



OOSTENDE | 27-29 NOV 2012 | INTERNATIONAL CONFERENCE

LITTORAL



CONFERENCE REPORT



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Plenary welcome session



On behalf of the Coastal Marine Union (EUCC) and the organising institutions, **Kathy Belpaeme** chair of the organising committee, officially opened the Littoral 2012 conference by extending a very warm welcome to all the participants. Thanking the sponsors she noted that Littoral 2012 had attracted 190 participants from 23 countries. Introducing Johan Vande Lanotte, Flemish Minister for the North Sea, she reminded the audience that

in his former capacity as Chairman of the EUCC, Minister Vande Lanotte had been instrumental in bringing Littoral 2012 to Ostend.



Minister Vande Lanotte welcomed the delegates to a “meeting of ideas” and stressed the need for a new and integrated way of thinking about how we manage our seas and coasts. Describing the port of Ostend as an ideal case study for Integrated Coastal Zone Management (ICZM) and Marine Spatial Planning (MSP) in action, he commented on the interplay amongst the various local

stakeholders: the coastal residents and their concerns about pollution, the tourism industry, the establishment of a new offshore energy hub, and the concerns of the fishing industry. Whilst recognising the importance of scientific and academic input into finding appropriate solutions, he stressed that ultimately solutions must be practical. He said the open nature of the sea presented policy makers with enormous challenges and that ICZM and, even more so, MSP must be developed with international collaboration.

Minister Vande Lanotte: “(this is) a meeting of ideas, we need a new and integrated way of thinking”



The current EUCC president, **Hendrik Oosterveld**, opened his presentation by paying tribute to Minister Vande Lanotte in his former role as President of the EUCC. Mr. Oosterveld went on to thank the organising committee before welcoming all participants and pointing out that “not only do you work in this domain but you also shape it’s future”. Stressing that our coasts and marine environments were under threat, he said we must find ways from

local to national level to address and manage these challenges. Mr. Oosterveld highlighted the increasing demands for energy and the impact of climate change and questioned how we balance developing our coasts with diminishing financial resources. Such considerations, he remarked, would have an impact on the four thematic areas, coastal management, sustainability, nature conservation and innovative infrastructure. He hoped that the EUCC could contribute to solving these problems, to achieve healthy seas and attractive coasts for people and nature. Quoting the vision of the EUCC, he said that we need a new and sustainable balance between planet, people and profit and that we must cooperate and maintain an open dialogue between the various actors. He stressed the need to build bridges because research and management of coastal and marine domains requires international cooperation and budget. Finally hoping that Littoral 2012 would have a positive impact, he concluded by saying “we have to shape the future of our coasts and seas” and “together we can do more”.

Hendrik Oosterveld: “not only do you work in this domain but you also shape it’s future”



Jeroen Casaer, Policy Officer with DG Environment of the European Commission, discussed the joint initiative on ICZM and MSP in the context of the new EU policies and Directives. Forty percent of EU citizens live in coastal areas which by default have a high economic and ecological value. The challenge, therefore, is how to reconcile the developing maritime economy with the conservation of our coastal regions. He highlighted the

risks of climate change and the related threats of coastal erosion, salt water intrusion, and sea-level rise, noting that a rise of 1m in sea-level would displace 13 million people. He went on to say that “ICZM and MSP should provide a means to support the sustainable development and use of coastal resources”. He said that in its most simple form, ICZM was about good governance and that communication was vital. However, it required a “national stocktaking” and also interaction between member states. Describing MSP as the appropriate allocation of space in a limited maritime area, he said that “different interests must be reconciled” and that the various stakeholders must communicate with each other to achieve this.

Jeroen Casaer “ICZM and MSP should provide a means to support the sustainable development and use of coastal resources”.



In his opening keynote address, **Brian Shipman** (United Nations Environment Programme, UNEP), gave an inspiring and provocative presentation entitled, “A new ICZM for a new era,” in which he provided a holistic and somewhat critical review of the progress of ICZM over the past 20 years. He also presented a new concept which he referred to as “iCZM2.0”. A key message of his presentation was that ICZM had been too slow to evolve. As such it had lost ground to new policies and a lot of its achievements had been short-term and project based. He presented iCZM2.0 as a new approach to reinvigorate the process, where the “i” represents key characteristics of effective ICZM, namely, integrated, intelligent, iconic, interactive and important. iCZM2.0, he said, must be an overarching policy framework that must operate at the nexus between policy and programmes. To ensure its legitimacy, ICZM must be embedded in legislation whilst also being clear and simple and providing a vision of sustainable development. He stressed that it must continue to reinvent itself to remain relevant and it must be outcome-driven.

Brian Shipman “In respect of ICZM, the status quo is not an option”.

Some of the key points raised by the four plenary speakers were to be reiterated again and again in the sessions that followed. Sustainable management of our coastal zones will require consideration of the increasing multi-sectoral interactions supported by our coasts in light of the challenges presented by climate change and the global economic crisis. Long term, strategic, spatial, temporal and economic planning within a legal framework will contribute to finding practical, harmonious solutions.

Session 1 Coastal Management

Session Chair **Brian Shipman**

Speakers **Cathal O'Mahoney, Anthony Gallagher, Emma McKinley, Lyndsey Dodds**

The first session of the Littoral 2012 conference on the theme of Coastal Management was introduced and chaired by Dr Brian Shipman. It included four speakers from the UK and Ireland all focusing on the areas of coastal governance, capacity building and the significant role of stakeholders. A constant theme in the presentations was the importance of stakeholder cooperation and participation. Achieving effective stakeholder interaction involved identifying shared objectives. **Communication of ideas using various tools such as scenarios, visualisation, community interaction programs and education were vital to the process.** Once stakeholders were involved, the process must be transparent, the dialog should be clear and engender trust and ownership amongst the various actors. Having achieved momentum ways must be found to continue the process beyond the lifetime of the project's funding period.

Presenting "Capacity building for climate change," **Cathal O'Mahony** discussed the IMCORE project, which aims to reduce the ecological, social and economic impacts of climate change on the coastal resources of North West Europe. He focused particularly on a new mode of partnership and collaboration between research centres / academia and local government / regulatory bodies which he called the "Expert Couplet Node" (ECN). He described how ECNs were established at selected sites throughout North West Europe and detailed a five-step process whereby a number of tools and methods for interaction in the context of climate change adaptation were tested. All of the learning and outcomes of this process has been encapsulated into a single repository for practitioners and policy-makers available at www.coastaladaptation.eu.

