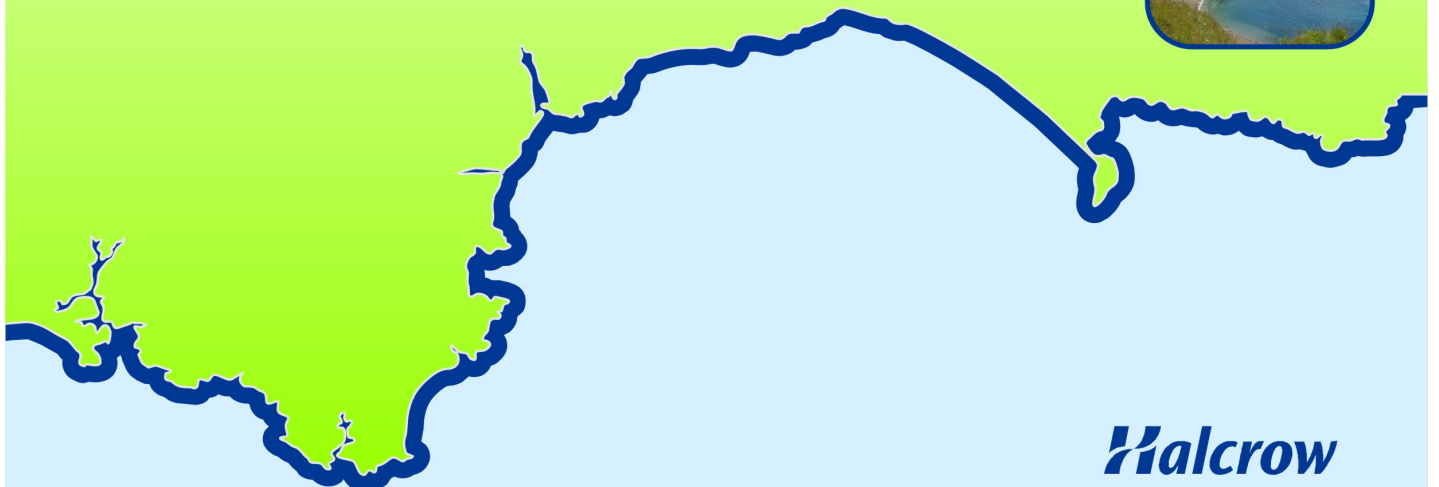


South Devon and Dorset Coastal Advisory Group (SDADCAG)

Shoreline Management Plan SMP2 Durlston Head to Rame Head

Appendix L – Sources of Data



The Supporting Appendices

These appendices and the accompanying documents provide all of the information required to support the Shoreline Management Plan. This is to ensure that there is clarity in the decision-making process and that the rationale behind the policies being promoted is both transparent and auditable. The appendices are:

A: SMP Development	This reports the history of development of the SMP, describing more fully the plan and policy decision-making process.
B: Stakeholder Engagement	All communications from the stakeholder process are provided here, together with information arising from the consultation process.
C: Baseline Process Understanding	Includes baseline process report, defence assessment, NAI and WPM assessments and summarises data used in assessments.
D: SEA Environmental Baseline Report (Theme Review)	This report identifies and evaluates the environmental features (human, natural, historical and landscape).
E: Issues & Objectives Evaluation	Provides information on the issues and objectives identified as part of the Plan development, including appraisal of their importance.
F: Initial Policy Appraisal & Scenario Development	Presents the consideration of generic policy options for each frontage, identifying possible acceptable policies, and their combination into 'scenarios' for testing. Also presents the appraisal of impacts upon shoreline evolution and the appraisal of objective achievement.
G: Preferred Policy Scenario Testing	Presents the policy assessment and appraisal of objective achievement towards definition of the Preferred Plan (as presented in the Shoreline Management Plan document).
H: Economic Appraisal and Sensitivity Testing	Presents the economic analysis undertaken in support of the Preferred Plan.
I: Strategic Environmental Assessment (SEA) Report	Presents the various items undertaken in developing the Plan that specifically relate to the requirements of the EU Council Directive 2001/42/EC (the Strategic Environmental Assessment Directive), such that all of this information is readily accessible in one document.
J: Appropriate Assessment Report	Presents the Appropriate Assessment of SMP policies upon European designated sites (SPAs and SACs) as well as Ramsar sites, where policies might have a likely significant effect upon these sites. This is carried out in accordance with the Conservation (Natural Habitats, &c.) Regulations 1994 (the Habitats Regulations).
K: Water Framework Development Report	Presents assessment of potential impacts of SMP policies upon coastal and estuarine water bodies, in accordance with the requirements of EU Council Directive 2000/60/EC (the Water Framework Directive).
L: Metadatabase and Bibliographic database	All supporting information used to develop the SMP is referenced for future examination and retrieval.
M: Action Plan Summary Table	Presents the Action Plan items included in Section 6 of the main SMP document (The Plan) in tabular format for ease of monitoring and reporting action plan progress.

