



# Integrated Coastal Zone Management in the European Union

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## Summary

Since the early 1990s, both the UN and EU have specifically addressed problems related to the state of the coast and seas. The EU institutions supported the development of Integrated Coastal Zone Management (ICZM) programmes, profitable in economic and environmental sense. Since 2002, most EU countries have adopted the principles of ICZM in their national coastal strategies or spatial planning process. Many coastal initiatives and projects related to exchanging information and sharing best practice have emerged. The future trend suggests greater emphasis on climate change adaptation, cooperation at regional sea level and coherence between plans, programmes and management of the maritime and terrestrial parts of the coastal zones.

\* Article written in a personal capacity. The opinions expressed do not commit the European Commission and do not necessarily represent the official position of the European Commission.

## 1. Introduction

Integrated coastal zone management (ICZM) has been defined as a dynamic, continuous and iterative process designed to promote sustainable management of coastal zones. ICZM seeks, over the long-term to balance economic development and human use, with the benefits derived from protecting, preserving and restoring coastal zones, minimising loss of life and property and promoting public access and enjoyment, all within the limits set by natural dynamics and carrying capacity.

In the past 40 years, ICZM has become fundamental to good management of the world's coastal resources. In the 1970s concern for the coastal and marine environments prompted the US Government to enact the Coastal Zone Management Act (1972). In 1973 the Council of Europe adopted a resolution on the protection of coastal areas (including the promotion of integrated coastal planning), and in 1981 the European Coastal Charter. In the 1980s a number of ICZM programmes began in a number of developing countries.

The UN Conference on Environment and Development held in Rio de Janeiro in 1992 agreed a programme of action known as Agenda 21, when 178 governments committed themselves to "integrated management and sustainable development of coastal areas and the marine environment under their national jurisdiction". Other UN conventions (e.g. Biodiversity and Climate Change) have reaffirmed the importance of ICZM, as did the World Coast Conference in the Netherlands (1993).

## 2. ICZM in EU Policy

In the EU, following inclusion of coasts as sensitive areas in the first "European Community programmes on the environment" and the development of a European Coastal Charter by the Conference of Peripheral Maritime Regions, two Council Resolutions, in 1992 and 1994, underlined the need for a European strategy for the coastal zone. In response, the European Commission (EC) worked to identify and promote measures to halt the deterioration and to improve the quality of our coastal zones.



***Multiple functional uses** (shipping, fishing, coastal protection, recreation, nature, urbanisation) demand an integrated management approach for long term, sustainable development of coastal zones. (photo: EUROSION)*

### Demonstration Programme on ICZM

From 1996 to 1999, the Commission's 'Demonstration Programme on ICZM', included 35 demonstration projects and 6 thematic studies. This provided technical information about sustainable coastal zone management, stimulating a broad debate among those involved in planning, management and use of Europe's coastal zones. In 2000, an assessment of the socio-economic costs and benefits of 21 demonstration projects revealed significant monetary benefits (costs: € 127 to benefits: € 660 million) and non-monetary benefits of ICZM (EC, 2000). The Demonstration Programme identified a wide range of environmental and social issues such as habitat destruction, loss of fish stocks and biodiversity, pollution, economic decline and social deprivation. Further investigation traced the causes to several underlying problems:

- Lack of a vision for management due to limited understanding of coastal dynamics and lack of dissemination of research results to end-users;

- Inadequate involvement of the stakeholders in formulating and implementing solutions to coastal problems;
- Inappropriate and uncoordinated sectoral legislation and policy, often working against the long-term interests of sustainable management of coastal zones;
- Rigid bureaucratic systems and the lack of coordination between relevant administrative bodies, limiting local creativity and adaptability and
- Local initiatives in sustainable coastal management lacking adequate resources and support from higher administrative levels.

### European ICZM Recommendation

In 2000, following completion of the Demonstration Programme, the European Commission presented a 'strategy for Europe' to the European Parliament and Council, which became the European ICZM Recommendation.