Anthony Gallagher's presentation explored how coastal communities were adapting to climate change. Discussing the project "Coastal Communities 2150 & Beyond (CC2150)," he focused on one particular community, the Solent in the UK, and examined how the exchange of information within the context of ICZM had helped this particular coastal community adapt to climate change. Anthony gave an overview of the main lessons learned from this project: effective stakeholder engagement takes time and requires specialized skills; communication is vital and all opportunities to maximize project communication should be explored; and finally attempts should be made to ensure continuation beyond the lifetime of the project. He also stressed the importance of involving young people in the process. In response to Brian Shipman's question on the challenges of stakeholder participation, he felt that it was important not to waste effort in chasing reluctant stakeholders, but to focus instead on those that were willing to engage in the process. He concluded by saying that "the consequences of hazards can be minimized and adaptation provides the most reliable means".

The challenges of stakeholder participation were explored further by **Emma McKinley** in her presentation "Maritime clusters: a governance success? Evidence from the Camis project". Defining a cluster as a "geographically linked group of companies and other associated institutions within a particular field," she highlighted the fact that successful maritime clusters have been shown to have a positive impact not only on the cluster members but also on the wider economy. Some of these benefits included increased knowledge, increased profile, greater profit and revenue. She also identified some of the common challenges faced by coastal communities including ageing demographic, high levels of youth migration, an over-reliance on the tourism industry and peripheral location. Maritime clusters, she said, could play a strong role in encouraging coastal community regeneration. In reviewing best practice she highlighted effective communication and engagement with the local community and the development of strong relationships with local, regional and national government as being key.

Lyndsey Dodds then introduced the PISCES project which brings together the main activities in the Celtic Sea to increase understanding of ecosystem approach. She presented the PISCES guide, which explores the implementation of the ecosystem approach in the context of the EU Marine Strategy Framework Directive (MSFD) with a focus on the potential role of the stakeholders in policy implementation. She then described a constructive framework through which this could be achieved and reinforced some of the points raised in earlier presentations; the importance of having clear objectives and a proactive, representative approach, the importance of having stakeholders on board, and the need for continuance beyond the lifetime of the project. Noting that MSFD alone would not deliver an ecosystem approach, she agreed that it "can be very challenging to engage with stakeholders." To address this, it is important to be transparent and make stakeholders aware of the potential benefits of the process. It was impossible to bring everyone on board, she said, but by focusing on those who were receptive it is possible to build sufficient momentum to encourage reluctant parties to engage.

Key words session:
Coastal communities under threat
Stakeholder engagement,
Dialogue
Trust
Ownership
Transparent process,
Longevity.



Session 2a
Session Chairs
Speakers

Sustainability

Mike Mannaart & Maria Ferreira

Marko Prem, Laura Booth, Henning Sten Hansen, Holger Janssen,
Frank Maes & Emiliano Ramieri



Session 2a Measuring Sustainability, chaired by Mike Mannaart and Marria Ferreira, started on a positive note with a keynote address by Marko Prem on the successful implementation of ICZM in the Mediterranean. The five subsequent speakers all discussed practical examples of ICZM and the requirement for informed decision making. Knowledge was the key to effective ICZM, be it

scientific or local. Identifying the unique sectoral interactions and pressures in each scenario provided information on the current and future state of our coasts and facilitated informed decision making.

Presenting “ICZM protocol for the Mediterranean – a legal frame for managing coastal systems” **Dr Marko Prem** (UNEP), began by providing a historical perspective of ICZM in the Mediterranean from the signing of the Barcelona Convention and development of the Mediterranean Action Plan (MAP) in 1975. Explaining that it became quickly apparent a legal instrument was required for successful implementation of the measures required to ensure protection of the marine environment and the coastal region of the Mediterranean, he then described in detail the action plan which led to the successful implementation of the ICZM protocol in the Mediterranean. One of the key messages from his presentation was the importance of establishing a legally binding ICZM process, reinforcing comments made by Brian Shipman in his key note address. In discussing stakeholder interaction, he stressed the importance of identifying the main players and of creating the right atmosphere for constructive dialogue with stakeholders. He said that “trust” and “ownership” were the key to success in any stakeholder interaction. In concluding, he stressed that highlighting the benefits of having a legally binding instrument in place was key to getting people to participate.

Key words session:
Informed decision making
Local knowledge
Risk assessments
Fostering trust,
Knowledge is key



“Sectoral Interactions in the coastal zone”, presented by **Laura Booth and Fraser Milne** presented a new means of identifying and illustrating the various sectoral interactions in coastal zones. By assigning interaction data to a colour coded matrix a picture emerged of the actual regional dynamics of coastal communities and effectively allowed the researcher to “conceptualise reality”. Asking stakeholders themselves to assign their interactions as neutral, positive or negative proved useful in helping the stakeholder to reflect on the situation and filtered out “perceived” from “actual” interactions.



This system helped to identify hotspots requiring focussed future MSP and “helped to define the questions that need to be asked in the marine planning process”. Moving on, they defined “managed competition” as mutual communication between stakeholders and informed scientific understanding, leading to the existence of a neutral state between sectors where there may have otherwise been conflict. In presenting an example of successful managed competition in practice in Montrose Bay Scotland Fraser Milne described science as the arbiter.



As part of the BLAST project **Henning Sten Hansen** described “COINS, an operational indicator system for coastal zone management”. Setting the scene he stressed the strategic importance of the coastal zone, being home to a large percentage of European citizens, and emphasizing the threats facing them, both from climate change and anthropogenic activities He noted that several attempts have been made to define an indicator system supporting ICZM. Stressing that integrated coastal zone management requires information about the current and future state of the coastal zone, he described the COINS systems as a proto-type for an operational coastal indicator system and pointed out that the main challenge was a lack of harmonised data for the various European countries but concluded by saying that full implementation of the directive establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) may solve this problem.





In “Transnational mapping: Towards a maritime spatial typology” **Holger Janssen** introduced the Wadden Sea as one of the last remaining natural, large scale, intertidal ecosystems. He presented the challenge of ensuring that the trilateral stakeholder forum tasked with sustainably developing this important ecosystem were properly equipped with the appropriate information. This required the development of an open and transparent spatial information tool which would help stakeholders to identify pressures, processes and conflicts in the Wadden Sea area and allow them to develop their own cross-border solutions. In turn this would help them to participate actively in the decision making process and better inform policy makers. He described the role of the EUCC in helping identify data sources, how this data was collected edited and merged resulting in the development of a stakeholder-coordinated tool. In concluding he stressed the importance of a transnational strategic MSP on seas and an integrated spatial planning on land and at sea. In concluding he said one of the challenges was in maintaining the data beyond the project’s lifetime due to funding constraints.



