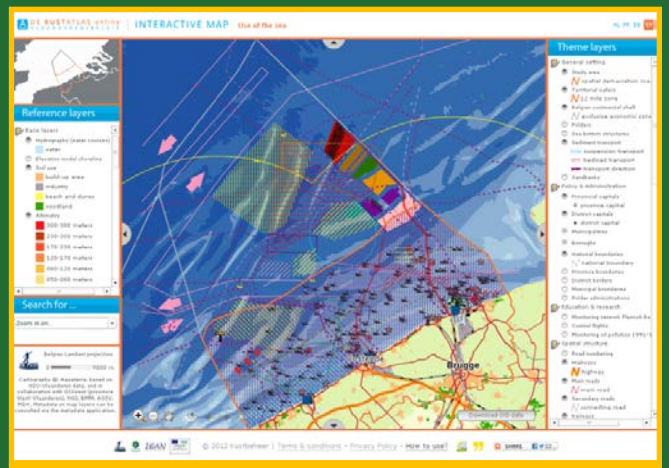
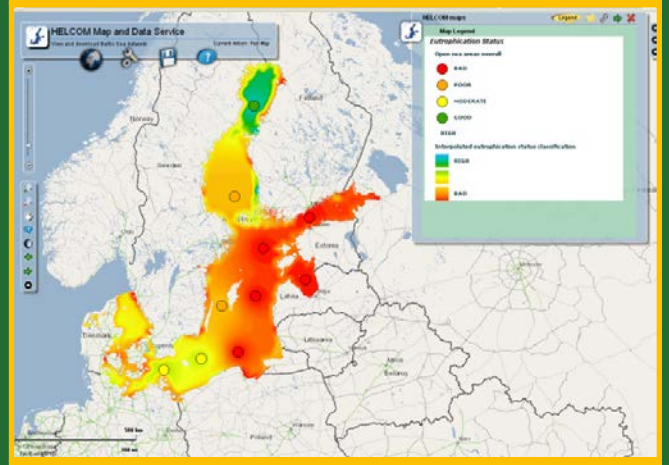
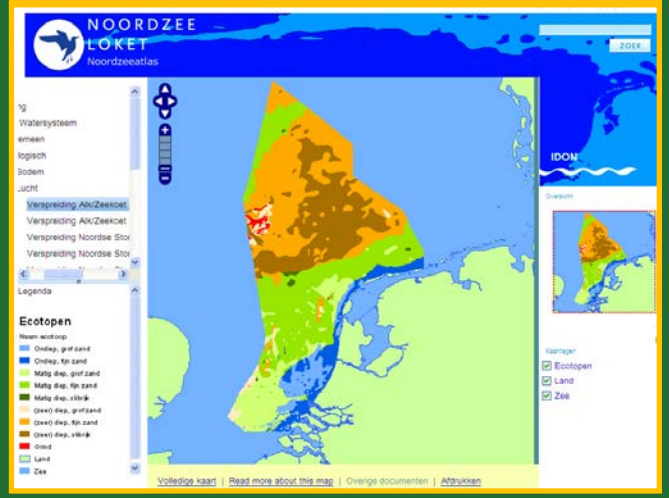






LITTORAL 2012: Coasts of Tomorrow

Improving support of coastal information systems to ICZM

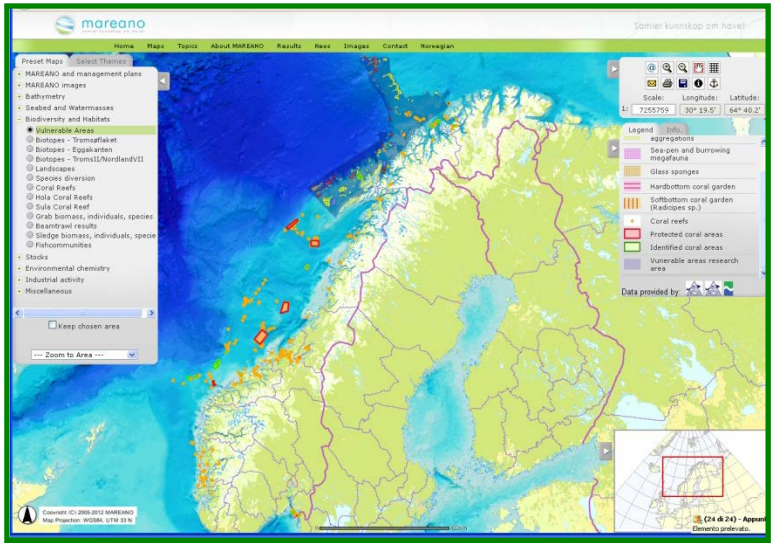
Emiliano Ramieri

THETIS

all made in Arsenale Venice

Agenda

- Context and objectives of the study
- Analysis of Coastal Information System case studies
- Problem identification
- Policy options definition
- Impact assessment
- Study conclusion
- Illustrative case study: Venice Lagoon CIS



