

ANNEX I INTERACTIVE SESSIONS
Reactions on Coastal Resilience-statements

Statement 1: System approach to be adopted by Member States for management of sediment cells and catchments.

Pro:

Leads to more sustainability, higher cost-effectiveness, increased safety and more nature conservation legislation compliance;
Common goals unites stakeholders and sectors (economic, environmental and social gains);
Avoidance of insufficient measures because based on natural processes;
Provides understanding for options for management at different scales.

Con:

Underplays other factors that are also important (e.g. biotic elements);
Difficult to be implemented if sediment cells do not coincide with management units;
Scale might be a problem, too high level;
Does not work due to cultural differences, even within a country;
Concept depends on type of sediment, time scale.

Statement 2: In-depth knowledge of coastal resilience needed and mandatory incorporation in local spatial planning.

Pro:

Provides direct guidance, in particular on local and regional level;
As it is mandatory, implementation is ensured;
Contributes to long term management;
Knowledge base, legislation and strong guidelines will prevent inappropriate development;
Effective.

Con:

“Resilience” can imply that there is a natural state;
Lowers responsibility because measures are mandatory;
Doubts about working in practice;
Doubtful whether local mandate accepted;
Resource problems (staff, training);
Resilience requires flexibility which might be lowered due to rigid approach;
Relies too much on local authorities and their (short-term) interests.

Statement 3: Operational action to be based on favourable sediment status within management system.

Pro:

Very practical concept on policy level and on operational side for maintenance.

Con:

Concept is still not clearly defined;
Need to start communication process with all actors in order to come up with measurable parameters.

Statement 4: Strategic sediment reservoirs need to be allocated in each sediment cell.

Pro:

Guarantees sediment source for combating erosion (economic sand nourishment) and increasing resilience;
Protecting against commercial mining, high prices;
Lowers conflict between adjacent regions, increases understanding;

Better management and monitoring possible;
Re-circulation of sediments possible;
Safeguards present and future choices;
Makes self-sustaining system possible.

Con:

High transport costs if SSR not available close-by;

Sometimes not useful, e.g. in case of rocky shores;
Marine spatial planning required, does not yet exist in many countries;

Coordination of use might be difficult;
Big challenge how to re-locate communities.

Statement 5: Sediment cells need to be described and incorporated in management plans.

Pro:
Increases awareness and knowledge as base for decisions;
Makes coordinated, prioritised management possible;
Promotes common management strategies and long-term planning, in particular erosion risk planning.

Con:
Requires a lot of effort and resources (finance, trained staff);
Lack of adequate legislation;
Enforcement of measures is a problem;
Risk of having too many plans.
(But we need to understand future trends and geomorphology!)

Statement 6: To define sediment cells, information is needed on bathymetry, hydrography, elevation, wind and waves, water levels, currents.

Pro:
Good concept.

Con:
More information on more parameters needed, dependent on time scale (what is the management objective?) minimum on European scale: bathymetry including elevation, geology, and human structures for first estimates of sediment cells;
Sub-cells even more important.

Reactions on Accountability-statements

Statement 7: Accountability can be improved by laying down responsibility at the appropriate level

Pro:
All.

Con:
Hesitating because "appropriate": what is appropriate.
Problem with "level". Better: "party".

Statement 8: Accountability is helped by installing PPPs

Pro:
60%
Accountability: measured against benchmarks, targets.

Con:
Comments: 3 years period to establish.
Helps transparency.
There should be accountability no matter whether there is PPP or not.

Statement 9: Cultural differences in Europe give different shades of accountability

Pro:
95%

Con:
5%: Accountability refers to targets, objectives. It depends on the targets. Birds/hab targets relate to different groups than safety. Not necessary the cultural difference. Governments are in favour of working with PPPs.

Statement 10: Governments are in favour of working with PPPs

Pro:
60 %
PPP are already running in many different areas.

Con:
40 %
If this would be true the majority of works would be PPP

Statement 11: PPP's for coastal management is a happy marriage?

