

# Sustainability indicators for the coast

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# Famous Indicators...

## -Body Temperature:

Too high : fever -> body gives a signal

## -Viewers of a television program:

Too Low-> cancel the program

Decisions based on significant and scientific correct data: one of the key principles of ICZM



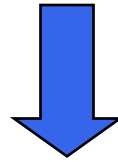
# 'Recommendation concerning the implementation of Integrated Coastal Zone Management in Europe' - '30 may 2002'

National strategies to implement the principles for integrated management of the coastal zone should include adequate systems for monitoring and disseminating information to the public about their coastal zone. These systems should collect and provide information in appropriate and compatible formats to decision makers at national, regional and local levels to facilitate integrated management.

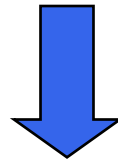


# The coordination centre and indicators

Belgium approach: Coastal barometer (2000)



SAIL: Regional approach (2002)

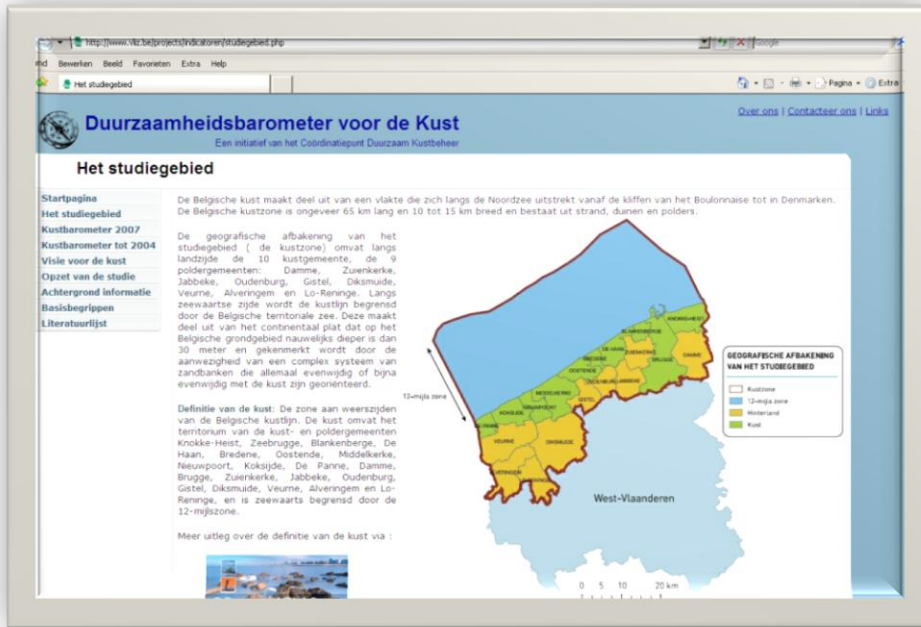


WG-ID => DEDUCE: European approach (2004)



# Approach in Belgium

## Coastal barometer & Coastal Compass



Dutch



Dutch & English

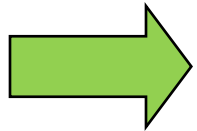


# Goal

- Using data, measurements and indicators as a communication tool
- Stimulate them as management support system
- Distribute the indicators to a broad interested public
- Not an evaluation of the coast and the coastal policies



# Development process



People involved in development process: +/- 90 persons

- The consultative group on ICZM: 11 participants
- The thematically meetings: 29 participants
- Workshop 1: 26 participants
- Workshop 2: 44 participants

## Bottom up approach !

The scientific community

- Flanders Marine Institute
- Higher Institute for Labour Studies
- ...

Local authorities

- Environmental development
- Spatial planning
- Servants on mobility
- ...

Culture Heritage

Tourism

- Tourism Flanders
- The hotel, restaurant and café sector
- ...

Nature associations  
NGO

Economical sector

- The harbors
- Trade Union
- ...





# Result:

– A list of 20 indicators

- 6 priorities



The list was just the beginning...

- Providing the indicators from data

- Communication tools

- Factsheets

- Website

- Publication





# Data and technical factsheets

- Data is preserved in an access database
- Updated every year with the available data
- Scale of the data: as local as possible: local communities, measurements points
- Presentation in maps, graphs and publications

Technical factsheets: detailed information on each indicator.



# Website: Interactive

**Duurzaamheidsbarometer voor de Kust**  
 Een initiatief van het Coördinatiepunt Duurzaam Kustbeheer

**Startpagina**

- Hoeveel natuur blijft er over aan onze kust?
- Verandert de bevolkingsstructuur van de kustbewoners?
- Zijn er nu meer of minder olieverontreinigingen op zee?

**Een duurzaam beheer van de kust. Dat is de finale doelstelling!** Een kust met een aantrekkingskracht voor jong en oud. Waar plaats is voor zowel sociale, ecologische als economische aspecten...

Om na te gaan of de kust ontwikkeld in een duurzame richting, wordt gebruik gemaakt van een **duurzaamheidsbarometer**. Hij wordt gebruikt om advies te verlenen bij het nemen van beslissingen over de toekomstige ontwikkelingen van de kust. Hij houdt als het ware een vinger aan de pols houden om trends aan de kust te identificeren en een gewenst beleid te kunnen stimuleren.

De duurzaamheidsbarometer bevat een set gegevens van indicatoren. Door regelmatige evaluaties van de gegevens wordt er nagaan of een gebied evolueert in de richting van of het weg van duurzaamheid.

