



MAREMED project

Emilia-Romagna partner presentation

Roberto Montanari



Directorate General for Environment, Soil and Coast Defense

MAREMED Kick-off meeting
Marseille 22-24 June 2010

- ✓ 3.9 millions inhabitants, total regional population
- ✓ 130 Km of coastline, low sandy beaches
- ✓ 14 coastal Municipalities with 513.200 inhabitants
- ✓ Po river: basin 71.000 km² , 652 km length, about 2/3 bordering RER
- ✓ Reno river: basin 5.000 km² , 212 km length

PO PLAIN

ADRIATIC
SEA

EMILIA-ROMAGNA
REGION

COASTAL
PLAIN

LIGURIAN
SEA



Criticalities affecting the coastal physical system

- Tourist development and excessive urbanisation
- Land subsidence (up to values of 1 cm/y) due to intensive underground fluids pumping (water, natural gas)
- Extensive areas below sea-level- at risk for flooding
- Beach/shoreface erosion and flooding of the backshore due to storm surges
- Aquifers contaminated with salt water as consequence of intensive underground fluids extraction
- Pollution
- Fishing decadence
- Habitat destruction

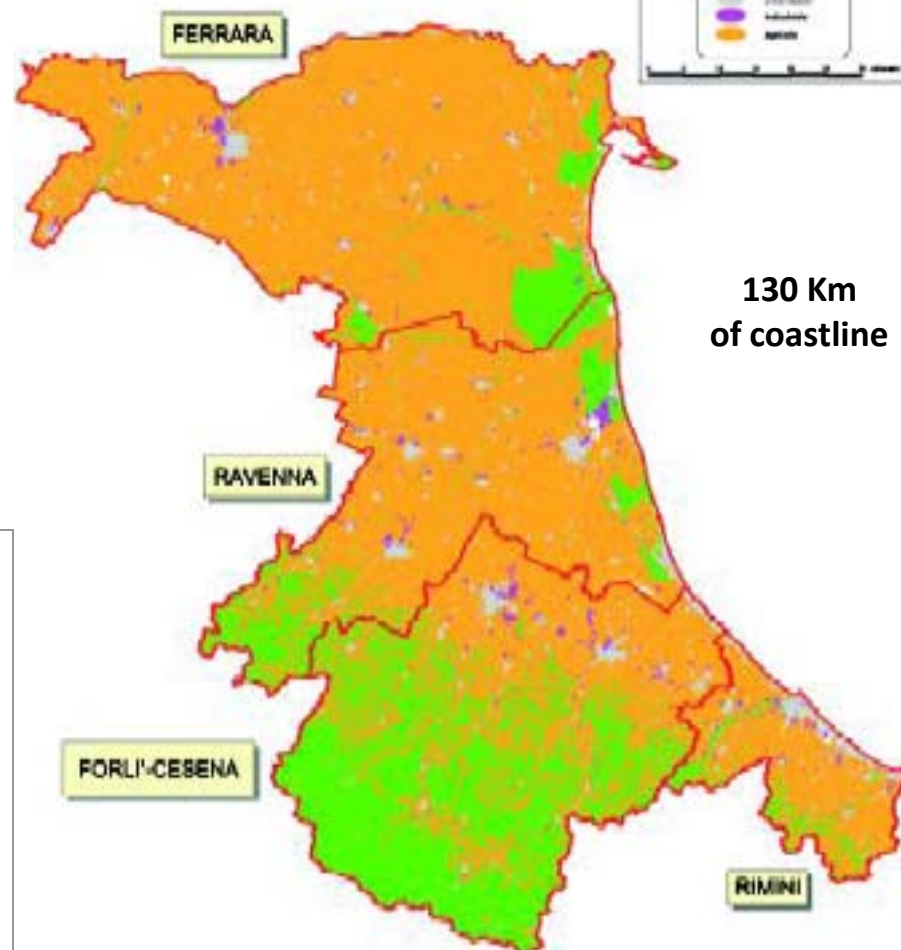
Tourism and Coastal system urbanization



Resident population (1.1.2010)

Coastal Municipalities		residents
RN	Bellaria-Igea Marina	19.092
RN	Cattolica	16.679
RN	Misano Adriatico	12.157
RN	Riccione	35.545
RN	Rimini	141.501
FC	Cesenatico	25.375
FC	Gatteo	8.649
FC	San Mauro Pascoli	10.959
FC	Savignano Sul Rubicone	17.329
RA	Cervia	28.861
RA	Ravenna	157.459
FE	Codigoro	12.615
FE	Comacchio	23.084
FE	Goro	3.976
total		513.281

