</li> <li>Floods can cause serious indirect impacts, including damage to important energy, water, communications and transport infrastructure. They can also interfere with basic public services such as schools and hospitals. The National Flood Risk Assessment shows that a sizeable part of our important infrastructure and public services are in flood risk areas. This is especially so for water-related infrastructure that needs to be near rivers. For example, over 55 per cent of water and sewage pumping stations/treatment works are in flood risk areas, with 34 per cent at significant risk.</li> <li>CFMPs set out the strategic context for managing flood risk in a catchment, helping decision makers by identifying the policy options being adopted to manage flood risks. They also help form the position we take in our work to manage assets, watercourses, flood forecasting, and to help land use planning and development. The CFMPs aim to promote the most effective approaches to managing flood risk, investing time and money to best effect. Even where it is not affordable or sustainable to maintain defence structures CFMPs should set out other ways of managing risk. Where possible we also aim to work with nature in reducing flood risk, allowing floodplains and river corridors to return to their natural condition. This improves habitat for wildlife, increasing, conserving and protecting areas like wetlands and salt marshes.</li> </ul> <p>Section 2.4 &gt;&gt; “It is impossible and impractical to reduce all flood risk, or to defend against all possible floods in all places. However, it is possible to reduce the impact of a flood at the individual property level through flood resistance and resilience measures. Flood resistance measures, such as door guards, help prevent floodwater getting into a property. Resilience measures are those that minimise the damage when floodwater is in a property. A typical example is water resistant wall plaster. .... The Environment Agency provides advice to property owners on how to prepare for a flood and are developing additional guidance about self-help home protection measures for householders, businesses and the building contractors that fit them. The National Flood Forum, a registered charity, provides information on products and techniques for protecting individual properties. The Association of British Insurers also encourages improved property level protection. Some insurers already include flood risk information with renewal notices. This is expected to become increasingly widespread as we continue to refine flood risk mapping, identifying vulnerable properties with greater accuracy.”</p>
3.9	The future of food and farming. Executive summary	Foresight, Government Office for Science	Available online at: <a href="http://www.bis.gov.uk/assets/foresight/docs/food-and-farming/11-547-future-of-food-and-farming-summary">http://www.bis.gov.uk/assets/foresight/docs/food-and-farming/11-547-future-of-food-and-farming-summary</a> . Date accessed: 22/10/2012	<p>Sets out evidence as to why there will be a need to adapt agricultural (and fisheries) practices to climate change (e.g. since traditional crops/fish stocks may no longer be viable) and the sustainability of water supply for crops.</p> <p>Land use planning will need to consider how much space is needed for food production in the future.</p>
3.10	First generation National Coastal Erosion Risk Mapping	Halcrow for Defra, WAG and the Environment Agency	Details available online at: <a href="http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&amp;y=355134.0&amp;scale=1&amp;layerGroups=default&amp;ep=map&amp;textonly=o">http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&amp;y=355134.0&amp;scale=1&amp;layerGroups=default&amp;ep=map&amp;textonly=o</a>	<ul style="list-style-type: none"> <li>Assessment potential risks from coastal erosion around the coast of England and Wales in a nationally consistent way based on best available data.</li> <li>Only data for simple cliffs is generally included for erodible coasts only.</li> <li>Complex cliff (complex landslide systems) are not included. Nor are floodable areas (which are defined by the Environment Agency’s flood zone mapping).</li> </ul>

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
			ff&lang=_e&topic=coastal_erosion#x=557443&y=433715&lg=1,&scale=3. Date accessed: 31/10/2012	
3.11	Futurecoast – Predicting future shoreline evolution	Halcrow for Defra	Details available online at: <a href="http://evidence.environment-agency.gov.uk/FCERM/Libraries/FCERM_Project_Documents/FD2002_6843_TSM_pdf.sflb.ashx">http://evidence.environment-agency.gov.uk/FCERM/Libraries/FCERM_Project_Documents/FD2002_6843_TSM_pdf.sflb.ashx</a> . Date accessed: 31/10/2012	Information and assessment of future coastal evolution and effects of climate change scenarios.
3.12	22 Shoreline Management Plans for England and Wales	Various	Available online via: <a href="http://www.environment-agency.gov.uk/research/planning/105014.aspx">http://www.environment-agency.gov.uk/research/planning/105014.aspx</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>SMPs define coastal flood and erosion risk management policy for the coast.</li> <li>Policies are for NAI, HTL, MR or ATL. All have implications for future coastal change.</li> <li>NAI policies assume natural evolution of the coast where presently undefended. Also means withdrawing defences from currently defended areas (and how to do this safely, including removing defences for H&amp;S reasons). Both have implications for future development potential.</li> <li>MR policies involve controlled change of the coast. Can be for both flood risk (linked to habitat creation) and coastal erosion areas (limited intervention to slow coastal retreat, but not halt it completely). Both have implications for future development potential.</li> <li>HTL policies involve continued defence, often involving hard defences like seawalls/revetments etc.. Continued defence leads to coastal squeeze effects that can reduce habitat (and so require offsetting through MR elsewhere) and reduce available beach area (key for tourism).</li> <li>ATL policies involve significant advance of the shoreline (e.g. land reclamation). Similar implications to HTL in terms of coastal change impacts, though effects may be much more significant on coastal processes and habitats.</li> </ul>
3.13	Summary of the Key Findings from the UK Climate Change Risk Assessment 2012	Department for Environment, Food and Rural Affairs (Defra)	Available on line at: <a href="http://www.defra.gov.uk/environment/climate/government/risk-assessment/#keyfindings">http://www.defra.gov.uk/environment/climate/government/risk-assessment/#keyfindings</a> . Date accessed: 22/10/2012	<p>This report assesses the potential risks and opportunities arising from climate change. It represents a key part of the government's response to the Climate Change Act 2008.</p> <p>The report notes that although considerable uncertainty surrounds future climate change risks, there is sufficient evidence to start planning adaptation actions now.</p> <p>The CCRA identifies that flood and coastal erosion risk management will be one area where there is an urgent need for action within the next 5 years.</p> <p>Other key messages from the CCRA relevant for planning adaptation are:</p> <ul style="list-style-type: none"> <li>Flood risk is projected to increase significantly across the UK. Increases in the frequency of flooding would affect people's homes and wellbeing, especially for vulnerable groups (e.g. those affected by poverty, older people, people in poor health and those with disabilities), and the operation of businesses and critical infrastructure systems.</li> <li>UK water resources are projected to come under increased pressure. This is a potential consequence of climate-driven changes in hydrological conditions, as well as population growth and the desire to improve the ecological status of rivers. Adaptation action will be needed to increase water efficiency across all sectors and decrease levels of water abstraction in the summer months.</li> <li>Some changes projected for the UK as a result of climate change could provide opportunities for agriculture and other businesses, although not outweighing the threats. For example, there are potential benefits for crop growth (assuming water is not a limiting factor) and hence food production, while climate change may also encourage more efficient use of resources and the development and provision of products and services that can help manage climate risks.</li> <li>Despite the uncertainties related to future climate change and its impacts, the evidence is now sufficient to identify a range of possible outcomes that can inform adaptation policies and planning. Decision makers need to consider uncertainties and to allow flexibility in their policies and plans. Specific climate change guidance is available in many sectors that describes suitable methods and tools for assessing future risks and adaptation options</li> </ul>
3.14	Chesil Beach (Portland to Small Mouth) Management Plan	Halcrow (for the Environment Agency)	Halcrow copy	Provides example of potential implications of barrier beach roll back for development and infrastructure that will need to adapt as a result.
3.15	Lyme Regis Beach Management Plan	Halcrow (for West Dorset District Council)	Halcrow copy	Provides example of the potential implication of not achieving partnership funding to deliver preferred solution to maintain coastal defence with beach recharge and its likely effects on local community which is heavily reliant on a beach for tourism.
3.16	West Dorset, Weymouth and Portland Coastal Risk Planning Guidance	Halcrow (for West Dorset District Council / Weymouth and Portland Borough Council)	Halcrow copy	<p>Section 1.3 provides discussion of key coastal risk issues and how these will change over time (i.e. coastal change). This includes discussion on how potential sources of additional funds to support traditional FCERM budgets for delivering coastal risk management.</p> <p>Sections 2 to 34 include assessment of risks to existing and future planned developments, and recommendations for development management and evidence required to be submitted as part of planning applications – these requirements include the need for geotechnical appraisal, flood risk assessment and vulnerability assessment.</p> <p>Appendix A sets out a methodology for defining cliff recession potential risks in complex cliff areas (not covered by NCERM or other evidence base sources).</p>



REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
3.17	Land use planning – Assessing the quality and influence of Strategic Flood Risk Assessments (SFRAs). R&D Technical Report FD2610/TR Final Report (June 2009).	Defra/Environment Agency	Available online at: <a href="http://evidence.environment-agency.gov.uk/FCERM/Libraries/FCERM_Project_Documents/FD2610_report.sflb.ashx">http://evidence.environment-agency.gov.uk/FCERM/Libraries/FCERM_Project_Documents/FD2610_report.sflb.ashx</a> . Date accessed: 22/10/2012	Provides review of SFRAs and how they are influencing planning decisions (i.e. via PPS25). Plate 2.1 (pg 7) provides diagram showing links between various tiers of the planning system, stakeholders and flood risk management documents.
3.18	Improving institutional and social responses to flooding: Synthesis report (work package 5). Science Report SC060019/SR6, May 2009	Environment Agency	Available online at: <a href="http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/scho0509bqbt-e-e.pdf">http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/scho0509bqbt-e-e.pdf</a> . Date accessed: 22/10/2012	Synthesis report draws together the key findings and recommendations for the Environment Agency of 4 supporting work packages. These include: <ul style="list-style-type: none"> <li>Recommendations for improving flood warnings and messages, focussing the service on response and developing approaches for different flood and people characteristics.</li> <li>Recommendations for improving response, adaptation and developing resilience and to address the factors that reduce individual resilience; including working with other responders and communities to develop knowledge on preparatory actions for a flood, for both the inundation phase and the recovery period.</li> <li>Recommendations for improving collaboration with professional partners and communities, with an emphasis on planning for collaboration rather than relying on collaboration in a crisis.</li> </ul>
3.19	Foresight Land Use Futures: Making the most of land in the 21 <sup>st</sup> century: Final project report.	The Government Office for Science	Available online at: <a href="http://www.bis.gov.uk/assets/foresight/docs/land-use/luf_report/8614-bis-land_use_futures_exec_summary-web.pdf">http://www.bis.gov.uk/assets/foresight/docs/land-use/luf_report/8614-bis-land_use_futures_exec_summary-web.pdf</a> . Date accessed: 22/10/2012	Section 4.3 of Exec Summary >> land use will play a pivotal role in both mitigation of and adaptation to climate change. Section 5.5 of Exec Summary discusses issues of flooding and climate change and the implications for flood risk management, which include the future need for: <ul style="list-style-type: none"> <li>Better understanding of the relationship between land use and flood risk management. The extent to which changes in land management can ‘mitigate’ flooding at the catchment scale for extreme rainfall events remains unclear, although it is likely that rural land can contribute to flood alleviation by retaining and storing floodwaters in vulnerable catchments. Across the range of urban and rural areas, cost-effective ‘adaptive’ measures to reduce flood damage costs, including controls on land use and development, are needed.</li> <li>Better appraisal of options for flood risk management and for evaluation of the implications for land use. In addition to engineered flood defences, the resilience of existing and new buildings and property to flooding need to be improved.</li> <li>More proactive flood plain zoning can help to reduce future exposure to flooding in the built environment, using flood corridors in urban areas to help deal with peak flows.</li> <li>Exploiting the broad scope for joining flood risk management with other land use objectives and benefits. There is significant potential for changes in management of agricultural land to reduce runoff, soil erosion and water pollution simultaneously, and to combine flood storage and restoration of floodplain ecology both in rural and urban areas. A broader, integrated approach requires new and diverse collaborations amongst regulators, land managers, developers, the corporate sector and the insurance industry, as well as the integration of different policy areas and funding streams.</li> </ul>
3.20	Foresight Future Flooding: Executive Summary. Part of the Foresight Flood and Coastal Defence Project. April 2004	Office of Science and Technology	Available online at: <a href="http://www.bis.gov.uk/foresight/our-work/projects/published-projects/flood-and-coastal-defence">http://www.bis.gov.uk/foresight/our-work/projects/published-projects/flood-and-coastal-defence</a> . Date accessed: 22/10/2012	Evidence in response to Q17 (pg 41) states that “influencing where to build houses, factories and other infrastructure emerged as a key tool in managing future flood risks. It is about avoiding building on areas at risk from flooding – or, if building in areas at risk, ensuring, for example, that there is space to allow for river and coastal processes.... If decisions are taken to build in areas at risk of flooding, the costs must be recognised and planned for.” It goes on to state (on pg 42) that another approach would be to ask developers to provide appropriate flood defences and to allow market forces to determine the location of new developments. This has attractions, but also risks. Pg 43 states “The extreme uncertainty of the future is a major challenge in devising effective long-term flood-management policies. It is important to decide how much flexibility is required to cope with an evolving future, and to choose a portfolio of responses to achieve that. In this respect, reversible and adaptable measures would be the most robust against future uncertainties. Adaptability would include approaches such as: setting aside areas in floodplains that may be used for flood storage if required; building defences to cover the lower limits of our expectations of future flood risk, but providing foundations that would enable the defences to be upgraded if needed.
3.21	Revision of SSSI boundaries to accommodate coastal erosion: Methodology and Case Study. February 2012	Halcrow (for Natural England)	Halcrow copy	Section 3 provides a methodology for projection of coastal instability and erosion over the next 50 years, to support changes in SSSI footprints. The methodology follows current best practice and wherever possible makes use of GIS datasets that will be freely available to Natural England. The projected erosion bands from cliff instability and erosion with different probabilities can be overlain on a basemap that shows the extents of SSSIs. Using these data, a decision can then be made on where additional land may require notification to account for projected losses in the future. The decision to notify additional land will require supplementary information about the geology, geomorphology or habitat to be sure the original designation still applies to the new area. Where erosion projections are combined with other data, such as mapping of habitats, geology or geomorphology, it will be possible to decide the most appropriate area of land to be notified. Section 4 provides a worked case study that applies the methodology defined in Section 3 to World Heritage coastline of East Devon and Dorset, known as the Jurassic Coast, resulting in identification of projected area of SSSI land loss over the next 50 years.
3.22	Cowes to Gurnard Coastal Slope Stability Study Ground Behaviour Assessment, August 2000	Halcrow (for Isle of Wight Council).	Halcrow copy	Section 7 provides planning guidance for complex area of coastal slope instability. A Planning Guidance Map based on the assessment of ground behaviour and the variability in stability conditions across the study area forms the basis of planning guidance. Guidance is provided on development plan policy and the control of development in areas subject to land instability. The map categorises the area according to the degree of impact which slope stability considerations might have on development proposals. Five categories are distinguished:

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<ul style="list-style-type: none"> <li>• Area suitable for development</li> <li>• Area likely to be suitable for development</li> <li>• Area likely to be suitable for development with appropriate mitigation and stabilisation measures</li> <li>• Area unlikely to be suitable for development</li> <li>• Area unsuitable for development</li> </ul> <p>The Planning Guidance Map identifies areas where particular development controls will apply. The planning guidance map and accompanying advice should be taken into account in all applications for development.</p> <p>Applications for developments which have no material effect on stability (e.g. minor developments and applications involving change of use only) will not normally be subject to these procedures, unless the change of use significantly worsens the consequences of any instability.</p> <p>Section 7.4 makes recommendations for development control procedures with regards to managing the planning application process.</p> <p><i>NOTE, requirement for submission of a stability report is included in the 2011 "Coastal Instability and Erosion Management in Great Britain Best Practice Guide" produced by Halcrow (REF #2.9).</i></p>
3.23	Shifting Shores: Living with a changing coastline	National Trust	Available online at: <a href="http://www.nationaltrust.org.uk/servlet/file/store5/item349171/version2/UK%20shifting%20shorest.pdf">http://www.nationaltrust.org.uk/servlet/file/store5/item349171/version2/UK%20shifting%20shorest.pdf</a> . Date accessed: 22/10/2012	<p>Contains examples of how the National Trust is adapting to climate change.</p> <p>Page 9 deals with adapting buildings and infrastructure. This includes at Birling Gap where NT demolished cliff top property at the cliff edge; at Brancaster where the NT activity centre was refurbished to accommodate flooding, for example re-routing cables on the ceiling, raising all electricity sockets one metre above the ground and covering the floors with washable materials. As a result the usable life of the building will be longer than it would otherwise have been; and at Studland Beach where NT is relocating beach huts and other facilities (e.g. car park, toilets etc).</p> <p>Page 9 deals with making space for recreation and access, including allowing relocation of coastal paths to accommodate expected coastal erosion/dune evolution.</p> <p>Pg 14/15 identifies 5 key lessons learnt by NT about implementing coastal adaptation:</p> <ul style="list-style-type: none"> <li>• Long term planning is essential</li> <li>• Think and act in a wider context</li> <li>• Work with nature not against it</li> <li>• Solutions need partnership</li> <li>• Involving the public is critical.</li> </ul> <p><i>Note, this document is supported by a number of 1-2 page case study sheets (that expand on the detail contained in the main report). These cover: Formby Point; Golden Cap; Northey Island; East Head; Isle of Wight; Porlock Bay; and Studland.</i></p>
3.24	Land use planning and adaptation: Royal William Yard, Plymouth	Environment Agency	Available online at: <a href="http://www.environment-agency.gov.uk/research/planning/109008.aspx?style=print">http://www.environment-agency.gov.uk/research/planning/109008.aspx?style=print</a> . Date accessed: 29/10/2012	<p>Provides a case study of partnership working with developers to establish the flood risks and how to respond to them in the context of urban regeneration involving listed historic buildings.</p> <p>In this case, a reinforced glass wave barrier and a steel flood barrier have been installed to protect the development from flooding. We also trained the site owners on how to respond to a flood warning.</p> <p>The Environment Agency states that "When developers like those at the Royal William Yard take our flood risk information into account, it helps them to ensure that their developments should not be vulnerable to floods for many years to come."</p>
3.25	Falmouth Tourist Information Centre – Ensuring business continuity after flooding	Climate South West	Available online at: <a href="http://www.oursouthwest.com/climate/registry/101100-falmouth-tic-case-study.doc">http://www.oursouthwest.com/climate/registry/101100-falmouth-tic-case-study.doc</a> . Date accessed: 29/10/2012	<p>Provides a case study of how the Falmouth Tourist Information Centre was recovered after coastal flood event, and lessons learnt for future adaptations to the building to reduce the impact of flood events in the future.</p> <p>Key lesson was "that <b>had</b> flood boards been in place the severity of the incident would have been reduced substantially. It is recommended that CDC Facilities / Cornwall Council Properties investigate new flood boards for the TIC building as a matter of urgency and a procedure for the placement of flood boards in front of all entrances at all times when the building is empty be instigated."</p>
3.26	South Milton Sands project	National Trust	Available online at: <a href="http://www.nationaltrust.org.uk/south-milton-sands/our-work/projects/">http://www.nationaltrust.org.uk/south-milton-sands/our-work/projects/</a> . Date accessed: 31/10/2012	<p>South Milton Sands is a beach that has undergone a dramatic transformation in recent years thanks to the hard work of our rangers, the local community and enthusiastic volunteers.</p> <p>In 2009 the National Trust began a project to restore sand dunes to the beach following their removal in the 1960s to make way for a large car park. The loss of the dunes destroyed a natural and flexible sea defence; wooden sea defences had been installed, but after 20 years the timbers were rotting. With the threat of rising sea levels a more sustainable way was needed to manage the coastline.</p> <p>Working with the local community for help and support National Trust looked at various options of how we could manage the sands. Re-establishing the dunes struck the right balance – a sustainable long term option that would enhance the natural environment and local wildlife, was accessible to visitors and worked with coastal processes.</p> <p>Work began in February 2009 and for over two months the Sands looked like a building site. Sand was moved from the beach onto the old site of the car park and sculpted and graded according to exact measurements determined by the engineering consultants to form the new dunes.</p> <p>A new car park was created and two new pedestrian boardwalks were installed to provide direct access to the beach. These new walkways will help protect the sand dunes from being disturbed and make it easier for visitors to carry beach and water sports equipment down to the beach.</p> <p>In May 2009 with the help of 100 local residents and local schools we planted 15,500 marram grasses across the dunes. Marram grasses are vital to the success</p>

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<p>of sand dunes creating deep broad roots which hold the dunes together and stabilise them during stormy conditions.</p> <p>The dunes will take a couple of years to establish themselves. In the meantime the dunes need to grow and ensure they aren't disturbed. NT request is for the public to please keep to the boardwalks, avoid walking on the dunes and ensure dogs are kept on a lead. As the grasses develop they will trap more sand and create a stronger defence against the sea.</p>
3.27	Chichester Pathfinder Project: Integrated Coastal Zone Management	Manhood Peninsula Partnership	Available online at: <a href="http://peninsulapartnership.org.uk/projects/coastal-change-pathfinder-project/integrated-coastal-zone-management-iczm/">http://peninsulapartnership.org.uk/projects/coastal-change-pathfinder-project/integrated-coastal-zone-management-iczm/</a> . Date accessed: 16/11/2012	<p>"The initial step in exploring ICZM within the Coastal Change Pathfinder Project involved developing a working partnership between residents, employers, coastal users and local government. The objective was to achieve sustainability in the face of climate change and consequent coastal change. The following approaches were pursued:</p> <ul style="list-style-type: none"> <li>Establishment of an ICZM group comprised of MPP members, local businesses, marine user groups, government bodies including Chichester District Council, the Environment Agency, Natural England.</li> <li>An ICZM spatial policy for the Manhood Peninsula</li> <li>An ICZM spatial plan for the Manhood Peninsula. This is a broad-brush approach stating desired approaches to ICZM on the peninsula. It comments on a range of issues as diverse as transport; the environment; employment and prosperity, and tourism.</li> <li>ICZM Workshop to examine coastal and land based policies in the area to feed back local experience to Defra about successes and failures in these areas.</li> </ul> <p><b>Integrated Coastal Zone Management (ICZM) Group</b></p> <p>One of the primary aims of the Integrated Coastal Zone Management stream of the Pathfinder Project was establishing a working group comprised of MPP members, local businesses, marine user groups, and government bodies including Chichester District Council, the Environment Agency and Natural England. ICZM is concerned with joining up land based and marine based planning, a concept considered for over ten years by the Manhood Peninsula Partnership. This was further explored in the "Going Dutch" events and Espace, providing the background within which the group could expand their ideas and produce a comprehensive spatial plan for the peninsula.</p> <p><b>ICZM Spatial Policy: SP14</b></p> <p>An ICZM spatial policy, Spatial Plan 14, has been suggested for inclusion within the Core Strategy of the emerging Local Development Framework for the Chichester District. Included are themes applicable to the whole of Chichester District, but compiled into a single document focussed on the Manhood Peninsula emphasising a 'sense of place' for the peninsula. The policy will go out to consultation with the Local Development Framework Core Strategy in due course. Although the LDF remains on hold until outstanding issues can be resolved, the draft policy helped the group with their goal of producing an ICZM spatial plan.</p> <p><b>ICZM Spatial Plan: Towards ICZM</b></p> <p><i>Towards ICZM</i> is the spatial plan suggesting management options of the coastal zone from a number of perspectives. It is similar in principle to a Village Design Statement for the peninsula, and comments on how the coastal zone affects/is affected by life there. Subject themes within the document are based on the Sustainable Community Strategy entitled 'Chichester, A Very Special Place'. It provides a summary of local opinion and expectation as depicted in Parish Plans, Village Design Statements, Conservation Area Character Appraisals (CACAs), and a number of other documents on which consultation has already taken place including the Pagham- East Head Coastal Defence Strategy and the North Solent Shoreline Management Plan. A workshop discussed many of these issues further.</p> <p><b>ICZM Workshop: April 2011</b></p> <p>The ICZM workshop took place on 6th April 2011, and attracted nearly 60 participants. They were divided into a number of themed groups such as Transport and Environment, reflecting the concerns and aspirations for the Manhood Peninsula that were apparent in existing documents such as Going Dutch in 2001. For more details see the following page."</p>
3.28	Towards ICZM on the Manhood Peninsula	Chichester Coastal Change Pathfinder Project on behalf of the Manhood Peninsula Partnership, in conjunction with Chichester District Council	Available online at: <a href="http://peninsulapartnership.org.uk/projects/coastal-change-pathfinder-project/integrated-coastal-zone-management-iczm/towards-iczm/">http://peninsulapartnership.org.uk/projects/coastal-change-pathfinder-project/integrated-coastal-zone-management-iczm/towards-iczm/</a> . Date accessed: 16/11/2012	<p>The Chichester Pathfinder Project included exploration of ICZM in the context of planning for coastal change.</p> <p><i>Towards ICZM</i> is the spatial plan developed by the Pathfinder Project suggesting management options of the coastal zone from a number of perspectives. It is similar in principle to a Village Design Statement for the peninsula, and comments on how the coastal zone affects/is affected by life there. Subject themes within the document are based on the Sustainable Community Strategy entitled 'Chichester, A Very Special Place'. It provides a summary of local opinion and expectation as depicted in Parish Plans, Village Design Statements, Conservation Area Character Appraisals (CACAs), and a number of other documents on which consultation has already taken place including the Pagham- East Head Coastal Defence Strategy and the North Solent Shoreline Management Plan. A workshop discussed many of these issues further. (See also REF #3.27).</p>
3.29	Brownsea Island: The Shoreline Restoration Project. Project report for Defra and Natural England. June 2012	Tony Flux, National Trust	Copy provided by Tony Flux on 21/11/2012	<p>Report explains fully the project design and process that was undertaken in order to proactively remove failing sea defences on Brownsea Island and to return the South Shore to its earlier pristine state.</p> <p>Project involved working through the planning system to get all necessary licences/consents from Local Planning Authority, Poole Harbour Commissioners, Natural England and MMO for the removal of existing defences (and not replacing them) in a highly designated location (within Poole Harbour).</p>
3.30	Summary of case study on South Milton Sands, Devon: Removing sea defences and	David Ford, Phil Dyke & Adrian Woodhall (National	Copy provided by Tony Flux on 21/11/2012	Summary of project that removed defences to enable restoration of natural sand dune system. Case study reports on lessons learnt from the project including what went well, what would be done differently next time and outcomes.

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	allowing natural processes (November 2009)	Trust)		
3.31	Summary of coastal adaptation case study on Mullion Harbour, Cornwall: Adapting to a stormier future (June 2010).	Ed Bartlett, Alastair Cameron, Phil Dyke and Adrian Woodhall (National Trust)	Copy provided by Tony Flux on 21/11/2012	Summary of project that has engaged with a local community to begin to plan for a future situation when defences/harbour structures become unsustainable to maintain and will then be removed, returning the cove in which they sit to a pre-structure situation as existed in the 19 <sup>th</sup> Century. Case study reports on lessons learnt from the project including what went well, what would be done differently next time and outcomes.



