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LAUNCHING SEMINAR

02-04-2009

Ministerio de Economía y Hacienda
Madrid - Spain

Priority 2: Protect, secure and enhance the marine and coastal environment sustainably

Marine Environmental Research Opportunities and Challenges (...in times of crisis)

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Marine Research Division
AZTI Tecnalia



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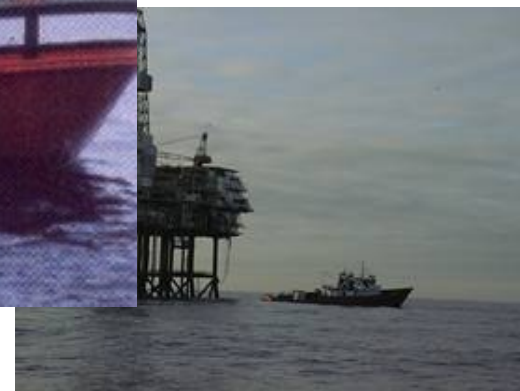
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Background

- Increasing pressures and impacts on marine waters





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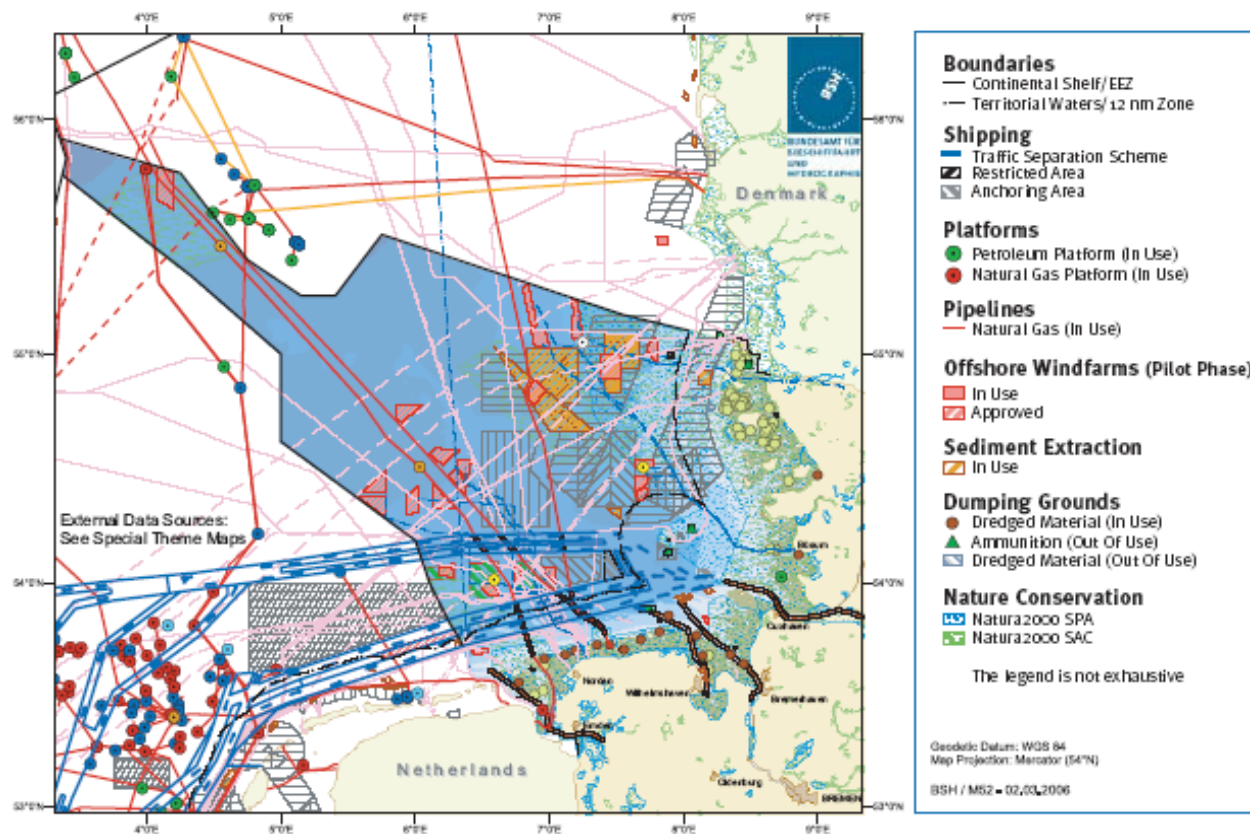
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North Sea: Existing and Prospective Uses and Nature Conservation



