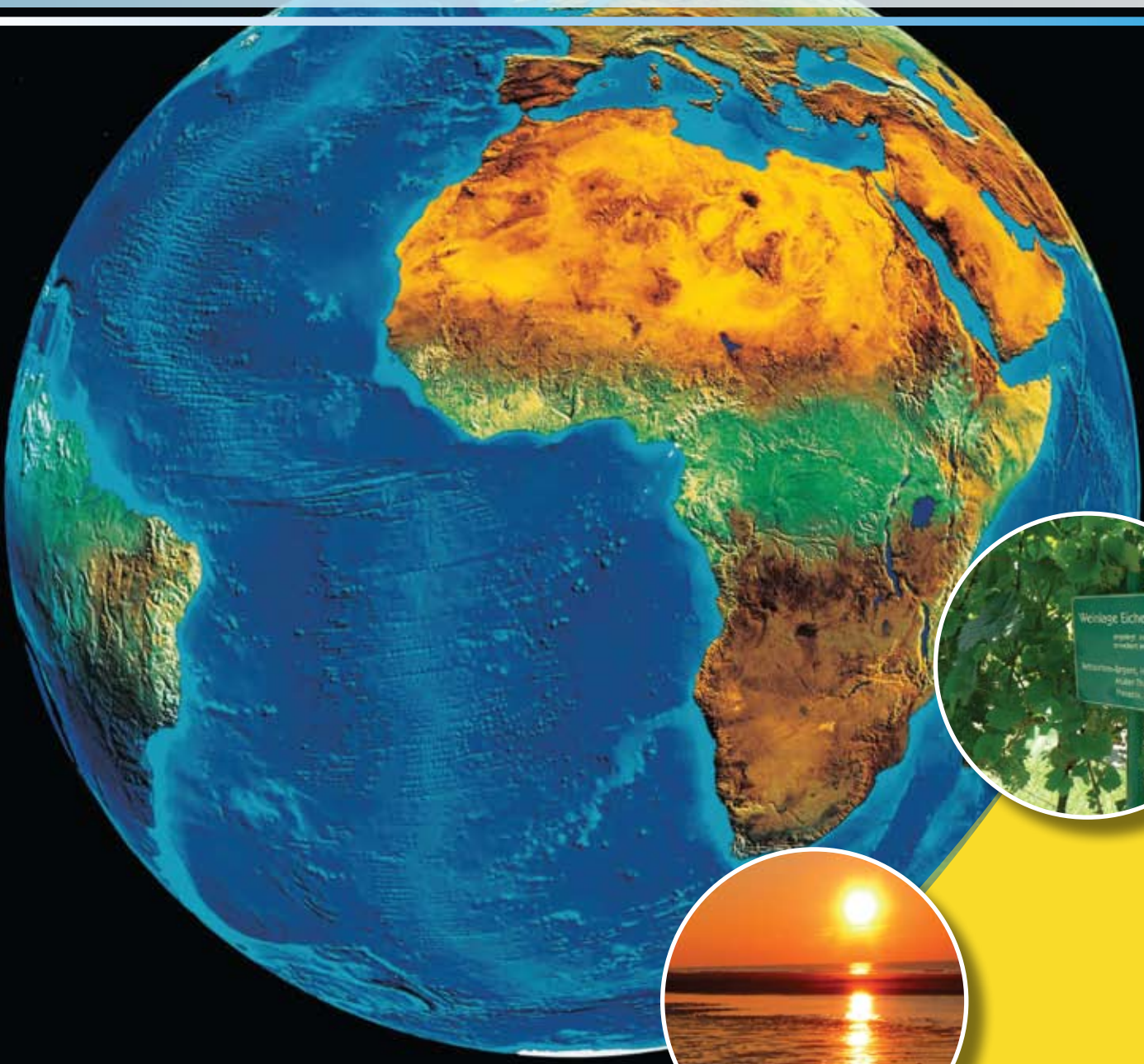


COASTAL & MARINE



Climate Change



Editorial

The regional impacts of climate change around Europe will be very different and the Mediterranean, especially, will be greatly affected. In this region, we can expect increased heat waves and droughts during summer, reduced water availability and decreased crop productivity. The negative consequences in the Mediterranean are overwhelming and climate change is regarded as a major challenge in the future. In the Baltic, the effects, as well the perception and evaluation of the consequences, are different but equally significant.

So far, climate change has been approached with the focus on the (dire) effects that will, or may, occur. Although it is necessary to be fully aware of the problems, society at large has got to come to terms with the realities of climate change. It is occurring, we have caused it and our children must live with the consequences. This COASTAL & MARINE volume reflects the different perspectives of climate change and the positive ways we are reacting to it. Climate change will bring opportunities, political, economic and social and we need to grasp them to move forward. At the same time, we need to try and reduce the effects as much as possible and so some tips are provided for each individual to try and make a difference.



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European and Global Climate Policies for Coasts and Marine Areas

Coastal & Marine editors interviewed EUCC's Climate Advisory Board Member Magdalena A K Muir about coastal and marine climate change and the relevance of Global and European climate policies.



Magdalena A K Muir

What is the state of scientific knowledge on climate change since the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report in 2006?

The state of knowledge is consistent but evolving and expanding, as further research and observation occurs. For example, the recent conference, "Climate Change: Global Risks, Challenges and Decisions," in Copenhagen this March summarised existing scientific knowledge in the two years since the IPCC Fourth Assessment Report, and prior to the Conference of the Parties last December 2008 in Copenhagen. Though this conference did not have the same expertise or scientific rigour as the IPCC assessment, it also concluded that the worst-case IPCC scenarios are occurring and that avoiding dangerous climate change requires rapid, sustained and effective mitigation, and coordinated global and regional action.

What specific global climate policies for oceans and coasts are important for Europe?

The impacts of climate change on coasts and oceans are predominantly global and inter-connected, so responses and policies need to occur at the global level as well as continental, regional, national and local levels. I would like to stress a few initiatives that I view as important.

The 4th Global Conference on Oceans, Coasts, and Islands in Vietnam in April 2008 urged the international governmental and private oceans community to focus on links between oceans and climate change, and the effects for ecosystems and coastal populations around the world.¹ The conference emphasised that the freshwater, coast and ocean systems are closely linked. Coasts depend on rivers flows, while rivers are affected by tides, surges and salinity intrusion. This linkage must be considered for management practices, many of which were considered at the meeting. Climate change is an added challenge affecting fresh water and marine ecosystems.²

The UN Regional Seas Programme attempts to stop the degradation of the world's oceans and coastal areas through sustainable management and use of marine and coastal environments. For example, there is a Mediterranean regional programme comprising the coastal states surrounding the Mediterranean Sea. Along with the Arctic, the Mediterranean region and sea is most affected by climate change. The 10th Global Meeting of the Regional Seas Conventions and Action Plans in Ecuador in 2008 addressed climate change in the Regional Seas Programmes, adaptation to and sea-level rise, and adopted a statement recognizing the profound and long term consequences of climate change.³

Though the United Nation Economic Commission for Europe (UNECE) Convention on the Protection and Use of Transboundary Watercourses does not refer to climate change, it is an essential framework for cooperation on transboundary aspects of climate change for the European Union and adjacent Asia states. The Convention obliges states to prevent, control and reduce transboundary impacts, including adaptation and mitigation for climate change. States are required to follow the precautionary principle, exchange information, have common research and development, and joint monitoring and assessment. The draft UNECE Guidance on Water and Climate includes coastal and transboundary issues.

¹ www.globaloceans.org/globalconferences/2008/index.html

² www.globaloceans.org/globalconferences/2008/index.html

³ www.unep.org/regionalseas and www.climate-l.org/2008/12/regional-seas-g.html

What are the specific European climate policies for oceans and coasts?

Within Europe, impacts of climate change vary greatly, and require differing policy responses. So European directives and policies must be applied differently to respond to local conditions. Where possible existing directives and policies will be used to respond to climate change. This is a positive development, as EU directives and policies take so long to develop, implement and operationalise at a national and local level.

In Europe, 40% of the population lives near coasts, so climate impacts on coasts and marine waters and linkages to freshwater are very important. Every region experiences some risks, whether tidal surges, coastal erosions, hurricanes and tropical storms, sea level rise, increased drought, saltwater infiltration of aquifers, or heat waves. Though there local and regional variations, the southern Atlantic and the Mediterranean are the most affected regions of Europe. Climate change is projected to increase heat waves and droughts, reduce water availability and decrease crop productivity, have significant health impacts, and increase risk of hurricanes and tropical storms. Combined with impacts of existing and future coastal development and legal and illegal immigration into the region, climate change is likely to result in predominantly negative impacts and many future challenges.