Met deze barometer willen we op een objectieve manier, beleidsmakers, deskundigen en een gemeenteraad publiek informeren.

Om de indicatoren van de barometer onder de aandacht te brengen werd er gekozen voor **drie soorten van producten**: de website, de technische fiche en het kustkompas.

- De website verleent vrij toegang tot de data, achtergrondinformatie, bronnen e.a. Nieuwe data worden zo snel mogelijk online geplaatst.
- Het kustkompas is een publicatie en bespreekt de indicatoren. Ze probeert de indicatoren te kaderen in een ruimere context. In een handig overzicht kunnen er één opgeplaat de trends van het voorbije jaar waargenomen worden.
- De technische fiche (tijdelijk niet beschikbaar) geeft gedetailleerde informatie per indicator voor de mensen die dieper wensen in te gaan op een bepaalde meting.

De indicatorset is een dynamisch instrument, en ongetwijfeld het gebruik ervan roept vaak nieuwe vragen op of suggereert aanvullingen. We geven de barometer dan ook de kans te groeien en stellen hem bij na evaluatie.

Het opvolgen van de duurzaamheidsindicatoren van het kustgebied is één van de operationele doelstellingen die is vastgesteld door de partners van het **Coördinatiepunt Duurzaam Kustbeheer**.

**BEVOLKINGSSTRUCTUUR**

De verouderingsgraad is een demografische indicator die de verhouding aangeeft tussen het aantal inwoners ouder of gelijk aan 60 en het aantal inwoners jonger dan 20 jaar. Een verouderingsgraad boven de 100 betekent dat er meer 60-plussers dan <20-jarige zijn in de desbetreffende regio. Omgekeerd wijst een waarde onder de 100 op een kleiner aantal 60-plussers dan <20-jarigen. De draagt deze indicator 100 dan zijn beide groepen even groot.

<http://www.vlz.be/projects/indicatoren/data>

	A	B	C
1			
2			
3			
4			2006
5	BLANKENBERGE		185
6	BRUGGE		124
7	DAMME		100
8	JABBEKE		88
9	ZUIENKERKE		89
10	KNOKKE-HEIST		203
11	DIKSUIDE		102
12	LO-REINIGE		91
13	BREDENE		95
14	GISTEL		87
15	MIDDELKERKE		181
16	OOSTENDE		177
17	OUDENBURG		106
18	DE HAAN		167
19	ALVERINGEM		87
20	DE PANNE		181
21	KOKSUIDE		208
22	NIUWPOORT		165
23	VEURNE		105

**BEVOLKINGSSTRUCTUUR**

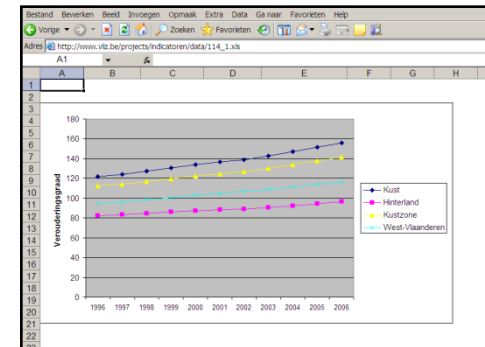
West-Vlaanderen wordt gekenmerkt door een toenemende verrijking. Jaar na jaar neemt het aantal **groeiers** (60-plussers) toe ten opzichte van het aantal jongeren (<20-jarigen). In 2006 telde West-Vlaanderen per 100 <20-jarigen 116 inwoners ouder dan 60 jaar. Dit fenomeen van **verrijking** doet zich echter niet in gelijke mate voor in alle West-Vlaamse gemeenten. Met een gemiddelde verouderingsgraad van 141 hebben de kustgemeenten een oudere bevolkingsstructuur dan de hinterlandgemeenten met 96. De typische bevolkingsstructuur van de kustgemeenten heeft ook invloed op andere domeinen, zoals huisvesting, economie, zorg, werkgelegenheid of vrije tijd.

De verouderingsgraad is een demografische indicator die de verhouding aangeeft tussen het aantal inwoners ouder of gelijk aan 60 en het aantal inwoners jonger dan 20 jaar. Een verouderingsgraad boven de 100 betekent dat er meer 60-plussers dan <20-jarige zijn in de desbetreffende regio. Omgekeerd wijst een waarde onder de 100 op een kleiner aantal 60-plussers dan <20-jarigen. De draagt deze indicator 100 dan zijn beide groepen even groot.

>> Fiche : BEVOLKINGSSTRUCTUUR

- Evolutie van de verouderingsgraad, 1996-2006
- De verouderingsgraad in de kustregio, 2006
- Migratiepatroon naar leeftijd, 2004

Bron : Provincie West-Vlaanderen, Steunpunt Sociale Planning



Internet site:  
[www.kustbeheer.be/indicatoren](http://www.kustbeheer.be/indicatoren)  
 Free access to the data