## B.4 Halcrow Authored Papers

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
4.1	Deriving the benefits of strategic shoreline management	Burgess K., Pontee, N., Hosking, A	Proceedings of the Eighth International Conference on Coastal and Port Engineering in Developing Countries (PIANC-COPEDEC VIII), Session TS43: Coastal Zone Management and the Environment – III, Chennai, India.	<p>Presents the UK strategic framework for flood and coastal risk management.</p> <p>Conclusions include:</p> <ul style="list-style-type: none"> <li>The achievement of sustainable coastal management solutions represents a significant challenge and is likely to require significant changes in approaches and behaviours. It is necessary to start planning for these changes early to enable all stakeholders to begin to prepare. Strategic approaches are invaluable when dealing with complex situations. Such situations typically involve conflicts between different stakeholders and requirements. Stakeholders can range from local landowners to major industries, whilst requirements can range from local political drivers to the necessity of meeting international legislation.</li> <li>In terms of managing the competing demands at the coast, such large scale changes are best dealt with by strategic plans which: <ul style="list-style-type: none"> <li>Take a holistic view of coastal issues;</li> <li>Consider large spatial scales (10s-100s of km) and temporal scales (decades to centuries)</li> <li>Acknowledge uncertainties and incorporate these into the decision making process; and,</li> <li>Plan for a move from current to future, more sustainable, management policies.</li> </ul> </li> <li>Such strategic approaches require adequate data to describe the coastal processes and assets at risk. It is important for States looking to develop strategic approaches to consider the ultimate objectives and wider possibilities in determining what is to be collected. Defining a data collection regime is relatively straightforward. However, the best value can be obtained if careful consideration is given to the full potential for using the information that is to be collected.</li> </ul>
4.2	Futurecoast: Assessing Future Coastal Evolution	Burgess KA, Jay H, Hutchison J, Balson P & Ash J	Defra, 36 <sup>th</sup> Conference of River and Coastal Engineers, Keele University, 2001	Discusses the Futurecoast project and how it provides evidence on the potential for changes in coastal processes and how this relates to predictions of future coastal evolution over the next 100 years.
4.3	Managing coastal change: Walberswick to Dunwich	Cali, M., Parsons, A., Batty, L., Duggan, S., Miller, P, Pontee, N., Miller, P.	FLOODrisk 2008 - The European conference on flood risk management research in to practice 30 September - 2 October 2008 Keble College, Oxford, UK	Presents a case study of managed realignment in order to manage the adaptation of land-use in the flood cell to increasing frequency of inundation by implementing a scheme involving construction of set-back defences.
4.4	The Exe Estuary Coastal Management Study – Working Together	Davies M., Rogers J. and Smith G.	Poster Paper 44th Flood and Coastal Risk Management Conference, Telford, 2009.	This paper presents the outcomes of the study and how considered communication and co-operation between the individual organisations has enabled an appropriate long-term action plan for the Exe Estuary to be developed despite conflicting, constraining and sensitive organisational objectives. Furthermore, the paper highlights how significant liaison and consultation with local experts and organisations have reinforced the credibility of the assessment of coastal process understanding and thus the foundations for the development of the study recommendations.
4.5	Techniques for long-term coastal change prediction and the significance of ‘inheritance’	Fish PR, Moore R	In: McInnes R. (ed) Proceedings of the 2007 International Conference on Coastal Management. ICE, London	Presents methods for assessing coastal change potential.
4.6	Easton Broad: Achieving Sustainable Flood Management for Nature Conservation on the Suffolk Coast	Harvey, R., Crowder, R., Morgan, C., Frampton, A., Van der Leer, D., Doktor, P., Barbrook, S., and Leeds, M.	Defra Flood and Coastal Management Conference, 2003.	<p>Paper presents assessment of a range of options appraised for the future management of Easton Broad in Suffolk. In doing so, illustrates the conflicts between the conservation of freshwater habitats (reedbed), brackish habitats (saline lagoon) and coastal processes (a functioning shingle beach). It is not possible to maintain all three in favourable condition <i>in situ</i>. The most sustainable solution is considered to comprise:</p> <ul style="list-style-type: none"> <li>Allowing a naturally functioning shingle beach;</li> <li>Facilitating landward migration of the saline lagoon by ensuring sufficient accommodation space as the coastline retreats;</li> <li>Protecting <i>in situ</i> as much reedbed as can be sustained for at least the next fifty years; and</li> <li>Replacing the remaining reedbed at an alternative location.</li> </ul>
4.7	An Awareness of Geomorphology for Coastal Defence Planning	Jay H, Burgess K A and Hosking A	International Conference on Coastal Management, Institution of Civil Engineers, Brighton, 2003	Discusses the benefits and need to consider geomorphological processes in development of coastal defence planning.
4.8	Managing Coastal Dunes: Lessons from Cornwall, UK	Moon, A.M., Clemo, M., Rogers, J., Pontee, N	COPEDEC VII, 2008: 7th International Conference on Coastal and Port Engineering in Developing Countries, 24-28 February 2008, Dubai,	<p>Presents best practice approaches to dune management in the context of managing competing pressures for dune management to maintain the flood and coastal defence properties of the dunes, while also enabling the important tourism economy to thrive.</p> <p>The principle recreational pressures in Cornwall were found to be:</p> <ul style="list-style-type: none"> <li>Trampling and footpath erosion;</li> <li>Rrosion and cliffing of access points;</li> </ul>



REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
			UAE.	<ul style="list-style-type: none"> <li>• Car parks constructed upon flattened dunes;</li> <li>• Holiday parks within or behind dunes;</li> <li>• High numbers of water sports users;</li> <li>• Bikes, quad bikes or mountain boards used on the dunes; and,</li> <li>• Barbeques and bonfires within the dunes.</li> </ul> <p>A variety of management practices are in place around Cornwall, although many are no longer being maintained. The most common techniques currently employed in Cornwall are:</p> <ul style="list-style-type: none"> <li>• Fencing – to help stabilise dunes;</li> <li>• Planting – to help stabilise dunes;</li> <li>• Boardwalks – to prevent/ reduce footpath erosion;</li> <li>• Beach cleaning – to increase the aesthetic value of the beaches;</li> <li>• Removal of blown sand – to clear public areas such as car parks; and,</li> <li>• Exclusion zones – to prevent erosion of more vulnerable areas.</li> </ul>
4.9	Coastal change analysis: a quantitative approach using digital maps, aerial photographs and LiDAR	Moore R, Fish PR, Koh A, Trivedi D, Lee A	Proceedings of the International Conference on Coastal Management. Institution of Civil Engineers, Brighton.	Presents method for assessing coastal change potential.
4.10	Climate Change Impact on Cliff Instability and Erosion	Moore R., Rogers J., Woodget A. and Baptiste A	Proc 45th Flood and Coastal Risk Management Conference, Telford, 2010	This paper presents an overview of a high-level assessment of the likely climate change impacts on cliff instability and erosion. The work was commissioned by the Environment Agency to support the National Coastal Erosion Risk Mapping Project (NCERM). The results of the assessment have informed where, and how, the NCERM erosion predictions should be modified to take into account the climate change scenarios and predictions derived from UKCP09.
4.11	The adaptation toolkit: Developing sustainable policy.	Parsons, A., Hutchison, J. Home, R.	42 <sup>nd</sup> Defra Conference of River and Coastal Engineers, York, UK.	<p>Government funding for FCERM activities is focused on locations where there are good business cases and the activities are sustainable. This was not always the case in the past. This means that there are some previously defended coastal and estuary frontages that may no longer be viable to maintain, particularly in the light of anticipated increasing sea level rise and storminess due to climate change. In such locations, policies of No Active Intervention (NAI) or Managed Realignment (MR) are likely to be recommended during SMP2 appraisals.</p> <p>The permissive powers under which Operating Authorities undertake coastal defence means that there is no right to protection. Operating Authorities can withdraw defence and walk away with no provision of compensation to those affected. This has raised social justice concerns and calls for the development of tools to assist with adaptation to more sustainable coastal management.</p> <p>In response to the above concerns, Defra has been undertaking a so-called “Adaptation Toolkit” project.</p> <p>The Adaptation Toolkit project is considering the options available for helping communities adapt to the threat of increased erosion or flood risk, particularly in coastal areas where traditional forms of defence may not be cost effective or sustainable, now or in the future. The project is engaging with key organisations including the Local Government Association to both generate and test ideas. The proposed 'toolkit' of measures, designed to help achieve sustainable, long-term management, is expected to focus on enabling communities to adapt to both short term and longer term coastal change.</p> <p>The process of developing new solutions involves</p> <ul style="list-style-type: none"> <li>• Reviewing existing practices and identifying current problems,</li> <li>• Developing a suite of measures to help enable communities to adapt to these issues and</li> <li>• Developing and launch the new toolkit as appropriate.</li> </ul> <p>There is no single mechanism for progressing adaptation to sustainable and affordable solutions like NAI &amp; MR in SMP2s. It identifies a series of interconnected, interacting pre-requisites including:</p> <ul style="list-style-type: none"> <li>• Integrated long term planning, including provision for interim uses;</li> <li>• Information access, sharing, exchange and public involvement; and</li> <li>• Mechanisms to respond to perceptions of potential blight.</li> </ul> <p>Key Issues to be addressed in coastal adaptation are:</p> <ul style="list-style-type: none"> <li>• The perceived social justice issues around some locations getting defences whilst others do not.</li> <li>• The public expectation for some areas that they have a right to provision of defences.</li> <li>• The permissive powers of coastal defence operating authorities meaning that compensation for losses due to erosion or flooding is not available.</li> <li>• Past defence policies may no longer be sustainable in some locations resulting in withdrawal of defence.</li> <li>• The scale of the problem – costs of options for helping facilitate adaptation.</li> <li>• How other local government functions can be used to help deliver coastal defence policy.</li> </ul> <p>Essential Elements of policy tools required for adaptation were considered to be:</p> <ul style="list-style-type: none"> <li>• Facilitating relocation</li> </ul>

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				<ul style="list-style-type: none"> <li>Improving resilience</li> <li>Adopting interim uses</li> <li>Modifying / controlling future uses in risk zones</li> </ul> Mechanisms to facilitate adaptation: <ul style="list-style-type: none"> <li>Emergency and risk planning,</li> <li>Town and Country Planning system,</li> <li>Well-Being Powers of Local Government Act (2000),</li> <li>Adaptation funds,</li> <li>Land / property acquisition &amp; purchase</li> <li>Property search mechanisms and</li> <li>Assurance or insurance mechanisms.</li> </ul> Key supporting arrangements were identified as follows: <ul style="list-style-type: none"> <li>Integration of policy</li> <li>Modified organisational arrangements</li> <li>Community engagement and</li> <li>Financial supporting arrangements.</li> </ul>
4.12	A review of coastal risk management in the UK.	Pontee N. I. and Parsons, A..	Proceedings of the Institution of Civil Engineers, Maritime Engineering Journal. Volume 163, Issue MA1, pp31-42.	<p>Presents discussion of the strategic coastal risk management framework for flooding and erosion in the UK.</p> <p>Concludes that over the next decade some of the most important issues associated with coastal management require the following actions:</p> <ul style="list-style-type: none"> <li>Establish adequate long-term budgets to allow long-term management policies to be implemented.</li> <li>Develop a clear and just governmental policy on compensation for property losses associated with flood and erosion.</li> <li>Improve consultation processes, so that local communication can get involved in developing plans to adapt to coastal changes.</li> <li>Develop workable approaches for allowing the privatization of defences in some areas.</li> </ul>
4.13	CoastRanger MS: A tool for improving public engagement.	Pontee N. I., and Morris, K..	Journal of Coastal Research. Volume 27, Issue 1: pp. 18 – 25	Demonstrates software that can be used in public engagement to raise awareness of coastal change risks and the complex challenges to be faced in trying to manage those risks.
4.14	Mississippi to Medway: climate destabilisation and strategic risk management	Pontee N., Hosking, A., Hamer, B., Burgess, K.	Presented at ICCE 2008: 31 <sup>st</sup> International Conference on Coastal Engineering, Hamburg, Germany.	<p>Presents case study of SMP policy for the Medway Estuary where SMP policies of Managed Realignment were chosen in a number of areas on the basis that they were more sustainable under today's scenario of rising sea levels in terms of:</p> <ul style="list-style-type: none"> <li>Allowing more economic shorter and sheltered defences.</li> <li>The creation of valuable intertidal habitats.</li> <li>The provision of a more sustainable estuary alignment.</li> </ul> <p>The selection of policy was a change from historic policy to hold the line. In some areas, the move to Managed Realignment was delayed until later years, in order to allow time for coastal residents to adapt to these changes. Policies of Managed realignment were more common in the estuarine areas where there were extensive lengths of defences protecting low lying agricultural land. Several key issues arose during consultation in relation to policies of Managed Realignment. Two of the most contentious were related to uncertainty over the extent of the realignment and the lack of adequate compensation for changes to agricultural land.</p>
4.15	A new way of engaging coastal stakeholders: <i>CoastRanger MS</i> .	Pontee, N., Hamer, B, Morris, K., 2010.	32 <sup>nd</sup> International Conference on Coastal Engineering, (ICCE 2010), Shanghai, China, June 30 – July 5, 2010. Available at: <a href="https://journals.tdl.org/ICCE/article/view/1018">https://journals.tdl.org/ICCE/article/view/1018</a>	This paper describes an innovative approach that has been developed to stimulate public debate and improve stakeholder understanding of the issues that need to be balanced in order to achieve sustainable long term coastal management solutions. The approach involves the creation of an educational tool ( <i>CoastRanger MS</i> ) that allows users to manage a virtual coast within a pc-gaming type environment.
4.16	Adaptation as part of sustainable shoreline management in England and Wales.	Pontee, N.I. and Parsons, A..	<i>Proceedings of the Institution of Civil Engineers, Maritime Engineering Journal.</i>	<ul style="list-style-type: none"> <li>Paper reviews the concept of adaptation within the shoreline management framework in England and Wales.</li> <li>In the future it may not be sustainable to continue to defend all the locations on the coast that presently benefit from defences.</li> <li>Adaptation can help deliver more sustainable shoreline management solutions that better manage the risks to the social, economic and environmental function of the coast.</li> <li>Planning for adaptation will require preparing coastal communities for future change and will involve building in flexibility rather than closing off future solutions.</li> <li>Paper demonstrates how future reviews of Shoreline Management Plans (SMPs) could promote more adaptive measures linked to the Coastal Change Management Areas that will feature in the next revision of land use plans.</li> </ul>

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				<ul style="list-style-type: none"> <li>The future challenges to delivering more adaptive solutions are considered by looking at where adaptation may be needed, what more adaptive approaches may look like, and what the barriers to implementation are. One critical area is the greater engagement of local communities and the paper shows how the recent Coastal Pathfinder projects are tackling this issue.</li> <li>Defines adaptation In the context of coastal management, as preparing coastal communities for future change. Importantly, the definition of successful adaptation depends on perspective, and is therefore likely to vary between individuals, communities and government agencies or local authorities.</li> <li>Coastal adaptation can involve physical, financial, institutional and social changes and can involve a number of aspects (Defra/EA, 2009): <ul style="list-style-type: none"> <li>Resistance – which involves slowing or stopping the harmful impacts of change.</li> <li>Resilience – which is concerned with making individuals and communities better able to cope with impacts.</li> <li>Relocation – which involves moving assets and activities to locations where they will not face the same degree of impact.</li> </ul> </li> <li>Contains case studies covering: 1. Blackpool, Lancashire; 2. Mill Scar, Walney Island, Cumbria; 3. Dunwich to Walberswick, Suffolk; 4. Sunderland Village, Lancashire; 5. Braystones, Nethertown and Coughton, Cumbria.</li> <li>Presents a case for the case for long-term flood risk management for agricultural land in relation to future sea level rise must be considered strategically. This consideration should include the need to adapt agricultural practices to climate change (since traditional crops may no longer be viable) and the sustainability of water supply for crops.</li> <li>To date, the over arching approach to FCERM adaptation in the UK has been to make people aware of the risks in order that they can make their own informed decisions and adapt to the changing situation. In England and Wales, national flood risk maps have been published for many years on the EA's 'What's in my backyard' website. These are regularly updated and raise awareness of risks to property owners, potential property purchasers and insurers. Coastal erosion risk mapping began to be published in a similar way from late 2011.</li> <li>The current land use planning guidance for the coastal zone, in the Supplement to PPS25 (Communities and Local Government, 2010) makes a step change towards adaptation by requiring consideration of coastal change. The primary evidence is expected to come from SMPs and associated maps and data such as flood and erosion risk mapping. The definition of coastal change includes erosion, coastal landslips, permanent inundation and coastal accretion.</li> <li>Coastal Change Management Areas (CCMAs) must be identified in local plans and policies established on the type, location and duration of development that may be permissible. Additionally, where development and infrastructure needs to be relocated from CCMAs, local planning authorities should make provision for sufficient, suitable land outside the CCMAs. The draft new National Planning Policy Framework (NPPF; Communities and Local Government, 2011) proposes to supersede existing planning policy guidance including PPG20 and PPS25, but retains and consolidates key requirements of those documents.</li> <li>Table 3 summarises the adaptive solutions trialled by the 15 pathfinder projects in England (<i>See also Ref #3.3</i>). These give the following key data: <ul style="list-style-type: none"> <li><b>Sefton:</b> Enabling continued access to the dunes by, for example, constructing boardwalks; and creating new dune slacks to replace those lost as a result of coastal change.</li> <li><b>Scarborough:</b> Purchasing nearby land not at risk of coastal erosion or land instability. Knipe Point property owners who lose their home as a result of coastal erosion would be given the opportunity to rebuild on the purchased land subject to conditions to be determined as part of the project.</li> <li><b>East Riding:</b> Develop and deliver a tiered, enhanced support package for communities to adapt to coastal change, informed by existing successful adaptation measures and the emerging SMP. Embed coastal change adaptation into local Integrated Coastal Zone Management (ICZM) structures. Developing and delivering a bespoke range of adaptation measures based on priority and an assessment of residents' needs. The approach seeks to give incentives to people living with the imminent threat of losing their home to relocate to safer and more sustainable areas.</li> <li><b>Lincolnshire:</b> Undertaking a project with the community of Mablethorpe to promote evacuation plans and uptake of property resilience and measures for future and existing development.</li> <li><b>North Norfolk:</b> Delivering a range of approaches to support continuity of community at Happisburgh and address the dereliction caused by coastal change. Approaches include establishing a 'buy to let' approach for properties at risk in the second SMP epoch; replacing damaged infrastructure such as beach access ramp; car park; cliff top paths. Elsewhere in the district projects include replacing the coastal footpath at Cromer.</li> <li><b>Waveney:</b> Implementation of beach strategy at Corton – for example, improving beach access and infrastructure damaged by coastal change. Delivering practical support to facilitate relocation of those at risk – for example, through discussions with utilities and other service providers, and identification of possible sites for relocation.</li> <li><b>Great Yarmouth:</b> Adaptation planning that will explore and test different approaches to adaptation including the feasibility of roll back, business support, and buy to let schemes. An agreed community adaptation action plan is being developed.</li> <li><b>Tendring:</b> As part of the Jaywick regeneration programme, building a viewing platform as part of the Crag Walk scheme at Walton-on-the-Naze, to enable visitors and schools to see and understand the erosion processes affecting the coast. The project is part of wider plans for educational facilities to help inform the community and others about coastal change and other environmental issues.</li> <li><b>Hastings:</b> Identification of short-, medium- and long-term adaptation solutions.</li> <li><b>East Sussex:</b> Building on the work of the Cuckmere Estuary Partnership, to develop options and plans for change, including studies to gather</li> </ul> </li> </ul>

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<p>historic, economic, visitor and landscape information to inform consideration of options.</p> <ul style="list-style-type: none"> <li>• <b>Chichester:</b> Development of a coastal literacy programme and contribution towards capital projects to improve both a fishermen’s ramp and divers’ access ramp which have been rendered inaccessible due to erosion at East Beach in Selsey.</li> <li>• <b>Hampshire:</b> Considering a 10 km stretch of the coastline from Beaulieu River to Southampton Water and Lepe. Delivering short term capital works such as measures to improve access (damaged by erosion) to the beach and the site of D-Day preparations, possibly by building a boardwalk.</li> <li>• <b>Dorset:</b> Development of a plan to help householders identify independent resilience activities they can carry out. Consideration of how local spatial planning can best support adaptation to coastal change, together with delivery of ‘Change we can plan for?’ seminars.</li> <li>• <b>South Hams:</b> Developing a toolkit which maps the adaptation project measures undertaken so far which can be of use to other coastal local authorities, including the following activities. <ul style="list-style-type: none"> <li>○ Environmental tourism potential of the area.</li> <li>○ Working with local schools and field centres.</li> <li>○ Documenting the history of local coastal change.</li> </ul> </li> <li>• <b>Somerset:</b> Involving the community in options for managing a coastal MR scheme, identifying potential benefits and required mitigation.</li> <li>• Planning for land use change is going to take time. However, there is a risk of a disconnect between FCERM SMP2s/strategies and local plans due to the differing assessment time horizons. SMP2s/ strategies develop shoreline management policies for three epochs, 0 to 20, 20 to 50 and 50 to 100 years, whereas the draft NPPF proposes that plans have a 15-year time horizon and take account of longer term requirements.</li> <li>• Section 11.3 states &gt;&gt; In the future, the pursuit of adaptive coastal management solutions is likely to need to consider a number of revised planning or land-use considerations in addition to traditional preventative engineering schemes. Such measures are likely to vary between locations and over time, and may include the following activities: <ul style="list-style-type: none"> <li>○ Temporary measures to allow time for communities to adapt to change.</li> <li>○ Flood storage areas or areas of increased flood risk to reduce the detrimental impacts of high water level events in high priority estuary areas.</li> <li>○ The adoption of new land uses in areas of increasing flood or erosion risk.</li> <li>○ Revised farming practices to allow for great saline intrusion or more greater yields from reduced areas.</li> <li>○ The adaptation of buildings and infrastructure to be more flood resistant or resilient.</li> <li>○ The relocation of buildings to lower risk areas.</li> <li>○ Consideration of relocation, or increased protection for critical infrastructure.</li> <li>○ The prevention of unsuitable development in high risk areas.</li> <li>○ The investment in appropriate warning systems.</li> </ul> </li> <li>• Also identifies approaches for flood plains use in the USA: <ul style="list-style-type: none"> <li>○ Relocating: moving a building to higher ground.</li> <li>○ Elevating: this involves raising a building above the flood level.</li> <li>○ Local barriers: this involves constructing local barriers to keep surface floodwaters from reaching a building.</li> <li>○ Dry flood-proofing: this involves sealing a building to ensure that floodwaters cannot get inside.</li> <li>○ Wet flood-proofing: this involves letting the water in and removing everything that could be damaged by a flood.</li> </ul> </li> <li>• Also identifies that in some low-lying coastal flood risk areas in the UK, options may exist to sell the land to organisations that wish to undertake MR as part of a flood management or habitat compensation strategy or to improve nature conservation, but that funding/compensation levels are not always sufficient to encourage landowners to change from current practices.</li> <li>• Section 11.4 identifies a number of barriers to adaptation (from Defra/EA 2010), including: <ul style="list-style-type: none"> <li>○ Funding considerations constrain thinking.</li> <li>○ Multi-agency issues.</li> <li>○ Risk and uncertainty aversion constrains thinking.</li> <li>○ Full range of benefits may not be identified and the full value of benefits may not be included in appraisals.</li> <li>○ Lack of an evidence base of where previous adaptation approaches have been implemented.</li> </ul> </li> <li>• During public consultations associated with strategies and SMPs, local stakeholders typically prefer to maintain the status quo rather than move to a new management policy. This arises due to a number of reasons: <ul style="list-style-type: none"> <li>○ New polices may lead to changes in land use.</li> <li>○ New policies may lead to the potential loss of land and properties.</li> <li>○ There can be disbelief that sea level rise or coastal change is occurring or will occur in future.</li> </ul> </li> </ul>



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				<ul style="list-style-type: none"> <li>○ There is an expectation that beaches in front of seawalls will remain regardless of sea level rise.</li> <li>○ There is no automatic right to compensation if properties or land are lost.</li> <li>• For many communities, adaptive measures are likely to represent a new approach. Experience has shown that extensive consultation is likely to be required in order to educate local residents of the necessity to consider the potential benefits of such approaches. A number of actions can be suggested to facilitate the uptake of more adaptive solutions with local stakeholders: <ul style="list-style-type: none"> <li>○ Raising public awareness of the risks faced by properties on the coast.</li> <li>○ Raising public awareness of the current permissive powers for coastal defence.</li> <li>○ Better engagement with local communities to involve them in forward planning within the funding and legislative constraints.</li> </ul> </li> </ul>
4.17	Managed realignment in low lying coastal areas: Experiences from the UK.	Pontee, N.I.	<i>Proceedings of the Institution of Civil Engineers, Maritime Engineering Journal</i> . 160, MA4,155-166.	<p>Presents a review of managed realignment in the UK including guidance on selection and design of sites and a number of case studies.</p> <p>Conclusions highlight:</p> <ul style="list-style-type: none"> <li>• An urgent need to inform the public of the nature of the likely future changes in order to facilitate the acceptance and uptake of future management policies involving retreat of the line and no active intervention. Suggests that one way of raising public awareness is to explain how coastal communities have responded to coastal change in the past.</li> <li>• There is still likely to be considerable resistance to change, however, even where there are limited assets at risk, if there are no mechanisms for compensation to home owners. This is hardly surprising, since houses represent lifetime investments for most people, and the loss of them represents financial disaster.</li> <li>• The loss of agricultural land is also highly contentious.</li> <li>• Local communities have come to expect continued protection from flood and coastal erosion, and are not easily persuaded to give this up.</li> <li>• Although government policy currently precludes compensation, this would seem a necessary management option to unlock realignment in some areas.</li> <li>• One option would be for the UK Government to buy residences and land in areas of high risk and lease them back to residents, possibly at concessionary rates.</li> <li>• In some areas it may be appropriate to provide short-term measures needed to allow communities to adapt. Such measures may include flood or erosion defences with reduced standards of protection. There is a danger, however, that providing limited flood protection now, leads to their continued maintenance and improvement in the future.</li> <li>• Another option would be to provide grants for flood-proofing houses, or even to investigate the feasibility of physically relocating isolated properties, especially if they are of high heritage value.</li> </ul>
4.18	Management implications coastal change on the Suffolk coast	Pontee, N.I.	<i>Proceedings of the Institution of Civil Engineers, Maritime Engineering Journal</i> , 158, Issue MA1, 33-40.	<p>This paper gives examples of significant coastal changes brought about by both erosion and alongshore transport of material.</p> <p>Presents review of coastal change (historic, contemporary and predicted future) at 3 sites along the Suffolk coast.</p> <p>Identifies that at these sites “it is apparent that past changes in coastal morphology have had very large impacts on coastal communities. The accretion of spits caused estuaries to silt up and from Roman times onwards, led to the decline of previously prosperous ports. At Dunwich, the changes caused by the blockage of the former river mouth by a gravel barrier and the ongoing erosion of the unconsolidated cliffs, have been so great that a town, once on a par with London in the twelfth and thirteenth centuries, has been reduced to a few houses and fishing boats. The southerly transport of shingle from Dunwich has led to the blockage of other small inlets and havens further down-drift. Some of these former inlets have become first lagoons (e.g. Thorpe Haven) and then freshwater lakes (e.g. Thorpe Mere) or even marshes (e.g. Minsmere). At Aldeburgh, the longshore extension of Orfordness led to the decline of a formerly prosperous port. Just to the south, the landward rollover of the spit under rising sea levels led to the total loss of the former village of Slaughden over the last 400 years.”</p>
4.19	Coastline change and implications for habitat loss.	Pontee, N.I., Drummond, J.R., and Morrissey, D.J.	<i>Proceedings – Civil Engineering, Institution of Civil Engineers</i> . 157, September, 2004, Issue MA, 133-142.	<p>This paper assesses the main controls on macro- and meso-scale evolution and contemporary morphological form of the East Lothian coastline. It uses this assessment to predict impacts of future sea level change on coastal habitats.</p>
4.20	Possible Implications Of Localisation and Austerity Measures Flood And Coastal Risk Management	Pontee, N.I., Parsons, A., Ashby Crane, R	Coastal Management 2011. Innovative Coastal Zone Management: Sustainable Engineering for a Dynamic Coast. 15-16 November 2011 in Belfast.	<p>Includes section on “Managing risks to areas where defences may no longer be affordable”. In doing so it reflects on the 2011 FCERM Strategy and that some areas that once received public investment may no longer do so, and vice versa, which in practice means that future SMPs, CFMPs and strategies are likely to recommend more polices for Managed Realignment, No Active Intervention, reductions in flood management measures and withdrawal of maintenance. This is particularly expected to be the case around many estuaries. These changes are expected to lead to a requirement for greater local funding, more local defence maintenance to counter increasing risks, and the potential loss of land and properties which may be currently provided with protection.</p> <p>Under current arrangements, those who lose protection, or suffer increasing risk under such policies are not generally eligible for compensation. There is no automatic right to compensation when property or land is lost to flooding or erosion, whether this arises from a change to management policy or not. Not surprisingly, there is often strong local resistance to policies of Managed Realignment, No Active Intervention and withdrawal of maintenance. Local communities have come to expect continued protection for flood and coastal erosion, and are not easily persuaded to give this up. There are also complex ‘human rights’ issues surrounding the ‘legitimate expectation’ that historic management will continue. This can be made particularly unpalatable by the knowledge that there is a legal obligation to provide compensatory habitats where designated wildlife habitats are lost or damaged due to FCERM plans or programmes.</p>

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<p>Paper highlights potential for conflicts between FCERM Strategy and Localism Act 2011, including:</p> <ul style="list-style-type: none"> <li>Increased likelihood of development in the floodplain being consented due to local socioeconomic benefits, with potential adverse effects on neighbouring communities;</li> <li>Decreased likelihood of strategically important FCERM strategy components being consented, such as flood storage areas or compensatory habitat creation, where these have low local benefit and relatively high impact;</li> <li>Increased support for local FCERM schemes that may have adverse effects on downdrift coasts;</li> <li>Reduction in the current level of national consistency with respect to the technical requirements of FCERM studies and in the justification (costs and benefits) of schemes for approval. This could potentially lead to poorer quality solutions with less far reaching and holistic benefits; and,</li> <li>A risk of inappropriate decisions being made in lower risk areas due to lack of technical rigour/consistency in appraisal, stretched funding and lack of third party financial support. This could result in inadequate maintenance of defences leading to overtopping, breaching and ‘unmanaged realignment’.</li> </ul>
4.21	National Coastal Erosion Risk Mapping – The Final Furlong	Rogers J. et al.,	Proc. 44th Flood and Coastal Risk Management Conference, Telford, 2009.	Presents details on the development of the first national coastal erosion risk map for England and Wales which provides key evidence for assessing coastal change risks around the coast.
4.22	National Coastal Erosion Risk Mapping – The First National Run	Rogers J. et al	Proc. 31st International Conference on Coastal Engineering, Hamburg, 2008.	Presents details on the development of the first national coastal erosion risk map for England and Wales which provides key evidence for assessing coastal change risks around the coast.
4.23	National Coastal Erosion Risk Mapping – The Story So Far”	Rogers J., et al.	Proc. 42nd Defra Flood and Coastal Management Conference, York, 2007.	Presents details on the development of the first national coastal erosion risk map for England and Wales which provides key evidence for assessing coastal change risks around the coast.
4.24	ComCoast: Socio Economic Assessment of Multifunctional Coastal Schemes	Thomas K, Tovey E, Cooper G, Parsons A and Young J.	Proc. 43rd Defra Flood and Coastal Management Conference, Manchester, 2008.	<p>The ComCoast project has allowed 5 countries to explore socio-economic issues affecting policy decisions and funding of coastal flood management options. Highlights that coastal communities and their surrounding environments have economic value. The popularity of coastal destinations can be heavily dependent on their environmental quality and therefore long term management is essential to their economic viability.</p> <p>Continuing sea level rise, wetter winters and increased frequency of storm events will put increasing pressure on existing defences. Meanwhile these defences could be causing damage to internationally and nationally important habitats through coastal squeeze.</p> <p>By adapting the design of some of engineering works that occur on site, such as creeks, location and size of breaches, access for public and islands for birds, the value of a FRM site can increase significantly for both wildlife and people. However, those who own land by the coast need assurance that new FRM options can be adapted so that their businesses can remain economic. Given the current economic climate regarding food production globally and increased cereal prices, alternative land use options within the coastal floodplain need to stack up economically for landowners to consider them viable.</p>
4.25	Introducing the concept of <i>Decision Pathways</i> to help make Adaptive and Robust Flood Risk Management Decisions under Uncertainty	Donovan B, Von Lany P, Wells T and Hall J	International Conference on Coastal Management, Institution of Civil Engineers, Brighton, 2003	<p>This paper considers the application of <i>decision pathways</i> in the development of flood risk management strategies. Strategies may need to be adaptive, especially in situations where the consequences of flooding are potentially <u>severe</u> and there is <u>significant</u> uncertainty in the future likelihood and severity of flooding. In order to develop adaptive flood risk management solutions in such situations, we need to identify those assumptions that are critical to the effectiveness of particular flood risk management measures and to consider the implications of the uncertainty affecting the validity of these assumptions.</p> <p>Decision trees and <i>decision pathways</i> are a means of helping decide where you want to go, examining what may lie ahead, evaluating options against targets, and integrating preferred options into a sustainable set of solutions.</p>