Until recently, the European Union (EU) focused primarily on carbon mitigation through reducing greenhouse gases and emissions trading particularly across industrial sectors, and sequestering gases in reservoirs beneath the North Sea and on land; and through energy policies and incentives to encourage renewable energy generation and energy efficiency. More recent initiatives recognise the impact of land uses on carbon emissions, and the need for adaptation including within coastal and marine regions.

In June 2007, the Community published the Green Paper, 'Adapting to climate change in Europe – options for EU action', which examines impacts of climate change effects in different regions and across economic sectors, and begins to develop an integrated response. It defines possible adaptation actions on a continental basis while recognizing the importance of cooperation between states and regions. After consultation with stakeholders and the public, the White Paper was released in April 2009, and will be the basis for the development of a comprehensive adaptation strategy for 2012.

Other European directives and policies also address climate change, and are important existing and future tools and responses. The EU Water Framework Directive allows integrated water resources management in response to climate change, and has sufficient measures and scope to address climate impacts. The Directive extends beyond the watershed, including policy measures for adjacent coastal waters. It obliges states to assess environmental pressures on river basins, to set targets for improving the status of water bodies, and to devise and implement management plans with concrete measures to achieve these targets. There will be communication on water scarcity and drought and proposed legislation on the assessment and management of floods, and a focus on prevention, protection and preparedness. All these matters will also be discussed in the context of the White Paper

The EU Flood Directive states that measures to reduce flood risks should be coordinated for the river basins, especially shared basins. National legislation must change to implement it, which may require changing institutions and practises. The European Commission is also working on a Communication on water scarcity and drought, which is closely linked to climate change and adaptation. Other EC Directives related to climate is the Bathing Waters Directive. Links between eutrophication and climate change are also being explored: eutrophication that occurs due to land-based nutrients is regulated by other Directives and agricultural and industrial policies.



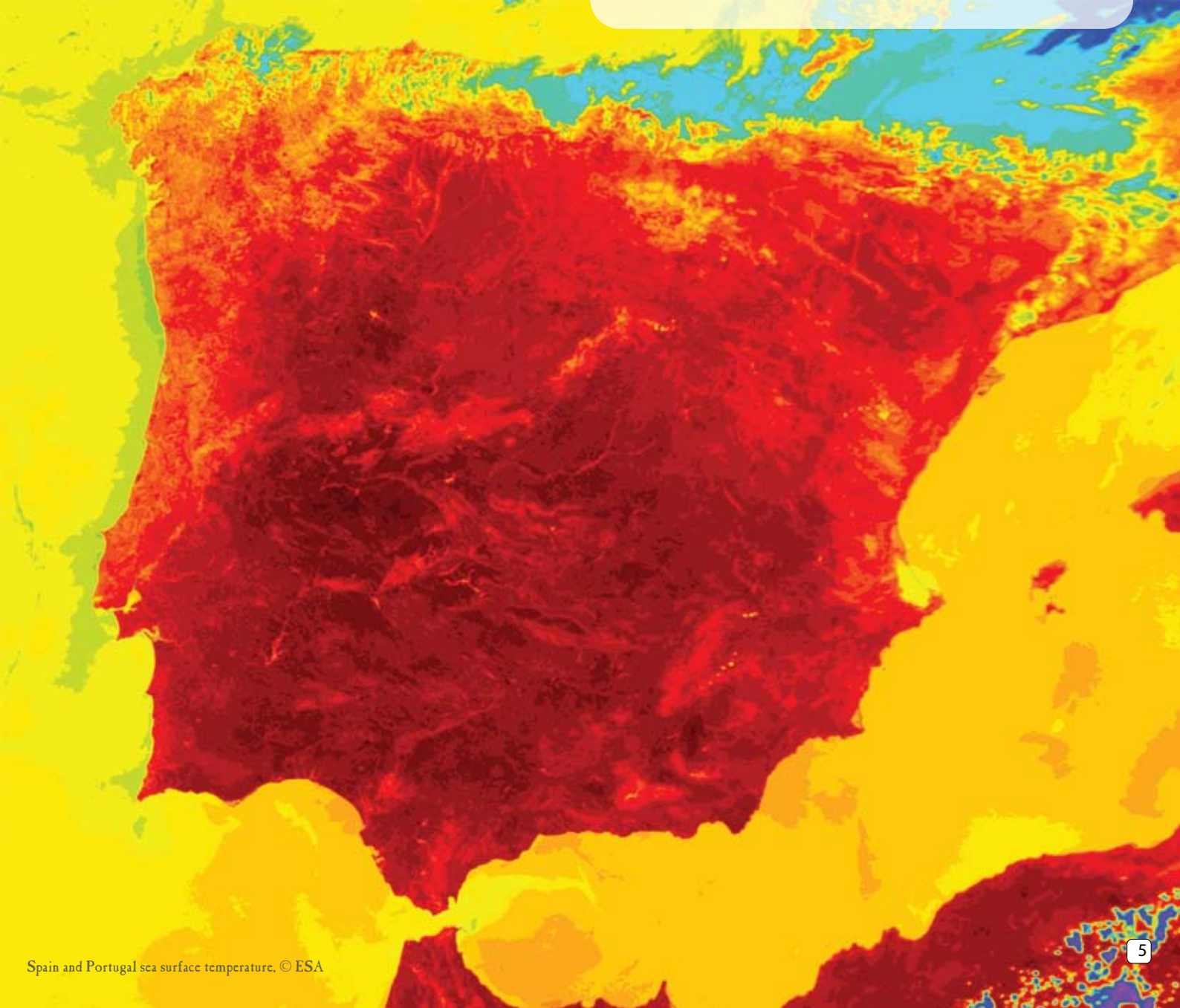
Photo © Robert Steenbergen

What can local governments and organizations and individuals do?

All governments, organizations and peoples must be involved in understanding and responding to all the changes that are here and coming. Policy tools such as land planning, environmental protection and monitoring, and health management are based on stable climate and environmental conditions, and don't always change when these conditions change. Effective and sustainable measures require coordination and cooperation on shared river basins, coasts and marine areas.

While measures have to be implemented at the local and national level, and by all peoples and organizations, efforts also need to be coordinated in an equitable, acceptable and cost-effective manner across Europe and internationally. Policy, legislation and institutional frameworks should support adaptation to climate change, as well as reduce greenhouse gases. Regional seas approaches will be useful for considering enclosed and semi-enclosed seas like the Baltic and Mediterranean Seas, and shared river basins, coasts, and marine areas.

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EU White Paper on Adaptation to Climate Change

The EU White Paper on Adaptation to Climate Change begins the difficult process of unifying European legislation and policies to effectively respond to climate change. This is a complex process that has not yet occurred for other countries and regions, and it is likely that the EU approach will have international influence and imitation. The White Paper includes a focus on integrated approaches to fresh and marine waters and coasts, and preserving biodiversity and ecosystem conservation. A policy paper on water, coasts and marine issues was also issued simultaneously by Commission staff, indicating again the emphasis placed on these issues.

The challenge within Europe is to simultaneously understand climate impacts, and develop and implement legislation and policies to facilitate adaptation to change. This challenge is occurring during a period of more rapid and extreme climate change than forecast in the 2007 IPCC Fourth Assessment, and during a period of global recession and fiscal restraint and cost cutting that affects all levels of government within Europe.

The EU White Paper on Adaptation to Climate Change is a framework on how to reduce Europe's vulnerability to the impact of climate change. Despite a long period of consultation, the White Paper is still in its preliminary stages. It is designed to evolve as more evidence arises, and as integrated legislation and actions become possible. European efforts will complement action by member states, and support wider international efforts to adapt to climate change in developing countries. This framework is also part of an overall EU initiative under the UNFCCC for a post-2012 climate agreement that addresses both adaptation and mitigation.

Phased approach

The White Paper has a phased approach. The first phase from 2009-2012 will be used to prepare a comprehensive EU adaptation strategy. This strategy will be implemented in the second phase that begins in 2013. Phase 1 focuses on the existing four pillars of action: 1) building a solid knowledge base on the impact and consequences of climate change, 2) integrating adaptation into EU key policy areas; 3) employing policy instruments to ensure adaptation, and 4) increasing international cooperation on adaptation. European, national, regional and local authorities must cooperate closely for the first phase to develop a comprehensive adaptation strategy.

Adaptation for coasts and marine areas

Some of the most pertinent measures for coasts and marine areas are discussed below. Existing EU policies will facilitate adaptation. In particular, the White Paper requires adaptation for coasts and marine areas be considered in the Integrated Maritime Policy and the Marine Strategy Framework Directive, and for the Common Fisheries Policy and Common Agricultural Policy.