Land use



130 Km
of coastline

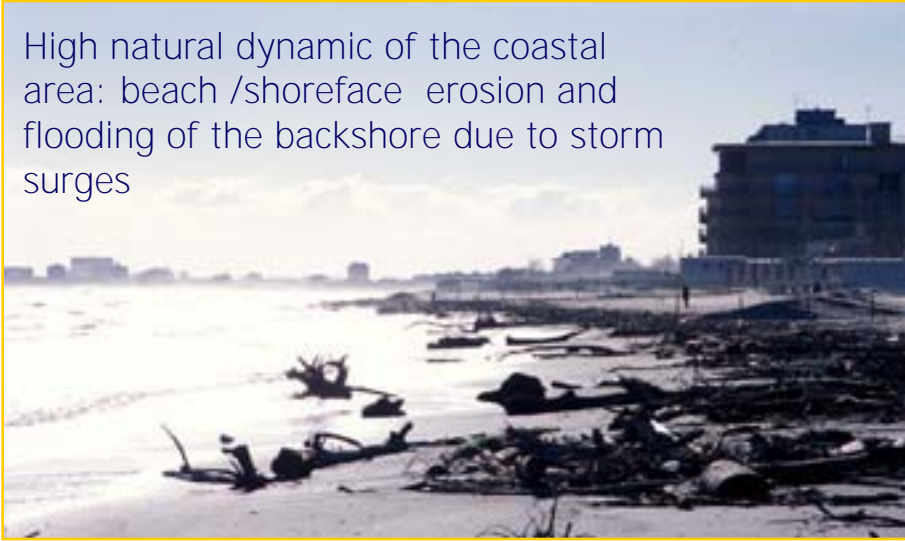
Tourism (2004-2008)

44 Millions of presences per year (average)
 3.300 Hotels + 1.200 complementary structures
 64.000 private accommodations
 6.000 restaurants and similar
 1.400 bathing establishments
 65.000 employees (mainly seasonal)
about 7% of regional GDP

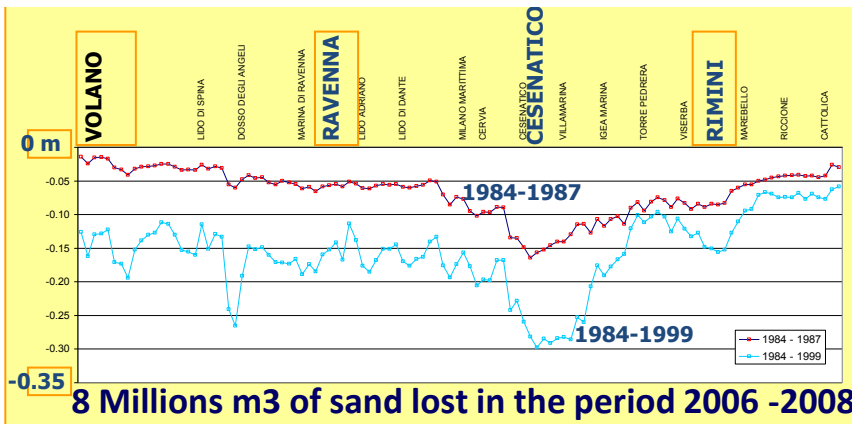
Elaboration ARPA Emilia-Romagna

Criticalities affecting E-R coastal system

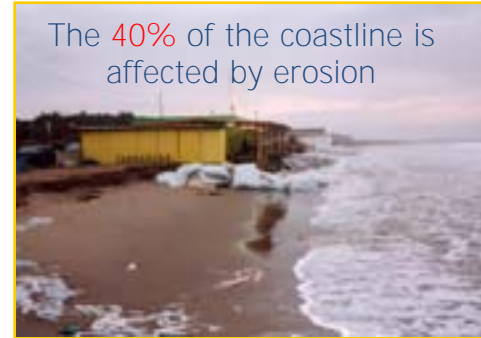
High natural dynamic of the coastal area: beach /shoreface erosion and flooding of the backshore due to storm surges



Land subsidence (up to 1 cm/y) due to intensive groundwater and natural gas pumping



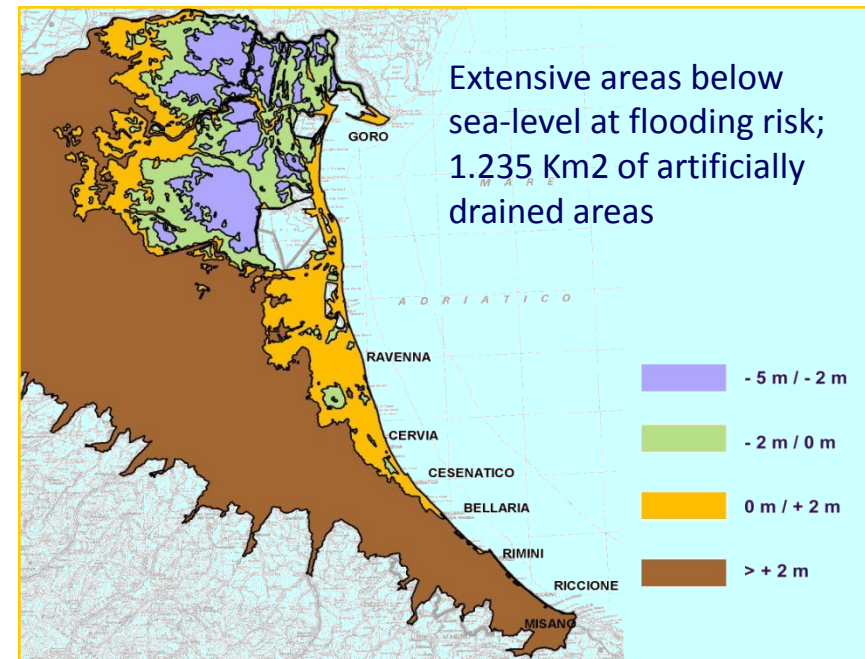
The 40% of the coastline is affected by erosion