- Multiple uses of marine waters
- Interaction of uses



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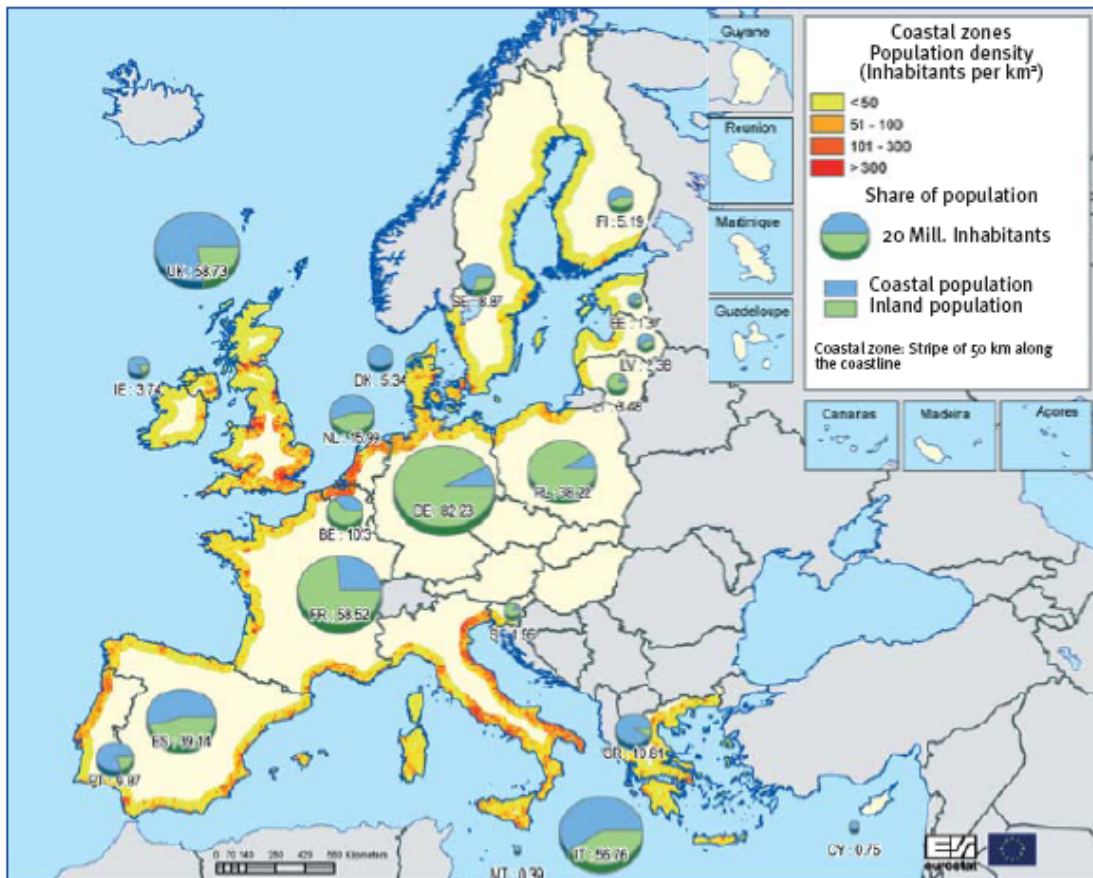
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Background



Statistical data: Eurostat — Database: REGIO
© EuroGeographics, for the administrative boundaries
Cartography: Eurostat — GISCO

- An important **percentage of population** in coastal zones
- The **incomes** from marine areas are very important



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Background

- Many international **laws** (UN Marine Law, 1982; Biological Diversity Convention, 1992; etc.)
- Some international **conventions** (OSPAR, Barcelona, etc.)
- Several **European** thematic strategies and **Directives** (WFD, Habitats, CFP, etc.)
- **Sustainable development** (Cardiff and Gothenburg summits and agendas)
- **7th Environmental Action Framework** (2007)
 - Climate Change, pollution and risks
 - Sustainable management of resources
 - Environmental technologies
 - Earth observation and assessment tools for sustainable development
 - Horizontal activities
- However, there is **very low coordination, low integration and bad implementation**