Within each appendix cross-referencing highlights the documents where related appraisals are presented. The broad relationships between the appendices are illustrated below.

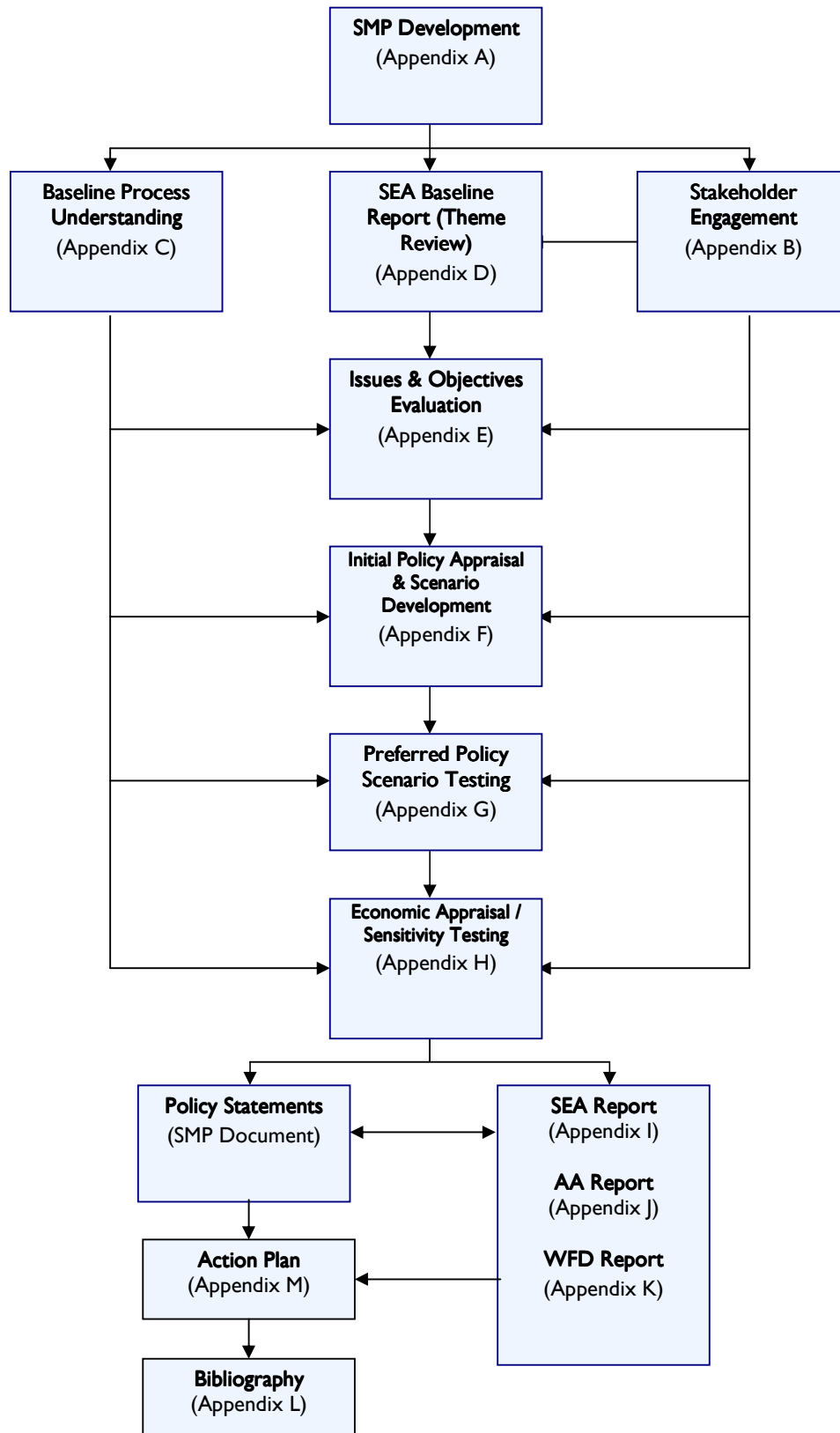


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L.1 Bibliographic Database

This Appendix includes a list of the key reference materials used in the development of the Shoreline Management Plan.

L.1.1 Main SMP Document

References stated in the Main SMP Document are as follows:

- Burgess, KA and Townend, I.H (2004). **The impact of climate change upon coastal defences structures**. In: 39th Defra Conference of River and Coastal Engineers, Defra, London, 11.01.1-11.01.10.
- Communities and Local Government website. **Coastal communities to be given new powers to help local economies**. Internet site: <http://www.communities.gov.uk/news/corporate/1289597>. Date accessed: 27th April 2010.
- Conservation (Natural Habitats &c.) Regulations 1994 (as amended) and the Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007.
- Defra (2001). **Shoreline Management Plans: A Guide for Coastal Defence Authorities**.
- Defra (2001). **Flood and Coastal Defence Project Appraisal Guidance (PAG) 2: Strategic Planning and Appraisal**.
- Defra (2003). **Procedural Guidance for Production of Shoreline Management Plans – Interim Guidance**. May 2003.
- Defra (2006). **Shoreline Management Plan Guidance**. March 2006.
- Environment Agency (2009). **Flood and coastal risk management in England: A long-term investment strategy**.
- English Heritage (2006). **Shoreline Management Plan Review and the Historic Environment: English Heritage Guidance**. June 2006.
- Jurassic Coast World Heritage Team (2009). **World Heritage Site Management Plan 2009 - 2014: Draft for Consultation (March 31st March to June 9th 2009)**.
- MAFF (2000). **Flood and Coastal Defence Project Appraisal Guidance (PAG) 5: Environmental Appraisal**.