## B.5 Other Information

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
5.1	Stern Review executive summary	Stern, N.	New Economics Foundation. 30th October 2006. Available at: <a href="http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm">http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm</a> . Date accessed: 22/10/2012	Page xxi/xxii states that national policy framework should include land-use planning and performance standards that encourage both private and public investment in buildings and other long-lived infrastructure to take account of climate change. It should also provide a financial safety net may be required for the poorest in society, who are likely to be the most vulnerable to the impacts and least able to afford protection (including insurance). Adaptation action should be integrated into development policy and planning at every level.
5.2	Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks	European Union	Available online at: <a href="http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:288:0027:0034:EN:PDF">http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:288:0027:0034:EN:PDF</a> . Date accessed: 22/10/2012	Sets EU level guidance for consistent management of flood risk, including flood risk assessment and mapping and land use planning.
5.3	Facing up to rising sea levels: retreat, defend, attack? The Future of our coastal and estuarine cities	Institution of Civil Engineers	Available online at: <a href="http://www.buildingfutures.org.uk/projects/building-futures/facing-up">http://www.buildingfutures.org.uk/projects/building-futures/facing-up</a> . Date accessed: 22/10/2012	<p>This is a think piece – designed to provoke longer term thinking across a wide audience.</p> <p>Pg 4/5 contains a diagram demonstrating all the organizations and key planning documents that are at play in managing coastal flood and erosion risk and coastal change adaptation.</p> <p>Promotes the message that our coastal communities contribute to our economy, are part of our history, and are home to millions of residents; the UK needs a proactive approach to managing our changing environment and coast.</p> <p>The role of architects and engineers should be to embrace flood risk within design. The challenge to designers is to continue to find positive solutions to adapt, resist or mitigate future flood risk, adding value to the development.</p> <p>We need joined-up, coordinated thinking and action by all the interested and affected parties. There also needs to be much better community engagement in the process. The communities need to fully understand the actual risk they face, as well as the incentives to act now and have a long term vision. The public needs to understand the long-term history and future of coastal change. They should be consulted with regularity during the decision-making process to facilitate this.</p> <p>Pg 7 cites good examples from the UK including Managed Coastal Realignment; Recycled Marine Infrastructure; Adaptive Architectures raising living and resilience; and Innovative Sea Defences that provide flood defence and public space for amenity.</p> <p>Pg 8/9 cites examples of adaptive measures from overseas, including building on stilts; flood barriers; and floating/amphibious homes.</p> <p>Goes on to present theoretical solutions to future change at two locations (Hull and Portsmouth), based around options to retreat, defend or attack.</p> <p>Pg 27 Conclusions includes a number of key messages for government, planners, architects/ engineers/designers, and the public. These include:</p> <ul style="list-style-type: none"> <li>• Multi-functional flood defence infrastructures can be developed that benefit local people and businesses.</li> <li>• The planning systems must do more to encourage integrated solutions and innovative long-term local strategies.</li> <li>• Tackle problems now with POSITIVE and PROACTIVE solutions, not when it's too late and the problem has become unmanageable in scale.</li> <li>• Community engagement in decision-making and setting local aspirations is essential.</li> <li>• Money should not be wasted on short-term, unsustainable developments and improvements to defences that cannot be maintained.</li> <li>• Long-term planning must provide a framework for short term tactical actions.</li> <li>• Solutions must be considered that cross local government and community boundaries.</li> <li>• More action must be taken behind flood defences to ensure that the consequences of possible flooding are minimized – increasing site-level strategies of resilience and resistance.</li> <li>• Take full consideration of the opportunities as well as challenges, and openly consider the local possibilities for retreat, defend, and attack strategies.</li> <li>• Consult and communicate with all relevant stakeholders from the BEGINNING of the design process – especially the Environment Agency.</li> <li>• Schemes should seek to fully exploit the amenity potential of water, waterways and wetlands in the urban environment.</li> <li>• Inform the developer/client of development opportunities that can be created through creative and commercially viable flood management systems, encouraging integrated, multi-functional and economically advantageous solutions.</li> <li>• Design-led approaches to flood risk management should shift from a reliance on flood defences to a holistic management of risk, combining defence and measures to alleviate the impact of floods.</li> <li>• Structural measures, particularly defence works, should avoid disconnecting one part of a community from another and should preserve visual (and where possible physical) continuity between the community and rivers and coastline.</li> <li>• New development or regeneration should be seen as an opportunity to change existing land use in urban areas to make space for water.</li> <li>• Flood defence does not stop at a barrier – existing and new homes can be made more resilient and resistant to flooding, and should be part of an</li> </ul>

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				<p>integrated community or city-wide strategy.</p> <ul style="list-style-type: none"> <li>Individuals can make a difference, providing soakaways and ensuring that the areas surrounding their properties are permeable to rainwater, installing flood resilience measures, installing green roofs and seeking to harvest rainwater.</li> <li>Flooding is a long-term threat to coastal towns and cities, requiring long term vision and far-reaching solutions. This will affect the future of your area. Only if the local community – in all its forms – get involved will the strategy truly reflect local aspirations and needs.</li> </ul>
5.4	Country Land and Business Association Press Release: CLA helps define cost-effective sea defences; report produced by Halcrow “Optimal Stable Bay Morphological Modelling, July 2010”	Country Land and Business Association (CLA)	Available online at: <a href="http://www.cla.org.uk/News_and_Press/Latest_Releases/Coastal_Management/Sea_Defence/1004142.htm/">http://www.cla.org.uk/News_and_Press/Latest_Releases/Coastal_Management/Sea_Defence/1004142.htm/</a> . Date accessed: 22/10/2012	A modelling guide to designing optimal stable bay solutions is presented as a way of delivering engineering solutions to future coastal change risks.
5.5	Impacts of Climate Change on Disadvantaged UK Coastal Communities. March 2011	Joseph Rowntree Foundation	Available online at: <a href="http://www.jrf.org.uk/sites/files/jrf/disadvantaged-communities-climate-change-full.pdf">http://www.jrf.org.uk/sites/files/jrf/disadvantaged-communities-climate-change-full.pdf</a> . Date accessed: 22/10/2012	<ul style="list-style-type: none"> <li>Pg 17 &gt;&gt; “Adaptation is essential in order to prepare for future risks, which are likely to be exacerbated by global warming. In addition, adequate adaptation could enable communities to benefit from potential opportunities that a changing climate can bring. For instance, changes in land and water temperature could extend the range of crops that can be grown in some areas or increase the availability of certain fish or shellfish species along our coast.</li> </ul> <p>Regarding what constitutes ‘adaptation’, the UK Climate Impacts Programme highlights that adaptation activities can cover measures and strategies that contribute to one of two things:</p> <ul style="list-style-type: none"> <li>Building adaptive capacity – including creating the information (research, data collecting and monitoring, awareness raising), supportive social structures (organisational development, working in partnership, institutions) and supportive governance (regulations, legislations, guidance) that are needed as a foundation for delivering adaptation actions;</li> <li>Delivering adaptation actions – actions that help to exploit opportunities or reduce vulnerability to climate risks.</li> </ul> <p>The two types of adaptation activities could be considered a two-step approach: adaptive capacity is needed in order to adequately plan and deliver adaptation actions. Adaptation also covers a range of practices including:</p> <ul style="list-style-type: none"> <li>Changes in behaviour;</li> <li>Structural changes;</li> <li>Policy-based responses;</li> <li>Technological responses;</li> <li>Managerial responses.”</li> </ul> <ul style="list-style-type: none"> <li>Section 7 Conclusions &gt;&gt; identifies that ‘successful adaptation’ is a combination of: <ul style="list-style-type: none"> <li>Consistent policy priority..</li> <li>Good communication and engagement with communities.</li> <li>Adaptive local and national institutions.</li> <li>Long-term development and infrastructure planning.</li> <li>Increased capacity building.</li> <li>Support for disadvantaged groups and communities.</li> </ul> </li> </ul>
5.6	Natural England’s Climate Change Risk Assessment and Adaptation Plan (NE318)	Natural England	Available online at: <a href="http://archive.defra.gov.uk/environment/climate/documents/adapt-reports/01benchmark/benchmark-natural-england-final.pdf">http://archive.defra.gov.uk/environment/climate/documents/adapt-reports/01benchmark/benchmark-natural-england-final.pdf</a> . Date accessed: 22/10/2012	<p>Executive Summary states:</p> <ul style="list-style-type: none"> <li>Report produced to meet requirements of the Climate Change Act 2008.</li> <li>The report highlights the key threats and opportunities that climate change poses to NE’s objectives for delivery at the national and sub-national level.</li> <li>NE’s Adaptation Plan responds to the identified risks in a variety of ways: <ul style="list-style-type: none"> <li>Direct action by NE,</li> <li>Working with others and providing evidence based advice to enable others to act, and</li> <li>Focused advice and incentive schemes.</li> </ul> </li> <li>The plan reflects the nature of the natural environment, the range of other interests and the limitations of the levers available to NE.</li> <li>Effective adaptation will require an adaptive management approach whereby plans are refined over time as the evidence base develops. This will require good monitoring of both climate change impacts and the effectiveness of our responses.</li> <li>NE’s immediate actions will focus on building resilience of the natural environment to maintain current species, habitats and landscapes. In parallel, NE will also start to accommodate change which is inevitable or beneficial to meeting our objectives for the natural environment. For example, NE will develop ways of recognising the changing distributions of species in setting the objectives for protected sites.</li> </ul>



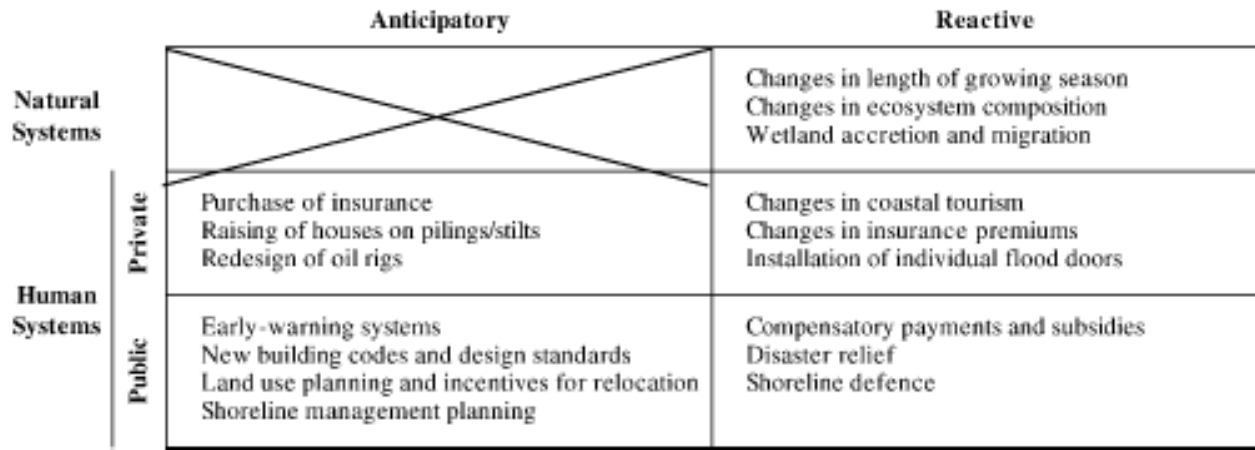
REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<ul style="list-style-type: none"> <li>In the longer term society is likely to have to confront more difficult questions about whether to accept or promote major change in ecosystems in order to maintain overall biodiversity and ecosystem processes and services.</li> </ul> <p>Section 2.14 sets out 4 key principles for adaptation planning:</p> <ul style="list-style-type: none"> <li>Adaptation should aim to maintain or enhance the environmental, social and economic benefits provided by a system, while accepting and accommodating inevitable changes to it. It is important for adaptation to be based on a clear set of objectives that frame the problem in terms of what are we adapting for?" (that is, focusing on the benefits we want to obtain).</li> <li>Adaptation should not solve one problem while creating or worsening others. We should prioritise action that has multiple benefits and avoid creating negative effects for other people, places and sectors. Many adaptation responses to address socioeconomic factors will have wider consequences for natural systems, and vice versa. Taking an ecosystems-based approach, and applying principles of sustainable development across sectors will be necessary to identify integrated, sustainable adaptation solutions.</li> <li>Adaptation should seek to increase resilience to a wide range of future risks and address all aspects of vulnerability, rather than focusing solely on specific projected climate impacts. Actions must be taken in the face of uncertainty in relation to future climate changes, socioeconomic change, and the interaction between them. Therefore it is important to build resilience to cope with a range of plausible futures.</li> <li>Approaches to adaptation must be flexible and not limit future action. Increasing the resilience of what we have is a good initial strategy but, in the longer term and under more extreme climate change, transformative approaches will increasingly be needed. New approaches to adaptation will need to be tested and monitored at the appropriate scale so we can learn from experience and revise our approaches accordingly.</li> </ul>
5.7	Preparing for Change - Climate-proof your tourism business	Climate South East, Climate South West, Tourism South East, The South West Tourism Alliance	Available online at: <a href="http://www.climateprepared.com/index.php/coastal_change">http://www.climateprepared.com/index.php/coastal_change</a> . Date accessed: 29/10/2012	<ul style="list-style-type: none"> <li>Provides information on how climate change could affect tourism in the south of England.</li> <li>Gives the message that these ongoing changes have implications, both positive and negative, for the coastal tourist industry. Whilst many processes may be beyond individual business' control, there are some simple things businesses can do in order to ensure that they are able to make the most of the positive aspects of coastal change, whilst increasing resilience to the risks.</li> <li>Some of the things that could happen are set-out as follows: <ul style="list-style-type: none"> <li>Sea level rise and storm surges will increase the risk of coastal flooding, directly affecting some seafront businesses (damage to buildings, stock, access for deliveries, parking, power supply interruptions etc), whilst also affecting visitor access to beaches, promenades and coastal roads.</li> <li>Repeated coastal flooding may result in reputational harm of your resort or local area.</li> <li>Increased coastal erosion could bring unusual benefits to your area. For example, fossil hunters are attracted to the Jurassic Coast after storm events and cliff-falls.</li> <li>Coastal erosion, especially as land slippage, damages footpaths and other coastal infrastructure (including roads and railways), which will require more frequent maintenance or possibly rerouting. This may inadvertently damage the visitor experience.</li> <li>Increased coastal erosion could lead to more rock-falls and unstable cliff-tops, posing health and safety risks to visitors. Coastal erosion may also directly threaten some cliff-top businesses</li> <li>Shifts in sand and shingle may affect beach volumes, altering the shapes, sizes and texture of some beaches – a key visitor attraction.</li> <li>Sea level rise will alter natural habitats along coasts and estuaries, prompting changes to the mix of wildlife – a key attraction for bird-watchers and wildlife enthusiasts. For example, saltmarsh and mudflats (important habitats for birds) may be lost or reduced in size as sea level rises. Of course, they may be replaced by equally interesting habitats.</li> <li>Coastal flooding and beach changes may directly affect beach businesses such as cafes, car parks and surf shops.</li> </ul> </li> <li>To prepare for the risks, businesses are advised to: <ul style="list-style-type: none"> <li>Check your flood risk using the Environment Agency's website: If you are at risk, take a look at the 'Flood' pages of this website, which contain lots of useful advice and information relevant to any type of flooding, including coastal.</li> <li>Checking you are fully insured is particularly important. Discuss your requirements with your insurer and be aware that not all insurance companies have the same approach to coastal erosion and business cover.</li> <li>Find out more about the management plans for your area. All sections of the coast now have a Shoreline Management Plan (SMP), which includes a large-scale assessment of the risks and lays out the plans to help reduce these risks to people and the environment.</li> <li>Find out if there is an emergency plan for your town or village and, if there is, see how it relates to you and your business.</li> <li>If visitors usually reach your business via a key coastal road or rail line that may be at risk from erosion, consider alternative routes or a contingency plan that you can share with your visitors should the transport link be disrupted.</li> <li>If you are concerned that your property is at significant risk from coastal erosion (i.e. may be lost), you should contact your local authority to find out what support is available. You may be eligible for a coastal erosion assistance grant which provides a small degree of financial support, via local authorities, towards the costs of demolition and some basic moving costs.</li> </ul> </li> <li>Prompts businesses to take advantage of the opportunities by: <ul style="list-style-type: none"> <li>Think about opportunities to tailor your product, visitor offer and marketing to make the most of the changing landscape in your area. For instance, you might be able to interest visitors in the local history and landscape by making a feature describing how the area has changed over time.</li> </ul> </li> </ul>

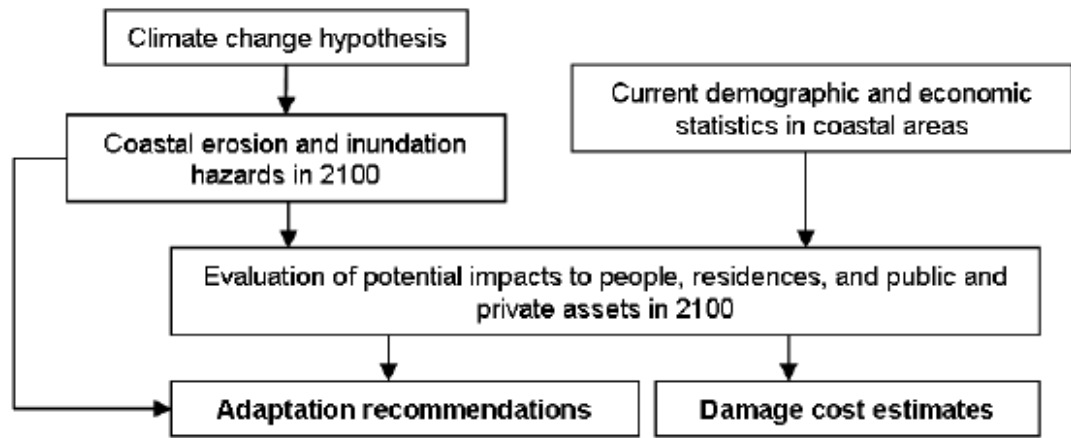
REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<ul style="list-style-type: none"> <li>○ Get together with other local businesses to identify opportunities to celebrate coastal change and ensure that key aspects such as footpaths and information boards are maintained.</li> <li>○ Help your visitors to understand the risks if you are near unstable cliffs and provide them with a range of ideas for activities in your area so that, should access to beaches and cliffs be restricted at any point (either due to cliff instability or poor bathing water quality), they know about alternative activity options.</li> </ul>
5.8	Resilient Tourism: Preparing for extreme weather and climate change in the South West. Presentation given by ClimateSouthWest and The South West Tourism Alliance, July 2011.	ClimateSouthWest and The South West Tourism Alliance	Available online at: <a href="http://www.climatesouthwest.org/library/Tools/tourism_presentationJuly11.ppt">http://www.climatesouthwest.org/library/Tools/tourism_presentationJuly11.ppt</a> . Date accessed: 29/10/2012	<ul style="list-style-type: none"> <li>• Slide 30 identifies climate risks for tourism: <ul style="list-style-type: none"> <li>○ 20% of community feel their area already receives more visitors than it can cope with</li> <li>○ Increased insurance costs</li> <li>○ Staff and visitor health and safety</li> <li>○ Increased pressure on the environment</li> <li>○ Flooding</li> <li>○ Increased pressure on transport infrastructure</li> <li>○ Coastal locations threatened by sea level rise and increased erosion</li> <li>○ Damage to historic buildings and other heritage sites/visitor attractions</li> </ul> </li> <li>• Slide 31 presents climate change opportunities for tourism: <ul style="list-style-type: none"> <li>○ Potentially longer season</li> <li>○ Job creation</li> <li>○ Diversification</li> <li>○ Tourism in 'off peak' periods</li> <li>○ Reduced winter heating costs</li> <li>○ New market opportunities for certain products and services.</li> </ul> </li> <li>• Slide 43 has top tips for how businesses can prepare for change: <ul style="list-style-type: none"> <li>○ Identify the effects to your business</li> <li>○ Check your flood risk</li> <li>○ Get help and advice</li> <li>○ Learn from others</li> <li>○ Reduce risk</li> <li>○ Plan ahead</li> <li>○ Check your insurance</li> <li>○ Practical actions</li> <li>○ Raise awareness</li> <li>○ Review Health &amp; Safety procedures</li> </ul> </li> <li>• Slide 49 presents a case study of the Slapton Line Partnership. In this area coastal erosion means that the coastal road can only be maintained for a maximum of 30 -50 years. Adaptation measures include: <ul style="list-style-type: none"> <li>• Signage for alternative routes</li> <li>• Contingency plan for road closures</li> <li>• Emphasising attraction of nature reserve</li> <li>• Business Forum to discuss challenges and opportunities.</li> </ul> </li> </ul>
5.9	Adapting to Climate Change: Future Worlds images	Department for Environment, Food and Rural Affairs (Defra)	Available online at: <a href="http://archive.defra.gov.uk/environment/climate/documents/interim2/future-worlds.pdf">http://archive.defra.gov.uk/environment/climate/documents/interim2/future-worlds.pdf</a> . Date accessed: 31/10/2012	<ul style="list-style-type: none"> <li>• Provides six images to show potential ways to adapt to climate change in both urban and natural environments, based on our understanding of what the climate will be like in 2030. These images cover: <ul style="list-style-type: none"> <li>○ Domestic Houses</li> <li>○ Cityscape</li> <li>○ Major Infrastructure</li> <li>○ A Future Farm</li> <li>○ Countryside</li> <li>○ Coastal.</li> </ul> </li> </ul>
5.10	Reculver Masterplan Report: Volume 1	Allen Scott Ltd (for Canterbury City	Available online at: <a href="http://www2.canterbury.gov.uk/committee/Published/C000">http://www2.canterbury.gov.uk/committee/Published/C000</a>	Provides an example of how long term planning for an areas development can incorporate coastal change. In particular, Section 3.8 sets out how the SMP policy has influenced the Masterplan, including:

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		Council)	00114/M00006358/AI00011838/masterplan.pdf. Date accessed: 31/10/2012	<ul style="list-style-type: none"> <li>Local Plan policies seek to create new, or improve existing, wetland wildlife habitats where these complement flood risk reduction measures. There are potential long term benefits for the country park in green-tourism, the local economy and wildlife if significant wetlands were created as part of a managed retreat policy in West Wantsum.</li> <li>A future review will be carried out by the Environment Agency (EA) on managed retreat within West Wantsum and possible secondary defences, so there is no detail available at present. However in principle the masterplan could promote the creation of a wetland which would also be considered beneficial by the EA subject to necessary flood implications upstream and consultation with the Internal Drainage Board and landowners.</li> <li>The flood risk assessment for Reculver will assist local businesses to make informed decisions and provides a level of surety for the masterplan proposals for further development within the caravan park frontages and public land to extend the tourism accommodation offer. The EA has stated that they are satisfied with the outputs of the breach analysis and the parameters used to derive data pertaining to the eastern defences. Furthermore they have confirmed that the suggested flood mitigation measures and surface water management measures are in line with their recommendations.</li> </ul>
5.11	ESPACE – Planning in a Changing Climate 2007: Example Plans and Policies	ESPACE	Available online at: <a href="http://www.espace-project.org/part1/publications/pdf1.pdf">http://www.espace-project.org/part1/publications/pdf1.pdf</a> . Date accessed: 31/10/2012	<p>Example plan summarized is the South East [Regional] Plan. Key points to note are:</p> <ul style="list-style-type: none"> <li>The South East Plan includes a cross-cutting policy covering a range of aspects of climate change mitigation and adaptation.</li> <li>Climate change adaptation is integrated into sectoral policies and in particular is reflected in policies about water management.</li> <li>Adaptation to risks and opportunities will be achieved through: <ul style="list-style-type: none"> <li>Guiding strategic development to locations offering greater protection from impacts such as flooding, erosion, storms, water shortages and subsidence</li> <li>Ensuring new and existing building stock are more resilient to climate change impacts</li> <li>Incorporating sustainable drainage measures and high standards of water efficiency in new and existing building stock</li> <li>Increasing flood storage capacity and developing sustainable new water resources</li> <li>Ensuring that opportunities and options for sustainable flood management and migration of habitats and species are not foreclosed.</li> </ul> </li> <li>In respect to coastal management specifically: <ul style="list-style-type: none"> <li>Local authorities should take account of climate change and forecast effects on the coastal zone</li> <li>They should ensure that development does not preclude the delivery of sustainable flood risk management solutions in the future</li> <li>They should restrict development on the undeveloped coastline</li> <li>They should prevent development on unstable land or areas at risk of erosion</li> <li>They should realise opportunities for sustainable coastal defences, which enhance wildlife and fisheries.</li> </ul> </li> </ul>
5.12	Climate Resilient Infrastructure: Preparing for a Changing Climate	HM Government	Available online at: <a href="http://www.defra.gov.uk/publications/files/climate-resilient-infrastructure-full.pdf">http://www.defra.gov.uk/publications/files/climate-resilient-infrastructure-full.pdf</a> . Date accessed: 31/10/2012	<p>Climate change could have significant implications for infrastructure. As infrastructure assets have long operational lifetimes they are sensitive not only to the existing climate at the time of their construction, but also to climate variations over the decades of their use.</p> <p>To increase the resilience of both new and existing infrastructure, we must be prepared to plan ahead and manage the impacts of climate change. This is an important part of the transition to a green economy.</p> <p>Achieving Climate resilient infrastructure:</p> <ul style="list-style-type: none"> <li><b>New infrastructure</b> can be climate resilient by ensuring that an asset is located, designed, built and operated with the current and future climate in mind.</li> <li><b>Existing infrastructure</b> can be climate resilient by ensuring that maintenance regimes incorporate resilience to the impacts of climate change over an asset's lifetime. <b>To achieve this</b>, possible adaptation measures include: <ul style="list-style-type: none"> <li>Ensuring infrastructure is resilient to potential increases in extreme weather events such as storms, floods and heatwaves as well as extreme cold weather.</li> <li>Ensuring investment decisions take account of changing patterns of consumer demand as a result of climate change.</li> <li>Building in flexibility so infrastructure assets can be modified in the future without incurring excessive cost.</li> <li>Ensuring that infrastructure organisations and professionals have the right skills and capacity to implement adaptation measures.</li> </ul> </li> </ul> <p><b>The result</b> will be a more resilient and robust infrastructure network able to cope with projected climate impacts e.g. increased flexibility to cope with uncertainty without massive failure and economic cost.</p> <p>Section 5.8 &gt;&gt; This document sets out the strategic approach to adapting national infrastructure which can be replicated at the sub-regional and local level by local authorities and the new Local Enterprise Partnerships (LEPs). Both have a potential role in encouraging and co-ordinating action to adapt infrastructure at the sub-national level to boost local resilience to climate change, minimise economic risk and maximise any economic opportunities. Other potential benefits could be:</p> <ul style="list-style-type: none"> <li>Facilitating localised cross-sector adaptation initiatives leading to more targeted adaptation action.</li> <li>Action locally may also lead to more action nationally.</li> </ul> <p>Section 6 &gt;&gt; A successful adaptation approach should be:</p> <ul style="list-style-type: none"> <li><b>Effective:</b> the decision should reduce vulnerability to climate change.</li> <li><b>Efficient:</b> the benefits of adaptation should outweigh the costs.</li> <li><b>Equitable:</b> the distributional consequences should be taken into account.</li> </ul>