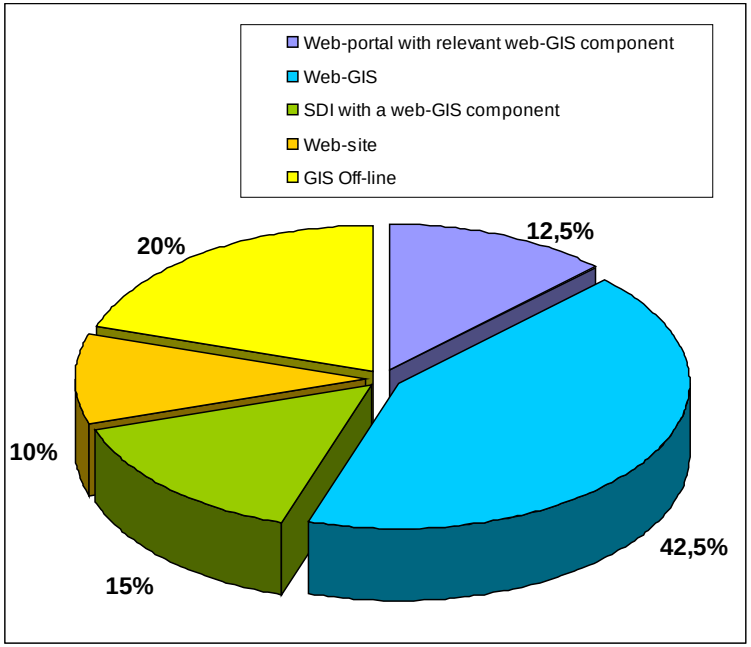
Context and objectives

European Commission

Study funded by European Commission(1)

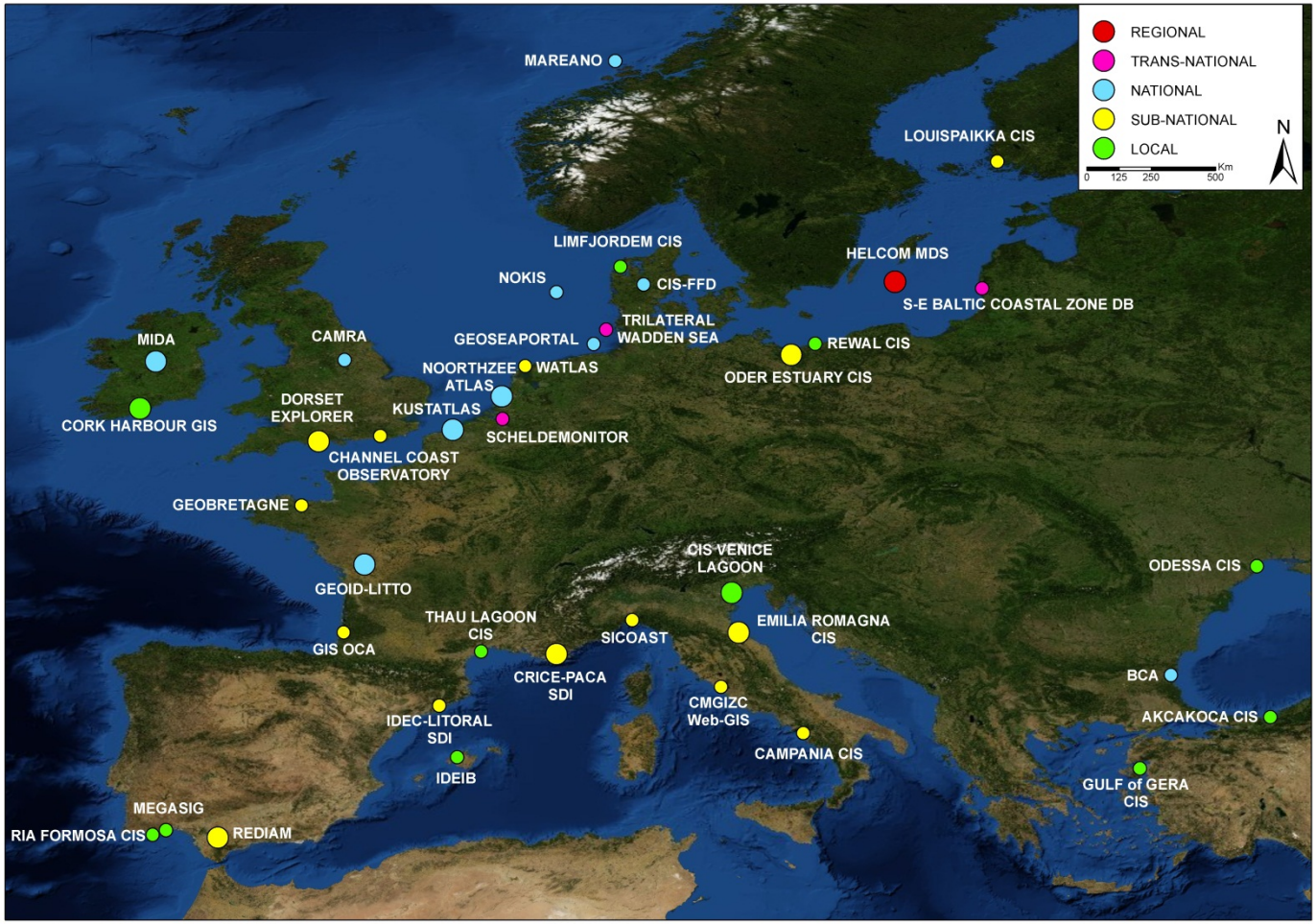
Part of the review of the EU ICZM Recommendation and related impact assessment process

- Coastal Information Systems (CISs) can be defined as "*a collection of digital maps and datasets with supplementary tables, illustrations and information that systematically illustrate the coast, oftentimes with cartographic and decision support tools*" (O'Dea et al., 2007) – wide variety of tools
- Diffusion, development and actual use of CISs can improve ICZM implementation
- The study aimed at identifying CISs requirements and policy options to improve their support to ICZM diffusion and concrete application