A different perspective on how ecological knowledge can inform decision making and marine spatial planning, was presented by **Frank Maes** in “Local ecological fisheries knowledge in support of decision-making and marine spatial planning”. He described how the indigenous local ecological knowledge (LEK) of fishermen in Belgium could supplement the scientific ecological knowledge “SEK” of Belgium’s fisheries. Obtaining the LEK from fishermen about fisheries would improve knowledge about local ecosystems whilst also improving the relationships with the stakeholders by using their own knowledge on the local ecosystems that were part of their daily work. Describing how a sensitive approach, which fostered trust, produced a considerable degree of co-operation from the fishermen with the result that information was obtained on the cod, sole and shrimp fishing grounds which was about 90% reliable. He concluded by saying that LEK and mapping for MSP purposes in Belgium provided an additional means of identifying historical and current fishing zones.



As part of the review of the EU ICZM recommendation and related impact assessment process **Emiliano Ramieri** presented “Improving support of coastal information systems to ICZM”. He defined Coastal Information Systems (CISs) and explored how identifying CISs requirements and policy options could improve their support to the concrete application of ICZM. Forty different CIS case studies were analysed and some general outcomes were presented, for example for the great majority of considered cases the CIS geographical area of interest is mainly defined by administrative boundaries. In only 30% of the cases had the area of interest been mainly defined according to an ecosystem-based approach. Policy options and impact assessment methodologies were reviewed.

Poster Pitch Presentations

Introducing the poster pitch presentations, Kathy Belpaeme explained that it had been impossible to accommodate all those who wished to make oral presentations at Littoral 2012. However, the organisers invited all participants with a poster to give a brief pitch of their poster to the conference audience. Twenty eight participants took advantage of the opportunity to present their work in three minute slots, on subjects varying from “science policy interphases,” the Pegaso project, presented by Ann Katrien Lescauwet to “implementing a topobathy database in Mozambique” (Charles de Jongh). Several large international projects were presented such as; TransCoast by Toon Peters, a cooperative initiative in the two seas area to regenerate neglected ports and, in so doing, give a socio-economic boost to the port towns. SOCIOEC, which examines the socio-economic effects of the main management principles of the new Common Fisheries Policy and SEAFARE which aims to increase the sustainability of the aquaculture industry were presented by Frederico Cardona Pons. In this short but intense session the audience were provided with a brief introduction to a variety of projects in all four thematic areas.



Conference Dinner

The conference dinner was held in the Ostend Queen restaurant on the top floor of the Kursaal Casino. On welcoming all the delegates to the dinner Mr Guido Decorte, member of the Provincial Executive of West Flanders, pointed out that as West-Flanders is the only Belgian province with a coastline, ICZM is an important issue for them. Highlighting the Coordination Centre for ICZM in Ostend, he said they were privileged to be a partner, together with the Flemish government, the federal authority and the Flemish Marine Institute. In this sense, he said, by bringing together all the levels of governance responsible for different areas of the coast, the Coordination Centre is unique. He stressed how important the coast is to its coastal inhabitants and highlighted initiatives to raise awareness of the coasts among tourists and young people.

Guido Decorte: “by bringing together all the levels of governance responsible for different areas of the coast, the Coordination Centre is unique”



Session 3 Nature Conservation

Session Chair **Peter Burbridge**

Speakers

Micheal O’Briain, An Cliquet, Sarah Vanden Eede, Nardine Stybel, Michiel Smits, Bert Van den Bergh, Ramunas Povilanskas, Humood Naser, Annemie Volckaert.

Key words session:

*Anthropogenic impacts
Safety versus nature*

*“if you can’t measure
it you can’t manage it”*

*“strategic objectives
minimise conflict”*



Following a key note presentation outlining the policy framework within which nature conservation must operate the rest of the mornings speakers provided a wide variety of examples of the challenges of nature conservation in practice. In a varied session the challenges identified by the speakers ranged from insufficient legal protection and the difficulties of conserving areas which spanned national boundaries to the anthropogenic impacts of land reclamation and marine litter.



In his keynote lecture, “Nature conservation in coastal areas, a delicate balance” **Micheal O’Briain**, DG Environment explored how it was possible to reconcile socio-economic development with biodiversity conservation. He presented an overview of the EU Biodiversity policy context and noted that whilst Natura 2000 was largely complete on land, it needs to be extended in the marine, particularly offshore. He pointed out that one major contributing factor to preserving marine biodiversity was the implementation of the MSFD. In examining how to deal with economic actors in the marine environment he presented the example of “siting” of windfarms and said that the key message was the

need for strategic spatial planning over large areas. Presenting guidance on estuaries and coastal zones with particular regard to ports, he said it was important to “work with nature”. By starting with strategic objectives in any conservation project conflict could be minimised. He stressed that Natura 2000 is not about stopping development but about ensuring the sustainable use of nature and that it offers a tool for where strategic spatial planning meets conservation and societal needs.

Michael O Briain: “Natura 2000 is not about stopping development but about ensuring the sustainable use of nature and that it offers a tool for where strategic spatial planning meets conservation and societal needs”



With a focus on the legislation surrounding nature conservation **An Cliquet** described the “conservation of Belgian marine 2000 sites ” She gave a brief history of the legal basis for the conservation and management of marine Natura 2000 sites and the implementation of the law in Belgium. Noting that whilst 36% of Belgian waters were protected, legal problems still remained, she then presented “Hercules @ sea, 10 works for a better legal protection of Belgian Marine Natura 2000 sites”. In a fascinating case study she described the parallel and conflicting legal processes to have an area off the Belgian coast “the Vlakte Van de Raan” designated as a marine protected area, whilst simultaneously being targeted by a wind energy company as a site for wind turbines. She described the actions of Minister Vande Lanotte, in designating a zone of the Belgian North Sea for economic activity, as an example of marine spatial planning in action.

An Cliquet: “Hercules @ sea, 10 works for a better legal protection of Belgian Marine Natura 2000 sites”



Returning to the importance of knowledge based management decisions **Sarah Vanden Eede** explored “marine biological valuation maps as a tool for valuation of the Belgian coastline”. She pointed out “don’t realise the intrinsic value of biodiversity in shorelines as it is mostly hidden in the sand”. She stressed how these shorelines were under attack from climate change and anthropogenic activities and queried whether we could protect ourselves and the beach ecosystem at the same time. She proposed ecosystem-based management & marine spatial planning as a solution to this struggle but said that effective management required that the scientific information be translated. As a means of doing this she presented a Marine Biological Valuation (MBV) map. Describing MBV as “flexible, integrative and promising” she suggested that it be considered with other criteria to support decision making.



