Towards integrated European marine research strategy and programmes

Seas-era EUFP7ERA-NET

http://www.seas-era.eu

FP7 SEAS-ERA Project: Towards integrated *European marine research strategy and programmes*

The EU ERA-NET scheme, aims at networking national and regional research funding programmes in order to facilitate the strategic planning and implementation of joint activities, including joint calls for research proposals. ERA-NETS are one of the building blocks of the European Research Area (ERA).

Beatriz Morales-Nin
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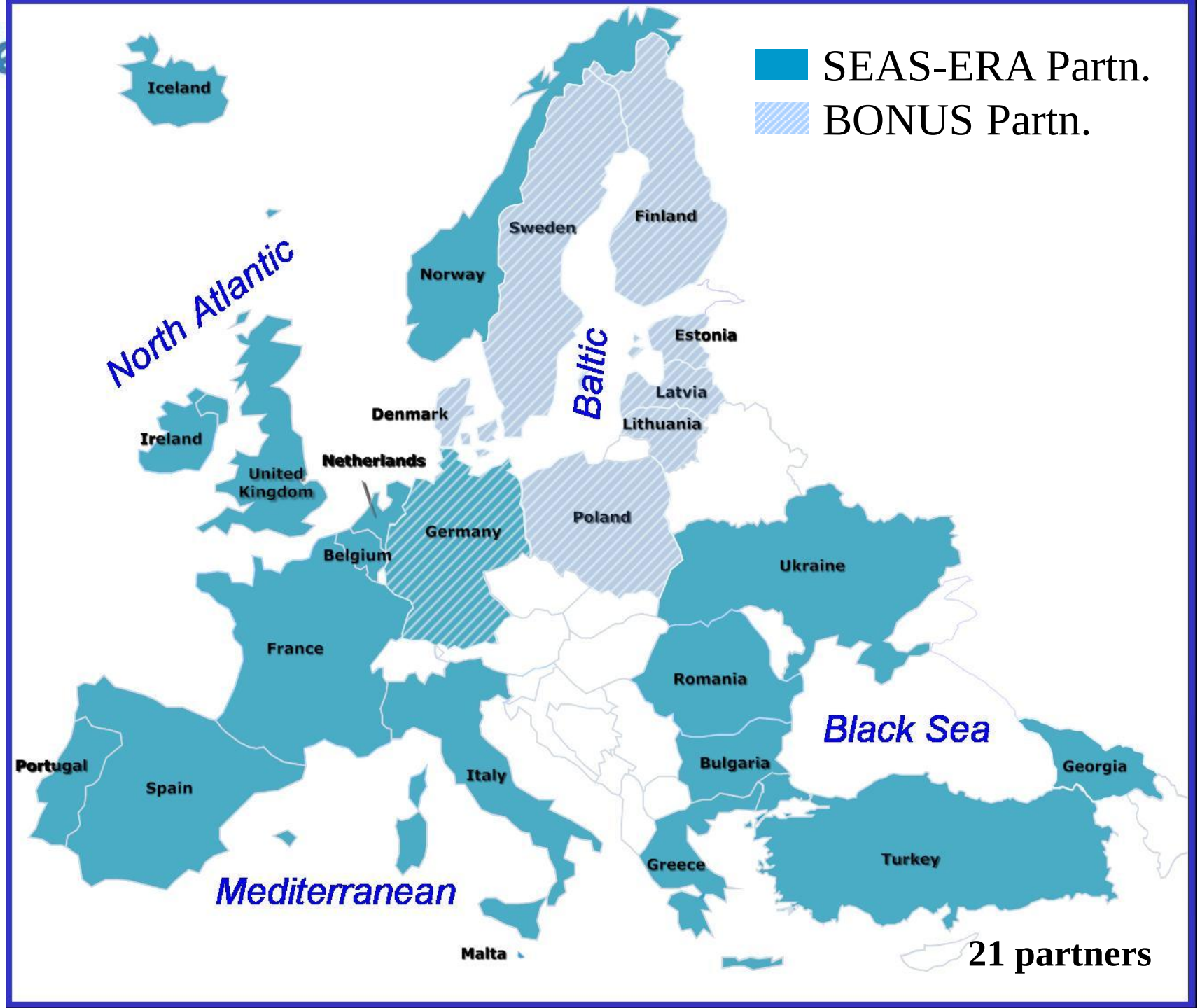
16th ERVO Annual Meeting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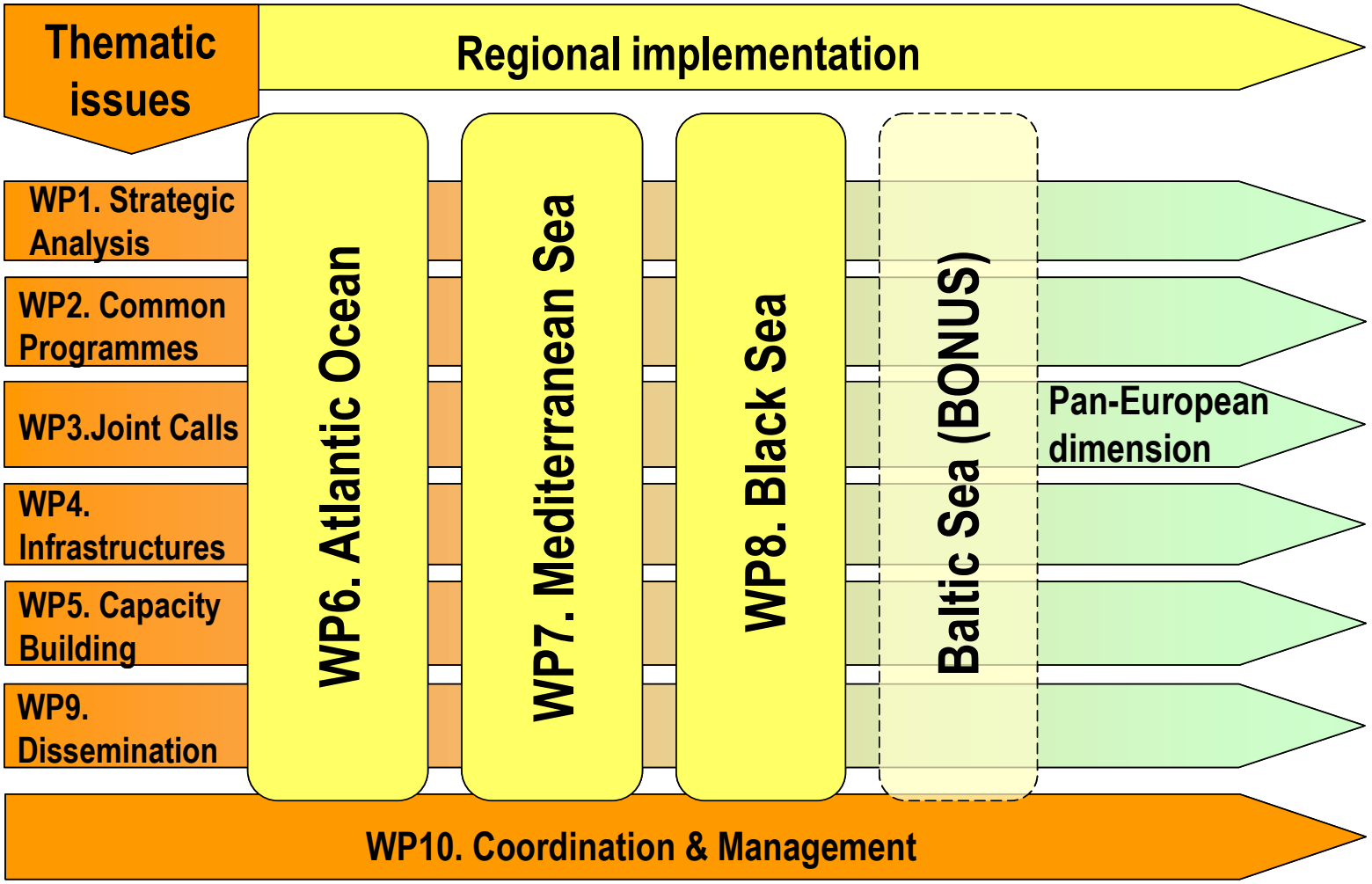
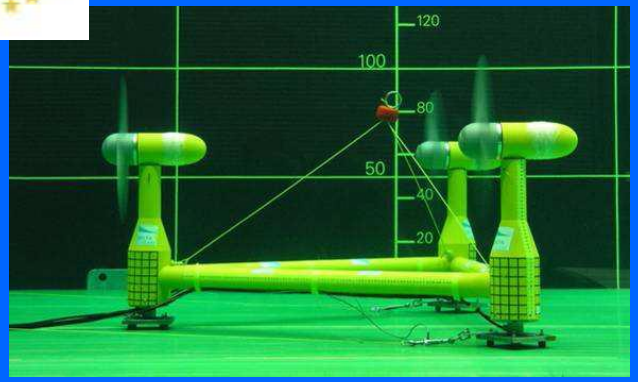
21 partners