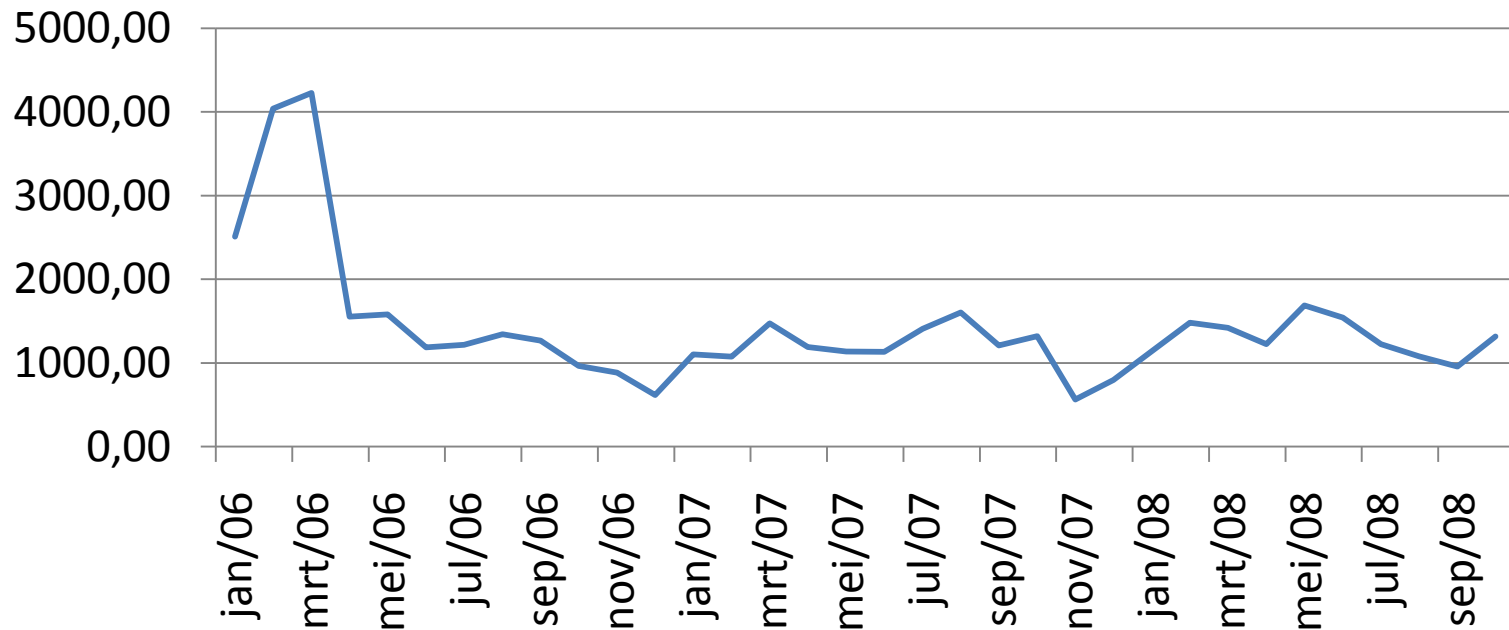
# Impact

Year/period	Estimated average number of unique visitors per month (based on 4 pages/visit)	Estimated average number of unique visitors per day (based on 4 pages/visit)
2006	1781	58,6
2007	1166	38,4
2008 (Jan-Oct)	1306	42,9