Pro:
40%
At least a panacea for a future on a scale of decades may be well worth trying

Con:
60%, Threats:
Coastal area lands itself not good for PPP environmental issues.
Hope it would work but you're dealing with values that are not purely economical. We don't transfer these values in economic terms. PPP is for partner ship: does it also mean paying? If it is not meant to pay it is much easier, if the public has to pay. If I have to pay I would have to think if I would participate. Source of funding might be different in different PPP's. Basic point is that there must be better value for money.
In PPP public and private are looking to each other waiting: NL: Delta Works are a sole Governmental initiative, now both P and P are not pro-active, and nothing happens.

Reactions on Risk assessment-statements

Statement 12: If mapping of coastal hazards (for planning and development) is relevant for Malta it is relevant for Europe.

Pro:
80%
Yes but not the same hazards have to be mapped all over Europe.
Yes, but acceptance and feasibility are different over Europe with respect to local culture, look at the problems at national level.
Reverse the statement

Con:
20%
Problems are different over Europe, the same rule cannot be applied.
Non coastal countries like Switzerland are of course excluded.

Statement 13: Hazards and impacts of extreme events need to be forecasted and assessed. These assessments need harmonised mapping in Europe in spite of the regional differences

Pro:

40%

Mapping needs to be appropriate to the type of risk, or in combinations. Harmonize, but be flexible in what you monitor. YES/NO, problem areas should be addressed, mapping for Europe should be done on regional level. Fit to the needs.

Con:

60%

NO, HARMONIZATION is a means, not a goal. Where can we harmonize, we do it. If you stick too much to certain indicators, it will hamper new innovative indicators; EU harmonization will make it too narrow.

Statement 14: The threats are of such an order that we ask EU to facilitate and guide Coastal Risk Mapping Europe wide, while coastal nations should undertake the Risk Mapping in a coordinated fashion.

Pro:

90%

Con:

10% What is the sort of guidance? What do we have to produce? Scenarios? Overall scenario + guidelines.

Statement 15: Highly productive coastal wetlands with the size comparable to that of The Netherlands is threatened by coastal erosion, the impact of this calls for European monitoring.

Pro:

Can't we just take care within our own regions? EU dimension can be more effective for nature allocation.

Con:

This is something that already exists. Natura 2000 networks. We need to go beyond monitoring, protection can be an option, Living with the SEA

Statement 16: Risk mapping should be made known to the public at large, so that appropriate part of the risk should be transferred from public responsibility to the direct beneficiaries and investors.

Pro:

YES, Spatial planning of the coastal zone includes erosion and flooding. Important for people to know where they live and what the consequences are. However, if final approval is given for development outside a certain safety zone, then the beneficiary should carry the costs. So within national designated safety areas: the public can be held responsible

Con:

NO, Information to the public at risk, but on a need to know basis. Developers only when necessary. Get a mechanism to show the risk mapping to the public, but beware to be sued. What about the cultural difference in awareness / attitude between e.g. the UK ("good luck with your sandbags") and NL (I thought the government would take care of that)?

Question: Who takes action / which institutions are going to make the next steps in this important European process: "From Monitoring to Measures"

Reactions:

Next steps, Inventory of country related needs to address risks

The role for Europe isn't clear yet. There is some vague agreement on the EUROSION recommendations, an answer is not ready. Needed: database of the planned actions of each member state is needed, whether country a is implementing an action that influences country b. cross border issues. EU influences or corrects national plans (EU will not be crossborder conflict-solver)

Concrete plans on the usage of the EUROSION database are absent, and doubts on the quality exposure to erosion maps exist. River basin plans needed to include impacts on the shorelines. Can we incorporate it in the WFD? EUROSION is about sediments! This is something else than the chemicals in the WFD.

Action at member state level, incorporating EUROSION recommendations (either all ready there, or new). There is quite a set of questions to be answers to be cleared before this can be done: a follow up is necessary to delineate and specify the EUROSION suggestions. Produce more useable and implementable guidelines. Concretize!

ANNEX II SPEECH SUMMARIES

Keynote: Patrick Doody (National Coastal Consultants, UK)

Given the improving knowledge base around Europe we can identify a number of 'truths' about the coast:

- There are no inherent problems until human settlement occurs. Given space and time coastal systems adjust to the prevailing climatic and tidal situation.
- Coasts have a range of types from highly resilient to dynamic.
- Human development has caused considerable alteration to the 'natural' coast. This has included loss of habitat 'coastal squeeze' and knock-on effects of engineered structures.
- With this knowledge has come the realisation that in many cases the traditional engineered response to erosion (and/or flooding) is not always sustainable. Through national initiatives and locally understanding our approach has begun to change. The EU has also influenced this change as the knowledge base has been augmented through:
 - The EU Demonstration Programme on Integrated Coastal Zone management
 - The EUROSION project 2002 - 2004
- It has become clear that in many areas as the effectiveness of coastal defences (against erosion and flooding) has diminished their cost has increased. Further this cost is often borne by the local and national taxpayer.