(1) *Disclaimer: This presentation does not necessarily represent the opinion of the European Commission*

Analysis of CIS case studies (I)



40 cases in total

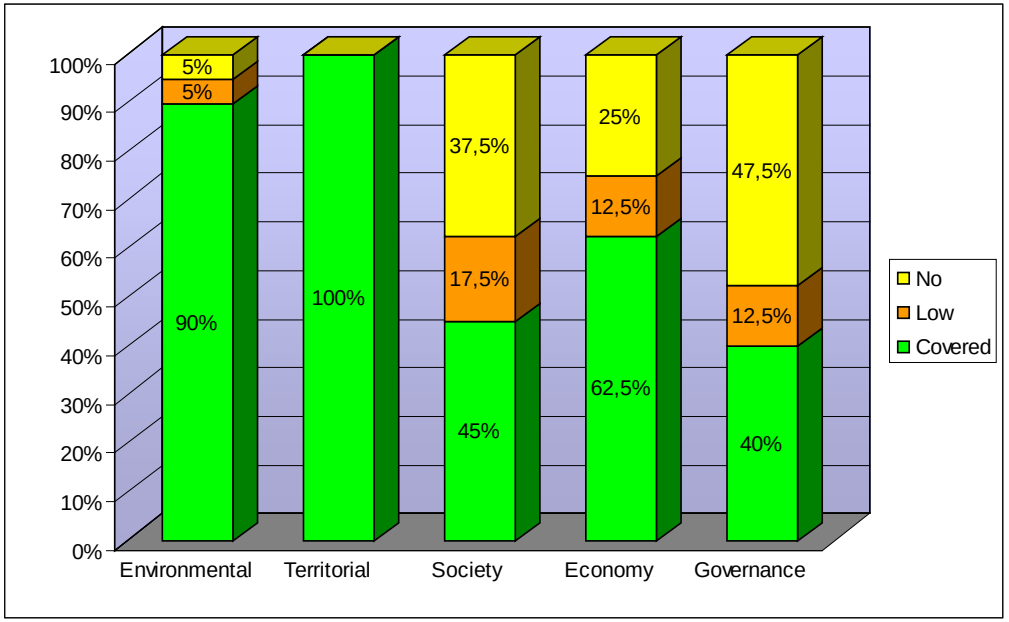
- Baltic Sea (8 cases)
- North Sea (11 cases)
- Norwegian Sea (1 case)
- Celtic Sea (7 cases)
- Bay of Biscay and Atlantic Iberian Coast (6 cases)
- Mediterranean Sea (13 cases)
- Black Sea (3 cases)

Plus 5 extra-European cases

12 Cases were selected for in-depth analysis

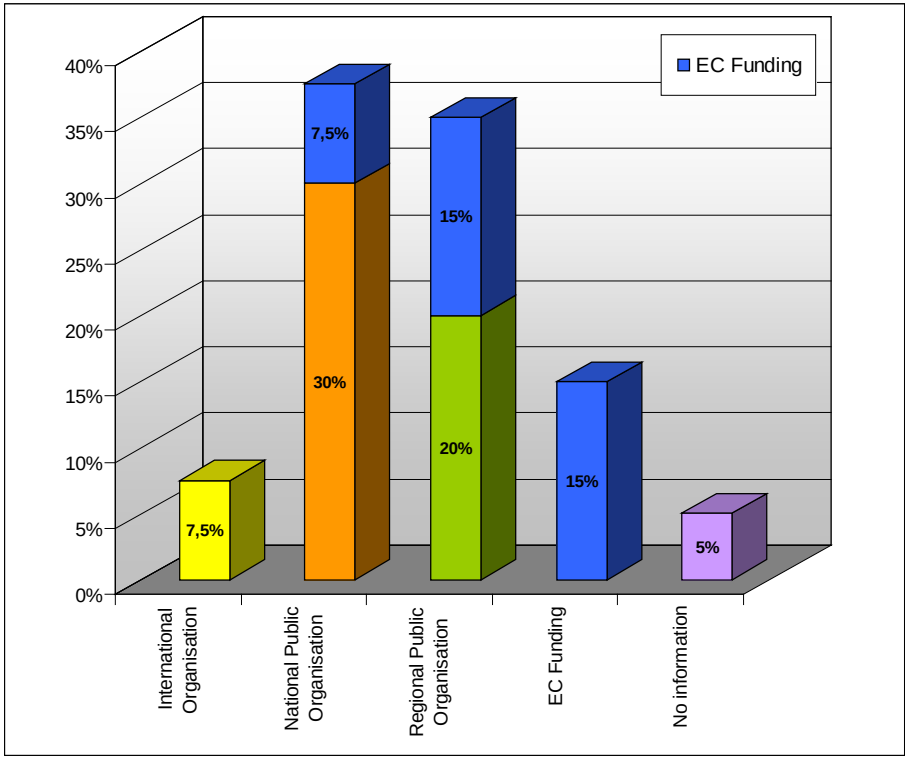
Analysis of CIS case studies (II)

- For the great majority of considered illustrative cases (28 – 70%) the CIS geographical area of interest is mainly defined by administrative boundaries (in particular for the national and sub-national levels). For the 30% of the cases (in particular local level ones) the area of interest has been mainly defined according to an **ecosystem-based approach**
- All CISs include data related to the territory and the great majority properly deals with the environmental information (90%). **The other information dimensions** are properly considered only by some CISs, in particular: 63% case for the economy dimension, 45% for the society dimension, and 40% for the governance one.
- Other **data gaps or weaknesses** are related to: (i) historical series, generally limited to a small number of specific issues, (ii) climate change related data, (iii) 3D data, (iv) Integrated information (e.g. integrated maps and indicators) resulting form the joint analysis of different data typologies