Climate impacts and adaptation will also be considered when implementing the Environmental Impact Assessment, the Strategic Environmental Assessment Directives, and spatial planning policies. The key importance of the Water Framework Directive and the Integrated Coastal Zone Management Recommendation is recognized. In order to ensure a coordinated and integrated approach to adaptation in coastal and marine areas and to take into account trans-boundary issues, the Commission will develop guidelines on best adaptation practices in coastal and marine areas.



Integration of Climate Change

Climate change will be integrated in the implementation of the Marine Strategy Framework Directive, which requires the achievement of good environmental status for EU's marine waters by 2020. Full implementation of this Directive will increase resilience in the marine environment and facilitate adaptation efforts. The Integrated Maritime Policy will provide the comprehensive framework for the integration of adaptation efforts into policies and measures.

The White Paper requires a coherent and integrated approach to maritime and coastal planning and management, including the Integrated Coastal Zone Management Recommendation being fully respected and strengthened. The follow-up to the Roadmap for Maritime Spatial Planning will also incorporate adaptation to climate change into maritime and coastal management.

Over the near term, adaptation will be integrated into existing EU water legislation and policies, in particular in the development of river basin management plans under the Water Framework Directive. Guidelines and a set of tools, including guidance and exchange of best practices, will be developed by the end of 2009 to ensure that the River Basin Management Plans are climate-proofed. Enhancing the efficiency of water uses, and measures to boost ecosystem storage capacity of water will also be considered

The Water Framework Directive is complemented by the Floods Directive, and the policy on water scarcity and droughts, which provide a more specific framework for adapting to the key water-related impacts of climate change. Climate change will be considered in the implementation of the Floods Directive. More generally, there will be an assessment of the need for further measures to enhance water efficiency in agriculture, buildings and households.

The White Paper contains many references to agriculture and fisheries and the biodiversity and ecosystems they depend up. For example, climate changes and the efficient use of water for agriculture will be considered under the Common Agricultural Policy. Climate change is also an additional pressure on European fisheries and will be considered to ensure long-term sustainability under a reformed Common Fisheries Policy. Policies and measures will be developed to address biodiversity loss and climate change in an integrated manner, to fully exploit benefits and avoid ecosystem feedbacks that accelerate global warming. There will be draft guidelines by 2010 on the impact of climate change on the management of Natura 2000 sites.

A Clearing House Mechanism is proposed as an IT tool and a database on climate change impacts and best practices, and some preliminary surveys and development has already occurred. The clearing house must be established by 2011 and would contribute to the Shared Environmental Information System, which is an initiative by the European Commission and the European Environment Agency to establish an integrated and shared environmental information system. The clearing house would also rely on geographical information provided by the Global Monitoring for Environment and Security.

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European Cities and the Sea: Adaptation, Mitigation and Benefiting from Climate Change

Introduction

European coastal cities are responding as climate change begins to re-shape their current face and future realities. London's position is astride a tidal river, in a region with relatively little rainfall and where the city's microclimate can aggravate the impact of heat waves and intensify climate challenges. London has positioned itself as a global leader in how cities understand, adapt and mitigate climate change. This leadership role was chosen because of the city's vulnerability and carbon footprint, and in recognition of economic opportunities arising from trading greenhouse gases and developing mitigative and adaptive technologies.

Venice is another famous European city located on the sea. The Venice lagoon is vulnerable to climate change, particularly flooding and sea level rise, and is also subject to the higher temperatures and changing precipitation that is characteristic of the Mediterranean region. Venice is currently pursuing technological solutions to sea level rise, storm events and flooding.

Other European coastal cities have similar vulnerabilities and impacts, and are considering means to adapt, mitigate and benefit from climate change, so London and Venice's experiences are directly relevant.

London's Vulnerability to Climate Change

The Thames River divides and defines London, but also makes it vulnerable to flooding. A fifth of England's population lives near it, and much of the English economy is in London. The Thames and its estuary are tidal, and there is significant flood risk through North Sea tides and storm surges, as well as freshwater inputs from tributaries to the Thames and rainfall. The Thames tidal defences include 200 kilometres of dykes on the Thames estuary, and the Thames Flood Barrier.

The risk of floods, droughts and heat waves in London will increase over time, though a catastrophic tidal flood is unlikely. While rising temperatures may benefit London in the short term, the city has not been designed for future weather conditions. London's growth will aggravate problems in the future. Fortunately, many historic contaminated sites in and around the Thames have been remediated. Mitigation and adaptation measures will improve the quality of life of Londoners, and could assist the local and national economy.





London Climate Change Adaptation Strategy

London Climate Change Adaptation Strategy that was introduced by the mayor in 2008 is one of the first produced by a major city. London is committed to reducing its carbon emission by 60% by 2025, and taking steps to adapt to the changing climate. The strategy aims to help London prepare for the impacts of climate change and extreme weather. It identifies the climate impacts likely to affect London and establishes a current risk baseline to understand who and what is at risk today. It then analyses how climate change will change the risk of flooding, drought and heat waves, and uses this analysis to manage impacts and increase benefits.

The strategy proposes a series of risk management actions, starting with the proactive measures and then becoming reactive. The actions focus on prevention, preparation, response and recovery. Not all actions are possible or all risks preventable. For example, flood defences need to be accompanied by emergency plans in case defences fail. Climate risks and adaptive measures for floods, droughts and heat waves are discussed next.

Flood risk

London is prone to flooding from multiple sources: sea or tidal flooding, the Thames River and tributaries of the Thames or fluvial flooding, heavy rainfall overcoming the drainage system or surface water flooding, the sewers, or rising groundwater. The adaptation strategy needs to consider the increasing risks of tidal, fluvial and surface water flooding. Nearly 15 percent of London is at risk of flooding. The city is protected by an integrated system of flood walls, barriers and gates, and the tidal barriers. The standards of protection on the non-tidal Thames and the tributaries of the Thames are much lower and vary considerably.

Flood risk in London is significant because of the extensive population and built environment on flood plains. The poorest are more likely to be at tidal flood risk, there is a low level of public awareness and emergency measures, and a significant proportion of critical infrastructure is at risk of flooding, including emergency services and utilities. Flood risk will increase due to climate change, but also due to development in flood risk areas, ageing flood defences, and a drainage network designed for less intense rainfall. Although storm surges can be devastating and sea levels are projected to rise by one metre by the end of the century, the current Thames Barrier and tidal defences will continue to protect London.

The combination of low standards of protection, short warning times and relatively few management options requires managing flood risk on Thames' tributaries. Heavier and more seasonal rainfall will increase surface water flood risk. The low permeability of London's urban landscape, new development pressures and the poor maintenance of parts of the drainage network magnify this risk. In west London, there is less opportunity to raise flood defences due to development, so green spaces adjacent to the Thames will be used to store floodwater. Riverside properties have to be resilient to flooding from the river and rainfall.

Flood risk is addressed by improving flood management of the rivers and increasing their emergency flood storage capacity, improving the ability of urban areas to absorb and store rainfall, identifying critical infrastructure at risk of flooding, and raising public awareness and capacity about flooding and flood risk.

Droughts

Droughts in London can be short and sharp, as experienced in the hot summer of 2003, or prolonged, such as the two dry winters of 2004-05 and 2005-06, and the way in which water is managed determines impacts. Eighty per cent of London's water comes from the Thames and Lee Rivers, and the remaining 20 percent comes from an aquifer underneath London. Both the rivers and the aquifer are fed by rainfall, mostly in winter. The large population living in the south-east of England combined with the relatively low rainfall, means that the Thames region actually has less water per person than many hotter, drier countries.

Climate change will affect both supply and demand for water. Wetter winters will mean that a greater proportion of the rain drains into rivers while hotter summers and less clouds will increase the amount of water lost to evaporation. Hotter, drier summers will increase water demand for people and wildlife, while warmer winters may mean a longer growing season.

Although it is not possible to prevent a drought, it is possible to increase the time before drought measures are required. The strategy reduces water loss through better managing leakage, improving the efficiency of residential and commercial water use, using reclaimed water for non-potable uses, and developing lower impact water resources.

Higher Temperatures and Heat Waves

Climate change is projected to increase average summer temperatures by up to 3.5°C by the middle of the century, when two out of three summers will be as hot as the 2003 heat wave. Prolonged high temperatures can cause an increase in heat-related discomfort, illness and death, an increase in demand for cooling, possibly leading to power blackouts, a greater demand for limited water resources, increasing the risk of drought, and damage to temperature-sensitive infrastructure such as electrical equipment and transport networks.