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				<ul style="list-style-type: none"> <li><b>Evidence-based:</b> the decision should be informed by latest research, data and practical experience.</li> </ul>
5.13	Coastal Adaptation Project: Review of International Best Practice	Halcrow (for the Environment Agency)	Halcrow copy	<p>“To help progress sustainable planning on the coast, approaches to helping individuals and communities adapt to change are being developed through the coastal adaptation project, being led by Defra. The project aims to assess the scale and effect of the issues and develop a broad portfolio of options for addressing them. To help inform the development of the adaptation measures a desk-based review of practices in other countries has been undertaken.”</p> <p>Concluded that “<u>No approaches that provide a ready solution for the programmatic adaptation necessary in the UK have been identified</u>. However, there are a number of approaches that warrant some further review for their potential to offer benefits in the UK. It is recommended that the following be considered further:</p> <ul style="list-style-type: none"> <li>Voluntary purchase of ‘at risk’ properties, enabling existing properties to be removed from high risk coastal areas (based on Australian practice).</li> <li>Development of a program to promote/enable the purchase of damaged properties following a major flood/erosion event (similar to US HGMP).</li> <li>Systematic use of ‘planned retreat’ to allow time-limited development on the coast providing a mechanism for risk informed decisions (based on Australian practice).</li> <li>Requirement for local planning authorities to systematically adopt restrictive zoning policies for coastal erosion (such as in Australia and French Risk Prevention Plans).</li> <li>Acquisition and lease back of coastal lands at risk. Under such schemes, local government acquires land at risk and leases it to existing or future users for a specified period of time, after which the land reverts to public ownership (based on Australian practice).</li> <li>Voluntary purchase and resale for development. Under such schemes, the resale of land at risk might be dependent on its use for purposes compatible with the governing hazards (based on Australian practice).</li> <li>Special rates levied on existing development at risk to offset the cost of necessary protective works (based on Australian practice).”</li> </ul>
5.14	Sector seeks facilities vow	James Wells	<a href="http://www.planningresource.co.uk/news/541605/">http://www.planningresource.co.uk/news/541605/</a> . Date accessed: 31/10/2012	<p>Report on research into the application of planning obligations.</p> <p>This found widespread variations in the application of planning obligations, creating significant uncertainty for developers and other stakeholders.</p> <p>Discusses specific case study of the use of tariff-based funding system for securing enhanced Section 106 contributions, that go beyond normal S106 payments into strategic infrastructure provision, from all major housing and employment developments in Milton Keynes.</p>
5.15	Scaling Adaptation: Climate Change Response and Coastal Management in the UK. Tyndall Centre for Climate Research. Working Paper 60. October 2004.	Few R, Brown K, and Tompkins E L.	Available online at: <a href="http://www.tyndall.ac.uk/sites/default/files/wp60.pdf">http://www.tyndall.ac.uk/sites/default/files/wp60.pdf</a> . Date accessed: 31/10/2012	<p>The focus of this paper is on scale dilemmas in environmental decision-making, particularly those dilemmas posed in space and time by the challenges of societal adaptation to climate change impacts.</p> <p>The analysis draws insights from a case study of strategic coastal management and decision-making at Christchurch Bay in southern England, where communities face long term threats of increased coastal erosion and coastal flooding.</p> <p>In terms of spatial scale, the paper exposes a mismatch between the broad geographical scale at which strategic planning takes place in the UK and the narrower spatial scale of decision-making on coastal management interventions.</p> <p>In terms of temporal scale, it finds that the time horizons of coastal planning are generally too short to mandate consideration of climate change impacts.</p> <p>Both sets of scale issues inhibit anticipatory response capacity of institutions, and the barriers to adaptation are particularly evident at the local decision-making scale in the context of local political, financial and technical constraints.</p> <p>Together, they point to a ‘problem of fit’ between the climate change threat and local capacity to take advance action to address that threat, under conditions of long term change and scientific uncertainty.</p>
5.16	Potential Implications of Sea-Level Rise for Great Britain	De la Vega-Leinert A C, and Nicholls R J.	Journal of Coastal Research (24)2, 342-357, March 2008.	<p>Provides a wide ranging discussion of the issues and potential implications of sea level rise to the UK.</p> <p>With regards to adaptation in response to sea level rise, the following statements are made &gt;&gt;&gt;</p> <ul style="list-style-type: none"> <li>To maximise potential benefits in view of the current uncertainty in potential impacts of CC and ALSR, adaptation clearly has to consider a range of alternative options.</li> <li>Low cost, “no regret” measures that tackle present coastal management problems should be encouraged, including, for example, adequate flood-warning systems.</li> <li>Measures should be flexible, reversible, and forgiving (<i>i.e.</i>, not critically dependent for their success on tightly defined conditions and should fail progressively rather than by catastrophic collapse). Forward planning over the long term and anticipatory adaptation, rather than traditional reactive approach over the short term, are critical if the range of options is to be preserved for future generations.</li> <li>Maintenance and enhancement of natural ecosystems (<i>e.g.</i>, re-creation of natural buffers) and the adaptive capacity of socio-economic systems (<i>e.g.</i>, disaster preparedness) have been recognised as ways to reduce vulnerability to potential impacts of CC and ASLR.</li> <li>In Scotland, the insurance industry is directly involved in planning decisions for development in floodplains and on cliff tops.</li> <li>Finally, adaptation options will have to be selected/ weighed on a case-by-case basis, with appropriate consideration of different temporal and spatial scales. Given the inherent uncertainties, adaptation should be envisaged as a flexible and iterative “learning by doing” process.</li> </ul>
5.17	Towards Successful Adaptation to Sea-Level Rise along Europe’s Coasts	Tol R S J, Klein R J T, and Nicholls R J.	Journal of Coastal Research (24)2, 432-442, March 2008.	<p>Adaptation is defined as the planned or unplanned, reactive or anticipatory, successful or unsuccessful response of a system to a change in its environment.</p> <p>This paper examines the current status of adaptation to sea-level rise and climate change in the context of European coasts.</p> <p>Adaptation can greatly reduce the impact of sea-level rise (and other coastal changes), although it requires adjustment of coastal management policies to changing circumstances. Consequently, adaptation is a social, political, and economic process, rather than just a technical exercise, as it is often conceived.</p>



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				<p>At the European Union level, while coastal management is a focus, this effort is mainly targeted at today's problems. Hence, this paper suggests the need for a concerted effort to address adaptation in coastal zones across Europe. Sharing of experience among countries would facilitate this process.</p> <p>Anticipatory adaptation is implemented before impacts of climate change are observed, while reactive adaptation takes place in response to impacts. In natural systems adaptation is always reactive, whereas in human systems both reactive and anticipatory adaptation are observed. The goal of reactive adaptation is to minimise damage or maximise opportunities, as well as to prepare for a future similar event. Note that anticipatory adaptation, although future oriented, is typically in reaction to an event (<i>e.g.</i>, an adverse projection). Thus, the distinction between anticipatory and reactive adaptation is not always as clear as the definitions would suggest.</p>  <p><b>Figure 1. Matrix showing the five types of adaptation prevalent to sea-level rise and climate change, including examples relevant to coastal areas (adapted from Smit <i>et al.</i>, 2001).</b></p> <p>Reducing vulnerability is an important goal of anticipatory adaptation. In general, vulnerability can be reduced by the following five anticipatory adaptation strategies:</p> <ul style="list-style-type: none"> <li>• Increasing robustness of infrastructural designs and long term investments—for example, by extending the range of sea levels a coastal system can withstand without failure and/or changing the tolerance of loss or failure (<i>e.g.</i>, by increasing economic reserves or insurance)</li> <li>• Increasing flexibility of vulnerable managed systems—for example, by allowing midterm adjustments (including change of activities or location) and/or reducing economic lifetimes (including increasing depreciation)</li> <li>• Enhancing adaptability of vulnerable natural systems—for example, by reducing other (non-climatic) stresses and/or removing barriers to migration (including managed retreat and realignment)</li> <li>• Reversing trends that increase vulnerability (which is termed “maladaptation”)—for example, by introducing setbacks for development in vulnerable areas such as coastal floodplains and landwards of eroding cliffs</li> <li>• Improving societal awareness and preparedness—for example, by informing the public of the risks and possible consequences of SLR and/or setting up early-warning systems (<i>e.g.</i>, for coastal floods due to storm surges)</li> </ul>
5.18	Adapting to Climate Change in the Severn Estuary Area: The Corporate Response by Local Government	Ballinger R C and Dodds W	<i>Littoral 2010</i> conference proceedings. Available online at: <a href="http://coastnet-littoral2010.edpsciences.org/index.php?option=com_article&amp;access=doi&amp;doi=10.1051/litt/201104007&amp;Itemid=129">http://coastnet-littoral2010.edpsciences.org/index.php?option=com_article&amp;access=doi&amp;doi=10.1051/litt/201104007&amp;Itemid=129</a> . Date accessed: 31/10/2012	<p>This paper summarises the results of a Severn Estuary Planning Review.</p> <p>This evaluated local government corporate responses to climate change and reviewed related policies in the development plans of the planning bodies around the estuary.</p> <p>The study revealed areas of policy coherence and divergence. Despite all the local governments having signed up to national political declarations on climate change and having devised or being in the process of devising climate change strategies, the focus remains on mitigation.</p> <p>The limited reference to shoreline management and Integrated Coastal Zone Management poses obstacles to coordinated action, much needed on an estuary divided by administrative borders and institutional barriers.</p> <p>These findings suggest a need for further policy guidance to support local policy development. Whilst presenting examples of good practice, relevant to local governments elsewhere, the stocktaking procedure also has potential for application elsewhere.</p>
5.19	Climate change impact, adaptation and associated costs for coastal risks in France	Le Cozannet G <i>et al</i>	<i>Littoral 2010</i> conference proceedings. Available online at: <a href="http://coastnet-littoral2010.edpsciences.org/index.php?option=com_article&amp;access=standard&amp;Itemid=129&amp;url=/articles/litt/pdf/2011/0">http://coastnet-littoral2010.edpsciences.org/index.php?option=com_article&amp;access=standard&amp;Itemid=129&amp;url=/articles/litt/pdf/2011/0</a>	Presents a Hazard Evaluation Methodology as a tool for basing adaptation recommendations:

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
			1/litt-15001.pdf. Date accessed: 31/10/2012	 <pre> graph TD     A[Climate change hypothesis] --&gt; B[Coastal erosion and inundation hazards in 2100]     C[Current demographic and economic statistics in coastal areas] --&gt; D[Evaluation of potential impacts to people, residences, and public and private assets in 2100]     B --&gt; D     D --&gt; E[Adaptation recommendations]     D --&gt; F[Damage cost estimates]     E --&gt; B </pre> <p>Adaptation measures identified in Section 4.2:</p> <ul style="list-style-type: none"> <li>• Communication of information to clarify the perception of risk.</li> <li>• Risk prevention is often set in place following an extreme event, instead of as a preventative step, and when preventative plans are created, prevention measures are often poorly applied when the risk is not perceived. Therefore, the planning recommendations are to reinforce the application of existing regulations, and to take into account coastal risks due to climate change in local, regional, and national level strategic plans and to take into account future climate change in the management of coastal sediment supplies, for example with the acquisition of land by the Conservatoire du Littoral.</li> <li>• Construction regulations such as to include anticipated climate change impacts in the design regulations and impact studies of coastal defence structures and port developments as well as to determine, as quickly as possible, the zones that should be protected and abandoned (with respect to sea level rise) for investment planning.</li> <li>• Adaptation consists of a variety of possible relocation or protection measures, and the key to a coherent management plan is in participation in planning and financing coastal risk prevention at all levels of management (local, regional, and national).</li> </ul>
5.20	New Car Park at Aberafan Seafront: Method Statement for Dune Grass Translocation	Jacobs (for Neath Port Talbot Borough Council)	Available online at: <a href="http://planning.npt.gov.uk:8251/view.aspx?Doc=282741">planning.npt.gov.uk:8251/view.aspx?Doc=282741</a> Date accessed: 01/11/2012	<p>Neath Port Talbot County Borough Council propose to develop an area of existing sand dunes on Aberafan Beach into a car park.</p> <p>The car park development will result in loss of an area of existing dune habitat. An existing hardcore vehicle track bisects the dunes to the northwest of the site. This is to be returned to sand dune habitat by 'relocating' the sand dune from the proposed car park area to this track area. To facilitate this, the hardcore track needs to be returned to a suitable condition for plant growth (i.e. removal of hardcore etc). The existing sand dune vegetation at the development site will be translocated to the new dune site on the track area, once the sand dune has been 'reconstructed' in the new location.</p> <p>This document sets out a method statement for delivering the relocation of the sand dunes.</p>
5.21	Coastal Adaptation Strategies – A Guidance Note (June 2008)	National Trust	E-copy provided by Phil Dyke, Coast and Marine Adviser of the National Trust	<ul style="list-style-type: none"> <li>• The Trust's Coastal Risk Assessment process enables us to understand and prepare for coastal erosion and flooding linked to both the rise in mean sea level (a subtle and incremental process) and increased storminess (sudden and chaotic events).</li> <li>• The production of a Coastal Adaptation Strategy (CAS) is intended to provide a practical approach to further enhance our competence to deal with complex coastal change issues over varying timeframes.</li> <li>• CAS provides a conceptual framework and checklist based approach to help ensure we are considering all relevant issues as we plan for the short, medium and long-term management of our properties in the face of coastal change.</li> <li>• CAS is not a stand alone planning mechanism but the outcomes must integrate back into the Trust's core planning processes in the form of the PMPs and RBPs.</li> <li>• CRA2 tells us that the timescales associated with coastal change vary according to a wide range of influencing factors. Some changes will occur within the next 20 years whilst others are a generation away and will not become 'active' for 50 or even 100 years. The Trust's Coastal Policy requires us to consider coastal change over these periods as does the planning approach within the Shoreline Management plan process.</li> <li>• In the light of experience however there seem to be a number of specific factors that trigger the need for developing a CAS. Most commonly these include: <ul style="list-style-type: none"> <li>○ Business case driven need for developing a CAS to inform decision making linked to project and investment plans relating to for example upgrading visitor facilities or income generating schemes</li> <li>○ Failure of existing sea defences.</li> <li>○ Concerns expressed by third parties and the need to discharge our legal responsibilities.</li> <li>○ A Storm</li> </ul> </li> <li>• Property Management Plan reviews are carried out on a regular basis, and at least once every three years. Therefore, it seems logical to include a three year time frame in the CAS toolkit alongside the 20 /50 /100 year frames.</li> <li>• Thinking in 3/20/50/100 year timeframes would allow for the need to take forward imperative project work, whilst having ensured the implications of the project have been thoroughly assessed against known coastal change data and longer-term timescales. Over time we will need to update a CAS as new</li> </ul>

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<p>data becomes available.</p> <ul style="list-style-type: none"> <li>• <b>Top tips towards producing a CAS:</b> <ul style="list-style-type: none"> <li>○ CAS is about promoting a vibrant future for the coastal property taking full account of National Trust coastal policy and the realities associated with the impacts of climate change – it is about understanding loss, and recognising opportunities for adaptation and mitigation.</li> <li>○ The CAS production process should be seen as a project in its own right and follow a rigorous project management methodology.</li> <li>○ Full engagement with all interested parties is vital and must be established at the outset. It is never possible to predict exactly how an engagement process is going to unfold. There may be divergent views, vested Interests, 3<sup>rd</sup> party disagreement and statutory hurdles to deal with. But early engagement offers the best chance of building consensus. Make full use of the NT Local Community Engagement toolkit and the offer of help from CLV. See Appendix A</li> <li>○ Undertake a full and clear exploration of the legal implications. There is little point in producing an action plan that cannot be implemented because of tenancy agreements and lease constraints that might block progress. Equally specific bequests and restrictive covenants may also cause difficulty. Duty of care to third parties, neighbouring properties and the rights of individuals must be given due consideration.</li> <li>○ Take due notice of any UK or European designations that apply and any condition reports produced by such bodies as English Heritage, Natural England etc</li> <li>○ Where we justify undertaking minor repairs to existing defences to 'buy time' we must ensure we are genuinely using this time to pursue alternative approaches for the long-term. Do not buy time and then waste it.</li> <li>○ Learn from other properties and pilots - for example the scenarios work being tested in Dorset. Check the Coast section of the intranet for further resources.</li> <li>○ Engagement at the appropriate level with Shoreline Management Plan reviews (SMP2) and taking full account of the ensuing SMP policy for a given cell will help us seat our CAS in a wider policy and coastal context.</li> </ul> </li> </ul>
5.22	The Householders' Guide to a Changing Coast: Old Castle Road, Belle Vue Road and Redcliff View.	Dorset Coast Forum	Hard-copy online. Details about the project are available online at: <a href="http://www.dorsetforyou.com/EA/DCFCollaborationProject">http://www.dorsetforyou.com/EA/DCFCollaborationProject</a> . Date accessed: 04/12/2012	<p>The Dorset Coast Forum (DCF) has been commissioned by the EA and is working with Weymouth &amp; Portland Borough Council to carry out a communications initiative with the local community within the general areas of Belle Vue Road, Redcliff View and Old Castle Road. With this project, DCF hope that residents will better understand:</p> <ul style="list-style-type: none"> <li>• The coastal processes at work along the North Shore of Portland Harbour</li> <li>• The differing levels of vulnerability for properties, caused by ground instability or mass movements</li> <li>• What are the coastal changes that are occurring now or likely to happen in the future and possible ways of adapting to these changes</li> <li>• The current national policies and local management strategies for this area</li> </ul> <p>The DCF carried out a consultation, with a consultation leaflet, to hear about any questions or concerns residents and businesses within the general areas of Belle Vue Road, Redcliff View and Old Castle Road had about the area in general or individual properties.</p> <p>The DCF produced an informative booklet that is relevant to residents within the general areas of Belle Vue Road, Redcliff View and Old Castle Road, addressing the issues and/or concerns raised by local residents.</p>
5.23	Isle of Wight Core Strategy Adopted March 2012	Isle of Wight Council	Available online at: <a href="http://www.iwight.com/living_here/planning/images/CoreStrategy-AdoptedMar2012.pdf">http://www.iwight.com/living_here/planning/images/CoreStrategy-AdoptedMar2012.pdf</a> . Date accessed: 04/12/2012	<p>There are a number of policies relevant to management of a dynamic coastal environment contained in the Isle of Wight Core Strategy. However, a key policy is policy DM15. The following is taken from the Core Strategy &gt;&gt;</p> <p><i>This policy sets out the Council's approach to managing development in coastal areas affected by coastal change. The Council will identify Coastal Change Management Areas (CCMAs) within the Flood Risk and Vulnerable Coastal Communities SPD.</i></p> <p><i>Development proposals will be expected to:</i></p> <ol style="list-style-type: none"> <li>1. <i>Take a sustainable and practicable approach to coastal protection and flood risk management. Applications for development in CCMAs will be considered where it can be demonstrated to the satisfaction of both the Council and the Environment Agency that:</i> <ol style="list-style-type: none"> <li>a. <i>an assessment of vulnerability has been carried out that shows that the development will be safe over its planned lifetime and will not have an unacceptable impact on coastal change;</i></li> <li>b. <i>the character of the coast, including designations and seascape (as defined in DM12), is not compromised;</i></li> <li>c. <i>the development provides wider sustainability benefits; and</i></li> <li>d. <i>the development does not hinder the creation and maintenance of a continuous signed and managed route around the coast.</i></li> </ol> </li> <li>2. <i>Support appropriate defences and/or other management approaches for the built-up areas of the Island, to a level consistent with predicted sea level rise and increased water flows arising from climate change. Any development proposal that includes flood defence work with the potential to have significant effects on European and Ramsar sites will be subject to a project level Habitats Regulations Assessment.</i></li> </ol> <p><i>The Council will support these requirements by:</i></p> <ol style="list-style-type: none"> <li>a. <i>Identifying areas likely to be affected by physical changes to the coast and define these as Coastal Change Management Area (CCMAs).</i></li> <li>b. <i>Identify the types of development that will be appropriate in CCMAs.</i></li> <li>c. <i>Setting out the circumstances in which certain types of development may be permissible within CCMAs.</i></li> <li>d. <i>Identifying allocations of land for appropriate development within CCMAs67.</i></li> </ol>

REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<i>e. Make provision for sufficient, suitable land outside CCMA's, where development and infrastructure needs to be relocated from CCMA's.</i>
5.24	Coastal Communities Adapting to Change (CCATCH) - The Solent	Solent Forum website	Available online at: <a href="http://www.solentforum.org/current/CCATCH/">http://www.solentforum.org/current/CCATCH/</a> . Date accessed: 04/12/2012	<p>Hampshire County Council is working in partnership with others to consider what these changes mean to local communities around the Solent. The 'CCATCH – the Solent' project will focus on 6 discrete stretches of coast and will involve all sectors of the local community in developing a plan for the future of the coastal area.</p> <p>The aim and objectives of the project are:</p> <p><b>Aim</b></p> <p>CCATCH - the Solent' will raise awareness and understanding amongst Solent communities of coastal change and in particular sea level rise. It will help stakeholders understand the process of coastal change to enable adaptation and increase resilience.</p> <p><b>Objectives</b></p> <ol style="list-style-type: none"> <li>1. To engage the local community in all aspects of coastal change and how it will impact on existing residents, businesses and visitors.</li> <li>2. Explore the full range of hazards and risks to which coastal communities may be exposed i.e. flooding by the sea, coastal erosion and coastal instability.</li> <li>3. To provide educational and interpretational opportunities that can communicate coastal change and build a high level of understanding within the local community.</li> <li>4. To raise awareness of long term sea level rise amongst politicians and elected Members.</li> </ol> <p>Community involvement will be vital to make sure that views are heard and knowledge shared. There will many opportunities for local people to get involved, such as workshops, public exhibitions and demonstrations of resilience measures, as well as contributing to publications. The Solent Forum will be co-ordinating the three year work programme (to complete in 2015).</p> <p>The communities to be engaged by this project are:</p> <ol style="list-style-type: none"> <li>1. Beaulieu to Calshot - an area with a small number of large private landowners and includes Calshot Activities Centre and Lepe Country Park.</li> <li>2. Southampton, Upper West Itchen - an area of mixed urban community with social housing, private landlords and owner occupiers. There are also numerous commercial waterside properties.</li> <li>3. Netley and Royal Victoria Country Park - a small urban coastal community and a Country park which draws numerous recreational visitors.</li> <li>4. Solent Breezes Holiday Park - an area with a holiday park with some permanent residents, holidaymakers and numerous recreational uses, also includes farmland and utilities infrastructure.</li> <li>5. Hayling Island and Langstone – a number of separate small rural communities with tourist and recreational assets at risk.</li> <li>6. Yarmouth - small affluent town with a working harbour and high levels of water-based recreation.</li> </ol> <p>This CCATCH project forms part of a larger European funded project led by the Environment Agency (EA) titled 'Coastal Communities 2150 and Beyond' (CC2150) (details of which are available at <a href="http://www.environment-agency.gov.uk/aboutus/wfo/128455.aspx">http://www.environment-agency.gov.uk/aboutus/wfo/128455.aspx</a>).</p>
5.25	Sefton Coastal Adaptation Study, October 2010	Sefton Council	Available online at: <a href="http://www.sefton.gov.uk/pdf/Coastal%20Adaption%20Study%20Oct%202010.pdf">http://www.sefton.gov.uk/pdf/Coastal%20Adaption%20Study%20Oct%202010.pdf</a> . Date accessed: 05/12/2012	<p>This adaptation study considers the potential impacts of coastal change on the Sefton Coast to ensure Sefton Council are in a position to manage changes to the coast in the years ahead. This study identifies risks and opportunities arising from coastal change (including climate change) on a risk based approach to highlight the issues for partner organisations so that they can consider options and how these might be included in their policy documents and management plans.</p>
5.26	IMCORE project website	European Union	Website: <a href="http://imcore.eu/">http://imcore.eu/</a>	<p>IMCORE stands for Innovative Management for Europe's Changing Coastal Resource. Funded under the Interreg IVB programme (<a href="http://www.nweurope.eu">www.nweurope.eu</a>), the €6m IMCORE project will be led by the Coastal &amp; Marine Resources Centre in University College Cork until its end in 2011.</p> <p>The website provides access to a range of information, case studies and tools covering different aspects of coastal change adaptation planning from around the UK, the rest of Europe and worldwide. The range of information available is best summarised in the diagram below:</p>



REF #	Document Title	Author(s)	Source	Summary of information relevant to coastal adaptation planning contained in document
				<pre>graph TD; A[ADAPTATION TO CLIMATE CHANGE IN COASTAL AREAS] --- B[POLICY]; A --- C[CASE STUDIES]; A --- D[RESEARCH]; A --- E[TOOLS]; E --- F[Managerial Tools]; E --- G[Economic Tools]; E --- H[Behavioural Tools]; E --- I[Technological Tools]; F --- J[Assesment and Evaluation Tools]; F --- K[Knowledge Management Tools]; F --- L[Planning and Policy Tools]; H --- M[Education Tools]; H --- N[Capacity Building Tools];</pre>

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# Appendix B

Consultation Responses

## Appendix B Consultation Responses

As part of the development of the Coastal Change Adaptation Planning Guidance (the Guidance) a number of stakeholders from a variety of organisations were consulted in order to gain knowledge from each in relation to the challenges and opportunities provided by their work in taking forward coastal change adaptation in different parts of England. The information gained from this consultation provides part of the evidence base used to inform the development of the Guidance.

Consultation involved a combination of telephone interviews and written responses to the following 15 questions:

- **Question 1** What type of coast do you have responsibility for? (e.g. soft cliff/hard cliff/ beaches/dunes/estuaries etc)
- **Question 2** What are the specific issues relating to coastal change that you need to manage? (e.g. social/economic/environmental)
- **Question 3** Does your organisation have in place a specific mechanism for developing and implementing Coastal Change Management Areas?
- **Question 4** What key messages do you believe your Pathfinder (or other adaptation) project identified in terms of good approaches to coastal adaptation through the planning system that could be included in the guidance?
- **Question 5** (IF APPLICABLE) Besides the areas focussed on in your Pathfinder project, are you aware of any other locations in your locality where coastal change adaptation practices are being implemented through the planning system that could provide a good case study for inclusion in the coastal change adaptation planning guidance?
- **Question 6** How does your internal organisational structure help or hinder coastal change adaptation in the planning system?
- **Question 7** How does your organisation interact with other organisations when it comes to planning coastal change adaptation?
- **Question 8** How does your organisation engage / interact with communities when it comes to planning coastal change adaptation?
- **Question 9** If you have, or do develop, Coastal Change Management Areas and associated policies, how would communication with communities be done? Would the approach change from present approaches?
- **Question 10** What has been the legacy for your organisation / partner organisations / communities of the Pathfinder (or other adaptation) project in terms of the planning system? Do you feel that any additional lessons have been learnt from your Pathfinder (or other adaptation) project that were not reflected in your final evaluation report to Defra, particularly with regards to types of planning system responses to managing coastal change adaptation?
- **Question 11** How were cross boundary issues considered during the project and how were they dealt with?

- **Question 12** Have any recent changes in political, planning or environmental legislation affected coastal change adaptation?
- **Question 13** What data do you expect to use to underpin the development of Coastal Change Management Areas and how confident are you in the available evidence base for this purpose? If not confident, what additional data would you need to provide confidence when defining CCMA's?
- **Question 14** Do you feel there would be benefit in providing some form of knowledge exchange platform at regional/national level to share experience in the future?
- **Question 15** Is there anything else that you believe guidance on planning system approaches to coastal change adaptation should include?

The table below identifies the stakeholders who were consulted as part of this project between November and December 2012:

Organisation	Name of Consultee(s)
Chichester District Council	Jane Cunningham
Dorset County Council	Peter Moore
East Riding of Yorkshire Council	Jeremy Pickles and Jennifer Kippax
Great Yarmouth Borough Council	Sarah Slade
Hastings Borough Council	Nick Sangster and Chantal Lass
Isle of Wight Council	Chris Mills
Lincolnshire County Council	David Hickman
National Trust	Tony Flux
North Norfolk District Council	Brian Farrow, Rob Goodliffe and Rob Young
Scarborough Borough Council	Stewart Rowe and Kate Masser
Sefton Borough Council	Graham Lymbery and Michelle Barnes
Somerset County Council	Rebecca Gray
South Hams District Council	Robin Toogood and Alan Denbigh
Waveney District Council	Bill Parker, Sam Hubbard and David Savill

The following provides records of the responses given by each consultee to the 15 questions.



## Coastal Change Adaptation Planning Guidance: Telephone Interview Record Sheet

<b>Date:</b>	29 <sup>th</sup> November 2012
<b>Time:</b>	1000-1100
<b>Interviewer Name (Halcrow):</b>	Mark Graham
<b>Interviewee Name/Organisation:</b>	Jane Cunningham (MPP Project Officer, Chichester District Council)
<b>Contact number:</b>	01243 521091

### Question 1 What type of coast do you have responsibility for? (e.g. soft cliff/hard cliff/beaches/dunes/estuaries etc)

- Very flat district
- Chichester District Council actively manages 11km of open coastline between East Head and Pagham Harbour entrance, where erosion of land is the primary risk. Responsibilities for managing the remaining 50km of coast, including the harbour inlets and the open coast (where flooding is the primary risk) varies.
- Southern and Eastern sections are largely shingle controlled by Chichester DC and partners
- Western sections (East Head) is largely sand controlled by National Trust and partners/stakeholders
- Environment Agency are responsible for low-lying parts (flood zones) which are large areas owing to low lying nature.
- The Environment Agency are involved with a number of flood defence schemes in the area.
- Some areas have hard defences protecting against erosion and the Medmerry Managed Realignment Scheme is being developed between Selsey and Bracklesham creating further flood defences and habitat.  
(Medmerry Managed Realignment Scheme – a major new sea defences between Selsey and Bracklesham in West Sussex. Breach is expected in March/April 2013)

### Question 2 What are the specific issues relating to coastal change that you need to manage? (e.g. social/economic/environmental)

#### Social

- Coastal communities along much of the coast.
- Varying levels of population sizes and land uses along coastline.

#### Environment

- International/National designations (e.g. SAC/SPA/SSSI –mainly biological but some geological).
- Emerging Marine Conservation Zones in the area
- Erosion and surface water management issues cause concern for local communities. Poor transport and other infrastructure issues also create problems including a lack of business investment.

#### Economic

- Making the most of the existing assets within the district and reducing development issues in low lying areas. Focussing development and economic growth around agriculture and tourism.

***All issues brought together to create an integrated and managed approach.***

**Question 3 Does your organisation have in place a specific mechanism for developing and implementing coastal change management areas?**

The district has adopted a hold the line policy and, therefore, CCMA's are not a consideration for the Council.

The ICZM has been formally adopted and forms part of the emerging Core Strategies evidence base. This sets out an integrated coastal management approach for the district as a whole. It is hoped the emerging Core Strategy will reflect the aims objectives of the ICZM.

**Question 4 What key messages do you believe your Pathfinder (or other adaptation) project identified in terms of good approaches to coastal adaptation through the planning system that could be included in the guidance?**

- A key lesson of the development of the ICZM was the importance of ensuring that the document is formally adopted by the Council, ensuring that it forms a material consideration in planning decisions and contributes towards the formation of planning policy.
- An **integrated** approach is essential to the delivery of Coastal Management and should be taken forward through national guidelines, integrating hinterland related issues into coastal management, i.e. looking at the bigger picture.
- Partnership working is a beneficial process working with stakeholders and the community on all aspects of development, coastal issues and infrastructure. This creates a 'joined up approach' which is all encompassing.

**Question 5 (IF APPLICABLE) Besides the areas focussed on in your Pathfinder project, are you aware of any other locations in your locality where coastal change adaptation practices are being implemented through the planning system that could provide a good case study for inclusion in the coastal change adaptation planning guidance?**

Lots of projects are being taken forward in the surrounding districts, but not necessarily through the planning system. Initiatives include:

- **Coastal Communities 2150 and Beyond:** a communications project to engage vulnerable communities who are at risk from coastal change.
- **Coastal Literacy:** a stakeholder and community engagement initiative to understand public awareness and raise awareness of coastal change. Understand and influence perceptions of the coastline.
- **Eastern Solent Coastal Partnership:** The Coastal Partnership is a small group of officers who manage the coastal flood and erosion risk to Havant, Portsmouth, Gosport and Fareham's coastline. The Coastal Partnership aim to reduce risks to people, the developed and natural environment from flooding and coastal erosion by encouraging provision of technically, economically and environmentally sound defence measures along the coastline of the Partnership.