The Recommendation invited member states to take a strategic approach to coastal management while following a number of ICZM principles (see box 1). Based on analysis of the national situation (national stocktaking), member states should develop an ICZM strategy, co-operate with each other and report on implementation to the Commission in 2006. To support this, the Commission facilitated an expert ICZM group that meets annually.

*One dune ridge separates the low lying, capital intensive infrastructure: greenhouses, towns, (air) ports from the sea, Delfland, Holland.*  
(photo: //beeldbank.rws.nl, Rijkswaterstaat)

#### Box 1: Eight Principles of good ICZM

1. A broad perspective (thematic and geographic) taking into account the interdependence and range of natural systems and human activities impacting on coastal areas.
2. A long-term perspective taking into account the precautionary principle and the needs of present and future generations.
3. Adaptive management facilitating a gradual process of adjustment as problems and knowledge develop. This implies the need for a sound understanding of the evolution of the coastal zone.
4. Solutions need to be specific to local situations and respond flexibly to the great diversity of European coastal zone issues.
5. Working with natural processes and respecting the carrying capacity of ecosystems, will make human activities more environmentally friendly, socially responsible and economically sound in the long run.
6. Involving everyone with an interest or responsibility for management e.g. by agreement and shared responsibility.
7. Obtaining support and involvement of relevant administrative bodies in partnerships at national, regional and local levels. Establish and maintain appropriate links to improved coordination between existing policies.
8. Use a combination of instruments to facilitate coherence between sectoral policy objectives, and coherence between planning and management.



*Touristic facilities so close by the sea provides short term economic benefits, but make the low lying coast vulnerable to climate change impacts such as accelerated sea level rise. (photo: Villa Joli, Koksijde, Belgium)*

### **Evaluation of national reports**

In 2007, the European Commission (EC, 2007) evaluated the national reports on the implementation of ICZM. This showed a large variation in the progress, both between member states and regional seas. The national reports covered: newly developed strategies, new phases in implementing on-going ICZM, stocktaking results and initial proposals for a coastal strategy. Research indicates that all coastal EU Member States regulate coastal use and development in some form. The period 2000-2005 marked progress towards a more integrated planning and management approach, but a mature and well-functioning ICZM involving all relevant levels of governance is rare.

The evaluation identified reasons for success and failure in progressing ICZM. Recognising the relative importance of the coast, proper allocation of competences between administrative levels and leadership were important factors in successful ICZM implementation. Unclear distribution of functions between administrative levels led to failure.

The analysis has shown that overall the EU ICZM Recommendation has been beneficial to coastal management in Europe by:

- Creating a new awareness of long-term challenges;
- Moving from traditional sectoral planning approaches towards more integrated spatial planning of the coastal zone and its sustainable development.
- Creating a strong pressure to increase participation in decision-making;
- Recognising and creating awareness of:
  - 1) The importance of land and sea interactions;
  - 2) The human dimension in coastal processes;
  - 3) The need to integrate different sectors and stakeholders in order to avoid the type of conflict, which leads to unsustainable development.

### **3. Looking ahead**

When presenting the results of the evaluation, the European Commission encouraged coastal Member States to implement or develop ICZM strategies. Ambitions for the future are:

- To achieve a more coherent understanding and implementation of ICZM across Member States, develop guidance to clarify the principles underlying sound implementation;
- To ensure close co-ordination and co-operation with the Marine Strategy Directive and the related work of regional seas conventions such as the ICZM Protocol to the Barcelona convention (Mediterranean Sea basin). By doing so, ICZM will become an important component of the recent Maritime Policy of the European Union;



- Within the context of support for ICZM, improve cooperation at the level of regional seas, including coherence between plans, programmes and management across the terrestrial and marine interface. The proposed Marine Strategy Directive and the related work of regional seas conventions will provide important instruments to take this forward;
- Given the high vulnerability of coastal zones to risks related to climate change, develop adaptive strategies that comply with ICZM principles;
- To promote the exchange of information on good ICZM practice, especially between coastal regions. This includes gathering relevant data and effective information sharing for use in policy and decision-making. Continue development, application and evaluation of common indicators as a framework for assessing the effectiveness and efficiency of ICZM.