Like other large cities, London's microclimate amplifies the health impact of heat waves. London is 10°C warmer than the greenbelt on summer nights. The city will experience an increasing risk of overheating due to climate change and the intensification of the Urban Heat Island effect. Again, it is not possible to prevent a heat wave, but it is possible to limit exposure to high temperatures by reducing how much the urban landscape intensifies the heat wave through greening the city, new building methods, and changing expectations. This involves using street trees, green roofs, and new green spaces. New and existing buildings and infrastructure will minimize the need for cooling. Low-carbon, energy-efficient methods will be used where cooling is required.



Venice's Vulnerability to Climate Change and the MOSE Project

For Venice, there are parallel risks from climate change but perhaps less mitigation and beneficial opportunities, other than the threat of climate change precipitating the earlier construction of flood defenses. A study of the Venice lagoon illustrates the exceptional vulnerability to sea level rise and storm for the historic city of Venice, the mainland Venice Maestra, the modern Port Marghera, and the largely enclosed salt water lagoon.

The historic city of Venice has long been considered one of the most beautiful cities in the world. The development of Mestre and Port Marghera adjacent to the lagoon represent the modern development of historic Venice. Venice has about 70,000 inhabitants, while Maestre and Porto Marghera have about 200,000 people. The economy of the historic city is based on tourism, while Mestre developed in part due to the industrial port of Marghera

The history, security and prosperity of Venice is inextricably intertwined with the health and integrity of the lagoon. If not for centuries of ceaseless dredging, the creation of sand barriers, and diversion of inflowing rivers, the lagoon would long ago have become a bay or silted up. The lagoon was originally important to defend the city, and then became important for tourism, fishing and aquaculture.

The lagoon is separated from the Adriatic Sea by 50 kilometres of sandbars that open to the sea from the inlets of Lido, Malamocco and Chioggia. Every six hours, the tides enter as salt water and recede as brackish water. The lagoon is formed of low islands and sandbars which emerge at low tide and support complex ecosystems. There is a reduction of the surface area of the salt marshes, deepening of the lagoon beds, and worsening of the water and sediment quality. Sea-level rise, subsidence, erosion, pollution, fishing, and wave motions from ships have all contributed to the general crisis of the Venice lagoon system.

The historic city directly deposits sewage into the canals and lagoons which can give rise to eutrophic conditions and algal blooms. This is tolerable due to the flushing of wastes and replacement of waters by the Adriatic Sea. There are contaminated sites within the lagoon, arising from past and current industrial activities, which contaminate the sediments and marine organisms, and make human consumption of fish and shellfish problematic. Extensive dredging takes place at the inlets and through the lagoon to maintain access for freight ships that enter the industrial port, and cruise ships and ferries that visit Venice.

The key immediate climate risk for the Venice lagoon is the greater frequency of floods due to increased relative sea level. The city and the inlets and the dredged navigation channels are sensitive to even a minor increase in sea level. In response, the Modulo Sperimentale Elettromeccanico (Mose) is a system of mobile dykes and flood defence gates that has been approved and is being constructed for the three ports of the lagoon. When there are exceptional tides, a hydraulic system will fill the water chests with air, which then rise to become dykes that separate the lagoon from the sea.

In the future and over time, complete enclosure of the lagoon from the Adriatic Sea may also be considered. Closure may fundamentally affect water quality and the ecology of the lagoon, as well as the historic nature of Venice as a city on the sea. Other existing issues such as contaminants and eutrophication may also become more problematic due to climate change. However, the risk of flooding is being reduced due to the threat of climate change, and Venice has survived over the centuries because the city and its inhabitants are resilient. The scientific efforts of the Consortium for the Coordination of Research Activities Concerning the Venice Lagoon System (CORILA) and other institutions will ensure that the best knowledge and information is available. The value placed on Venice by its inhabitants, Italy and the world will ensure that sufficient measures are taken to preserve its unique beauty and cultural value.

Conclusions

Coastal cities are inherently vulnerable to the impact of climate change. The density of people and the built environment means that there is more at risk, but also more opportunity to adapt, mitigate, and benefit from climate change. Adaptation will be a dynamic process for the cities of Europe located on coasts and the sea. Many of the climate risks, adaptive and mitigative measures, and possible benefits of climate change that have been discussed for London and Venice also apply to and are relevant for other European coastal cities.

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Climate Change in the Baltic - An opportunity for tourism and rural development?

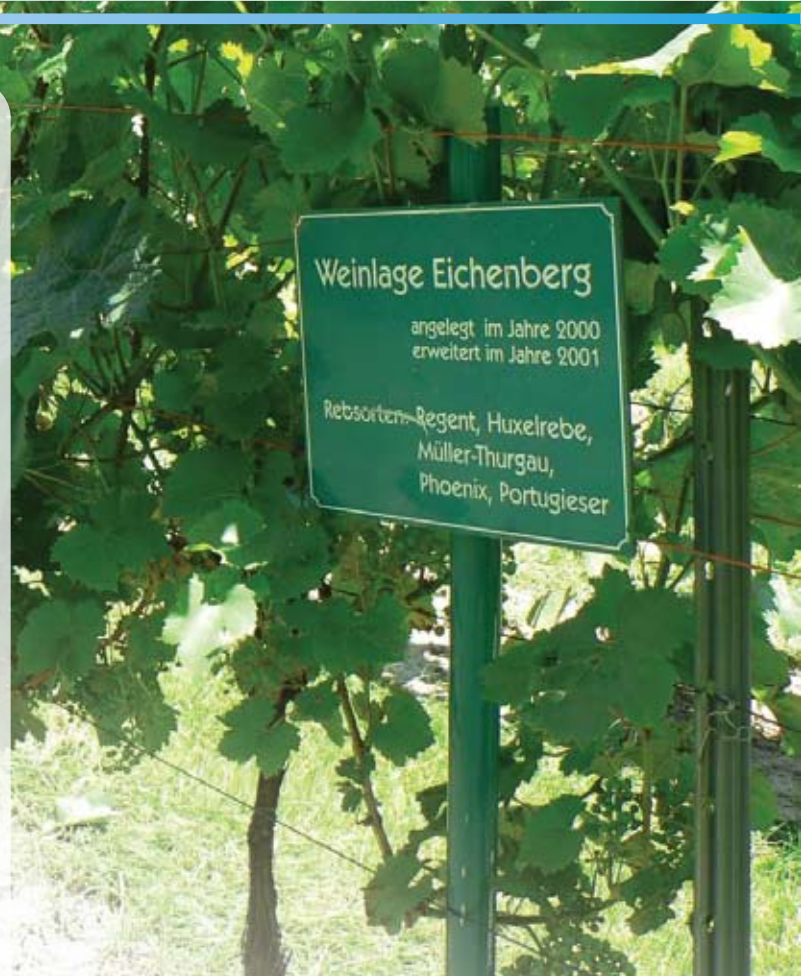
In most regions, like the Mediterranean, the negative consequences of Climate Change are overwhelming. It is regarded as a major threat. In the Baltic however people are becoming more and more aware that Climate Change offers new opportunities. Therefore, activities have shifted from analysis and evaluation of consequences via mitigation strategies towards adaptation approaches. This is well reflected in recent large national and international projects like BaltCICA (Climate Change: Costs, Impacts and Adaptation in the Baltic Sea Region) or RADOST (Regional Adaptation Strategies for the German Baltic Coast). The economic and social benefits of a warmer climate are of increasing interest. Viniculture and tourism in the Baltic is one example. In general, this idea can be applied to several specialised crops that require a warmer climate.

In 2000, the European Union acknowledged Denmark as an official wine growing country. Recently Rattay and Burg Stargard (near the German Baltic coast) received official recognition as the northernmost German wine-growing area. These are only examples, which reflect the ongoing northward extension of vineyards and the re-introduction of viniculture around the Baltic Sea. It is a clear indicator of a warmer climate. Grapes favour warm and sunny summers, with average temperatures of at least 13-15°C during the growing season (April-October), sufficient precipitation and mild, dry autumns. The average annual temperatures should be between 9-13°C and the annual accumulated sunshine hours should reach at least 1100 hours; conditions already met along the southern Baltic coast. Suitable grape varieties like Helios or Solaris allow commercial wine production. These new grape varieties are highly resistant to fungal diseases, considerably reducing plant protection measures, thus allowing more environmentally friendly viniculture. Viniculture in marginal regions, like the Baltic coast, is more laborious, bears more risks, and produces lower yields compared to the traditional wine regions. While tourists, collectors, and the increasing wine interested public are willing to pay much more per bottle than for a comparable product from a traditional German wine region, viniculture along the Baltic coast has to be regarded as a novelty, since it can hardly become a large-scale agricultural product.