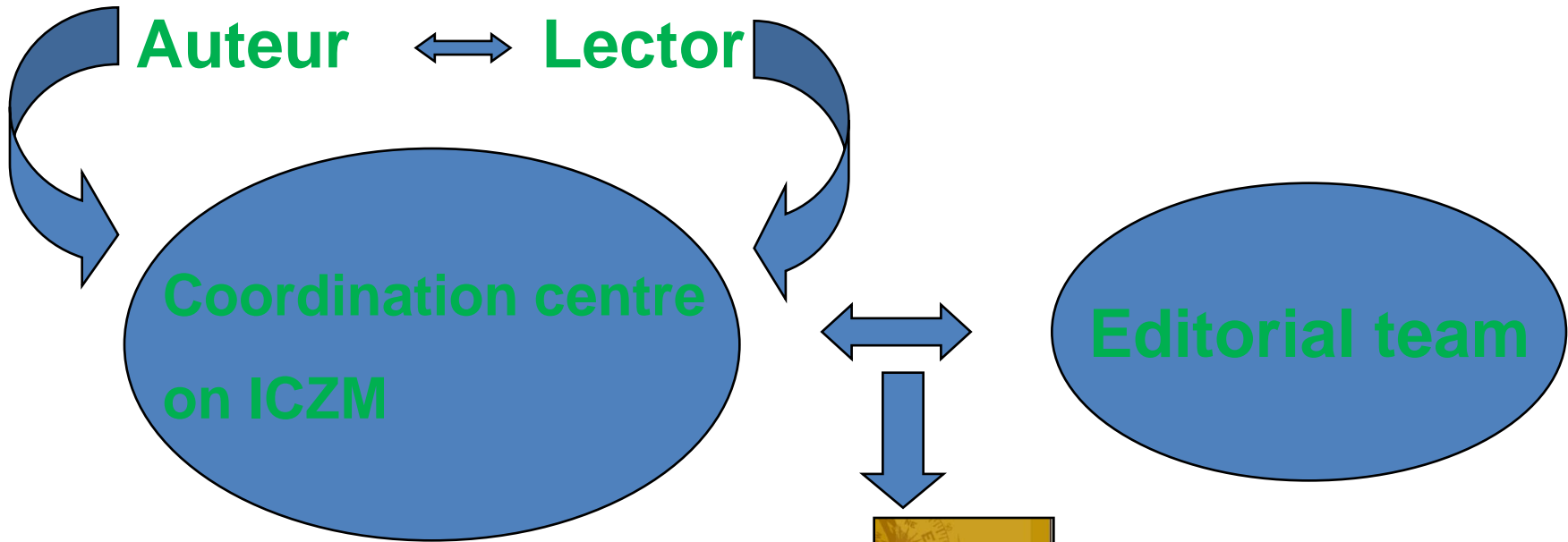


# Impact

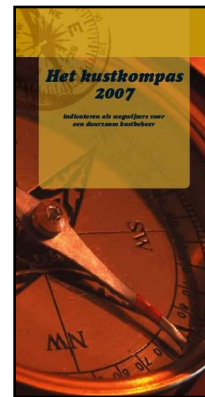
Estimated visitors per month  
(4 pages/visit)



# The publication : The coastal compass



Result is work of more than 50 persons:  
Teamwork!



# The publication: the composition!

- Each chapter
  - A covering text
    - Where do we want to go?
    - Where are we today?
    - What can we do?
- 5 indicators
  - Key Message
  - Trend
  - 4 questions
    - Why this indicator
    - What says this indicator
    - What are the results
    - What for the future

**LOONTREKKENDE WERKGELEGENHEID**

**TREND +**

Achter: Mido Depaepe (Dutch: Economic - Provincie West-Vlaanderen)  
 Lezer: Eline Dehaene (ECCO)

**WAAROM DEZE INDICATOR?**  
 Toewakking is belangrijk voor de persoonlijke welvaart en de sociale integratie van de bevolking. Bovendien is het belangrijk dat de werkgelegenheid gehandhaafd kan worden en indien mogelijk verhoogd.

**WAT ZEGT DEZE INDICATOR?**  
 Door de grote verschillen tussen de dataverzameling van loontrekkende en zelfstandige bedrijven, werd ervoor gekozen de analyse te beperken tot de loontrekkende tewerkstelling. Omdat de dienstensector in het algemeen ertoe en toetrens in het bijzonder gekenmerkt worden door een hoge graad aan zelfstandigheid, zouden de gerapporteerde resultaten aanzienlijk verschillen zijn. Bijkomende analyses hebben echter aangetoond dat de tewerkstelling in de dienstensector inderdaad relatief stabiel is.

De loontrekkende tewerkstelling wordt verdeeld in volgende hoofdcategorieën:

- primaire sector: land- en tuinbouw en visserij
- secundaire sector: vervaardiging, industrie en bouw
- tertiäre sector: commerciële dienstverlening
- quartaire sector: informatie- en communicatietechnologie

**WAT ZIJN DE RESULTATEN?**  
 Eind 2004 waren aan de kust 113.426 loontrekkers en in het hinterland 19.070 loontrekkers tewerkgesteld. Hun aandeel in West-Vlaanderen bedroeg respectievelijk 29,7 % (onder Brugge: 14,4 % en 5,1 %). De aandelen van de regio's in de totale bevolking van West-Vlaanderen zijn respectievelijk 29,5 % (onder Brugge: 16,2 % en 7,3 %). Indien we geen rekening houden met tewerkstellingspod. Brugge, is het aandeel van de loontrekkende tewerkstelling van beide regio's in West-Vlaanderen kleiner dan hun aandeel in de totale West-Vlaamse bevolking.

De kust wordt gekenmerkt door een heel zwakke industriële basis. Eind december 2004 had de industrie slechts een aandeel van 9,8 % in de totale loontrekkende tewerkstelling in tegenstelling tot het aandeel van 17,9 % in het hinterland. Dit aandeel is een stuk lager dan in West-Vlaanderen als geheel (16,6 %). De bouw is de enige economische sector met een relatief hoog aandeel aan de kust (3,1 %), in vergelijking met West-Vlaanderen (1,3 %).

Aan de kust zitruert maar liefst 86,6 % van de loontrekkende tewerkstelling zich in de handel en distributie, waar toerisme en horeca een belangrijk onderdeel vormt. In het hinterland is dit 69,6 % en in West-Vlaanderen 67,8 %.

De totale loontrekkende tewerkstelling steeg tussen 1998 en 2004 met 7,8 % aan de kust, met 2,3 % in het hinterland en met 5,4 % in West-Vlaanderen als geheel. De evolutie in de diverse hoofdcategorieën is heel verschillend.

Tussen 1998 en 2004 nam de loontrekkende tewerkstelling in de West-Vlaamse industrie af met 6,5 %. Ook aan de kust was er een afname van de - al kleine - tewerkstelling met 4,5 % (ruim 500 jobs). In het hinterland was de situatie nog erger: daar daalde de tewerkstelling in de industrie met maar liefst 20,0 % (bijna 850 jobs).

Tegenover de daling van de tewerkstelling in de industrie, staan wel belangrijke toenames van de tewerkstelling in de dienstensector. Dit toename was het meest opvallend in de tertiäre tewerkstelling tussen 1998 en 2004 toe met 13,8 %, de quartaire tewerkstelling met 11,1 % en het hinterland met toenames met respectievelijk 8,7 % en 10,1 %.

