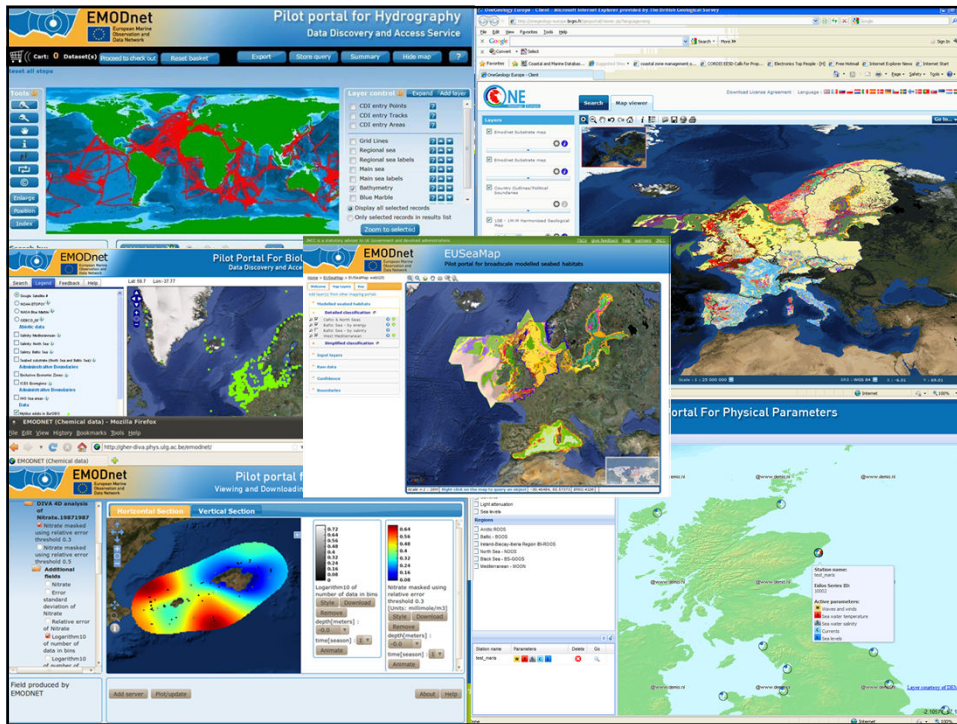# marine knowledge 2020

status October 2013

Maritime Affairs

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what is delivered??

- access to data
    - maintained on Member States' databases
    - interoperable, common standards
    - metadata describing time, date of measurement, quality, etc.
- data products
    - maintained by consortium
    - map layers
    - quality indicators

prototype method

2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Phase 1 – limited sea basins											
				Phase 2 - low resolution							
					Phase 3 - multi-resolution						

