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Status of Deep-Sea Frontier initiative in Europe

ESONET NoE All Regions Workshop 1

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ENVIRONMENT (including Climate Change)



SEVENTH FRAMEWORK
PROGRAMME

Slide 1



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Marine Science and the EU

Marine research and technological development has been identified by the Commission as a key component of a future Maritime Policy for the EU.

This is recognised in both the **Green Paper**, “Towards a future maritime Policy for the Union: A European vision for the oceans and seas”,

and in the Commission’s overall strategic objectives for 2005-2009, where the Commission notes that:

“an all-encompassing maritime policy should be supported by excellence in marine scientific research, technology and innovation”.



Examples of EU Policies referenced in the Green Paper

- **Support to EU Common Fisheries and Regional Dev. Policies**
- **The 6th Environmental Action Plan, incl. the marine strategy**
- **Habitats Directive and Natura 2000 network**
- **Observation of the state and evolution of the global environment, including the climate (GMES & the GEOSS)**



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Marine Research: FP2 – FP6

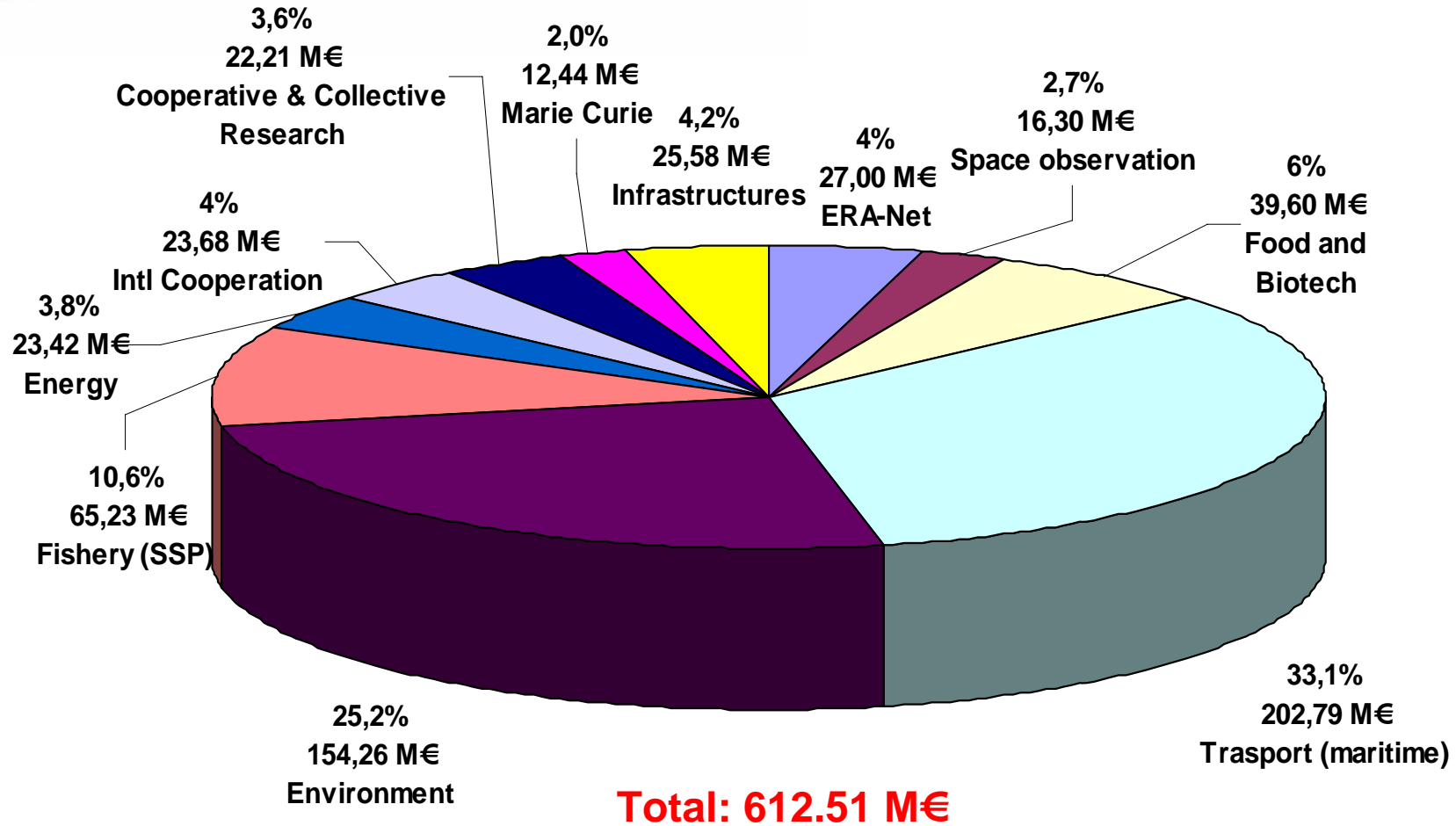
Between 1988 and 2007 Marine Research continues to benefit from successive EU framework programmes