Nardine Stybel in her presentation “water quality improvement by mussel cultivation – case study Szczecin Lagoon, Baltic Sea” discussed the debate around the potential for zebra mussel cultivation as a means of improving water quality in a lagoon in the Baltic sea in order to meet the demands of the water framework directive. Discussing the difficult legal situation with regard to international and European environmental laws, together with the problems posed by stakeholders e.g. fishermen she said that projects such as ARTWEI helped to raise the possibility of bioremediation tools with authorities and enhance acceptance on both sides of the lagoon.



In “Beach nourishment and the impact on Natura 2000” **Michiel Smits** discussed finding the right balance between coastal protection and nature conservation. Describing the Belgian coast as a dynamic environment where natural forces interact with anthropogenic coastal defense systems he cited beach nourishment as providing the main protective measure. Discussing the adverse impacts of beach nourishment on the sandy beach ecosystem he said that phased nourishment with natural sediment and natural slope would improve the speed and degree of ecological recovery. Moving on to describe the legal framework which regulate these impacts, pointing out that there was sometimes an incoherent application of these rules he stressed the need for a more coherent structure.



In his presentation “Preventing erosion of tidal flats a large scale experiment” **Bert Van den Bergh** discussed attempts to reduce erosion of the tidal flats in the largest Dutch national Park, the eastern Scheldt. He noted the high natural value of mudflats in the Netherlands and explained how the construction of a storm surge barrier had resulted in a detrimental effect on the development of intertidal flats. Discussing the balance between nature conservation and financial considerations, he described a large scale experiment to examine alternatives to nourishment such as sand retaining traps as an example of a search for an effective solution for conserving nature in coastal areas in an efficient and practical manner.



“A huge challenge” was how **Ramunas Povilanskas** described the “ARTWEI” project, a south Baltic, cross border cooperation project to reinforce the environmental integrity of the transnational waters. He explained that the aim of ARTWEI was to facilitate coherent spatial planning and strategic environmental assessment on the transitional waters, crossing administrative borders and the land-sea boundary from a joint, south Baltic perspective through the establishment of 4 cross-border Transitional Waters’ Stakeholders Bodies. He identified some of the practical difficulties a transnational project can face in terms of lack of a common language, differing governance and ideologies. In concluding he said that the project had been successful in producing a number of improved methods and instruments for the management of the Baltic Sea area environment but he also stressed the importance of each project providing “added value” to ensure their survival.



A very different but no less important challenge was presented by **Humood Naser** in his discussion of the “Coastal and marine environments in Bahrain: anthropogenic impacts and conservation measures”. Describing the Arabian gulf as arguably one of the most anthropogenically impacted regions in the world as well as being a naturally stressed environment, Dr Naser presented the challenges of conserving the important biodiversity contained within it. Identifying the sea grass beds, coral reefs, mangroves swamps and mud flats as valued ecosystem components providing ecosystem goods and services to Bahrain” he described the challenges they faced through human disturbance activities. He then went onto identify some of the measures that may contribute to the protection of coastal and marine habitats in Bahrain through the establishment of marine protected areas, environmental impact assessments and enforcement of legislation. In concluding, however, Dr Naser noted the importance of having adequate knowledge to allow effective management, “if you can’t measure it you can’t monitor it”.



Continuing the theme of anthropogenic impacts, **Annemie Volckaert**, discussed marine litter. Describing a project whose main objective was to establish the source of marine litter in four study sites representative of each of the four European seas, she explained that existing monitoring strategies don’t take into account the sources, and main causes of marine litter. Considering the four different case studies, one of which was Ostend, she described the huge regional differences that exist both in the type, and source, of marine litter. Discussing whether measures to regulate marine litter were feasible given the current economic climate, she pointed out that successful implementation requires convincing local stakeholders of the cost benefits of reducing marine litter in their areas.

Session 4 Innovative Infrastructure

Session Chair **Jean Berlamont**

Speakers **Simon Claus, Nabil Ismail, Joost Stronkhurst, Masahiro Ito, Charlotte Geldof, Jeroen De Waegemaeker, Jan Schreurs, Marien Boers**

Key words session:

*Research by design
Coasts are land and sea*

*Future visions
Spatial planning
Local solutions to global problems*

Unfortunately for medical reasons the proposed keynote speaker for the session on Innovative Infrastructure, **Bela Buck**, was unable to attend Littoral 2012, however a very relevant replacement was found in Simon Claus (VLIZ) and his presentation on “Innovative technologies for safer EU coasts in a changing climate – the Theseus project.” Considering the effects of climate change in our choice of future coastal defense structures was a common theme for the afternoons presentations. Several presenters focused on the importance of expanding our vision of the shoreline both figuratively and literally and emphasised the use of new methods for doing this.

Describing the challenges current coastal defences were facing in the face of climate change and increased storms, **Simon Claus** presented an overview of the Theseus project, a large, integrated FP7 project which aimed to deliver a safe coast for human use, healthy coastal habitats as sea levels rise and climate changes and the European economy continues to grow. It aimed to do this by examining the resilience of the coastal system in selected study sites on the short, medium and long term and then applying this information to the development of innovative “climate proof technologies.” An integrated approach would then be used to select among these technologies the proper mitigation option in the particular study sites. The specific goals of risk assessment, response strategies and application which govern the objectives of the Theseus project were discussed.

Nabil Ismail in his presentation “Sustainable Solutions for Coastal Zone Management of Lowland and River Delta Coastlines” discussed the impacts of natural disasters which were becoming increasingly severe on coastal and lowland areas already vulnerable as a result of anthropogenic modifications. He predicted that in the future, the impact of global warming and climate change will become more critical. People are increasingly occupying low-lying areas that are exposed to flooding, thus exacerbating their vulnerability to extreme events. The importance and scale of coastal defense structures will increase accordingly, and thus

potentially generating increasingly adverse environmental impacts. When asked whether we could hope to find a general strategy for coastal protection Professor Ismail said that whilst some elements of a framework for managing coastal zones were generic, some also were site specific. Highlighting the costs involved and the many conflicts of interests he said the challenge was how well scientifically and legally you could do your job whilst also convincing local residents that this was in the best interests of their region.