The European Commission launched the project OURCOAST (2009-2012), to ensure sharing of the lessons learned from coastal management experiences. A dedicated budget resource voted by the European Parliament in favour of sustainable coastal management made this possible. OURCOAST focuses on adaptation to risks and the impacts of climate change, information and communication systems, planning and land management instruments, and institutional coordination mechanisms.

#### 4. ICZM supporting projects

To support the implementation of ICZM within the EU, there are funding opportunities through the Cohesion Policy, the European Fisheries Fund and as part of the Research Framework Programme. Many initiatives related to exchanging knowledge and sharing best practice have emerged in the last decades. Examples of ICZM related Interreg projects in NW Europe are shown in Table 1.

EU research FP5-6	Focus	Interreg North Sea Programme	Focus	Interreg North West Europe	Focus
<b>Coastview</b>	coastal monitoring	<a href="#">Chain of Safety</a>	transnational crisis management	<b>BAR**</b>	coastal erosion
<a href="#">Conscience</a>	coastal erosion & sediment behaviour	<a href="#">Comcoast</a>	coastal management concept	<b>Branch</b>	land use and climate change
<b>Dinas-coast</b>	coastal vulnerability	<a href="#">Comrisk</a>	coastal flood risk management	<a href="#">Copranel</a>	practitioners network
<a href="#">Encora</a>	coordinated knowledge network	<b>Flows</b>	flood plain land use	<a href="#">Corepoint</a>	ICZM
<a href="#">Eranet-Crue</a>	science & policy integration	<b>Frame</b>	Flood risk in estuaries	<a href="#">Espace</a>	space for water
<a href="#">Erograss</a>	flood defence stability	<a href="#">Lancewadplan</a>	wadden sea cultural heritage	<a href="#">Flapp</a>	flood awareness and prevention
<a href="#">EuroGoos</a>	marine monitoring	<b>Norvision</b>	spatial planning	<b>Floodscape</b>	space for water
<a href="#">EUROSION*</a>	coastal erosion management in EU	<a href="#">Response</a>	coastal erosion and climate change	<b>Messina</b>	monitoring and valuation
<a href="#">Floodsite</a>	flood risk science and management	<a href="#">Safecoast</a>	<i>coastal flood risk management</i>	<b>Nofdp</b>	nature and flood prevention
<a href="#">Motive</a>	data harmonisation	<a href="#">Climate proof areas</a>	coastal flood management	<a href="#">Sail</a>	ICZM
<a href="#">Newater</a>	adaptive water management	<a href="#">Mare</a>	urban flood management	<b>Scaldit</b>	Scheldt estuary integrated vision
<a href="#">Spicosa</a>	science & policy integration				
*) Service contract with EC. **) Interreg 3a project					

Table 1: *Non-exhaustive list of ICZM related Interreg projects in NW Europe (with hyperlinks to websites).*

Some illustrative projects are here described in more detail:

### **EUROSION (Coastal erosion management in Europe)**

The EUROSION project initiated in 2001 by the European Parliament, aimed to evaluate the social, economic and ecological impact of coastal erosion on European coasts and assess the need for action. The results of this two and a half year study, steered by the Directorate General of Environment of the European Commission, were published in May 2004.



*Severe cliff erosion  
Happisburgh, UK. (photo:  
EUROSION)*

*Coastal erosion threatening the transition zone between the centuries old sea dike (in the background) and the retreating dunes, Camperduin, Holland. (photo: //beeldbank.rws.nl, Rijkstewaterstaat)*



The results provided the basis for policy recommendations to improve coastal erosion management at European, national, regional and local levels. The European Commission announced these results during a European conference and press release. The valuable EUROSION database is hosted by the European Environmental Agency and is publicly accessible (EEA-website).

