

Compendium of best practice for managing coastal change

MONITORING AND COMMUNITY
ENGAGEMENT TECHNIQUES



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Principal learning points

Stakeholder engagement approaches

- Use an honest broker or present the project as an independent body to establish trust
- Use clear, commonly understood language, rather than jargon or technical speak
- Have a named individual who is approachable and always available - the personal touch is important
- Involve partner organisations who can work together to identify and deliver solutions; for example, through an advisory group (such as expert academic researchers and policy-makers)
- Be open, honest and transparent in dealings with affected communities
- Be realistic about what can be achieved by a project in a short time – it takes time for people to understand and come to terms with change
- Take time to build trust – this generally takes longer than the lifetime of a project and needs to be sustained when the money runs out
- Use different communication approaches for different people - when it comes to communications no one size fits all
- Make it clear what is in it for local businesses, otherwise it will be difficult to engage with them
- Use drop in sessions and open-house exhibitions to attract the public, these will appeal to more people than public meetings and you will hear more than just the loudest voices
- Improve and enhance dialogue and understanding between communities, local decision authorities and statutory agencies by adopting good community engagement
- Look to replicate elsewhere positive tools and techniques produced by other projects, in engaging communities in planning for coastal change and implementing practical adaptation
- Avoid being too prescriptive with a list of project outputs as when community engagement is undertaken stakeholders in

the community may come up with innovative ideas, which can then be developed.

- Don't underestimate the value of networking as a way of transferring good practice and new ideas between coastal change stakeholders.
- Work in partnership on a transnational scale - this allows approaches to community engagement and managing coastal change to be shared, allowing partner countries to learn lessons and potentially seek changes to the way things are undertaken in their own localities.
- Create an archive of materials such as historic photographs, which acts as an important resource for understanding coastal change.

Monitoring coastal change

Terrestrial and bathymetric data has been provided:

- At an appropriate geographical scale
- With optimal precision
- With the possibility to generate scenarios for the coastal zone (simulations)
- Enabling data interoperability

The downsides of this data have been:

- Inaccessibility of technical tools to the general public; the data produced should be processed, analysed and valued to make them accessible and understood by everyone.
- Expense of the service

The "Réseau d'Observation du Littoral Normand et Picard (ROLNP)" has enabled:

- The collection and dissemination of scientific and technical knowledge, providing local governors and policymakers with tools for coastal management
- An appropriate geographical scale of study
- A web platform for metadata

A Review of Case Studies and Projects: lessons learned and best practice

Part 1: Stakeholder Engagement Approach

Part 2: Tools for Monitoring Coastal Change

Introduction

This report reviews and summarises past and current case-studies and projects. Part one focuses on stakeholder engagement approaches and tools; part two covers development of coastal monitoring tools.

The aim of this report is to inform the reader of existing tools and approaches, to identify best practice and lessons learned. This is to ensure that current and future projects are aware of the information that is available and the methods that have been tried and tested. This information will also help identify the potential for cooperative working. This is to ensure more coordinated working between individuals and organisations, helping to avoid making the same mistakes or replicating methods that have already been tested elsewhere.

The examples given in this report are structured as follows:

- Title of project / case-study
- Key phrase to describe project / case study
- Brief summary (including programme name, lead partner, funding, budget, timeline)
- Overall outcome(s)
- Current status
- Key success factors
- Areas for improvement
- Useful outputs
- Contact details for further information

This is a live document and learning points from other ongoing coastal change projects will be added on a continuing basis until the end of the LiCCo project.

Stakeholder Engagement Approach Projects

1

Coastal Change Pathfinder Project

Key phrase:	Road-testing new and innovative approaches to planning for and managing change
Lead:	The 15 pathfinder projects were lead by local authorities and coastal partnerships.
Funding:	Defra (Department for the environment, food and rural affairs)
Timeline:	2009 - 2011
Summary:	DEFRA launched the £11 million Coastal Change Pathfinder fund in June 2009, inviting local authorities to bid for a portion of the money to improve community engagement in the process of planning to adapt to coastal change. There were 15 successful bids with funding awarded to local authorities around England. The overall purpose of the 15 Pathfinder projects was to engage with coastal communities about planning to adapt to coastal change, and ensure these communities are well-equipped to understand, debate and take part in the decision making processes involved in managing coastal change.
Overall outcome:	Improved understanding and testing of tools and techniques for engaging communities in planning to adapt to coastal change.
Current status:	Complete.

Key Success factors:

- Improved dialogue and better understanding between communities, local decision authorities and statutory agencies has been a key outcome of the Pathfinder projects.
- Across the 15 pathfinders a broad range of tools and techniques that can be used to engage communities in planning for change and implement practical adaptation have been trialled. Those identified as successful can be carried over into other locations facing similar issues.

Areas for improvement:

- Many of the Pathfinder projects reported encountering difficulty in engaging at risk businesses in planning for coastal change either because the risk was perceived as too remote or because investors had already received a return on their asset and were unconcerned by their potential loss.
- The relatively short time scale of the project presented meant that some projects encountered difficulties in delivering everything they had committed to deliver and meant trust had to be built with communities over a short period of time.

Useful outputs:

- Final report on the success of the 15 Pathfinder projects <http://www.defra.gov.uk/publications/2012/03/09/pb13720-coastal-pathfinder-review/>
- Visualisations of past and future coastal change using various methodologies (see final report)
- Trials of adaptation policies including 'buy and lease back' of at risk property and relocation (East Riding and Norfolk Pathfinders)
- Development of Scenario Planning tools to support communities in understanding and considering future coastal change (Somerset and Jurassic Coast Pathfinders) - Jurassic coast education project
- Spatial planning research report – review of national policy framework relating to coastal change; review of the current spatial planning policy; identification of best practice; recommendations to national and local government.
- Visualisations of future coastal change

(See website to access this information:
<http://www.jurassiccoast.com/400/category/the-coastal-change-pathfinder-project-247.html>)

Further information:

Dorset Coast Forum - dorset.coast@dorsetcc.gov.uk

Coastal Futures – Humber Community Project

Key phrase:	Supporting communities through coastal change
Lead:	Joint partnership project - RSPB, Environment Agency, Natural England and Defra.
Funding:	Defra (HM Treasury's 'Invest to Save' budget)
Timeline:	2005-2008
Summary:	A scheme that supported communities experiencing coastal change along the north bank of the Humber Estuary, between Hull and Spurn Point in the East Riding of Yorkshire. The premise behind the project was that time and effort invested to support communities dealing with coastal change and sea level rise, in the early stages of strategy or project development, will save time and effort later and allow for the delivery of additional benefits. The project had both a national and local angle. Nationally it looked at the general issues UK communities facing coastal flooding may experience. It used the Humber Estuary as a pilot to engage communities affected by proposals for managed realignment sites. The Humber Estuary was chosen as the 'local' case study because the Environment Agency's 'Humber Flood Risk Management Strategy' took a holistic view of the estuary and was at an advanced stage of development and also because Environment Agency staff on the Humber were keen to try new and innovative ways of working.
Overall outcome:	Provided ideas and suggestions on differing ways to engage with communities affected by coastal change, supported by case study examples and lessons learned on the Humber. The coastal change affecting communities on the Humber took the form of proposals for managed realignment and withdrawal of maintenance for defences, with the learning applicable to all coastal change scenarios.
Current status:	Complete.

Key Success factors:

- In high risk scenarios the 'Coastal Futures Humber Community Project' experience has shown the value of having a dedicated community engagement resource working alongside the technical professionals.
- Being branded as 'Coastal Futures' and seen as independent of all partner organisations allowed the project officer to more easily gain trust and credibility with communities.
- In addition to the standard, democratic route of working with Parish Councils, the project tried a variety of ways to support and engage communities that were common sense, simple, small scale and low cost (the examples and case studies are detailed in the "lessons learned and best practice in community engagement on changing coasts" report – see below)

Areas for improvement:

Closer working with the Local Authority could also have enhanced community engagement activities (see also "lessons learned and best practice in community engagement on changing coasts" report)

Useful outputs:

- Report on the economics of managed realignment (see www.coastalfutures.org.uk)
- Market Research briefs, summaries and findings (see www.coastalfutures.org.uk/resources.html)
- Animation of how managed realignment works (see www.coastalfutures.org.uk/solution.html)
- Lessons learned and best practice in community engagement on changing coasts; including reference to four case studies on how to inform, consult, involve and collaborate (see <http://www.coastalfutures.org.uk/humber.html>)

Further information:

Coastal Futures website -
<http://www.coastalfutures.org.uk/humber.html>

COCONET – Coastal Communities Network

Key phrase:

Lead: Joint partnership - Coastal and Marine Resources Centre (University College Cork) and the Marine and Coastal Environment Group (Cardiff University).

Funding: Interreg IIIA

Timeline: 2003-2004

Summary: The objective of CoCoNet was to establish a network to promote Integrated Coastal Management (ICM) in the INTERREG III area (countries bordering the Southern Irish Sea, Ireland and Wales). This project aimed to develop a network of community stakeholders with an interest in the sustainable management of their local coastal resources, to promote best practice and sustainability and develop a platform for dialogue and relationship building.

Overall outcome:

- A report providing an assessment of contemporary practice in community involvement for the management of local coastal resources and identification of the factors that limit success within the shared INTERREG IIIA region (using background research and policy reports, detailed case studies and input from stakeholders obtained via three organised CoCoNet workshops).
- Consensus on the content of the Wexford Declaration. The widespread circulation of this declaration helped in awareness raising - to address the two key issues to emerge from the study above, namely a lack of public awareness of coastal issues and political apathy towards coastal management.
- Groundwork completed in networking and building capacity for the INTERREG IIIA region.

Current status: Complete. Another INTERREG IIIA project followed on from CoCoNet, focusing on the need to raise awareness of the coastal environment.

Key Success factors:

- Effective networking facilitated the transfer of good practice and new knowledge among coastal stakeholders and practitioners. Further details can be found in the COCONET final report at <http://coconet.ucc.ie/index.htm>

Areas for improvement:

Details can be found in the COCONET final report at <http://coconet.ucc.ie/index.htm>

Useful outputs:

- Final report (assessing contemporary practice in community involvement in the management of local coastal resources and identifying the factors that limit success within the shared INTERREG IIIA region)
- Workshop outcomes
- Brochure

All these outputs are available at <http://coconet.ucc.ie/index.htm>

Further information:

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Rhoda Ballinger, BallingerRC@cf.ac.uk

Corepoint – Coastal Research & Policy Integration

Key phrase:	Using research to build capacity in ICZM
Lead:	Partnership project led by the Coastal and Marine Resources Centre at University College Cork (12 partners from Ireland, UK, France, Netherlands and Belgium)
Funding:	Interreg IIIB
Timeline:	2004-2008
Summary:	Corepoint aimed to progress the development and implementation of Integrated Coastal Zone Managed (ICZM) solutions across the Northwest Europe (NWE) region. The project sought to strengthen links between researchers and policy makers by setting up Expert Couplets at nine study sites across North West Europe. Corepoint aimed to influence policy by providing practical advice to policy makers and managers through focusing research on the issues and policies that influence coastal management at regional, national and local level. Research focused on the legal, economic and managerial aspects of our coasts across each of the North West Europe member states.
Overall outcome:	Corepoint was referenced both in Europe and also across the international arena. Discussion was stimulated on the principles of Integrated Coastal Zone Management (ICZM) contained in the EC ICZM Recommendation, via regional level conferences. Partners gave presentations on ICZM to the European Union directly and at numerous international conferences and events. National Advisory Boards were established to enable dialogue between policy makers, policy implementers and research centres.
Current status:	Complete.

Key Success factors:

- The enhanced dialogue between partners and their national governments has been one of the stand-out successes of the Project.
- At local level the Project successfully nurtured Expert Couplet working between research centres and local authorities, established Fora and organised Expert Surgeries and ICZM Training Workshops. This enabled Partners to promote the benefits of ICZM at a community level and has provided a mechanism for local stakeholders to express their interests.