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Background

- Other countries have developed **similar legislations worldwide**:
 - Canada, 1997 (Oceans Act, Oceans Strategy)
 - Australia, 1998 (Oceans Policy)
 - USA, 2000 (Oceans Act)
- All of them have in common a **holistic view** of the marine environment, from an **ecosystem point of view**, being **integrative tools assessment**, trying to maintain ecosystem functionality together with uses
- At European level we have now the **Maritime Policy and the Marine Strategy**



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Maritime Policy

- Principles of **good governance** suggest the need for a European maritime policy that embraces all aspects of the oceans and seas, being **integrated, intersectoral and multidisciplinary**.
- **Underlying principles** (European Commission strategic objectives for 2005-2009): “the particular need for an all-embracing maritime policy aimed at developing a thriving maritime economy, in an environmentally sustainable manner. **Such a policy should be supported by excellence in marine scientific research, technology and innovation**”.
- **Objectives:**
 - Preserve the seas
 - Energize European maritime economy
 - Better knowledge of the seas
 - New synergies among sectoral policies
 - Improve maritime governance



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The European Marine Strategy Directive

- Vision (main objective): 'to promote sustainable use of the seas and conserve marine ecosystems'.
- Provides the common framework to **achieve good environmental status** in the marine environment, by the year **2021**.
- The concept of environmental status **takes into account the structure, function and processes of the marine ecosystems** together with natural physiographic, geographic and climatic factors, as well as physical and chemical conditions including those resulting from human activities in the area concerned.



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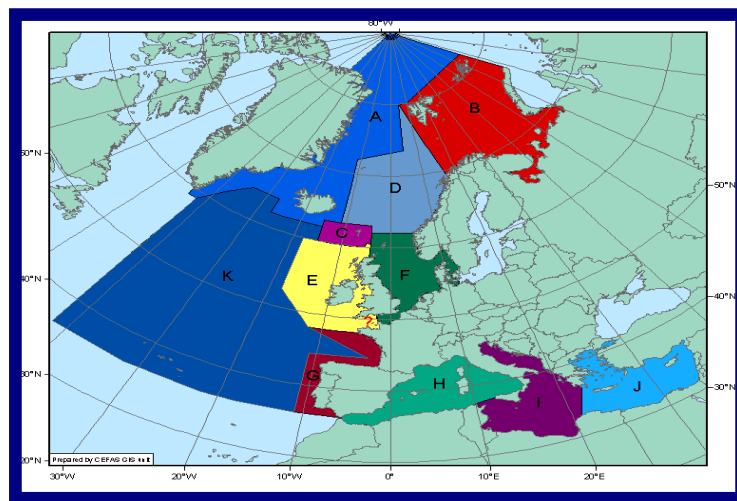
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The European Marine Strategy Directive

Strategic Goals: Common across all regions, all uses and all sectors

1. To **protect, allow recovery** and **restore** the function and structure of marine biodiversity and ecosystems
2. **To phase out pollution**
3. To contain the use of marine services and goods to levels that are **sustainable**





