



North Tyneside Council

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CAPITA

Hartley Cove to the River Tyne Coastal Strategy

Technical Report 1: Background

October 2015



Quality Management

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1. Structure of Technical Reports

- 1.1.1 The Coastal Strategy developed for the North Tyneside coastline, between Hartley Cove and the River Tyne, sets out the Council's defence management priorities for the coast.
- 1.1.2 The Strategy is presented as a series of reports, each dealing with a separate component of the plan along with a number of supporting Appendices.

Technical Report No.	Title
1	Executive Summary
2	Background
3	Coastal Processes
4	Existing Defences and Historical Expenditure
5	Strategic Environmental Assessment - Environmental Report
6	Options and Economic Assessment
7	Monitoring
8	Risk Assessment and Health and Safety Assessments
9	Public Consultation and Stakeholder Involvement
10	Glossary and References
Appendices	Title
Appendix A	Habitat Regulations Assessment
Appendix B	Water Framework Directive Assessment
Appendix C	Non-Technical Summary for the Strategic Environmental Assessment

Technical Report 2: Background

- 1.1.3 This technical report provides information on:
- The principles that lead to the requirement to develop a strategic approach to coastal defence.
 - The legal framework for coastal defence.
 - Responsibilities for coastal defence.
 - How the Coastal Strategy fits into the process of implementing coastal defence works
 - The process of Strategy development.

2. Guiding Principles

- 2.1.1 Coastal defence is the protection of land from erosion and/or flooding by the sea. Coastal defences with a primary design function of preventing or mitigating erosion are referred to as coast protection structures. Coastal defences with a primary design function of preventing or mitigating seawater inundation (flooding from the sea) are referred to as sea defences. Flood defences are structures that prevent fluvial flooding.
- 2.1.2 In April 2008 the Environment Agency took responsibility of what were Defra's Coastal Protection functions. This followed with the implementation plan for the Environment Agency Strategic Overview for Sea and Coastal Erosion Risk Management (Coastal Strategic Overview) in England. The Coastal Strategic Overview built upon these responsibilities. The strategic overview: sets the direction for how flood and coastal risk is managed (through the Shoreline Management Plans); ensures the strategic direction is delivered (through approving investment schemes and allocating grant); facilitates joined-up working with all those working on the coast and responds to the needs of communities. The Flood and Water Management Act 2010 and the Flood Risk Regulations 2009 set out the roles to deliver the strategic overview.
- 2.1.3 Regional Flood and Coastal Committees (RFCCs) were established by the Environment Agency under the Flood and Water Management Act 2010. These bring together members appointed by Lead Local Flood Authorities (LLFAs) and independent members with relevant experience for three purposes: to ensure there are coherent plans for identifying, communicating and managing flood and coastal erosion risks across catchments and shorelines; to promote efficient, targeted and risk-based investment in flood and coastal erosion risk management that optimises value for money and benefits for local communities and to provide a link between the Environment Agency, LLFAs, other risk management authorities, and other relevant bodies to engender mutual understanding of flood and coastal erosion risks in its area.
- 2.1.4 The Environment Agency is responsible to approve and pay grant aid for coastal erosion projects and studies undertaken by maritime local authorities up to the value of £100 million. Furthermore, the planning, design, maintenance and operation of sea defence measures are normally carried out by the Environment Agency. The planning, design, maintenance and operation of coast protection measures are carried out by local (coastal) authorities.
- 2.1.5 Northumberland County Council is the coastal protection authority (CPA) for North Tyneside shoreline. They have a responsibility for controlling erosion and managing the coastline. The 2009 Shoreline Management Plan for Northumberland and North Tyneside considers coastline management from the Scottish Border in the north to Seaton Sluice in the south.