Areas for improvement:

See the “point of Corepoint” document at <http://corepoint.ucc.ie/Cpages/outputs.htm>

Useful outputs:

- “Point of Corepoint” document – discussion document on the Status of ICZM in North West Europe (one of the strategic outputs of the project)
- CoastWeb – a coastal and marine portal, developed and managed by CoastNet, and partially funded through the Corepoint project (<http://www.coastweb.info/>)
- Local information system guidelines - Guidelines for Implementing Local Information Systems at the Coast

- Capacity building (various documents) - final report; Corepoint Expert Couplets & Case Studies - Descriptions of physical, ecological and socio-economic context and of area-specific Corepoint activities; NW Europe Schools of Excellence in ICZM - Training Impact Review; La gestion des zones côtières dans le golfe du Morbihan - regard du projet Corepoint
- ICZM training materials
- Best practice in ICZM (various documents)
- Collaborative working (various documents – guides and reports)
- Effectiveness of current spatial policies (various documents)

All these outputs are available at:
<http://corepoint.ucc.ie/Cpages/outputs.htm>

Further information:

See <http://corepoint.ucc.ie/Cpages/who.htm> for contact details of the individual partners

C-Scope

Key phrase:	Combining Sea and Coastal Planning in Europe
Lead:	Province of West Flanders (Belgium) (partners: Centre for Integrated Coastal Zone Management – ICZM, Belgium; Dorset Coast Forum, UK)
Funding:	Interreg IVa 2 seas programme
Timeline:	July 2008 – December 2011
Summary:	C-Scope aimed to create a seamless coastal and marine planning framework, to suit the demands of professional and non-professional users, following a “bottom-up” approach. The objective was to allow a more holistic approach to planning, reducing development conflicts and impacts between coast and sea at a local level.
Overall outcome:	Development of a coastal and marine spatial plan, providing a framework for integrating terrestrial and marine planning Development of tools for achieving sustainable coastal economies and environments Achieving commitment to ICZM through stakeholder engagement
Current status:	Complete.

Key Success factors:

- Broad involvement of stakeholders through strategic coastal partnership (Dorset Coast Forum)
- Clear transparent objectives are a key building block for successful marine planning
- Be concise and consistent with language to avoid misunderstanding amongst stakeholders
- Building trust takes time – members of newly formed groups or participants in newly initiated discussion are likely to show more self interest than in those that are long established

Areas for improvement:

- There is no one size fits all approach to stakeholder participation. Different areas require a different tailored approach
- Engaging with businesses is difficult unless building an existing relationship. The benefit of taking part has to be demonstrated before businesses will commit time and money to taking part.

Useful outputs:

- Coastal and marine spatial plan for the marine management area (MMA) in Dorset and Heist-Zeebrugge (Belgium)
- Comprehensive seabed map for Dorset MMA
- Coastal explorer planning – a web based planning tool which will improve the integration of land and sea planning policies
- New sustainability indicators for Europe, with special attention to indicators for the marine environment
- A coastal forum for Belgium
- Coastal Explorer Interactive - an educational web-based information source for public use
- Coastal explorer access points identified along the Dorset Coast

Further information:

dorset.coast@dorsetcc.gov.uk; <http://www.cscope.eu>

CYCLEAU

Key phrase: Forming a shared, integrated approach to the planning and management of natural water resources in the coastal zone.

Lead: Environment Agency

Funding: Interreg IIIB

Timeline: 2004-2006

Summary: Cycleau took an innovative perspective by combining resource planning and management in the coastal zone with whole area catchment planning and management. The aim was to produce a methodology that could be used as a roadmap by communities wishing to use best practice in environmental management. The legacy of Cycleau is a 'quality brand', a methodology that can help communities best look after their own water environments. One of the key elements of Cycleau was the nurture of a learning culture amongst all involved - sharing know-how and good practice and helping one another to achieve environmental improvements alongside sustainable economic activity.

Overall outcome: A methodology was produced, to be used by stakeholders as a guide to best practice for water environment management, and to help them to monitor their own aquatic environments in a better way

Current status: Complete

Key Success factors:

- Partnership working on a transnational scale
- Peer review by international experts of the Cycleau methodology
- Effective communications by local teams and a final conference to launch the outputs

Areas for improvement:

- Timescale of the project
- Possibility of continuing the work that had been initiated was limited due to funding.

Useful outputs:

- Cycleau methodology – catchment management CD Rom that can be used as a tool for best practice
- Stakeholder and public participation documents – an audit of methods; a project evaluation; report on the principles of participation
- Water cycle education pack
- Catchment profiles

All this information can be accessed at www.cycleau.com

Further information:

See www.cycleau.com for links to partner organisations.

ESPACE – European Spatial Planning: Adapting to Climate Events

Key phrase:

Lead:	Hampshire County Council (10 partners in UK, Belgium, Netherlands and Germany)
Funding:	Interreg IIIIB (as well as ESPACE partnership, Department for Communities, Local Government)
Timeline:	2003-2008

Summary: Concentrating on water management issues, ESPACE was one of the first projects of its kind to focus on increasing awareness of the need for spatial planning systems to adapt to the impacts of climate change and to begin to provide some of the necessary policy guidance, tools and mechanisms to incorporate adaptation into planning systems and processes. The ESPACE partnership spanned four NW European countries and brought together representatives from all levels of civic society.

Overall outcome: ESPACE influenced the philosophy and practice of spatial planning across Europe, by recommending how adaptation to climate change can be incorporated into spatial planning policies, processes and practices. ESPACE has not only had a significant influence on the creation of specific policies, but has also been directly responsible for new policies. The climate change agenda has moved on considerably in the time since ESPACE was launched. In 2003, adaptation was not on any political agenda. In 2008 it was a major part of any response to climate change. The ESPACE project has played a significant role in ensuring that adaptation to climate change is recognised as a vital component in the response to climate change.

Current status: Complete.

Key Success factors:

- Fully sharing results from research programmes with policy makers and other stakeholders in a form that they can understand, via widespread communication at high level gatherings, including the 20th meeting of the Subsidiary Bodies of the United Nations Framework Convention on Climate Change (2004); Green Week “European Cities Combat Climate Change” and “Planning and Funds for Climate Change” session (2005); conference in cooperation with the Senate of the Parliament of the Czech Republic, the Czech Ministry of Environment and the Centre for Transport and Energy (2005); European Climate Change Programme Working Group II (2006); European Environment Agency Adaptation conference (2007).
- ESPACE also accepted invitations to sit on various working / expert groups, such as the European Climate Change Programme Adaptation Working Group; the Planning and Climate Change expert working group – DG Environment Working Group and the Assembly of European Regions expert group.
- The ESPACE Extended Partnership, with more than 280 members in mainly European countries, played a large role in how far the influence of the ESPACE Project was spread.

Areas for improvement:

Not currently identified

Useful outputs:

The strategy “planning in a changing climate” – contains a set of 14 recommendations that are complemented by a series of case studies, tools and examples of policy advice (aimed at all levels of governance).

Further information:

<http://www.espace-project.org/index.htm>

GRABS

Key phrase:	Green and Blue Space Adaptation for Urban Areas and Eco Towns
Lead:	Town and Country Planning Association (TCPA)
Funding:	Co-financed by the European Union's Regional Development Fund (ERDF) and made possible by the INTERREG IVC Programme
Timeline:	2009 - 2011
Summary:	A network of leading pan-European organisations involved in integrating climate change adaptation into regional planning and development. 14 partners were drawn from eight member states, representing a broad spectrum of authorities and climate change challenges, all with varying degrees of strategic policy and experience. The project facilitated the much needed exchange of knowledge and experience and the actual transfer of good practice on climate change adaptation strategies to local and regional authorities.
Overall outcome:	<ol style="list-style-type: none"> 1. Developed a better understanding of climate risks and demonstrated effective climate adaptation strategies 2. Helped organisations and individuals by sharing results and best practice. 3. Raised awareness and increased expertise of key bodies responsible for spatial planning and development as to how green and blue infrastructure can help new and existing mixed use urban development adapt to projected climate scenarios. 4. Assessed the delivery mechanisms that exist for new urban mixed use development and urban regeneration in each partner country and developed good practice adaptation action plans to co-ordinate the delivery of urban greening and adaptation strategies, as well as cooperation amongst planners, policy-makers, stakeholders and local communities. 5. Developed an innovative, cost effective and user friendly risk and vulnerability assessment tool, to aid the strategic planning of climate change adaptation responses 6. Improved stakeholder and community understanding and involvement in planning, delivering and managing green infrastructure in new and existing urban mixed use development, based on positive community involvement techniques
Current status:	Complete.

Key Success factors:

Community involvement

Areas for improvement:

Not currently identified

Useful outputs:

- Database of case studies to showcase climate change adaptation approaches, with a particular emphasis on those relating to green and blue infrastructure. The database describes in detail the processes that have supported the implementation of adaptation responses in a range of urban areas across the world.
- Communication and dissemination activities such as press releases, newsletters, brochures and expert papers, highlighting activities and progress throughout Europe
- Adaptation action plans and policy statements
- Project brochure, describing all key outputs of project and where to find them

- Expert papers
- Policy guidelines and briefing papers
- Assessment tool (assessing the vulnerability of urban areas to climate change impacts, with an additional assessment of relative patterns of spatial risk where suitable data is available. Allows stakeholder networks and members of communities to visualise vulnerability, exposure and climate hazards within a particular location, thus raising awareness, aiding decision-making and facilitating community and stakeholder participation in formulating appropriate adaptation responses).

All these outputs are available at: www.tcpa.org.uk

Further information:

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IMCORE

Key phrase:	Innovative management for Europe's changing coastal resource
Lead:	Coastal & Marine Resources Centre in University College Cork
Funding:	Funded under the Interreg IVB programme (www.nweurope.eu),
Timeline:	2008-2011
Summary:	<p>The aim of IMCORE was to promote a trans-national, innovative and sustainable approach to reducing the ecological, social and economic impacts of climate change on the coastal resources of North West Europe. Expert couplets of researchers and policy-makers tested innovative ways to address coastal climate change to see what worked best.</p> <p>A variety of innovative approaches, methods and tools were researched, identified and developed by partners to demonstrate how they can be effective and useful to coastal managers and decision makers who need to visualise the future and plan how to respond to the changes happening on their coasts. Coastal managers and policy makers from across NW Europe were mentored and assisted to plan responses to climate change scenarios through training of trainers and a multimedia online learning tool. This included a variety of tested and evaluated tools, methods and approaches, examples of adaptive management strategies and guidelines.</p>
Overall outcome:	<ul style="list-style-type: none"> Adaptive management strategies were developed, implemented and evaluated at each of the 9 couplet locations. The regional viability of coastal communities and sectors was improved by developing common decision support tools and techniques for future planning.
Current status:	Complete.

Key Success factors:

Use of innovative approaches – expert couplets of researchers and policy makers working closely together.

Areas for improvement:

Not currently identified

Useful outputs:

- Coastal Management Comparator Data Base Tool - to improve the capacity of decision makers concerned with coastal issues to quickly and easily compare and contrast their situations with respect to other management approaches in the NW Europe region.
- Training Material on the Identification of Coastal Climate Change Drivers and Issues - to build capacity for developing adaptive management strategies, by illustrating the historical context, drivers, and issues arising from climate change in the coastal zone of NW Europe, including case study material from each of the Expert Couplet locations.
- Demonstration Technologies for the Visualisation of Coastal Futures covering three technological approaches; Geographic Information Systems (GIS), Web Based Virtual Reality, and a Customised Simulator - to demonstrate potential aids to adaptive management in response to climate change impacts in the coastal zone.
- Nine Local Adaptive Management Strategies - to outline climate change scenarios and optional responses for each coastal location. At the local level they will enhance the robustness of long-term investments, improve societal awareness of and preparedness for responding to climate

change in the coastal zone, and increase the adaptability of vulnerable coastal activities. At the NW Europe level they will provide examples of best practice in adaptive management to coastal managers and decision makers.

- Multimedia Distance Learning Tool - to fill an information gap that currently exists in Europe by providing a comprehensive resource to help coastal managers to plan for climate change impacts in their coastal areas. This final project output will integrate and promote the products developed (e.g. coastal comparator database) and the lessons learned (e.g. in adaptive management and expert couplet working) from IMCORE.
- The development of the tools and adaptive management strategies will be undertaken in consultation with end-users at all of the nine pilot sites. This exchange of experience, technical know-how and research ideas should ensure that the strategies and tools will be successfully incorporated into future routine coastal management practice.