Coastal Resilience: Michel Beurrier (Director BRGM, FR)

Objectives of the EUROSION project commissioned by the DG Environment (EC):

- To assess and map the exposure of the European coastline to coastal erosion and coastal flooding, based on a GIS database at 1:10 000 scale).
- To provide the European commission and the European Parliament with a set of policy recommendations.

One of the EUROSION recommendations is the coastal resilience concept as the inherent ability of the coast to accommodate changes induced by sea level rise, extreme events and occasional human impacts. For this (what is meant by "this"? –verwijzing niet duidelijk.) two main factors can be identified:

- The local availability of sediments in sufficient quantity to maintain the dynamic equilibrium and attain a "favourable sediment status"
- To keep sufficient space for coastal processes to operate. (This is not a factor!)

This requires:

- To work at the scale of the sediment cell and
- To identify strategic reservoir of sediments off-shore, on coastal area and hinterland
- Manage coastal risks of erosion and flooding at various levels: trans-national, cross-border, national, regional, local
- Collaboration between the different actors: scientists, coastal engineers, decision makers, and public society.
- Monitoring

Towards European coastal assessment: Carlota Montori (ETC TE)

The general aim of EEA's work on coasts is to contribute to the Europe's sustainable spatial development and specific objective is to contribute for the EU ICZM Recommendation review in 2006. For successful review we need better understand the impact of the policies and financial instruments on the coast and help to design the effective responses to stop the coastal degradation. Making use of recent European data sets combined with results of indicator testing from ICZM WG-ID and demonstrating the application of land accounts method allows showing and analysing the main trends in European coast in support to the coastal policy process. On the same time, the need to promote a dialogue with coastal stakeholders and take into account the diversity of European coasts is also recognized and foreseen by consultations on the eco-region basis.

Europe's coasts at risk From analysis to action: Birgit Snoeren (European Commission DG Environment unit D3 Cohesion Policy & Environmental impacts)

Coastal erosion and flooding may be seen as a European problem when taken into account several facts ranging from the wide extent of coastal erosion and its growing problematic to cross-border issues such of underlying natural processes (sea level rise, coastal sediment cells and reservoirs). (Even besides the statistics: 70 million inhabitants (40.1 in RICE*); 500-1000 billion € invested within 500m from the EU shoreline; coastal biodiversity; increased costs (3.200 million €, +28% EU wide)

Link to current EU policies and legislation:

Coherence policies:

6th Environment action programme:
Natural/technological risks

Flooding initiative
Promotion ICZM
Environmental concerns in land-use planning
Thematic strategies: Marine, Urban, and Soil

Sustainable territorial development
"environment and risk"

Transport: motorways of the sea

Others: Tourism, Agriculture, and Fisheries
GMES/INSPIRE

Follow-ups / next steps:

- Validation of EUROSION analyses
- Understand the feasibility of recommendations provided by EUROSION and options
- Results feed-into DGENV/Commission follow-up (form/context tbd)

Coastal management, natural process knowledge and where the twain shall meet: Huib de Vriend (Scientific Director WL I Delft Hydraulics, NL)

The nature of the coastal system determines to a large extent the approach to be taken in solving coastal management problems. This means that knowledge and predictive capability concerning that system are prerequisites for adequate ICZM. To what extent can we provide these, given the present state of knowledge? How good are the state-of-the-art simulation models? Do we have sufficient data to validate them? Have we reached the point where we can safely apply strongly simplified models? Do we have sufficient knowledge to identify adequate coastal state indicators? And how to support coastal zone management policies? How to go about the uncertainties that are inherent to weather-driven natural systems? These and similar questions were addressed in this talk to give a first step towards a scientific approach to the EUROSION recommendations.