- > 1988 – 1998 FP2/3/4 Successive Marine Science & Tech. (MAST) Programmes.
- >1998 – 2002 FP5 Several Key Actions, including “Sustainable Marine Ecosystems”
- 2002 – 2006 FP6 Furthering integration through the creation of **Integrated Projects & Networks of Excellence**

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European Community funding of Marine related R&D in FP6



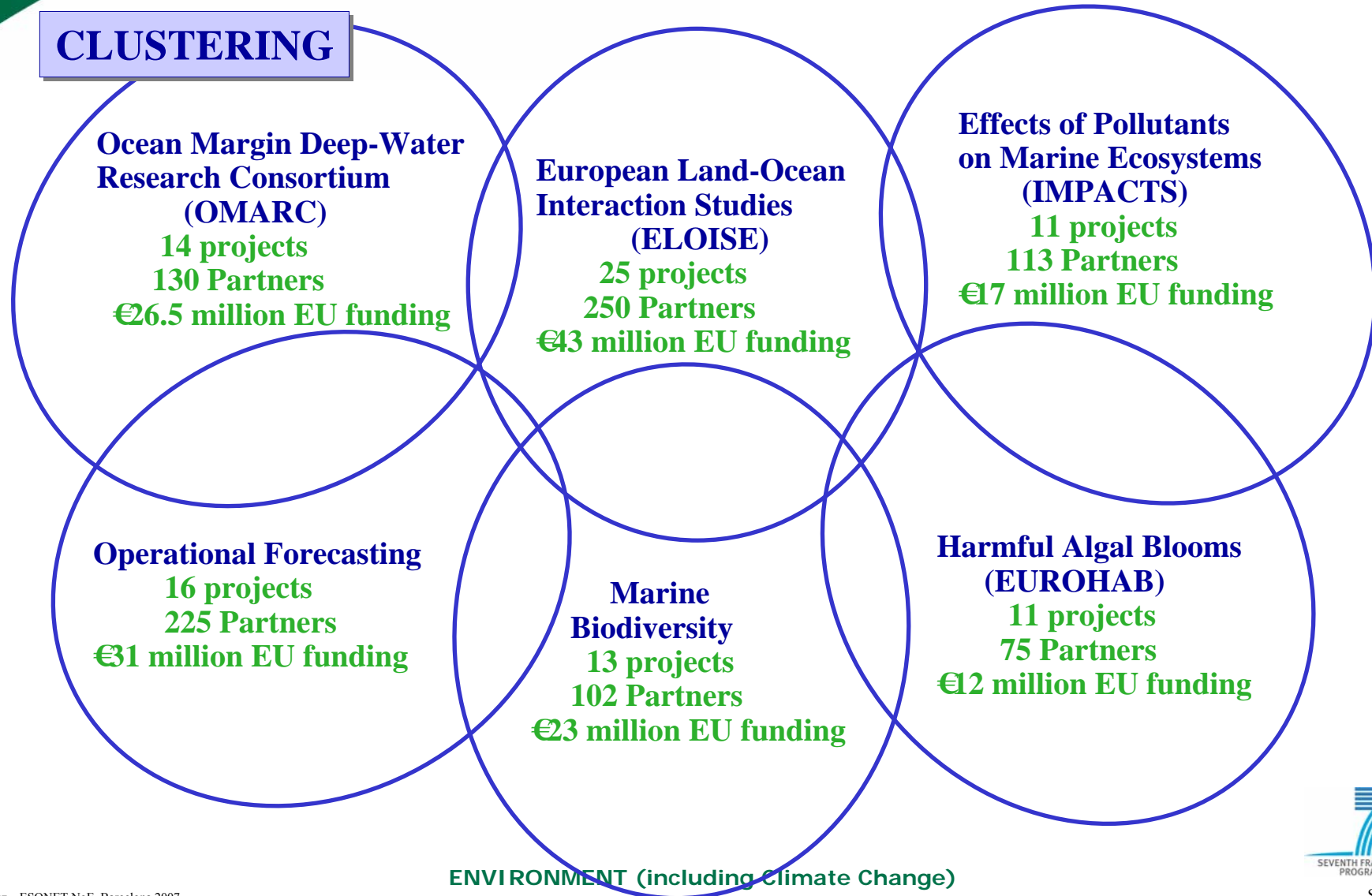
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FP5 - KEY ACTION