To access this information see the IMCORE website: www.imcore.eu; as well as the coastal adaptation website: <http://www.coastaladaptation.eu>

Further information:

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Slapton Line Partnership Adaptation Project

Key phrase:	Coastal Adaptation: Community Engagement Toolkit
Lead:	South Hams District Council
Funding:	The Slapton Line Partnership is made up of the bodies that have a responsibility for the elements involved in the Slapton Line: Devon County Council, South Hams District Council and English Nature; with input from the Department for Environment, Food and Rural Affairs (DEFRA), the Environment Agency, the Whitley Wildlife Trust and the Slapton Ley Field Centre.
Timeline:	2001- to date (Adaptation plan periodically updated)
Summary:	The Partnership was needed to create a forum where stakeholders could work together effectively on a solution to the initial road breach and life thereafter. When the road breach occurred in 2001 there was a great deal of acrimony. With local regional and national press interest it was also very easy for organisations who were supposed to be working together to appear to point the finger at each other. The adaptation plan puts in place a series of measures which start the process of preparing for long term loss of the road. 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.
Overall outcome:	The adaptation plan provided a publicly accountable and structured plan of action.
Current status:	Adaptation plan periodically updated. The Partnership is still in existence, with an active agenda, though with completion of funded activities, the level of support is reduced.

Key Success factors (examples):

- With something of a difficult message to convey it was important to think carefully about it to ensure there was some degree of consistency and that it was effectively delivered. The communications strategy laid down this basis. The project had a member of staff with a strong communications background and this influenced the creation of a formal strategy. The communications strategy was informed by a survey which showed for example that residents wanted to hear about the project primarily via the media, then newsletters and events.
- The creation of an archive of materials provided an important resource across the project of materials that can be used in a variety of different, cross-cutting ways.
- It was learned early on in the project that people get potentially fed-up with a direct uncompromising message of 'your road is going to go'. Hence embedding it in a series of different ways achieves this in a more indirect way.
- Creating press releases was a good way of getting the message out to a wider audience and was in line with what people had asked for. It is worth cultivating a relationship with the editorial staff. A project press file provides a track of project progress from an independent source. Running some advertising in conjunction with the editorial may help to generate attendance.

Areas for improvement:

- Creating a clear list of detailed measures can invite detailed criticism and alternative ideas which may well have been discounted at an earlier stage. In reality there were few detailed enquiries so this wasn't a burden, though the survey suggested a good understanding of the situation indicating that the material put out was noticed and absorbed (an 0845 number was used, which can be redirected if need be even to an answering service). There is a presentational issue around making much of funding secured to pursue a number of soft activities when there is a strong perception that funds should be used for engineering solutions.
- A public meeting may give prominence to those with the strongest opinion, and lead to group polarisation a recognised phenomenon where opinions become more extreme following group discussion. A more effective alternative when consulting public opinion is to hold an "open house" exhibition and consultation over a series of days. There was an awareness of this as an issue from the early days with a decision made to hold public meetings in the thick of the road damage crisis as a way of "letting off steam". The lack of change in overall levels of support may be evidence of 'confirmation bias' - the ability of individuals, once they have made their mind up, to subsequently filter out information not in line with this view.

Slapton Line Partnership Adaptation Project continued

Useful outputs (examples):

The full communications strategy:

http://www.slaptonline.org/download.php?id=174&type=DOWNLOAD_FILE

Timeline:

Web version : <http://www.slaptonline.org/background/index.php>

Interpretation panel :

http://www.slaptonline.org/library/index.php?cat_id=3&search=timeline

Working with schools within the geography curriculum:

<http://www.slaptonline.org/library/download.php?id=168&search=learning&area=All&page=1>

Video – which uses archive of storms and road damage :

<http://www.youtube.com/watch?v=2ZWTxOXdTjY&feature=related>

Please see www.slaptonline.org for further information and outputs.

Further information:

<http://www.southhams.gov.uk> or tel. 0845 388 9147

1

Stakeholder
Engagement
Approach
Case Studies

Black Ven (Dorset)

Key phrase:	Communicating with homeowners affected by coastal change
Lead:	National Trust
Funding:	Neptune (National Trust)
Timeline:	2007-2009
Summary:	The short section of coastline situated between Lyme Regis and Charmouth is internationally famous because it represents the largest landslip area in Europe. The National Trust has conducted two Coastal Risk Assessments (CRAs) on Black Ven and adjoining cliff land (Timber Hill), and the West Dorset District Council has also conducted investigative work along this coastline. Following proposals by the Council to enhance coastal defences to protect a road and houses, the Trust commissioned Halcrow to investigate the impact of these proposals on its land. Halcrow's report suggested the works would have no effect on Black Ven directly. It did, however, identify an erosion issue on the eastern border of the Trust's land, just below a small housing development in upper Charmouth, which indicated a loss of property (up to 25 dwellings) by the end of this century. The West Dorset team felt that it would be wrong to keep this knowledge within the Trust and that an open, honest and proactive approach should be taken to inform the residents of Halcrow's findings. They recognised the highly sensitive nature of the information and that it was essential to release it in a calm and controlled fashion. A careful programme of internal and then external consultations were subsequently undertaken, followed by a house-to-house call to each property likely to be affected. The success and reception of this approach demonstrably enhanced the reputation of the Trust.
Overall outcome:	<ul style="list-style-type: none"> Those stakeholders likely to be affected in the future by coastal erosion loss are now fully aware of the reasons and natural processes involved. The National Trust has discharged its 'duty of care' to its neighbours. Stakeholders now understand how and why Trust policies are framed in the way they are. The work has contributed to the production of a satisfactory Coastal Adaptation Strategy (CAS) for Black Ven. The work can be used, within the Trust and elsewhere, as an example of good practice where there is a need to convey what may be seen as 'bad news' to a non-technical but directly affected audience.
Current status:	The management of the site is ongoing.

Key Success factors:

- Careful preparation of the approach and communications material before implementation
- Use of well-respected consultants to gather required data from the outset.
- By consulting with recognised experts in their field, information was presented in a balanced and truthful way.
- The West Dorset team were fully aware (and engaged) with the planning of the communications strategy and were therefore able to work positively with the local community. It was important that the Trust's West Dorset team, the Regional Communications team and the Legal Department knew what the aim was, how this was going to be achieved and that they were clear about the messages that were to be delivered to the stakeholders. Transparency and honesty were key in keeping colleagues up to date with information so that everyone relayed consistent information. A well-audited email trail was kept so that confusions could be kept to a minimum.
- Use of straightforward language when discussing the implications with stakeholders.
- Taking a direct and personal approach was appreciated by those stakeholders affected by erosion and decisions being taken.
- A 'coast and coffee' event was well attended and appreciated. It was staffed by local and senior Trust staff and Jurassic Coast World Heritage Site team members and Halcrow representatives. Members of the public were able to ask any question with the confidence of knowing that they were going to get a comprehensive and authoritative answer. Efforts were made to make the display material easy to comprehend and an extra sum of money found to ensure that a senior member of the original Halcrow team was on hand for the full day. This proved to be money well spent. The exhibition enabled us to explain that attempting to protect those endangered properties would be impractical and could not be undertaken, as well as an excellent opportunity to explain 'Shifting Shores' ideas.
- Provision of 'follow-up' contacts to stakeholders to enable them to keep in touch and to feel supported.

Black Ven (Dorset) continued

Areas for improvement:

- Further reduce the time interval between receiving and collating expert data and divulging that information to the affected stakeholders.
- Consider whether enough human and financial resources had been allocated to ensure project success.
- Seek all necessary legal advice from the outset as this can take longer than expected.
- Ensure that maps and images were always of the highest quality because where a line falls on a map can create doubt and confusion, rather than clarification, where coastal erosion is concerned.

Useful outputs:

- Black Ven Coastal Adaptation Strategy (CAS) report (2009)
- Black Ven Coast Risk Assessment (CRA)

Further information:

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Cayton Bay, Yorkshire

Key phrase:	Clay plus water equals slips
Lead:	Scarborough Borough Council (working with National Trust - land owner for some of the land - and Natural England)
Funding:	Defra (Pathfinder Project), Environment Agency, National Trust (Neptune funding), Scarborough Borough Council, North Yorkshire County Council, Insurers
Timeline:	2008 to present
Summary:	In April 2008, a major landslide caused tons of earth to slip down the cliffside at the edge of Cayton Bay close to Osgodby, leaving bungalows teetering on the edge of the Knipe Point estate. The slope movements, caused by water seeping through the clay cliffs, resulted in three properties being demolished and other properties in the Knipe Point Estate and the A165 Filey Road being threatened. A number of the remaining homes are still at risk as the slope and the National Trust land below it are designated as a Site of Special Scientific Interest (SSSI). Despite an initial outlay of £90,000 by Scarborough Borough Council and the National Trust an engineered solution could not be found, which would satisfy the technical, environmental and cost-effective criteria set by Natural England, the Environment Agency and Defra. The costs of such schemes (£12-20 million) made them unlikely to be eligible for government funding; the environmental risks to the SSSI were also significant. It was agreed by all stakeholders that SBC should consider an adaptation approach and they made a successful submission to Defra under the newly proposed Coastal Change Pathfinder funding scheme.
Overall outcome:	Defra allocated SBC £1,022,500 to develop and deliver an adaptation plan for the community at Knipe Point, including purchasing land and providing an infrastructure to allow a rebuild of properties at risk from coastal change. This proposal provides a solution that satisfies the needs of the residents for compensation for the loss of their homes, and recognises the geologically active nature of Cayton Bay and the biological significance of the area.
Current status:	<ul style="list-style-type: none"> Continued analysis of the results of monitoring (Halcrow) for the National Trust, SBC and other stakeholders. Long-term monitoring of the site both for slips and for water table levels in the boreholes. Liaison with SBC for delivery of the Pathfinder project. Undertaking regular site visits to carry out informal monitoring inspections and maintain contact with residents. Continue to work with natural processes in partnership with the other stakeholders, especially on community engagement

Key Success factors:

- National Trust involvement with site monitoring since the major landslide in 2008 helped to inform all stakeholders of any continuing movement.
- National Trust involvement increased its profile in the area and improved informal contact with the residents and the council.
- Community engagement found a solution that addresses the problems that may be faced by the Knipe Point residents and is acceptable to the majority of the stakeholders.
- The appointment of a National Trust Cayton Bay Project Officer eased the flow of information locally, regionally and nationally, and alleviated pressure on the time of the property team and Regional Management Team.
- Being positive in terms of a vision and not being afraid to share it with other people.
- Where the National Trust is among a number of stakeholders affected, seek an honest broker like a local council who can chair and lead meetings as they have the resources.
- SBC sharing information with agencies, the National Trust and

local residents so that a joint solution could be found.

- Achieving a solution that provided some reassurance for Knipe Point residents and respected the natural processes occurring on the site and inherent qualities of the Cayton and Cornelian Bays SSSI.
- Not going down the purely engineering route is itself a successful outcome.

Areas for improvement:

- The major slip highlighted the benefit of having contingency plans for sites where such problems could be anticipated. In this case, there was no formal plan in place when the slip occurred but National Trust staff worked hard to inform other stakeholders of events and to assist with monitoring.
- Earlier opportunities could have been taken for stakeholder discussion on all options for Knipe Point and the problems facing its residents, rather than majoring on engineering solutions until these were found to be unaffordable.