Plan   Implement

Time

Learn   Measure

allows users to assess and improve product by trying it out

European Commission

EMODnet
European Marine
Observation and
Data Network

budget

	phase 1	phase 2
bathymetry	€ 2,175,000	€ 2,000,000
geology	€ 925,000	€ 4,200,000
physics	€ 1,000,000	€ 1,000,000
chemistry	€ 700,000	€ 4,000,000
biology	€ 750,000	€ 1,700,000
physical habitats	€ 800,000	€ 1,390,000
human activity		€ 2,060,000
	€ 6,350,000	**€ 16,350,000**
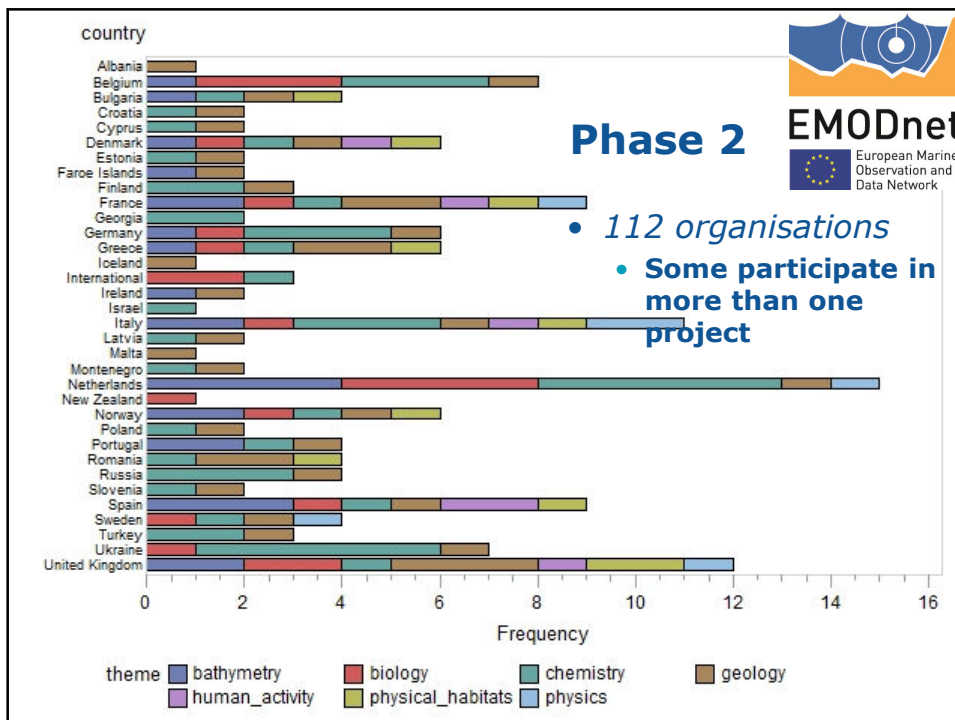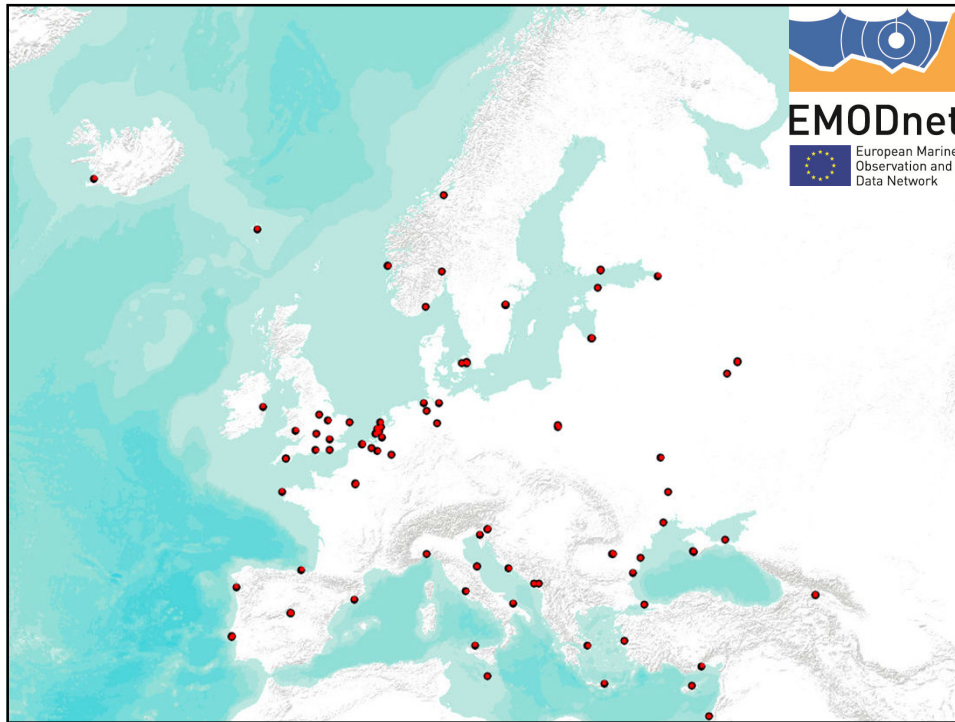
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Phase 2

EMODnet
European Marine
Observation and
Data Network

- *112 organisations*
  - **Some participate in more than one project**

3

how they spend the money

objective	biology	chemistry	bathymetry	average
data and metadata	54	39	29	41
data products	18	35	50	34
evaluation and dissemination	8	5	4	6
portal development	11	12	14	12
project management	9	10	4	8
Total	100	100	100	100

EMODnet
European Marine
Observation and
Data Network

sea basin checkpoints

How can observation infrastructure be optimised?

North Sea

Mediterranean

EMODnet
European Marine
Observation and
Data Network

secretariat hosting

- Flemish Marine Institute
  - meeting rooms, offices, IT
  - building main internet portal

secretariat tasks

- monitoring
  - organise steering committee
  - summarise meetings of Marine Observation and Data Expert Group
  - test the EMODnet thematic portals
  - develop and publish progress indicators
  - publish bi-monthly progress reports
  - report lessons learned
- dissemination
  - prepare a half-hour on-line demonstration
  - and make 20 demonstrations
  - shoot two 10 minute videos of EMODnet
  - prepare an EMODnet brochure
  - publish annual progress reports
  - maintain web-site
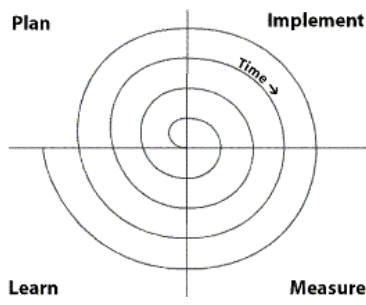
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prototype method