Project estructure





Wave circulation flume

Sea-floor station

Aquaculture research facility

Marine Research Infrastructures : overview, vision and recommendations …. and on going initiatives

Jean-François Masset (IFREMER)

Oceanic profiler

ROV

RRS Discovery (NOC)

Glider

Ifremer

MRI / Overview, vision and recommendations ..... and on going initiatives

Issues addressed :

- ✓ Mapping of the facilities
- ✓ Open and transnational access to MRI
- ✓ MRI complementary uses for both monitoring and research => the EOOS issue (European Ocean Observing System)
- ✓ Set-up common procurement strategies, develop common business models
- ✓ From coordination to integration of distributed MRIs into networks
- ✓ Public-Private collaboration on MRI

1. Mapping of the facilities

An updated and "comprehensive" overview of the marine research infrastructures :

- using 6 categories covering all usual marine sciences :
  - ***Research vessels and their underwater vehicles***
  - ***In situ data acquisition systems***
  - ***Satellites***
  - ***Marine data centres***
  - ***Marine land-based facilities for ocean engineering***
  - ***Experimental facilities for biology and ecosystem studies***
- including the European RI projects type ESFRI, FP7-I3 or éq.

A repository *(developed in continuity within JPI / CSA Oceans),* with information on all facilities involved and opened (or would be) to access for joint activities :

- Information collected for about 800 facilities in Europe,
- Creation with EUROCEAN of a MRI database, now open
- Planned interface with the JPI Oceans web platform
- Targeted users : Scientists, Operators, their engineers et technicians, Policy makers, international, media, public,

1. Mapping of the facilities

>>> MRI Database (EUROCEAN, CSA Oceans, Seas-Era) : **http://rid.eurocean.org/**

EurOcean_RID

CONTRIBUTE YOURSELF TO UPDATE THE DATABASE

If you are aware of any Infrastructure that is not yet in this infobase or any other updates please contact EurOcean or insert yourself a new record and updates