Cayton Bay, Yorkshire continued

Useful outputs:

- Coastal planning and management study (Defra)
- Instability risk to the coastal road report (North Yorkshire County Council)
- Coastal Strategy Study and Strategic Coastal Monitoring (SBC and Defra)

Further information:

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Durham Heritage Coast

Key phrase:	Model for the regeneration of degraded coastal areas
Lead:	The Durham Heritage Coast Partnership (14 different organisations - Durham County Council, Natural England, Seaham Town Council, National Trust, Durham Wildlife Trust, Environment Agency, Northumbria Water, Hartlepool Borough Council, City of Sunderland Council, Horden Regeneration Partnership, Ryhope Community Association, Easington Colliery Regeneration Partnership, Blackhall Regeneration Partnership and Groundwork.)
Funding:	The partnership is strongly supported by the Heritage Lottery Fund.
Timeline:	2003 to date
Summary:	<p>In 2003, the Durham Heritage Coast Partnership succeeded the hugely successful five-year Turning The Tide project.</p> <p>“An internationally important example for transforming a despoiled landscape through careful investment and enormous amounts of enthusiasm and hard work. A bold vision : a landscape of beauty rich in wildlife and cultural heritage in which local communities can feel justifiably proud. This is the beginning of a renaissance which will enable towns and villages of this part of the former Durham Coalfield to develop a relevant new identity”.</p> <p>From Sunderland to Hartlepool, the Durham Heritage Coast was once scarred by industrial activity. For a century, colliery waste was tipped onto the beaches and into the sea in enormous quantities creating black beaches.</p> <p>However, that landscape is now completely transformed. The extensive environmental and community work being delivered by the Durham Heritage Coast Partnership, which began with the Turning The Tide project and removal of 1.3 million tonnes of colliery spoil a decade ago, has created a wonderful and varied coastal landscape with great natural, historical and geological interest.</p> <p>The Landscape Award of the Council of Europe jury described the Durham Heritage Coast as ‘of great value and a source for inspiration’ and commented: “Characterised by sustainable development, public participation and awareness-raising the project achieved extraordinary results through mobilising local populations and creating a regenerated landscape and a new identity.</p> <p>The Durham Heritage Coast was recognised by the Council of Europe for a raft of positive activity including development of a continuous footpath, creation of ‘gateway’ sites at the north and south of the coast at Noses’ Point and Crimdon to encourage public access and usage, extensive environmental and habitat improvements and information and signage throughout.</p> <p>The Landscape Award of the Council of Europe is conferred by the Council of Europe which adopted the European Landscape Convention, also known as the Florence Convention, to promote the protection, management and planning of European landscapes and organise European co-operation on landscape issues in 2000. It is the first international treaty to be exclusively concerned with all dimensions of European landscape.</p>
Overall outcome:	Recognised importance of landscapes and their value to society. Dramatic transformation that is contributing to society on many different levels. Achievement of European recognition and one of only three entrants honoured with a formal ‘Special Mention’ for its work in the prestigious Landscape Award of the Council of Europe competition (the award is conferred once every two years and is designed to raise awareness of the value of landscapes, their role in society and positive changes within them).
Current status:	Ongoing management

Durham Heritage Coast continued

Key Success factors:

A truly collaborative effort involving many people who live or work along Durham's coastal strip.

Strong integrated working practices within the Durham Heritage Coast Partnership and its engagement with local communities to help foster a sense of pride, ownership and identity with the coast.

Sustainable development, public participation and awareness-raising - mobilising local populations and creating a regenerated landscape and a new identity.

Areas for improvement:

Not currently identified

Useful outputs:

A video of the transformation of the Durham Heritage Coast can be viewed online by visiting:
www.uklandscapeaward.org/video/durham_heritage_coast.php

Further information:

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East Head, Hampshire

Key phrase:	Everything hinges on sediment
Lead:	National Trust
Funding:	National Trust, NT Neptune 'free' funds, AONB/Environment Agency
Timeline:	2000 to date (case study report produced Feb 2010)
Summary:	<p>East Head is the sand dune spit situated at the eastern side of the entrance to Chichester Harbour. It is a stunning example of a natural and dynamic coastal feature which is of great interest to environmentalists and ecologists because of its fragile nature. It is an SSSI (site of special scientific interest) and a Ramsar site (a wetland site of international importance).</p> <p>The sand dune spit is about 1000 metres long and 400 metres wide at the widest point and covers about 10 hectares. It is joined to the mainland by a very narrow strip at the car park end which is known as the 'hinge'. The sea broke through at this point in October 2004 but the effect of the breach was mitigated by the sand & shingle recharge which was positioned in 2005 and 2009.</p> <p>Despite its dynamic, shifting nature, there might have been attempts to construct hard engineering solutions, for which there was considerable local support and private money to fund it, to protect the navigation of the channel (navigation is a statutory duty for Chichester Harbour Conservancy (CHC), who see boat owners as the sole harbour community). CHC manages the AONB and is in a very powerful position politically. Had a hard engineering solution actually gone as far as a planning application, it is likely that the statutory authorities would have refused the application as the works would have been damaging to the designated interest.</p> <p>In 2006, the Environment Agency published a draft coastal defence strategy (for Pagham Harbour to East Head) that formed the basis of actions from the Shoreline Management Plan 2 frontages on a 'cell by cell' basis. To implement the strategy, they set up the East Head Coastal Issues Advisory Group (EHCIAG) that had, as part of its remit, to pursue 'adaptive management' rather than hard engineering. The EHCIAG comprised the East Head Working Group, of which we were members along with other local stakeholders, plus the Environment Agency and Natural England.</p> <p>The work of the NT has been an engagement exercise with the local community to increase understanding of the dynamic nature of East Head, of the natural processes that affect it, and to gain local support for working with these processes.</p>
Overall outcome:	<ul style="list-style-type: none"> • A long-term exercise that has got many of the neighbours and local people who were formerly sceptical of a natural, sustainable approach now actively embracing it as a way of managing a dynamic landscape instead of hard engineering. • East Head has provided an excellent opportunity to raise the profile of the Trust in managing natural sites and for engagement and communication at many levels with both local people and other visitors to the site. • Being invited to join the EHCIAG was an achievement and has allowed parties to talk together on all the issues that concern them. There is more open dialogue with other groups which is helping further learning. • Members of the EHCIAG are now comfortable with the phrase 'adaptive management' and what this implies. • Everyone has agreed what the impacts are and have started to understand the possible solutions within the constraints of the many designations on East Head and within the wider CHC area. • The model of managing a location with a working group has become a blueprint for neighbouring groups as well, e.g. the Selsey Coastal Issues Advisory Group • One of the local wealthy independent trusts has helped with local beach 'recharge' solutions where once it would have supported hard engineering. It now supports the Trust policy for the area.
Current status:	Continued management of East Head, allowing natural processes to develop as much as possible, and working with CHC and other EHCIAG partners within the policies of the Shoreline Management Plan 2.

East Head, Hampshire continued

Key Success factors:

- Bringing many diverse organisations and interests together in an advisory group (the EHCIAG). The sharing of information and discussion led to a consensus outcome agreed by the majority. This advisory group arrangement is seen as a model that groups in other areas are now copying.
- Setting up an expert panel to give impartial advice. This took a while but everyone trusted them and it allowed the different parties to find out information in an independent way. Their advice had credibility and led to greater understanding of the issues. They helped build respect amongst the EHCIAG's members.
- Contributing resources to enable interested parties in EHCIAG to visit other locations with the same type of designations. By seeing how similar issues were dealt with, this added to experience and knowledge, allowing new ideas to be explored. A site visit is very important as it allows people to see change on the ground and ask questions that relate back to their own situation. And sharing NT information with managers of slightly different challenges helped everyone to see the bigger picture of their own situation.
- Allowing time for understanding to develop. Natural processes are a difficult subject for many people and they need time to discuss proposals and understand consequences for different scenarios and timescales.
- Being available and proactive. If anyone wrote or phoned asking about NT policy at East Head, they were either met on site for an explanation or given detailed replies. NT were very proactive and challenged people's thinking in a positive manner.
- Taking sceptical people to visit other locations where adaptive management is already in place or bringing in external experts goes a long way to changing people's attitudes from entrenched positions. In this case, both were critical.
- A community engagement approach in a high pressure situation needs a lot of resource and commitment from staff. Although it may not be something that can be dealt with in a two-year project, a project approach could provide a boost to resources at critical periods

Areas for improvement:

- Initially, the NT were somewhat isolated on their views, but stuck to their coastal policy principles, taking a long-term view on achieving the preferred management options and maintaining dialogue. It was not until the EHCIAG was set up and employed independent consultants who supported the NT conclusions that understanding extended and the atmosphere became more conciliatory amongst all the interests.
- Between 2000 and 2006 the NT had little influence because of the CHC's insistence on waiting for the coastal defence strategy. If the NT had had more resources, they could have been more proactive in engaging with the whole local community rather than be reactive to criticism. Opposition to the NT and Trust policy was orchestrated through many channels, including letter drops to local houses and leaflets put on cars insinuating that the NT did not care about the property. In hindsight, more time could have been spent counteracting these arguments; it would have been even better to have been proactive, but resources were always a problem.

Useful outputs:

Not currently identified

Further information:

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Formby, Sefton

Key phrase:	Adapting to a changing coastline and managing expectations
Lead:	National Trust (main partners: Formby Golf Club; Formby Area Committee/ward councillors; Formby Parish Council; Sefton Council Leisure Services, Planning & Environmental Regeneration, Coast Protection, Tourism and Traffic Services Natural England, Formby Civic Society, Sefton Coast Partnership, Local residents)
Funding:	Includes funding from Heritage Lottery Fund
Timeline:	2007-2015
Summary:	<p>Formby is an entirely open, largely natural property. Its sand dune coastline is being eroded at a rate of approximately four metres each year, with the mobile dunes constantly rolling back and squeezing the fixed dune grassland and pinewood areas.</p> <p>The property has many significances, including a historic landscape partly levelled for past asparagus cultivation, inter-tidal archaeology, rare dune and woodland species including the natterjack toad and the iconic red squirrel, and high visitor numbers of circa 350,000 each year. Management of the Trust's interests on this dynamic coast affects Formby's neighbours; all aspects must be balanced to ensure that they are mutually viable and able to co-exist for the longest possible time.</p> <p>The main car park and a caravan park with 60 seasonally occupied residential vans are both vulnerable to dune movements. NT are working on a challenging adaptation project to sustain the tremendous social and environmental benefits at Formby in the long term. The NT embarked on a programme of community engagement in 2008 to raise awareness of the issues linked to coastal change, visitor demands and the need for adaptation.</p>
Overall outcome:	<ul style="list-style-type: none"> Continued benefit from a partnership approach which adds value through co-ordinated messages around coastal (and climate) change. National Trust principles linked to working with natural processes at whole landscape level are embedded into the principles of the Sefton Coast Partnership. Partnership also brings additional benefits of funding and helps to build understanding of the need for change and support in planning for change. NT have been able to improve public understanding of the nature of coastal change and what it means to local residents, some of whom are afraid of what the future holds. Continued engagement work around the theme of a 'dynamic and ever-changing coast'. A Schools Arts Partnership project under the banner of 'Taking Shape at Formby' led to an environmental artist building two sculptures with local primary and secondary school children. The '50-Year Wave' is a timber sculpture which stands on the anticipated position of the coastline 50 years from now. A leaflet records the building of an earlier sculpture, children highlighting the past and future positions of the coast and captures some memories of parents and grandparents. This work was extended in summer 2010 through a mobile display headed 'Formby's ever-changing coast' which began to shift the focus of engagement to visitors to Formby's coast.
Current status:	Ongoing

Formby, Sefton continued

Key Success factors:

- Staff participation in a Trust-wide Local Community Engagement training programme in autumn 2007.
- Community mapping helped to identify groups and stakeholders with whom NT wanted to engage in moving the Formby project forward. Two initial workshops were successful and interest raised in forming a stakeholder group.
- Focusing engagement work over the last two years on a 'dynamic and ever-changing coast' theme. This has helped to maintain community connections and keep some of the project's momentum going during an otherwise quiet time.
- A partnership approach has been important and it has been recognised that solutions need to be strategic as well as appropriate to the day-to-day needs of the local area, such as traffic management and signage. Key partners are currently working together to develop a Coastal Adaptation Strategy and a related communications plan.

Areas for improvement:

- Changes to staffing and regional priorities from early 2009 meant that the Formby stakeholder group was not formed and further proactive consultation was put on hold. The position is now better to re-engage local interest and support. The NT aim to review community mapping and hold further consultation in spring 2011 in the context provided by the Property Business Plan (due for completion by the end of December for the new Central and South Lancashire portfolio).
- To recognise early on that a stop/start approach to local community engagement is less effective than working steadily to build and sustain relationships, understanding and trust.