**Balancing Development and Coastal Erosion Risks in Malta:
Michelle Borg (Malta Environment and Planning Authority)**

The problem of coastal erosion at a European scale has been clearly identified through the EUROSION project. The project findings suggest that increasing human activity and coastal development together with limited knowledge on coastal processes is linked with potential risk to human life and assets through coastal erosion.

The situation of the Maltese Islands is presented as an example to understand the need for better information on coastal erosion risks, for decision-making. Malta has a total land area of 316km² and population density 1,200 persons per km². Most of the urban infrastructure is located on the coast with a large urban conurbation surrounding the harbour areas. Having a small domestic market, the economy relies on exports of goods and services with tourism being a significant contributor to the local economy. Consequently hotels have been constructed in prime areas, close to beaches and in areas of high landscape value.

The findings from the EUROSION case study indicate that even in the absence of a nationwide database on coastal erosion, it is clear that the main cause for coastal erosion in Malta is linked to human interventions and that the inventory of coastal hazard and impacts has a clear added value.

**Accountability and PPP: case study of the *Broadland Flood Alleviation Project*:
Paul Rao (Halcrow, UK)**

Broadland is situated in the east of England. 90% of the area is at risk of tidal and fluvial flooding: North Sea surges and sea level rise add to this risk. As a National Park with rich landscape, heritage and ecology, Broadland depends on reliable flood defences to protect its special status. The Environment Agency is the Government agency with powers to provide and maintain flood defences and to overcome historic under-investment in Broadland's flood defences, in 2001 it appointed Broadland Environmental Services Ltd (BESL) to work as its private sector partner. BESL provides engineering, environmental and construction services on this 20-year, publicly-funded Public Private Partnership programme (PPP).

The long-term contract gives certainty of funding to BESL; programme, risk and environmental response to work can be planned and managed strategically; there is significant opportunity for innovation; and partnership working enables the Environment Agency to secure value for money with a single private sector partner. Co-location, open book accounting and regular project briefings demonstrate accountability and partnership. Rigorous environmental standards ensure flood defence schemes in the sensitive National Park setting are carefully planned, designed and implemented but the Project also has extensive obligations for stakeholder engagement to ensure on-going public accountability and feedback. This helps the PPP to be sustainable both economically and environmentally and has continuing public support. Overall, the progressive implementation of the Broadland project will maintain and improve the Broadland environment for the benefit of local communities both now and into the future.

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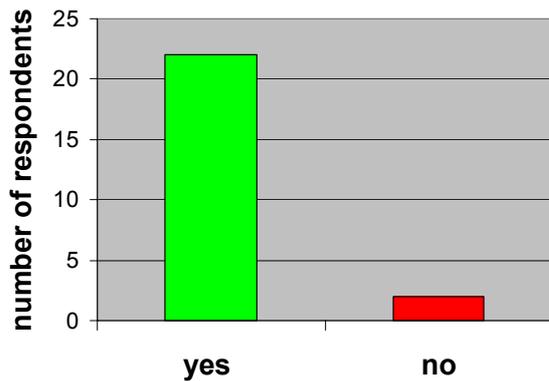
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ANNEX IV Results Questionnaire

After the announcement of the Coastal Conference, a questionnaire was distributed, containing 18 questions concerning the EUROSION recommendations.

This questionnaire was filled in and returned by 24 people from 14 European countries. These represent different organizations; nine knowledge institutes, eight governmental bodies, three organisations implied with operational management, two commercial organizations and one international body.

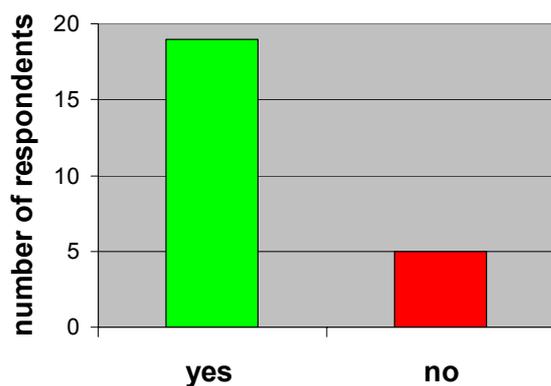
Hereunder, some outcomes are presented.



Spatial Planning

22 of 24 respondents indicate that spatial planning is implemented in the coastal zone of their region of interest.