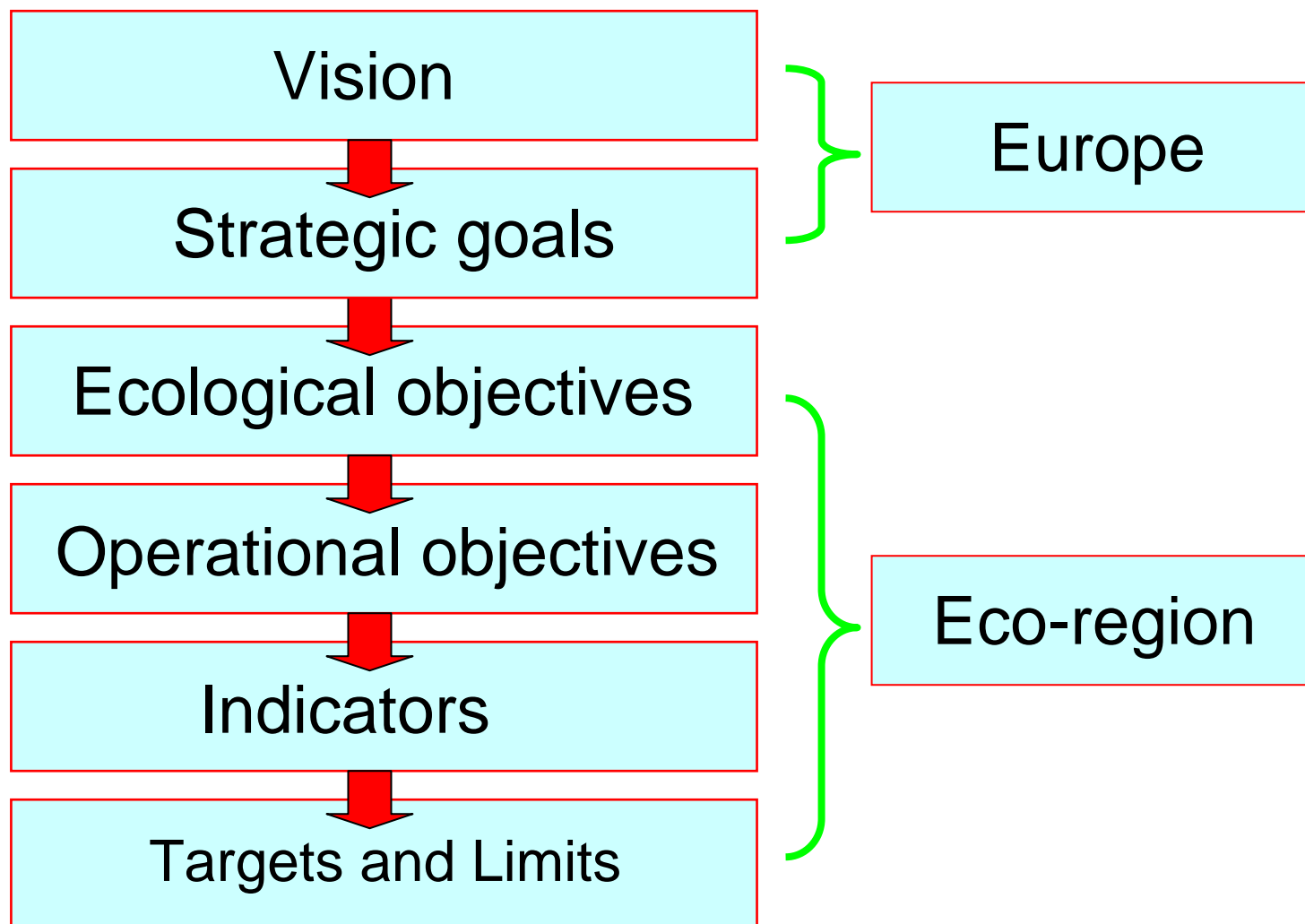
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Integrated Assessment





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Integrated Assessment

Strategic goals



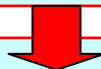
Ecological objectives



Operational objectives



Indicators



Targets and Limits

Phase out pollution in the
marine environment

Reduce impact of contaminants

Reduce contaminant levels in
shellfish species X

Concentration of contaminant in
shellfish species X

Concentration of contaminant
= a (target) or < b (limit)