- 2.1.6 Northumberland County Council notes that ‘much of our coastline is natural, and only has man-made defences at the coastal towns, villages and communities. It isn’t practical or desirable to defend against all erosion risk’¹. The Shoreline Management Plan considers a sustainable approach to managing risk for a 100 year period. The management of erosion is not completely concerned with the protection from it; rather the managed retreat from the coast plays an important part to ensure that the natural beauty of the area is maintained and risk to people and the developed, historic and natural environment is minimised.
- 2.1.7 Long term planning has allowed the consideration of long term climate change impacts to influence strategy. In June 2009, the Government published the UK Climate Projections known as UKCP09. UKCP09 provides projections for variables such as temperature and rainfall for three different future greenhouse gas emissions scenarios. Under all scenarios, it is estimated that the UK will have hotter, drier summers and warmer, wetter winters coupled with increased frequency of extreme weather events such as sea surges, heavy rain and heat waves that could lead to floods and droughts. The rate of sea level rise has increased in recent decades and the projections suggest that absolute sea levels (excluding land movements) are likely to rise by between 12cm and 76cm by 2100. Together with storm surge and other climate impacts, this will add to the risk of coastal flooding and erosion in many locations.
- 2.1.8 Preparing to reduce the impacts of severe weather events is proven to be cost effective at a national scale. The Stern Review on the Economics of Climate Change said “adaptation will be crucial in reducing vulnerability to climate change and is the only way to cope with the impacts that are inevitable over the next few decades...Without early and strong mitigation, the costs of adaptation rise sharply... Governments have a role to play in making adaptation happen, starting now, providing both policy guidelines and economic and institutional support.” Stern Review of the Economics of Climate Change (October 2006²).
- 2.1.9 At the UN Earth Summit in Rio de Janeiro in 1992 the UK Government joined with others in committing the UK to Local Agenda 21, which sets out a number of objectives for tackling social, economic and environmental problems. It intends to improve the quality of life for local communities while simultaneously securing a sustainable future. The Hartley Cove to the River Tyne Coastal Strategy Plan will contribute to the principal aims of Local Agenda 21 by establishing a framework from which the sustainable management of the coastline can be implemented.
- 2.1.10 During the past ten years, the Government has emphasised a need to consider a more coordinated approach to the economic, environmental and technical assessment of proposed coastal defence schemes. Scheme appraisal as part of studies associated with wider issues, in particular sustainable development, has become an increasingly fundamental concept, which has influenced the way in which coastal defence schemes are developed, appraised and approved.

¹ <http://www.northumberland.gov.uk/Highways/FCERM.aspx>

² Stern Review of the Economics of Climate Change (October 2006) available at http://www.wwf.se/source.php/1169158/Stern%20Summary_of_Conclusions.pdf

- 2.1.11 There are two fundamental principles that influence decision-making in the field of coastal defence: sustainable development and the precautionary approach.
- 2.1.12 **Sustainable development** acknowledges the need to ensure that developments undertaken today do not prejudice options available to future generations in respect of resource use and development. Defra (Strategy for Flood and Coastal Defence in England and Wales, MAFF, 1993) define a sustainable coastal defence scheme as one that takes account of the inter-relationships with other defences, developments and processes within a coastal sediment cell or sub-cell, and which avoid as far as possible, tying future generations into inflexible and expensive options for defence.
- 2.1.13 The principle of sustainable development assumes that it is possible to predict the consequences of decisions taken in determining whether or not to allow a development to go ahead. Where there is any uncertainty, it is important that this is acknowledged and if 'unknown' or 'uncertain' consequences are potentially significant, that a **precautionary approach** is taken i.e. nothing should be done that might prejudice or cause damage to resources elsewhere, unless there is clear and unequivocal justification.
- 2.1.14 Stepping back to take a strategic overview should allow future strategic and scheme specific problems to be reduced or avoided. At the very least, such problems can be anticipated and decisions made with knowledge of potential consequences.
- 2.1.15 It is acknowledged that a sustainable coastal defence strategy may not be immediately achievable. In the absence of sufficient information to make informed decisions regarding the management of the coastline, or as a result of past/current coastal defence activities, it may be necessary to adopt coastal defence options which are not sustainable and replace them with alternative options at a later date. This is an important step in 'aiming' to 'achieve' the sustainable management of the coastline.

3. Coastal Defence Planning

- 3.1.1 In order to achieve the sustainable management of the coastline, Defra (formerly MAFF, the Ministry of Agriculture, Fisheries and Food) recognised that there was a need to establish a framework to ensure an appropriate co-ordination between local (coastal) authorities during the design and implementation of coastal defence schemes. In 1993, local (coastal) authorities were encouraged by Defra (formally MAFF) to form Coastal Groups in order to address problems associated with the coastline.
- 3.1.2 Defra also encouraged the development of forward looking coastal defence plans that take account of local and regional coastal defence needs e.g. Shoreline Management Plans (SMPs) and Coastal Defence Strategy Studies.
- 3.1.3 The flow diagram below shows the principal stages in the coastal defence planning process, from the formation of Coastal Groups to the construction of individual coastal defence schemes.