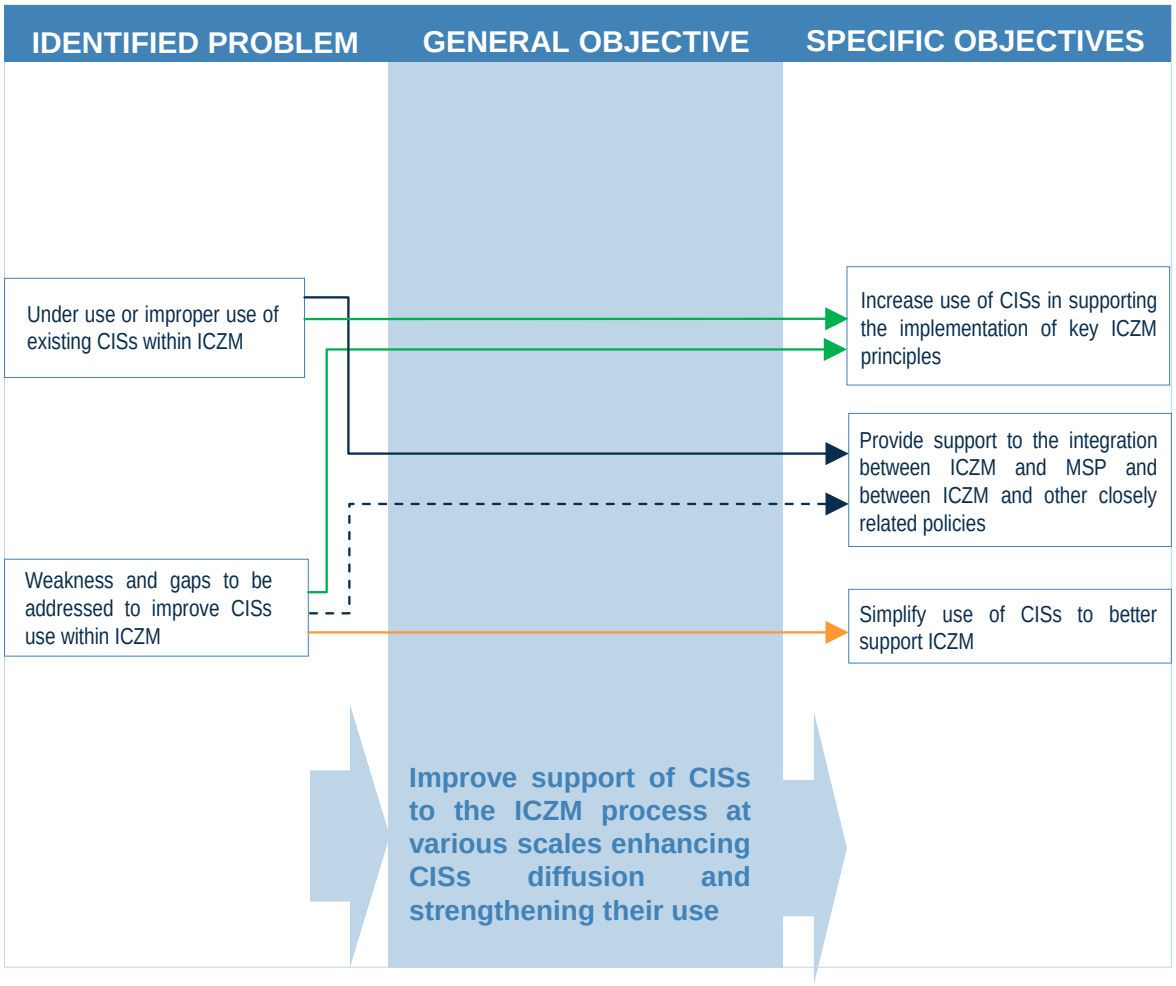


Analysis of CIS case studies (III)

- Almost half of the analysed CISs provides **basic ICZM knowledge and process related functionalities**, as for example: availability of geo-spatial data, operation at different spatial scale, support to problem understanding and structuring.
- More **advanced ICZM functions** are less diffuse, such as: ICZM indicators and indexes, climate change related functions, stakeholder involvement and participation, vision building and scenario development, support to adaptive planning and management.
- Tools enabling an appropriate **e-participation** in ICZM (i.e. e-forum, geo-tagging, platform for participated GIS, wiki-like tools, etc.) are still not much diffused (20% of the cases).
- About 52.5% provides direct access to and download of geo-spatial data (33% through WMS)
- Metadata are on-line provided by the 68% (50% according to INSPIRE). 23% are off-line systems
- EC funding contribution is important



Problem and objective identification



GENERAL CRITERIA

Limit and possibly reduce costs

Provide benefits on relevant economic, social and environmental issues that can be affected by improvement of CIS use within ICZM

Policy options definition (I)

Policy options are intended as integrated and homogenous sets of key structuring **policy requirements** (scope, content, function, mechanism)