"Sustainable Marine Ecosystems"

CLUSTERING





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Examples of EC Underwater Observatory Technology Projects

GEOSTAR	Geophysical and Oceanographic Station for Abyssal Research	(FP4-MAST3)
ORION	Ocean Research by Integrated Observation Networks	(FP5)
ASSEM	Array of Sensors for Seabed Monitoring of Geo-hazards	(FP5)
ESONET CA	The European Sea Floor Observatory Network	(FP5)
EXOCET/D	Extreme ecosystem studies in the deep Ocean: Technological Developments	(FP6)
COBO	Coastal Ocean Benthic Observatory	(FP6)
ESONIM	European Seafloor Observatory Network Implementation Model	(FP6)
ESONET NoE	European Seas Observatory Network	(FP6)

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Deep-Sea Frontier initiative

- **Deep-sea frontier (DSF) workshops** (Bonn 2005, Napoli 2006) were initiated by the European Consortium for Ocean Research Drilling (ECORD) to discuss and develop a perspective for an integrated science plan to study the deep seafloor system.
- **Foresight paper** "The Deep-Sea Frontier: Science challenges for a sustainable future" (2007) by DSF Steering Committee

*DSF initiative aims to establish a major European research and technology effort for deep-sea science and is driven by four large European scientific communities related to **ocean drilling, ecosystems, climate research, and seafloor observatories**. It is supported through national, EC and ESF programmes, and through ECORD.*



EC funded DSF "foundation" projects

Acronym	Programme	EC contribution (M€)	Total budget (M€)
ECORD ERA-Net	FP6	3	148
HERMES	FP6	15	21
ESONET CA	FP5	2	130–220
ESONIM	FP6	0.5	
ESONET NoE	FP6	7	
EMSO	FP7	3	
<i>Future projects WP 2007</i>	FP7	15	23
	Total	45.5	322–412
IMAGES	EC funded projects in the fields of marine palaeoclimatology and palaeoceanography		



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The 7th Framework Programme of the European Community for research, technological development and demonstration activities (2007-2013)

BUILDING THE EUROPE OF KNOWLEDGE



FP7 2007–2013

4 Specific Programmes	Budget in M€
<i>Cooperation—Collaborative research</i>	<i>(44 432)* 32 413</i>
<i>Ideas—Frontier Research</i>	<i>(11 862)* 7 510</i>
<i>People—Human Potential</i>	<i>(7 129)* 4 750</i>
<i>Capacities—Research Capacity</i>	<i>(7 486)* 4 097</i>

+

JRC (non-nuclear)	1 751
JRC (nuclear)	<i>for 2007-2011 517</i>
Euratom	<i>for 2007-2011 2 234</i>

* Initial Commission Proposal

Total EC Budget: **M€ 50 521**

Annual budget:

~ 40% increase compared to FP6 on average

75% real terms increase between 2007 to 2013

Total Euratom Budget (2007-2011): **M€ 2 751**

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Cooperation—Collaborative Research 10 Themes

1	Health	6100
2	Food, Agriculture and Biotechnology	1935
3	Information and Communication Technologies	9050
4	Nanosciences, nanotechnologies, materials and new production technologies	3475
5	Energy	2350
6	Environment (including Climate Change)	1890
7	Transport (including Aeronautics)	4160
8	Socio-economic Sciences and the Humanities	623
9	Security	1430
10	Space	1400
	TOTAL	32413

Budget in M€

- ✓ Environment has links with all the other themes
- ✓ Attention to cross-thematic subjects (e.g. marine science and technology)

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6. Environment (incl. Climate Change)

Climate Change, Pollution and Risks

Sustainable Management of Resources

Environmental Technologies

Earth Observation and Assessment Tools



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Framework Programme Funding Schemes

- **Collaborative projects (STREPs & IPs in FP6)**
 - Consortia with participants from different countries;
 - New knowledge, technology, products or common resources for research;
 - Size, scope and internal organisation of projects can vary.
- **Networks of Excellence**
 - Joint programmes by organisations integrating activities in a given field;
 - Longer term co-operation;
 - Formal commitment to integrate resources.
- **Coordination and support actions**
 - Networking, exchanges, trans-national access to research infrastructures, studies, conferences, etc.