**MPP** has undertaken groundbreaking workshops with Dutch representatives from NIROV specialising in planning, coastal and water management and the environment, in order to gain inspiration on coastal management in the district. This came in the form of encouraging the reduction of development in low lying areas and using the district's assets to the full, promoting a tourism and environmental economy.

The ideas gained during the 'Going Dutch' workshops were expanded further during the 'Espace' project, a European funded initiative looking at mitigating the effects of climate change locally, and most recently the Defra funded Coastal Change Pathfinder Project. The major documents produced here were Towards ICZM and **Destination Management Study**, a study of visitors to the area which aimed to strike a balance between the economy and the environment.

Hope that lessons are applied from Pathfinder to other areas over time.

**Question 6 How does your internal organisational structure help or hinder coastal change adaptation in the planning system?**

MPP work as a partnership but each member is an independent organisation. This means the extent to which the ICZM has been integrated into the emerging Core Strategy is not yet known because the Core Strategy won't be going out to consultation until 2013. However it is clear in development control terms that there is a need to raise awareness of coastal processes on a borough to borough basis. There are currently differing approaches to coastal work and how teams work together.

Adaptation does not currently form part of the planning system which means there is an existing gap in considering the coast for planning frameworks and decisions. A sustainable approach needs to be integrated into Core Strategies nationwide.

**Question 7 How does your organisation interact with other organisations when it comes to planning coastal change adaptation?**

- MPP are an organisation of which Chichester District Council, among others, is a member.
- Updates and interaction is achieved through regular meetings between stakeholders to discuss approaches at a local, regional and national level.
- More local/community interaction would be advantageous.

**Question 8 How does your organisation engage / interact with communities when it comes to planning coastal change adaptation?**

Establish contact through formal consultation when necessary, and engagement exercises including workshops, which were an important element of the Pathfinder Project. On a day-to-day basis interaction with community forums and Parish Councils is an important part of the engagement process.

**Question 9 If you have, or do develop, Coastal Change Management Areas and associated policies, how would communication with communities be done? Would the approach change from present approaches?**

N/A – Chichester is not creating a CCMA.

- Workshops etc are helpful
- Establishing relevant local contacts and disseminate information efficiently.
- Ensure all stakeholders and interested parties are fully informed.

**Question 10 What has been the legacy for your organisation / partner organisations / communities of the Pathfinder (or other adaptation) project in terms of the planning system? Do you feel that any additional lessons have been learnt from your Pathfinder (or other adaptation) project that were not reflected in your final evaluation report to Defra, particularly with regards to types of planning system responses to managing coastal change adaptation?**

- Ongoing legacy
- Acknowledgement from local government that coastal areas need different policies to inland areas
- Confirmed viability of a coastal trust
- Improved understanding of tourism and economic requirements
- A move towards creating an ICZM plan on the Manhood Peninsula – includes all lessons learned from the points above

**Question 11 How were cross boundary issues considered during the project and how were they dealt with?**

Discussions were ongoing between stakeholders during the development of the ICZM.. There were no cross boundary issues during Pathfinder Project because the project was aimed specifically at the Chichester District coast and coastal plain. However there are continued ongoing relations between coastal authorities on either side of Chichester District.

Not a particular issue during Pathfinder project

**Question 12 Have any recent changes in political, planning or environmental legislation affected coastal change adaptation?**

Yet to find out given that the Core Strategy, with ICZM as an evidence base, has not yet been implemented.

**Question 13 What data do you expect to use to underpin the development of Coastal Change Management Areas and how confident are you in the available evidence base for this purpose? If not confident, what additional data would you need to provide confidence when defining CCMA's?**

N/A

**Question 14 Do you feel there would be benefit in providing some form of knowledge exchange platform at regional/national level to share experience in the future?**

Yes. It is beneficial to know where to start, using best practice to gain guidance and see how it has been done before.

A living/flexible document that recognises the local issues within a national context would be helpful.

Could use existing mechanisms (e.g. coastal partnerships and community groups) rather than introducing a new national/regional group system.

Internet based 'communities of practice' set up for the pathfinder projects didn't really work.

Would need to be backed up with appropriate resources/funding.

**Question 15 Is there anything else that you believe guidance on planning system approaches to coastal change adaptation should include?**

- **Inclusivity** is a key word. The planning system must consider all aspects that influence coastal change and integrate this with the hinterland issues that exist (as was done in the ICZM).
- A local approach within a national framework would be very advantageous.

**Notes:** Manhood Peninsula Partnership (MPP) –

The Manhood Peninsula Partnership (MPP) is a multi-agency partnership inspired by local residents to promote a sustainable way forward for addressing the environmental, social and economic challenges posed to the area by climate change. It is comprised of all local and regional agencies, and works with community and parish representatives as well as third sector, wildlife and environmental



organisations. The partnership has been an integral part of local initiatives exploring ways to mitigate the effects of climate change. It played a major advocacy role during consultation on the Medmerry scheme, and in the delivery of some important local projects, the most recent of which was the Defra funded Coastal Change Pathfinder Project. The MPP has been meeting regularly since 2001, and meets four times a year.

In addition to local residents, it is made up of representatives from the following organisations:

- Chichester District Council (MPP Secretariat)
- West Sussex County Council
- Natural England
- Environment Agency
- Chichester Harbour Conservancy
- Sussex Association of Local Councils
- Selsey Town Council
- Peninsula Community Forum
- National Trust
- Royal Society for the Protection of Birds
- Manhood Wildlife & Heritage Group

The aims of the MPP are:

1. To ensure the sustainable development of the peninsula for the benefit of future generations and to consider the long-term issues including climate change.
2. To improve and promote inter-sectoral integration, co-ordination, communication and understanding between those involved in the Manhood Peninsula.
3. To provide opportunities for wider community participation and interaction.
4. To adopt a proactive approach to addressing the effects of climate change.
5. The development and implementation, or assistance with the implementation of, guidelines, strategies and action plans.
6. The exploration and research of different options and the need to learn from other areas.

Manhood Peninsula Partnership website: <http://peninsulapartnership.org.uk/>

Chichester District Council website:  
<http://www.chichester.gov.uk/index.cfm?articleid=9495>

## Coastal Change Adaptation Planning Guidance: Telephone Interview Record Sheet

<b>Date:</b>	<b>26<sup>th</sup> November 2012</b>
<b>Time:</b>	<b>1400-1435</b>
<b>Interviewer Name (Halcrow):</b>	<b>Alan Frampton</b>
<b>Interviewee Name/Organisation:</b>	<b>Peter Moore (Dorset County Council)</b>
<b>Contact number:</b>	<b>03105 224285</b>

### **Question 1 What type of coast do you have responsibility for? (e.g. soft cliff/hard cliff/beaches/dunes/estuaries etc)**

Dynamic, stunning, attractive very long and very complicated coast. Most is natural coast but some significant centres of population.

Dorset County Council has no direct responsibility for coastal risk management. However, does have indirect responsibility in several ways:

- Hosts Dorset Coast Forum; World Heritage Site Management; AONB Management – all influence coastal decision making.
- DCC are Lead Local Flood Authority, so have interest in coastal flood risk management matters.
- DCC has a strategic planning/community development/infrastructure delivery role.

### **Question 2 What are the specific issues relating to coastal change that you need to manage? (e.g. social/economic/environmental)**

Lots of international/national designations for geological/biological features. Most significant being the UNESCO World Heritage Site designation (the Jurassic Coast) which is designated for its geological and geomorphological interests.

Socio-economic matters; have a range of large urban areas within which there are areas of both deprivation and wealth. Also have numerous small (isolated) rural villages along the coast. Some have high concentrations of second homes but others have a range of social issues typical of other rural communities.

A key factor is that lots of economic activity along the coast is dependent on the maintenance of and access to a high quality coastal environment.

### **Question 3 Does your organisation have in place a specific mechanism for developing and implementing coastal change management areas?**

CCMAs are not a county council responsibility therefore not able to comment.

### **Question 4 What key messages do you believe your Pathfinder (or other adaptation) project identified in terms of good approaches to coastal adaptation through the planning system that could be included in the guidance?**

Recommended looking at the executive summary of the Dorset Pathfinder final report to Defra which lists the key lessons learnt (see <http://jurassiccoast.org/pathfinder-project/public-documents/category/1-final-report>) and the spatial planning report produced as part of the pathfinder project (see <http://jurassiccoast.org/pathfinder-project/public-documents/category/4-spatial-planning-research>) as both list relevant details.

**Question 5 (IF APPLICABLE) Besides the areas focussed on in your Pathfinder project, are you aware of any other locations in your locality where coastal change adaptation practices are being implemented through the planning system that could provide a good case study for inclusion in the coastal change adaptation planning guidance?**

No other areas specifically looking at planning policy.

The LiCCo project is focussed on community engagement around coastal change issues and is employing approaches developed on the pathfinder project.

A possible area that could make a good case study is Poole where they are having to consider future development needs whilst managing flood risk.

**Question 6 How does your internal organisational structure help or hinder coastal change adaptation in the planning system?**

For DCC not so much structural issues that are a problem. Rather it is more of a resources issue (e.g. could only justify a full time climate change officer post when there was a national indicator target to do so; that target has now been scrapped and the post is no longer there).

**Question 7 How does your organisation interact with other organisations when it comes to planning coastal change adaptation?**

Carefully. So much depends on the quality of relationships when working across a 2-tier (county-district) system. For pathfinder (and still), had good existing relationships through the likes of the Dorset Coast Forum/WHS & AONB management that pathfinder only served to strengthen further.

Pathfinder was particularly useful in engaging with planners in the district (planning) authorities and raising their awareness of coastal matters further.

**Question 8 How does your organisation engage / interact with communities when it comes to planning coastal change adaptation?**

This is more relevant to the district (planning) authorities and not the county council. DCC only really has resources to engage when there is a specific project to fund it.

**Question 9 If you have, or do develop, Coastal Change Management Areas and associated policies, how would communication with communities be done? Would the approach change from present approaches?**

CCMAs are not a county council responsibility therefore not able to comment.

**Question 10 What has been the legacy for your organisation / partner organisations / communities of the Pathfinder (or other adaptation) project in terms of the planning system? Do you feel that any additional lessons have been learnt from your Pathfinder (or other adaptation) project that were not reflected in your final evaluation report to Defra, particularly with regards to types of planning system responses to managing coastal change adaptation?**

There are a few things happening.

One legacy is greater awareness of coastal change issues amongst communities and national policy around these issues, as well as acceptance amongst some communities about the need to do something to plan for change and take ownership of actions to tackle problems.

The Pathfinder project did not spend all of its allocated budget, and in agreement with Defra this was used to set up a community adaptation fund to assist further adaptation projects locally by providing grants to local projects etc. Two such examples are:

- Charmouth Heritage Centre – the parish council at Charmouth have just received a report on the options for relocating the Heritage Centre away from the coast. The parish council are also working on setting up a fund to raise money to implement relocation. The coastal change fund provided a contribution (added to by the parish council) to fund this study.
- Swanage Coastal Change Forum – the community adaptation fund provided a grant to establish a local community forum to discuss/raise awareness of coastal change issues and develop plans for how to adapt.

**Question 11 How were cross boundary issues considered during the project and how were they dealt with?**

Already had relationships through WHS/AONB management. Set-up the Pathfinder project with a steering group consisting of representatives from all authorities.

**Question 12 Have any recent changes in political, planning or environmental legislation affected coastal change adaptation?**

NPPF says some of the right things but not all of them.

Whole gambit of non-statutory plans (e.g. SMPs etc) that are all based on the ecosystem approach (that government says it wants) lack necessary weight of statutory plans (e.g. local plans) so coastal change adaptation is not considered alongside short term needs to provide housing etc.

Local plan development time-scales can and do differ between neighbouring authorities and so a joined up approach is difficult to achieve.

No meaningful strategic planning in the planning system as structure plans/regional spatial strategies etc have gone; therefore there is less of a joined-up approach across boundaries.

**Question 13 What data do you expect to use to underpin the development of Coastal Change Management Areas and how confident are you in the available evidence base for this purpose? If not confident, what additional data would you need to provide confidence when defining CCMA's?**

CCMA's are not a county council responsibility therefore not able to comment.

Should note, however, the issue for the pathfinder project was making the available information available in a user-friendly way that could be understood by communities without causing blight whilst enabling sensitive issues to be discussed.



**Question 14 Do you feel there would be benefit in providing some form of knowledge exchange platform at regional/national level to share experience in the future?**

Probably yes. The issue with these kinds of things is that they don't get those who are not engaged in the issues (and who would therefore most benefit from such resources) to use them; only those already engaged in the issues will use.

**Question 15 Is there anything else that you believe guidance on planning system approaches to coastal change adaptation should include?**

Would prefer more clear policy from central government to drive things forward on coastal change adaptation, not more guidance.

Policies should in part be based upon the recommendations in the LUC report produced for the Dorset Pathfinder project (see Q4). These should be backed up by messages in the funding system (e.g. Community Infrastructure Levy schedules typically focussed on flood risk funding and not coastal change adaptation funding).

## Coastal Change Adaptation Planning Guidance: Telephone Interview Record Sheet

Date:	18 <sup>th</sup> December 2012
Time:	N/A (written response submitted)
Interviewer Name (Halcrow):	N/A (written response submitted)
Interviewee Name/Organisation:	Jennifer Kippax and Jeremy Pickles (East Riding of Yorkshire Council)
Contact number:	N/A (written response submitted)

### Question 1 What type of coast do you have responsibility for? (e.g. soft cliff/hard cliff/beaches/dunes/estuaries etc)

The East Riding coastline is approximately 85 kilometres (53 miles) long and is characterised by a diverse range of landscapes and habitats. It stretches from the chalk headland at Flamborough with its important landscape and wildlife designations, through the Holderness plain which is subject to some of the highest rates of erosion in North West Europe, to the Humber Estuary. The coast is punctuated by the resort towns of Bridlington, Hornsea, and Withernsea, which are the main settlements, whilst numerous smaller communities also lie along its length. The coastline includes 9.3 kilometres of coastal defences which are maintained by East Riding of Yorkshire Council, plus a further 2.15 kilometres of privately-owned defences. Away from the main settlements, the East Riding coastline is predominantly rural.

Soft clay deposited after the last ice age makes up much of the East Riding coastline, leaving many areas exposed to the average erosion rate of 1.5 – 2.5 metres per year. In addition, isolated cliff losses can exceed 20 metres in some locations. The sediment released by erosion is transported along the coast in a southerly direction, being deposited to form beaches or washed to the south to feed Spurn Point, the Humber Estuary, and beaches further along the coast.

The East Riding has two stretches of Heritage Coast: **Flamborough Head and Spurn**. **Flamborough Head** is the most northerly outcrop of chalk in Europe and has national and international designations, including Special Area of Conservation and Special Protection Area. Spurn Point stretches southwards for approximately three and a half miles into the mouth of the Humber Estuary, with sandy beaches and the North Sea on its eastern side, and areas of saltmarsh and extensive mudflats which attract thousands of birds on its western side. Whilst Spurn is a National Nature Reserve (NNR), Flamborough Head and the Humber Estuary are managed as European Marine Sites.

### Question 2 What are the specific issues relating to coastal change that you need to manage? (e.g. social/economic/environmental)

The policies of the Flamborough Head to Gibraltar Point Shoreline Management Plan (SMP) were based upon an assessment of the area's many economic, environmental and social issues. The SMP was fully-adopted by all partner authorities in 2011 and its policies mean that much of the East Riding coastline (48 kilometres) will be allowed to erode to maintain natural processes. Larger communities will be defended to maintain them as viable towns and seaside resorts (Bridlington, Hornsea and Withernsea). In areas outside of these defended settlements there are some important assets that need to be protected, such as highways, industrial sites and areas which are at risk from flooding and erosion. These include Mappleton, Easington and Dimlington cliffs, Barmston Drain, and Tunstall.

#### Economic

In general terms, the Council must balance the drive for inward investment and sustainable growth with the need to raise awareness of coastal change issues and adaptation responses, and to support relocation away from threatened properties at the coast. Furthermore, the coastal zone economy is dominated by small and medium enterprises with a reliance on seasonal activity in traditional industries such as tourism, agriculture

and fishing. These small operators may be more susceptible to the financial implications of coastal change, and less able to pursue adaptation options including 'rollback', than larger operators.

As the East Riding's main coastal towns benefit from defences, there is pressure on funding for ongoing maintenance which must be addressed by the Council as the local coast protection authority. Once maintenance is considered to be more than simply routine, it will be considered a capital scheme and will be subject to the criteria of the new partnership funding approach, Flood Defence Grant in Aid (FDGiA). This will mean that, in some cases, additional partner contributions will be required to secure the necessary funds for works moving forwards.

Other direct and indirect financial burdens associated with managing the impacts of coastal change include: monitoring and implementing road closures; demolishing uninsured properties and seeking to reclaim the costs from the owners; allocating Council properties to those who are losing their coastal properties; preventing dangerous infrastructure from collapsing onto the foreshore; and conducting bi-annual surveys of the entire coastline using GPS and LiDAR technologies, and subsequently publishing data on a dedicated website ([www.eastriding.gov.uk/coastalexplorer](http://www.eastriding.gov.uk/coastalexplorer)).

### **Environmental**

As detailed elsewhere, the coastal zone is affected by the fastest rates of erosion in North West Europe, and a risk of flooding which is set to increase with climate change. Whilst defending the entire frontage would support coastal communities and businesses in the East Riding, this approach is not considered to be environmentally or economically sustainable. The material eroded from the Holderness cliffs travels south and provides coarse sand and gravel to maintain Spurn Head (which in turn provides shelter to the frontages of Grimsby and Cleethorpes). Eroded fine sediment from Holderness feeds into the Humber Estuary and adds to the extensive mudflats and saltmarsh which provide a buffer in front of the estuary defences. Fine sand crosses the Humber mouth and supplies the coastline of Lincolnshire; the wide sandy beaches of Lincolnshire provide a significant part of the coast defence in combination with engineered structures or dunes at the back of the beach. The continuation of erosion along the Holderness coast is crucial for the downdrift frontages. Allowing the natural process of erosion to continue on these undefended cliffs also benefits the natural environment and landscape.

In order to reflect this and maintain the natural coastal processes, the Flamborough Head to Gibraltar Point SMP has established 'No Active Intervention' policies outside the defended frontages described above. Whilst the environmental benefits of enabling natural processes to continue are significant, the continuous cycle of erosion means that the Council must prevent threatened properties and infrastructure from collapsing onto the foreshore and becoming environmental hazards. As an example, the Council is working in partnership with private companies to plan for the proactive 'rollback' of utilities which must be safeguarded for the benefit of remaining residents and service providers. Furthermore, the Council has a duty to assess the likely environmental impacts of coastal management schemes and defence works prior to implementation, and to manage the environmental impacts of coastal change in those locations with specific conservation designations (see the answer to question 1 above).

### **Social**

A major social issue linked to coastal change is the physical loss of retail and transport services/infrastructure which so often act as lifelines for vulnerable residents in isolated, undefended communities which are satellites of larger settlements inland. Further social issues in undefended locations are isolation due to remoteness; pockets of deprivation; an ageing population linked to the inward migration of retired adults; and the limited connection of coastal towns with their hinterlands.

In addition to the above, coastal change means that, at different points in time, residents are required to relocate away from unsafe coastal properties to safe accommodation further inland. For particularly vulnerable and isolated residents, relocation is a significant cause of distress and the negative impacts upon their health and well-being may result in the need for additional support, for example from the Adult Services Team. The real risk to life associated with the continued habitation of cliff top properties means that residents typically request accommodation via the Housing Team, with implications for the Council's limited housing stock (c. 11,000 properties).

**Question 3 Does your organisation have in place a specific mechanism for developing and implementing coastal change management areas?**

In order to meet the requirements of the Local Plan, the Council has included a projected 100-year cliff line based on an extrapolation of historic monitoring data as a temporary measure, before the guide is published in early 2013. Whilst this is supported by appropriate guidance, it does not sub-divide the included area and identify appropriate land uses as required in a CCMA. Details of the emerging Local Plan are available at: [www2.eastriding.gov.uk/environment/planning-and-building-control/future-strategic-plans](http://www2.eastriding.gov.uk/environment/planning-and-building-control/future-strategic-plans).

As there is no specific measurement in place locally for the establishment of CCMA's, the Council welcomes the opportunity to lead the development of the 'how to' guide with Defra, Halcrow, and coastal local authorities in order to identify an appropriate approach. Once an approach has been agreed, existing rollback policies will be reviewed and refined, thus recognising the need for coastal change adaptation planning options which are flexible enough to meet local needs.

In the long-term, it is the Council's aim to incorporate planning guidance and the CCMA mechanism into an overall sustainable management framework for the East Riding. The framework will be underpinned by the SMP and the Council's best practice monitoring data, and will also include an East Riding Coastal Partnership to be launched in mid-2013 as a forum for the public and delivery organisations to discuss coastal change issues.

**Question 4 What key messages do you believe your Pathfinder (or other adaptation) project identified in terms of good approaches to coastal adaptation through the planning system that could be included in the guidance?**

The overall purpose of the ERCCP was to take a risk-based approach to providing practical support and guidance to coastal communities affected by coastal change. As part of this, the Council developed and adopted a consistent definition of 'imminent risk'. In previous years, the threatened properties had been identified on an ad-hoc basis, based on the advice given by the Council's coastal engineers. The new, adopted definition of 'imminent risk' is instead based on criteria which use the maximum annual loss for each specific coastal location. This assessment of risk is updated on a six-monthly basis, informed by the latest monitoring data.

As discussed above, the baseline data used to develop the level of risk and eligibility criteria were informed by the Council's best practice coastal monitoring programme and the outputs of the SMP. Throughout the ERCCP, the monitoring information was considered and reviewed by a cross-directorate Coastal Officers' Working Group, established to help embed an integrated approach to the management of coastal change across the Council. In a demonstration of its success, the working group has been retained and continues to meet each quarter to discuss coastal change issues affecting local communities. The group's permanent members are officers and managers from the following internal teams: Building Control, Sustainable Development, Flood and Coastal Erosion Risk Management, Legal, Press and Communications, Public Protection, Housing, Highways, Private Sector Housing, and Development Control.

Rather than providing compensation for loss of property or land, the ERCCP enabled individuals to adapt to the impacts of coastal change by accessing practical support and assistance. These residents require additional support to that which is already available because there is a real risk to life if they continue to live in dangerous properties close to the cliff edge. Due to the sensitive and personal nature of relocation and property loss, there was a successful, case-by-case approach to engagement with residents, supported by a dedicated ERCCP officer acting as a single point of contact for applicants.

Early engagement with coastal communities also proved invaluable to the project's success, for example enabling vulnerable residents additional time in which to plan for their relocation, by joining the housing register at an early stage to increase their chances of receiving suitable accommodation offers. Some adaptation options included in the ERCCP support packages, including 'Buy and Lease Back', proved difficult to test within the Council's corporate structure and wider legislative and policy framework. Therefore, moving forwards, it will be important for the limitations of adaptation planning options to be scoped out and



relayed to interested parties at the earliest opportunity.

**Question 5 (IF APPLICABLE) Besides the areas focussed on in your Pathfinder project, are you aware of any other locations in your locality where coastal change adaptation practices are being implemented through the planning system that could provide a good case study for inclusion in the coastal change adaptation planning guidance?**

N/A: the ERCCP applied to locations along the entire length of the East Riding coastline.

**Question 6 How does your internal organisational structure help or hinder coastal change adaptation in the planning system?**

A strategic approach to coastal management was planned through the ERCCP, with different Council teams having formed an internal Coastal Officers' Working Group to coordinate the project's delivery. The group's actions were informed by the integration of coastal monitoring data and SMP policy. As a unitary authority, the Council had the benefit of all relevant teams and service providers being in-house, leading to the efficient and timely co-ordination of project activity within communities. In particular, the ERCCP strengthened the existing links between the monitoring and defence maintenance works conducted by the Flood and Coastal Erosion Risk Management Team (Civil Engineering), and the coastal policy development led by the Sustainable Development Team (Economic Development).

As discussed elsewhere, a consistent definition of 'imminent risk' was established through the ERCCP, based on maximum recorded cliff losses held on file by the Council. The use of this standard definition has not only provided consistency within the Council, but has also provided consistency when engaging with residents at risk. Indeed, this approach is set to be formalised in 2013 as part of efforts to develop a sustainable coastal management framework (see answer to question 3).

**Question 7 How does your organisation interact with other organisations when it comes to planning coastal change adaptation?**

As the local coast protection authority, the Council has a host of duties at the coast, ranging from its permissive powers to introduce and maintain coastal defences in appropriate locations, to its duties to manage the foreshore and deliver coastal policy with partners. The Council liaises with Defra as the lead for national coastal policy, and the Environment Agency as the organisation with the strategic overview role and lead for the new FDGiA model. Also at a regional level, the Council is a member of the North East Coastal Group, having recently hosted the 2012 AGM in Bridlington.

The Council also works in partnership with others to help address the particular challenges posed by some parts of the East Riding coastline. For example, the authority works with Natural England as a partner within both the Humber and Flamborough Management Schemes established to meet the statutory requirements under the Habitats Regulations. The Council also liaises with town and parish councils across the East Riding, with officers having updated the councils on localised ERCCP activity at regular intervals, and today maintaining contact via briefings and meetings. The Council plans to build on this positive engagement work by launching an East Riding Coastal Partnership in 2013 as a means of prompting discussions about coastal change issues.

**Question 8    How does your organisation engage / interact with communities when it comes to planning coastal change adaptation?**

Awareness and understanding of coastal change is thought to have increased as a direct result of the ERCCP, which placed a strong emphasis upon clear and regular contact with coastal residents. The appointment of a dedicated project officer gave residents, community group leaders, and business owners access to a single point of contact for information about the ERCCP and wider coastal erosion issues.

Details of the ERCCP and the Council's wider role in coastal change management were promoted extensively via the local media, the Council's website, parish and town council meetings, and community drop-in sessions. In most cases, residents with an interest in adaptation were addressed on a one-to-one basis to enable officers to assess their individual needs and tailor assistance packages accordingly. Where residents were dealing with a common issue, for example the loss of a road due to erosion, group meetings were held in community venues. Internal support for the ERCCP and its adaptation options was generated and maintained through the publication of corporate update reports; elected member and portfolio holder briefings; and site visits.

Today, the adaptation options which remain available through the ERCCP's successor, the East Riding Coastal Change Fund, continue to be promoted via community engagement and discussion, including face-to-face meetings between Council officers and residents. Officers from various Council teams continue to work in partnership to offer practical assistance to residents whose properties are at risk from coastal erosion, and are supporting the development of a coastal change communications toolkit detailing rollback and other adaptation options. The toolkit will be centred upon an updated version of the Coastal Explorer website, and will be progressed during 2013 to create a single source of coastal change information of relevance to those who live and work in, and those who visit or study, the East Riding's eroding coastline.

**Question 9    If you have, or do develop, Coastal Change Management Areas and associated policies, how would communication with communities be done? Would the approach change from present approaches?**

Future communications will continue to focus upon one-to-one discussions with relevant parties, largely due to the private nature of each party's requirements and circumstances. Prior to implementing CCMA's, there will need to be early and inclusive engagement with wider stakeholders, including business owners, elected members, community groups, parish/town councils, educational institutes and Council partners. There will also be the opportunity to analyse other adaptation planning approaches taken by other Pathfinder and non-Pathfinder authorities, and to raise awareness of local issues by developing the coastal change communications toolkit and launching the East Riding Coastal Partnership.

As detailed above, the sensitive nature of coastal change means that the establishment of CCMA's must be done in a careful and appropriate manner, with an emphasis upon one-to-one engagement with affected individuals and communities. In addition, there is likely to be a need for press releases and dedicated drop-in sessions to raise awareness of adaptation planning options amongst the wider community, including business owners.

**Question 10 What has been the legacy for your organisation / partner organisations / communities of the Pathfinder (or other adaptation) project in terms of the planning system? Do you feel that any additional lessons have been learnt from your Pathfinder (or other adaptation) project that were not reflected in your final evaluation report to Defra, particularly with regards to types of planning system responses to managing coastal change adaptation?**

The need for effective planning mechanisms in order to address coastal change management issues was identified at the outset of the ERCCP, and resulted in the risk-based approach detailed above. Addressing the issues through the planning system has remained a key element of legacy work moving forward through the following stages:

- CCMA's: the development of the 'how to' guide should enable the Council to set CCMA's in a manner which is consistent with other national approaches in areas with similar coastal change issues
- Specific adaptation measures e.g. rollback: the difficulties associated with particular adaptation options – see the answer to question four - will be used to inform planning approaches, and also incorporated into the Council's reviews of its two rollback policies.
- East Riding Coastal Management Framework: in the assumed permanent absence of a national coastal change policy from Defra, a local, corporate policy combining all aspects of sustainable coastal change management and including guidance for specific areas is now an even greater priority for the Council.

All of the lessons learnt through the ERCCP in relation to adaptation planning were captured in detailed within the Council's final adaptation report to Defra ("11-09-14 ERCCP Defra Feedback\_2.0\_JP").

**Question 11 How were cross boundary issues considered during the project and how were they dealt with?**

As the ERCCP was delivered along the whole of the East Riding coastline, there were no issues for the Council in relation to cross-boundary working. Whilst officers liaised with neighbouring authorities - Scarborough Borough Council and Lincolnshire County Council - at a relatively early stage to discuss the potential for partnership-working, no appropriate joint or shared actions were identified.

**Question 12 Have any recent changes in political, planning or environmental legislation affected coastal change adaptation?**

The economic downturn continues to have an impact upon coastal change management, and the partnership funding approach, FDGiA, will place additional pressures upon local resources for engineered defence schemes moving forwards.