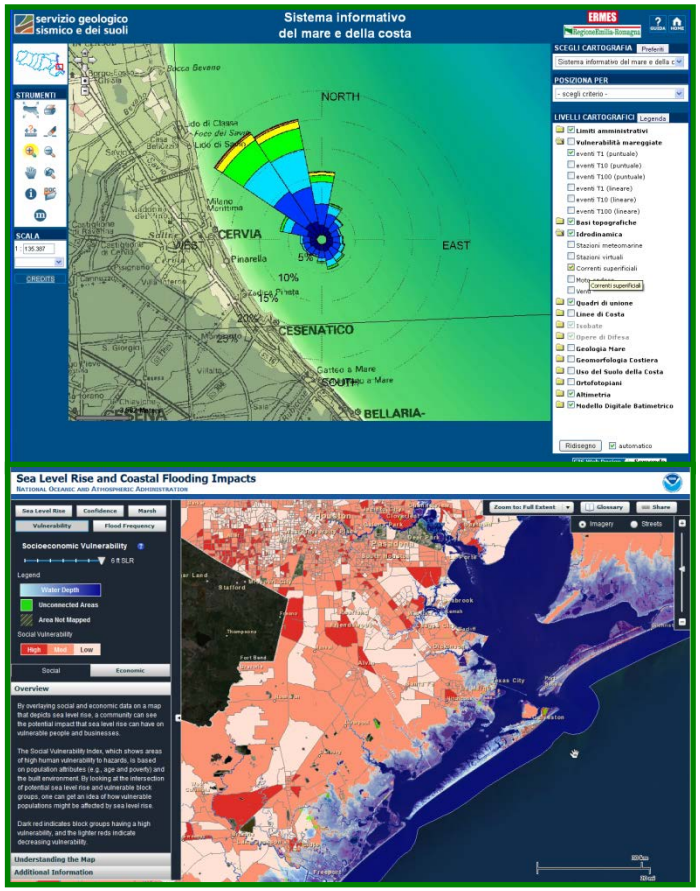
Baseline scenario

Not including the implementation of new CISs requirements and implying the fulfillment of already set legislative requirements (i.e. INSPIRE Directive)

P1 – Improving data and information base

To increase the role of scientifically-based approach, multi-sector and integrated (holistic) knowledge and long-term evaluation in supporting the ICZM process:

- Improve economic and in particular social and governance information within CISs
- Improve availability of information resulting from the integrated analysis of data related to different topics
- Improve availability of multi-time data



Policy options definition (II)

P2 - Improving and innovating functionalities and tools

Better support decision makers and coastal managers, as well as increase stakeholders' involvement in ICZM:

- Improve functions directly supporting ICZM decision making
- Improve diffusion and innovation of e-participation tools
- Integrate 3D data and develop 3D tools
- Improve availability of functions related to climate change assessment

P3 – Enhancing cooperation

Improve cooperation among: structures of the same authority involved in ICZM and/or the CIS management (ii); different public authorities, coastal data providers, CISs managers

- Progressively move towards the adoption of an ecosystem-based approach
- Establish strict link between the structure responsible for the CIS operation and the structure responsible for the ICZM implementation
- Improve the use of protocols facilitating geo-spatial data sharing
- Develop and implement a common ontology for coastal and marine information

Impact assessment - methodology

Direct impacts

- Aspects related to ICZM principles (e.g. *bridged gap between science and decision making, stakeholder involvement, periodical evaluation process*)
- Links with a broader policy context (*Regional Sea context, integration with other policy – MSP and CC*)
- Simplification in the use of the system
- Costs and resources (*initial, maintenance and learning costs*)