2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020

Phase 1 – limited sea basins

Phase 2 - low resolution

Phase 3 - multi-resolution

Plan   Implement
Time →
Learn   Measure

allows users to assess and improve product by trying it out

European Commission

public consultation to gather ideas for third phase

240 replies
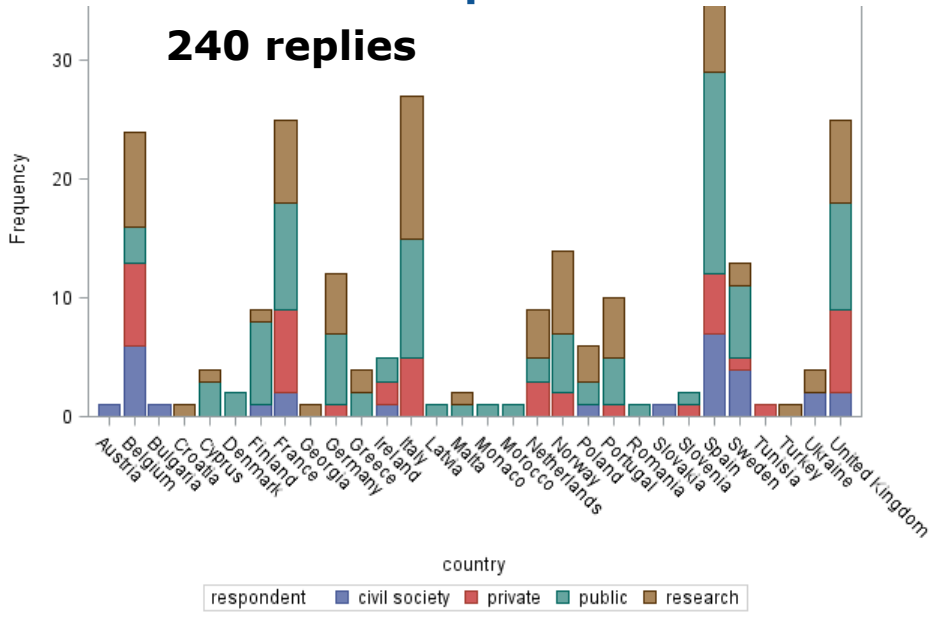
Are there any reasons why there should be exceptions, to the Commission's policy of making marine data freely available and interoperable?
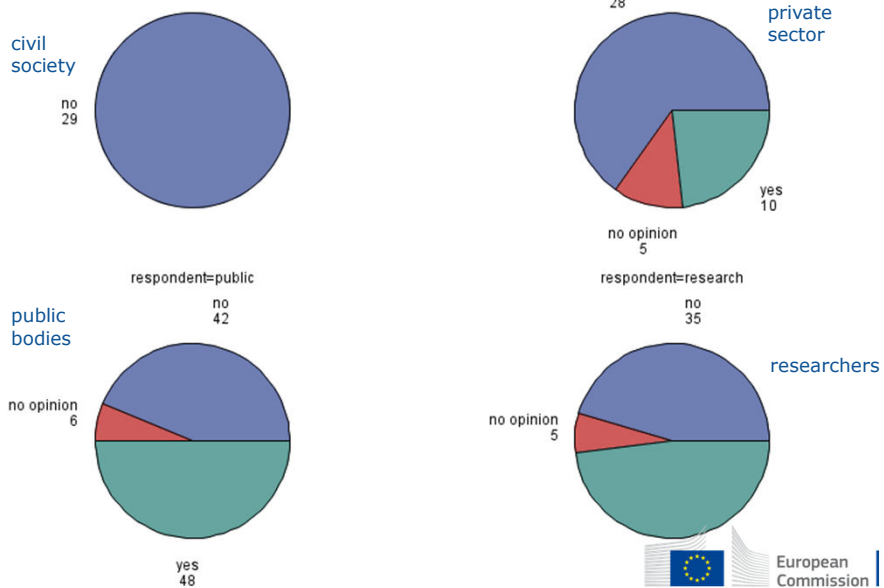
outcome of consultation

- endorsed basic principles

- confirmed that we are on the right track

- identified new needs

European Commission

endorsed basic principles

- need for open access to marine data, in both raw and aggregated forms;
- few exceptions:
  - national security;
  - damage to heritage sites and endangered ecosystems;
  - commercial sensitivity;
  - the need to allow scientists time to publish;
  - safety and liability issues due to data misinterpretation.