60 Km of coast with hard defences



Almost total absence of natural defense system (dunes); and extensive urbanization



Ports and maritime transports



**Boats steadily present in the
13 regional ports (2005-2006)**

- 825 Fishing boats
- 8.000 recreation boats
- 35 Passengers boats

Ravenna National Port (2006)

- 25 Millions t/y Total goods enlivened
of which potentially dangerous 7 Mtons
- 4,8 Mtons hydrocarbons
- 1,4 Mtons chemicals
- 0,6 Mtons fuels



The whole port system represents the 1% of RER total GDP

Fishing and aquaculture



Fishing

825 Boats in 2005 (1.279 in 2001)

1.600 employees

31.000 tons Fishing

Aquaculture

70 mussels and clams cultures

1.400 employees

1.700 tons production

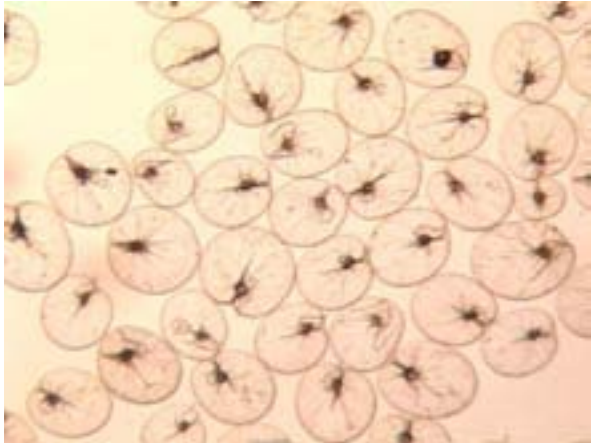
Fishing sector decreasing in the period 1991-2001 (about 25%)

Aquaculture sector increasing in the period 1991-2001 (about 560%)

The ichthyic economy represents the 0,1% of RER total GDP (2005)