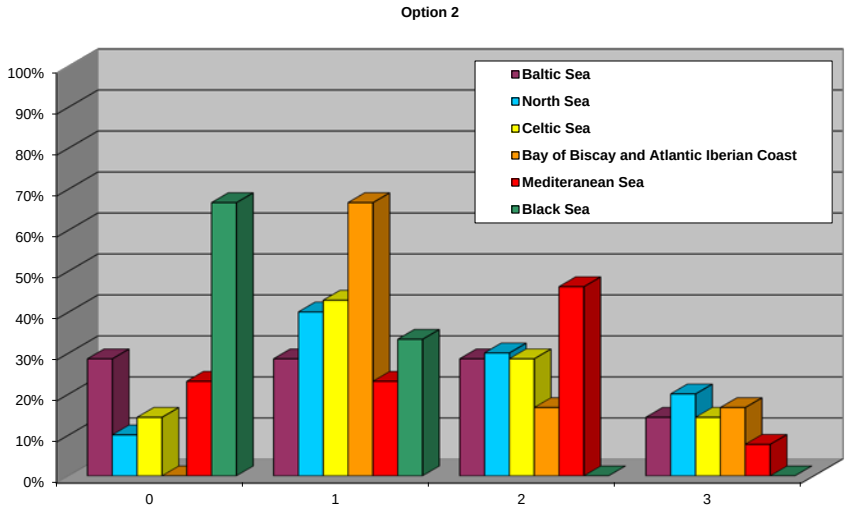
Indirect impacts

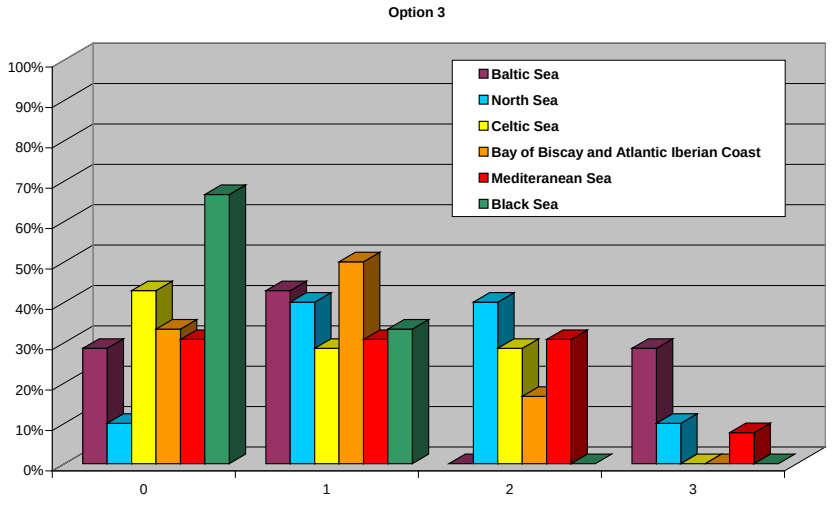
- Economic impacts (*e.g. administrative burden, innovation and research*)
- Social impacts (*e.g. employment, better living conditions*)
- Environmental impacts (*e.g. coastal resilience and adaptation, sustainable use of coastal resources*)

	P1	P2	P3
Aspects related to ICZM principles			
Integrated knowledge on the coastal system	+++	++	+
Bridged gap between scientific information and policy/decision making in the ICZM process	++	+++	+
Involvement of stakeholders in the ICZM process, also aiming to improve awareness on sustainable coastal planning and management	0	+++	+
Support and facilitation in climate change adaptation of coastal zones within the wider context of ICZM	++	+++	++
Periodical evaluation process of ICZM planning and management; support an ICZM adaptive process	++	++	+++
Cooperation among different institutions and institutional levels	0	0	+++
Adoption of a long-term perspective for ICZM	++	++	++
Links with a broader policy context			
Implementation of ICZM in a regional sea context	0	+	+++
Support to the integration of ICZM with other closely related policies (MSP)	+	+	+++
Support to the integration of ICZM with other closely related policies (climate change)	++	+++	+++
Use of the system			
Simplification of the use of the coastal information system	-	+	++
Costs and use of resources			
Development or initial costs	-	--	---
Costs related to maintenance and updating of the CIS	--	--	ST: --- LT: +
Learning costs	0	-	--