- Mouchel (1998). **Portland Bill to Durlston Head Shoreline Management Plan: Phase 2**. Report prepared for Portland Bill to Durlston Head Coastal Group.
- Natural England (2005). **Our coasts and seas – making space for people, industry and wildlife**. Available online: <http://naturalengland.etraderstores.com/NaturalEnglandShop/Product.aspx?ProductID=6aa71926-7341-46c1-ac04-24ae0bc5e2a5>
- ODPM (2003). **The Strategic Environmental Assessment Directive: Guidance for Planning Authorities. Practical guidance on applying European Directive 2001/42/EC 'on the assessment of the effects of certain plans and programmes on the environment' to land use and spatial plans in England**.
- ODPM (2005). **A Practical Guide to the Strategic Environmental Assessment Directive**. Available online: <http://www.communities.gov.uk/documents/planningandbuilding/pdf/practicalguidesea.pdf>.
- Office of Science and Technology (2004). **Foresight: Future Flooding**. <http://www.foresight.gov.uk>
- Posford Duvivier (1998). **Lyme Bay and South Devon Draft Shoreline Management Plan – Introduction; Volume I – Core Report, Volume II – Supporting Document**. Report prepared for the Lyme Bay and South Devon Coastline Group.
- Scott Wilson (2006). **Slapton Coastal Zone Management: Main Study**. Slaptonline Partnership.
- South West Regional Assembly (2006). **The Draft Regional Spatial Strategy for the South West 2006 – 2026**.

L.1.2 Appendix A – SMP Development

References stated in Appendix A are as follows:

- Defra (2006). **Shoreline Management Plan Guidance**. March 2006.
- Mouchel (1998). **Portland Bill to Durlston Head Shoreline Management Plan: Phase 2**. Report prepared for Portland Bill to Durlston Head Coastal Group.
- Posford Duvivier (1998). **Lyme Bay and South Devon Draft Shoreline Management Plan – Introduction; Volume I – Core Report, Volume II – Supporting Document**. Report prepared for the Lyme Bay and South Devon Coastline Group.