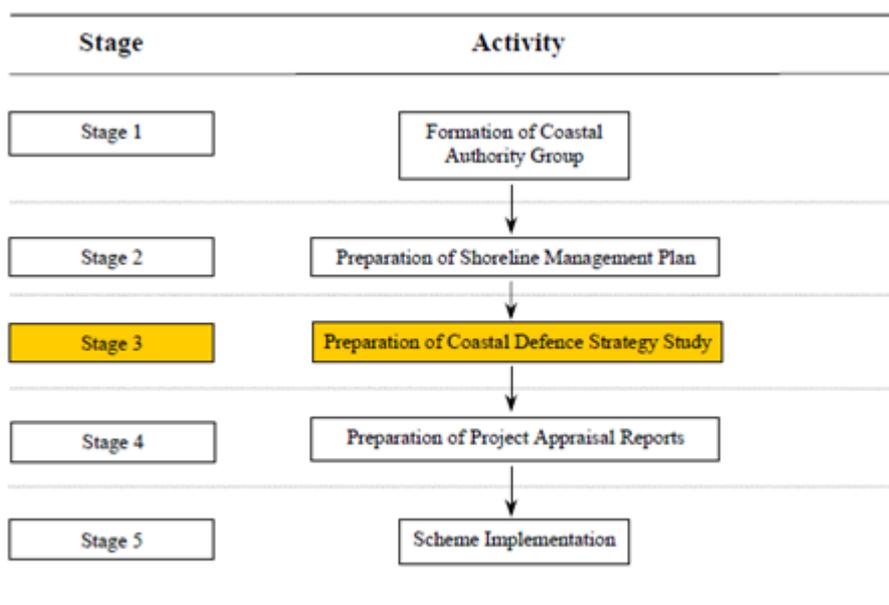


Figure 1 Coastal Defence Planning - Implementation Framework

- 3.1.4 A summary of Stages 1 to 5 is given below. It should be noted that there should be feedback between Strategy and Shoreline Management Plan, and each should be reviewed every 5 years.

3.2 Coastal Authority Groups (Stage 1)

- 3.2.1 The aim of the Coastal Groups is to promote a sustainable and strategic approach to sea defences and coastal erosion risk management based on a detailed understanding of natural processes, planning issues, current and future land use, defences needs and environmental considerations. Coastal Groups are also responsible for the development of Shoreline Management Plans (SMPs), monitoring coastal processes and contribute towards long term investment programme. They also support the duties and responsibilities of operating authorities and other organisations engaged in the managing the coast, encouraging best practice and the sharing of expertise.
- 3.2.2 There are ten Coastal Groups within England and Wales. North Tyneside Council are a member of the North East Coastal Authorities Group who co-ordinate management of the coastline between St Abbs Head to Gibraltar Point.

3.3 Shoreline Management Plans (Stage 2)

- 3.3.1 An SMP is a non-statutory document that provides coastal defence guidance at a strategic level to assist with long-term coastal defence decision making. During the development of an SMP discrete lengths of coastline that possess similar characteristics in terms of coastal processes and land use are identified. These lengths are known as Management Units (MUs). For each MU an SMP appraises a series of strategic coastal defence policy options given in the Defra/MAFF Guidance Document, *Shoreline Management Plans – A Guide for Coastal Defence Authorities* (MAFF, 1995). These 'generic' policy options are:
- Do Nothing
 - Hold the existing defence line by maintaining or changing the standard of protection
 - Advance the existing defence line
 - Retreat the existing defence line
- 3.3.2 The defence line is interpreted as being the line of existing structural defences or the mean high water mark where there are no existing structures.
- 3.3.3 The results of a SMP form the basis of further investigative work during the development of scheme strategies and individual schemes. This 'top down' approach forms the basis of the decision-making framework developed by MAFF i.e. the production of SMPs, followed by the development of Coastal Defence Strategies and finally the implementation of individual schemes.

- 3.3.4 A SMP for sub-cell 1a (St. Abbs Head to the River Tyne) was prepared in September 1998 on behalf of the Northumbrian Coastal Authorities Group. The SMP was reviewed and updated in 2009 and took in account the latest guidance from Defra, *Shoreline Management Plans – A Guide for Coastal Defence Authorities* (Defra, 2001). The Northumberland and North Tyneside Shoreline Management Plan 2 (2009) can be accessed from the North East Coastal Observatory website³.



Figure 2 Areas considered by the Shoreline Management Plan 2 (2009)

- 3.3.5 The Shoreline Management Plan 2 set out the strategy for the eight policy units within the study area. These are summarised in Figure 3.

³ <http://www.northeastcoastalobservatory.org.uk/Default.aspx?view=pnlTexts&text=Strategy>

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
4.1	North Low and South Low	MR	MR	MR	Investigate need for hinterland defences set back from shore to counter flooding.
4.2	Beal Point	NAI	NAI	NAI	No action required but intent to maintain access to Holy Island.
4.3	Fenham Flats	NAI	NAI	NAI	Encourage development of intertidal natural defence to rising hinterland.
4.4	Ross Low	HTL	HTL	MR	Maintain existing flood defences and allow natural dune accretion. In final epoch dunes may roll back due to higher sea level. MR of this process required.
4.5	Waren Mill	HTL	HTL	HTL	Including new defence to road as required.
4.6	Shell Road (Holy Island)	MR	MR	MR	Subject to detailed examination raise road level.
4.7	Holy Island Clay Cliff	NAI	NAI	NAI	
4.8	Holy Island Harbour	HTL	HTL	HTL	Maintain back defence to harbour area.
Key: HTL - Hold the Line, A - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

Figure 3 Policy Plan for the eight Policy Units in the SMP study area (The Northumberland and North Tyneside Shoreline Management Plan 2, 2009)

3.3.6 The SMP provided a number of differing approaches to coastline management in the study area; with hold the line accounting for three policy units, and the no active intervention approach and managed realignment approach in five policy units.