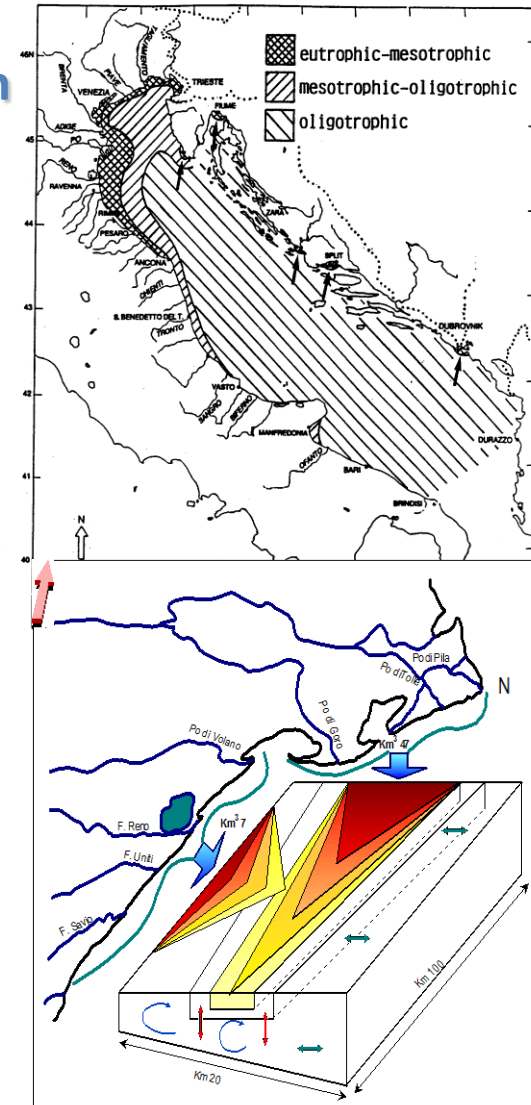
Coastal marine water quality

Eutrophication



Microalgae blooms

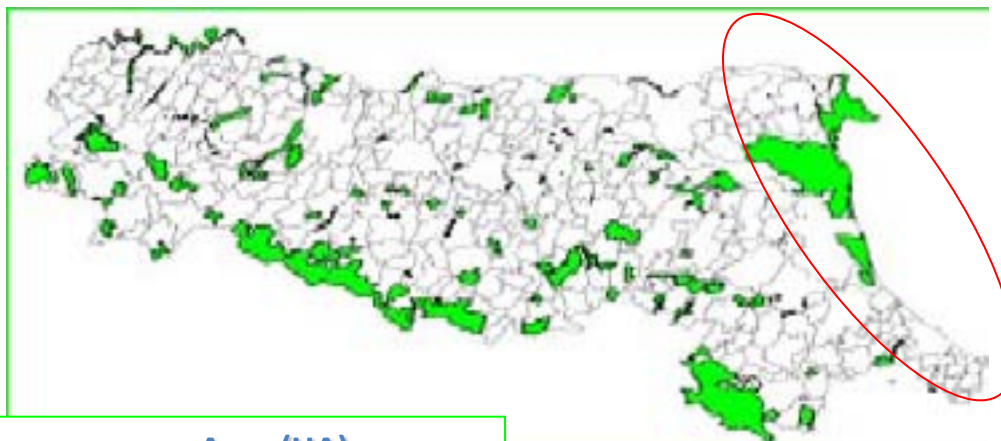
Noctiluca scintillans



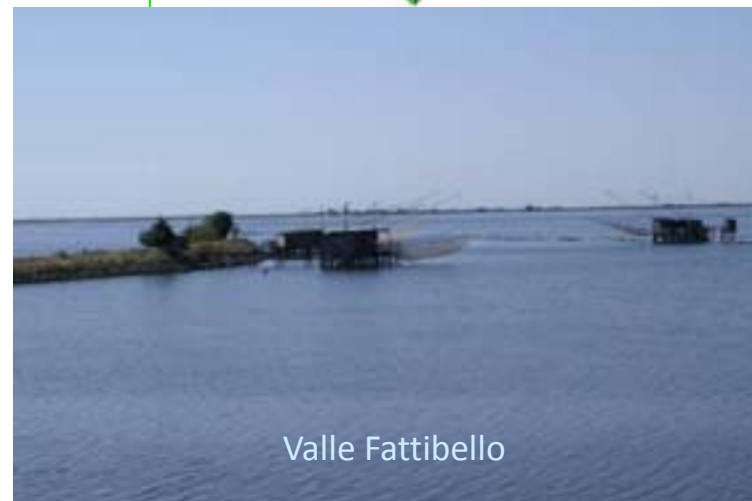
Protected zones in RER coastal area



Salina di Comacchio

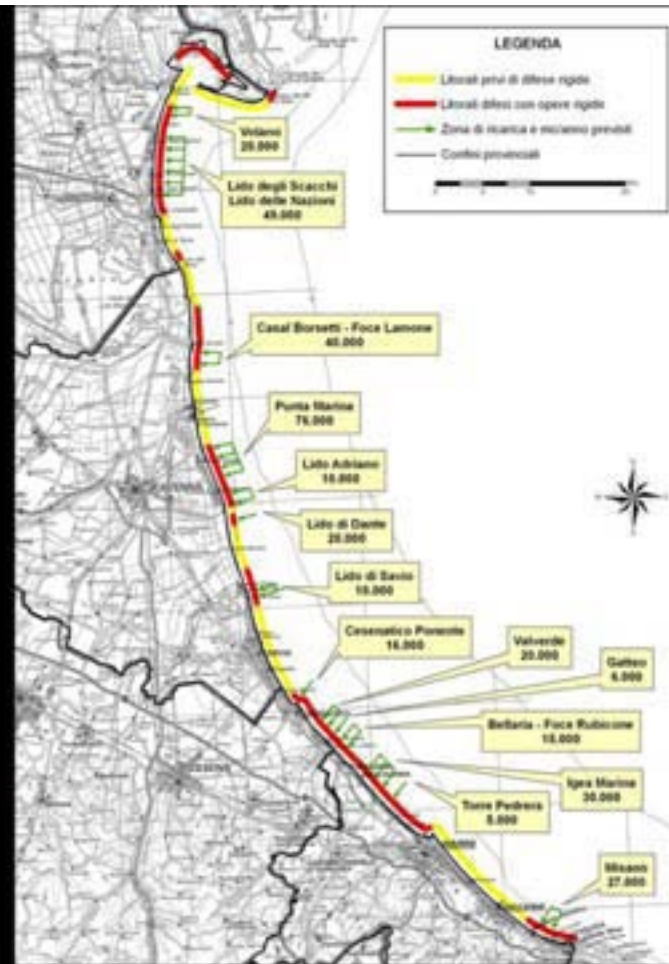
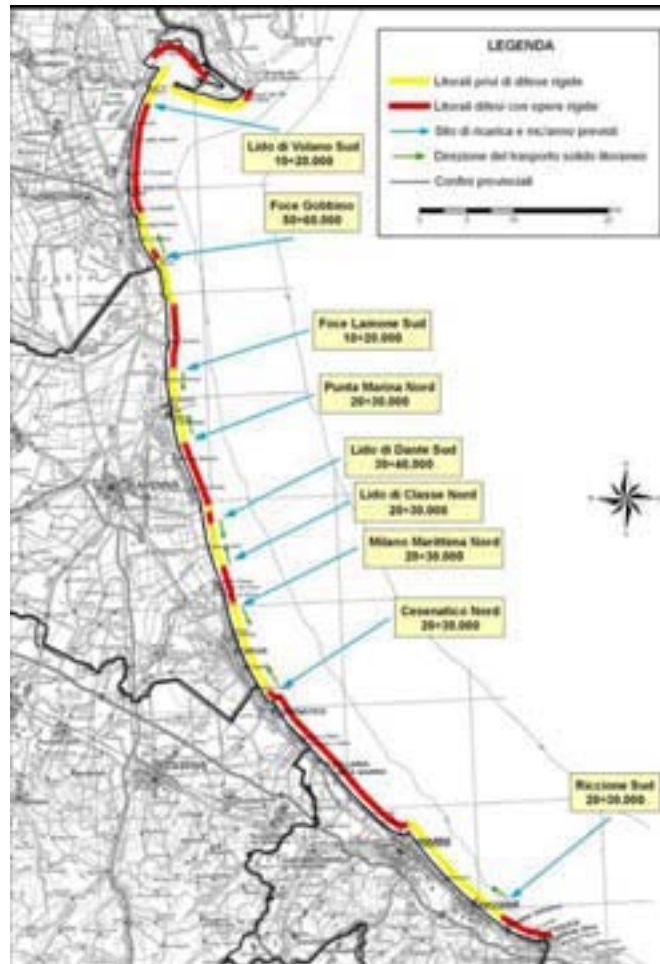