L.1.3 Appendix C - Baseline Process Understanding

The Baseline Process Understanding has developed from a number of key references, i.e. the previous SMP, strategy studies, the SCOPAC Coastal Sediment Transport Study and relevant extracts from Futurecoast. Other reports have also been reviewed, some of which were cited in the aforementioned studies.

(a) Key references

- Halcrow (2002). **Futurecoast**. *See also the Defra website:* <http://www.defra.gov.uk/environ/fcd/policy/smp.htm>
- Halcrow (2007). **Exe Estuary Coastal Management Study: Detailed Understanding of Historic to Present Day Coastal Evolution – Draft Technical Summary**. East Devon District Council (Lead Authority).
- Halcrow (2008). **Portland Harbour North-Western Shore Strategic Study – Final Report**. Weymouth and Portland Borough Council.
- Mouchel (1998). **Portland Bill to Durlston Head Shoreline Management Plan: Phase 2**. Report prepared for Portland Bill to Durlston Head Coastal Group.
- Posford Duvivier (1998). **Lyme Bay and South Devon Draft Shoreline Management Plan – Introduction; Volume I – Core Report, Volume II – Supporting Document**. Report prepared for the Lyme Bay and South Devon Coastline Group.
- SCOPAC (2004). **Coastal Sediment Transport Study**. Internet site: <http://www.scopac.org.uk/scopac%20sediment%20db/default.html>.
- Scott Wilson (2006). **Slapton Coastal Zone Management: Main Study**. Slaptonline Partnership.

(b) Other references

- ABPmer (2002). **Teignmouth Quay Development Environmental Statement (R984a)**. ABP Teignmouth.
- ABPmer (2006). **Conceptual Understanding and Trial Dredge Assessment**. Teign Estuary Partnership.
- ABPmer (2007). **Shaldon Beach Topographic Survey November 2006 and Change Analysis**. Teign Estuary Partnership.
- Blake, W.H, Gehrels, W.R. and Masselink, G. (2007). **Avon Estuary Siltation Research Programme (AERSP) – Final Summary Report on University of Plymouth Contract**. Report for Auneconservation Association, November 2007.
- Bray, M. and Hooke, J. (1997). **Prediction of Soft Cliff Retreat with Accelerating Sea Level Rise**. Journal of Coastal Research, 13 (2), 453-467.
- Bray, M. and Sandercock, P. **Chesil Beach: Morphological Change and Future Stability**. Presentation by Dr Malcolm Bray at Dorset County Museum (21st November 2007).