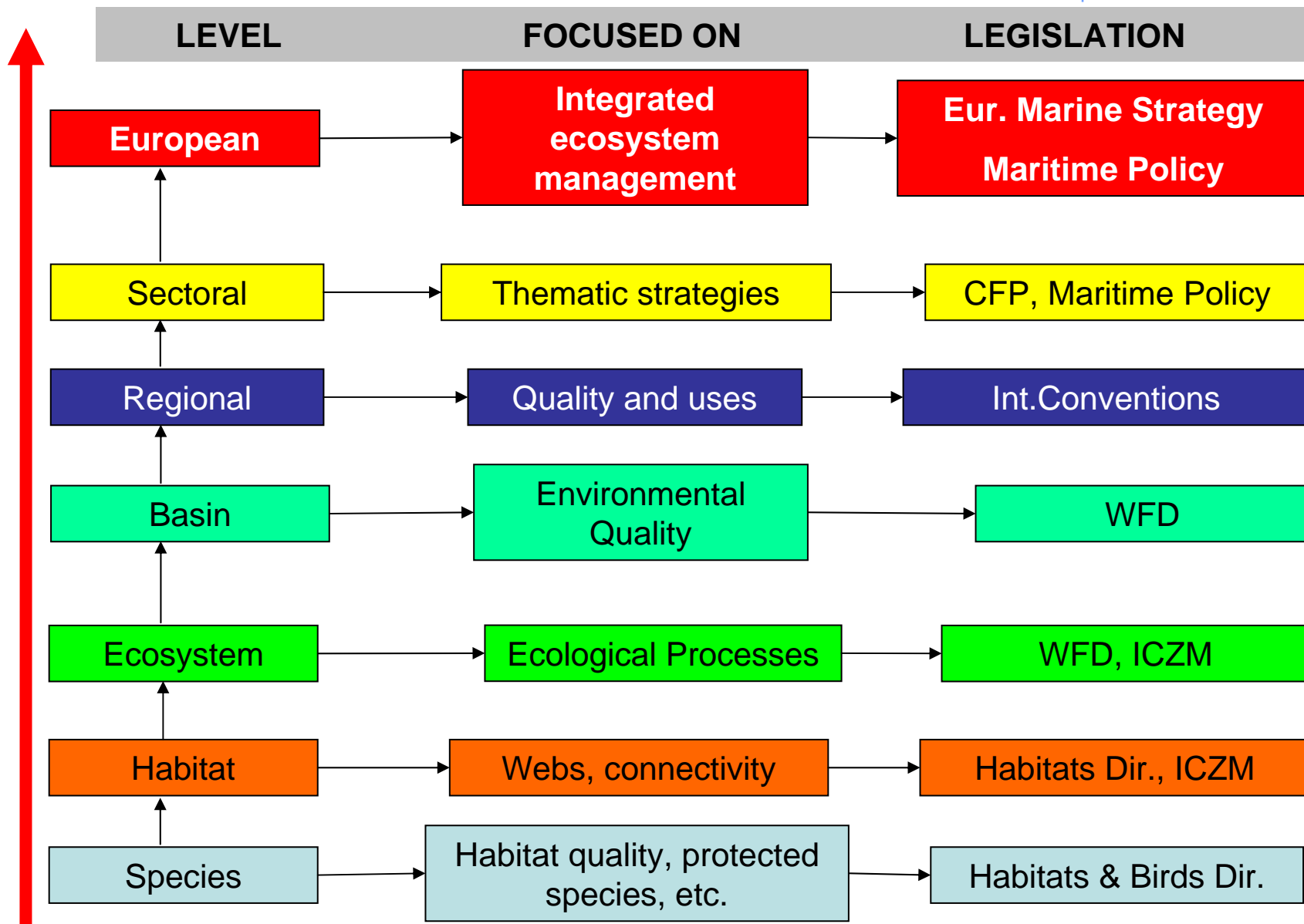


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Challenges and opportunities for research

- Any Marine Policy should be supported by **excellence in marine science**
- An **integration** of marine science across all scientific themes and areas is necessary in order to maximise the benefits from marine research. Hence, we need:
 - To identify **best practices** relating to integrated ocean policies.
 - More **knowledge** to better understand the complex interactions in marine ecosystems and their resources.
 - **Long-term data** and, better observation and data collection capabilities, to provide the necessary input for science and policy-makers.
 - More **technology and more innovation** to exploit oceans, in a sustainable manner.



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Community Strategic Guidelines

Recommend that operations financed by **cohesion policy** for the 2007-2013 period should fit in with the "**integrated guidelines for growth and jobs of the renewed Lisbon Agenda**".

To this effect, the document distinguishes between three basic guidelines:

1. Making Europe and its regions more **attractive places** in which **to invest and work**;
2. **improving knowledge and innovation** for growth; and
3. **more and better jobs**.



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Some examples of research fields

Objectives of the Priority 2:

- Improving maritime safety
- Sustainable management and protection of the resources of marine spaces
- Exploit the renewable energy potential of the marine and coastal environment
- Protect and promote natural spaces, water resources and coastal zones



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LESSONS LEARNT FORM PREVIOUS OIL SPILL DISASTERS





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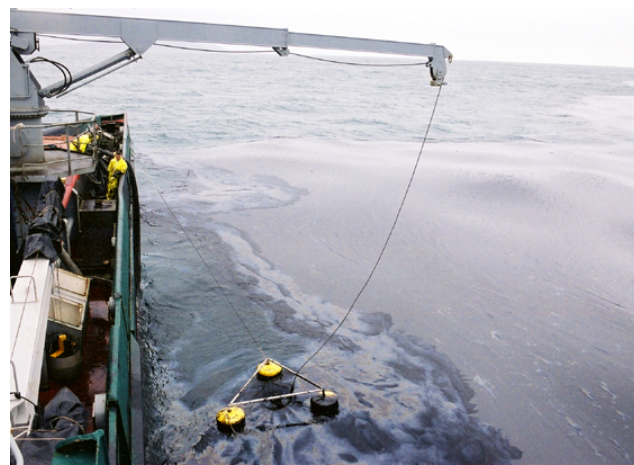