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confirmed we are on the right track

- the architecture of the current EMODnet is sound
  - geology, bathymetry, physics, chemistry, biology, physical habitats and human activity
- EMODnet can assist with environmental or fisheries reporting
  - replace "push" with "pull"

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identified new needs

- more involvement of private sector

- mechanism to advise Member States and the EU on the most cost-effective sampling, surveying and observation programme for each sea-basin

- convergence of EMODnet, data collection in fisheries and Copernicus marine service

- novel sensors that can measure parameters automatically without the need to bring samples back to the laboratory

operational objectives for phase 3 of "marine knowledge 2020"

Horizon 2020

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economic benefits of "marine knowledge 2020"

1. reduced costs for offshore activities

2. stimulation of innovation

3. reduced uncertainty in knowledge of the behaviour of the sea

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cost savings

Having an integrated rather than a fragmented data infrastructure can save money for users of marine data in two ways:

1. **they would not need to re-survey areas that had already been surveyed but for which the data have up to now been inaccessible.**

2. **it would cost them less to process existing data.**

So the total saving S^s to stakeholder group s can be expressed as

$$S^s = \sum_{i=1,N} \left(\propto_i^s \beta_i^s + (1 - \alpha_i^s)\gamma_i \right)\emptyset_i^s C^s$$

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discovered 6000 surveys

	basin area	surveyed	to be surveyed	to be surveyed
	km²	km²	km²	percent
North Sea and English Channel	678,250	400,700	277,550	41%
Celtic	894,460	542,733	351,727	39%
Bay of Biscay and Iberian	818,646	772,606	46,040	6%
Western Med	844,828	722,220	122,608	15%
Ionian and Central Med	717,683	389,232	328,451	46%
Aegian-Levantine	815,870	461,577	354,293	43%
Adriatic	133,943	109,865	24,078	18%

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preliminary estimate of cost reduction

	Total cost	Saving
private	€ 3,000,000,000	€ 1,218,750,000
public	€ 225,000,000	€ 54,843,750
hydrography	€ 150,000,000	€ 23,430,000
research	€ 2,000,000,000	€ 200,000,000
civil society	€ 0	€ 0
total	€ 5,375,000,000	€ 1,497,023,750

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innovation – new cage design

Irish deep sea farm project will generate 350 direct and 150 indirect jobs

- bathymetric data – water depth
- geological data – sediments for foundations
- chemical data – water quality
- physical data – tides, waves, currents
- biological data – not endanger local wildlife

innovation – protection of cables

- 48 cable failures occur in Europe each year
- €6.9 billion losses

- sediment properties for burial techniques
- local human activity (fishing etc)
- temperature, salinity

uncertainty reduction – better routing

- improved charts will allow faster transit for deeper draughts
- NOAA estimate that one additional foot of draught may account for between $36,000 and $288,000 additional profit per transit

Next steps

- impact assessment ready November 2013

- Communication on Innovation on the Blue Economy and Roadmap/Action Plan spring 2014

  - more involvement of private sector

  - mechanism to advise Member States and the EU on the most cost-effective sampling, surveying and observation programme for each sea-basin

  - convergence of EMODnet, data collection in fisheries and Copernicus marine service

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sea-basin checkpoints

- setting up a process that helps Member States design the most appropriate monitoring and observation system for European sea-basins.
- as we move from a paradigm where data are collected for a special purpose to one where data are collected once and used many times, such a process will minimise gaps and duplications and give users a voice.

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fully integrating the separate EU initiatives for marine knowledge.

- building a single gateway to access data from EMODnet, the Copernicus Marine Service and fisheries data made available through the Data Collection Framework;
- using the European Maritime and Fisheries Fund to provide the in-situ component of Copernicus;
- setting up a single Expert Group to monitor the activities of EMODnet, the Copernicus Marine Service and the Data Collection Framework.

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involving the private sector more in the "Marine Knowledge 2020" initiative.

- :

- setting up a facility for private businesses to deliver the data required for licencing offshore businesses and recommending that Member States make using this facility a condition for granting a licence;
- ensuring that the private sector is represented in the new Expert Group and the process for determining the most appropriate monitoring strategy for each sea basin;
- recommend that Member States require offshore platforms to instrument their platforms, not only to measure the impact of their own activity but also to improve understanding of the dynamics of the sea.

European Commission

questions?

European Commission

marine knowledge 2020

draft budget 2014

European Commission

Maritime Affairs

Proposal

checkpoints	€ 4,600,000
Argo floats	€ 6,000,000
coastal mapping	€ 1,250,000
TOTAL	€ 11,850,000

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