**WAT VOOR DE TOEKOMST?**  
 Door het verhogen van de innovatiecapaciteit enerzijds en het versterken van de competitiviteit anderzijds, kan er meer en hoogwaardige, kwalitatieve tewerkstelling gerealiseerd worden. Voorbeelden zijn sectorale vernieuwing, aantrekken van kennisintensieve ondernemingen, valoriseren en stimuleren van het ondernemerschap enz. Via een betere en sterkere uitbouw van de natuurlijke voorraden, zoals de ligging kan de kustregio zich verder ontwikkelen tot een regio met een evenwichtige en gediversifieerde economie met aandacht voor moeilijk plaatsbare groepen, duurzame ontwikkeling en het leef- en woonklimaat.

Voor technische hulp en meer info: [www.bosthubs.be/indicatoren](http://www.bosthubs.be/indicatoren)

**Grafiek 1: Loontrekkende tewerkstelling naar sector, 31 december 2004**

Regio	Landbouw	Industrie	Bouw	Dienstverlening	Quartaire sector
Kust	1,3%	9,8%	3,1%	31,1%	54,7%
Hinterland	1,3%	17,9%	1,2%	31,1%	48,5%
West-Vlaanderen	1,3%	16,6%	1,2%	31,1%	49,8%

**Grafiek 2: Aandeel van de loontrekkende tewerkstelling in de dienstensector, 31 december 2004**

Regio	Handel en distributie	Recreatie, cultuur en horeca	Dienstverlening	Quartaire sector
Kust	86,6%	1,1%	11,3%	1,0%
Hinterland	69,6%	1,1%	28,2%	1,1%
West-Vlaanderen	67,8%	1,1%	26,7%	1,4%

**Kaart 1: Aandeel van de industrie in de totale loontrekkende tewerkstelling, 31 december 2004**

West-Vlaanderen is verdeeld in regio's met verschillende aandelen aan de kust:

- West-Vlaanderen: 16,6%
- Brugge: 14,4%
- West-Vlaanderen (onder Brugge): 5,1%





# The publication

- First edition in 2005 – Second edition in 2007
- Difference between 2005-2007

## Review of the indicators

- Review on the working with indicators
  - More attention to local scale
  - More integrated indicators
  - Concrete promoting and use of the indicators
- Review on the indicators
  - Exclusion of indicators without a meaning
  - Redefining indicators to be closer to standard definitions
- Extra chapter: Climate change and Coastal defense





# Impact

- Widely circulated :
  - Dutch 1450 (2005+2007)
  - English: 300
- Persons present at launch of two coastal compasses
  - 46 politicians ( local alderman and mayors, deputies' one federal minister)
  - 167 administrations (local, provincial, Flemish or federal level)
- Media attention: All the national papers, news of the big radio-stations and broadcast companies



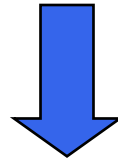
# Impact

- Referred to in several publications such as long term planning for tourism, reports on coastal flood risk and trends for the future in the north sea, courses on sustainable tourism and lectures about ICZM
- 2 official questions to the parliament based on the results of the coastal compass
- Average of 18 questions a year, mostly from different governmental services, asking for specific data

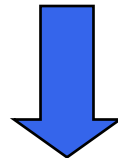


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Belgium approach: Coastal barometer (2000)



**SAIL: Regional approach (2002)**



WG-ID => DEDUCE: European approach (2004)