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**European anti-pollution fleet
participating in the cleaning
of the "great slick"**





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The *Great Slick* days – 24-25-26 January



4 VESSELS



D'Entrecasteaux



Friday 24: 5 t

Saturday 25: 157 t

Sunday 26: 63 t



118 VESSELS

Friday 24: -
Saturday 25: 16 t
Sunday 26: 19 t



8 VESSELS

Friday 24: 1.268 t

Saturday 25: 531 t

Sunday 26: -

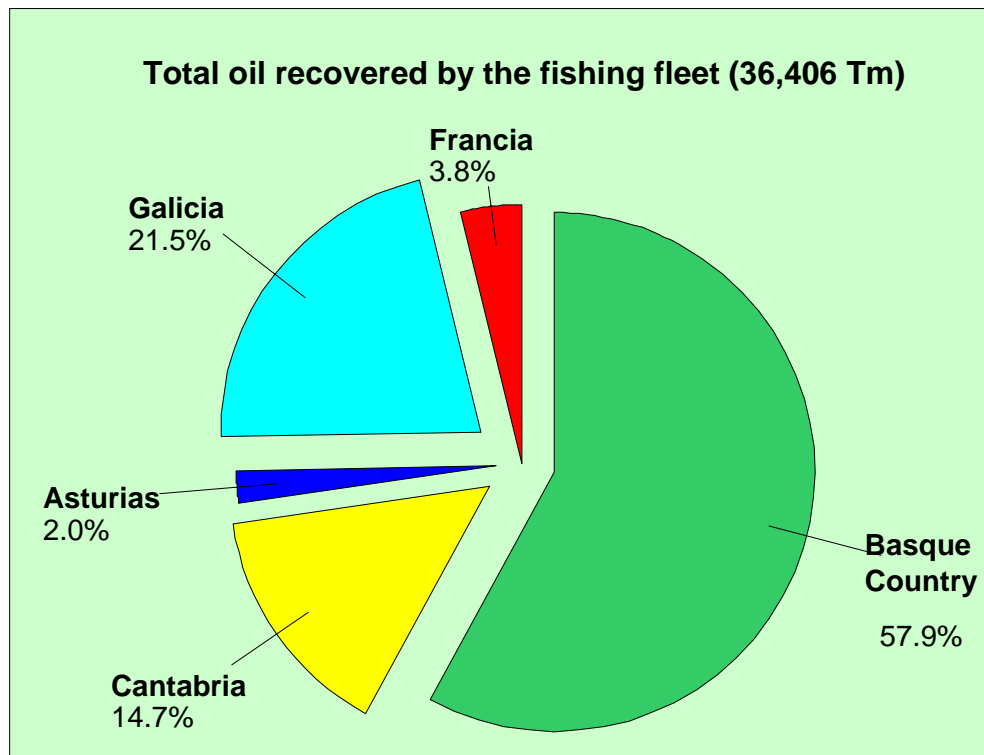


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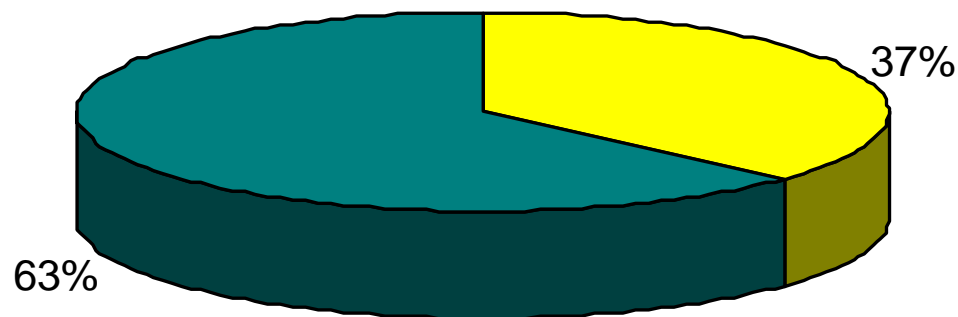
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Tonnes of fuel-oil recovered from sea (53.552)



- Tm recovered by European anti-pollution vessels
- Tm recovered at sea by fishing fleet



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Conclusions and future research lines

- ⊕ Adequate technologies for **oil-slick detection**.
- ⊕ Monitoring and evaluation systems of **oil degradation**.
- ⊕ Integration of **ocean-meteorological variables** with systems helping decision makers and management.
- ⊕ Very **difficult to generate resources in the middle of a crisis** if they are not available before the crisis starts.
- ⊕ Need of **management schemes to transmit immediate information** to all decision makers and society in general
- ⊕ Improve management of **anti-pollution fishing fleets**
- ⊕ **Co-ordination** is not a goal. However, it is basic to face this type of crisis from a useful perspective.