	Area (HA)
PR_Parco regionale	52.285
RNO_Riserva naturale orientata	45
RNO_ZPS Ris. nat. speciale - Zona protezione speciale	60
RNO_SIC Ris. nat. orientata - Sito importanza comunitaria	274
ZPS_Zona protezione speciale	21.973
SIC_Sito importanza comunitaria	2.232
Total	76.873



Valle Fattibello

Critical coastal stretches



Emilia-Romagna critical stretches and estimation of sand volume needed to keep sedimentary balance.

Left figure: critical stretches without hard defenses, indication of recharge zones.

Right figure: critical stretches with hard defenses, indication of recharge zones.

40% of total coastal stretch is affected by erosion

11,5 % (15 Km) are in critical conditions

Coastal defense assets and actions

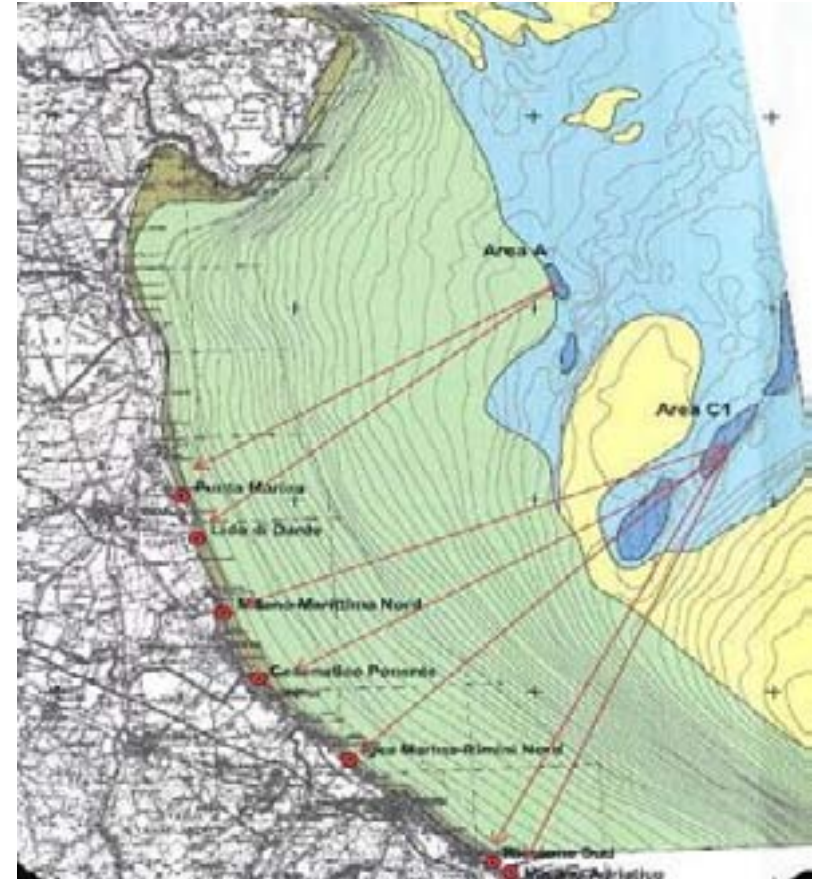


Hard defense structures 60 Km

- rocky materials
- textile and sand sacks

Nourishments

- off-shore deposits
- littoral accumulations, port dredging
- caves



2002 and 2007 interventions

1,6 Million m³ of sand from off-shore dep.