The National Planning Policy Framework (NPPF) and Local Plan (formerly Local Development Framework) will have a direct impact upon future adaptation planning.

Coastal change management remains a politically-sensitive and high-profile issue locally. This, and the fact that the Council also understands that there is to be no national coastal change policy from Defra, will be managed through the introduction of the aforementioned framework.

**Question 13 What data do you expect to use to underpin the development of Coastal Change Management Areas and how confident are you in the available evidence base for this purpose? If not confident, what additional data would you need to provide confidence when defining CCMA's?**

As discussed above, the Council's Flood and Coastal Erosion Risk Management Team is responsible for delivering the in-house coastal erosion risk monitoring programme. The baseline data gathered via the bi-annual LiDAR and GPS surveys were used to develop the level of risk and eligibility criteria underpinning the ERCCP. These same data will be used to develop local CCMA's, and up-to-date information has already been entered into the draft Local Plan. In addition, the Council has verified data as part of the Environment Agency's National Coastal Erosion Risk Mapping (NCERM) project, and hopes to reach an agreement for the Agency to publish the East Riding data on its public website in the future. (The main outstanding issue relates to whether or not the Agency can update the published data to keep pace with the area's rapid rates of coastal erosion.)

**Question 14 Do you feel there would be benefit in providing some form of knowledge exchange platform at regional/national level to share experience in the future?**

The Coastal Change Pathfinder network established on the Communities of Practice website (now Knowledge Hub) continues to be a useful mechanism through which to share links and publications with other authorities. Now that most of the Coastal Change Pathfinders have ended, there may be an opportunity to rebrand this network and open up the membership to non-Coastal Change Pathfinder authorities.

There is also the potential to widen the remit of existing Coastal Groups to cover broader coastal management issues (including planning approaches) in order to avoid the creation of new groups.

**Question 15 Is there anything else that you believe guidance on planning system approaches to coastal change adaptation should include?**

The scope that has been established for the guidance provides a good basis for establishing an appropriate and consistent approach to adaptation planning. It is essential for the guidance to reflect the varying circumstances of different local authorities, from coastal typology, geology, nature of risk and political structures. Importantly, it must be also be a practical, user-friendly guide which is of use to local authority planners and officers in different coastal locations.



## Coastal Change Adaptation Planning Guidance: Telephone Interview Record Sheet

Date:	21 <sup>st</sup> November 2012
Time:	1300-1330
Interviewer Name (Halcrow):	Alan Frampton
Interviewee Name/Organisation:	Sarah Slade (Great Yarmouth Borough Council)
Contact number:	01493 846688

**Question 1** What type of coast do you have responsibility for? (e.g. soft cliff/hard cliff/beaches/dunes/estuaries etc)

Mixed coast with soft cliffs, beaches, dunes and river mouth/estuary (completely artificial – Great Yarmouth).

**Question 2** What are the specific issues relating to coastal change that you need to manage? (e.g. social/economic/environmental)

Main issue is blight caused by SMP policy of NAI; means it is difficult to get development occurring.

Perceived links between coastal dredging and coastal erosion.

**Question 3** Does your organisation have in place a specific mechanism for developing and implementing coastal change management areas?

Nothing in place. Pathfinder provides evidence base in local area (Scratby) for Local Plan. No funding to implement more widely nor a strategy to do so.

**Question 4** What key messages do you believe your Pathfinder (or other adaptation) project identified in terms of good approaches to coastal adaptation through the planning system that could be included in the guidance?

Community engagement was very good. Project board with independent chair (former local councillor) and community representatives made the decisions.

Main focus of the pathfinder was awareness raising.

**Question 5** (IF APPLICABLE) Besides the areas focussed on in your Pathfinder project, are you aware of any other locations in your locality where coastal change adaptation practices are being implemented through the planning system that could provide a good case study for inclusion in the coastal change adaptation planning guidance?

No areas being looked at. Hoping to look at another area with tourism resources behind beach/dunes (employ skills learnt on pathfinder project), but no resources to do this.

**Question 6 How does your internal organisational structure help or hinder coastal change adaptation in the planning system?**

Structure hinders. No coastal officer/coastal team within the council. This role is at arms length from the council (outsourced to third party who provide coastal services but only deal with projects) so council has limited influence over this.

Within the council coastal matters generally go through the local plan team.

**Question 7 How does your organisation interact with other organisations when it comes to planning coastal change adaptation?**

No real interaction unless local plan consultation. No formal mechanism/agreements to work with others. Closest interaction is via the Anglian Coastal Group (ACAG), but this focuses more on SMP/FCERM/engineering issues and not very much on planning matters.

**Question 8 How does your organisation engage / interact with communities when it comes to planning coastal change adaptation?**

Pathfinder project engaged well with the community of Scratby.

No regular communication (project specific comms only – eg. Local plan consultation / SMP consultation).

**Question 9 If you have, or do develop, Coastal Change Management Areas and associated policies, how would communication with communities be done? Would the approach change from present approaches?**

CCMA consultation will form part of the Local Plan consultation; will be limited (present info and seek views). Will not be community led like pathfinder (due to lack of funds/resources); may look at running a pathfinder type workshop on CCMA's though.

**Question 10 What has been the legacy for your organisation / partner organisations / communities of the Pathfinder (or other adaptation) project in terms of the planning system? Do you feel that any additional lessons have been learnt from your Pathfinder (or other adaptation) project that were not reflected in your final evaluation report to Defra, particularly with regards to types of planning system responses to managing coastal change adaptation?**

No real legacy. Pathfinder seems to have been parked with nothing moving it forward; questions if it doesn't need to be revisited to reflect recent planning changes (i.e. NPPF).

**Question 11 How were cross boundary issues considered during the project and how were they dealt with?**

Pathfinder project was on a small discrete location and no need for cross-boundary considerations.

**Question 12 Have any recent changes in political, planning or environmental legislation affected coastal change adaptation?**

NPPF has brought more uncertainty (lack of clarity) about what CCMA's are and how to develop them. Budgets have been extensively cut so not able to implement pathfinder findings.

**Question 13 What data do you expect to use to underpin the development of Coastal Change Management Areas and how confident are you in the available evidence base for this purpose? If not confident, what additional data would you need to provide confidence when defining CCMAAs?**

Mainly use SMP, though uncertainty exists over which erosion lines to use to define CCMAAs when local plan is for 15 years and not the long term.

Not very familiar with NCERM; not sure where to find the data/who holds it.

Planning guidance states that where SMP policy is HTL there needs to be certainty over funding to protect developments – considers this to be illogical as funding can never be certain so how can this be reconciled with planning development?

**Question 14 Do you feel there would be benefit in providing some form of knowledge exchange platform at regional/national level to share experience in the future?**

Would be relevant. Currently tend to google random councils to see what approaches they have been doing. Would be good to have a single resource.

**Question 15 Is there anything else that you believe guidance on planning system approaches to coastal change adaptation should include?**

Something on how to implement measures that is practical and reflects needs of councils with limited budgets (not guidance driven by lessons from councils with a lot of resources).

## Coastal Change Adaptation Planning Guidance: Telephone Interview Record Sheet

<b>Date:</b>	29 <sup>th</sup> November 2012
<b>Time:</b>	1600-1700
<b>Interviewer Name (Halcrow):</b>	Mark Graham
<b>Interviewee Name/Organisation:</b>	Nick Sangster (Hastings Borough Council)
<b>Contact number:</b>	01424 451138

### Question 1 What type of coast do you have responsibility for? (e.g. soft cliff/hard cliff/beaches/dunes/estuaries etc)

- Sand stone cliffs to the east
- Shingle beaches to the west

### Question 2 What are the specific issues relating to coastal change that you need to manage? (e.g. social/economic/environmental)

#### Social

- Coastal communities along much of the coast of varying population sizes.
- Varying levels of economic groups with high deprivation in Hastings itself.
- Historic reliance on fishing industry with beach launch fishing giving it a unique interest.

#### Environment

- International/National designations (e.g. SAC/SPA/SSSI – geological mostly but some biological).
- The Environment Agency has responsibility for defending the 2km of low lying land to the west of the town at Bulverhythe against coastal and fluvial flooding.
- Coastal protection initiatives elsewhere have increased shingle accretion.

#### Economic

- Focus on tourism and fishing industry.

### Question 3 Does your organisation have in place a specific mechanism for developing and implementing coastal change management areas?

None. The council are not producing a CCMS and Pathfinder did not form part of planning policy. The key challenge was to identify the specific issues that exist and increase awareness of these issues in the wider community. This was the aim rather than integrating this into the planning framework.

### Question 4 What key messages do you believe your Pathfinder (or other adaptation) project identified in terms of good approaches to coastal adaptation through the planning system that could be included in the guidance?

Key message is to create a collaborative approach between all stakeholders including fishermen, coastal practitioners and the council. This created a mutual understanding for all parties and a focussed approach to solving issues.



**Question 5 (IF APPLICABLE) Besides the areas focussed on in your Pathfinder project, are you aware of any other locations in your locality where coastal change adaptation practices are being implemented through the planning system that could provide a good case study for inclusion in the coastal change adaptation planning guidance?**

- Attended DEFRA events with fishermen to understand the issues and objectives of other pathfinders nationally.
- Undertook discussions with Chichester and Happisburgh Councils to understand the Pathfinders processes and of mechanisms required to get policy in place.

**Question 6 How does your internal organisational structure help or hinder coastal change adaptation in the planning system?**

N/A

**Question 7 How does your organisation interact with other organisations when it comes to planning coastal change adaptation?**

- Worked very closely with fishermen by forming a team to fully interact with stakeholders. The fishermen were involved from the beginning and assisted in developing the bid for the Pathfinder.
- The Environment Agency provided a national and regional context to the Pathfinder
- Working group set up which included councillors and representatives.

**Question 8 How does your organisation engage / interact with communities when it comes to planning coastal change adaptation?**

- The wider community were given the opportunity to be involved through meetings and presentations

**Question 9 If you have, or do develop, Coastal Change Management Areas and associated policies, how would communication with communities be done? Would the approach change from present approaches?**

N/A

**Question 10 What has been the legacy for your organisation / partner organisations / communities of the Pathfinder (or other adaptation) project in terms of the planning system? Do you feel that any additional lessons have been learnt from your Pathfinder (or other adaptation) project that were not reflected in your final evaluation report to Defra, particularly with regards to types of planning system responses to managing coastal change adaptation?**

- No legacy in terms of planning
- Creation of coastal awareness between stakeholders and interaction between groups
- Increased practical understanding of coastal defence policy
- Pathfinder fed into and was produced alongside the Regional Beach Management Plan

**Question 11 How were cross boundary issues considered during the project and how were they dealt with?**

- A key cross boundary issue is coastal protection initiatives undertaken locally and nationally accreting shingle at Hastings and impacting on beach launch fishing practices.
- Fishermen were taken to national DEFRA forums to appreciate national issues and increase awareness of wider context.

**Question 12 Have any recent changes in political, planning or environmental legislation affected coastal change adaptation?**

- A regional approach beach management is a positive shift.
- The grant process has changed through Pathfinder programme. There is now no funding source for adaptation as opposed to coastal defences.

**Question 13 What data do you expect to use to underpin the development of Coastal Change Management Areas and how confident are you in the available evidence base for this purpose? If not confident, what additional data would you need to provide confidence when defining CCMA's?**

N/A

**Question 14 Do you feel there would be benefit in providing some form of knowledge exchange platform at regional/national level to share experience in the future?**

Yes – this would be very beneficial through any means, e.g. online, consultation, workshop

Practical approaches and best practice would be very helpful, particularly in terms of how to set up working groups and how policy outcomes are achieved.

**Question 15 Is there anything else that you believe guidance on planning system approaches to coastal change adaptation should include?**

N/A

## Coastal Change Adaptation Planning Guidance: Telephone Interview Record Sheet

Date:	3 <sup>rd</sup> December 2012
Time:	1000-1050
Interviewer Name (Halcrow):	Alan Frampton
Interviewee Name/Organisation:	Chris Mills (Isle of Wight Council)
Contact number:	01983 821000

### Question 1 What type of coast do you have responsibility for? (e.g. soft cliff/hard cliff/beaches/dunes/estuaries etc)

Isle of Wight Council deals with the whole coast. This includes hard/soft cliffs, beaches, estuaries and flood risk zones (including production of SFRAs/PFRAs and Local Flood Risk Management Plans).

### Question 2 What are the specific issues relating to coastal change that you need to manage? (e.g. social/economic/environmental)

The Isle of Wight coast is complex due to the different physical environments of the northern Solent coastline and the open sea environment of the southern coast of the Island (and the associated different physical processes and regimes) and the variation in geology. As an island the relationship with the coast is very important for the prosperity of the island.

Critical infrastructure comes under the Solent from the Hampshire coast.

Ferry links via ports along the north coast of the Isle of Wight provide critical commercial and tourism links that are vital to the economy of Isle of Wight.

The coast is a significant attraction to tourists and therefore the economy of the Isle of Wight.

Many transport links around the island are along the coast, as are many coastal footpaths/rights of way.

There are lots of designations in the coastal zone, including Ramsar, SAC, SPA, AONB (covers half the island) and heritage coast. These designations make it challenging to manage the coast due to the often competing priorities and conflicting objectives.

Parts of the Island have a long history of flooding and coastal erosion, pre-dating human influence. Many settlements on the Island have evolved from small-scale beginnings on sites located in areas vulnerable to flooding and erosion, such as by the coast or an estuary. This historic settlement pattern is now faced with the new challenges of rising sea levels and increased storm and rainfall events. The traditional sequential approach to land use planning seeks to locate development in the first instance on brown-field sites, and in close proximity to existing settlements, to achieve various sustainability goals. However, with climate change there is an increasing likelihood of conflict between the location of new development and the vulnerability of that development to the (flood, erosion and land instability) risks.

**Question 3 Does your organisation have in place a specific mechanism for developing and implementing coastal change management areas?**

The Isle of Wight Council adopted its Core Strategy (see [http://www.iwight.com/living\\_here/planning/images/CoreStrategy-AdoptedMar2012.pdf](http://www.iwight.com/living_here/planning/images/CoreStrategy-AdoptedMar2012.pdf)) in March 2012. There are a number of policies relevant to management of a dynamic coastal environment, being;

- DM12 Landscape, Seascape, Biodiversity and Geodiversity, the 'seascape' element discussed in the section of supporting text entitled 'Seascape – the character of the Island's coastline' is of particular relevance for an insight on what is meant by this and therefore the potential for both synergy and conflict with more traditional approaches to coastal management;
- DM14 Flood Risk, which states "*For specific locations around the Island, a Flood Risk and Vulnerable Coastal Communities SPD will be developed which will address the specific flood risk related issues that will need to be considered by development proposals within areas covered by the SPD. The SPD will outline what measures will need to be demonstrated so that new developments would not be at risk of flooding as a result of climate change, or would not worsen flood risk elsewhere.*"
- DM15 Coastal Management, is the main adopted policy of the Council of relevance. What is significant is both the number and nature of references made in the supporting text of the policy to the Island's SMP. The supporting text of para. 7.262 is interesting as it sets out the Council's approach to dealing with planning applications likely to be affected by CCMA's, in the interim until they are formally identified and adopted.

A key point from the above policies is the need to manage both coastal erosion and coastal flooding (not typically included in definition of what a CCMA should cover).

The Solent Forum (of which Isle of Wight Council is a member) is currently running the Coastal Communities Adapting to Change (CCATCH) project (see online at <http://www.solentforum.org/current/CCATCH/>). This is part of a successful EU bid led by the Environment Agency called "Coastal Communities 2150 and beyond". "CCATCH the Solent" comprises a three year Community Engagement Campaign using Solent Forum as its delivery arm, on the need to adapt to climate change. After a rigorous selection process a number of coastal locations have been chosen as demonstration sites within the project. These sites reflect a range of the different communities and issues around the Solent and include an Island Town (Yarmouth).

**Question 4 What key messages do you believe your Pathfinder (or other adaptation) project identified in terms of good approaches to coastal adaptation through the planning system that could be included in the guidance?**

No comment provided.

**Question 5 (IF APPLICABLE) Besides the areas focussed on in your Pathfinder project, are you aware of any other locations in your locality where coastal change adaptation practices are being implemented through the planning system that could provide a good case study for inclusion in the coastal change adaptation planning guidance?**

No comment provided.



**Question 6 How does your internal organisational structure help or hinder coastal change adaptation in the planning system?**

Historically the organisation of the coastal team and planning team in the Isle of Wight Council has been separated, both physically (in different offices) and structurally (different reporting lines).

Re-organisation is currently ongoing and this, combined with the policies to drive integration in the local plan core strategy (refer to Q3) will hopefully improve the situation.

What will help this integration will be to have the relevant teams reporting in the same structure, and developing the capability to have oversight of coastal and planning matters, driving co-ordination and raising awareness of issues/data etc between different teams.

In addition, in the past there has been missed opportunities to capture knowledge from experienced staff prior to them leaving the authority.

**Question 7 How does your organisation interact with other organisations when it comes to planning coastal change adaptation?**

When developing the SFRA and SMP, was dealing with different parts of the Environment Agency and this resulted in provision of two different data sets for the same data source (i.e. EA).

Now have a single point of contact with the Environment Agency who provides the interface for the Planning Service of the Isle of Wight Council and the Environment Agency by co-ordinating with all relevant Environment Agency colleagues/departments and feeding back responses to the Isle of Wight Council. This provides a much more efficient way of working and ensures correct/current data is being used by all sides.

A lack of resources for working across organisations hinders the ability to exchange historic knowledge.

**Question 8 How does your organisation engage / interact with communities when it comes to planning coastal change adaptation?**

Intention is to develop a *Flood Risk and Vulnerable Coastal Communities SPD* (refer to Q3). This SPD will set out the Council's approach to Coastal Change Management Areas (CCMAs) and associated guidance so that communities vulnerable to coastal change have the necessary spatial planning framework to manage this change in the most sustainable manner. The CCMAs will be identified by drawing on evidence from the SMP and SFRA and, importantly, in partnership with relevant local communities, key stakeholders and statutory consultees.

A key issue for any coastal authority facing such issues and need is the availability of resources, local priorities and risk.

**Question 9 If you have, or do develop, Coastal Change Management Areas and associated policies, how would communication with communities be done? Would the approach change from present approaches?**

Development of CCMAs will focus on specific bits of coast, and therefore engagement will be quite targeted.

**Question 10 What has been the legacy for your organisation / partner organisations / communities of the Pathfinder (or other adaptation) project in terms of the planning system? Do you feel that any additional lessons have been learnt from your Pathfinder (or other adaptation) project that were not reflected in your final evaluation report to Defra, particularly with regards to types of planning system responses to managing coastal change adaptation?**

No pathfinder/adaptation projects undertaken by Isle of Wight Council. However, it would be good if projects such as Pathfinder did not just finish but were iterative, with lessons learnt from one area were tested in another area to test whether "good practice" identified in one area really is good practice applicable to other areas.

**Question 11 How were cross boundary issues considered during the project and how were they dealt with?**

"Duty to Co-operate" brought in by central Government to ensure all local authorities and statutory bodies (e.g. EA/MMO etc) co-operate and engage with each other when developing plans and policies (this is one of the first tests that a planning inspector would look at).

Coastal change adaptation may fall into this requirement as adaptation measures could have downdrift impacts etc (e.g. sediment cell interactions) and the importance of not making decisions in isolation that are likely to have a wider-than-authority impact, nevermind the potential benefits in a shared strategic approach. Coastal forums may be one such mechanism for developing or co-ordinating such requirement.

**Question 12 Have any recent changes in political, planning or environmental legislation affected coastal change adaptation?**

DCLG/Defra need to clarify the position of coastal change adaptation and the role of previous practice guides etc (i.e. PPS 25 practice guide is not stated as having been withdrawn though PPS25 policy is; the implication is that PPS25 practice guide is still to be used but it is not clear that this is the case).

Coastal Access by Natural England has gone quiet. Not sure what the implications of coastal access and coastal change are.

**Question 13 What data do you expect to use to underpin the development of Coastal Change Management Areas and how confident are you in the available evidence base for this purpose? If not confident, what additional data would you need to provide confidence when defining CCMA's?**

Use SMP/NCERM/EA Flood Zone mapping/detailed SFRA flood zone mapping (that includes sea level rise).

The Isle of Wight SFRA (Mk2) June 2010 ([http://www.iwight.com/living\\_here/planning/images/25793-c020-IsleofWightCouncilSFRAReport-3.pdf](http://www.iwight.com/living_here/planning/images/25793-c020-IsleofWightCouncilSFRAReport-3.pdf)) also considers the exposure of coastal properties to wind action and wave spray effects (e.g. sand/shingle blasting of buildings/infrastructure) and how this should be accounted for in terms of building materials/design etc.

Isle of Wight Council also seek to learn from other local authorities. In particular looking at the experience of North Norfolk as know they have been dealing with similar kinds of issues on a bigger scale (in terms of number and rate of properties affected by erosion). Mostly done via internet searches of areas where know similar issues have been dealt with.

There are also benefits of being part of a coastal forum as this leads to contact with others facing similar challenges, sharing of ideas, data, experience and ultimately best practice/what works.

**Question 14 Do you feel there would be benefit in providing some form of knowledge exchange platform at regional/national level to share experience in the future?**

Absolutely worthwhile. Can be really hard to find relevant information.

Forum could share knowledge/experience with best practice examples or provide signposting/links to relevant documents.

**Question 15 Is there anything else that you believe guidance on planning system approaches to coastal change adaptation should include?**

- The lack of a co-ordinated strategy for managing coastal risks, and in particular defining mechanisms for ensuring funding contributions, has prevented development occurring in some areas of the Isle of Wight. This is something that needs to be addressed in the future.
- It would be good to understand the implications of actively eroding/dynamic/transient coastal features on fixed designation zones in relation to planning (i.e. features of designation may migrate beyond a fixed geographical zone set many years ago) – are boundaries to be adjusted? How does this process occur? What are the implications for legal habitat regulation matters?
- There needs to be greater alignment between planning horizons. SFRAs/SMPs/local plans all consider different time-scales.

## Coastal Change Adaptation Planning Guidance: Telephone Interview Record Sheet

<b>Date:</b>	7 <sup>th</sup> December 2012
<b>Time:</b>	1100-1135
<b>Interviewer Name (Halcrow):</b>	Alan Frampton
<b>Interviewee Name/Organisation:</b>	David Hickman (Lincolnshire County Council)
<b>Contact number:</b>	01522 554 809

### **Question 1 What type of coast do you have responsibility for? (e.g. soft cliff/hard cliff/beaches/dunes/estuaries etc)**

The Lincolnshire coast is an extensive low-lying coastal flood plain entirely defended by raised defences in the form of sand dunes, hard defences around towns, and clay and earth embankments around The Wash. The entire area is at risk of coastal flooding.

The northern (Humber Estuary) and southern (The Wash) ends of the Lincolnshire coast are accreting.

The central part of the coast is eroding between Mablethorpe and Skegness. This area is subject to annual beach recharge under the Lincshire scheme to counter beach erosion.

### **Question 2 What are the specific issues relating to coastal change that you need to manage? (e.g. social/economic/environmental)**

Quite a large population along the coast.

There are high levels of elderly/vulnerable groups as the Lincolnshire coast is a popular retirement destination.

Also there are high levels of deprivation as much of the available work is seasonal; the economy is heavily dependent on visitors to the coast during summer month.

There are lots of static caravans (c. 25,000) in the coastal zone. Some of these are occupied throughout the year.

The main issue is ensuring residents and visitors are aware of the coastal flood risks (erosion is less of a problem as this is managed by defences/beach recharge – refer to Q1) to improve resiliency of the communities without unduly alarming people or deterring inward investment.

Inward investment is difficult to attract due to isolated nature of the county which has poor transport links and low skills base, neither of which provide incentive for businesses to come to the Lincolnshire coast.

Planning and growth in the region has to balance sustainable growth with coastal flood risks.

Lots of environmental designations including Ramsar, SAC, SPA, SSSI etc around The Wash and Humber Estuary.

Along the open coast there are also SSSIs as well as NNR and LNR designations.

Along part of the open coast, there is a project currently underway to restore coastal freshwater wetland habitat. This habitat is dependent upon the continued provision of defences along the coast.

Agricultural land in the coastal flood plain is also dependent upon the continued provision of defences along

the coast.

**Question 3 Does your organisation have in place a specific mechanism for developing and implementing coastal change management areas?**

Would probably use the already established Elected Members Forum that meets to discuss a range of coastal management issues to co-ordinate common positions between County Council and District (planning) Authorities and other key organisations such as Environment Agency, IDBs and Natural England.

Stakeholder Forums similar to those used to produce the SMP would also probably be used.

However, as the main issue is coastal flood risk and the SMP policies are to hold the line with only localised managed realignment in some areas, it may well be the case the CCMA's do not end up being defined for the Lincolnshire coast (except possibly for the localised areas of managed realignment identified in the SMP).

**Question 4 What key messages do you believe your Pathfinder (or other adaptation) project identified in terms of good approaches to coastal adaptation through the planning system that could be included in the guidance?**

Communication and Partnership working is essential to develop and give clear and consistent messages from all those with responsibility for managing the coast.

Developing consensus to establish a consistent approach across different planning authorities along coasts that have interlinked systems of defences and sediment transport etc is essential to avoid causing adverse updrift/downdrift effects.

Reaching agreement on how to assess flood risk in a consistent way along the coast (and across different planning authorities) is important; this is currently being driven by the core strategy consultations to reach final agreement.

**Question 5 (IF APPLICABLE) Besides the areas focussed on in your Pathfinder project, are you aware of any other locations in your locality where coastal change adaptation practices are being implemented through the planning system that could provide a good case study for inclusion in the coastal change adaptation planning guidance?**

A couple of managed realignment schemes along the coast to provide mitigation habitat and improve defence levels to communities in the areas around:

- Donna Nook (Environment Agency project underway).
- Frieston Shore near Boston (project completed several years ago).

**Question 6 How does your internal organisational structure help or hinder coastal change adaptation in the planning system?**

Lincolnshire County Council is not the local planning authority, therefore no comment.

**Question 7 How does your organisation interact with other organisations when it comes to planning coastal change adaptation?**

Ongoing engagement occurs with other relevant organisation through the Flood Risk Partnership.

Also, the established Elected Members Forum co-ordinates across relevant organisations (refer to Q3).



**Question 8 How does your organisation engage / interact with communities when it comes to planning coastal change adaptation?**

For specific projects the lead authority will lead on engagement, drawing on support from Lincolnshire County Council/other organisation as appropriate. The engagement approach would be tailored to the specific project requirements and the community(ies) being engaged with.

**Question 9 If you have, or do develop, Coastal Change Management Areas and associated policies, how would communication with communities be done? Would the approach change from present approaches?**

Refer to Q8.

**Question 10 What has been the legacy for your organisation / partner organisations / communities of the Pathfinder (or other adaptation) project in terms of the planning system? Do you feel that any additional lessons have been learnt from your Pathfinder (or other adaptation) project that were not reflected in your final evaluation report to Defra, particularly with regards to types of planning system responses to managing coastal change adaptation?**

Continuing communications started with the pathfinder project to build awareness of flood risk issues amongst coastal communities; being delivered with a robust, joined-up, consistent message from all authorities.

The Pathfinder project built on the Lincolnshire Coastal Study, and both have led to the inclusion in the draft local plan core strategy of policies that take significant consideration of coastal flood risks when defining where and what types of development should occur within the local plan areas.

Planning authorities also have a much better understanding of the make up of the coastal community as a result of pathfinder. In particular the number of permanent residents in caravan parks who are in the area over winter when coastal flood risk is greater is now much better understood.

**Question 11 How were cross boundary issues considered during the project and how were they dealt with?**

Use of the established Elected Members Forum (refer to Q3).

**Question 12 Have any recent changes in political, planning or environmental legislation affected coastal change adaptation?**

Big one is the new Partnership Funding Mechanism. This means that it is no longer possible to guarantee coastal defences will be 100% funded by central government and therefore there is a need to develop ways of getting funds from commercial and private sources while maximising government investment. There is a lot of work to be done on this and the few case studies and limited guidance available do not demonstrate how this can be achieved on such a large scale as required to manage coastal flood risk along the Lincolnshire Coast.

**Question 13 What data do you expect to use to underpin the development of Coastal Change Management Areas and how confident are you in the available evidence base for this purpose? If not confident, what additional data would you need to provide confidence when defining CCMA's?**

To define flood risk detailed flood hazard mapping for a large number of scenarios was developed with the Environment Agency as part of the Lincolnshire Coastal Study. This data underpins planning in respect of flood risk considerations.

**Question 14 Do you feel there would be benefit in providing some form of knowledge exchange platform at regional/national level to share experience in the future?**

More information, especially worked case studies to draw lessons from, would be beneficial.

**Question 15 Is there anything else that you believe guidance on planning system approaches to coastal change adaptation should include?**

Key thing to highlight is the importance of building consensus to arrive at a consistent approach when managing very long interlinked coastlines that cross administrative boundaries. There needs to be flexibility in doing this to address local specific requirements, but this has to be done with a wider, more strategic/regional perspective from all parties so as to avoid adverse updrift/downdrift impacts along the coast. The recent emphasis toward localism and away from regional planning poses the risk that this may be more difficult to achieve in the future if those involved focus only on their local issues without considering the wider context of coastal processes.

## Coastal Change Adaptation Planning Guidance: Telephone Interview Record Sheet

Date:	21 <sup>st</sup> November 2012
Time:	1000-1045
Interviewer Name (Halcrow):	Alan Frampton
Interviewee Name/Organisation:	Tony Flux (National Trust)
Contact number:	01297 480024

### Question 1 What type of coast do you have responsibility for? (e.g. soft cliff/hard cliff/beaches/dunes/estuaries etc)

TF is responsible for the south-west coast (Isle of Wight to top of Bristol Channel). Covers all types of coastal environment.

National Trust owns and manages about 9% of the coast of England, Wales and Northern Ireland (about 1140km). Most of this is open coast or amenity coast; not much in the way of infrastructure.