Spatial planning is often regulated at the local level. There is not necessarily a link between coastal zone management and land use planning system of the hinterland.



Coastal Sediment Cell

In 19 of 24 cases the organization of the respondent is knowledgeable of the coastal sediment cell concept.

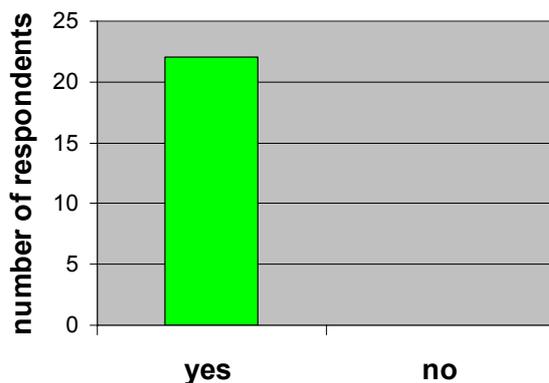
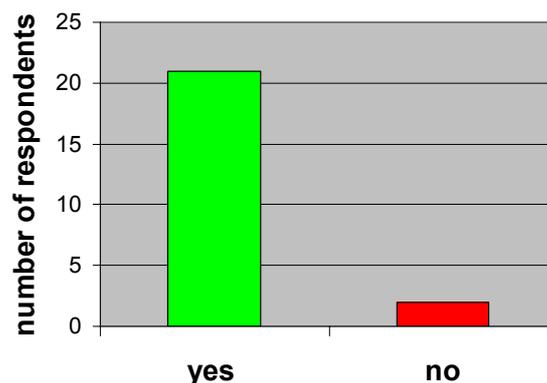
15 of 24 organizations make use of the concept in the definition of coastal policy or other related fields.

21 of 23 respondents indicate their organization supports the introduction of the concept of favourable sediment status and the identification of this status.

Reasons for support are varying: respondents refer e.g. to sustainability, resilience and equilibrium of the interests of environment/nature and human use.

22 of 23 respondents is of the opinion the introduction of this concept would contribute to Integrated Coastal Zone Development.

Favourable Sediment Status



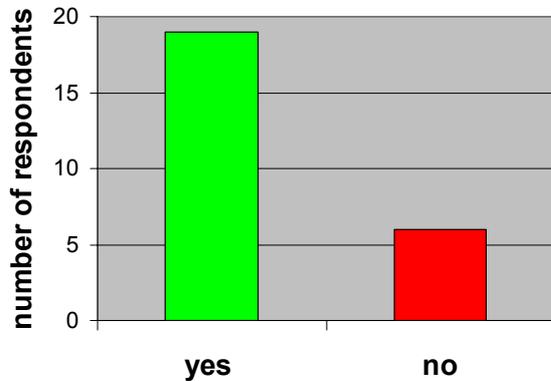
Coastal resilience

All 22 respondents say their organization supports the introduction of the principle of coastal resilience as one of the leading principles for coastal planning, management and development.

The importance of sufficient knowledge to support decision-making processes considering coastal resilience is stressed.

In this context the concept of Strategic Sediment Reservoirs is introduced.

Strategic Sediment Reservoirs

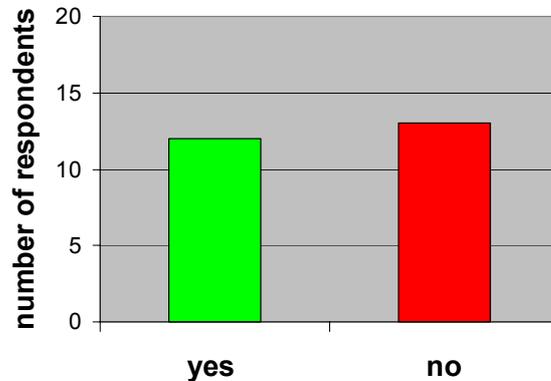


19 of 24 respondents say introduction of the concept would be feasible.

Some respondents make a difference between technical and financial feasibility.

22 Of 24 respondents find the introduction of strategic sediment reservoirs can contribute to sustainable development of the coastal zone as they see it in their situation.