# SAIL: The Southern North Sea

## SAIL: Schéma d'Aménagement Intégré du Littoral

### SAIL partnerschap



# SAIL: The Southern North Sea

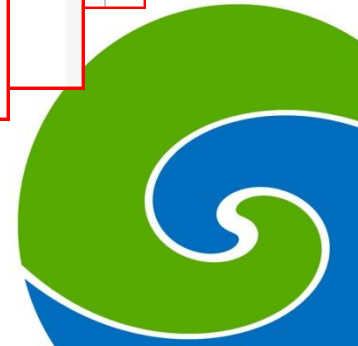
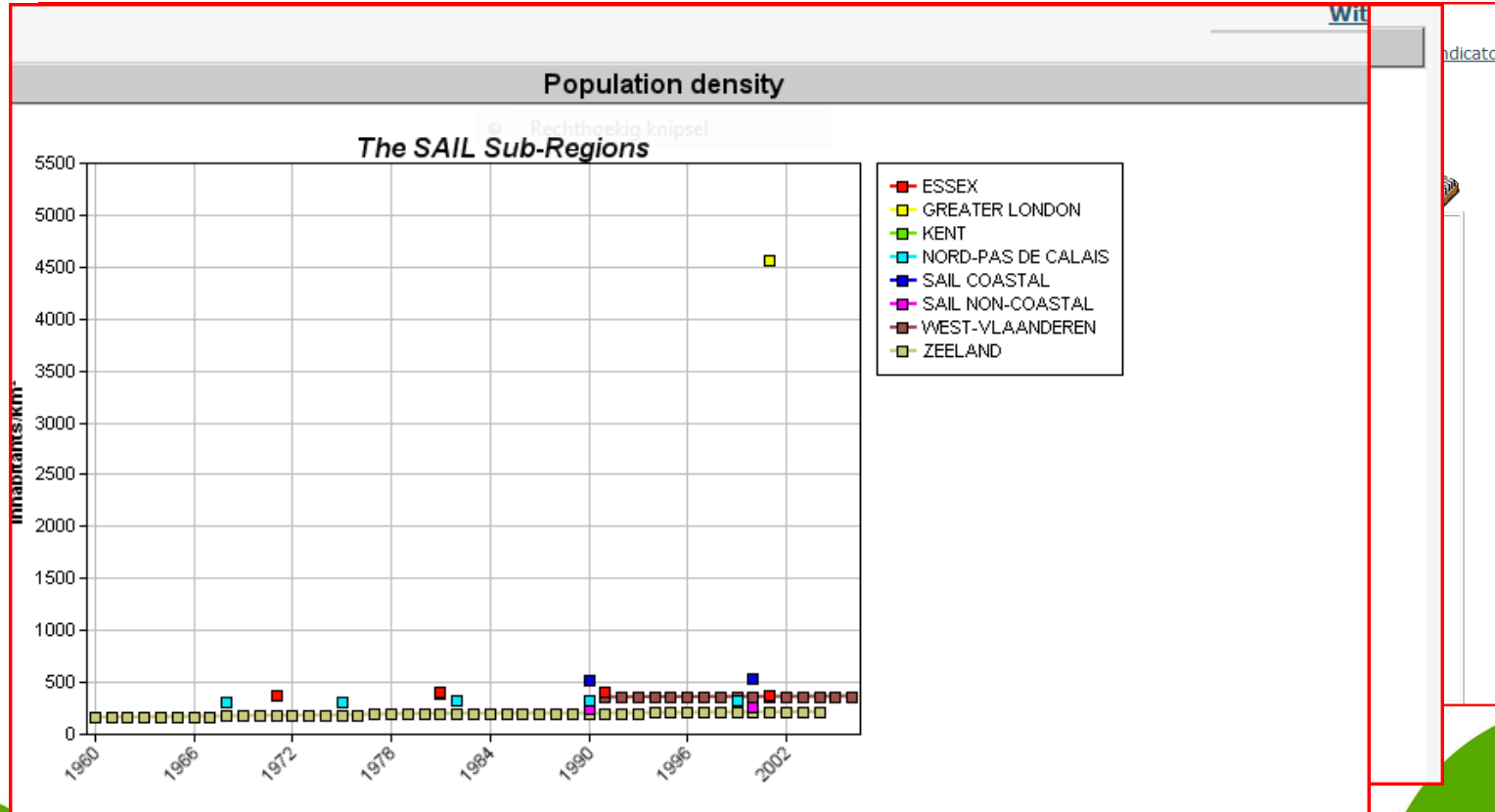
- 7 goals!
- A set of 27 indicators and 45 measurements
- Developed and calculated by Flanders Marine Instituut (VLIZ)
- Selecting of indicators: by team of experts
  - TOP DOWN APPROACH



# Outreach

- Website

- <http://www.vliz.be/projects/SAIL/db.php>



# Outreach

- Publications: State of the Coast of the Southern North Sea

**State of the Coast of the Southern North Sea:**  
*an indicators-based approach to evaluating sustainable development in the coastal zone of the Southern North Sea.*



• Number of inhabitants per square kilometre  
 • Age structure of the population

**Population density and age structure**

**Key Message**

- Population density in the coastal zone is twice as high (526 inhabitants per km<sup>2</sup>) as in the hinterland (254 inhabitants per km<sup>2</sup>) and is increasing twice as fast.
- Throughout the SAIL sub-regions, the proportion of the population aged 60 and older is higher at the coast than in the hinterland and the trend is on the rise. However, Nord-Pas de Calais has a demonstrably younger coastal population.

**Why monitor population density and age structure?**

Population density measures the pressure on land from population concentrations and their requirements for land, housing, employment, public services and transport. For planning purposes it is important to determine whether such a demand for land can be accommodated within the coastal zone. A significant proportion of the land is assigned as important for nature conservation purposes and subject to specific regulations. This in turn has an impact on the supply of land and property and thus also on their price.

The age structure of the population adds an extra dimension of information regarding specific age-related demands from user groups within the population. Age structure is an important factor in the dynamics of an economy and a driving mechanism in the social sector.

**Where do the data come from?**

The source of the population data is the National Census data providers. All countries in the Southern North Sea conduct at least a decennial Census that yields reliable data at the municipality level. However, in some countries additional yearly population data is available at the local level through the population register. This is the case for Belgium and The Netherlands for which annual time series are included.

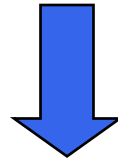
## First indicators-based regional scale assessment in the southern North Sea



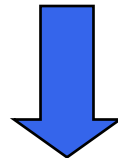


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**WG-ID => DEDUCE: European approach  
(2004)**



# Working group on indicators and data

- EU expertgroup on the ICZM (result of the recommendation)
- Working group on Indicators and Data (WG-ID)
  - Developed 27 indicators
  - Mainly based on SAIL set



# DEDUCE



Fig. 2: Map representing geographical coverage of partners of DEDUCE project

- Calculation of 27 indicators for a sustainable development of the coast
- Strengths and weaknesses of an integrated information system based on a GIS
- Model of the state-of-the-coast report (IFS)
- Guides on the use of the indicators for decision making
- Study of the possibilities of creating a European coastal observatory