Insert

SEARCH

NAME

COUNTRY

OPERATOR

MRI CATEGORY

MRI SUBCATEGORY

MRI TYPE

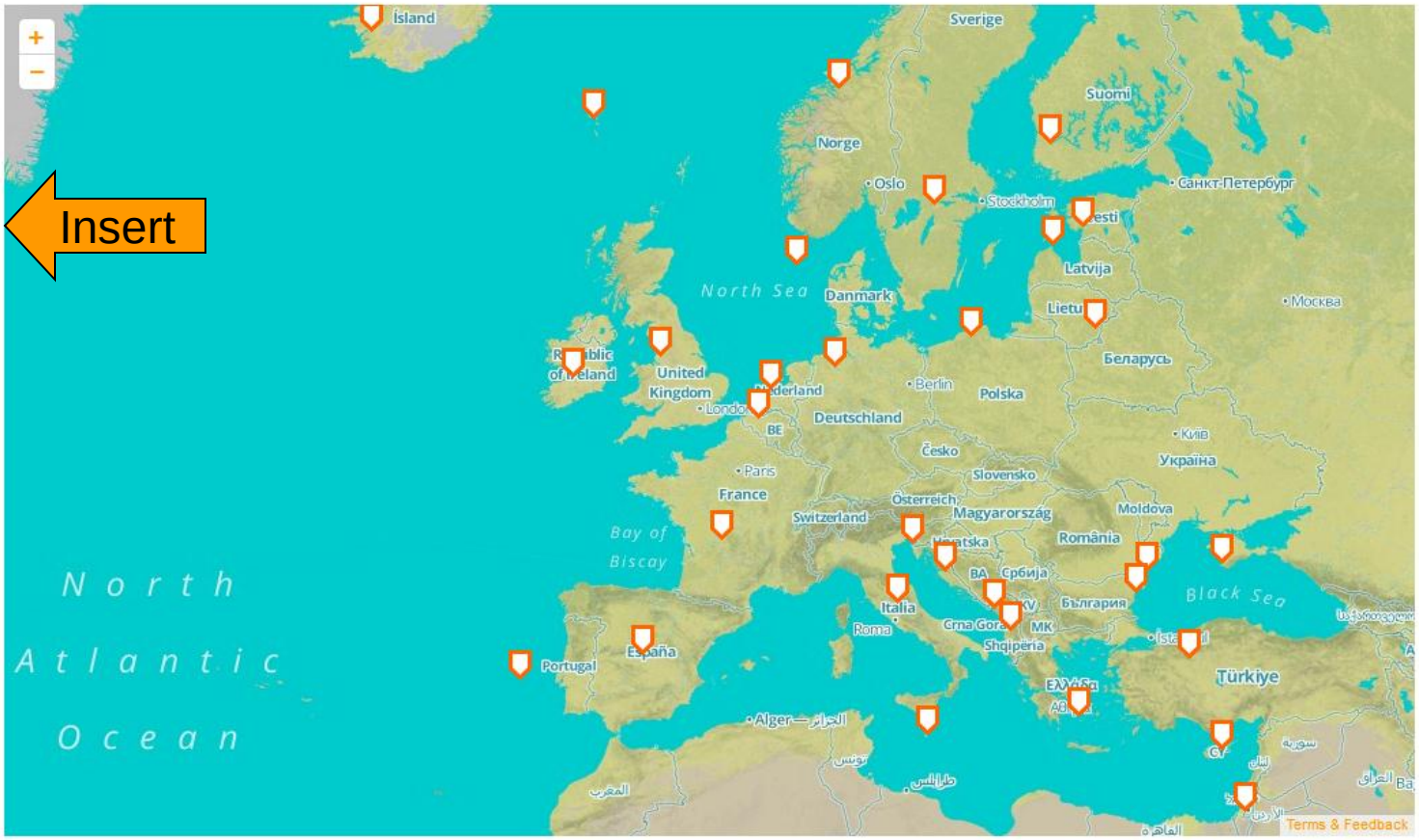
OPERATING AREAS

DISCIPLINES

DISPLAY RESULTS ON THE MAP

DISPLAY RESULTS ON A TABLE

RESET



About the database
Search tips
Technical Notes
Disclaimer

Sources of Information:

CSA OCEANS JPI Oceans support action

Seas-era EUFP7ERA-NET

eurOcean

Thanks to Sandra Sa and Telmo Carvalho

About the updating process / Insert a new record

NEW RESEARCH INFRASTRUCTURE

Infrastructure Information and Contact

Name

Owner Aalborg University Add

Other Owner

If the owner you want to add is not included in the drop-down menu, please write the name, preferable in English, in the following format:

English (or Native) Acronym – English (or Native) Name (Country);

e.g. EurOcean - EurOcean Foundation (Portugal)

Operators Aalborg University Add

Other Operator

If the operator you want to add is not included in the drop-down menu, please write the name, preferable in English, in the following format:

English (or Native) Acronym – English (or Native) Name (Country);

e.g. EurOcean - EurOcean Foundation (Portugal)

Status Other Public Administration

Category --

Subcategory --

Type --

Other Category/Subcategory/Type

If the category, subcategory or type you want to add is not included in the drop-down menu, please write the name, preferable in English, in the following format:

Category – Subcategory - Type

e.g. Marine Data Providers Mesocosm facilities Mobile mesocosm

Countries Afghanistan Add

Other Country

Operating Areas All oceans Add

Other Operating Area

Scientific Disciplines Aquaculture Add

Other Scientific Discipline

Contact person

Email

Phone

Address

Infrastructure URL

Operator URL

Gallery URL

Year Built

Year of last refit

Last Update of the information N/A

Additional Information

Length (m)

Max. operating depth (m)

Service currently offered by the infrastructure

Access Conditions

Examples of scientific data acquired

Logo of operator Parcourir... Aucun fichier sélectionné.

Photo Parcourir... Aucun fichier sélectionné.

Technical Details Parcourir... Aucun fichier sélectionné.