Risk Management

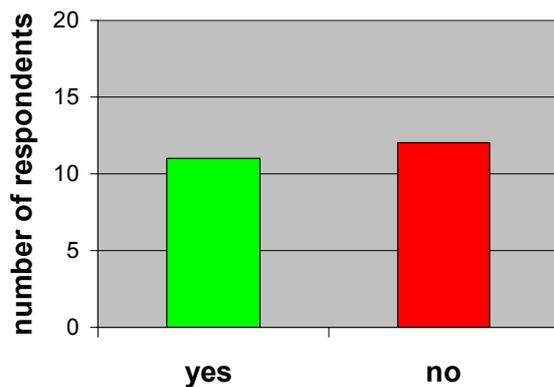


12 of 24 respondents mean coastal hazards are properly assessed, modelled and monitored; 13 mean they are not.

Often there is a lack of data, or data are judged inappropriate, misinterpreted etc.. Even some of the people responding hazards are properly assessed indicate the data are restricted.

In relation to the lack of data the Precautionary Principle is mentioned.

Impact Mapping

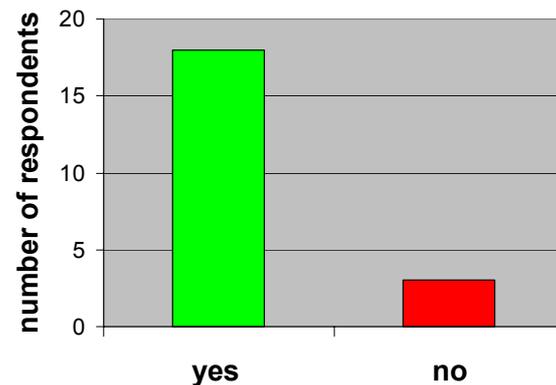


11 of 23 respondents indicate the impacts of coastal hazards are properly assessed and predicted.

The 12 other respondents attribute the lack of proper hazard assessment and prediction to a shortage of data or insufficient recognition of the problem.

Even when impacts are (partly) known, the available information is not always used by authorities and developers.

Accountability



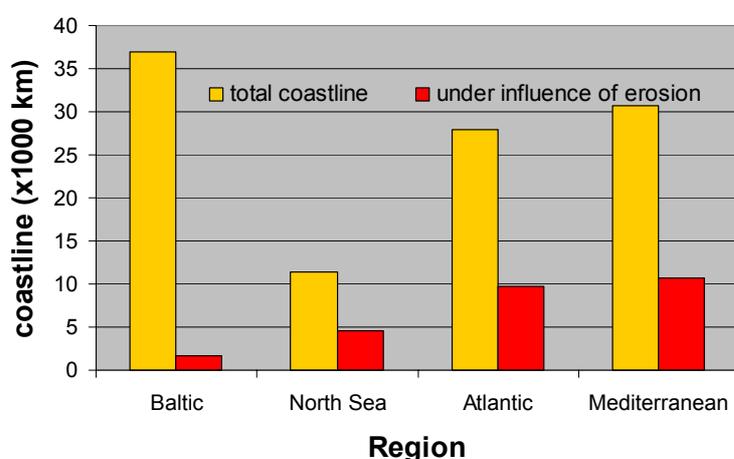
18 of 21 respondents say their organisation supports the introduction of shared accountability.

Accountability with respect to coastal zone investments and development is in 12 cases somehow present; but there is apparently a big difference between theory and practice. However, the concept was not always well understood, and the criteria were often not considered clear.

ANNEX V Some EUROSION Statistics

To enhance the discussion on the EUROSION recommendations during the Coastal Conference, some analysis on the EUROSION database was executed, mainly focussing on the occurrence of erosion and potential erosion impacts. Goal is to visualise the magnitude of erosion and its impacts on the coast itself, population investments and ecological areas of importance. Hereunder, some outcomes are presented and some statements are made.