# Results: Standard indicator forms

SIF\_4.1\_final

Indicator	
4	Demand for road travel at the coast.
Measurement	
4.1	Volume of traffic on coastal motorways and major roads.
What should the measurement tell us?	
Perhaps the largest consequence of development at the coast is an increase in the demand for road travel, which leads to pressure on existing road space and in turn to the provision of new infrastructure. Road traffic expands to fill the space allocated to it and hence over time congestion, air pollution, noise and the costs associated with maintaining the road network will all rise exponentially. The measurement should alert us to the pace at which the demand for road travel is rising and also tell us whether the issue is greater on coastal motorways and major roads than on those inland.	
The opposite, of course, holds true. Sluggish traffic growth is an indicator of a <i>lack</i> of development!	
Parameters	
(i)	Average number of vehicles per day on motorways and major roads (or the most important alternative roads) within coastal NUTS 3.
(ii)	Average number of vehicles per day on motorways and major roads (or the most important alternative roads) within coastal NUTS 3 by distance from the coastline.
Coverage	
Spatial	Temporal
Motorways and major roads (or the most important alternative roads) within coastal NUTS 3.	Every five years from 2000 but earlier if possible <sup>(1)</sup> .
Data sources	
All countries monitor traffic flows by counting the number of vehicles passing a measuring station. There is no definitive rule but motorways tend to be administered by national highways agencies (or central government ministries of transport) whereas major roads are the responsibility of regional authorities. Datasets are available, often sub-divided into daily or weekend averages or by type of vehicle. Seasonal data is particularly instructive for coastal planning because of its association with tourism and holidaymaking. <i>Many of the computations necessary to calculate the parameters will have been done already</i> – in particular, check with your regional (or provincial) authority.	
Motorways are broad highways designed for high-speed traffic, whereas 'Major' roads are the next tier down and are principal roads of national or regional importance. However, remember that we want to measure the impact of traffic at the coast. Consequently, in coastal areas where there are no motorways or national roads, you should use data for the most important alternative road.	

SIF\_4.1\_final

Methodology		
Steps	Products	
1	In GIS (or other cartographic tools) sample the co-ordinates of monitoring stations located in coastal NUTS 3 and select those which measure traffic flows on motorways and major roads.	List of all monitoring stations located in coastal NUTS 3 and which measure traffic flows on motorways and major roads.
2	Measure the distance from the coastline of each monitoring station identified in step 1.	Distance from the coastline of all monitoring stations identified in step 1.
3	Obtain 'annual average daily flow' datasets for all vehicles for every monitoring station identified in step 1.	<u>Average number of vehicles per day on motorways and major roads by distance from the coastline</u> (graph 1).
4	Add the average number of vehicles per day passing <i>all</i> monitoring stations on <i>each</i> motorway and major road identified in step 1 and divide by the number of monitoring stations.	<u>Average number of vehicles per day on each motorway and major road within coastal NUTS 3</u> (map 1).
5	Add the average number of vehicles per day on all motorways and major roads and divide by the number of routes.	Average number of vehicles per day on <i>all</i> motorways and major roads within coastal NUTS 3 (graph 2).
Presentation of the data		
Map 1	Map of coastal NUTS 3 showing average daily traffic flows for all motorway and major roads. The <u>width</u> of each route depicted should approximate to the <u>volume</u> of traffic <u>between each monitoring station</u> .	
Graph 1	Scatter graph illustrating the relationship between average daily traffic flow and distance of monitoring station from the coastline.	
Graph 2	Bar chart showing the average number of vehicles per day on all motorways and major roads in the wider reference region since at least 2000 and earlier if possible.	

# Results: model of the state of the coast report

## 2.- Area of built-up land

### Key message

- Over recent decades, built-up areas have been steadily increasing all over Europe.
- In Western European countries, built-up areas have been increasing faster than the population.
- There is intensive development near the coastline which is touching the most interesting coastal biotopes that represent an important barrier to the fluxes between land and sea.
- The proximity of these developments to the sea implies extreme vulnerability of settlements with regard to sea storms, floods and other exceptional events.



Cala del Mal Pas, Benifrom (Alicant), Spain

### Why monitor the area of built-up land?

The increase in built-up areas has the highest impact on the environment due to the sealing of soil as well as disturbance resulting from transport, noise, resource use, waste dumping and pollution. Transport networks that connect cities add to the fragmentation and degradation of the natural landscape. The intensity and patterns of urban sprawl are the result of three main factors - economic development, demand for housing and extension of transport networks. Although subsidiarity rules assign land and urban planning responsibilities to national and regional levels, most European policies have a direct or indirect effect on urban development.

This indicator belongs to the set of six indicators that monitor progress towards achieving the first goal for coastal sustainability set out in the EU Recommendation concerning the implementation of ICZM - to control further development of undeveloped coast as appropriate.

The indicator has one measurement - the percentage of built-up land by distance from the coastline.



Projet cofinancé par le  
L'Union Européenne



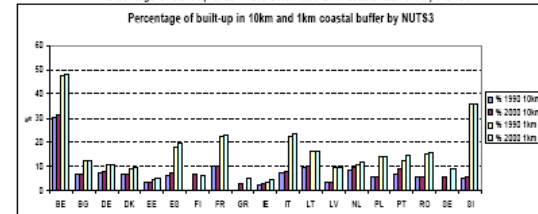
North East SUB Ocean  
INTERREG I I I C

## Policy and management for a sustainable coast

### What does the indicator show from European to local level?

During the last decade, significant land use and land cover changes can be observed in the 10 kilometer coastal strip in the five European regional seas. In general terms, the artificial use of the coastal zone has grown intensively especially on the Mediterranean (304km<sup>2</sup>) and on the Atlantic (650km<sup>2</sup>) coasts. The North Sea coast shows a smaller growth of built up area (235km<sup>2</sup>), together with the Baltic Sea (142km<sup>2</sup>) coast and the Black Sea coast, with the lowest value of change (11km<sup>2</sup>). However, in relative terms, in relation to the total area of the assessed coastal zone, the change to artificial surfaces is almost 15% on the Atlantic coast, 10% on the Mediterranean, 8% on the North Sea and 5% on the Baltic Sea coast. On the Black Sea coast, changes to built-up land represent ca 2.5%. Gains in built up area represent the highest individual and cover change in the coastal zones of regional sea catchments.