3.4 Coastal Defence Strategy Studies (Stage 3)

3.4.1 Coastal defence strategy studies are undertaken to review and refine the findings of the SMP. In the North East, existing coastal strategies include:

- Whitby Coastal Strategy 2012
- Robin Hood's Bay Coastal Strategy 2012
- Scarborough Strategy 2009
- Filey Strategy 2002
- Cayton Bay Strategy 2002
- Runswick Bay Strategy 2015

3.4.2 The coastal strategies describes how the preferred options will be implemented to establish a framework for decision making and action relating to both the provision and the management of coastal defence schemes. In order to achieve the above aim, there are three main objectives of any Strategy Study:

- To review the generic policy options given in the SMP

- To review the appropriateness of the boundaries of the generic policy options
- To develop strategic coastal management policy options (for the next 100 years) that are sustainable, technically sound, environmentally acceptable, economically viable and socially acceptable.

3.4.3 Selection of the preferred policy is made by comparison of the various policy options using economic, technical and environmental criteria. The coastal strategy plan resulting from the study documents the process, recommendations and method of implementation.

3.4.4 It is appropriate that coastal defence strategy studies are being developed at a time when a major initiative for authorities is Local Agenda 21. This is an agenda for securing sustainable development in the 21st Century.

3.5 Project Appraisal Reports (Stage 4)

3.5.1 Individual scheme proposals are presented to Defra in the form of Project Appraisal Reports and other supporting documentation. The project appraisal report uses the conclusions and supporting information detailed in the coastal defence strategy study and the SMP. Typically a Project Appraisal Report includes the background to the nature of the coastal problem (erosion and/or flooding), a description of alternative schemes to alleviate or mitigate the problem, an evaluation of scheme costs and benefits, a technical, economic and environment appraisal of the alternative schemes and a detailed description of the proposed solution.