Useful outputs:

The following are all available at:
<http://www.sefton.gov.uk/default.aspx?page=10969>

- Adaptation strategy
- Coastwatch Education Resource Pack
- Community and school workshop reports
- Landscape character study
- Landscape strategy
- Audience development plan
- Training plan
- Coastwatch videos on youtube

Further information:

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Mansands, Devon

Key phrase:	Managing sea breaches and changing coastal ecology
Lead:	National Trust (in partnership with Environment Agency, Natural England, RSPB, South Hams District Council, Woodhuish Farm tenant).
Funding:	National Trust
Timeline:	2003-2010
Summary:	<p>The area which is owned by the National Trust is located approximately 1.5km south of Brixham on the South Devon coast. It is situated at the base of two steep sided coombes and is fed by two small streams, which run through each of the valleys, across pasture land and then over a shingle bar and out to sea.</p> <p>In 1985 the National Trust installed steel mesh gabions, two deep, along the whole of the beach, however, by 2001, it was obvious that these gabions were deteriorating due to sea action and vandalism. They were now presenting a health and safety issue and were regarded as an eyesore, leading the National Trust to reassess a future vision for the area. In addition there was a change in tenancy for the farmland behind the gabions and there were new opportunities to look at land management here. Following consultation with local people, the Environment Agency, the local authority and the Parish Council, it was agreed to remove the sea defences and not replace them. This was done in January 2004 and has transformed the appearance of the beach in a very positive way.</p> <p>The area behind the beach had historically been wetland and, it is thought, extended some distance up the valley. During the 1970s, the fields behind the beach were drained and when the Trust first acquired the site the whole valley was largely improved grassland with a few damp areas near the beach. This was intensively grazed with cattle and sheep and was subject to improvement with artificial fertilizer.</p> <p>When the gabions were removed in 2004, a concrete drain which culverted the streams under the beach and out to sea was also removed, resulting in the flooding of the fields behind. Initially, this produced a 2ha lake, or ley, which attracted considerable attention from birds and local birdwatchers, providing an attractive addition to the landscape and habitats of the area. This lasted until March 2007 when the large freshwater ley disappeared in 2007 after the breach of the shingle bar. The ley attracted good numbers of wildfowl, waders and gulls and when it drained several birdwatchers were insistent that the National Trust should re-instate it. This created bad feeling locally and negative press, with individuals suggesting that other conservation bodies should manage the site and not the National Trust!</p> <p>The main challenge has been to persuade local people that, with the sea defences not being replaced, the beach and its environs are to be part of a dynamic, evolving system and that, with climate change, it was going to be difficult to predict what the landscape will look like in the future.</p>
Overall outcome:	<p>Good relations with local people and organisations. Fostering of relationships with other partners and stakeholders has been useful in negotiations, for instance, on rerouting the South West Coast Path.</p> <ul style="list-style-type: none"> • A diverse and thriving natural habitat that adapts and encourages a wide range of species • An attractive addition to the surrounding landscape
Current status:	Continued management of the site.

Mansands, Devon continued

Key Success factors:

- Continuing, regular communication with local people and organisations, even when land conditions are stable.
- Emphasis on the fact that change will occur in some form has been important. It's made it easier to state what we cannot change, what we have to work with and what we must accept.
- Allowing natural coastal processes to take their course, and to work with the consequent and changing effects, whatever these might be, on the wetland
- Having a contractor who understood what we wanted and was sensitive to the site. Because our contractor lived within a mile of the site, he had a special interest in seeing that the work was done well and to a high standard.

Areas for improvement:

- Although the NT have been clear that any land-habitat conditions were temporary and would change, they could have, and still should, emphasise what they will NOT do, eg. heavily engineered works, more plainly. The loss of the lake overnight was a particularly dramatic change, and however much people liked having the lake, it was unsustainable. Some people, especially birdwatchers, did expect that a new barrier would be constructed to reinstate the lake and were vocal in their disappointment that it wasn't. Devon Birdwatching and Preservation Society should have been involved as part of initial discussion group.
- The NT would be clearer that any intervention would be for health and safety reasons or to facilitate natural processes where this can't happen easily. There was an occasion when the NT had to step in to make the beach safe, expectations were raised and then some criticism was received when the NT didn't intervene after every storm.

Useful outputs:

Not currently identified

Further information:

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Mullion Harbour, adapting to a stormier future

Key phrase:	Reaching a consensus for a Coastal adaptation strategy for Mullion harbour
Lead:	National Trust
Funding:	EU Objective 1; Neptune free funds (National Trust)
Timeline:	2004-2006
Summary:	The Harbour was built in the 1890s in Mullion Cove on the Lizard Peninsula on the southern coast of Cornwall. Mullion Harbour was given to the Trust without endowment in 1945. The harbour consists of a northern quay, western and southern breakwaters. The breakwaters have suffered repeated damage from wave action either from powerful ocean swells or storms since their construction. Recent repairs and some improvements since the early 1990s have incurred expenditure of over £1 million. The increasing repair and maintenance costs and the limited funds that are available required the development of a sustainable strategic vision for Mullion Harbour. The Mullion Harbour Study was commissioned in 2004. The NT South West Region recognised the key issues and developed a project to ensure the long-term future of the harbour. A steering group of key stakeholders were able to use the study data to help select the most appropriate strategy for managing the harbour over the next 100 years. The project has provided useful information for other harbour owners in Devon and Cornwall facing the same issues. It has also informed the Trust's wider national coastal strategy.
Overall outcome:	Consensus was achieved on the preferred option for management of Mullion Harbour - the harbour structures will be allowed to safely diminish in the long-term. An adaptable and sustainable management strategy has been agreed.
Current status:	Complete. NT staff continue to successfully carry out and communicate the agreed long-term strategy for Mullion Harbour, identifying ways to keep the message fresh in the minds of all stakeholders.

Key Success factors:

- A steering group was set up, with a broad membership of over 30 key stakeholders
- The study had gathered a lot of evidence and knowledge which could be used to inform any decisions – an ability to show the advantages of being “wise before the event” helped to persuade others
- Weight of evidence helped to convince local “experts” and also helped provide a reasoned response to objections.

Areas for improvement:

- Make better use of electronic media – make project information quicker and easier to find on NT website
- More effective engagement with young people e.g. possible involvement of school councils, development of better ways to allow real case studies to be used as learning opportunities.
- More detailed assessment of reputational risk to local NT staff from their involvement in stakeholder engagement

Useful outputs:

- Mullion Harbour Study Report 2006: http://www.nationaltrust.org.uk/main/w-global/wlocaltoyou/w-devoncornwall/w-devoncornwall-countryside_environment/w-devon_cornwallnews-story5.htm
- Mullion cove: A strategy for coping with climate change. NT information leaflet 2006.
- NT Mullion Harbour Study lessons learnt report. Halcrow 2006.

Further information:

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Jurassic Coast Pathfinder Project

Key phrase:	Engaging communities on the Jurassic Coast in planning to adapt to coastal change
Lead:	Dorset Coast Forum
Funding:	Defra
Timeline:	2009 - 2011
Summary:	<p>In December 2009 Dorset County Council, on behalf of partners in Dorset and East Devon, were awarded £375,000 to from Defra's Coastal Change Pathfinder fund to road test new and innovative methods for engaging communities on the Jurassic Coast in planning to adapt to coastal change. Hosted by the Dorset Coast Forum the project focussed on 6 communities on the Jurassic Coast (Sidmouth, Charmouth, Seatown, Weymouth, Ringstead and Swanage) and delivered a successful education project working with schools through Dorset and Devon.</p> <p>Through the delivery of various active the Jurassic Coast Pathfinder worked towards 7 outcomes:</p> <ol style="list-style-type: none"> 1: Coastal communities who are knowledgeable about what coastal change is and how it affects them 2: Coastal communities who are able to debate about coastal change 3: Coastal communities who are able to actively and meaningfully be a part of the decision making process regarding coastal change 4: Coastal communities who are well-prepared and equipped when dealing with coastal emergencies now and in the long term 5: Coastal communities who are supported in the testing and acceptance of practical action to adapt to coastal change 6: Future generations of coastal communities who are aware of the coastal changes facing them, and better prepared to deal with these changes 7: A spatial planning system which is well-equipped to reconcile the potential conflicts between a sustainable approach to coastal change on the one hand, and onshore/offshore development pressures on the other
Overall outcome:	Increased awareness and understanding of how coastal change will impact on communities on the Jurassic Coast in future and greater resilience and preparedness for adapting to that change.
Current status:	Complete.

Key Success factors:

- Providing a neutral environment for stakeholders to share information and discuss adaptation options and opportunities
- An 'open and honest' approach to sharing information about future changes to the coast
- Taking an inclusive approach to discussion between communities even where there is known conflict or disagreement e.g. between communities and coastal managers

Areas for improvement:

- More funding provision for action to implement adaptive solutions to address concerns in some sectors of some of the case study communities that project activities would not lead to practical benefits for them.
- Greater support for communities to take adaptation plans through from initial idea generation and to implementation
- Engagement of the business sector in considering the wider implications of coastal change for them beyond those who might face risk to their property in the short term.

Useful outputs:

- Final report – evaluating project activities and making recommendations back to central government relating to coastal communities adapting to coastal change.
- Exhibition materials on how and why the coast is changing and how it is managed
- Jurassic coast education project
- Spatial planning research report – review of national policy framework relating to coastal change; review of the current spatial planning policy; identification of best practice; recommendations to national and local government.
- Visualisations of future coastal change

All these outputs are available at:
<http://www.jurassiccoast.com/400/category/the-coastal-change-pathfinder-project-247.html>

Further information:

Dorset Coast Forum - dorset.coast@dorsetcc.gov.uk

South Milton Sands, Devon

Key phrase:	Removing sea defences and allowing natural processes
Lead:	National Trust
Funding:	National Trust, NT Neptune “free” funds, South Hams AONB
Timeline:	November 2009
Summary:	South Milton Sands is a heavily used 2ha sand dune site with a small beach and extensive car parking. The wooden piling defences constructed in 1990 were at the end of their lifespan and thought unsustainable in the longer term considering the implications of climate change. The National Trust appointed Hyder Consulting to consider possible options with local stakeholders, neighbours and owners to design a scheme so the dunes would erode and build according to natural processes. Extensive consultation techniques were employed with many different people. Once the scheme gained planning permission and finalised Landmarc Groundworks Contractors Ltd removed the defences and re-profiled the dunes again. People working on site were briefed to respond to enquiries. Once ground work was complete local people helped plant the marram grass on the dunes. The whole process took approximately 6 years. An independent evaluation was undertaken by the Community Enterprise Unit.
Overall outcome:	<ul style="list-style-type: none"> • Some stakeholder perceptions of NT changed for the better due to the process - NT • relationship/reputation locally is now excellent • Everyone happy with end result, which for some was a compromise e.g. loss of parking (A little bit of negative feedback about the loss of car parking spaces at peak times) • Works completed in the spring of 2009. The marram grass was growing extremely well in the summer of 2009. • There has been positive feedback that the project has worked well.
Current status:	<ul style="list-style-type: none"> • Continue information provision about the project being a part of a much longer coastal change process • The property is now subject to ‘natural processes’ so the NT will monitor and review how the dune system develops in the future. If necessary the NT may have to consider further works in consultation with local people if the property has been subject to a large storm event which may have compromised the access to the property, or adjacent neighbouring property.