EUROSION project products (see its website) are:

- A comprehensive and consistent map of the coast covering all coastal EU member states showing relevant parameters for vulnerability assessment;
- Cartographic assessment of exposure to erosion, based on spatial data and GIS analysis (elevation, geology, tidal range etc.);
- Introduction to the concept of sediment cells;
- A review of best practice in coastal erosion management as undertaken by local and regional authorities.
- A set of guidelines to help incorporate coastal erosion issues in environmental assessment procedures, spatial planning and coastal hazard prevention, and into regional and local information decision-support systems;
- A Shoreline Management Guide (SMG) to provide coastal managers especially at regional and municipal levels with state-of-the-art tools for coastal erosion management based on 60 case studies/pilot sites (Figure 1).

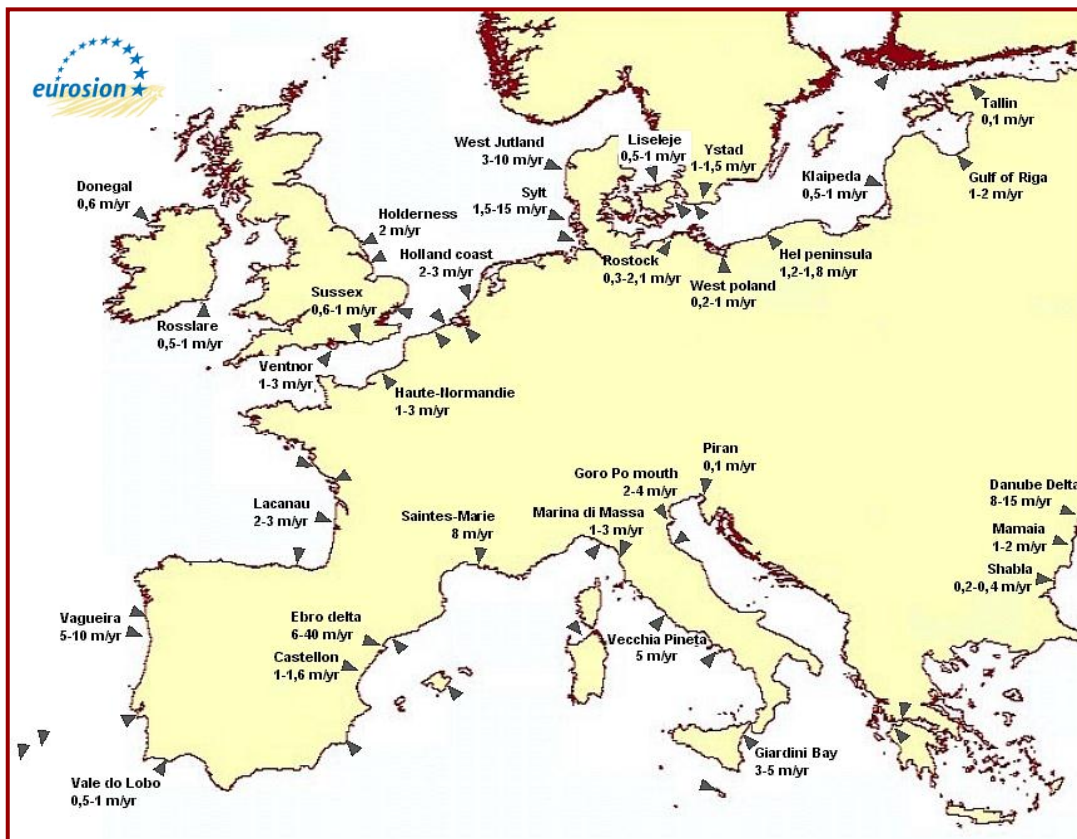


Figure 1: **Erosion rates** at 60 pilot sites in Europe. (source: Shoreline Management Guide, EUROSION)

## ENCORA (Coordinating coastal networks in Europe)

Lack of communication has hampered the implementation of ICZM in the past. ENCORA is a European network with new mechanisms for communication on shared problems within and between the communities of coastal science, policy and practice. In 13 European countries, National Coastal Networks have been established, or are anticipated. Ten trans-national, cross-disciplinary thematic networks led by institutions with outstanding expertise, address major ICZM issues. They include participants from all EU countries, including those where a national network is not yet established. There are operational nodes between the National and Thematic networks and other coastal networks (see website).