3.6 Scheme Implementation (Stage 5)

3.6.1 Following agreement from Defra, individual schemes may be implemented.

4. Responsibilities for Coastal Defences

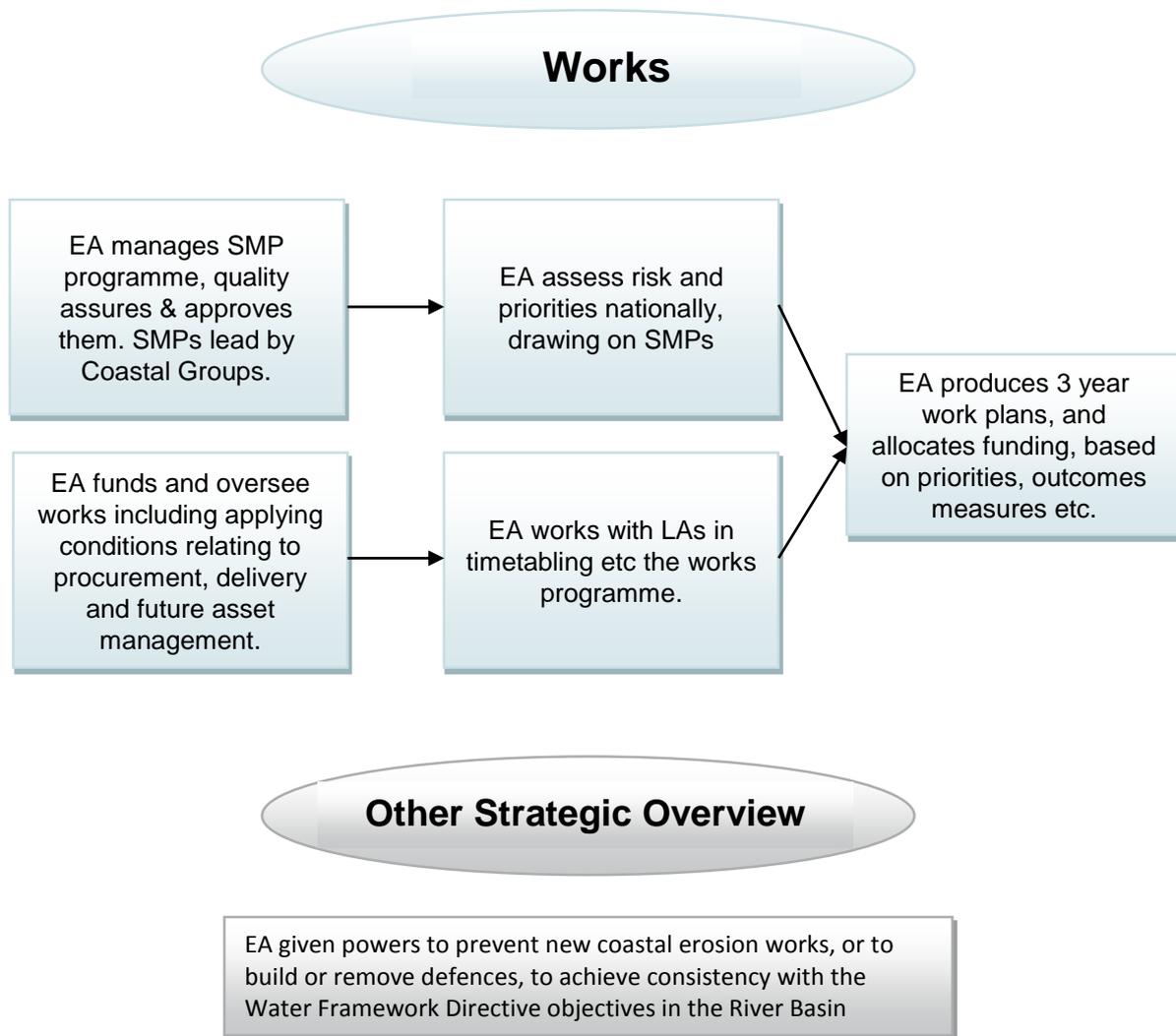
4.1 Coastal Defence Legislation

- 4.1.1 Evidence of a co-ordinated approach to the provision of coastal defences (i.e. evidence in the form of Acts or Commissions) dates back to the 1911 Royal Commission on Coast Protection. The most significant legislation that followed includes the 1939 & 1949 Coast Protection Act. The Coast Protection Act, provided a significant turning point in the approach adopted by borough and county councils regarding the provision of coastal defences. The Act still forms a part of the basis for approval and grant aid of coastal defence proposals.
- 4.1.2 In addition to the Coast Protection Act there are other Acts and forms of legislation that influence the planning and provision of coastal defences.
- 4.1.3 A list of the most relevant legislation is given below.
- The Coast Protection Act 1949
 - The Conservation (Natural Habitats, & c) (Amendment) (England) Regulations 2000.
 - Food and Environmental Protection Act, 1985.
 - Water Resources Act, 1991.
 - Land Drainage Act, 1991 & 1994.
 - Environment Act, 1995.
 - Town and Country Planning Act, 1990.
 - Water Framework Directive 2000/60/EC, 2000
 - Strategic Environmental Appraisal (SEA) Directive 2001/42/EC, 2001.
 - The Flood and Water Management Act 2010
- 4.1.4 The key changes for the coast as a result of the Flood and Water Management Act included the requirement of the Environment Agency in England and Natural Resources Wales in Wales to produce and maintain National FCRM strategies, the requirement for Lead Local Flood Authorities to produce Local Flood Risk Management Strategies within the framework of the National Strategies. Regional Flood Defence Committees (RFDCs) were replaced with Regional Flood and Coastal Committees (RFCCs), reflecting the extension of the committees' role to cover coastal erosion. RFCCs' power to raise a levy was likewise extended to cover coastal erosion.

4.2 Environment Agency

- 4.2.1 In April 2008 the Environment Agency took responsibility of what were Defra's Coastal Protection functions. This followed with the implementation plan for the Environment Agency Strategic Overview for Sea and Coastal Erosion Risk Management (Coastal Strategic Overview) The Coastal Strategic Overview built upon these responsibilities. This EA Strategic Overview only applies to England. The Flood and Water Management Act 2010 and the Flood Risk Regulations 2009 set out the roles to deliver the strategic overview.