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Ideas about Management of fishing fleets

- ✚ To create a **data base** to develop an inventory of available resources (ships – size, capacity, location...) in each country
- ✚ To create **new technologies adapted** according to the fishing vessel capacities and to the different types of spilled products
- ✚ To provide **knowledge/training to the fishermen** and include fishing vessels in operational drills
- ✚ To develop systems and **technologies for human and vessel protection** in case of an spill.
- ✚ To implement **logistic and infrastructure** in fishing harbours.



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Ideas about places of refuge

- ✚ Have a **common data base** of **coastal sensitive areas** in Atlantic Area (economical, physical, ecological, etc.)
- ✚ Add on these data base the location of harbours and anchorages with a link to their **facilities and characteristics**
- ✚ **Provide and improve the facilities** of these places
- ✚ Reach the **commitment by FIPOL** to support and quickly settle all damages caused by a pollution on this places of refuge.



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RENEWABLE ENERGY OF THE MARINE ENVIRONMENT





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1	THEORETICAL ENERGY POTENTIAL	Wave energy atlas
2	FEASIBLE ENERGY POTENTIAL	Bathymetry and seabed morphology
3	AVAILABLE ENERGY POTENTIAL	Environmental and socio- economic restrictions
4	TECHNICAL ENERGY POTENTIAL	Performance and size limitations of WECs

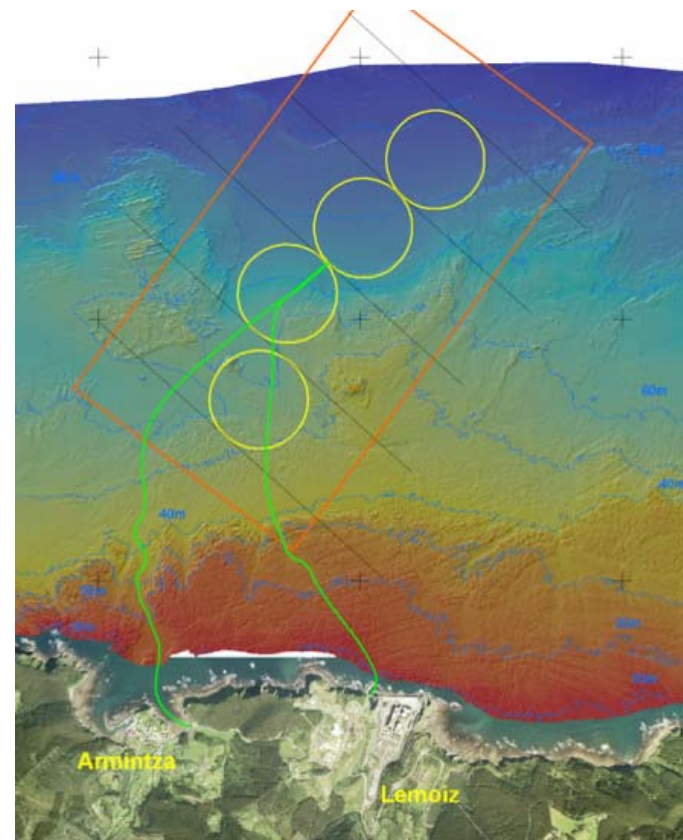
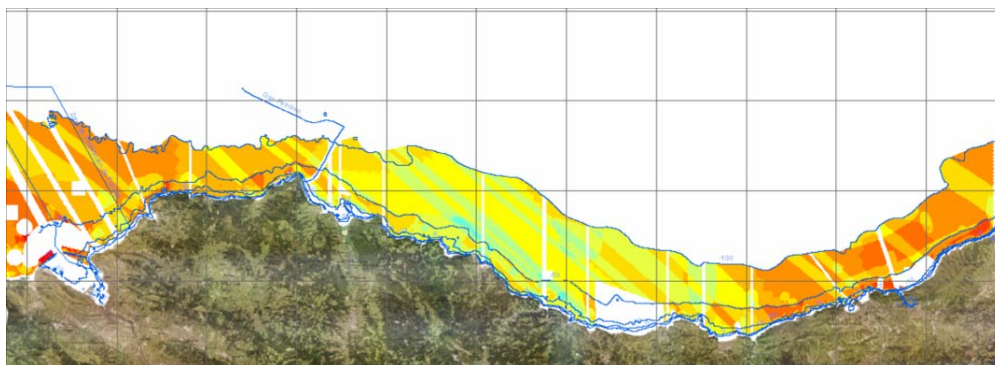
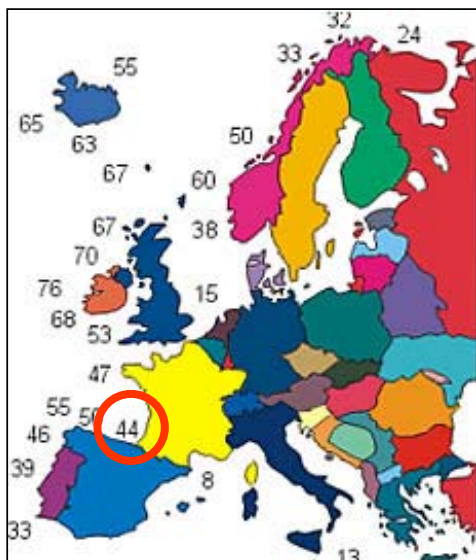