Location (hometown)

Location on map

Latitude 43.15291889355165

Longitude 3.6035156249999996

Please insert the word you see in the image

close submit

About the Eu MRI projects overview

Mapping of the Eu projects directly dealing with and operating Marine RI :

About 20 consortia have been constituted in the past 7 years, with operational goals and sustainable perspective, including 3 ESFRI , 9 FP7-I3, 2 FP7 e-infrastructures and 7 other operational infrastructures :

For research vessels and underwater vehicles : EUROFLEETS 1 & 2

For open ocean mobile platforms : EURO ARGO, GROOM

For open ocean fixed point observatories : EMSO, FIXO3

For ocean research drilling : ECORD

For other open ocean in situ measurements : CORIOLIS

For satellites : My Ocean 1 & 2 (Copernicus core service)

For costal/shelf seas observatories : JERICO

For data storage and standards : SEADATANET 1 & 2

For data storage, assembling, access : SEADATANET 1 & 2 , CORIOLIS, My Ocean 1 & 2 , EMODNET, WISE Marine, GEOSEAS, i-Marine

For marine biology , "omics" and bio-informatics : ASSEMBLE, EMBRC

For marine mesocosms : MESOAQUA

For research on aquaculture : AQUAEXCEL

For ocean engineering : HYDRALAB IV, MARINET

2. Open and Trans National Access (TNA) to MRI

Typology of Access Formulas :

TNA activity as implemented in the frame of the FP7-I3 projects :

- ✓ The advantage to cover up to 100 % both the access costs and also the travels and subsistences of the scientific teams (up to a certain ceiling).
- ✓ Bottom-up calls, excellence being the main criteria for the evaluation/selection of the applicants.
- ✓ Budget constraints limit its scope to only few % (<< 20%) of the available resources

TNA can also be implemented within the frame of a joint programme :

- ✓ Agreement on a joint scientificprogramme with multi-annual objectives,
- ✓ Identification of the core MRI needed, and their multi-annual planning,
- ✓ Selection of the scientific teams and organisation of the access,

Other specific access with trans national opportunities :

- ✓OFEG batering process (Ocean Facilities Exchange Group) : TNA to research vessels as a consequence of a logistic first motivation.
- ✓MRI operator to rent its facility few months a year to another research institute of a nearby country.

About shared use of infrastructures, some ongoing initiatives

Seas-Era Common programmes > 2 cases sudies for Atlantic and Med regions :

Atlantic : Ocean transects in the North-Atlantic Ocean

Med : Joint action for a long term hydrological monitoring in the Mediterranean Sea

DG Env (Call PP/ENV D2/SEA 2012) > 3 regional projects 2013-2015 :

Balsam : Testing new concepts for integrated environmental monitoring of the Baltic Sea (BALSAM) Coord. Johanna Karhu (Helcom secretariat)

JMP NS/SC : Towards a joint monitoring programme for the Horth Sea and the Celtic Sea, Coord. Lisette Enserink (Rijkswaterstaat, NL)

IRIS-SES : Integrated Regional monitoring Implementation Strategy in the South European Seas (Med and Black Seas), Coord. Ms. Popi Pagou (HCMR)

JPI Oceans > 2 pilot actions :

Ecological aspects of deep sea mining, thanks to 90 days offered on the new RV Sonne II

Increasing the cost-efficiency of fisheries infrastructure for data acquisition and marine monitoring: towards an integrated approach to monitoring of the North Sea.

H2020 > Blue Growth topics :

BG8-2014 : Developing in-situ Atlantic Ocean Observations for a better management and sustainable exploitation of the maritime resources

A similar one for Med and Black Seas proposed for wp 2016-2017 ...

3. MRI complementary uses for both monitoring and research => the EOOS issue : from a concept to a « board »

All stakeholders :

(incl. Research, Policies and Industry)

All Funding authorities : EC, MS, Regions, …

JPI Oceans

Key drivers :

✓*Societal needs*

✓*Research Frontier*

✓*Technology breakthroughs*

Observation strategic agenda and priorities

EOOS « Board » (to build)

ERVO, EUROGOOS, Copernicus Marine Service, ESONET-Vi, EUROMARINE+, EGO, MODEG, IODE …