Key Success factors:

- Employ an independent ‘honest broker’ to take neutral stance during engagement/consultation process: The South Hams AONB service acted as chair at public meetings and was seen as an honest broker. This allowed Trust staff to participate in the meetings as well so a full discussion happened. Local property staff placed a significant emphasis on local community engagement as a fundamental part of the project. Plymouth University Marine Section also gave impartial advice of what they saw happening in the future
- Close liaison with South Hams planning officers for planning permission approval
- Support by key local influential respected people, e.g. the Managing Director of Heligan Gardens, some of the local farmers and the chairman/leader of the local apartment block owners association was also crucial to the project.
- Listen and learn from others-open dialogue between all parties
- Allow time for various iterations. In this case it has taken 6 years to prepare people for the dramatic scale of on-site works (the physical works were completed in around 4 months, but be prepared for lengthy consultation & allow time for meaningful studies/investigations that maybe necessary)
- Employ a broad spectrum of communications to reach the different audiences (used informal exhibitions so that people could see the proposals and question staff on them. Formal meetings were not held until proposals had been agreed and people were already re-assured and supportive).
- Organise community events as part of the implementation. Two marram grass planting days were very well supported with unanimous and extremely positive feedback giving a sense of celebration and ownership to local people who took part.
- Be prepared to make some compromises; it was agreed that we would retain a small area of defences, but only for the next 10 years for the slipway area. This gave people time to accept that changes will occur over time during the transition from defended to natural dunes.
- Public exhibitions outlined the proposals with the Trust preferred options of removing the timber defences and restoring the dunes to a natural state. A survey was then undertaken, and people supported the Trust preferred option. We identified how the site had looked historically and proposed that we were reverting to the old dune system i.e. nothing new
- Good contractors (Landmarc and Hyder) whose site staff were well briefed and able to answer questions from the public, reassuring them before anything escalated to an issue that needed to be resolved.

South Milton Sands, Devon continued

Areas for improvement:

- Make sure all relevant stakeholders are involved
- Assess whether consultative methods adequately cover visitors as well as local residents and interests
- Be realistic and dedicate adequate Trust staff time to the project to keep momentum and avoid delays
- Consider developing a nationwide internet-based approach for specific site consultations so that NT members and visitors, who do not necessarily live locally, can have a say
- Provide an on-site exhibition during peak visiting times as well as one that is aimed at local stakeholders and residents
- Make sure that any consulting engineer is well briefed and is working to your vision of sustainable coastal management in the future
- Recommend an 'independent, external honest broker' role e.g. AONB Team, Coastal Forum in similar situations
- Be realistic about cost/benefit. It is easy to be pushed down the road of more detailed studies.
- When reverting to natural processes, be clear that this is your objective & that it will not be possible to predict exactly how the natural environment will react
- It took 6 years in all to complete - nobody expected the project to take this long but people need time to understand and come to terms with change. The Trust lesson here is not to rush this through when major change is proposed for a well used site and to set realistic timescales for change projects
- Surprise that nature conservation parties were particularly difficult to win over- the expectation was that they would understand and 'get' what we wanted to do quickly and easily- this was just not the case- more time was spent on giving people the right arguments and winning them over, eventually. A number of conservation organisations had a strong preservation leaning.
- Resource of people commitment was completely underestimated- warden time on site was essential for explaining to locals and visitors- other work had to be left as resources had to be put into this project. Need to factor in 'back filling' of key NT staff to deal with the extra work load generated by this type of project

Useful outputs:

- Consultation evaluation report
- Plymouth University Marine Section geomorphological study on the wider area

Further information:

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Trow Quarry Coastal Defence Scheme, Tyne and Wear

Key phrase:	Rubbish thrown away may be gone, but it cannot be forgotten
Lead:	South Tyneside Council / National Trust (in partnership with other statutory and grant bodies)
Funding:	Grant funding from Defra
Timeline:	2007-2008
Summary:	<p>This case study highlights how excellent partnership working can achieve a long-term solution for a sensitive environmental issue in a very publicly accessible location. Trow Quarry is a former quarry, now part of The Leas, and the golden sand beaches to the north are a favourite local and visitor seaside attraction. It is also part of the Durham Coast Special Area of Conservation. Unknown to the Trust, when quarrying activities ceased in the mid twentieth century, the site was partially filled with domestic and industrial waste material throughout the 1960s, 1970s and early/mid 1980s. Observations and investigations showed that some of the landfill material contained pollutants. Because coastal erosion, waste material was periodically washed out of the landfill and deposited on the adjoining beaches.</p> <p>To prevent further outwash of material onto the beaches and into the wider environment, South Tyneside Council, in partnership with the National Trust and other organisations, devised a £1.7m scheme, supported by grant funding from Defra, to protect the coastal edge of this site. As part of this work, environmental risks were identified through the Environmental Impact Assessment process.</p>
Overall outcome:	<ul style="list-style-type: none"> • Relations have been maintained and enhanced with other local stakeholders. The Trust are included far more in local council and partner discussions regarding coastal issues, and staff have increased confidence in presenting a National Trust approach to coastal management, using Trow Quarry as an interesting local case study to assist this message. • The Trust has an improved understanding of coastal erosion issues in the local area. • Trow Quarry is no longer a contentious site: the remediation is working, and the visual appearance has been greatly improved. People and wildlife are back on the site, using it as they did previously. • The project has earned a higher profile and status for the National Trust as managers of the site. • The ongoing monitoring is funded by partners rather than being a drain on Trust resources.
Current status:	Completed

Trow Quarry Coastal Defence Scheme, Tyne and Wear continued

Key Success factors:

- Having a detailed consultation with specialists and partners encouraged the best solution for the site, with provision made for projected sea level rise and climate change.
- Positive partner relations also enabled access external funding.
- Scheduling the work so that it did not disturb birds or people.
- Once remediation was underway, a strategy of openness and coordinated media coverage prevented any disputes: people knew what was going on and why, they appreciated the information and the work that would make their coast better.
- Interpretation and consultation with public went well, although ideally more of this would have been proactive rather than reactive (see first point in next section). On-site interpretation stressed that the coastal protection scheme would enhance the area, make it safer, and prevent the further washing of rubbish, including pollutants, on to the foreshore.
- The logistical side of works – excavations, delivery of rocks, health and safety, traffic control, removal of dangerous waste – was well organised and efficient.

Areas for improvement:

- The remediation of Trow Quarry, whilst having a very positive outcome, was, for a long time, a very contentious local issue. The report on the content of the landfill had been delayed, and was, when made available, misinterpreted in the public domain before a cogent assessment of the findings and a coherent strategy could be coordinated. Therefore, much of the work, liaison, consultation and on-site/local media interpretation was made off the back foot, rather than being proactive.
- A contentious issue was fuelled by a discontented staff member; once he was removed from the project (and organisation), and by strengthening the property and project team to ensure a coordinated and agreed approach to the solution, a positive view of the National Trust and the project stages could be presented.

Useful outputs:

For information on coastal erosion and the need for the scheme, see the South Tyneside Council website:
www.southtyneside.info/environment-and-planning/coastal-protection-scheme

Further information:

For information on the Trow Quarry coast protection scheme, email Nick Dolan, Souter Lighthouse & The Leas Property Manager, on nick.dolan@nationaltrust.org.uk

Tools for Monitoring Coastal Change

2

Beaches at Risk (BAR)

Key phrase:	No key phrase
Lead:	University of Sussex; Université du Littoral Cote d'Opale (France)(with 5 other partners in England and France)
Funding:	Interreg IIIA
Timeline:	2003-2008
Summary:	<p>Beaches At Risk (BAR) was an Anglo-French project that brought together coastal researchers and coastal managers from both sides of the channel. By sharing expertise and knowledge and with data from new research, BAR provided information that would improve the management of beaches for coastal defence, tourism and wildlife conservation. This is especially important in light of predicted sea level rises, increased storminess and growing urban development.</p> <p>BAR identified beaches suffering the greatest erosion on both the Channel coasts, assessing their susceptibility to predicted sea level rise and increased storminess, identifying nature conservation sites that would be lost or damaged as a result (including vegetated shingle and dunes), and identifying the risks for coastal management. Phase II sought to further enhance cross-Channel research and sharing of information and expertise by implementing the coherent transnational work programme designed in Phase I to better inform regionally coherent coastal and marine management policies.</p> <p>Phase I started in February 2003 and finished in January 2005. Phase II continued established work protocols and implemented key work priorities identified by Phase I. The existing communication network expanded significantly, with new organizations becoming involved in the project. The overall aim was to establish a long-term database of empirical research, adequate to inform the region's specific management requirements. The BAR project objectives were to:</p> <ul style="list-style-type: none"> • increase public understanding of beach management in the region • identify current beach deficits and their causes on the Channel coasts • assess future deficit risks with increased storminess and sea level rise • assess the risk of storm wave inundation and coastal flooding; assess the importance of beach dynamics for biodiversity and nature conservation, with particular reference to coastal and sub-littoral habitats, including vegetated shingle and dune building and rehabilitation • inform beach management policy and practice, particularly artificial beach replenishment and biodiversity conservation (See ANNEX III)
Overall outcome:	<p>BAR Phase I established effective transnational dialogue and conducted research driven by management priorities of the region. It is being publicised in the media, Public Events, educational and publicity materials. A baseline hazard map was produced showing how future higher sea levels and storms would impact on the region's coastline. All Phase I work was detailed in scientific and management reports.</p> <p>Phase II expanded on the transnational communication network and continued and extended the project work to ensure that a database of empirical research, adequate to inform the region's management requirements, was established. SMACOPI became a project partner to disseminate information to the public via videos, leaflets, interpretative boards and school packs. Both the Observatoire du Littoral Nord Pas-de-Calais and the Conservatoire du Littoral participated in meetings and helped to direct the work. In the long term, the project aimed to be self sustaining through the contributions of participant organizations to ensure coherent transnational monitoring and management of the region's beaches.</p>
Current status:	Complete.

Beaches at Risk (BAR) continued

Key Success factors:

Not currently identified

Areas for improvement:

Not currently identified

Useful outputs:

All project outputs can be accessed under the following headings: Leaflets, Education Packs and Data; at <http://www.sussex.ac.uk/geography/researchprojects/BAR/home.html>

Further information:

bar-project@sussex.ac.uk

BRANCH – Biodiversity Requires Adaptation in Northwest Europe under a Changing Climate

Key phrase:	Advocating the need for change in spatial planning and land-use systems to allow wildlife to adapt to climate change.
Lead:	English Nature
Funding:	Interreg III B
Timeline:	2003-2007
Summary:	The overall goal of BRANCH was to develop, trial and promote the planning policies and tools that are necessary for Europe's biodiversity to adapt to the predicted impacts of climate change. Specific objectives included reviewing the effectiveness of existing EU nature conservation and spatial development policies in safeguarding and enhancing Europe's biodiversity in the context of climate change, and designing and testing new planning tools for the development of sustainable habitats. The project also aimed to raise awareness of climate change issues so that it became integral to all levels of spatial planning.
Overall outcome:	By pooling modelling techniques developed by organisations in different parts of the EU, BRANCH created the first Europe-wide map illustrating the vulnerability of different habitats and species to climate change. Another map showed the losses coastal areas are likely to suffer with more detailed maps for the coasts of south east England and Normandy depicting vulnerable areas and proposals for how at risk areas could be re-created. Partner bodies worked together on a transnational basis to apply the models to predict the impact of climate change on the biodiversity of five case-study areas. Using the information gathered, climate change proofed management plans were developed for 20 key Natura sites of European significance.
Current status:	

Key Success factors:

- Scientific multidisciplinary studies enhanced and continued on biodiversity and climate change.
- Morpho-dynamics and biodiversity database elaborated as a baseline for long-term monitoring.
- First climate change dialogue with stakeholders at the local and regional level.
- Exchanges of methods and points of view with others experts during the BRANCH project.

Areas for improvement:

- Climate change studies and training should integrate socio-economical factors, not only biodiversity.
- Incorporate climate change considerations on other coastal sites where climate change is important (e.g. Val de Saire, Saane, Orne, etc)
- A better understanding of the impact of climate change on biodiversity: more biodiversity items should be Integrated, important for coastal management, e.g. fish, coastal birds, etc.
- Dialogue and training should be more developed on the Normandy coasts to improve adaptation.
- Concrete test of climate change adaptation with managed realignment on Normandy coasts.