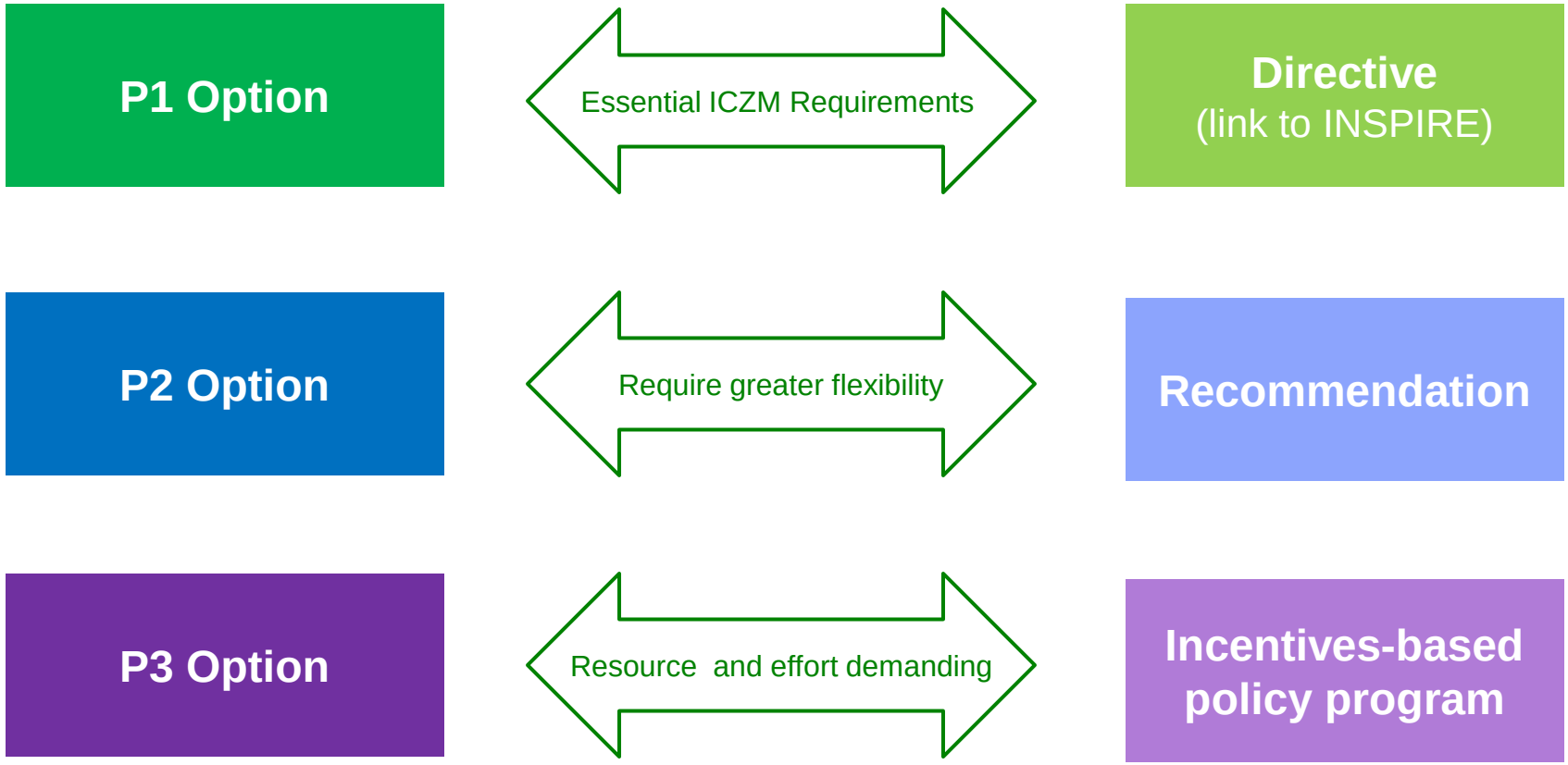
Impact assessment - results

- P3 is expected to generate greatest benefits (P3 ≥ P2 > P1 for direct; P3 > P2 > P1 for indirect)
- P3 is less the developed option (36%; P2 = 44% and P1 = 60%)
- Full implementation of P3 would require an effort that is 1.6 greater than the one required by the full implementation of the P1 option
- Regional Sea differences – greatest challenges:
  - ✓ Implementation of P3 option in all regions
  - ✓ Black Sea for all policies (new initiative on progress)
  - ✓ P2 is better represented; great effort still required (less in the Mediterranean and North Sea)



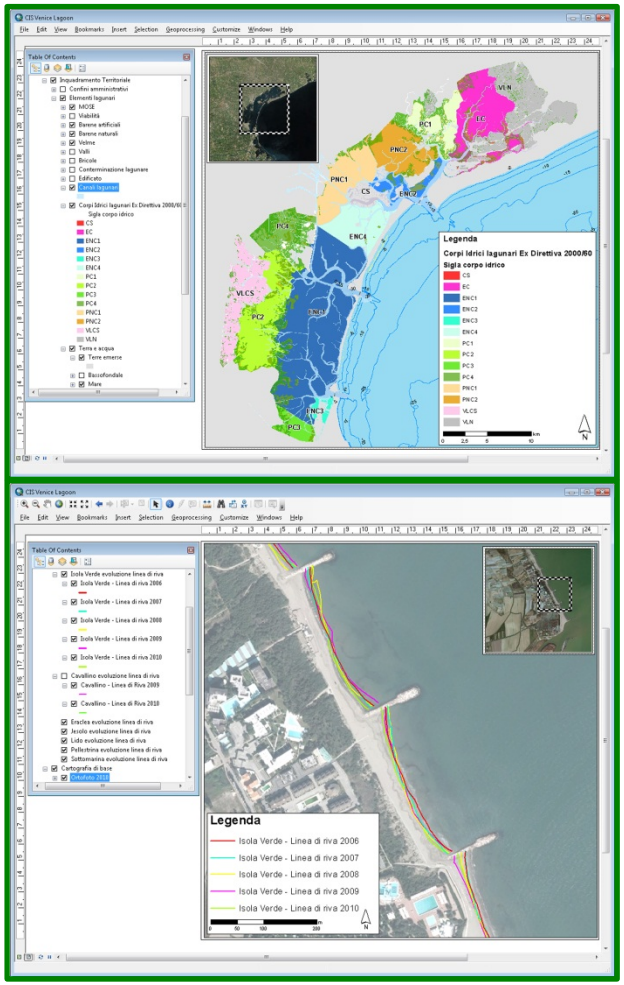


Study conclusions



CIS Venice Lagoon (I)

- Venice Water Authority (*Magistrato alle Acque di Venezia – MAV*) is responsible for the safeguarding of Venice and its lagoon.
- MAV, through it concessionary CVN, developed a system of different (on-line and off-line) information tools (GIS, databases, models and DSS) to manage and incredibly wide amount of data.
- Different tools to support different activities: studies, plans, projects, interventions, monitoring.
- Unique scope: safeguarding of Venice lagoon system through an (*not coded*) ICZM approach.



CIS Venice Lagoon (II)