Large amounts of tourists visit the southern Baltic Sea coast during the summer-months. Warmer summers and higher water temperatures in the future will allow an increase in tourism and extend the summer season. However, the rural coastal hinterland does not benefit much from these tourists, because attractions are lacking. The growing interest in wine as a cultural element and increasing wine-tourism indicate that vineyards could serve as attractions and support sustainable rural development. Further, viniculture is labour-intensive, thus it would create jobs in rural areas possibly contributing to a revitalization of the countryside.

In practise coastal viniculture has helped to raise interest in Climate Change among local and regional stakeholders demonstrating possible threats and problems as well as benefits.

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Climate Change at Baltic Beaches - Zones of interactions



Climate Change is often perceived as a threat which it is for many regions, but as shown in the previous article Baltic areas might also benefit from a changing climate. Due to warmer and dryer summers and an extended bathing season the south-western Baltic Sea Region might become more attractive to tourists. This is, however, only a preliminary estimation. So far details about how comfortable the climate really will be in the future (e.g. humidity, wind etc.) are missing, but these details are an important part of a tourist's choice of destination. In recent decades tourism has been a success story in the region. It has developed into the most important economic branch for many (rural) areas in the south-western Baltic Sea Region and stakeholders are optimistic about future development.

Photo © Dominika Szponder



Photo © EUCC Germany

For most tourists beaches are the point of interest. So the question is what impacts will climate change have on the beaches? Will they stay attractive and will they be able to accommodate the additional tourists that regional stakeholders hope climate change will bring? Erosion is already a serious concern for the region. The coastline of Mecklenburg-Western Pomerania, for instance, is receding by an average of 35 cm/year. Depending on the local coastal type this means not only a loss of land but also a loss of tourism potential. Today the coastal protection authority (StAUN) performs hydraulic sand fillings each year. Sand is pumped from the sea onto the beach to compensate for erosion. An average of about 5 million euro/year are spent on fillings, see diagram. It is currently unclear how climate change will affect the system of sediment transport along the coast and which regions might suffer from increased erosion or benefit from accumulation. Research on this topic will be part of the German project RADOST (Regional Adaptation Strategies for the German Baltic Coast).

As coastal protection aims to save life, sand suppletion is not always located where they would be useful for municipalities to strengthen the tourism branch. On the other hand people and companies (e.g. guesthouses, hotels, restaurants) who directly benefit from hydraulically filled beaches are often not asked to contribute to the cost of such measures. It is already clear that coastal protection authorities will not be able to protect the whole coastline because of rising costs. And loss of beaches is not the only issue to be dealt with. Depending on regional conditions climate change might also lead to more biomass on the coastline. As climate change impacts nutrients coming into coastal waters, the amount of emerging biomass as well as its distribution along the coast will change. Details and possible adaptations are currently being researched within the INTERREG funded project BaltCICA (Climate Change: Costs, Impacts and Adaptation in the Baltic Sea Region).

More tourists and changing beaches increase the need for integrated beach management as benefits from climate change are possible for the Baltic Sea Region if adaptation strategies are implemented in time. This will require not only commitment but also adequate structures and finance, e.g. financial participation of actors benefiting from adaptation, because climate change will not only change the environment but also the way coastal zones are managed.

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Preparing for Climate Change in the Baltic Sea Region

Climate change effects in the Baltic as projected by scientists are documented in the regional report 'Assessment of Climate Change for the Baltic Sea Basin' (BACC-report), published in January 2008. It was compiled to serve as the basis for decision-making including climate change adaptation measures in the region. However, the report is short in statements about the coastal areas, so it is crucial for effective climate change adaptation to bring together coastal practitioners with scientists in local and regional scale activities. So open questions of practical importance to coastal development and implementation of climate change adaptation measures can be raised and answered. The Interreg IVB Baltic Sea Region Programme is one of the main initiatives in Europe that support such projects. In the first programme call, five out of 24 projects explicitly deal with climate change issues.

One of them is the project BaltCICA - Climate Change: Impacts, Costs and Adaptation in the Baltic Sea Region. It focuses on the most imminent problems that climate change will cause in the highly populated coastal region. Changes in the occurrence of floods (river floods as well as storm surges) and sea level rise caused by climate change as well as impacts on water availability and quality may be imminent. A consortium of scientific institutions, regional authorities and NGOs will not only assess the impacts, but also develop, appraise and implement adaptation measures (structural as well as organisational and institutional measures).

On a pan-Baltic level the costs of higher sea level and increased flood risk will be assessed. A concept for process management on climate change adaptation and mitigation will be developed and supported by a meta-evaluation and conceptualization of case study results. Furthermore joint concepts of adaptation will be applied in a number of case studies. Based on the experience and knowledge of the project participants, applicable approaches will be offered to other interested parties with the support of the Union of the Baltic Cities.

Within the project EUCC- The Coastal Union Germany is involved in the implementation of climate change adaptation measures, particularly in an implementation project regarding tourism and beach management along the German coast (Mecklenburg - Western Pomerania). Based on the scientific results of the project partner

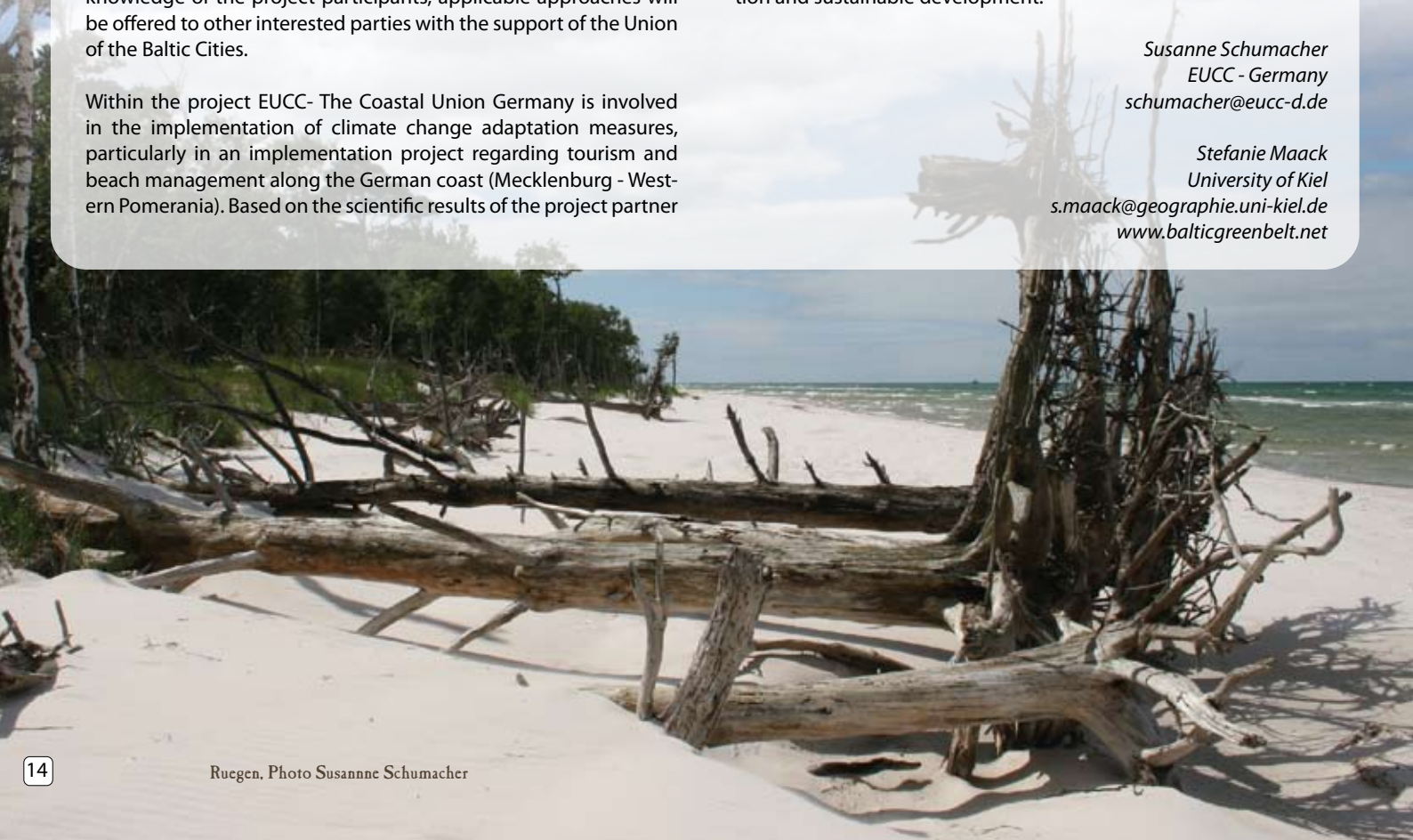
Leibniz Institute for Baltic Sea Research Warnemünde, adaptation measures will be developed and implemented for regional impacts of climate change due to changing water qualities in coastal waters. This includes a co-operation within Latvian partners in developing an exhibition and information campaign.