- Browning, N. **Lyme Regis Environmental Improvements Phase IV Preliminary Design**. Presentation by Nick Browning of West Dorset District Council given to South Devon and Dorset Coastal Authorities Group Meeting (23rd January 2008).
- Cazenave, A. et al., (2009) **Sea level budget over 2003-2008: A reevaluation from GRACE space gravimetry, satellite altimetry and ARGO**. *Global and Planetary Change* 65, 83-88. Taken from *The Copenhagen Diagnosis* (2006).
- Channel Coastal Observatory (2006). **Portland Bill to Durlston Head Annual Report 2006**. Southeast Strategic Regional Coastal Monitoring Programme.
- Channel Coastal Observatory (2008). **Portland Bill to Durlston Head Annual Report 2008**. Southeast Strategic Regional Coastal Monitoring Programme.
- Church, J. A. & N. J. White, (2006) **A 20th century acceleration in global sea-level rise**. *Geophysical Research Letters* 33, L01602. Taken from *The Copenhagen Diagnosis*
- **The Copenhagen Diagnosis, 2009: Updating the World on the Latest Climate Science**. I. Allison, N.L. Bindoff, R.A. Bindshadler, P.M. Cox, N. de Noblet, M.H. England, J.E. Francis, N. Gruber, A.M. Haywood, D.J. Karoly, G. Kaser, C. Le Quéré, T.M. Lenton, M.E. Mann, B.I. McNeil, A.J. Pitman, S. Rahmstorf, E. Rignot, H.J. Schellnhuber, S.H. Schneider, S.C. Sherwood, R.C.J. Somerville, K. Steffen, E.J. Steig, M. Visbeck, A.J. Weaver. The University of New South Wales Climate Change Research Centre (CCRC), Sydney, Australia, 60pp.
- Defra and Environment Agency (2002). **UK Climate Impacts Programme 2002 Climate Change Scenarios: Implementation for Flood and Coastal Defence: Guidance for Users (R&D Technical Report W5B-029/TR)**.
- Defra (2006). **Flood and Coastal Defence Appraisal Guidance FCDPAG3 Economic Appraisal: Supplementary Note to Operating Authorities – Climate Change Impacts**.
- Environment Agency (2003). **Coastal Sites Operational and Maintenance Plan**. Environment Agency South Wessex Area.
- Fox, D., Pontee, N.I., Fisher, E., Box, S., Rogers, J.R., Reeve, D.E., Chadwick, A.J., and Sims, P. (2008, *in press*). **Spits and Flood Risk: The Exe Estuary**. Defra/EA Flood and Coastal Management Conference, Manchester, 2008.
- Halcrow (2006). **Beesands Tidal Defence Scheme Improvements: Project Appraisal Report**. Environment Agency.
- Halcrow (2007). **Coastal Instability Assessment and Footpath Options, Lyme Regis, Dorset, UK**. South-West Coast Path.
- Halcrow (2007). **Coastal Instability Assessment and Footpath Options, Seatown, Dorset, UK**. South-West Coast Path.
- Halcrow (2007). **Exe Estuary Coastal Management Study: Wave and Water Level Climate Technical Report**. East Devon District Council (Lead Authority).
- High-Point Rendel (1997). **West Bay Geomorphological Study**. West Dorset District Council.
- HR Wallingford (1997). **West Bay Coastal Defence Scheme: Task 3.1 Analysis of Historical Beach Data**. West Dorset District Council.
- HR Wallingford (2006). **West Bay Coastal Defence and Harbour Scheme: Review of Current Defence Performance and Flood Risk (EX 5270)**. Environment Agency.
- Hulme M., Jenkins G.J., Lu X., Turnpenny J.R., Mitchell T.D., Jones R.G., Lowe J., Murphy J.M., Hassell D., Boorman P., McDonald R. and Hill S (2002). **Climate Change Scenarios for the United Kingdom: The UKCIP02 Scientific Report**. Tyndall Centre for Climate Change Research, School of Environmental Sciences, University of East Anglia, Norwich, UK. 120pp.
- IPCC (2007). **Climate Change 2007: The Fourth Assessment Report**. United Nations Intergovernmental Panel on Climate Change.

- Jacobs Babbie (2006). **Freshwater Burton Bradstock Pre-Feasibility Study, Final Report**. Environment Agency.
- Personal Communication (November 2007) between Robert Harvey (Halcrow) and Norman Good & Sons in relation to dredging of West Bay Harbour.
- Plymouth Coastal Observatory (2009). **Portland Bill to Exmouth Annual Report 2009**. South West Strategic Regional Coastal Monitoring Programme.
- Posford Duvivier (1996). **Coast Protection at Seaton Wall to the West of the West Walk Promenade – Engineer’s Report**. East Devon District Council.
- Posford Duvivier (1997). **Coast Protection Seaton Hole to Seaton Rock Revetment – Engineer’s Report**. East Devon District Council.
- Posford Duvivier (2001). **Preston Beach Weymouth, Volume I – Interim Beach Management Plan**. Environment Agency.
- Posford Haskoning (2003). **Report on Regional Extreme Tide Levels**. Environment Agency South West Region.
- Pye K. and Saye S. (2005). **The Geomorphological Response of Welsh Sand Dunes to Sea Level Rise over the next 100 years and the Management Implications for SAC and SSSI Sites**. Countryside Council for Wales (CCW) Contract Science Report No. 670, February 2005. 219pp.
- Royal Haskoning (2003). **Coast Protection – Pennington Point Project Appraisal Report**. East Devon District Council.
- Royal Haskoning (2007). **Sidmouth Beach Management Plan, Summary Report October 2007**. East Devon District Council.
- UKCIP (2005). **Updates to regional net sea-level change estimates for the UK**.
- UKCIP08 (2007). **The Climate of the United Kingdom and Recent Trends**.
- UKCP09 (2009). **The Climate of the UK and Recent Trends**. UK Climate Projections website: <http://ukclimateprojections.defra.gov.uk/content/view/full/816/9/>. Date accessed: 22/09/2009.
- United Kingdom Hydrographic Office (2008). **Admiralty Tide Tables Volume I 2009: United Kingdom and Ireland (including European Channel Ports)**.
- West Dorset District Council (2005). **Lyme Regis Environmental Improvements Phase 2: Securing the Future of Lyme Regis**. (Leaflet).
- West, I.M. (2006). **Portland Harbour: Geology of the Dorset Coast**. Internet site: <http://www.soton.ac.uk/~imw/portharb.htm>. School of Ocean and Earth Sciences, Southampton University, UK. Version: 7 April 2006.
- Weymouth & Portland Borough Council (2002). **Newton’s Cove Coast Protection Study: Engineer’s Report**.