- 4.2.2 The development of the strategic overview promotes a way of working between Government, the Environment Agency, Local Authorities and Coastal Groups which aims to improve sustainability, prioritisation and management of all works on the coast. In the past there has been a complex mix of responsibilities.
- 4.2.3 The Environment Agency is the lead organisation for sea flooding risk management; the LAs remain lead organisations for coastal erosion risk management; the Coastal Groups (CGs) become fewer, bigger and more strategic with stronger Environment Agency representation and the RFDCs' role was widened to include coastal erosion with representation.
- 4.2.4 The Environment Agency the strategic overview role helps to ensure there is:
- Greater consistency in the approach to flood and erosion risk management on the coast, allowing for a more sustainable approach which is able to take appropriate account of climate change.
 - Greater clarity for the public and Government on the roles, responsibilities and accountabilities of those involved in coastal management.
 - More efficient targeting of resources at areas where there is greatest risk
 - A management approach that is risk driven.
- 4.2.5 Under Section 165 of the Water Resources Act 1991, the Environment Agency is empowered to carry out sea defence works to prevent or help mitigate tidal inundation of low lying areas. Section 166 of the Act also empowers the Agency to provide and operate flood warning systems. A description of the responsibilities of the Environment Agency is available on the internet website www.environment-agency.gov.uk.
- 4.2.6 As of April 2008 the Environment Agency also took over the formal delegation of grants. The Environment Agency has a delegation from the Secretary of State to approve and pay grant aid for flood risk management projects and studies undertaken by local authorities and internal drainage boards and coastal erosion projects and studies undertaken by maritime local authorities up to the value of £100 million whole life costs.
- 4.2.7 The following diagram summarises the Environment Agency roles and responsibilities.



4.3 The Department for Environment, Food and Rural Affairs (Defra)

- 4.3.1 Defra has policy responsibility for flood and coastal defence in England and administers the legislation which enables flood and coastal defence works to be carried out. Grant aid, from central government funds is available for capital defence schemes and related research and development work. The planning, design, maintenance and operation of sea defence and coast protection measures are carried out by the Environment Agency and local (coastal) authorities.
- 4.3.2 Defra is also involved in approval of studies, strategies and projects with whole life costs above the delegated limit (£100m whole life costs). The principles of Defra's policy statement (Defra, 2009) cover risk from all sources (flooding from river, sea, groundwater and surface water, and coastal erosion) and investment in flood and erosion management.

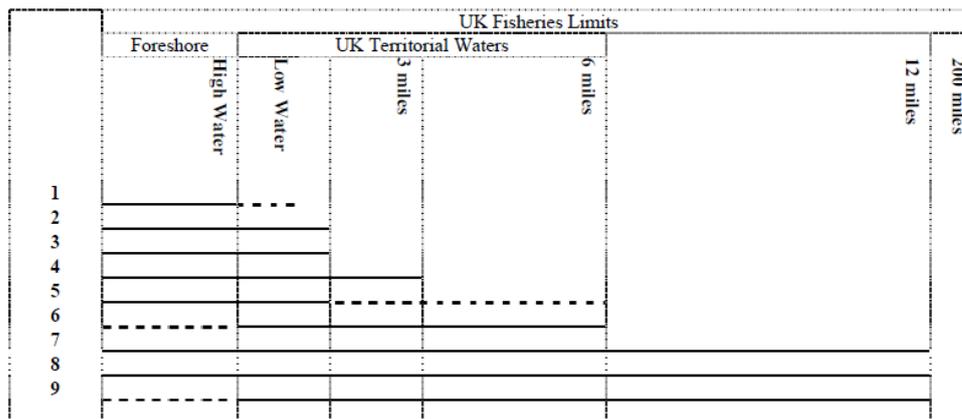
4.3.3 Within Defra, the Flood and Coastal Defence Division administers coastal defence issues. The River and Coastal Engineering Group (RCEG) forms part of the above Division. A Chief Engineer heads the Group with assistance provided by five Regional Engineers. The Regional Engineer for the north of England is based at York.

4.4 Local Authorities

4.4.1 Under the 1949 Coast Protection Act, the council of each maritime county district or unitary authority is the coast protection authority with permissive powers and duties in connection with the protection of land in their area. Local authorities may undertake works on flood and sea defences where they are not the responsibility of the Environment Agency or internal drainage boards (IDBs). Maritime local authorities may also carry out works which protect against coastal erosion. North Tyneside Council are the coast protection authority for the coastline between Hartley Cove and the River Tyne.

4.4.2 Under current legislation local (coastal) authorities are not under any obligation to provide protection against flooding or erosion. Equally the same legislation does not rule out the provision of coastal defences through privately promoted and funded schemes, however statutory consents are still required. The jurisdiction of other coastal organisations is given overleaf.

4.4.3 The jurisdiction of other coastal organisations is given in Figure 4.



Notes:

- | | |
|--|---|
| 1. Local Planning Authorities (planning controls) | 7. DEFRA (fisheries agreements and construction licences for proposed works below Mean High Water Spring Tides) |
| 2. Sea Fisheries Committees (fisheries by-laws) | 8. Department of Local Government, Transport and the Regions (approvals and navigation) |
| 3. Environment Agency (water quality, England and Wales only) | 9. Department of Energy (offshore oil and gas licensing) |
| 4. Environment Agency (salmon fisheries, England and Wales only) | |
| 5. English Nature (various nature designations) | |
| 6. Crown Estate Commissioners (sea bed ownership) | |

----- Extent of jurisdiction ----- Jurisdiction in certain circumstances only

Figure 4 Jurisdiction of Different Coastal Organisations Related to Specific Issues

4.5 Approval of Coastal Defences

- 4.5.1 Applications to Defra for scheme approval to carry out coastal defence works are required to meet their project appraisal requirements, which are based on technical, economic and environmental criteria.
- 4.5.2 A scheme submission includes a Project Appraisal Report, (which will be superseded by a 'standard or outline business case' in 2016), which contains an adequate volume of information and detail to demonstrate technical suitability, economic robustness and environment acceptability.