The project Baltic Green Belt takes a different approach. The central topics of the project are sustainable coastal development and coherent nature protection along the southern and south eastern Baltic Sea coast from Germany to Russia. Three universities provide scientific expertise to regional, national and international NGOs as well as to regional and national authorities. In this manner, scientific knowledge about coastal effects of climate change will be directly provided to the practitioners according to their needs and arising questions. The coastal climate change expertise will thus lead to improved measures of integrated coastal development based on sound nature protection. The project therefore serves as a platform for including climate change adaptation into ongoing management activities.

The project – launched in January 2008 – was initiated by the German Friends of the Earth Schleswig-Holstein (BUND) and is coordinated by the Coastal Geography branch at the University of Kiel. Its overall goal is to foster the collaboration of environmental NGOs, universities and authorities for a sustainable, long-term development of the Southern Baltic coastal region. This will be achieved through local projects, lobbying and networking in the fields of nature and environmental protection as well as sustainable tourism, agriculture and coastal protection. The project follows the vision of the European Green Belt initiative: creating the backbone of an ecological network, running from the Barents to the Black Sea that is a global symbol for transboundary cooperation in nature conservation and sustainable development.

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Preparing for Climate Change in the North Sea Region



Hamburg fish market - Photo Oliver Hill



Courland Spit - Photo Michael Schultz



Courland Spit - Photo Michael Schultz

Climate Change will cause a rise in sea level and probably more frequent and violent storm surges than observed in the past. This has serious consequences for the safety of people and property protected by the existing flood defences. It is therefore necessary to assess a potential sea level rise and extreme storm surge events. Given these projections, it will then be possible to determine the risk for specific locations and develop mitigation strategies.

The Project XtremRisk – Extreme Storm Surges at the North Sea Coast and in Estuaries, Risk calculation and risk strategies, funded by the German Federal Government will address these issues. The 'Source-Pathway-Receptor'-Concept will be used as a basis for risk analysis. Eventually, new mitigation strategies for risk reduction in the city area of Hamburg (as a typical example for an estuary) and the island of Sylt (as a typical example for an open coastline) will be developed.

This holistic approach consists of four subprojects:

- Risk source: extreme storm surge and its probability of occurrence
- Risk pathway: load, breaching and breach development of the flood protection systems and its probability of occurrence
- Risk receptors: assessment and quantification of damages and losses
- Risk analysis, risk quantification and risk mitigation (all project partners)

Subproject no. 1 offers methods to assess the development of extreme events under the climate conditions of today. An extreme event will be modeled under conditions reflecting predicted climate change. For this model three main points will be considered:

- For the first step each factor which contributes to a storm surge and that factor's maximum level occurring in the last 100 years will be analyzed. These factors include the surge due to the wind, the influence of the tide including the interaction between surge and tide and the influence of external surges.
- Due to the hydrodynamics of a storm surge effects of the named factors are nonlinear. In the second step these factors and their effects will both be taken into account to calculate the magnitude of the extreme storm surge. This step is very complex.
- In the third step different scenarios of mean sea level rise and the increase of wind speed due to climate change will be analyzed. Taking into account the interaction of the aforementioned factors, the influence of sea level rise on the maximum surge level will be determined.

In addition to storm-surge-analysis, analysis of new design- and risk management strategies will be developed in cooperation with the project partners (subproject no. 4). It is necessary to determine an area's vulnerability and the risk acceptance of the people living in these areas in order to implement safeguards. On the basis of this knowledge, the technical flood protection measures can be designed.

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Sea level rise –

A chance for regional development

When considering climate change and coastal regions, sea level rise is one of the first impacts that come to mind. Studies of the North Sea by KNMI (Royal Netherlands Meteorological Institute) and the Delta Commission (Deltacommissie) estimated sea levels would rise between 19.6-84 cm and 65-130 cm respectively along the Dutch coast by 2100 (compared to 1990). Without discussing the details of these studies, they do demonstrate the importance of coastal protection for the low lying areas of the Netherlands and north-western Germany, and the need for further effort.

In Germany the states of Schleswig-Holstein and Lower Saxony upgraded their coastal protection plans for the North Sea coast. To prepare for climate change, dikes will be modernized and heightened by 25 cm in Lower Saxony and 50 cm in Schleswig-Holstein. For those dikes, additional construction material like sand and clay is needed. In Lower Saxony there is an ongoing discussion about clay being taken from areas outside the dike, where some protected salt marshes and mudflats are located (Natura 2000, UNESCO biosphere reserve, planned: UNESCO world natural heritage), or if it should be taken from the hinterland. In case of the Wangerland municipality (Lower Saxony) 1.5 million m³ of clay was used to modernize a 12 km dike. To avoid interference in protected areas two thirds of the clay was taken from the landside. The results of a clay search allowed the municipality to prevent lots of small diggings and to centralize the digging on a 100 hectare area bordering the village of Hohenkirchen where a casern was abandoned in 2003. The excavated area was not refilled; instead a leisure lake was constructed. An investor then converted the *casern* into a leisure facility which opened in mid 2008 and achieved 54,000 overnight stays in the first six months.

For Hohenkirchen, a village of 1600 inhabitants, the lake and its surrounding facilities have resulted in an economic turnaround. Hohenkirchen was once a central village in a rural area with different schools, shops and taverns. However Hohenkirchen was a village in decline during the last decades due to regional change (structural changes in agriculture, demographic change, privatization of federal authorities). This decline affected the whole municipality, based mainly on agriculture and tourism like in many other rural coastal areas. Neighbouring villages located directly on the coast benefit from tourism, and attract a total of 1.8 million overnight stays per year on average. But villages in the hinterland like Hohenkirchen usually do not see any noticeable benefit. The artificial lake, a side effect of climate change adaptation, led to new private investments beyond the investment in the former casern and gave the hinterland a chance to benefit from coastal tourism.

Is this success story an anomaly or could it be applied to other regions? Constructing a functioning lake system is more complicated than just digging clay. The Wangerland municipality spent several million Euros to deepen the clay digging and to develop an environmentally and economically sustainable lake. To finance this, a high tourism demand is needed in an area where overnight stays are stable but have not risen over the last 20 years. For regions with weak tourism infrastructure it will require more than a clay digging to benefit from tourism, but it is a new chance for traditional tourism regions to broaden their portfolio and stabilize their development.

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Hohenkirchen

Preparing for Climate Change

in North-West Europe

The Science-Policy Expert Couplets from the INTERREG IV B co-funded IMCORE project will be developing and testing a number of tools to support local and regional coastal governments as they develop strategies to adapt to climate change. There is a wealth of international studies, conventions and declarations about adaptation to climate change. However, our coastal governments and stakeholders need to make sense of this information and understand how they can prepare locally for concrete risks or opportunities with new or existing policy.

...READY: The starting points for adaptation to climate change cover

Issues and future scenarios: The *University of Brest - Golfe du Morbihan - SIAGM* Couplet, for instance, is mainly concerned about the impacts on their shellfish industry. With a different focus, the adaptation process developed by *Donegal County Council and Ulster University* will be running in parallel with Marine Spatial Planning. All nine Expert Couplets have been identifying issues and are now organising future scenarios workshops with stakeholders.

Different geographical scales: From addressing adaptation issues of the entire Flemish coastline, as *MDK and Ghent University* are doing, to developing actions at a more local level, as in the regeneration project in Nigg Bay, led by *Aberdeen City Council and University of Aberdeen* our partners will provide an insight on adaptation at different geographical scales.

Varying roles of scientific partners: In IMCORE the scientific partners within the Expert Couplets have the role of either an 'agent of change' as in the one involving *CoastNet and the East of England Coastal Initiative* or as the 'driver' as in the partnering of *Cork County Council and the University of Cork*.

Different policy frameworks and opportunities to mainstream adaptation measures: The *Severn Estuary Partnership and Cardiff University* are dealing with adaptation in a highly complex policy framework. Other couplets like *Sefton Council or Envision and Durham County Council* will be looking at how to mainstream adaptation measures into existing policy.

...STEADY: Tried and tested tools and techniques

While each Couplet is going through their own process to produce a local adaptation strategy for climate change, they will have developed and tested various tools and techniques and provided an analysis of these. In this way other authorities can estimate the value of the various tools in the context of their own strategies and actions for adaptation to climate change.