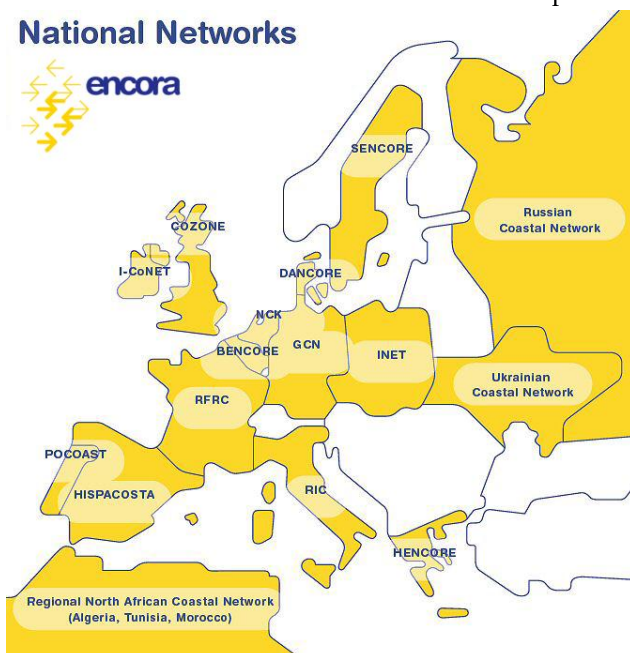


Figure 2: **Cooperating coastal nations – ENCORA - network**



### SAFECOAST (Coastal Flood and Erosion Risks in 2050)

The Safecoast Project shares knowledge and information on coastal flood and erosion risk management between coastal management authorities in five North Sea countries: Denmark, Germany, Netherlands, Belgium and United Kingdom. In recent years, climate change, in particular sea level rise and its effects on low-lying coastal areas have generated renewed interest. Although uncertain in terms of magnitude and frequency, there are likely to be more intense storms and extreme events in the future increasing the potential for coastal erosion and flooding.

Despite the storm surge disasters of 1953 (Netherlands, Flanders and England) and 1962 (Germany), the North Sea countries continue to build in flood prone areas. The population is expected to continue to grow until 2050 and it seems likely further development in flood prone and coastal areas will take place. This will increase vulnerability to and damage from flooding. Therefore, Safecoast has compared scenarios for climate change and spatial planning to 2050.

Based on the results, the project gives recommendations on the management of the coast in 2050 (see website).