Erosion occurrence in Europe



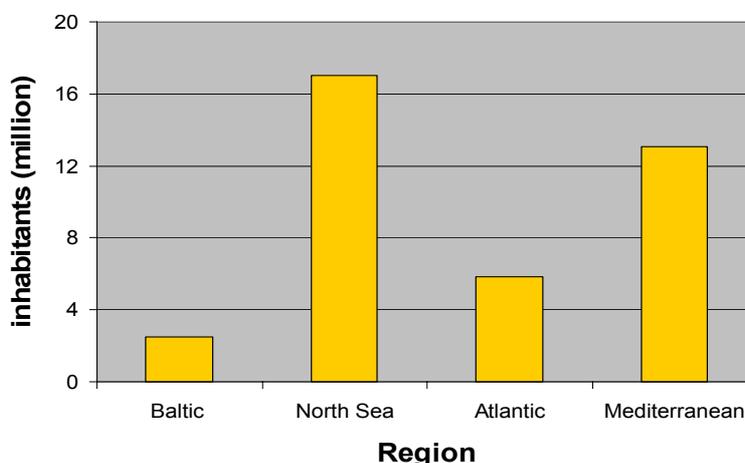
25 % of the European coastline is under the influence of erosion*. *Coastal erosion is a factor of major importance in the both the European part of the Mediterranean and the North Sea region compared to the other European seas analysed in EUROSION.*

* Or 20% not counting the artificially protected areas.

Population living within the area under influence of coastal erosion

Along the European coast more than 38 million of people are living in an area under the influence of erosion.

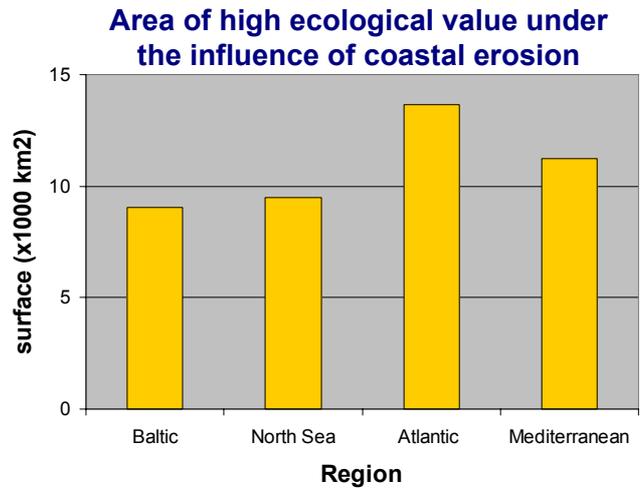
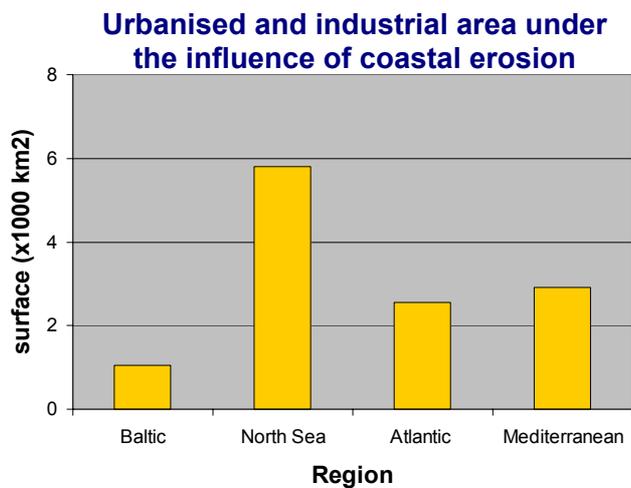
The North Sea region and the European part of the Mediterranean together make up for 78 % of the total, which comes down to about 30 million of people.



Hazards and Impacts

Especially the North Sea is vulnerable when considering the population at risk in the coastal zone. But there is more at risk than the population.

The coastal zones are in many senses highly productive areas; flooding and erosion pose a threat to both industries and nature.



Considering the threats of erosion we may conclude they are of such an order that the EU should stimulate Coastal HAZARD and IMPACT mapping European wise.

Knowledge about hazards and impacts of erosion would lead to knowledge about RISKS (risk = hazards x impacts).

The results of Risk Mapping should be made known to the public at large. This would open the way to transfer an appropriate part of the responsibility from governments to direct beneficiaries and investors.

Leading to share accountability.

In this context, it is good to realize that use of the European coastal resources tends to be unsustainable in several ways:

- The available knowledge of the coastal system is used *inadequately*.
- Urbanisation in the coastal zone leads to *higher impacts* of flooding and erosion.
- Climate Change leads in the future to sea level rise and storms, implying *higher hazards*.