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ENVIRONMENT Theme (including Climate Change)

Activities and sub-activities

1. Climate change, pollution and risks

1. Pressures on environment and climate
2. Environment and health
3. Natural hazards

2. Sustainable Management of Resources

1. Conservation and sustainable management of natural and man-made resources and biodiversity
2. Management of marine environments



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ENVIRONMENT Theme (including Climate Change)

Activities and sub-activities

3. Environmental Technologies

1. Environmental technologies for observation, simulation, prevention, mitigation, adaptation, remediation and restoration of the natural and man-made environment
2. Protection, conservation and enhancement of cultural heritage including human habitat
3. Technology assessment, verification and testing

4. Earth observation and assessment tools

1. Earth and ocean observation systems and monitoring methods for the environment and sustainable development
2. Forecasting methods and assessment tools for sustainable development, taking into account differing scales of observation



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Schedule for early ENV Theme Calls

1st Call - ENV Theme

Published: 22 December 2006

Closing date: 2 May 2007

Budget: 200 million Euro

2nd Call - ENV Theme

Publication: anticipated in November 2007

Closing date: expected to be early 2008

Budget: of the order of 210 million Euro

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FP7 WORK PROGRAMME

Research topics in 2007 call

Management of Marine Environments

- ✓ Development of advanced ecosystem models and methodologies for the management and the sustainable use of resources
- ✓ Ecology of important marine species
- ✓ **Habitat-marine species interactions in view of ecosystem based management in the deep-sea**
- ✓ Dynamic of marine ecosystem in a changing environment
- ✓ **Deep Ocean geophysical and biological processes**
- ✓ Access to and recovery of marine data from previous FP projects
- ✓ Promoting access to information across marine themes
- ✓ Fostering improved co-operation between marine science and the private sector

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FP7 WORK PROGRAMME

Research topics in 2007 call

Marine Observing Systems

- Earth and ocean observation systems and monitoring methods for the environment and sustainable development
 - **Monitoring of the carbon cycle on a global level**
 - Coordination of national earth observation programmes in view of their long-term integration and sustainability
 - **Contributing to the development of a worldwide network of in-situ observatories for seismogenic hazards**
 - **Monitoring the ocean interior, seafloor and sub-seafloor**

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Work Programme 2007

Management of marine environments

- **ENV.2007.2.2.1.3. Habitat-marine species interactions in view of ecosystem based management in the deep-sea**

The link between marine species, including fish and deep-sea habitats is still poorly known. A better understanding of this relationship is essential for the evaluation of the impact of marine protected areas on fisheries, within the broader framework of a regional ecosystem-based management approach. Research will focus in the first instance on: i) the identification and modelling of the ecosystem function of cold water coral reef habitats and description of the ecological interaction between reefs and fish species of commercial interest; ii) the assessment of quantitative and qualitative fisheries effects upon these habitats, and impact upon associated fish species and productivity. Participation of International Co-operation Partner Countries is encouraged.

Funding scheme: **large-scale integrating collaborative project**

Expected impact: Publicly accessible results in easily understandable presentations. Beyond the better understanding of deep-water ecosystems, this activity should expand the knowledge base for the implementation of an ecosystem approach to deep-sea fisheries management, as well as developing options by governmental and non-governmental actors for protection, governance and management of deep-sea resource, including fisheries.



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Work Programme 2008

Management of marine environments

Candidate topic—Provisional

Deep-Sea ecosystems

Topics to be addressed could include:

- Natural change in deep-water ecosystems especially related to anthropogenic impact and climatic change.
- The importance of episodic, large-scale events, in driving ecosystem change in the various ecosystem hotspots.
- Distribution and interconnection of ecosystems on a broad scale, e.g. along margins, between canyons or between coral colonies.
- Understanding the biological capacities of marine organisms that underlie the ecology of deep-oceanic ecosystems. Approaches can include the genomic analysis of natural communities to understand how biodiversity supports ecosystem function.
- Integrated understanding of the ecological, societal and economic implications of the human interactions with deep-sea ecosystems and options for the conservation of deep sea biodiversity and the governance of the deep sea.



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Conclusions

- A Deep-Sea Frontier initiative can make a significant contribution to EU maritime initiatives and policies.
- The EC RTD Framework Programme remains committed to supporting the development of such an initiative, **in partnership with the EU Member States.**