L.I.4 Appendix D – SEA Environmental Baseline Report (Theme Review)

A number of reports and other information sources were reviewed in the development of the thematic studies. The maps produced also used information layers from websites such as Natural England and MAGIC.

(a) Reports

- Edmonds, R (2007): Jurassic Coast World Heritage Site: Statement on Site Condition and Conservation Work Programme.
- Halcrow (1997): Portland Bill to Durlston Head Shoreline Management Plan: Stage I Data Collation and Objective Setting; Volume I – Final Report, Report prepared for Portland Bill to Durlston Head Coastal Group

- Mouchel Parkman (1998): Portland Bill to Durlston Head Shoreline Management Plan: Stage II, Report prepared for Portland Bill to Durlston Head Coastal Group
- Posford Duvivier (1998a): Lyme Bay and South Devon Draft Shoreline Management Plan – Introduction; Volume I – Core Report, Volume II – Supporting Document, Report prepared for the Lyme Bay and South Devon Coastline Group.
- Posford Duvivier (1998b): Lyme Bay and South Devon Draft Shoreline Management Plan – Introduction; Volume 3 – Atlas, Report prepared for the Lyme Bay and South Devon Coastline Group.

(b) Web sites and additional information sources

- Natural England (www.naturalengland.org.uk)
- MAGIC (Multi-Agency Geographic Information for the Countryside) (www.magic.gov.uk)
- Countryside Agency (www.countryside.gov.uk)
- English Heritage (www.english-heritage.org.uk)
- Environment Agency (www.environment-agency.gov.uk)

L.1.5 Appendix H – Economic Appraisal

Information on assets, benefits, and management costs was extracted from available strategy plans and scheme assessments.

(a) Reports

- Defra (2004). **NADNAC National Appraisal of Defence Needs and Costs Study**.
- Defra (2006). **Flood and Coastal Defence Appraisal Guidance, FCDPAG3 Economic Appraisal, Supplementary Note to Operating Authorities – Climate Change Impacts**. October 2006.
- Defra (2008). **Flood and Coastal Defence Appraisal Guidance Economic Appraisal Supplementary Note to Operating Authorities: Valuation of Agricultural Land and Output for Appraisal Purposes**. May 2008.
- Environment Agency (2007). **Flood Risk Management Estimating Guide Unit Cost Database**.
- RICS (2009). **Rural Land Market Survey, H2 2008**. February 2009:
<http://www.rics.org/NR/rdonlyres/B8644DCA-9944-4602-B0E3-D6E3ACDC97BF/0/RICSRuralMarketSurveyH22008.pdf>

(b) Other data

Other data used in the economic appraisal includes:

- National Property Database 2005 dataset (includes residential and commercial property values;
- Replacement costs for general defence types have been taken from the recently developed Environment Agency database.
- Maintenance costs have been taken from *NADNAC (National Appraisal of Defence Needs and Costs) (2004) Halcrow in association with HR Wallingford Limited & John Chatterton & Associates. Defra.*

L.1.6 Appendix K – Water Framework Directive Assessment

- Defra (2006). **Shoreline management plan guidance Volume 2: Procedures**. Department for Environment, Food and Rural Affairs, March 2006.
- Environment Agency (2009). **Operational Instruction 82_09. Water Framework Directive: Step by Step Process for Assessing Shoreline Management Plans**. 24/03/09.
- Royal Haskoning (2008). **Water Framework Directive: Retrospective Assessment for the River Tyne to Flamborough Head SMP2**. December 2008.
- Royal Haskoning (2009). **Appendix K: Water Framework Directive Assessment Northumberland SMP2**. May 2009.
- Royal Haskoning (2009). **Poole and Christchurch Bays SMP2 (Draft)**. August 2009.