### Question 2 What are the specific issues relating to coastal change that you need to manage? (e.g. social/economic/environmental)

Specific issues of concern for National Trust:

- Most land is tenanted farm land, so lots of issues around tenancy (e.g. tenancy legalities, safety, pollution, good land/farm management practices)
- Coastal erosion/accretion
- Roll back of property (i.e. relocation) – examples at Birling Gap and Cayton Bay; lots of issues around this (e.g. economics, legal matters, moral and emotional).
- Public safety
- Access to the coast
- Revenue (brining funds into National Trust through coastal property, e.g. car parks, holiday cottages, cafes)
- National Trust also engages with the planning system as a non-statutory consultee and is pro-active in this, especially where a planning application would materially disaffect NT property (including landscape/seascape).

### Question 3 Does your organisation have in place a specific mechanism for developing and implementing coastal change management areas?

National Trust has 2 procedures implemented about 8 years ago. These are spreadsheet based Coastal Risk Assessments (CRAs). CRA1 was high level assessment of flood and erosion risk of all NT property. This identified top 20% most at risk 'hot spots'. These hot spots were assessed in great details in CRA2 – included looking at about 17 parameters including employment, economics, safety, wildlife etc. Each hot spot property has then been tasked with producing a Coastal Adaptation Strategy (CAS) that is aligned to the property business plan – NT has a guidance document for how to develop a CAS for property managers to follow *[copy provided to Halcrow by Phil Dyke]*.

**Question 4 What key messages do you believe your Pathfinder (or other adaptation) project identified in terms of good approaches to coastal adaptation through the planning system that could be included in the guidance?**

National Trust has developed coastal policy with 10 principles *[taken from CAS guidance provided by Phil Dyke]*:

1. The Trust accepts that the coast is dynamic and changing and will work with the natural processes of coastal erosion and accretion wherever possible.
2. The Trust will take a long-term view and will adopt or support flexible management solutions which can enable, or adapt to, the processes of coastal change.
3. The Trust will plan in the context of projected sea level rise and will favour coastal realignment wherever this can reasonably be accommodated.
4. The Trust will only support interference with natural coastal processes where it believes there is an overriding benefit to society in social, economic or environmental terms. This will usually be 'buying some time' in order for a longer-term adaptive solution to be negotiated with other parties.
5. Valued habitats and species of the coastal zone will be conserved and enhanced as far as practicable, accepting that they will develop or adapt in response to coastal, oceanic and climate change. The Trust accepts that some habitats and species will be lost or replaced through natural processes and we will attempt substitution of losses elsewhere. The relationship between terrestrial, intertidal and marine species and ecosystems will be fundamental to the Trust's management of and policies for the coastal zone.
6. Valued cultural features in the coastal zone will be conserved and enhanced as far as practicable, whilst not necessarily seeking to protect them indefinitely. The Trust will ensure such features are properly recorded before they are lost or will consider relocation if that can be justified. The relationship between landscape and seascape and the full meaning of the maritime historic environment will be fundamental to the Trust's management.
7. The Trust will actively promote public access to the coastal zone, subject to conservation and safety considerations, in order to provide public enjoyment, recreational opportunities and to develop understanding of the coast and marine environments.
8. Coastal management decisions often impact beyond their immediate location. The Trust will work with other managers, organisations and communities to share experience and knowledge, to secure beneficial outcomes, to promote solutions on the basis of our experience, and to ensure a shared understanding is achieved.
9. The Trust will only support development in the coastal zone which has taken proper account of coastal change and sea level rise as well as environmental, cultural and landscape considerations. The Trust will contribute to components of the terrestrial and marine spatial planning systems to ensure its interests are fully reflected in plans and policies.
10. The Trust will consider the acquisition of land and property where it is the best option to support these principles. This can include land on the present coast, land to be managed as future coast, land in intertidal areas and land as seabed - as freehold or leasehold.

TF highlighted points 3 and 8 in particular. With regards point 8, TF's view is that you should be open and honest about communicating with all parties (don't withhold information if you know it), even if there is uncertainty or the message is difficult.

**Question 5 (IF APPLICABLE) Besides the areas focussed on in your Pathfinder project, are you aware of any other locations in your locality where coastal change adaptation practices are being implemented through the planning system that could provide a good case study for inclusion in the coastal change adaptation planning guidance?**

TF highlighted a case study: Brownsea Island South Shore where undertook removal of defences. Took over 12 months to go through all planning/licensing/consent steps then only 2 months to do the work. TF to forward paper on this.

**Question 6 How does your internal organisational structure help or hinder coastal change adaptation in the planning system?**

NT organisation helps a lot to facilitate coastal management including adaptation. Has long experience of working across the organisation in this field. 'Shifting Shores' is a key policy document.

**Question 7 How does your organisation interact with other organisations when it comes to planning coastal change adaptation?**

National Trust works with the planning system when implementing infrastructure (e.g. new car parks/facilities).

Refer also to Q5 re. Brownsea Island case study and interaction with the planning system.

NT approach to coastal management issues is proactive. Have good relations with all those working in the coastal area including consultants and statutory bodies at a variety of levels across organisations.

**Question 8 How does your organisation engage / interact with communities when it comes to planning coastal change adaptation?**

Refer to Q4. Approach is to communicate with all throughout and to be open and honest. This can take a long time (years) to reach agreement on complex/emotive issues where people will be disaffected and needs a commitment to do this to be effective. TF cited Mullion Harbour in Cornwall as a case study and will seek to provide details.

**Question 9 If you have, or do develop, Coastal Change Management Areas and associated policies, how would communication with communities be done? Would the approach change from present approaches?**

CCMAs not really applicable to NT.

Present approach of NT to communication would not change.

TF would recommend that statutory bodies such as Natural England and the Environment Agency need to improve and be much better at engaging with people rather than deciding then consulting.

**Question 10 What has been the legacy for your organisation / partner organisations / communities of the Pathfinder (or other adaptation) project in terms of the planning system? Do you feel that any additional lessons have been learnt from your Pathfinder (or other adaptation) project that were not reflected in your final evaluation report to Defra, particularly with regards to types of planning system responses to managing coastal change adaptation?**

TF lessons from Jurassic Coast Pathfinder and work done with residents along Old Castle Road/Portland Harbour North West Shore (Weymouth) to develop a residents guide to coastal change issues is that it is much easier and likely to be successful to work with small communities where individual relationships can be built (though very resource intensive).

Working with larger communities is much more difficult; perhaps the lesson is to break larger communities into smaller groupings for engagement.



**Question 11 How were cross boundary issues considered during the project and how were they dealt with?**

Depends on the individuals in post and whether or not an authority even has a coastal officer post as to how cross-boundary matters are dealt with. Varies around the country.

**Question 12 Have any recent changes in political, planning or environmental legislation affected coastal change adaptation?**

No clear direction from government means planning policy is being pulled in different directions (localism versus economic growth) – messages keep changing.

More of an historical issue, but TF view is that EU environmental legislation is out of date and needs revising at the EU level; as it stands this can hinder all coastal management activity (even that which seeks to improve the environment); it is very proscribed in what can and can not be done and therefore hinders innovation and limits options available.

**Question 13 What data do you expect to use to underpin the development of Coastal Change Management Areas and how confident are you in the available evidence base for this purpose? If not confident, what additional data would you need to provide confidence when defining CCMA's?**

If wanted more data, would consult regional coastal monitoring programmes ([www.channelcoast.org](http://www.channelcoast.org)) or Dorset Coastal Planning Explorer (developed through C-SCOPE project (<http://www.dorsetcoastalplanning.com/>)) which provides details on all relevant planning policy (terrestrial and marine) for use in coastal/marine development.

In general, would depend on what the issue was to determine what information would want and confidence in it. In terms of SMP/NCERM, taken as read.

**Question 14 Do you feel there would be benefit in providing some form of knowledge exchange platform at regional/national level to share experience in the future?**

In principle yes. Has been talked about over and over. No idea what it would look like/who would run it/fund it. Are there already ways in which this is done (e.g. Coastnet; Coastal Forums; LinkedIn etc??).

**Question 15 Is there anything else that you believe guidance on planning system approaches to coastal change adaptation should include?**

Not convinced that rollback policies will be driven by government policy. More likely that insurance and mortgage providers will ultimately drive this to ensure their risk exposure is low (i.e. property not going to be lost to erosion and therefore be non-recoverable).

Land use planning policy in recent times has been subject to regular changes e.g. infrastructure, baseload provision and now flood insurance cover. All these items clearly have a strong coastal component so I think your planning guide needs to have amber warnings attached where your contributors see that a change in approach is likely within say three years from publication. If you don't, the Guide will be out of date too quickly and whilst you cannot predict where those changes might pop up, at least the reader can be warned and perhaps directed to relevant websites for updates etc.

## Coastal Change Adaptation Planning Guidance: Telephone Interview Record Sheet

Date:	26 <sup>th</sup> November 2012
Time:	0930-1030
Interviewer Name (Halcrow):	Alan Frampton
Interviewee Name/Organisation:	Rob Young, Rob Goodliffe, Brian Farrow (North Norfolk District Council)
Contact number:	Halcrow teleconference facility

### Question 1 What type of coast do you have responsibility for? (e.g. soft cliff/hard cliff/beaches/dunes/estuaries etc)

- Coast comprised of sands/gravels/clay cliffs that NNDC is responsible for. Environment Agency are responsible for low-lying parts (flood zones).
- Some areas have hard defences protecting against erosion.

### Question 2 What are the specific issues relating to coastal change that you need to manage? (e.g. social/economic/environmental)

- Coastal communities along much of the coast.
- Mostly low end of social deprivation indices (though pockets of greater wealth in some areas).
- International/National designations (e.g. SAC/SPA/SSSI – geological mostly but some biological).
- Emerging Marine Conservation Zones in the area are currently extending above the MHW mark at the coast and causing some concern.
- Predictions of erosion causing blight for property owners with impacts on house prices and reduced ability to attract business investment.

### Question 3 Does your organisation have in place a specific mechanism for developing and implementing coastal change management areas?

Yes. Adopted LDF Core Strategy (adopted 2008) identifies the 100 year erosion risk zone based on SMP2 mapping – termed “Coastal Erosion Constraints Area” in LDF documents. Within the “constraints area” there is restricted development allowed (supported by advice on what could/could not occur within a constraints zone – e.g. change of use/extensions etc). The policy also allows for residential properties at risk within 20 years, and businesses at risk within 50 years, to relocate to ‘safe’ areas outside of those defined in the local plan, subject to other planning guidance etc. All of this information is available on the NNDC website at [http://consult.north-norfolk.gov.uk/portal/planning/cs/adopted\\_cs?pointId=10#section-10](http://consult.north-norfolk.gov.uk/portal/planning/cs/adopted_cs?pointId=10#section-10) (see policy EN12).

NNDC are currently developing a set of guidelines/advice documents for property owners/developers etc to help them use this policy to either relocate from risk zones or undertake appropriate development within the risk zones (i.e. how to navigate the planning system).

**Question 4 What key messages do you believe your Pathfinder (or other adaptation) project identified in terms of good approaches to coastal adaptation through the planning system that could be included in the guidance?**

The NNDC Pathfinder project looked at 'buy and lease' mechanisms (NB: NNDC view is that 'buy and lease back' is a misnomer as once bought the property could be leased to anyone not just leased back to the current occupier/previous owner). NNDC found this was possible to do but not attractive at the time due to high level of risk in part associated with legal issues (NNDC believe some of these may be possible to overcome now the Localism Act is in place but needs to be investigated).

Also looked at relocation approaches for both residential property and businesses (e.g. caravan park). Found a key issue is that whilst there may be a policy in place to enable relocation there is difficulty in finding appropriate/suitable available land (with a community willing to accept relocated assets) to facilitate relocation in practice.

Working with local community is essential and must be prepared to put the resources into this. Relationships developed through pathfinder were one of the most important outcomes. For the pathfinder this was aided by use of the local Coastal Concern Action Group without whom the level of engagement achieved may not have been possible.

**Question 5 (IF APPLICABLE) Besides the areas focussed on in your Pathfinder project, are you aware of any other locations in your locality where coastal change adaptation practices are being implemented through the planning system that could provide a good case study for inclusion in the coastal change adaptation planning guidance?**

NNDC are going to have similar issues as at the Pathfinder sites as the coast continues to erode over time.

Hope to apply lessons etc learnt from Pathfinder to other areas over time, but encouraging these to be developer led (as part of wider development plans) with support/advice from NNDC. Uncertain about how achievable this will be.

Funding will be a big issue in how this will be delivered in the future. Need to find ways to capture investment.

**Question 6 How does your internal organisational structure help or hinder coastal change adaptation in the planning system?**

NNDC has been going through a period of change. Coastal team is now in the same section as the planning policy team so hope to be better integrated in the future. However, there is a need to maintain clear barriers so as to avoid perception of undue influence on planning application decisions.

Pathfinder project engaged much more widely across more sectors/council departments than is normal. Mixing the different expertise helped.

Still a challenge to get planners to understand complex coastal issues beyond normal planning considerations.

NNDC has now implemented a new integrated coastal approach (i.e. ICZM principles). This is in the early stages but seeks to integrate policy and approaches across NNDC for greater benefit (e.g. co-ordinated/integrated approaches to funding, adaptation, coastal protection and tourism).

**Question 7 How does your organisation interact with other organisations when it comes to planning coastal change adaptation?**

Pathfinder website provides a resource for other authorities etc to use.

No formal approach (e.g. coastal forum) as used in other areas, but working on trying to develop a similar approach in Norfolk.

Norfolk County Council remains distant from engaging with coastal issues but hope to engage more in the future.

NNDC do share lessons with neighbouring authorities through SMP/Coastal Groups.

**Question 8 How does your organisation engage / interact with communities when it comes to planning coastal change adaptation?**

Will try and carry on with a similar level of engagement as used in the Pathfinder project as this is the only way to bring communities along with plans.

Local engineer (within NNDC) takes it on himself to also engage regularly with the local communities.

NNDC has set up a forum for organisations/local councillors/parish councillors/residents etc to (1) capture knowledge about the coast and coastal issues of concern to communities; and (2) provide a way for anyone to ask questions about coastal matters.

For projects, NNDC establish local project liaison groups that pull in key players who can answer questions, advise on community issues and disseminate information to provide a 2-way communication during a project between NNDC and communities. Groups are scaled according to project specifics.

**Question 9 If you have, or do develop, Coastal Change Management Areas and associated policies, how would communication with communities be done? Would the approach change from present approaches?**

NNDC developed their coastal erosion constraints areas prior to the issuing of DCLG guidance on developing CCMA's (i.e. PPS25 supplement). Indeed, NNDC were involved in discussions with DCLG as part of the development of PPS 25 supplement to share their experience of such areas. Much of this is reflected in the PPS 25 supplement.

Would do things differently in the future in terms of how defined risk zones. Currently the erosion risk zone is based on theoretical 100 year erosion zone from SMP2; this is often illogical in planning terms as zones can cut through individual houses. In the future would use a more logical physical boundary (e.g. road) as the limit of a planning constraint zone, even if this were more conservative than the more theoretical approach.

**Question 10** What has been the legacy for your organisation / partner organisations / communities of the Pathfinder (or other adaptation) project in terms of the planning system? Do you feel that any additional lessons have been learnt from your Pathfinder (or other adaptation) project that were not reflected in your final evaluation report to Defra, particularly with regards to types of planning system responses to managing coastal change adaptation?

Legacy is ongoing.

For NNDC, the pathfinder project was a continuation of long history of engagement with coastal communities. The pathfinder project enables NNDC to test a number of adaptation options that they had previously been unable to fund. The developing integrated approach (refer to Q6) is a result of pathfinder.

A lot of good lessons were learnt but NNDC feels these are under valued by Defra particularly as central government has reduced funding levels when what is actually needed is better funding to enable the lessons of pathfinder to be implemented more widely and developed further.

Key learning point is that you can not just look at the planning side of coastal change adaptation planning and implementation in isolation. You need to look at the whole with consideration given to all influencing factors (e.g. funding/community awareness etc).

**Question 11** How were cross boundary issues considered during the project and how were they dealt with?

No cross-boundary issues in the pathfinder project.

In general NNDC share knowledge with neighbouring authorities (refer to Q7).

**Question 12** Have any recent changes in political, planning or environmental legislation affected coastal change adaptation?

NPPF has most critical things covered in terms of coastal change issues, but lacks clarity over status of PPS25 supplement (Development and Coastal Change) and whether this can still be used – NNDC view is that there is a lot of good stuff in that and it should be used.

Localism Act may make things easier but this may be countered by aversion to risk.

In Norfolk, the England Coast Path is being developed and this provides opportunity to address coastal access issues associated with coastal change adaptation.

**Question 13** What data do you expect to use to underpin the development of Coastal Change Management Areas and how confident are you in the available evidence base for this purpose? If not confident, what additional data would you need to provide confidence when defining CCMA's?

Use SMP2 to develop erosion risk area. NCERM is an unknown and wary of using as introduces a second set of erosion zones when only want to have a single data set. A number of detailed studies are ongoing that may lead to refinement of SMP erosion zones in some areas.

Would prefer to use a more logical approach to defining CCMA's (refer to Q9).



**Question 14 Do you feel there would be benefit in providing some form of knowledge exchange platform at regional/national level to share experience in the future?**

Yes, as long as NNDC benefit from knowledge sharing as well as contributing.

Could use existing mechanisms (e.g. coastal groups) rather than introducing a new national/regional group system.

Internet based 'communities of practice' set up for the pathfinder projects didn't really work.

Would need to be backed up with appropriate resources/funding.

**Question 15 Is there anything else that you believe guidance on planning system approaches to coastal change adaptation should include?**

Coastal Communities Fund should be re-focussed on coastal change adaptation not economy development in coastal areas.

FCERM options appraisal needs to have adaptation options integrated into the more traditional options appraisal scenarios (i.e. support short term intervention).

Needs a much more ICZM approach to coastal strategies.

Funding for adaptation should be brought in line with SMP aspirations, not be limited to just funding of defences.

Government agencies responsible for conservation need to be much better at engaging with communities to better understand and account for coastal communities needs when designating areas for environmental features.

Needs to be better link up at all levels of government and across sectors/departments to help identify and free-up land for aiding coastal change adaptation (i.e. relocation policies).

Defra and DCLG need to work together and not in isolation (as appears to be the case presently) to develop proper joined up thinking on this issue.

## Coastal Change Adaptation Planning Guidance: Telephone Interview Record Sheet

<b>Date:</b>	30 <sup>th</sup> November 2012
<b>Time:</b>	1400-1500
<b>Interviewer Name (Halcrow):</b>	Mark Graham
<b>Interviewee Name/Organisation:</b>	Stewart Rowe and Kate Masser (Coastal Officers, Scarborough Borough Council)
<b>Contact number:</b>	Scarborough Teleconference Facility

### Question 1 What type of coast do you have responsibility for? (e.g. soft cliff/hard cliff/beaches/dunes/estuaries etc)

- Sand beaches and clay cliffs
- 65km coastline, 15km of which had hard flood defence.

### Question 2 What are the specific issues relating to coastal change that you need to manage? (e.g. social/economic/environmental)

- All three major towns within the Borough are located along the coast (Scarborough, Whitby and Filey) as well as a number of further coastal communities.
- Tourism is the major economy in the Borough (60%) along with harbour operations (Scarborough and Whitby) inc. Fishing.
- Most of the coastal area has International/National designations (e.g. SAC/SPA/SSSI – geological mostly but some Flora)
- Large areas of FPA to the south of Filey – potential FPA to the north of Filey in the near future.
- North Bay Marine Conservation Zone.
- Some isolated villages with low education and employment.
- Some levels of deprivation.

### Question 3 Does your organisation have in place a specific mechanism for developing and implementing coastal change management areas?

No. No CCMA is proposed.

No specific coastal change policy exists within the local plan, possible that policy may come forward in emerging local development framework/replacement local plan.

**Question 4 What key messages do you believe your Pathfinder (or other adaptation) project identified in terms of good approaches to coastal adaptation through the planning system that could be included in the guidance?**

- The experience in Scarborough has not been as successful as was intended.
- There is a concern that there is a lack of a 'grey zone' as planners tend to be minded to refuse development proposals within the coastal zone. Planning should, however, be more responsive and allow feasible development.
- Planning system needs to be less rule based.
- Planners have become more aware that coastal change exists and has improved the relationship between the two sectors/expertise.
- Residents and businesses on the coast are wary of 'adaptation' and do not want to adapt their lives, i.e. is adaptation or relocation? The language that is used and how this is communicated is of paramount importance to the success of coastal policy/guidance.
- Coastal living is a 'life-style choice' and it should be realised people are unwilling to change their coastal lives.

**Question 5 (IF APPLICABLE) Besides the areas focussed on in your Pathfinder project, are you aware of any other locations in your locality where coastal change adaptation practices are being implemented through the planning system that could provide a good case study for inclusion in the coastal change adaptation planning guidance?**

- Strategy at Robin Hoods Bay
- National Park is considering producing a policy for adaptation for the area.

**Question 6 How does your internal organisational structure help or hinder coastal change adaptation in the planning system?**

- Elected members are key to the process and, depending on timescales and circumstance, there is potential for political change and the level of political influence/support can ebb and flow.
- The right people need to be involved and consulted at the appropriate times.
- Coastal processes and planning have differing timeframes – could be planning for a coastal area which will not exist in the future.

**Question 7 How does your organisation interact with other organisations when it comes to planning coastal change adaptation?**

- The pathfinder consulted the following people, however levels of involvement and interest varied:
  - National Trust
  - County Council
  - Natural England
  - Project Team
- The organisations consulted, whilst holding specific expertise, lacked an over arching knowledge for the project. The local councillor acted as a facilitator for the relationships.

**Question 8 How does your organisation engage / interact with communities when it comes to planning coastal change adaptation?**

- In some cases there were incidents of 'engagement fatigue' from local planning policy, SMP and other consultations.
- As a result, however, awareness of coastal issues is high.

**Question 9** If you have, or do develop, Coastal Change Management Areas and associated policies, how would communication with communities be done? Would the approach change from present approaches?

N/A – Scarborough is not creating a CCMA.

**Question 10** What has been the legacy for your organisation / partner organisations / communities of the Pathfinder (or other adaptation) project in terms of the planning system? Do you feel that any additional lessons have been learnt from your Pathfinder (or other adaptation) project that were not reflected in your final evaluation report to Defra, particularly with regards to types of planning system responses to managing coastal change adaptation?

- Expectations have risen in different areas where individuals expect similar projects to be undertaken in their area, unaware that nor are further funds made available.
- Residents at Knight Point are trapped by money – i.e. they do not feel they can move until compensation come through.
- Understanding of insurance issues has increased within the council – insurance is a key consideration and social issue for coastal adaptation
- Policy needs to be flexible to reflect aim of policy.

**Question 11** How were cross boundary issues considered during the project and how were they dealt with?

N/A

**Question 12** Have any recent changes in political, planning or environmental legislation affected coastal change adaptation?

- The Draft Water Bill (Defra).
- Flood and Water Management Act – more powers for the EA re coastal processes. More powers to allocate grants.

**Question 13** What data do you expect to use to underpin the development of Coastal Change Management Areas and how confident are you in the available evidence base for this purpose? If not confident, what additional data would you need to provide confidence when defining CCMA's?

- The CCMA and guidance needs to be **risk based** and set within a ranked criteria – how would this be done and weighted?
- Needs to include a reasonable **mechanism for funding**.
- Geomorphologic data (inc. hinterland), erosion data, access routes (travel data) (a lot of villages could lose links due to coastal erosion leaving them isolated).
- Demographic data
- Emergency planning and access

**Question 14** Do you feel there would be benefit in providing some form of knowledge exchange platform at regional/national level to share experience in the future?

- Yes – needs to be open and transparent.
- How would it be controlled?
- Who would co-ordinated it? Could cause conflict if organisations are ignored.
- Needs to cover failure as well as success in order to learn from mistakes.

**Question 15 Is there anything else that you believe guidance on planning system approaches to coastal change adaptation should include?**

- The planning system could work on the same timeframes as coastal change guidance/plans, e.g. SMP works 20, 50 and 100 years.
- Guidelines need to be robust and challengeable.
- Needs to be made clear where the guidance sits within the planning, environmental and coastal policy framework.

Consultation draft



## Coastal Change Adaptation Planning Guidance: Telephone Interview Record Sheet

<b>Date:</b>	<b>5<sup>th</sup> December 2012</b>
<b>Time:</b>	<b>1000-1035</b>
<b>Interviewer Name (Halcrow):</b>	<b>Alan Frampton</b>
<b>Interviewee Name/Organisation:</b>	<b>Michelle Barnes and Graham Lymbery (Sefton Council)</b>
<b>Contact number:</b>	<b>Halcrow teleconference facility</b>

### **Question 1 What type of coast do you have responsibility for? (e.g. soft cliff/hard cliff/beaches/dunes/estuaries etc)**

Sefton coast is a bounded by the Mersey and Ribble Estuaries.

Central part is sand dunes.

At Southport the coast transitions from open coast to salt marsh as a result of the Ribble Estuary.

Hard defences (concrete seawalls) in a couple of areas.

There are areas of both erosion and accretion along the coast, both of which pose management issues.

### **Question 2 What are the specific issues relating to coastal change that you need to manage? (e.g. social/economic/environmental)**

In terms of socio-economic situation, it varies across the Sefton coast from the city of Liverpool in the south to Crosby and Southport that have a mix of deprived and wealthy areas and Formby which is quite well off.

Whole coast is a combination of SAC and SPA, designated for the beaches and sand dunes.

### **Question 3 Does your organisation have in place a specific mechanism for developing and implementing coastal change management areas?**

In terms of CCMA as a planning designation, Sefton Council feels that they do not need to define a formal CCMA as the coastal areas in which coastal change is predicted to occur are already well protected in planning terms by SMP policy, Green Belt policy and European Habitat site management plans (the predicted coastal change over the next 100 years is within these defined management site areas).

In addition, Sefton Council, through the IMCORE project, has developed a Coastal Adaptation Strategy that identifies the risks posed by coastal change to enable these to be managed (details are on the Sefton Council website at <http://www.sefton.gov.uk/default.aspx?page=10969>).

**Question 4 What key messages do you believe your Pathfinder (or other adaptation) project identified in terms of good approaches to coastal adaptation through the planning system that could be included in the guidance?**

Key message is understanding coastal change (erosion and accretion) processes and communicating that understanding effectively to overcome community resistance to change – need to convey the message that “the coast has always changed and always will change”. The purpose of this is to raise awareness with a view to removing barriers to discussions about how to adapt to coastal change.

The benefit of the engagement and education work done by the IMCORE project and the Pathfinder project is that it helps to build capacity in the community to engage in discussions about long-term planning.

In undertaking the engagement on IMCORE/Pathfinder, found it was necessary to set coastal change in the wider context of climate change, which was a challenge as there are many climate change sceptics.

**Question 5 (IF APPLICABLE) Besides the areas focussed on in your Pathfinder project, are you aware of any other locations in your locality where coastal change adaptation practices are being implemented through the planning system that could provide a good case study for inclusion in the coastal change adaptation planning guidance?**

The Sefton pathfinder project focussed mainly on Formby, but some materials developed related to the whole Sefton coast.

**Question 6 How does your internal organisational structure help or hinder coastal change adaptation in the planning system?**

The FCERM team is separate from the planning team in Sefton Council, but there is a good working relationship between the teams to work together on coastal issues.

There is, however, still a degree of ‘silo’ working on other matters.

**Question 7 How does your organisation interact with other organisations when it comes to planning coastal change adaptation?**

The Sefton Coastal Partnership brings together all groups (statutory, land owners, community etc) with role/interest in managing the coast to work together on coastal issues.

Sefton Council also works with landowners. Examples include the National Trust, where assistance is being provided to develop an adaptation strategy for a caravan site at risk of coastal erosion; and a local golf course to whom Sefton Council provide information about the latest coastal erosion predictions to enable the golf club to plan changes to the layout of the golf course that accounts for coastal change.

**Question 8 How does your organisation engage / interact with communities when it comes to planning coastal change adaptation?**

Through the IMCORE and Pathfinder projects, an education pack has been developed that is used by schools, universities and the community at large. Delivered through animated video content on YouTube and a booklet; aimed at raising awareness of coastal change. (see <http://www.visitsouthport.com/seftons-natural-coast/education/coastwatch> and <http://www.visitsouthport.com/xsdbimings/SNC%20A%20timeline%20of%20Sefton's%20changing%20coast%20web%20version1.pdf>).

Occasionally give presentations to parish councils and local groups.

**Question 9 If you have, or do develop, Coastal Change Management Areas and associated policies, how would communication with communities be done? Would the approach change from present approaches?**

When developing the Sefton Coastal Adaptation Study, this was produced as a technical document and involved consultation with members of the Sefton Coastal Partnership only.

**Question 10 What has been the legacy for your organisation / partner organisations / communities of the Pathfinder (or other adaptation) project in terms of the planning system? Do you feel that any additional lessons have been learnt from your Pathfinder (or other adaptation) project that were not reflected in your final evaluation report to Defra, particularly with regards to types of planning system responses to managing coastal change adaptation?**

Legacy includes the education pack (refer to Q8).

Also the legacy of the skills and understanding of coastal change adaptation developed in the officers at Sefton Council.

Work done on coastal change adaptation has also brought this issue to the forefront of partner organisations thinking when they are developing their own plans etc.

**Question 11 How were cross boundary issues considered during the project and how were they dealt with?**

No cross boundary issues in terms of other local authorities.

Working across boundaries in terms of different land ownership and organisations with different remits is dealt with through the Sefton Coastal Partnership.

**Question 12 Have any recent changes in political, planning or environmental legislation affected coastal change adaptation?**

Budget cuts affecting Sefton Council and partner organisations. This limits what can be done in terms of promoting issues around coastal change and continuing to build on the education and engagement done to date with communities; this does not help to promote long-term planning and engagement.

Also limits the ability of partner organisations to work together effectively on coastal change issues.