Demand for a new CIS

To support management of mobile gates protecting Venice from flooding

And sustainable management of Venice Lagoon

Web-based GIS interlinked with models and DSS

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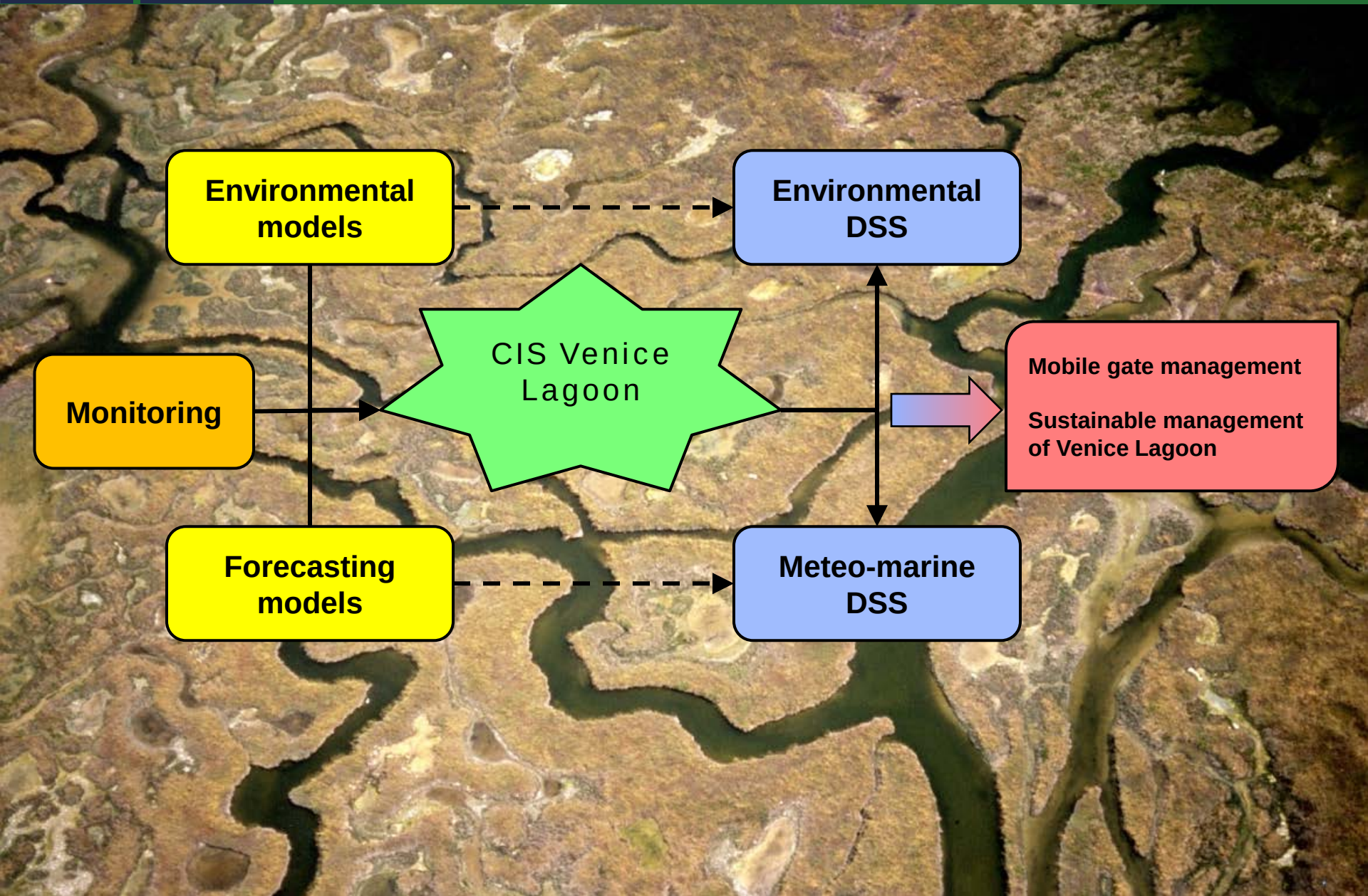
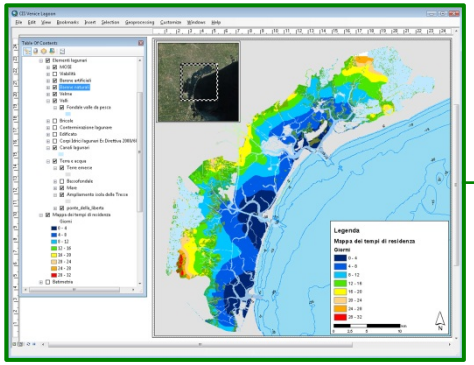
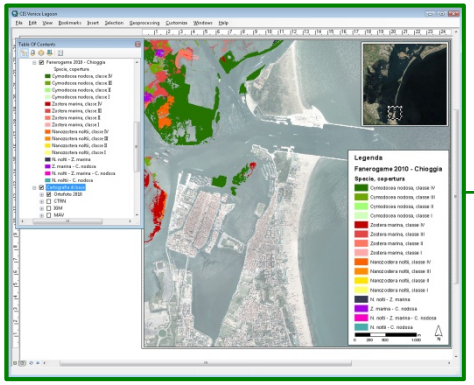
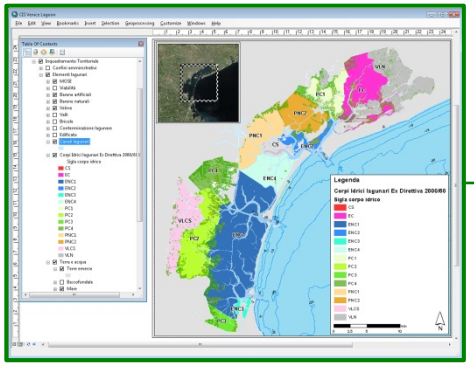
CIS Venice Lagoon (III)

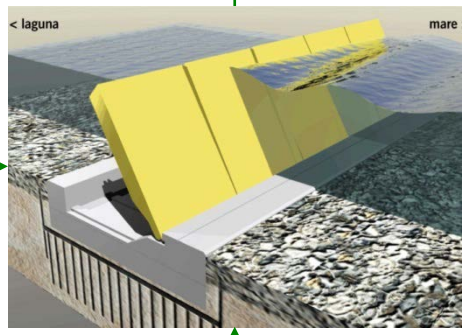


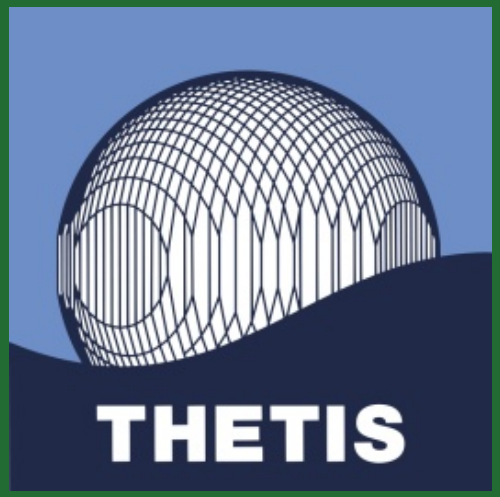
CIS Venice Lagoon (IV)











all made
in Arsenale
Venice

Thank you for your attention

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