Stakeholder mapping, simulation and visualisation tools, futures sciences, best practice, legal policy codex, deliberative support tools or consensus building are just a few of these tools and techniques.

...GO: Fitting Climate Change Adaptation strategies through ICZM

Whilst most of our partners are working with evidence based approach we cannot wait until the impacts of climate change are on our doorstep to prepare and act where necessary.

This is why we want to make sure that the resources we create for local and regional authorities are useful for coastal practitioners and scientists involved in policy development. Lessons learnt and guidelines on the Local Expert Couplet approach and a comprehensive list of other tools and techniques, guidelines and recommendations will be tailored to the users needs to support their own adaptation strategic processes.

We would welcome any individuals or organisations who want to become involved in this process, please contact us if you know of initiatives with which we could liaise or if you wish to be kept informed of IMCORE progress and results.

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OURCOAST – a European initiative to support ICZM

The European Commission has intensively worked on developing and promoting Integrated Coastal Zone Management (ICZM) principles since 1996. Between 1996 and 1999 a Demonstration Programme on ICZM took place in 35 sites, leading to a set of Recommendations for ICZM in Europe in 2000 (adopted by the Council and Parliament in 2002). More recently, an evaluation on ICZM in Europe concluded that although there is still great willingness of Authorities at national, regional and local levels to implement ICZM, there are a number of fundamental obstacles that need to be overcome.

One of the impediments is the diversity of languages around Europe. Excellent learning cases in most Coastal Member States cannot be implemented elsewhere because they only exist in the national languages. Another difficulty is that a great deal of information on ICZM has been gathered in the last decade through funding by the Commission where the tendency of these projects has been to develop their own databases and websites which last only for the duration of the projects. Once finished, these treasure-troves of information soon became neglected and sometimes lost. Consequently, many States will be unaware of projects which could be of great value to them. Another impediment is the idea that certain policies or legal instruments are required for de facto application of ICZM. Local, even national, authorities may believe that they cannot implement ICZM due to a different over-arching policy or legislative regime that exist in other countries. And finally, the last crucial difficulty is that because ICZM is a cross-cutting issue, it impinges on a number of different government departments and ministries.

This is why DG Environment of the European Commission, thanks to the European Parliament that voted a dedicated resource for this purpose into the EU budget in 2008, tendered the OURCOAST project. This three-year project was awarded to a consortium led by ARCADIS (Alkyon) and its subcontractor the Coastal & Marine Union (EUCC).

Through OURCOAST, the European Commission aims to ensure that lessons learned from the coastal management experiences and practices will be shared and made accessible to those who are seeking sustainable solutions to their coastal management practices. OURCOAST will focus in **particular on adaptation to risks and the impacts of climate change**, information and communication systems, planning and land management instruments, and institutional coordination mechanisms.

This will be achieved by collecting case studies of practices involving different aspects of ICZM that show that an integrated approach to the management of coastal issues is achievable and that it has added value compared to a purely sectoral approach. Eight themes have been selected which are representative of overall European Commission policy objectives and which embrace many of the Key Approaches required for good governance (see table).

Photo Maria Ferreira

The logo for OURCOAST features the word "OURCO" in a bold, white, sans-serif font. The letters are set against a blue background that has a wavy, water-like texture at the bottom. Below the blue section is a solid green horizontal bar.

List of strategic objectives and themes for ICZM case study collection

POLICY OBJECTIVES "STRATEGY APPROACH"

1. ADAPTATION TO RISK

1. Managing impacts of climate change and safeguarding resilience of coasts/coastal systems
2. Preparing for, preventing and managing natural hazards and technological (human-made) hazards
3. Integrating coherent strategies covering the risk-dimension (prevention to response) into planning and investment

2. SUSTAINABLE USE OF RESOURCES

4. Preserving the coastal and marine environment (its functioning and integrity) to share space
5. Sharing sound use of resources and promoting their low(est) processes/products

3. SUSTAINABLE ECONOMIC GROWTH

6. Developing Europe's regional seas sustainably
7. Balancing economic, social, cultural development whilst enhancing environment and managing impacts from coastal activities
8. Improving competitiveness

OURCOAST THEMES



<http://ec.europa.eu/environment/iczm/ourcoast.htm>

The specific objective will be to collect past and existing experiences with ICZM in the EU with emphasis on (key) approaches and tools.

Based on this collection, OURCOAST will establish a multi-lingual database of Europe-wide ICZM practices in the form of case studies that will be freely accessible through the EUROPA - European Commission official web-site to the broad coastal and marine communities and to provide practical guidance to all those who are seeking sustainable solutions to their coastal management practices. The final results of OURCOAST will be presented at an international stakeholders conference that will be organized in one of the Baltic States and will take place during Autumn of 2011.

Your interest in OURCOAST is very much appreciated and we would like you to become part of the OURCOAST European network by joining the contact list to be informed about project developments, receive project newsletters...

For this aim, please send your contacts directly to Maria Ferreira, m.ferreira@eucc.net

For further information please contact, Robbert C. Steijn (Project Coordinator) e-mail: rob.steijn@arcadis.nl



Can YOU do anything to help?

Climate change is going to have some severe impacts on our planet. We know already that the sea level is rising due to melted ice-sheets; that the oceans are becoming more acidic and coral reefs are dissolving; that the oceans are becoming warmer and species are migrating northwards. There have also been other, more contentious ideas - the Gulf stream moving further south, perhaps even stopping altogether due to tundra ice melting. Most recently it has even been suggested that the tilt of the earth may change as the Antarctic continent becomes lighter and the ice-melt water moves northwards shifting the overall mass of the planet. The effects of such happenings are difficult to conceive.

So what do we do? Simply shrug our shoulders and say the problem is too big for any one individual to influence? Allow governments and industry to take the burden of responsibility? Or can we actually take meaningful action ourselves?

The shoulder-shruggers would argue along the following lines. "By their nature, climate, ocean and marine issues are very frustrating, as they mostly have global causes and will require global solutions. It is very difficult for an individual, country or even region, such as Europe, to do much unilaterally about it. Acidification, dead zones through changing circulation patterns, and sea surface temperature and vertical stratification are really major impacts that will be difficult to influence and change, and will lead to significant ecosystem shifts and impacts on human societies. If it is any consolation, there is significant global attention on ocean and marine issues and Europe is leading on these issues".

On the other hand, what sort of meaningful action can we take and what is needed for significant reductions in global greenhouse gas emission reductions? We can take personal action to help solve the climate crisis by reducing our own CO₂ pollution as much as we can and start living in a more climate-friendly way. How? Here are some tips.

When you are next in the supermarket or serving guests at your dining table, recognise that the food you are serving could be a massive contributor to global warming.

Eating beef and lamb. According to the FAO (Food & Agricultural Organisation), livestock farming is responsible for 18% (yes, one fifth) of total greenhouse gas emissions. Did you know that in a single day a cow can burp and belch a staggering 400 litres of methane (13 times more potent than CO₂) into the atmosphere. The planet currently has 3 billion cows and sheep. Their gaseous wastes and the nitrous oxide in their faeces is alone accountable for 10% of global greenhouse gases. Add to that the Amazon forest clear-cutting to graze the cows (reducing the planet's natural CO₂ uptake source) and the fertilisers put on the crops!

Buy local products. Purchase local products when they are in season – by doing so you contribute to cut down goods traffic and the need to heat greenhouses.

Renewable forms of energy – wind, water, solar power, geo-heat and biomass – can supply half of the world's energy needs by the middle of this century. However, only if we stop wasting energy at home and take action to use more efficiently.

Buy energy-efficient products. Look for the products that have energy-saving labels and check how they work and what they mean.

Set your PC to sleep ! Switch off as soon as you stop working and unplug it from the power source. Did you know : flat screens and notebooks are very-energy efficient.

Put a stop to stand-by losses ! TV sets, Hi-fi, video and DVD players, PCs and all accessories on stand-by still keep on consuming electricity. Did you know : the cost of an average household can be anything up to €100 per year ! So you can either pull out the plugs or use the multi-socket power strip with its own power cut-out.

Don't leave chargers and transformer plugged in. They keep on consuming energy even when they are not used. In many cases, but not always, you can tell this by feeling how warm they are.

Use energy-saving CFLs. They cut power consumption by as much as 80 percent. In all cases : lights out in rooms that are not being used !



And of course, the one area where we are most familiar, but still could do better is taking that next journey.

Use public transport. Buses and rail systems are three times more fuel-efficient than private cars. Urban rail systems are becoming more efficient – they are getting cleaner and in future will be running on eco-power.

Ride a bike ! It takes very little space and uses no fuel. It's quiet and clean and keeps you fit. So take every opportunity to use it to go to work, shopping, visiting friends and family and during your vacations.