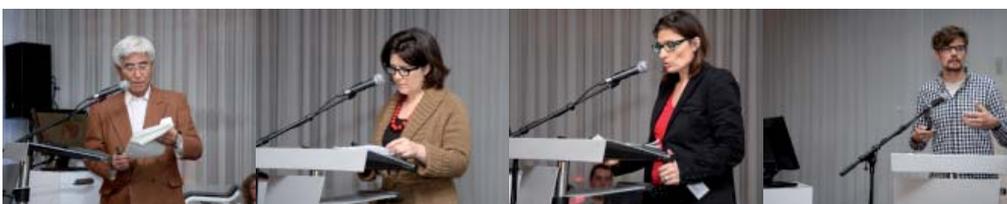
In “Large scale nourishment strategy of the Dutch coast, a systems approach” **John de Ronde** provided a brief history of the coastal policy in the Netherlands with regards to managing the coast. Identifying the need to balance the issues of safety in the face of climate change with the various values and functions of the dune area he explained the current policy as being a “dynamic preservation” with sand nourishment being the main intervention procedure in attempts to “hold the line”. Whilst the current policy had been considered to be successful in preserving the coastline he pointed out that, in terms of the actual sand balance of the Netherlands coastline, recent analyses had indicated a yearly deficit in active sand volume. As such an upscaling of the current sand nourishment volume will be required. Whilst various strategies to achieve this have been put forward he said it was now in the hands of the stakeholders and policy makers to make decisions.



An extremely stark picture of the very real importance of coastal safety was presented by **Masahiro Ito** in his examination of the protective effect of coastal levees against the mega-tsunami which occurred off the Pacific coast of Tohoku in 2011. Presenting a brief history of coastal restoration of the Tohoku Sanriku region in response to previous devastating tsunamis, he then examined the effects of coastal levees by comparing data from the Showa Sanriku Tsunami (1933) with the same data for the 2011 earthquake. Examining the number of fatalities occurring in relation to inundation height he was able to show that the existence of coastal levees had a great effect on saving lives by significantly reducing the inundation height required to result in equivalent fatality rates. He concluded by saying that both hard and soft measures must be considered together to achieve the greatest protective effect.

A leap of imagination was required to consider the future vision of managing the sea proposed by **Nel Janssens** and **Charlotte Geldof** in their presentation of “The Future Commons 2070” map. Identifying the sea as a “common-pool resource” coming under increasing pressure, but with large areas as yet ungoverned and so vulnerable, they presented a design based vision for “commonality” in maritime spatial planning. Noting that whilst to date planning processes had been based on scientific predictions based on probability she stressed that the time had come for “anticipative reflection” based on future possibilities and desirability to play a role in future planning. To achieve this they presented a “future commons map” (defining “commons” as resources that are owned in common or shared between or among communities or populations) showing what may by 2070 have become a new EU “Southern North Sea” zone. In light of this they proposed a new governance regime for this “maritime commons” area and outlined a vision for the future of sustainable management of the sea and the coastal area.

Jeroen de Waegemaeker described using research by design as a method for exploring scenarios on climate responsive spatial adaptation on the Flemish coast as part of the CcASPAR project. Discussing which climate change impacts we need to adapt to he stressed that sea level rise was not the only consideration. Providing a critical review of Flemish adaptation plans he said the “hold the line strategy” could prove limiting in the long term and said other possible scenarios such as islands should be explored. In discussing the Vlakte van de Raan as a potential strategic site for island development he said that both climate impacts and socio-economic developments must be considered together. Reiterating the earlier words of Nabil Ismail, he said “we need big plans.” Proposing “compartmentalization” as a framework for technical and spatial adaptation measures he said we needed to broaden our thinking on coastal defense from a “coastal line” to a “coastal zone” philosophy.





Jan Schreurs and **Marc Martens** discussed “Integrative coastal zone sustainability” Describing the coast as a highly adaptive but fragile system reaching its limit in terms of its self-organizing capacities they said a new and strong story was needed to allow continued adaptation. They went on to describe the most important challenges and opportunities for coastal zones and that we needed an ambitious vision of what our future coasts should be. To achieve this they stressed the need for design led thinking. Proposing research by design as a means of visualising our future coasts but also as a means of seducing the stakeholders, they said it provided a means of testing important concepts such as spatial considerations, social implications and even institutional frameworks and financial requirements resulting in serendipity!



Marien Boers in his presentation on “Buildings and infrastructure on coastal dunes,” discussed the ongoing debate between social pressures on our coasts, as desirable places to live and the safety challenges this presented particularly in the face of climate change. In discussing the need for legislative guidelines for buildings and infrastructures on the coasts, he said that any guidelines for building and infrastructure must take into account the local situation. Assessment tools were needed to predict the impact of flooding because there were various different impacts of a storm surge on buildings and infrastructure, and he proposed numerical models as a means of assessing our coastal safety. In attempts to develop guidelines on building and infrastructure he said the Dutch government were considering an international research programme which would involve sharing of; present national guidelines, field data and lessons learnt, lab data and development of numerical models, and international guidelines for buildings and infrastructure. In concluding he said coastal safety benefits from international research.

Interesting quotes mentioned during the session:

“Some futures can be predicted, others must be designed.” Taeke de Jong, (1992)

“Make no little plans: they have no magic to stir men’s blood and probably themselves will not be realized. Make big plans; aim high in hope and work, remembering that a noble, logical diagram once recorded will never die, but long after we are gone will be a living thing, asserting itself with ever growing insistency. Remember that our sons and daughters are going to do things that would stagger us. Let your watchword be order and your beacon beauty.”- Daniel Hudson Burnham (1846-1912)

Workshop on Coastal Governance

Delft University of Technology

Chaired by Leon Hermans and Jill Slinger



The session on coastal governance chaired by **Leon Hermans** and **Jill Slinger** aimed to bring together a range of experiences in the area of coastal governance, around three key questions: Who are the main actors involved in coastal governance and how do they shape coastal governance jointly? What is the role played by technical and biophysical information in decision-making processes? And, given that coastal governance evolves and that insights and priorities change over time, what role does learning play in informing governance?

Five papers that addressed these questions were presented and discussed, covering a range of topics, from the use of information in transnational estuary management in Europe (**Marcel Taal**), collaboration supported by science in local estuary management in South Africa (**Susan Taaljord**), making technical information available to support national coastal policy implementation in the Netherlands (**Gemma Ramaekers**), a cross-comparison that included governance aspects in ten major deltas in the world (**Tom Bucx** and **Marcel Marchand**), and a framework for linking systems and actors to understand policy evolution through a game theory lens (**Jill Slinger**).

The key insights from this discussion were the following:

- Governance is different from government. It is broader than government only, because it also including a range of non-governmental actors. This means that interests, and coalitions of actors around these interests, are not the same as the main government players involved in the official decision-making procedures.
- Governance is different from institutions. Institutions are the habitual ways that actors

deal with each other, including both formal and informal rules and procedures.