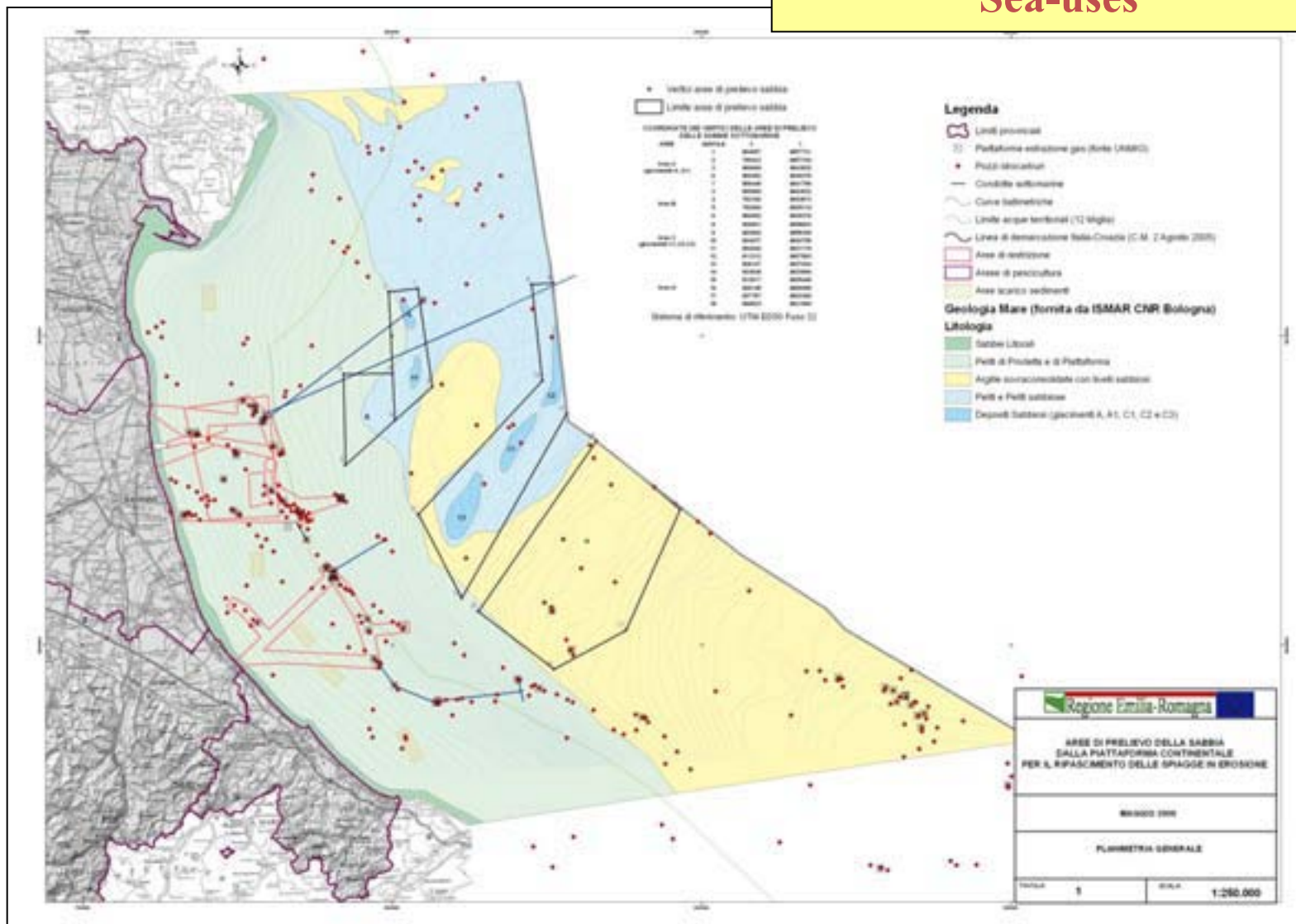
12 littoral stretches

19 km of total extension

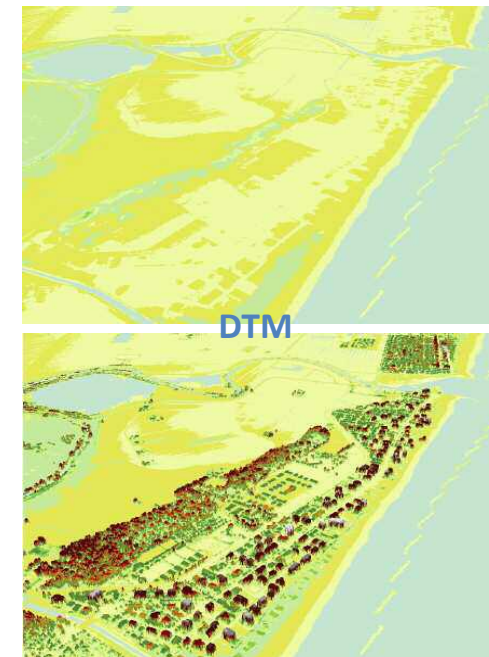
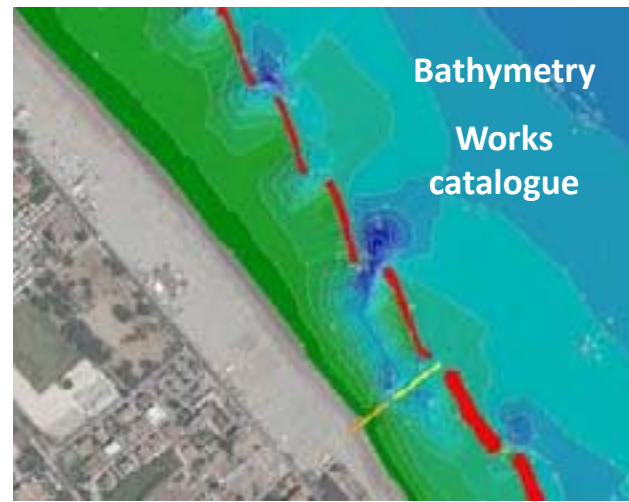
26 M€ overall investment