Shrink your car ! The most important question when you buy a car or your next one is : What's its fuel consumption ? Cars burning 4 litres per 100 km are already on the market.

Fly only when you really have to ! Air traffic is one of the top contributors to CO₂ emissions. Look for alternatives like telephone and video conferences. Cut down on long distance flights. On the shorter routes, to neighbouring countries, rail travel is often quick and a lot more climate-friendly. And finally, take more holidays closer to home and discover that it is just as beautiful as flying away on weekend shopping trips or jetting to a tropical paradise...

You can actively help to reduce greenhouse gases. Start doing so today! Don't take the easy way out and leave it to out elected representatives. Our quality of live, prosperity and economic growth depend on living within the ecological limits of our blue planet.

SOURCES:

Adapted from : © Greenpeace International. How to save the Climate. Join the Energy Revolution. More tips and information in the brochure online at: www.greenpeace.org; and

Environment fact sheet: Sustainable consumption and production – a challenge for us all. © European Commission 2008.

Energy Manufacturer Model	Logo ABC 123
<p>More efficient</p> <p>Less efficient</p>	
<p>Energy consumption kWh/year <i>(Based on standard test results for 24 h)</i></p> <p>Actual consumption will depend on how the appliance is used and where it is located</p>	<p>XYZ</p>
<p>Fresh food volume I Frozen food volume I</p>	<p>xyz xyz</p>
<p>Noise (dB(A) re 1 pW)</p> <p>Further information is contained in product brochures</p>	<p>XZ</p>
<p><small>Norm EN 153 May 1990 Refrigerator Label Directive 94/2/EC</small></p>	

EUCC's support of EU climate policies

Climate change is among EUCC's main concerns. We are alarmed about the environmental impacts of ocean warming, acidification and eutrophication; about the negative impacts on marine ecosystems, biodiversity and productivity; about accelerated sea level rise, increasing frequency and intensity of storms, tidal surges, resulting in coastal erosion and increased flood risks; and particularly about badly designed coastal defence strategies. That is why EUCC strongly supports the EU climate change policy of mitigation and adaptation.

Building the EU Climate Adaptation Policy

The EU is preparing an Adaptation Framework to reduce vulnerability to climate change impacts. On June 29, 2007, the European Commission adopted the Green Paper 'Adaptation to climate change in Europe - options for EU action', building upon the European Climate Change Programme (ECCP). The Commission has recently presented the White Paper with more specific proposals for initiatives at EU level, as presented earlier in this Special Issue. Thanks to the kind assistance of EUCC Advisory Board member Magdalena Muir, we have for the past several years participated in expert consultations focusing on coastal and marine issues, and will continue to do so.

Towards A Responsible Coastal Defence

Enormous investments have been made in seafront development projects without sufficient adaptations to climate change and sea level rise. EUCC aims to better inform stakeholders and local authorities on their planning policies, especially in tourism and urban development. EUCC's membership has broad experience in adaptation strategies for coastal zones where we have contributed in the areas of regional planning (ICZM), biodiversity and sustainable tourism (QualityCoast). We have been spearheading various projects and programmes for more responsible coastal protection and sea defence strategies at the local, national and European level. For many decades, the negative impacts from badly designed (hard) coastal defence strategies have exceeded the impacts of natural erosion processes. With the active input of many of its members, EUCC was able to play a key role in the EUROSION study, the CoPra-Net coastal defence module, the CONSCIENCE and IMCORE projects. On the basis of extensive analysis, valuable insights have been gained and will be gained through these and other projects. EUCC aims to contribute to the discussion on how to apply these insights in the future.

This work is badly needed as many coastal towns are still planning for their own local marina harbour or other developments in an effort to profit from possible economic growth. It is uncertain whether the investment and environmental costs will outweigh the increasing cost of endless dredging and coastal erosion mitigation works.



Photo Stephanie Maack



Photo Robert Steenbergen



Contributions to the EU Climate Mitigation Policy

EUCC is following the development of mitigation policies in support of the Kyoto process with great interest. We actively promote sustainable forms of energy at sea, particularly wind, tide, wave and solar, whilst protecting sensitive areas incl. candidate marine Special Areas of Conservation (SACs) against development. While there is a general recognition that less energy must be used in the future, and that alternative forms of energy must be promoted; it is interesting to note that the NGO community is divided in the use of off-shore wind energy due to perceived conflicts with birds, under-water life (through noise) and the landscape (seascape).

Combining climate and biodiversity policies

EUCC is collaborating with the EECONET Action Fund (EAF), Euro-natur and ECNC in investigating mechanisms to connect carbon footprint compensation programmes to investments in increasing the capacity of European natural and semi-natural areas (forests, bogs and soils) for natural carbon sequestration. With the application of WWF's Green Standard we hope this mechanism can connect the climate compensation policies with biodiversity conservation and community participation in Europe.

EUCC is reducing its own carbon footprint

EUCC aims to reduce its own carbon footprint in order to set an example for all our members and for other organisations. One area where we can make a difference is to change the attitude towards project meetings in our work as well as in future project proposals. We believe we need to reduce project meetings in which we are the lead or package partner and actively promote (innovative) alternatives to air transport and travelling using less carbon intensive modes of transport. To this end we are investing in appropriate communication technologies involving telephone, internet, and various forms of virtual meetings. In this way EUCC has already reduced its travel footprint by 20% since 2006. This also entails an important dissemination programme to spread the word within other projects and to other partners.

Efforts in the Western Mediterranean

Mediterranean coastal areas are particularly vulnerable to the impacts of climate change. The EUCC Mediterranean Centre (Barcelona) has developed an educational tool for NGOs, secondary schools and Universities on Climate Change issues in Catalunya. The tool addresses the sustainable use of natural resources and energy to mitigate the impacts of climate change. EUCC is also working with various partners in the ACCMA project in northern Morocco. The results will be used for the Nador ICZM Action Plan developed by the EUCC-led project CAP Nador, and support the assessment and implementation of adaptation measures in a regional context.

*By Albert Salman,
Director General of the Coastal & Marine Union (EUCC)*



EUCC's support of EU climate policies

EUROSION (2002-2004)

EUCC was responsible for two work packages of the service contract concerning Coastal Erosion – Evaluation of the Needs for Action. In the various deliverables the EUCC was responsible for the Scoping Study, Trends Report, Policy Recommendations, newsletters, and brochure. Particular attention was paid to coastal erosion as a natural process and to the sensitivity of coastal ecosystems to erosion – and even more to coastal defence measures and scenarios. We will continue to promote the EUROSION approach, conclusions and recommendations over the coming years. To this end, the sixty-odd case studies have been incorporated in the CoPraNet project together with the methodology.

www.euroSION.org



CoPraNet (2004-2006)

One of the deliverables of the EUCC-led Coastal Practice Network project has been the Beach Management Guide, covering a wide range of issues, in particular erosion and coastal change, faced on a day-to-day basis by those responsible for managing coastal areas and all others with an interest in beach management, from the community to politicians. A topical and easy reference guide to the case studies held in the main project database aims at sharing best practice experience from across Europe.

www.coastalpractice.net



Adaptation to Climate Change in Morocco (ACCMA)

EUCC is working with the Moroccan research institute ENFI in the ACCMA project in the province of Nador, northern Morocco, to develop capacity for, and contribute to, policy and decision-making for strategic coastal land use planning and management, with the purpose of reducing the vulnerability of coastal communities to the impacts of sea level rise, coastal flooding, and extreme weather events. The project aims to advance the science and technology that underpin preparations for, and responses to climate related events, and contribute to the information systems that guide policies of public protection.

www.accma-maroc.com (fr)

www.pik-potsdam.de/~kropp/accma/ (en)



CONSCIENCE (2007-2010)

The EUCC Med Centre is a partner in this FP6 project that aims to develop and test concepts, guidelines and tools for the sustainable management of erosion along the European coastline, based on best available scientific knowledge and on existing practical experience.

The project is defining a decision-making framework based on the concepts formulated by the EUROSION project, i.e. coastal resilience, coastal sediment cells, favourable sediment status and strategic sediment reservoirs.

CONSCIENCE will also develop measurable standards, which can be evaluated in practice for any field situation. The practical applicability and effectiveness of the guidelines and tools are being evaluated in selected test sites.

www.conscience-eu.net



IMCORE (2008-2011)

EUCC is a partner of IMCORE – Innovative Management for Europe's Changing Coastal Resource. A project funded under the INTERREG IVB programme which aims 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. The project will address this by developing a methodology and templates to aid Coastal Managers across NW Europe in developing the required adaptive strategies.

www.imcore.eu