4.6 Funding of Coastal Defences

- 4.6.1 Defra administers grant aid for capital defence schemes (flood and coastal defence) in England.
- 4.6.2 Grants are available to coast protection authorities and the Environment Agency, toward approved capital expenditure on the construction of new coast protection schemes, sea defence schemes and flood warning systems. Coastal process studies and beach management schemes are also grant eligible.
- 4.6.3 Grants for coast protection schemes are made under the Coast Protection Act 1949. Grants for tidal flood defence schemes are made under the Water Resources Act 1991 and the Land Drainage Act 1991. Grants are also available to the Environment Agency, Inland Drainage Boards, County Councils and District Councils for schemes that mitigate fluvial flooding. Flood defences that prevent fluvial flooding do not come under the remit of coastal defence. Grants for flood defence schemes are made under the Water Resources Act 1991 and the Land Drainage Act 1991.
- 4.6.4 The Environment Agency and local (coastal) authorities are expected to obtain contributions wherever possible towards the cost of a coastal defence scheme, from those who would derive benefit from it or whose actions or requests have led to the undertaking of the scheme.
- 4.6.5 Authorities promoting a scheme are required to produce a summary scheme submission (Form LDW13) for each application. This summary document should confirm that the proposed scheme meets absolute thresholds for technical, economic and environmental criteria. The summary document also forms the basis on which a priority score is determined for the scheme application. The score takes account of ministerial priority, urgency, economics and environmental and social benefits. Schemes that attain a priority score that is equal to or greater than a threshold score set by Defra may be subject to grant aid.
- 4.6.6 The procedure for applying for scheme approval and grant aid in accordance with Defra project appraisal requirements is given in the following documentation:
- Flood and Coastal Defence Funding: submit a project proposal, Environment Agency, 2014

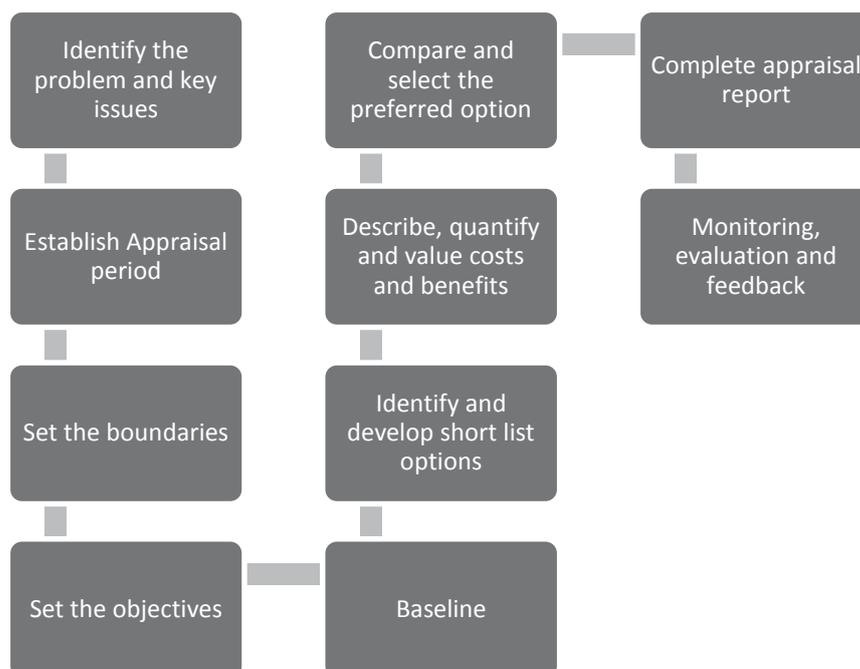
- Flood and Coastal Defence: develop a business case, Environment Agency, 2015
- Flood and Coastal Defence: submit grant claims and financial reports, Environment Agency, 2015
- Flood and Coastal Erosion Risk Management appraisal guidance, Environment Agency, 2010.
- FCRM partnership funding calculator, Environment Agency, 2014.

4.6.7 Grant aid is only issued after all of the above appraisal stages have been satisfied. The investment programme of Grant in Aid funded projects over six years is published and refined each year.