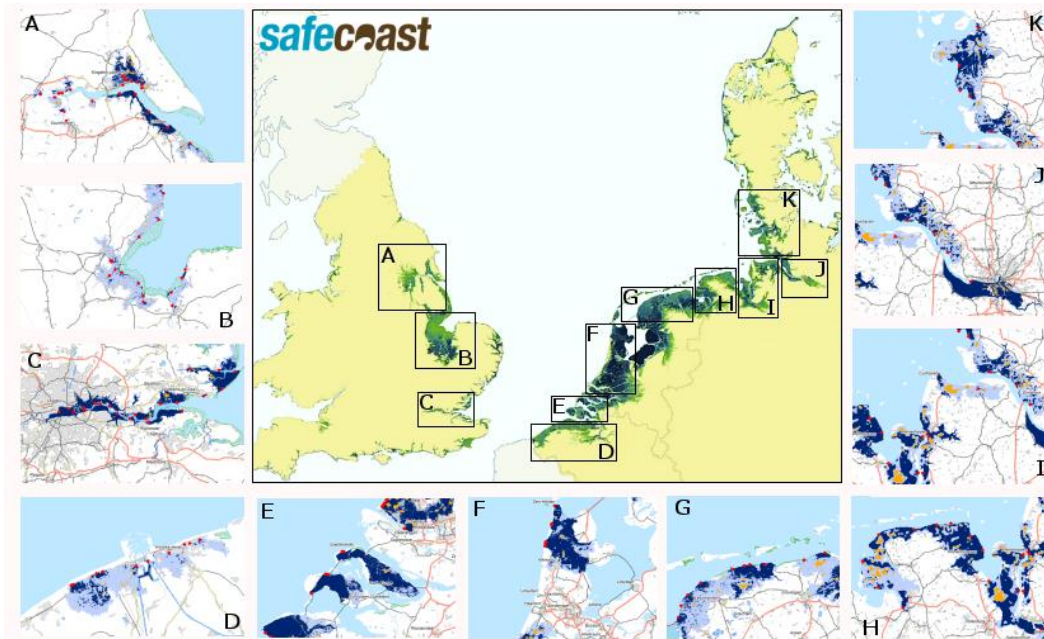
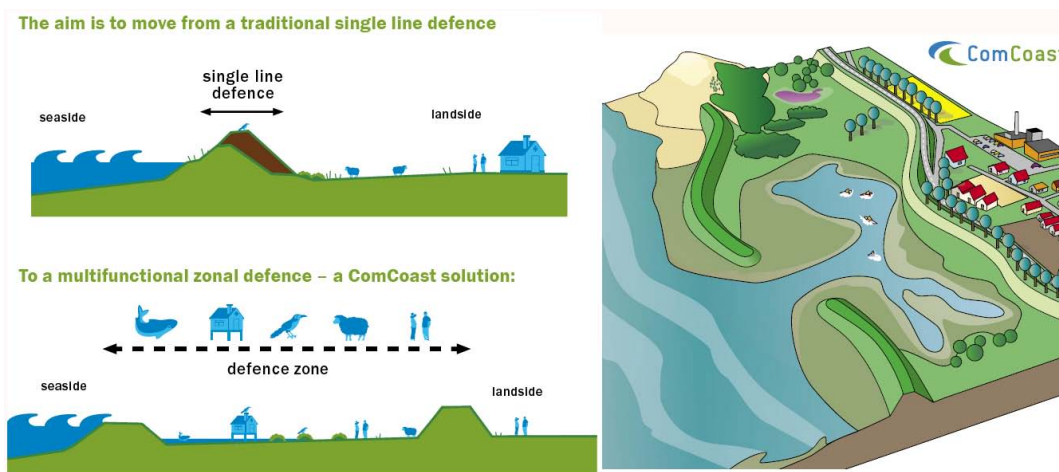


Figure 3:  
**Transnational  
flood risk  
assessment and  
mapping for the  
North Sea Region**

### COMCOAST (Multifunctional Coastal Defence Zones)

ComCoast is a joint European project investigating different forms of land use with opportunities for creating a wider coastal zone for water storage during storm events (Figure 4). One essential feature of this is that the first line of defence against flooding is resistant to overtopping by waves. There are several techniques under review, see website. Another field of investigation is the stability of inner slopes of existing dikes during overflow or wave overtopping. For dikes under severe wave attack, large-scale tests, for example in Lelystad and Zeeland (both in the Netherlands) with



grass-clay cover layers suggest a considerable crest height reduction is achievable, without failure of the dyke.

Figure 4: **Combining safety with different functional uses – COMCOAST.**



### EU-PlanCoast (an INTERREG IIIB NP CADSES project (2006 – 2008))

The coastal zones of the Adriatic, Baltic and Black Sea face severe pressures from development. Multiple sea and coast-based activities such as tourism, transport, fishery, aquaculture and energy generation continue to grow.

Experiences in integrated spatial planning of the maritime and terrestrial part of coastal zones in these three regional seas were exchanged. This showed that spatial planning is one of the legal mechanisms for putting ICZM concepts into practice and furthermore:

- PlanCoast developed tools and capacities for effective integrated coastal planning in the region;
- Introduced the completely new spatial planning instrument Maritime Planning;
- Linked Integrated Coastal Zone Management (ICZM) and Maritime Planning with the processes of statutory spatial planning in selected pilot projects;
- Spread the use of modern Geographical Information Systems (GIS) for effective transnational planning;
- Contributed to the creation and implementation of EU policy on coastal zones and maritime areas, such as the Green Book and Blue Book, and led to the creation of numerous national laws and strategies.