L.2 Mapped Data

L.2.1 Main SMP Document – Policy Maps

(a) Basemapping (Communication, Topography and Coastline)

Simple map information based upon the Ordnance Survey, Meridian data (provided under licence, © Crown Copyright) to form the backdrop to the mapped information. Mapping at scales 250,000 and 10,000 was used. Environment Agency Licence number: 100026380.2008.

(b) Present coastline

This was defined from a combination of Ordnance Survey mapping, aerial photography, and data input the National Coastal Erosion Risk Mapping project as part of that projects' local validation stage.

(c) Indicative Erosion Zones

These were defined as part of the assessment of shoreline response for the final policy (see Appendices C and G for details of this assessment) for years 2025, 2055 and 2105.

(d) EA Flood Zone Mapping

Environment Agency 2008 flood zone mapping was provided by the Environment Agency. This mapping provides a general overview of areas of land in natural floodplains and indicates where coastal flooding is possible. It should be noted that the EA is continually updating its maps and these should be used in preference to those presented in this SMP.

(e) National Nature Conservation Designation

For clarity of presentation, this combined datasets for: National Nature Reserves and SSSI sites (see below in Section J.2.3).

(f) International and National Nature Conservation Designation

For clarity of presentation, this combined datasets for: SPA, Ramsar, SAC, National Nature Reserves and SSSI sites (see below in Section J.2.3).

(g) Important Heritage Sites

For clarity of presentation, this included only Scheduled Ancient Monuments and all listed buildings (Grade I, 2* and 2).

(h) Policy unit boundaries

These were defined as part of the SMP and mapped accordingly.

L.2.2 Appendix C – 'No Active Intervention' Flood and Erosion Risk Maps

(a) Basemapping (Communication, Topography and Coastline)

As above.

(b) Present coastline

As above.

(c) Indicative Erosion zones

These were defined as part of the assessment of shoreline response for the two scenarios: 'no active intervention' and 'with present management' (see Appendix C for details of this assessment) for years 2025, 2055 and 2105.

(d) EA Flood Zone Mapping

As above.

L.2.3 Appendix D – Theme Maps

(a) Data obtained from MAGIC website

A number of data sets were obtained from the government website MAGIC (Multi-Agency Geographic Information for the Countryside). These datasets were obtained in 2007. Copyright information is available on the website: www.magic.gov.uk.

(b) Data obtained from Natural England

A number of data sets were obtained from Natural England (www.naturalengland.org.uk). These datasets were obtained in 2007:

- Ramsar sites;
- Special Areas of Conservation (SAC);
- Special Protection Areas (SPA);
- Sites of Special Scientific Interest (SSSI);
- National Nature Reserves; and
- Local Nature Reserves.

(c) Data Obtained from English Heritage and County Historic Environment Registers

Historic Environment Records (HERs), formally known as Sites and Monuments Records, are a primary source of information on the local historic environment. Data from these were provided by Dorset, Devon and Cornwall County Archaeologists. This data was supplemented with national datasets from English Heritage. The following classes were mapped:

- HER listed building;
- HER listed monument;
- Grade 1 listed;
- Grade 2 listed;
- Grade 2* listed;
- Scheduled Ancient Monument;
- HER region;
- World Heritage Sites (NB: supplemented with data from the Jurassic Coast World Heritage Site Management team);
- Registered Parks and Gardens;
- Protected Wreck Sites;
- Un-designated wrecks; and
- Non-scheduled archaeological sites.

L.2.4 Appendices F, G and H

(a) National Property Database

Environment Agency licensed data comprising of Ordnance Survey AddressPoint and Valuation Office data. This has not been reproduced on the final maps presented, but was used in the analysis of property loss.