**Question 13 What data do you expect to use to underpin the development of Coastal Change Management Areas and how confident are you in the available evidence base for this purpose? If not confident, what additional data would you need to provide confidence when defining CCMA's?**

The SMP formalised work that had been done previously by Sefton Council, which involved detailed study and assessment of future coastal evolution potential at specific locations (e.g. Formby Point).

No CCMA is to be defined by Sefton Council (refer to Q3).

**Question 14 Do you feel there would be benefit in providing some form of knowledge exchange platform at regional/national level to share experience in the future?**

When Sefton Council started, it would have been useful to have had example case studies (with contact details to follow up on ones of relevance/interest), to reduce time spent trying to work out what to do.

A discussion forum probably wouldn't work as very few people would likely have time to contribute to this.

**Question 15 Is there anything else that you believe guidance on planning system approaches to coastal change adaptation should include?**

Guidance could direct to the IMCORE website on which is a number of tools and case studies to help in developing coastal change adaptation plans.

Guidance should highlight the importance of not underestimating the problems of communicating the evidence base to people in order to gain their acceptance of the issues and to remove barriers to their engaging in discussion to plan for coastal change adaptation (refer to Q4).

## Coastal Change Adaptation Planning Guidance: Telephone Interview Record Sheet

<b>Date:</b>	<b>3<sup>rd</sup> December 2012</b>
<b>Time:</b>	<b>1130-1205</b>
<b>Interviewer Name (Halcrow):</b>	<b>Alan Frampton</b>
<b>Interviewee Name/Organisation:</b>	<b>Rebecca Gray (Somerset County Council)</b>
<b>Contact number:</b>	<b>01823 320463</b>

### **Question 1 What type of coast do you have responsibility for? (e.g. soft cliff/hard cliff/beaches/dunes/estuaries etc)**

Somerset County Council (SCC) does not look after coastal defences or have as extensive a role in coastal defence management as district councils.

However, SCC do have responsibility for coastal parts of the Quantocks AONB that is comprised of rocky cliffs and foreshores; Rights of Way (West Somerset Coast Path); and management of approx. 15Ha saltmarsh (SSSI designated) along the River Brue which is grazed to ensure this maintains favourable condition.

### **Question 2 What are the specific issues relating to coastal change that you need to manage? (e.g. social/economic/environmental)**

About one fifth of Somerset's coast is floodable with a history of flooding that will continue in the future as sea levels rise, along with coastal erosion.

There is a need to balance protecting settlements with reducing the impacts of coastal squeeze of European Natura2000 inter-tidal habitat that fronts large areas of the Somerset coast.

At Brean and Berrow there is one of the largest caravan parks in the country that lies in the flood plain. There is a need to balance flood risk (in terms of informing owners and visitors of flood risks) and tourism of benefit to the economy of the area (i.e. not scaring visitors away with messages of flood risk).

Hinkley Point Nuclear Power Station is located along the Somerset coast.

Part of the coast is within the Exmoor National Park who are the planning authority in that area.

### **Question 3 Does your organisation have in place a specific mechanism for developing and implementing coastal change management areas?**

SCC is not responsible for CCMA's in the planning system. This falls to district authorities.



**Question 4 What key messages do you believe your Pathfinder (or other adaptation) project identified in terms of good approaches to coastal adaptation through the planning system that could be included in the guidance?**

Found that pathfinder meetings at Porlock Weir were greatly helped by attendance of local authority planners to discuss in detail coastal change issues and explore possible adaptation options. One option that was identified was the idea of providing areas for properties built on shingle ridge to be relocated to higher ground out of the flood risk area but within the same community. Uncertain if this has been taken forward in new Exmoor National Park Management Plan 2012-17 documents.

Not explicitly planning but used 'scenario planning' in the form of a newspaper from the future reporting on the impacts of a large storm event to engage communities in thinking about how they may respond if such a situation were to occur to them.

Community engagement was a key focus of the Somerset Pathfinder.

**Question 5 (IF APPLICABLE) Besides the areas focussed on in your Pathfinder project, are you aware of any other locations in your locality where coastal change adaptation practices are being implemented through the planning system that could provide a good case study for inclusion in the coastal change adaptation planning guidance?**

Not aware of any sites beyond those areas looked at for the Pathfinder project.

**Question 6 How does your internal organisational structure help or hinder coastal change adaptation in the planning system?**

Coastal change adaptation planning is not the responsibility of SCC, therefore no comment.

**Question 7 How does your organisation interact with other organisations when it comes to planning coastal change adaptation?**

SCC are a member of the North Devon and Somerset Coastal Advisory Group and therefore feed into long term coastal planning initiatives via that forum.

SCC is also a statutory consultee on development of local plans.

**Question 8 How does your organisation engage / interact with communities when it comes to planning coastal change adaptation?**

Experience of engagement on coastal issues has been through involvement in projects via the North Devon and Somerset Coastal Advisory Group.

**Question 9 If you have, or do develop, Coastal Change Management Areas and associated policies, how would communication with communities be done? Would the approach change from present approaches?**

Coastal change adaptation planning is not the responsibility of SCC, therefore no comment.

**Question 10 What has been the legacy for your organisation / partner organisations / communities of the Pathfinder (or other adaptation) project in terms of the planning system? Do you feel that any additional lessons have been learnt from your Pathfinder (or other adaptation) project that were not reflected in your final evaluation report to Defra, particularly with regards to types of planning system responses to managing coastal change adaptation?**

At Porlock Weir, the community developed a Flood Adaptation Action Plan with support from the pathfinder project which also funded provision of flood resiliency equipment. Since pathfinder, the community has appointed a flood warden and undertaken a test of the action plan to practice responses to a coastal flood event.

At Steart, the pathfinder project paid for a full-time community engagement officer to act as a dedicated point of contact for local residents during the design and planning stages of the project. This is deemed a success as there is now strong support for the managed realignment scheme that is currently being constructed at this location.

At Burnham, Berrow and Brean, the pathfinder project funded a trial dune restoration project. This has been successful and has been carried on post-pathfinder using local voluntary group with some funding provided by SCC. In addition, the contacts developed through pathfinder were used to engage with residents/communities in the development of a beach and dune management plan that was produced post-pathfinder. The engagement through pathfinder meant that local residents were more engaged with this subsequent study as it demonstrated progress beyond pathfinder.

**Question 11 How were cross boundary issues considered during the project and how were they dealt with?**

There weren't any cross boundary issues, the project was managed by inclusion of representatives from all relevant authorities (including relevant ward councillors) on project steering group.

**Question 12 Have any recent changes in political, planning or environmental legislation affected coastal change adaptation?**

In spatial planning policy terms, the introduction of the National Planning Policy Framework has meant that policies dealing with coastal change have been somewhat diluted, meaning that there is need for further clarity and guidance on adapting to coastal change. The NPPF is non-committal in its phrasing of the policy, for example: "local planning authorities should reduce risk from coastal change by avoiding inappropriate development in ...." There is also very little detail about the considerations for adapting to coastal change.

A further example is paragraph 107:

When assessing applications, authorities should consider development in a Coastal Change Management Area appropriate where it is demonstrated that:

- it will be safe over its planned lifetime and will not have an unacceptable impact on coastal change;
- the character of the coast including designations is not compromised;
- the development provides wider sustainability benefits; and
- the development does not hinder the creation and maintenance of a continuous signed and managed route around the coast.

With regards to the underlined, above, the NPPF does not define: what would be an acceptable impact; what the character of the coast might involve; or what appropriate sustainability benefits might be.

There is no longer a Regional or County level overarching planning policy framework to elaborate on locally significant coastal issues that cross boundaries, so it is up to LPAs to work together to ensure their planning policy on adapting to coastal change agrees with each other.

Although the NPPF does mention the Marine Policy Statement, marine plans and Integrated Coastal Zone

Management, it does not offer guidance on how to integrate this into spatial planning policy.'

**Question 13** What data do you expect to use to underpin the development of Coastal Change Management Areas and how confident are you in the available evidence base for this purpose? If not confident, what additional data would you need to provide confidence when defining CCMA's?

Coastal change adaptation planning is not the responsibility of SCC, therefore no comment.

**Question 14** Do you feel there would be benefit in providing some form of knowledge exchange platform at regional/national level to share experience in the future?

Yes. Found that the online portal developed for the pathfinder projects was really useful as all pathfinder projects shared outputs. The discussion board to ask questions etc was also very useful. Something similar to this would be good.

**Question 15** Is there anything else that you believe guidance on planning system approaches to coastal change adaptation should include?

Guidance should include as many examples from practical experience to share knowledge (both successful and unsuccessful adaptation approaches).

## Coastal Change Adaptation Planning Guidance: Telephone Interview Record Sheet

Date:	20 <sup>th</sup> November 2012
Time:	1430-1510
Interviewer Name (Halcrow):	Alan Frampton
Interviewee Name/Organisation:	Alan Denbigh (South Hams DC/Slapton Line Partnership)
Contact number:	01392 723 705

**Question 1 What type of coast do you have responsibility for? (e.g. soft cliff/hard cliff/beaches/dunes/estuaries etc)**

Slapton situation pretty well defined with barrier beach fronting freshwater lagoon.

**Question 2 What are the specific issues relating to coastal change that you need to manage? (e.g. social/economic/environmental)**

Main issue is the road that runs along the top of the beach through both a National Nature Reserve, AONB and SSSI. Therefore need to take a long term view in order to do an EIA for any options to relocate the road as pretty unlikely that engineering options (e.g. hard structures) will be feasible.

Public transport provision following loss of road is an issue.

Need to plan how businesses/local economy can adapt to coastal change and 'make more of the area'.

**Question 3 Does your organisation have in place a specific mechanism for developing and implementing coastal change management areas?**

Recommended speaking to Robin Toogood who has more of an overview of the wider South Hams area beyond just Slapton.

**Question 4 What key messages do you believe your Pathfinder (or other adaptation) project identified in terms of good approaches to coastal adaptation through the planning system that could be included in the guidance?**

Provision of information to prospective property purchasers via local land charges register searches to notify of coastal change issues to the road seems to have been useful. Perhaps more wider use of local land charges register for getting this information out there would be useful.

Developed planning application with supporting EIA for future adaptation of the road so can be implemented when needed; implemented as part of contingency plan also developed.

**Question 5 (IF APPLICABLE) Besides the areas focussed on in your Pathfinder project, are you aware of any other locations in your locality where coastal change adaptation practices are being implemented through the planning system that could provide a good case study for inclusion in the coastal change adaptation planning guidance?**

None that aware of. Most approaches appear to relate to supporting individuals/communities to plan for flood events (e.g. establish flood wardens etc).

**Question 6 How does your internal organisational structure help or hinder coastal change adaptation in the planning system?**

Involving all stakeholders in the project team/board worked well. Local Authority engineers were more involved than Local Authority planners, though this was a function of planners not having resources and having higher priorities to deal with.

**Question 7 How does your organisation interact with other organisations when it comes to planning coastal change adaptation?**

Getting stakeholders on board (i.e. as part of the project team), really works.

The District Council-Parish Council interface is well established and helped facilitate local community panel/committee activities.

These activities were also helped by being locally based to the area, and involving the AONB management team helped identify contacts and provided goodwill to the Slapton Project as the AONB has good established relations with local communities/businesses.

**Question 8 How does your organisation engage / interact with communities when it comes to planning coastal change adaptation?**

Took an open and honest approach with stakeholders/communities about the issues. Established a community panel/committee that met on site, typically in evenings so those who work could attend, to facilitate 2-way communication throughout the development of the project.

Used survey to capture community/businesses concerns and find out what they wanted.

Lots of 'soft management' with community meetings/interaction is a good thing but requires large commitment of resource (staff time/funds); now cut back due to funding cuts.

**Question 9 If you have, or do develop, Coastal Change Management Areas and associated policies, how would communication with communities be done? Would the approach change from present approaches?**

Community consensus building approach used in the past would be used again as worked well. The mechanisms established in the past project have been wound down so stakeholders only meet about 1 time per year at present, but could be reinvigorated to address future issues/adaptation planning needs quite readily.

**Question 10 What has been the legacy for your organisation / partner organisations / communities of the Pathfinder (or other adaptation) project in terms of the planning system? Do you feel that any additional lessons have been learnt from your Pathfinder (or other adaptation) project that were not reflected in your final evaluation report to Defra, particularly with regards to types of planning system responses to managing coastal change adaptation?**

1. Contingency plan so better prepared to deal with future issues.
2. Pre-existing planning application and EIA to re-route the road when needed is in place.
3. Education and awareness – more aware/engaged community who understand what measures can be practically implemented; provides better dialogue.



**Question 11 How were cross boundary issues considered during the project and how were they dealt with?**

Having all stakeholders as part of the project team/board helped deal with cross-boundary issues. Project team/board drew up terms of reference; this in turn helped provide basis for funding contributions (primarily from main assets owners at risk – in this case Devon County Council (highway) and South Hams DC (car park operator)).

**Question 12 Have any recent changes in political, planning or environmental legislation affected coastal change adaptation?**

Not sure how much has changed in terms of planning policy. Recommended speaking to Robin Toogood (see Q3).

Main issue is recent austerity measures that has reduced the availability/capability to do more of the soft management techniques and keep up engagement with communities (refer to Q8). There is a need to find alternative (more cost effective) methods of engaging (e.g. social media/websites/online surveys etc).

**Question 13 What data do you expect to use to underpin the development of Coastal Change Management Areas and how confident are you in the available evidence base for this purpose? If not confident, what additional data would you need to provide confidence when defining CCMA's?**

No specific concerns, but highlight the need to have high confidence in predictions of coastal change as individuals focus on their own property. Possible more difficult in areas like the South Hams where coastal change is as a result of infrequent but significant events and not a continual process.

**Question 14 Do you feel there would be benefit in providing some form of knowledge exchange platform at regional/national level to share experience in the future?**

Yes. Would be something of benefit/use as would provide an opportunity to pool resources. Query how would interface with other ongoing initiatives (e.g. coastal monitoring programmes/coastal groups etc).

**Question 15 Is there anything else that you believe guidance on planning system approaches to coastal change adaptation should include?**

Guidance needs to give reason(s) to planners to take a longer term view to forward planning than time-scales they currently consider.

## Coastal Change Adaptation Planning Guidance: Telephone Interview Record Sheet

<b>Date:</b>	4 <sup>th</sup> December 2012
<b>Time:</b>	1330-1430
<b>Interviewer Name (Halcrow):</b>	Alan Frampton
<b>Interviewee Name/Organisation:</b>	Robin Toogood (South Hams District Council)
<b>Contact number:</b>	01803 861142

### Question 1 What type of coast do you have responsibility for? (e.g. soft cliff/hard cliff/beaches/dunes/estuaries etc)

South Hams District Council (SHDC) are responsible for a mostly hard cliffed coast within which are located lots of small embayed beaches.

On SHDCs east coast there are a number of low-lying areas fronted by barrier beaches that impound coastal lagoons.

SHDC is also responsible for 5 estuaries.

### Question 2 What are the specific issues relating to coastal change that you need to manage? (e.g. social/economic/environmental)

Former fishing villages are located on top of a number of the barrier beaches on SHDCs east coast that are at risk of coastal change.

The main town's in the area are located in within the 5 estuaries and are at risk of tidal flooding that will increase as sea levels rise.

There are lots of international, European and national environmental designations that affect management of the coast and estuaries.

Most of the areas at risk of coastal change are wealthy as coastal/waterside properties in the South Hams attract a premium (there are lots of second homes and holiday lets). Some properties at risk may be overvalued as their market prices don't reflect the long term coastal changes likely to affect the property.

### Question 3 Does your organisation have in place a specific mechanism for developing and implementing coastal change management areas?

No specific mechanism in place. SHDCs forward planning team will lead on the development of CCMA's in the future once the local plan begins to be developed.

The main area of experience is at Slapton where SHDC implemented a specific project following damage to the A road that runs along the top of Slapton Sands. This project, subject of the Pathfinder project, involved extensive community engagement to develop adaptation measures. At Slapton the approach has worked well.

**Question 4 What key messages do you believe your Pathfinder (or other adaptation) project identified in terms of good approaches to coastal adaptation through the planning system that could be included in the guidance?**

There are a number of key lessons learnt from the Slapton project:

1. It is important to have high quality community engagement, and equally important to recognise the high level of skills needed to deliver that engagement (in terms of seniority and experience in the project structure etc). At Slapton a dedicated officer was appointed at a senior level with a clear leadership role for the project.
2. Time/patience is needed to build the relationships and work with communities/businesses to prepare for change and helping them with adaptation plans and exploit opportunities change may present (its not just about coming up with policies).
3. A deeper understanding of community views around coastal change issues was established through 1-1 interviews undertaken by a specialist marketing company.
4. Having good, robust contingency plans in place that have been tested (e.g. road closures/diversion signage/information cascades) helps to build resilience.

**Question 5 (IF APPLICABLE) Besides the areas focussed on in your Pathfinder project, are you aware of any other locations in your locality where coastal change adaptation practices are being implemented through the planning system that could provide a good case study for inclusion in the coastal change adaptation planning guidance?**

One other site in the SHDC area where coastal change adaptation has been successfully managed is the National Trust property at South Milton Sands. Here a car park in an unsustainable location built into a sand dune system was relocated (and historic defence removed) to enable natural processes to be restored.

SHDCs AONB team were involved to help manage the engagement between National Trust and the local community in an 'honest broker' role. The engagement took 3-4 years and led to the implementation of a scheme that had been shaped by the community views (being somewhat different to the original scheme proposed by National Trust), and which has been supported by the community to the extent that the community are actively involved in managing the sand dunes (e.g. planting marram grass).

**Question 6 How does your internal organisational structure help or hinder coastal change adaptation in the planning system?**

Although SHDC is a coastal local authority, the structure of SHDC is such that those with responsibilities for managing coastal issues are in different teams with different reporting lines. This makes it difficult to always co-ordinate activities across SHDC in a joined up way.

Reducing staff numbers over recent years means that those staff that remain have less capacity to deal with coastal change adaptation as there are other draws on their time.

**Question 7 How does your organisation interact with other organisations when it comes to planning coastal change adaptation?**

For the Pathfinder programme at Slapton, working across organisations to deliver joined-up thinking was dealt with well, aided by inclusion of senior representatives from all key organisations being on the steering group.

The links between organisations to deal with coastal issues in other SHDC areas are not as well developed at the present time.

**Question 8 How does your organisation engage / interact with communities when it comes to planning coastal change adaptation?**

Applied experience gained from engagement at Slapton to the engagement at South Milton Sands (refer to Q5).

**Question 9 If you have, or do develop, Coastal Change Management Areas and associated policies, how would communication with communities be done? Would the approach change from present approaches?**

When the time comes to develop CCMA's, the approach to engagement will probably ultimately depend on the availability of resources. If resources are reduced then it is likely that less community engagement along the lines applied at Slapton/South Milton Sands will be possible to implement effectively.

It will be challenging to engage on coastal change issues as part of local plan consultation - as messages about property being lost and uncertainty around when property will be lost etc are difficult messages to discuss. If the perception is that the risk is not likely any time soon, then may be reluctance to discuss the issues now.

**Question 10 What has been the legacy for your organisation / partner organisations / communities of the Pathfinder (or other adaptation) project in terms of the planning system? Do you feel that any additional lessons have been learnt from your Pathfinder (or other adaptation) project that were not reflected in your final evaluation report to Defra, particularly with regards to types of planning system responses to managing coastal change adaptation?**

Staff in SHDC and within the local community have been left with improved skills, knowledge and awareness of coastal change issues and how to develop plans to adapt to future coastal change.

**Question 11 How were cross boundary issues considered during the project and how were they dealt with?**

Not an issue as coastal process cells involved are contained wholly within SHDC area (no sediment transport to other authority areas).

**Question 12 Have any recent changes in political, planning or environmental legislation affected coastal change adaptation?**

NPPF presses planning authorities to get to grips with CCMA's. Perhaps the need to take a more integrated approach that developing CCMA's requires will be a mechanism by which greater co-ordination across SHDC on coastal issues can be developed.

Changes in coast defence funding arrangements (partnership funding) has led to significant uncertainty in terms of its implications for future defence and how this is to be implemented locally (e.g. who is to lead on discussions to seek contributions to manage defences in the future?).

There also appears to be an increasing focus on managing (fluvial) flood risk in large urban areas elsewhere (with tens of thousands of properties at risk nationally) in preference to small numbers of properties at flood/erosion risk in SHDC area. Not clear who is responsible to drive forward adaptation measures in such areas with a small number of assets at risk if majority of resources (including EA staff) is increasingly directed to focus on managing risks to large urban areas.

**Question 13 What data do you expect to use to underpin the development of Coastal Change Management Areas and how confident are you in the available evidence base for this purpose? If not confident, what additional data would you need to provide confidence when defining CCMA's?**

SMP, NCERM, Flood zone data etc is all adequate to inform CCMA's. Do not envisage needing to commission further data finding to develop CCMA's.

One area of data that appears to be lacking is lack of modelling data on the impacts of different sea level rise scenarios on coastal/estuarine habitat changes/habitat squeeze. This information would be valuable to enable a more holistic approach to coastal change adaptation planning to be taken.

**Question 14 Do you feel there would be benefit in providing some form of knowledge exchange platform at regional/national level to share experience in the future?**

Yes would be helpful. Feel that having a physical forum where individuals meet would be more beneficial than a wholly/largely web-based resource that could easily be under-used. Something like an annual regional/national level event aimed at all those with interests in coastal change adaptation planning (i.e. multi-disciplinary/cross-sectoral audience) would be most valuable.

**Question 15 Is there anything else that you believe guidance on planning system approaches to coastal change adaptation should include?**

It would be good if the guidance could provide some clarity on a number of points:

- Ways to improve buy-in/acceptance of SMPs – appears to be little buy-in to SMP amongst communities as they are hard to relate to.
- The SMP for the SHDC area identifies the need to provide for relocation of some coastal properties at risk of erosion in the long term in several areas – guidance on how this could be done would be useful.
- Examples of how coastal change planning policies have been framed by other local authorities would be good to include.
- What is the planning authority's responsibility in terms of granting/denying planning consent for coastal defences to protect cliff top development that has become at risk of erosion and for which the planning authority has previously granted planning permission only a few years earlier?
- Would be good to include a summary of options (including pros/cons of each) for private property/land owners in terms of their responsibilities, legal duties and liabilities for managing their own coastal change issues.
- For local planning authorities, would be good to provide clarity on which options are a legal duty/obligation on the planning authority, and which options are discretionary.
- It would be good to provide clarity on what the implications are for a coastal planning authority to produce a local plan that does not include provision for CCMA's; is this an optional requirement of the NPPF? What would be the expected view of the planning inspector – would a local plan be rejected if it does not include CCMA provisions?



## Coastal Change Adaptation Planning Guidance: Telephone Interview Record Sheet

Date:	3 <sup>rd</sup> December 2012
Time:	1600-1650
Interviewer Name (Halcrow):	Alan Frampton
Interviewee Name/Organisation:	Bill Parker, Sam Hubbard, David Savill (Waveney District Council)
Contact number:	Halcrow teleconference facility

### Question 1 What type of coast do you have responsibility for? (e.g. soft cliff/hard cliff/beaches/dunes/estuaries etc)

Soft eroding coastline with both cliffs, low-lying area (often with shingle bars) and estuaries.

### Question 2 What are the specific issues relating to coastal change that you need to manage? (e.g. social/economic/environmental)

Suffolk coastline is largely rural with small coastal communities. Communication links to these communities are difficult.

Two major settlements along the Suffolk Coast – Lowestoft (quite deprived area) and Felixstowe (less deprived, mainly due to the port).

A key issue is the number of coastal properties at risk of erosion in the next 20-50 years once existing defences fail (SMP policy is to move from HTL towards NAI) and the lack of perception of the coastal erosion risk posed by this future change.

Most of the coast is AONB. It also has a large number of international, European and national environmental designations. These can pose challenges for coastal management (e.g. SSSI at East Bawent limits options for managing coastal erosion).

### Question 3 Does your organisation have in place a specific mechanism for developing and implementing coastal change management areas?

Waveney already has CCMA's defined – these are defined as the 100year SMP NAI erosion lines.

The CCMA's have been developed with a number of policies covering what development can and can not occur and relocation of properties within the CCMA area to locations outside of the CCMA area. These policies were largely developed in line with the PPS25 guidance.

As part of the CCMA, there is a requirement for any planning application located within 30m of the 100year SMP NAI erosion line to complete a coastal erosion vulnerability assessment to determine the risk of the proposed development to coastal erosion and identification of mitigating actions.

**Question 4 What key messages do you believe your Pathfinder (or other adaptation) project identified in terms of good approaches to coastal adaptation through the planning system that could be included in the guidance?**

If looking at rollback, it is important to ensure that consultation is wide enough; needs to engage with both relocating and receptor communities and any one else that may be affected.

Clear communication is needed.

Need to work within timescales that people can understand (long term planning is difficult to grasp).

Also need to consider how to engage with communities that have always been defended and where erosion has not been a problem in the past but may be in the future (i.e. perception of risk is low in such areas).

Issue of blight is important consideration.

A success of the pathfinder project was securing the right for property relocation with a legal basis in the planning system even if the property is lost to erosion before a relocated site/property has been secured.

One of the issues is how rollback/relocation policies are funded. One option explored through pathfinder was the use of enabling development for this purpose, but this was assessed as not being legal and so not appropriate to implement.

**Question 5 (IF APPLICABLE) Besides the areas focussed on in your Pathfinder project, are you aware of any other locations in your locality where coastal change adaptation practices are being implemented through the planning system that could provide a good case study for inclusion in the coastal change adaptation planning guidance?**

East Lane, Bawdsey – selling farmland to put proceeds into a trust to fund future defences (as a contribution to other funds from Environment Agency/Local Authority).

Thorpeness – local contribution of a significant % of total scheme budget.

Alde and Ore Future Estuaries – local community has taken over responsibility for managing flood defences from the Environment Agency and (working with the EA and Local Authority) are raising funds (£7m) to enable future defence works to be implemented.

**Question 6 How does your internal organisational structure help or hinder coastal change adaptation in the planning system?**

Waveney DC and Suffolk Coastal DC have a joint coastal management team that reports to the Head of Planning (coastal team sits within the spatial planning sector of the council).

Resources are concentrated in the coastal team in one location.

**Question 7 How does your organisation interact with other organisations when it comes to planning coastal change adaptation?**

Suffolk Coastal Forum established in early 2012 (replacing previous Suffolk Coastal Futures group established in 2008) brings together all groups (statutory bodies, local government at all levels, local communities) to discuss and plan coastal management in response to different coastal issues.

The forum currently meets 4 times a year and encourages closer/better working across organisations and with local communities.

Waveney DC and Suffolk Coastal DC sits on the LGA Coastal SIG (SCDC portfolio holder is vice chair) so gets to draw on national learning to apply locally and share local experience nationally through that forum.

**Question 8 How does your organisation engage / interact with communities when it comes to planning coastal change adaptation?**

Waveney recently held a pathfinder workshop to discuss possible options for future adaptation at Easton Bavents. A further workshop(s) will occur in the future to maintain engagement with the community.

At times, Waveney have employed specialist organisations to lead on engagement if own resources are not able to do this.

Waveney coastal team members attend parish council/local group meetings to discuss coastal issues and develop local relationships.

Suffolk Coastal Forum has an annual event at which the public can come and discuss coastal issues.

**Question 9 If you have, or do develop, Coastal Change Management Areas and associated policies, how would communication with communities be done? Would the approach change from present approaches?**

CCMA policies developed by Waveney were done so as part of developing the local plan core strategy. Engagement was not as extensive as occurred on the pathfinder project but followed national requirements plus Waveney DC commitment to community involvement.

Waveney are currently developing a SPD; have so far written to all residents within CCMA's to seek their views.

**Question 10 What has been the legacy for your organisation / partner organisations / communities of the Pathfinder (or other adaptation) project in terms of the planning system? Do you feel that any additional lessons have been learnt from your Pathfinder (or other adaptation) project that were not reflected in your final evaluation report to Defra, particularly with regards to types of planning system responses to managing coastal change adaptation?**

Not got to legacy stage yet. Still developing and engaging with pathfinder communities.

Highlights that adaptation planning can not be done as a one off single project. It is a long-term commitment.

A lesson learnt is that there appears to have been a wish/feeling of obligation with the pathfinder projects that as it was a pilot/pathfinder to try something that others were not trying even at the expense of not trying something that is demonstrated to be best practice (i.e. trying to re-invent the wheel).

**Question 11 How were cross boundary issues considered during the project and how were they dealt with?**

None at the moment.

**Question 12 Have any recent changes in political, planning or environmental legislation affected coastal change adaptation?**

NPPF has not caused many issues yet in terms of coastal change adaptation. Perhaps as Waveney already has well developed CCMA's and policies in place.

Partnership Funding presents both opportunities to implement more schemes but also significant challenges about how to engage with communities/beneficiaries/developers etc to extract money.

Having a large rural/agricultural coastal area also achieves lower outcome measure scores so less likely to get funding from central government.

**Question 13 What data do you expect to use to underpin the development of Coastal Change Management Areas and how confident are you in the available evidence base for this purpose? If not confident, what additional data would you need to provide confidence when defining CCMA's?**

Use SMP 100 year NAI erosion lines to define CCMA. In some areas the SMP data has been refined through detailed local studies.

**Question 14 Do you feel there would be benefit in providing some form of knowledge exchange platform at regional/national level to share experience in the future?**

Yes, a good idea especially as local authorities get increasingly stretched with reducing resources, tools that help are of use.

Should be set-up under an existing body – perhaps the LGA which already provides a similar facility.

Every site is different so anything to help identify potential best practice to apply to a particular site will be of use.

**Question 15 Is there anything else that you believe guidance on planning system approaches to coastal change adaptation should include?**

In terms of relocation/rollback, key thing is how can this be funded and delivered. Still a lot of lessons to be learnt.

Different approaches to community engagement in different situations. Need to understand the sensitivities when discussing rollback approaches with communities.

Consultation draft