Overarching implementation plan

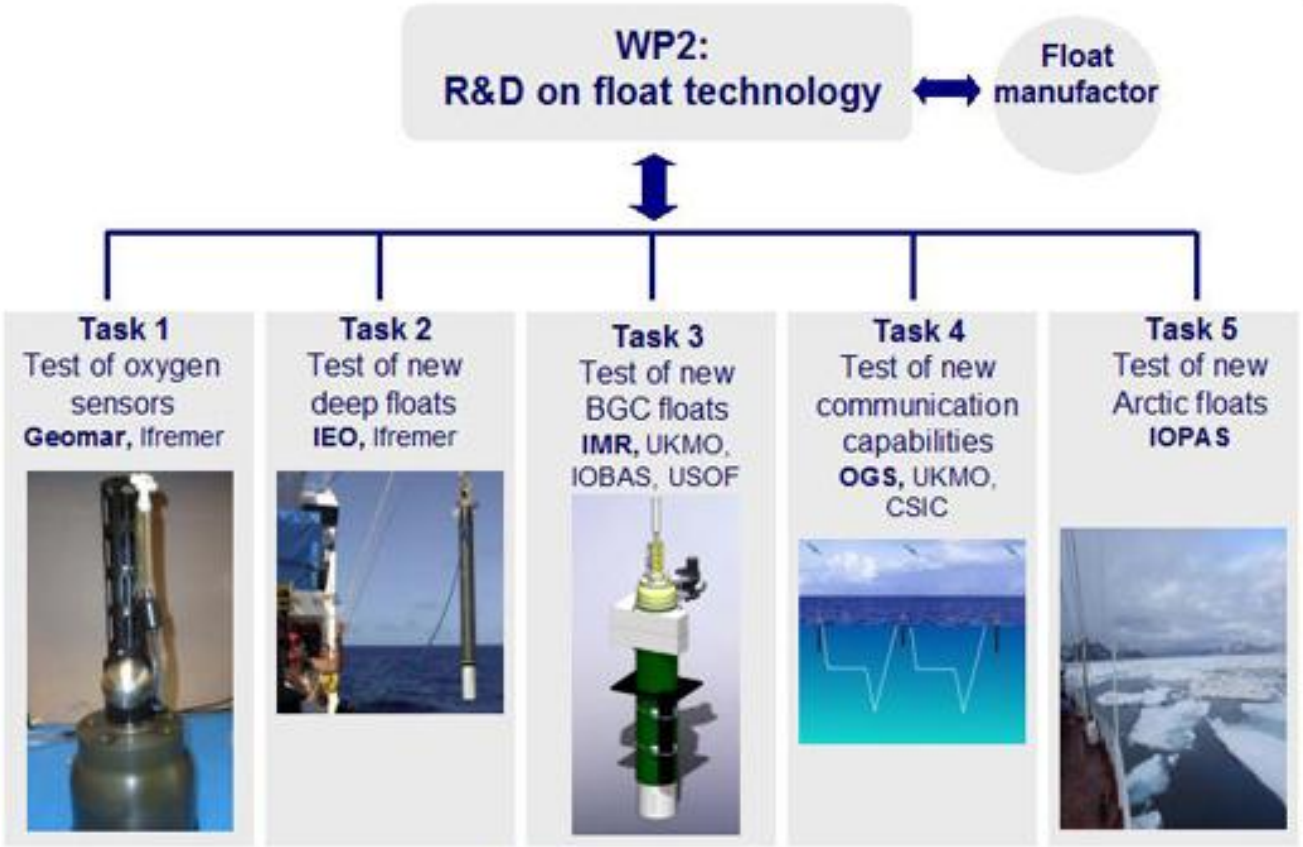
EUROFLEETS OFEG	EURO ARGO GROOM	EMSO FIXO3	JERICO EMBOS	SEADATANET MY OCEAN EMODNET
Research vessels & underwater vehicles	**Mobile platforms**	**Fixed platforms**	**Coastal observatories**	**Data management and dissemination**

Open non exclusive list of operational consortia

About the key driver "technology breakthroughs" / improved autonomous platforms with adapted sensors

FP7 E-AIMS : Euro-Argo Improvements for the GMES Marine Service

With small sensors (optic, acoustic) allowing biogeochemical measurements



About the key driver "technology breakthroughs" / the need of testing facilities

Hyperbaric tanks for resistance test to high pressure

Profiler Bio cycling tests in deep basin

About the key driver "technology breakthroughs" / the need of new *in situ* sensors, under development

5 projects within FP7-OCEAN-2013-1 Biosensors for real time monitoring :

BRAAVO : Biosensors, Reporters and Algal Autonomous Vessels for Ocean Operation

EnviGuard : Development of a biosensor technology for environmental monitoring and disease prevention in aquaculture ensuring food safety

MariaBox : MARINE environmental in-situ Assessment and monitoring tool BOX

SEA-ON-A-CHIP : Real time monitoring of SEA contaminants by an autonomous Lab-on-a-chip biosensor