- Getting a grip on governance involves learning within the system over time. It is helped by science, which both enables learning but also collaboration across actor coalitions with diverging interests. This could be at the local level, as in the case of Great Brak in South Africa, but also at the transnational level, as in the case of the Scheldt estuary between Flanders and the Netherlands.
- Actors in governance processes are motivated by their underlying interests. These may be expressed as goals in specific processes, but derive from longer term values and interests. This means that actors whose interests are directly and visibly affected are likely to become active in a decision-making process. Including, and representing, the full range of actors and their interests often requires a time horizon and scope beyond that of any single project.
- Governance is complex. Technical information can help actors manoeuvre in this space, but inevitably questions will arise, or demands on the infrastructure will change, requiring information that was not collected nor considered relevant earlier or might be considered sensitive. E.g., information on financial aspects, learning by international cross-comparisons, changed needs in water from a dam, altered flooding standards, altered beach nourishment procedures, or increases in upstream tidal range.
- Game theory provides a useful lens for looking reflectively at linked actor-system decision-making processes over a longer time, and learning from the key elements that drive these.

To summarize, governance is the process of navigating between government and institutions, between multiple procedures, and between multiple actors. The need for techniques and tools for this was also expressed by a workshop participant who is a member of the provincial government.



Workshop on Sustainability:

Session 2b “Measuring sustainability: the Sustain project”

Chaired by **Patrycja Czerniak**



The session addressed the issue of measuring sustainability in the scope of the ERDF-funded Interreg IVC project SUSTAIN. In this session four invited speakers explained and illustrated the innovative use of the policy tool set, developed within the project, for the measurement of sustainability in coastal regions and municipalities from across Europe. **Maria Ferreira** introduced the SUSTAIN project with its objectives and legacy and **Xenia Loizidou** explained the methodology behind the development within the project policy tool: Decyde-for-

Sustainability with its scoring methodology. Also the experiences and good practices towards the improvement of policies at local and regional level from Germany and The Netherlands were presented. **Gerald Schernewski** shared the local experience from Germany, based on the scoring exercise in assessing the sustainability performance and lessons learned from the SUSTAIN partnership; **Hans Heupink** described the relevance of sustainability aspects on a regional scale in Province Zuid-Holland in The Netherlands.

Rationale: By definition, ‘sustainable development’ means that the needs of the present generation should be met without compromising the ability of future generations to meet their own needs. Increasingly, humankind is attempting to move towards a sustainable future. However, communities do not have a means of adequately measuring whether they are reaching their sustainability goals or not. Within coastal zones, there are many hundreds of indicators which purport to give information about sustainability but, in reality, none of them do so effectively – because that is not their purpose – as they are state-of-the-coast indicators. Many of them are very specific and many measure parameters which are beyond the sphere of influence of regional/local authorities.

With the objective to develop a policy tool to support the self-assessment and to determine whether an Authority is moving towards a sustainable end-point, the Interreg IVC Programme co-funded pan-European project SUSTAIN (2009-2012). The project comprises 12 EU partners, including 8 local/regional Authorities, 3 institutes, and 1 NGO – EUCC which leads the project.

The European partnership has developed a scoring of sustainability indicators for local and regional authorities, which offers a process and method to evaluate authorities' sustainability performance for the purpose of improving the sustainable development and management of coastal zones.

The Indicator Set is based on indicators that are generally already in common usage and ones that, according to EU legislation, should be regularly monitored. SUSTAIN offers two sets of Indicators differing from the more traditional approach of applying a fixed, standard indicator set.: (1) CORE indicators which should be used at all times where relevant data is available. They are considered to cover essential aspects of coastal sustainability; (2) OPTIONAL indicators which reflect local/regional specificities and which can be implemented and adjusted according to the local/regional circumstances. These indicators have been robustly selected using three criteria: a) relevance to sustainability, b) availability of data, and c) ability to be scored. They represent the four pillars of sustainability: governance, environmental quality, economics and social well-being. The novel approach has been to apply a checklist to measure Governance.

The indicator data is fed into the policy-tool DeCyDe-for-Sustainability. DeCyDe-for-Sustainability is a user-friendly, spreadsheet-based, self-assessment, decision-support tool which gives a numerical value to individual indicators. It is an approach which is in line with the trend of public policies to move from a purely conceptual and theoretical view to a more pragmatic approach, based upon observed data. DeCyDe-for-Sustainability integrates logical processes with established scientific and local knowledge, data and experience. It also enables a high degree of participation by interested stakeholders to incorporate their views, evaluations and perspectives in the process. An indicator-based methodology allows a numerical value to be attributed to the efforts of authorities to determine if they were reaching their strategic sustainability goals. The scoring of each indicator is achieved through a given ranges of values. The "scoring through ranges" approach converts state-of-the-coast indicators into sustainability indicators. The ranges of values are mainly defined by EU Directives and when these do not cover the specific parameters, limits provided by International Bodies are used. National and local regulations are also considered.

With this tool, decision makers can predict how the existing situation can be changed. They can evaluate and assess a large range of actions within different policy options. It supports the self-assessment and to determine whether an authority is moving towards a sustainable end-point. It can be used to monitor progress in sustainability effort, but not for comparison between regions (unless the same set of indicators is used). With this tool, decision makers can predict how the existing situation can be changed, evaluate and assess a large range of actions within different policy options. Collecting the relevant data for each indicator is essential, however, the lack of data is minimised since the developed policy tool is flexible and robust enough to cope with less-than-perfect or absent data.

The SUSTAIN policy-tool provides an important management tool that ensures that integrated management of Europe's coastal areas will be sustainable in a long term. The tool respects the time limitations of policy-makers and other stakeholders. It is also highly sensitive and robust in assessing different options and impacts of decisions while allowing for flexibility and adaptive management.

The SUSTAIN policy-tool has been tested by 12 local and regional authorities in Europe, which faced challenges and they learned from this experience. This exercise further served as an evaluation of the developed tool, which is now ready to be used and can be applicable to all 22 coastal states of the European Union.

The project has produced several documents on measuring/scoring/improving/transferring coastal sustainability in the form of guides and reports, which are available in 10 EU languages. They were distributed at LITTORAL and they can be downloaded from the SUSTAIN website: <http://www.sustain-eu.net/>.



Workshop on Climate of Coastal Cooperation

In presenting the feedback of the workshop on Climate of Coastal Cooperation, **Maria Ferreira** described it as a very intensive, instructive and enlightening session. The rationale behind this workshop was that the preparation of innovative, resilient, no-regret adaptive options should involve young professionals at an early stage through familiarising them with the concepts and tools of ICZM .