PlanCoast had 16 partners representing the spatial planning departments or responsible regional authorities in the three regional seas. Among the many products were a handbook on Integrated Maritime Spatial Planning published by the PlanCoast project in 2008 (see Figure 5 and project website).

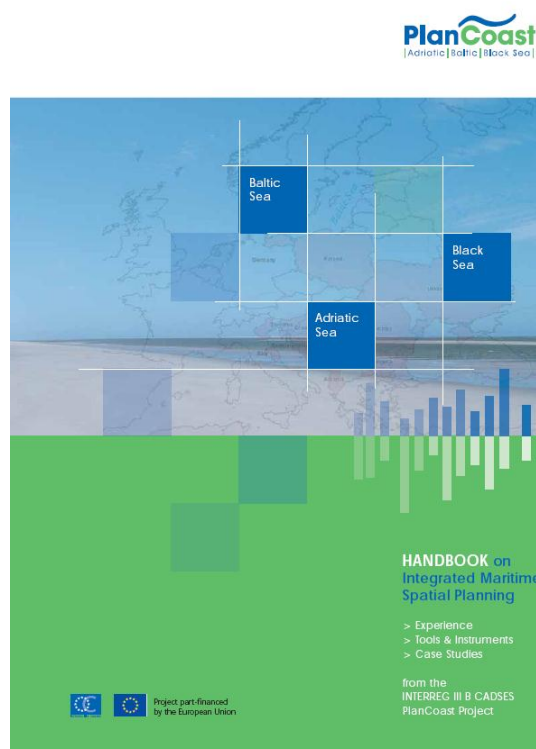


Figure 5: **Cover page of the Handbook on Integrated maritime Spatial Planning** – one of the products of EU PlanCoast project.

## 5. Conclusions

In the past, the lack of overall coordination of coastal zone responsibilities at national and international scales became evident. This led to the development of the concept of Integrated Coastal Zone Management (ICZM). The EU institutions strongly support the development of the ICZM programmes. The integrated approach to policy-making for the recent EU Maritime Policy and its environmental pillar the EU Marine Strategy Framework Directive, will allow the EU to take further important steps towards implementing ICZM.

The EU will increase its efforts to support the ICZM application also in the associated and non-member states when requested. The EU ICZM principles and efforts could help the sustainable development of the Asian coastal zone, increasing the economic and environmental benefits for future generations.

## 6. References

- Communication from the Commission - Integrated Planning of Coastal Areas: its role in Community environmental policy, COM(86)571 final, 30 October 1986
- EU COUNCIL RESOLUTION of 25 February 1992 on the future Community policy concerning the European coastal zone (92/C 59/01)
- EU COUNCIL RESOLUTION of 6 May 1994 on a Community strategy, for integrated coastal-zone management (94/C 135/02)
- Recommendation of the European Parliament and of the Council of 30 May 2002 concerning the implementation of Integrated Coastal Zone Management in Europe (2002/413/EC)
- Communication from the Commission - Report to the European Parliament and the Council: an evaluation of Integrated Coastal Zone Management (ICZM) in Europe , 2007(COM/2007/0308 final).

#### Websites:

- **Comcoast website:**  
[www.comcoast.org/](http://www.comcoast.org/)
- **Encora coastal network website:**  
[www.encora.eu](http://www.encora.eu)
- **EU-ICZM:**  
<http://ec.europa.eu/environment/iczm>
- **EU-Ourcoast:**  
<http://ec.europa.eu/environment/iczm/ourcoast.htm>
- **European Environmental Agency – EUROSION Data base:**  
<http://glossary.eea.europa.eu/terminology/sitesearch?term=euroSION+database>
- **EUROSION – project website:**  
[www.euroSION.org](http://www.euroSION.org)
- **PlanCoast website:**  
[www.plancoast.eu](http://www.plancoast.eu)
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#### PDF reports:

- **EC – European Commission, 2000:** An Assessment of the socio-economic costs & benefits of Integrated Coastal Zone Management, November 2000; Fim Crichton Roberts LTD & Grad. School of Environmental Studies. University of Strathclyde, UK:  
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