Map of sea uses in RER

Sea-uses

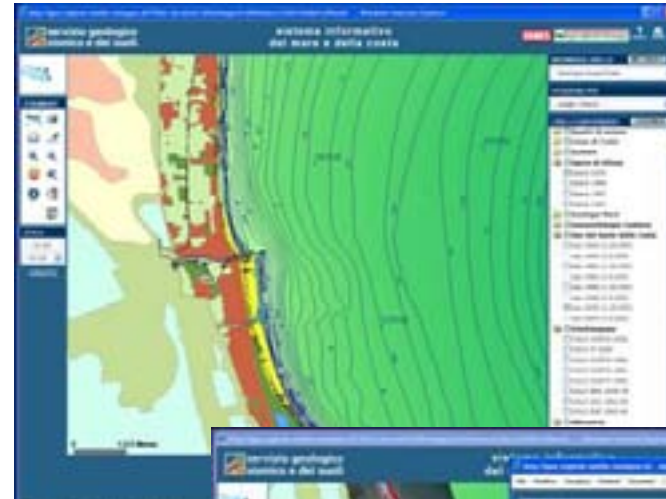


Coastal Information System (SIC)



http://www.regione.emilia-romagna.it/wcm/geologia/canali/cartografia/sito_cartografia/web_gis_costa.htm

SIC consultation – the Web GIS



http://www.regione.emilia-romagna.it/wcm/geologia/canali/cartografia/sito_cartografia/web_gis_costa.htm

Governance and Budget (2001: State → Regions)

Competence in maritime and coastal affairs is fragmented:

Integrated Costal Zone Management: Environment Councillorship (DG Env)

Coast Protection and Management: Soil and Coast Defense Councillorship (DG Env)

Research and GIS on coast protection: Soil and Coast Defense Councillorship (DG Env)

Maritime Transports: Infrastructures and Transports Councillorship (DG RetInfra)

Territorial and Urban Planning: Infrastructures and Transports Councillorship (DG ProTer)

Tourism and ports: Tourism and Commerce Councillorship (DG AttProd)

Fishing: Agriculture and Ichthyic Economy Councillorship (DG AttProd)

Energy: Productive activities and Energy Councillorship (DG AttProd)

General SIT and cartography: Infrastructures and Transports Councillorship (DG Org)

There isn't a RER comprehensive budget dedicated for maritime and coastal affairs, but sector budget for related policies and actions

A special mention about maritime and coastal affairs is contained in the DUP (Programming Unique Document) within the priority “enforcing the International, European and Adriatic dimension of the E-R Region

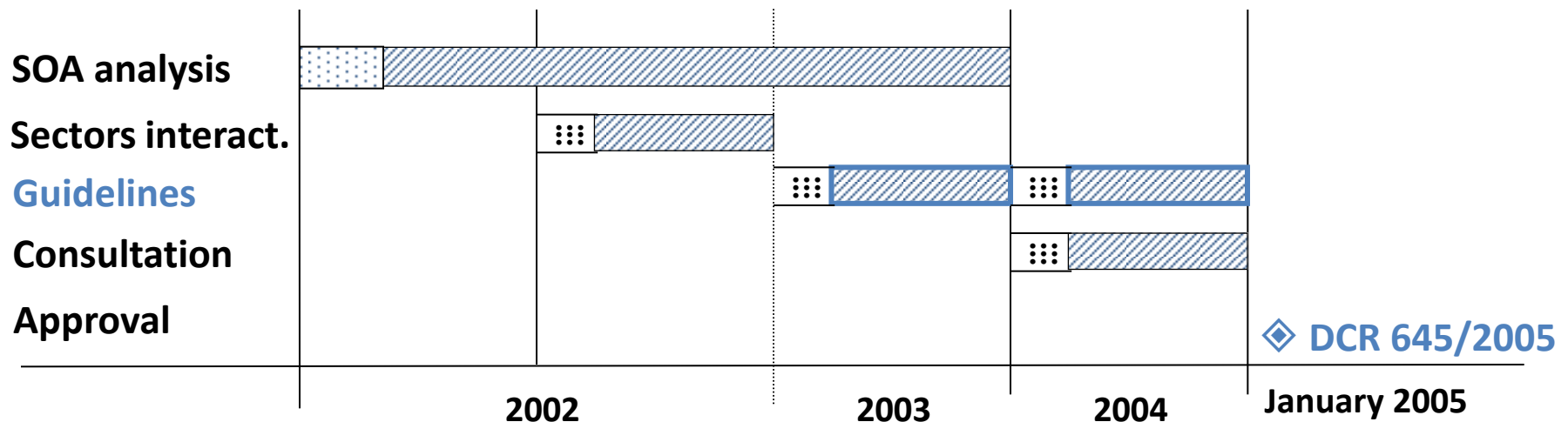
ICZM in Emilia-Romagna

Thematic areas

- The physical system, risk factors and defence strategies
- Integrated water management at basin scale
- Port, transport, navigation related risks and management
- Enlargements of natural habitats and improvement of biodiversity
- Sustainable tourism
- Fishing and aquaculture
- Sustainable agriculture
- Energy policy
- Coastal urbanisation and mobility system
- *Education and dissemination*