Useful outputs:

- Detailed site studies for stakeholder training.
- Final report – research findings and recommendations for how current planning practices should be improved to incorporate adaptation to climate change.
- Planner training programme – workshops and on-line training materials
- Review of planning policy relating to biodiversity and climate change
- Modelling of future suitable climate space for a variety of species under varying climate scenarios, using the “species” model – maps showing variation in suitable climate space across Europe for 389 species produced for 3 time periods (2020's, 2050's, 2080's)

All these outputs are available at:

<http://webarchive.nationalarchives.gov.uk/20090703091708/http://www.branchproject.org/about/>

Further information:

Isabelle RAUSS - project officer at the Normandy Department of the Conservatoire du littoral - i.rauss@conservatoire-du-littoral.fr

Charm III

Key phrase:	Channel Integrated Approach for Marine Resource Management
Lead:	(Ifremer, Canterbury Christ Church University, Université du Littoral Cote d'Opal, l'USTL, Kent University, Cefas)
Funding:	Interreg IVA France (Channel) - England European Programme
Timeline:	2003 - December 2012
Summary:	<p>An integrated ecosystem approach for the English Channel aiming to provide the understanding and the tools to manage human activities for the long-term sustainability of living marine resources in the English Channel maritime area. The project started in 2003 in the Dover Strait, and was then extended to cover the eastern English Channel (2006-2008). From 2009, the study area was extended to the whole of the English Channel and the south of the North Sea.</p> <p>The project sought to:</p> <ul style="list-style-type: none"> • harmonise scientific information • develop research work based on this information to produce further scientific understanding • develop information systems and tools for an integrated and rational management of the English Channel • use innovative ways of making them accessible. <p>The project followed three main themes: data collection, information integration, tools and dissemination. Topics covered include: species and habitats (plankton, seabed, fish, marine mammals, turtles, seabirds, species distribution); ecosystems (trophic network, population and communities); human activities (economic context, fishing activities, sense of place); management (legal framework, marine conservation planning); climate change.</p>
Overall outcome:	The scientific community supplied decision-making bodies with knowledge that will help improve the management of living resources and their exploitation
Current status:	Ongoing.

Key Success factors:

Not currently identified

Areas for improvement:

Not currently identified

Useful outputs:

- Online tools generating maps from the data collected during the project
- A number of multi-dimensional plans outlining management strategies for the Channel area for the use of decision-making organisations
- A gazetteer: a geographical index of the significant features of the territory, available online
- A fisheries atlas with factsheets about fishing activity in the channel
- Public conferences and a short film introducing the project actions

All these outputs are available at: <http://www.charm-project.org/en/reports>

Further information:

Project Leader: Andre Carpentier (Centre Ifremer - Manche Mer du Nord)
Andre.carpentier@ifremer.fr

Clarec

Key phrase:	Control by aerial laser of environmental risks to the coast
Lead:	Laboratory « Morphodynamique Continentale et Côtière », UMR CNRS 6143 - Universités de Caen et de Rouen ; laboratory « Géographie Physique de l'Environnement », Géophen / LETG, UMR CNRS 6554 Université de Caen ; laboratory « d'Océanologie et de Géosciences » (UMR CNRS 8187 LOG), Université du Littoral Côte d'Opale et Université de Lille 1
Funding:	The Regions of: Basse and Haute Normandy, Picardie, Nord Pas de Calais.
Timeline:	2007 to date
Summary:	<p>This tool development consisted of financing the purchase of LIDAR equipment (aerial laser scanner), to allow for data (a high density of information, with a precision of +-5cm) to be collected along a considerable surface of the shoreline, over a short time period (a few days). This information will input to a new TOPO3D along a coastal width of 100m.</p> <p>The objective was to study the consequences of climate change on the shoreline, by improving knowledge, putting in place a methodology, and by producing a map illustrating the risks on the most vulnerable sites. This will provide a basis for a prevention and protection policy, for town and country planning in coastal areas. The tool development partners consist of the universities of Rouen, Caen, Littoral Côte d'Opale (Dunkirk), Amiens and Lille 1 and a dozen laboratories. The aims of this project are coherent with the issues identified by the Conservatoire du Littoral, in that the project seeks not only to evaluate the influence of different parameters linked to climate change on dynamic processes, but equally to evaluate its impact on the coastal fauna and flora, by integrating socio-economic analysis and the consequences on a local scale.</p>
Overall outcome:	<ul style="list-style-type: none"> • A reference state for the coast is achieved through the acquisition of new topographical data. • Improved knowledge concerning the definition of natural risks will allow for more precision in terms of the extent and intensity of phenomena taken into account. • Methodology elaborated to calculate the impact of climate change on the risks, to indicate the consequences by mapping and to highlight the factors responsible for their intensification. • This approach, supported by modelling, provides the sites most vulnerable to climate change with an analysis of the consequences on the biotope and socio-economic factors. These documents, regularly updated, will allow for a prevention / protection policy to be established, which will be useful for town and country planning in the coastal zone.
Current status:	In Progress

Key Success factors:

Not currently identified

Areas for improvement:

Not currently identified

Useful outputs:

All these outputs are available at:

<http://www.unicaen.fr/recherche/clarec/spip.php?rubrique2>

Further information:

Project Coordinator : Franck LEVOY, Professeur -
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The impact of climate change on the heritage of the Conservatoire du Littoral: erosion and submersion scenarios up to 2100.

Key phrase:	Long-term coastal evolution of Conservatoire du littoral sites
Lead:	Conservatoire du Littoral (France)
Funding:	Conservatoire du Littoral, Fondation Procter et Gamble
Timeline:	2002-2004
Summary:	A study to provide an analysis of the evolution of the coastline from the present day up to the end of the 21st Century, over 10 pilot sites within metropolitan France. In order to obtain an overall view of the situation, the pilot sites were chosen on different facades of the country, within different environment types (cliffs, beaches, wetlands, polders), exposed to either erosion or submersion.
Overall outcome:	<ul style="list-style-type: none"> • Coastal evolution scenarios for the current century and methods used to produce these scenarios tested. • Critical review of the historic data available for all the sites that the Conservatoire du Littoral owns, or plans to acquire.
Current status:	Complete.

Key Success factors:

- The study shows that the effects of erosion, as for marine flooding, appear to be limited on land owned by the Conservatoire du Littoral. Only a few sites seem particularly sensitive to erosion, such as Amélie, in the Gironde department; or the Loire estuary in terms of marine flooding. Only 3% of the area owned by the Conservatoire du Littoral, not currently protected by embankments, is exposed to marine flooding, with 2.6% of prospective acquisitions affected. The total area subject to erosion should not exceed 1.2% of the area of land already acquired by the Conservatoire du Littoral, and only 1% of land planned to be purchased in the future.
- On the other hand, the possible flooding of land currently protected by embankments, which the Conservatoire already owns or is susceptible to purchase in the future, is of a different magnitude entirely. 7% of the area of the sites already acquired and 17% of future planned acquisitions are on land situated below current sea level; the maintenance of these embankments currently protecting these areas will depend upon whether they are flooded or not by the sea.
- The sea level rise forecast for the 21st Century should have a relatively small impact on the land owned by the Conservatoire du Littoral. However, management methods will nevertheless need to be adapted to account for this change. This is especially true for polderised land, currently protected by fragile embankments which are already in bad condition. The Conservatoire will also need to potentially modify its acquisition strategy.

Areas for improvement:

- This study focuses on the analysis of all available data, albeit fragmented and sometimes inaccurate. This data, principally originating from historical documents for erosion, and from hypsometric analysis for marine flooding, will nevertheless allow for the prediction of the most likely evolution scenarios. The study also focuses on the medium-term hypothesis for a sea level rise of 22cm by 2050, and 44cm by 2100 – these values are within the range of the provisional forecast for 2100 of a sea level rise between 10-80 cm.

Useful outputs:

Direction for land acquisition strategies and management by the Conservatoire du Littoral, up to 2100. The analysis used may be replicated, using the same methodology, for the management of other natural areas.

Further information:

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COPRANET

Key phrase:	Contribution to the establishment of a Coastal Practitioners Network
Lead:	EUCC - The Coastal Union from the Netherlands (21 partners from 11 countries embracing regional and local authorities (11), government institutes (2), universities (4) and NGOs (4). They represent all but three of the EU's coastal states).
Funding:	Interreg IIIC
Timeline:	2003-2006
Summary:	<p>The Coastal Practice Network was a three year - Interreg IIIC project to help establish a coastal practitioner's network and bridge the gap between planners, managers and the research community throughout Europe. It was set up to develop and exchange information on best practice in the coastal zone on the issues of sustainable tourism and coastal erosion and beach management. The network will serve to equalise the differences in regional coastal development by bringing together Priority 1 and 2 partners in a partnership embracing research, advisory and implementing organisations.</p> <p>CoPraNet had two primary objectives:</p> <ol style="list-style-type: none"> (1) To develop a network of coastal stakeholders to exchange information and examples of best practice, which will support local and regional efforts for integrated planning of coastal areas. This network must bridge the gap between planners, managers and the research community throughout Europe. (2) To support interregional exchange of best practice information on (a) sustainable tourism and (b) coastal erosion and beach management through an integrated approach.
Overall outcome:	<p>Development of a quality label for sustainable tourism destinations</p> <p>Multilingual guide on coastal erosion and beach management</p>
Current status:	<p>Complete. The CoPraNet-QualityCoast partnership, in cooperation with new partner organisations in various new regions prepared the submission of a new proposal to the new INTERREG IV C Programme, "QualityCoast" - The future face of integrated management for coastal sustainability. This partnership aims to continue support and liaise with ongoing initiatives to ensure the practitioners involvement in the development of sustainable coastal management practices in Europe (www.qualitycoast.net).</p>

Key Success factors:

Not currently identified

Further information:

electronic helpdesk - helpdesk@coastalpractice.net

Areas for improvement:

Not currently identified

Useful outputs:

- Information strategy for visitors of coastal destinations – quality coast programme label
- Database of ICZM projects and case studies
- Copranet multilingual beach management guide
- ICZM glossary of terms
- Final project report and newsletters
- multilingual website brochure on integrated coastal management

All these outputs are available at:

<http://www.coastalpractice.net/en/index.htm>

EuroSION

Key phrase:	A European initiative for sustainable coastal erosion management
Lead:	National Institute for Coastal and Marine Management of the Dutch Ministry of Transport, Public Works and Water Management (Partners are: NGO EUCC - The Coastal Union, the international branch of the French Geographic Institute (IGN France International) specialized in GIS and mapping engineering, the French Environment Institute (IFEN), the Autonomous University of Barcelona (UAB), the European Information Technology EADS SD&E (formerly MATRA S&I), and the French Institute for Geological and Mining Research (BRGM).
Funding:	DG Environment (European Commission)
Timeline:	2002-2004
Summary:	<p>The overall objective of this project was to provide the European Commission with a package of recommendations for policy-making and information management practices to address coastal erosion in Europe, after thorough assessment of knowledge gained from past experiences and of the current status and trends of European coasts. However the project also aims at producing results of immediate value for policy makers and managers on other administrative levels.</p> <p>The major outcome expected from EUROSION is an analysis of where erosion management is focused on today and where it should be focused on in the future - at what administrative levels and with what types of measures - in order to determine where more action needs to be taken.</p>
Overall outcome:	<p>At several selected pilot sites inside the European Union and in accession countries, the team explored the present and potential role of Geographical Information Systems (GIS) and other decision support tools for managing coastal erosion processes, the involvement of local stakeholders in decision taking processes, and the prerequisites for implementing integrated coastal zone management practices. Another task was the analysis of the state-of-the-art of current practices in coastal erosion prevention and management at various levels.</p> <p>Policy recommendations were formulated, backed up by figures derived from the data base and based on results from the pilot case studies and the state-of-the-art report. The executive summary was printed and disseminated Europe-wide and presented to the expert community in May 2004, in Brussels.</p>
Current status:	Complete.

Key Success factors:

Not currently identified

Areas for improvement:

Not currently identified

Useful outputs:

- A guide to coastal erosion management practices in Europe: lessons learned. Report prepared by the National Institute of Coastal and Marine Management of the Netherlands. January 2004.
- The Communication Toolbox - to help coastal managers and experts to get their point across. Sketches, photographs and other images help to illustrate certain issues as well as other useful information such as briefing papers or thought provoking facts:
http://www.euroSION.org/comm_toolkit/index.html
- Final brochure : Coastal erosion in Europe; sediment and space for sustainability – results from the erosion study (http://www.euroSION.org/project/euroSION_en.pdf)
- The EUROSION conference on 18 May 2004 in the Albert Borschette Conference Centre in Brussels presented the results of the EUROSION project and discussed its policy recommendations, including legal aspects. The presentations from this conference are available at:

<http://www.euroSION.org/project/eventnews.htm>

- Based on a scoping and a user requirement study, the consortium established a comprehensive European-level data repository at scale 1:100,000. This digital geographical database provides a consistent framework for integrating existing multidisciplinary data-sets produced at local, national and regional levels into a seamless European database, and for reporting to European policy-makers the status and trends of relevant features such as elevation and bathymetry, infrastructure, hydrographical features, littoral geomorphological aspects, sea level rise, driving forces, pressures and coastal reporting. More information is available online at the GIS database.
- This state of the art is based on a Europe wide review of successful and unsuccessful strategies, measures and experiments to prevent or manage erosion for different types of coast. The immediate result of this undertaking is available online in the shoreline management guide of practical examples from all over Europe, highlighting the weaknesses and strengths from technical, economical, and social points of view.