The aim of the workshop was to present an integrated coastal zone management framework for three practical cases using holistic frames and integrated GIS based spatial planning tools, as demonstrated in "Climate of Coastal Cooperation."

The Case Studies

- The Belgian Coast - presented by students of Catholic University College Brugges- Ostend.
- Vlissingen - presented by students from the Delta academy, UAS Vlissingen.
- The Wadden Sea - presented by students of Van Hall-Larenstein University of Applied Sciences, Leeuwarden.

The main outcomes and lessons learned were identified.

Key Outcomes

- Stakeholders must be involved and should be better informed in the project set up stage.
- Teams should avoid providing information that can raise fear and uncertainty and the project plan should include a dedicated communication stakeholder engagement plan
- Issues such as tourism and building with nature should be included in the project plan. Teams should avoid presenting unrealistic solutions.

Reviewing the project process it was considered to be a very innovative approach and provided "an eye-opener" for your local situation. Although all participating in the same process there were clear differences in the way teams addressed and developed the projects in Belgium, the Netherlands and provided ground for future development.

Areas for Improvement

- Results of models and projects should be validated by and with professionals. Goals must be well identified and communicated. Opportunities for exchanges between students and scientists / experts should be enhanced. Mixing the groups of students from different universities to address one practical case would be an interesting experiment.
- Towards the Establishment of a Young Professionals Coastal Community.
- Working together to exchange knowledge on impacts and solutions from experts. Develop challenging training programmes with appealing fieldwork guided by experts, for Universities with Universities. Establish a communication platform and the extension of activities to other universities and countries based on present experience. Set up a core group of mentors and experts.



Closing Plenary session

Introducing the plenary session **Kathy Belpaeme** regretted that the Littoral 2012 conference was coming to an end but promised a closing session of fascinating speakers. She remarked that she was delighted to be able to introduce the Flemish Minister for Mobility and Public Works **Hilde Crevits**.



To open the plenary closing session of Littoral 2012 **Minister Crevits** described the Littoral conferences as providing a unique forum for scientists, policy makers and local stakeholders to come together to discuss ICZM. Describing Ostend as a unique place on the Flemish coast she described the construction of the new dyke and the multipurpose functions it now supports as an excellent example of integrated cooperation. Discussing the challenges faced by the coasts as being; climate change, their role as gateway to the maritime world and the increasing pressure of tourism, she said that only by working together and focusing on the sustainable development of the coasts could their future be secured. Recognising that this was not always practical or feasible due to differing sectoral influences, she highlighted the collaborative efforts of the Flemish government, the province of West-Flanders, the federal government and Flanders Marine Institute towards the establishment and maintenance of the Coordination Centre of Integrated Coastal Zone Management. She said the key to its success was advanced planning and consideration and inclusion of various actors so that a structure had been achieved which could offer a platform for consultation on, and integration of, coastal policy. Outlining the Flemish governments master plan and key objectives for 2050, she said they could not achieve this alone, but instead required the input of all stakeholders, as well as integration at a European level. She welcomed the new instruments of ICZM and MSP and said Flanders looked forward to the approach Europe would take in their implementation. She concluded by saying that by “anchoring through policy” we could avoid past mistakes and work collaboratively on developing a joint policy vision for the coasts which had at its centre “sustainability” and which embraced all sectors.

Hilde Crevits: “the key to its success was advanced planning and consideration and inclusion of various actors so that a structure had been achieved which could offer a platform for consultation on, and integration of, coastal policy”



One of the leading representatives of the coastal and maritime construction industry in Europe, **Marc Stordiau**, C.E.O. Rent-a-Port and former CEO of the Belgian-based dredging and marine engineering company DEME, provided the audience of Littoral with a unique maritime industry perspective in his presentation “Future developments in coastal design”. Reviewing the dredging industry over the last 30years he noted that of the 27 dredging companies in existence in the early eighties only four had survived. The key to their survival had been their multidisciplinary approach which allowed them to adapt and exploit new areas for growth. No industry which had focused solely on dredging had survived. He described the next generation of dredging companies as being multi-functional marine builders, providing services for soil cleaning, platforms for lifting, deep sea protection of pipelines, erection of turbines and dyke building and said that Europe had a niche market in this area.



A very unique presentation on the theme of “Culture and coastal transitions” was provided by **Jacqueline Heerema**, a conceptual artist and founding director and curator of Satellietgroep. Satellietgroep was founded, she said, to bring a cultural perspective to coastal protection. She then went on to consider some of the discussion points from earlier sessions from a different perspective. For example in considering the “sand engine” as a means of nourishing the coastline she pointed out that bringing sand from the deep sea, previously a tundra region, brought with it fossils. Considering coastal defences and safety she showed a brief documentary film on one man’s experience of the great flood in the southern part of the Netherlands in 1953. She explained that Satellietgroep supports an embedded, research based, artist-in-residence scheme which encourages artists and scientists to jointly develop and present research articulating a cultural, innovative and sustainable significance of the sea and its coasts by doing in situ research and engaging with local communities, local experts and international networks. Their main aim was to raise awareness of coastal transitions amongst the general public and relevant professional groups. In concluding she said we had to keep thinking of ways to survive in the low countries and that art could provide a medium whereby local knowledge could be exchanged with global experts.



The closing words of the Littoral 2012 were given by **Tina Mertens**, on behalf of **Jan Mees**, Director of the Flanders Marine Institute. Beginning by reiterating the words of Minister Vande Lanotte that Ostend provided an ideal location to host Littoral 2012, she said that despite being the smallest coastal strip in Europe the intensively used Flemish coastline provides a unique pilot study to examine the principles of ICZM. Highlighting the key messages from the conference as being; cooperation and participation, common understanding and use of a common language, use of simple clear and locally relevant messages, the need for scientific data and local knowledge to tackle uncertainties, the role of stakeholder involvement, taking an integrated and holistic approach, focusing on land/sea interaction, putting ICZM into practice through case studies, building with nature, strategic long term planning, need for a legally binding ICZM process and knowledge as a key factor in decision making, she said that all eight principles of ICZM were integrated in these key messages. Finally in concluding she paraphrased the words of Mr Hendrik Oosterveld and said that “together we can do more”.

The last words of Littoral 2012 went to **Mike Mannaart** who made a presentation to Kathy Belpaeme and Hannelore Maelfait. Literally “taking off his hat to them” he thanked them on behalf of all concerned for their huge efforts in organising Littoral 2012.