5. The process of Strategy development

5.1 Study steps

5.1.1 The following steps are outlined in The Flood and Coastal Erosion Risk Management Appraisal Guidance (Environment Agency, 2010) to achieve the Shoreline Management Plan appraisal.



5.1.2 The steps to identify the problem and key issues, establish the appraisal period, set the boundary and set the objectives are outlined within this background report.

5.1.3 The baseline is set in the TR03, Coastal Processes and TR04 Existing Defences and Historical Expenditure reports.

5.1.4 The identification of the short list of options, the valuation of costs and benefits and the selection of the preferred option, is all provided in the appraisal report; TR06 Options Development and Economic Assessment.

5.2 Problems and Key issues

5.2.1 The Flood and Coastal Erosion Risk Management Appraisal Guidance (Environment Agency, 2010) notes that ‘all appraisals should start with the development of a clear understanding of the problems that are to be tackled, taking account of current and predicted future technical, social, environmental and economic issues’.

5.2.2 The key issues in the study area are as follows:

1. Some localised areas on the North Tyneside frontage are in need of capital work schemes to ensure their continued integrity, however in general the whole of the frontage is not in need of large-scale intervention.
2. A number of the coastal defence structures may be in need of works to maintain their structural integrity. It is anticipated that the implementation of a programme of works or management activities will be required over a time scale of less than 5 years.
3. The existing defences have an effect on longshore transport and hence affect adjacent areas.
4. The continued integrity of the whole of the defended frontage is a function of maintaining each element of the coastal defences. Failure of one element of the frontage, would in the short term affect adjacent frontages and in the long term compromise the integrity of the whole frontage. The structural dependence of each element of the defended frontage, is an important consideration in terms of interconnected benefit areas and the economic appraisal of individual schemes.
5. There may be partnership opportunities along the frontage in areas where there are common interests e.g. a joint approach to sea defence and amenity interests in the vicinity of the Lido.
6. The potential impact of discrete coastal defence schemes along the defended frontage may have an adverse effect on coastal processes and environmental sites beyond the defended frontage of North Tyneside. Particular consideration needs to be given to the potential impact of schemes in Management Unit 44 as the boundary between North Tyneside and Blyth Valley’s jurisdiction falls within this unit.

5.2.3 The study shall seek an approach to provide an appropriate level of flood and coastal risk management, considering the key issues within the study area.

5.3 Coastal Strategy boundaries and appraisal period

5.3.1 The study area covers the coastline between Hartley Cove in the north and the River Tyne in the south, a length of approximately 11km, over 100 years. The coastline is made up of rocky headlands interspersed with bays. The majority is defended, mainly with concrete seawalls, and where not defended consists of rock or soft cliffs. The foreshore consists of rock platforms and long sandy beaches.

5.4 Objectives

5.4.1 This study is being developed to review and update the Hartley Cove to the River Tyne Coastal Strategy Plans, which were completed in March 2007, for the coastline within the jurisdiction of North Tyneside Council, stretching from Hartley Cover to Fish Quay.

- 5.4.2 The Coastal Strategy Plan purpose is to provide an in-depth appreciation of the risks and requirements for coastal defence. The principle objectives of the strategy are:
- To assess the sustainability of the SMP management policies and produce alternative options where necessary
 - To identify where managed intervention may be required
 - To assess current condition and predict performance of existing coastal defences
 - To identify and quantify erosion risk attached to each management option
 - To undertake a Strategic Environmental Assessment and identify implications of the environmental legislation
- 5.4.3 The aim of the preferred flood and coastal risk management approach is to provide an appropriate level of coast defence along the North Tyneside coastline for the next 100 years to protect lives, property, infrastructure and the environment in accordance with technical, economic, environmental and social criteria. Subject to that aim the strategy objectives are:
- To protect lives, homes and property from flooding and/or erosion
 - To prevent loss, damage or disruption to infrastructure
 - To maintain access to the coast for tourism and leisure, including access points, car parking, promenades and cycle networks
 - To protect commercial assets and use of the coast
 - To maintain or improve the quality of environmentally designated sites, including promoting biodiversity and maintaining conservation value
 - To maintain the conservation value of and access to historic assets on the coast
- 5.4.4 The strategy will identify the preferred approach to coastal risk management, taking account of economic and environmental issues, and any compensatory habitat requirements. This report provided the legislative context and framework, which outlined the background to the study.
- 5.4.5 The current environmental context is set out in the TR03, Coastal Processes and the current asset management context is provided in the TR04 Existing Defences and Historical Expenditure reports.
- 5.4.6 Information regarding the identification of the short list of options, the valuation of costs and benefits and the selection of the preferred option for each of the policy management units in the study area is all provided in the appraisal report; TR06 Options Development and Economic Assessment.

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