Percentage of built-up area in the 10km and 1km coastal buffers by NUTS3

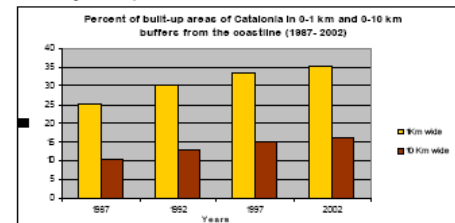


Source: BEA, ETC-TE (2005)

Growth of urban artificial surfaces on the coastal zone of Europe has continued. Projected on the basis of annual growth rate observed during 1990-2000, by 2004 the 1990 levels are exceeded by 12%. In this period, the fastest development has occurred in Portugal (34%), Ireland (27%), Spain (18%), followed by France, Italy and Greece. The most affected regional sea coast is the Western Mediterranean.

Inside the 10km coastal zone, urban surfaces are dominant in the first kilometer from the shoreline. In several coastal regions of Belgium, Italy, France and Spain the coverage of built-up areas in the first kilometer coastal strip exceeds 45%. In these areas further development is sprawling to the coastal hinterland. In 2000 the share of area covered by artificial surfaces was 25% higher on coasts than inland. During 1990-2000, trends in European coastal zones show that the growth rate of built-up areas at the coast have been about 1/3 faster than inland.

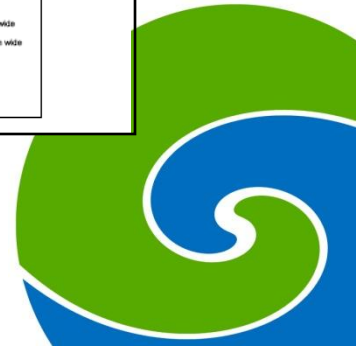
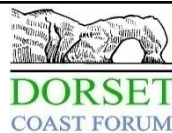
Percentage of built-up areas of Catalonia in 1km and 10km buffers from the coastline



Source: Generalitat de Catalunya (2005)



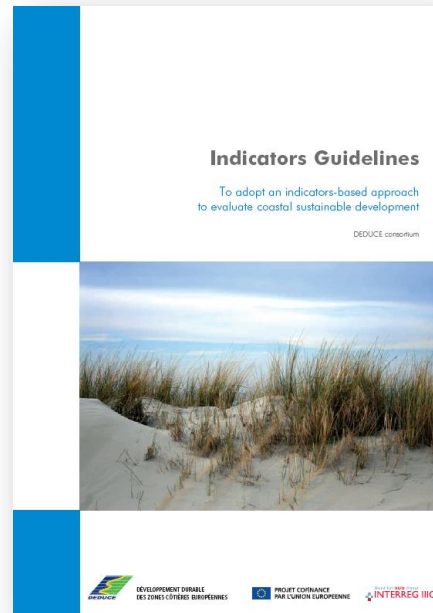
Combining Sea and Coastal  
Planning in Europe





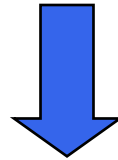
# Results

- Guides on the use of the indicators for decision making

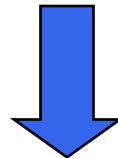


# The coordination centre and indicators

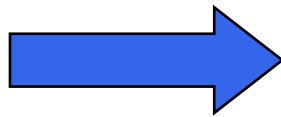
Belgium approach: Coastal barometer (2000)



SAIL: Regional approach (2002)



WG-ID => DEDUCE: European approach (2004)



**For the future...**





## Comparison between the C-scope partners:

- Coastal Compass and Dorset Data book
  - 18 almost identical indicators
  - No indicators or data on:
    - Sea side: oil pollution, fish stocks, iczm
    - Coastal protection – Climate change
- SD indicators proposed by the WG ID-EU ICZM and Dorset Data book
  - 28 almost identical measurements (out of 46)



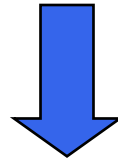
## Comparison between the C-scope partners:

- Much more data on one subject
- Very detailed data
- Trends
- Conclusions out of the data
- The importance of the data for sustainable management point of view

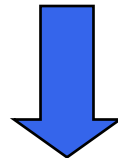


# The coordination centre and indicators

Belgium approach: Coastal barometer (2000)



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**For the future...**



# Future for the indicators?

## Priorities:

- Further develop the indicators closer to local governments
- Research to increase the correlation between different indicators
- Link the atlas to the sustainability indicators



# Coastal atlas vs Indicators



[www.kustatlas.be](http://www.kustatlas.be)

-Maps, graphs

-Not easy to update

-Graphs, data

-Easy to update





With special thanks to our funding partners  
and all our coastal stakeholders



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