Excursions

A consistent feature of the Littoral series of conferences are the excursions and Littoral 2012 maintained this tradition by organizing three excursions to unique areas on Belgium's coastline; the Yser Estuary, the Zwin nature reserve and the port of Zeebrugge. A fourth proposed excursions to the windfarms off the Belgian coast had to be cancelled due to inclement weather. In her keynote address Minister Crevits wished all a "fascinating voyage of discovery" to these areas each of which, she said, showed the results that could be achieved by the integrated management between relevant departments and sectors.

The estuary of the Yser: a site in transition

This unique piece of nature reserve is located at Nieuwpoort, on the right bank of the estuary of the river Yser. The ecosystem with mudflats and salt marshes has been restored to a more natural reserve over the last few years. In 1996 Ghent University, together with INBO worked out a nature restoration plan, and all Navy buildings and road that were located in this reserve were removed in the period between 1999 and 2003. Over the last few years it has become clear that the efforts were not in vain as the measures put in place have seen the restoration of nature in this area over the last decade. The reserve is now internationally renowned for its high recreational value. The visions and different projects that made this change possible were explained by experts in the field of spatial planning, coastal defense and tourism during this excursion.



The Zwin: a Cross-border cooperation

The Zwin is a nature reserve on the North Sea coast, on the Belgian-Dutch border. The reserve consists of mudflats and salt marshes embraced by dunes and polders which are all part of the Natura 2000 - network. Over the course of time, humans had clearly left their traces in this region. With the help of European funding effects of the historical damage have been repaired and the area restored. Today's nature reserve was founded in 1952 and covers an area of 1.58 square kilometers. It is famous for its large variety of salt-resistant flora, such as Sea lavender and is extremely popular with bird watchers. There is a small zoo with some major domestic birds and it is one of the few places in Belgium with a population of white storks. The cross-border cooperation between Belgium and Holland aims to give this nature reserve the attention it deserves.



Port of Zeebrugge: impact of an evolution, reaction of the environment

In the last 20 years Zeebrugge has become a multifaceted port that handles a wide range of trades: unit loads (trailers and containers), new cars, conventional general cargo, 'high & heavy' cargoes, dry and liquid bulk cargoes and natural gas. From a purely transit port Zeebrugge has gradually evolved into a centre for European distribution. This evolution has had a very large impact on the local community, on the landscape, the coastal zone and the environment. This influence will only increase in the future and precautions must be taken now. In particular with regard to harbor accessibility new possibilities must be explored. Where the focus is now mainly on expanding the accessibility by land, we have to consider expanding the accessibility by sea as well. Within this excursion all the different possibilities for creating better access to this rapidly growing harbor were examined.





Scientific committee



Chair

Prof. dr. Jan Mees

Director of Flanders Marine Institute

Since September 1999, Jan Mees has been the director of the Flanders Marine Institute (VLIZ). This institution for marine & coastal research & management is the coordination platform for all marine related scientific research in Flanders. Besides his main job at the Flanders Marine Institute, Jan Mees is also visiting Professor at Ghent University.



Honorary chair

Prof. dr. Johan Vande Lanotte

Deputy Prime Minister of Belgium, Minister of Economy, Consumer Affairs and the North Sea. Former president of EUCC. As Belgian minister of the North Sea, Johan Vande Lanotte is involved in many marine and maritime related projects. Johan Vande Lanotte is also Professor at Ghent University.

Members

Albert Salman - EUCC

Alberto Basset - EUCC Italy

Pierpaolo Campostrini - EUCC Italy

Prof. Dr. Jean Berlamont - KUL

Prof. Dr. Josianne Stottrup - DTU

Jean-Louis Herrier - Agentschap Natuur en Bos

Dr. Toon Verwaest - Flanders Hydraulics Research

Dr. Alain Pickaver - EUCC

Hendrik Oosterveld - Vereniging Kust en Zee

Dr. Gerald Schernewski - EUCC Germany

Prof. Dr. Frank Maes - UGent

Prof. Dr. Peter Burbridge - University of Newcastle

Prof. Dr. Eckhart Kuijken - UGent

Prof. Dr. Julien De Rouck - UGent

Dr. Rob Steijn - Arcadis



Organising committee



Organising Chair: Kathy Belpaeme
Coordinator at CDK (Coördinatiepunt Duurzaam Kustbeheer)

As head of the Co-ordination Centre for Integrated Coastal Zone Management (ICZM), Kathy Belpaeme deals with a diversity of tasks implementing the European Recommendation on ICZM. The tasks are very diverse, ranging from follow-up of European developments concerning the coast to coordinating coastal policy actions. In 2004, Kathy Belpaeme was responsible for drawing up the Coastal Atlas for the Belgian Coast. In 2005 she was responsible for supervising the establishment of the on-line version.

Coordination Centre for Integrated Coastal Zone Management

InnovOcean Site, Wandelaarkaai 7
8400 Ostend
www.kustbeheer.be

Flanders Marine Institute - VLIZ

InnovOcean Site, Wanderlaarkaai 7
8400 Ostend
www.vliz.be

eCOAST Marine Research

Esplanadestraat 1
8400 Ostend
www.ecoast.be

EUCC

P.O. Box 11232
2301 EE Leiden
The Netherlands
www.eucc.net

Agentschap voor Natuur en Bos

Koning Albert II-laan 20
1000 Brussel
www.natuurenbos.be

Agentschap voor Maritieme Dienstverlening en Kust, Afdeling kust

Vrijhavenstraat 3
8400 Ostend
www.afdelingkust.be

FOD Volksgezondheid, Veiligheid van de Voedselketen en Leefmilieu

DG Leefmilieu, Sectie Marien Milieu,
Victor Hortaplein 40, bus 10
1060 Brussel
www.health.belgium.be

UNESCO/IOC Project Office for IODE

Wandelaarkaai 7
8400 Ostend
Belgium
www.iode.org

Marine Board (ESF)

InnovOcean Site, Wandelaarkaai 7
8400 Ostend, Belgium
www.marineboard.eu

Provincie West-Vlaanderen

Provinciehuis Boeverbos, Koning Leopold III-laan 41,
8200 Sint-Andries
www.west-vlaanderen.be

Stad Oostende

Vindictivelaan 1
8400 Ostend
www.Ostend.be



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LITTORAL

Conference Report - Littoral 2012

With special thanks to all our partners: MDK - Afdeling Kust, Agentschap voor Natuur en Bos, EUCC, UNESCO, IOC, Federal Public Service of Health, Food chain safety and Environment; Coordination Centre on Integrated Coastal Zone Management; Marine Board, Province of West-Flanders, City of Ostend and VLIZ.

Author: Oonagh McMeel.
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- VLIZ (Littoral theme, photo Jan Mees, p18).