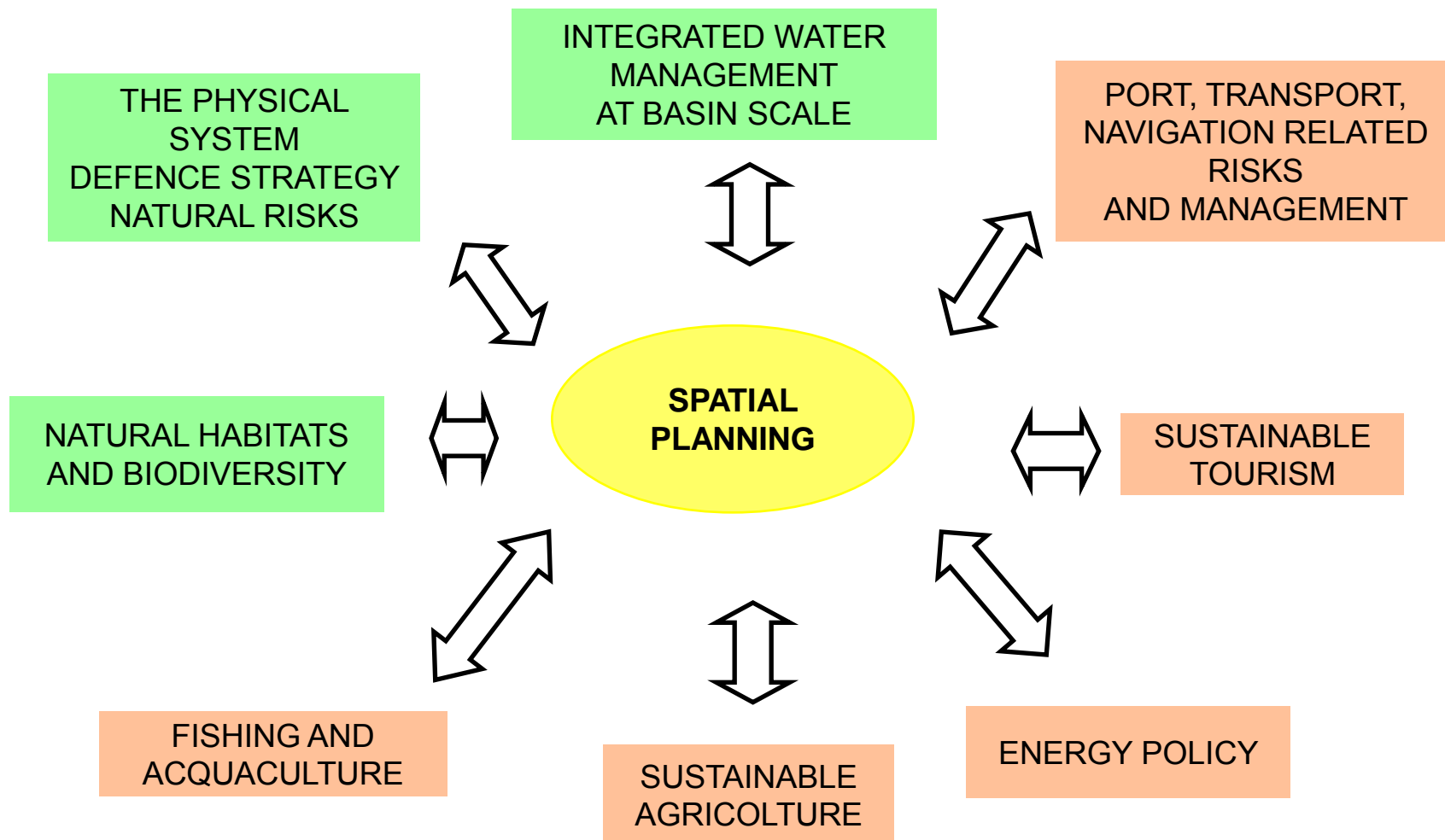
ICZM Institutional boards

- **Institutional Committee** (6 Regional Councillorships, 4 Provinces Presidents, 14 Municipalities Mayors)
- **Board of Directors - Integrated Project Management** (Environment, Soil, Industry, Tourism, Spatial Planning, Agriculture)
- **10 WGs** (almost 200 experts, scientists and stakeholders)



Example of cross sector interaction evaluation...

ICZM and Spatial Planning



Consultation and publications

- ICZM Institutional Committee
- Board of Directors
- Integration Area for environment presidio (lead by **DG Env**)



**Plans, periodical studies
and publications on
Emilia-Romagna coast
status**

**Periodical publication
(every 5 years) on
Emilia-Romagna
environment status**



New plans for Med regions



Regional action strategies for coastal zone adaptation to climate change



Capitalizing previous regional experiences,
previous EU Projects /initiatives (BEACHMED, BEACHMED-e, EUROSION, SAFECOAST,
CADSELAND, PLANCOAST)

COMP 3

<http://www.coastance.eu/>

COMP 5

Coastal risks: erosion and
submersion (analysis tools
development)

Guidelines for environmental impact
studies of Action Plans and
interventions



COMP 4

**Territorial Action Plans
for Coast Protection and Management**

medium-long term plans, sediment management/exploitation, criticality driving factors reduction policies

A satellite map of Europe and the surrounding Mediterranean Sea. The landmasses are shown in shades of green and brown, while the sea is a deep blue. The text "THANKS FOR YOUR ATTENTION !" is overlaid in the center of the image.

THANKS FOR YOUR ATTENTION !

rmontanari@regione.emilia-romagna.it



Servizio Difesa del Suolo
della Costa e Bonifica