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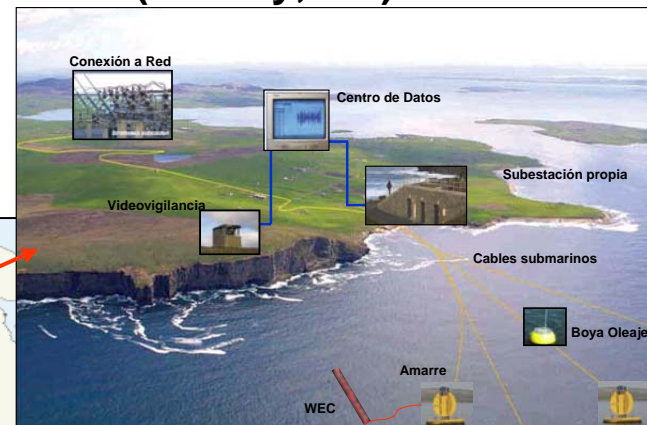
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Marine Institute (Galway, Irlanda)

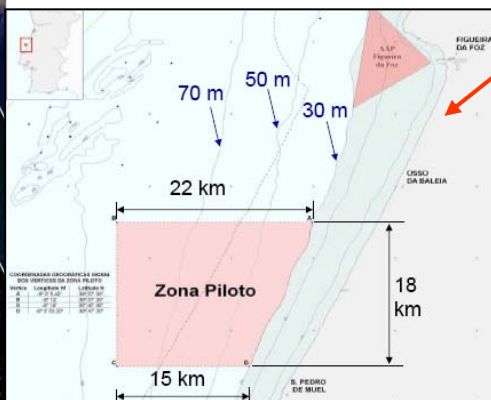


EMEC

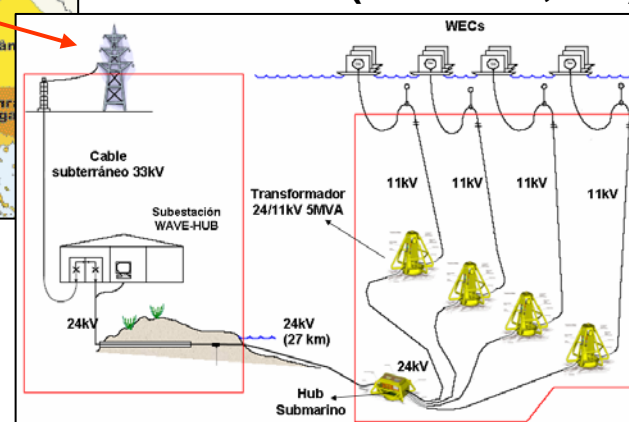
EMEC (Orkney, UK)



ZONA PILOTO (Portugal)



WAVE HUB (Cornwall, UK)





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Other interesting research lines

- Sustainable **production/management** (fisheries, aquaculture,...)
- Affection of **climate change** to resources and management tools
- Better knowledge of **marine habitats** (mapping)
- **Coastal erosion** and risks and destruction of habitats
- **Recovery and restoration** of marine ecosystems
- **New sea foods** and products
- Reduction and prevention of **alien species** introduction (and management of introduced species)
- **Observation of oceans**, data collection and data management