Further information:

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Litto 3D

Key phrase:	Continuous land–sea representation of the coast
Lead:	SHOM and IGN
Funding:	The state, local authorities and European funding
Timeline:	No deadline, Litto 3D is a tool, not a programme
Summary:	<p>The Institut Géographique National (IGN, France) and the Service Hydrographique et Océanographique de la Marine (SHOM, Defence Ministry, France) pooled their resources and know-how to develop the Litto3D[®] tool. Litto3D is a national tool that aims to create a three-dimensional model of the French coastline. This land–sea coastal area reference document provides detailed information on the sea floor and littoral zones of France and its overseas departments and territories. To carry out this work, these two organisations have combined their expertise for the first time. Bathymetric studies (measuring the depths of oceans and seas) and altimetry measurements (measuring altitude on land) give a vision spanning land and sea, and merge terrestrial geographic data produced by IGN with marine data produced by SHOM.</p> <p>Litto3D[®] covers three zones :</p> <ul style="list-style-type: none"> • emerged lands up to 10m in altitude and at least 2km inland • the intertidal zone • the inshore seabed (up to 6 nautical miles from the coast). <p>Several types of measurements are combined to obtain a precise view of coastal topography:</p> <ul style="list-style-type: none"> • An airborne bathymetric laser is used to measure the depth of the sea floor and determine its configuration. • An airborne topographic laser is used to obtain a graphic representation of the terrestrial coastline. • A multibeam sounding device is used in addition to the bathymetric laser in marine areas where the laser cannot gather data (very deep waters, etc.). <p>This research programme addresses a number of needs, and is essential for the implementation of public policy pertaining to the sea and the seashore.</p>
Overall outcome:	Development of the Litto 3D tool
Current status:	In progress

Key Success factors:

Integrated view of the terrestrial coastal band and the immediate coastline.

Areas for improvement:

At present the tool only covers the Golfe du Morbihan. The IGN and the SHOM envisage to expand the tool to cover all of the French coast.

Useful outputs:

- Access to a unique reference tool for all the geographical topics along the coast, the foreshore and the shallow coastal zones
- Constitution of a historical database (“Histolitt”)

Further information:

Institut national de l'information géographique et forestière (IGN) <http://www.ign.fr>
 Service hydrographique et océanographique de la marine (SHOM) <http://www.shom.fr/>

MESH

Key phrase:	Development of a framework for mapping European seabed habitats
Lead:	Joint Nature Conservation Committee (JNCC) - leading a consortium of 12 partners from 5 European countries.
Funding:	Interreg IIIB NWE Programme
Timeline:	2004-2008
Summary:	The MESH project draws together scientific and technical habitat mapping skills, expertise in data collection and its management and proven practical expertise in the use of seabed habitat maps for environmental management within national regulatory frameworks. Increased pressure on the marine environment from human activities was creating a demand for more information about the nature of the seabed and its associated biodiversity to help our management of these activities. Trying to implement existing legislation such as the EC Habitat Directive and the EC Water Framework Directive, and inform new policy initiatives such as the EC Marine Thematic Strategy was also creating a demand for spatial information in the marine environment. These demands provided the context for a group of organisations to get together and design the MESH Project.
Overall outcome:	MESH has created a structure to collate and improve habitat maps at a national level, contributing in turn to the compilation and aggregation of data at international level. MESH project outputs contribute to the development of emerging marine planning mechanisms, by providing accurate, repeatable and standardised methodologies for data collection and interpretation. MESH focused on establishing standards to produce a framework for quality seabed mapping into the future. Many of the tools and guides can be used to facilitate data sharing and therefore add value to marine survey data you already possess. The products and tools cover a wide range of mapping issues and are useful to anyone engaged in coastal and offshore survey work with the aim of producing seabed habitat maps.
Current status:	Complete. The mapping section of the website has recently been upgraded and now also acts as the mapping portal for the follow-on MESH Atlantic project. The portal continues to be updated for the MESH Atlantic partner countries plus the UK.

Key Success factors:

The development of standards and tools for seabed habitat mapping surveys, data exchange and publication to ensure data is used and shared with all who need it.

Areas for improvement:

Now that the project is over, it is becoming more difficult to promote, follow and apply the same standards because the discipline has moved forward while staff changes within organisations mean some of the guidance and tools available are forgotten about. Some of the content of the MESH Guide to Habitat Mapping is becoming out of date and now needs updating.

MESH continued

Useful outputs:

In the MESH Product Library a variety of guides, tools, reports and other information is arranged by theme, to assist in: commissioning a new mapping project, planning a field survey, undertaking fieldwork, manipulating data collected through habitat mapping, viewing the final maps.

The key products produced by the MESH Partnership may be grouped as follows:

- Overview - MESH Executive Summary
- Maps - the first collated and harmonised map of seabed habitats for north-west Europe with accompanying maps showing the quality of the mapping information, as assessed using the MESH Confidence Assessment Tool. A suite of predictive models were developed both to fill the gaps where survey data are not available, or to help understand the distribution of specific habitats using survey data.
- Mapping data online - MESH webGIS and MESH metadata catalogue through the MESH website.
- Technical advice - the MESH Guide to Habitat Mapping including Recommended Operating Guidelines, tested by new field studies and and evaluation of the EUNIS habitat scheme as a tool for mapping.
- Links to stakeholders - the project established a Stakeholder Network, some of whom attended the MESH conference held in Dublin Castle, Dublin in March 2007. A portfolio of case studies was compiled both from MESH Partners and stakeholders showing the practical application of habitat maps in marine environmental management.
- Future work - after consulting with our key stakeholders via meetings and national stakeholder workshops, the MESH Partners developed a follow-on strategy suggesting how seabed habitat mapping may be taken forward into the future. This strategy deals with both maintaining and enhancing the existing MESH Products, and exploring new avenues for using habitat maps in a research and policy framework.

All these outputs are available at:

<http://www.searchmesh.net/default.aspx>

Further information:

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Leonardo Da Vinci Partnerships

Key phrase:	“Interchange for the Training and Development of Staff and Volunteers among European Nature Conservation Trusts”
Lead:	National Trust for Places of Historic Interest or Natural Beauty UK (coordinator), in partnership with the Conservatoire du littoral (France), Natuurmonumenten (NL), NABU (Germany), St Helena National Trust
Funding:	Lifelong Learning Program/Leonardo Da Vinci Partnerships
Timeline:	July 2010- July 2012
Summary:	<p>Climate change is one of the main global challenges we face today. In the coming decades, the process of global warming will not only influence our way of living but also impact heavily on natural resources and wildlife. This will require new approaches to mitigation and adaptation to help protect and conserve nature for which properly trained staff will be essential.</p> <p>With support of the European Union Lifelong Learning Programme, a two-year partnership comprising five leading nature conservation organisations in Europe (the National Trust (UK/coordinator of the project), the St Helena National Trust, Natuurmonumenten (NL), the NABU (Germany) and the Conservatoire du littoral (France).</p>
Overall outcome:	<p>Five key objectives of the partnership were as follows:</p> <ol style="list-style-type: none"> 1. To undertake a two-year programme of information exchange between each partner organisation 2. To undertake a top-line analysis of the current vocational education and training situation in the national conservation sector for each participating country 3. To develop and disseminate a best practice training toolkit framework for use by nature conservation site managers and other key stakeholders who look after wildlife in the participating countries 4. To provide study visit/training opportunities (mobilities) in another EU Member State for key staff and volunteers of each partner organisation 5. To raise awareness and understanding of the climate change challenges and opportunities facing the nature conservation sector and the new skills required for managing sites
Current status:	Complete.

Key Success factors:

Good communication between the project partners to achieve the planned objectives (in term of outcomes and mobilities realised – see below)

Areas for improvement:

Communication concerning the outcomes of the project

Useful outputs:

Key achievements

1. Information exchange and lessons learnt analysis
2. Vocational education and training analysis
3. Best practice training toolkit framework
4. Nine study visits involving 76 transnational mobility learners, 25 host partner learners, 78 teachers focused on 5 key habitat types
5. Joint partnership website (<http://www.climatebuffer.eu/>)
6. Carbon-footprint calculations of project participation

Top lessons learnt

1. Let nature take its course wherever possible
2. Plan long-term and think big
3. Managing climate is managing people and we need flexibility
4. Effects of climate change may require a spectrum of intervention
5. Training available is poor – but the value of getting people together on site and exchanging knowledge is enormous
6. Site staff are the real actors: they are the force for change and creativity

Further information:

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Programme Seine-Aval phase 4

Key phrase:	Restoration and recovery of the Seine estuary – chemical and environmental risks – observation system
Lead:	GIP Seine-Aval
Funding:	State/Region - 4 million euros
Timeline:	2007-2012
Summary:	In order to improve the management of the Seine estuary, it was necessary to improve knowledge of the lower valley at the beginning of the 1990's. Seine Aval is a research programme whose objective was to use the results of the research completed by the scientific community in order to benefit the decision makers and planners within the estuary. The need for an interface structure became apparent during phase 1 of the Seine Aval programme. The public interest group "Environment" Seine Aval was created in 2003, within the context of providing a durable interface structure, for researchers, managers and decision makers within the estuary. The main task was to develop, within the context of the Seine Aval programme and over the whole of the estuary catchment and the Seine Bay, an information system and operational tools, in order to facilitate the transfer and valorisation of knowledge towards the general public, in particular through studies requested by the partners of the programme.
Overall outcome:	Four key objectives of the partnership were as follows: <ul style="list-style-type: none"> • Functional characterisation of ecological habitats • Experimental work on the pilot sites • Research into emblematic species and collective appropriation of the environment • Expectations of use, especially across the landscape
Current status:	Complete.

Key Success factors:

30 research teams covering 32 research projects – truly multidisciplinary project.

Areas for improvement:

Communication concerning the outcomes of the project

Useful outputs:

Not yet finalised as the programme terminates late 2012

Further information:

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Response – Responding to the risks from climate change

Key phrase: A framework for understanding and preparing for the impacts of climate change around the European coastline

Lead: Isle of Wight Centre for the Coastal Environment, Isle of Wight Council

Funding: LIFE

Timeline: 2006-2008

Summary: This Project demonstrated a process of assessing contemporary and future hazards and risks on the coast. The hazard and risk assessment was achieved through the production of a series of maps at a regional scale. These maps provided an understanding of the pattern and scale of future coastal change and assisted the responsible authorities and decision-makers in targeting resources effectively. The aim was for these maps to be incorporated into the local policy framework to inform decision-makers and the planning process, thereby contributing to sustainable development. Nine Partner organisations were involved, from the UK, Italy, France and Poland.

Overall outcome: Maps were produced showing the likely pattern of future natural coastal risks and hazards throughout an area, region, county or sediment cell, instead of examining one point location.

Current status: Complete.

Key Success factors:

Not currently identified

Areas for improvement:

Not currently identified

Useful outputs:

- A Training Pack: detailing the RESPONSE mapping methodology
- A Good Practice Guide: providing global and European examples of good practice in coastal risk management
- A CD-Rom: containing a resource of supporting case studies and investigations
- A DVD Film: a 15-minute film introducing the subject of coastal risks in a changing climate, and presenting the potential of the RESPONSE Project publications for use in coastal zones around Europe. Filmed in the UK, France and Italy.
- A Summary Leaflet

All available from:

<http://www.coastalwight.gov.uk/response/index.htm>

Further information:

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www.licco.eu



**Living with a
Changing Coast**
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