SMS : Sensing toxicants in Marine waters makes Sense using biosensors

4 projects FP7-OCEAN-2013-2 Multi-functional in-situ sensors :

COMMON SENSE : Cost-Effective Sensors, Interoperable with International Existing Ocean Observing Systems, to Meet EU Policies Requirements

NEXOS : Next generation, Cost-effective, Compact, Multifunctional Web Enabled Ocean Sensor Systems Empowering Marine, Maritime and Fisheries Management

SCHeMA : Integrated In-Situ Chemical MApping Probes

SenseOCEAN : Marine sensors for the 21stCentury

4. Set-up common procurement strategies, develop common business models

Common procurement strategies and business models are really under developed ! *New investment are still mostly a national affair without real connection with an European vision, with the recent exception of the ESFRI approach.*

General principle : to consult at the Regional / European level before to invest at the national one, to adopt a common rythm to up date the national roadmap.

Regional vessels issue : advisory committee for procurement strategy and implementation, one per region typically, within EUROFLEETS and ERVO (European Research Vessel Operators).

Towards less but modern, multi-purpose and standardised vessels together with mutual programming and use processes at regional level. *An opportunity for adjacent countries sharing the same sea basin !*

The European dimension could also be relevant for small / medium investments of distributed MRI :

- ✓Observing systems : oceanic profilers, gliders, coastal observatories, …)
- ✓Laboratories equipment : marine biology laboratories, experimental facilities for aquaculture, ...
- ✓Testing facilities for ocean engineering : Ocean energy, ...

About new investments / what happens during the 2010-2014 period

11 new research vessels :

Name	L (m)	Year of launch	Country	Operator
Discovery	99,7	2013	UK	NOC
Angeles Alvariño	46,7	2013	Spain	IEO
Ramon Margalef	46,7	2011	Spain	IEO
Tübitak Marmara	41,2	2013	Turkey	TUBITAK Marmara Research
Simon Stevin	36,0	2012	Belgium	VLIZ (Flanders marine instit
Sanna	32,0	2012	Denmark	Greenland Inst
Clupea	28,8	2012	Germany	Federal Agenc
Aurora	28,0	2013	Denmark	Univ. Aarhus
Socib	23,8	2012	Spain	SOCIB (Balear
The Princess Royal	18,9	2011	UK	Univ. Newcast
Albert Lucas	11,5	2010	France	INSU - CNRS

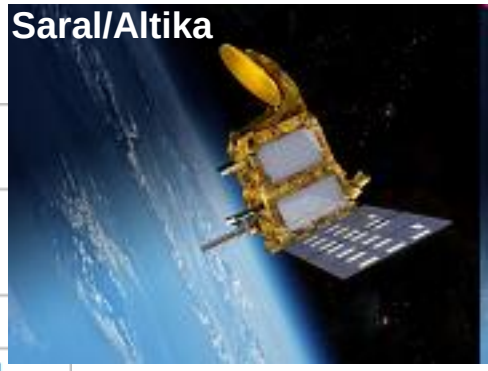
+ 4 new research vessels under construction :

Sonne II	116	2015	Germany	RF Forschungsschiffahrt
Kronprins Haakon	100	2016	Norway	IMR
New Skaggerak	45	2015	Sweden	Univ. Gotheburg
New Oceanograf	40	2014	Poland	Univ. Gdansk

…+ on going design of a Coastal RV within PERSEUS

About new investments / what happens during the 2010-2014 period

4 new satellites for ocean observation :



Name	Year of launch	Operator	Missions
METOP-B	2012	EUMETSAT	incl. wind speed and direction, sea surface temperature and sea ice concentration.
Meteosat-10	2012	EUMETSAT	incl. sea surface temperature
Saral/Altika	2013	CNES & ISRO	ocean surface topography, surface wind speed, surface wave height
Cryosat-2	2010	ESA	ice sheets that overlay Greenland and Antarctica and marine ice floating in the polar oceans

+ 2 new satellites under construction :

Sentinel 3	2014	ESA / Copernikus	sea-surface topography, sea- and land-surface temperature, ocean colour and land colour
Jason 3	2015	CNES	ocean surface topography, surface wind speed, wave height

About new investments / what happens during the 2010-2014 period

8 new subsea/seabed observatories :

Name	Type	Depth (m)	Year of installation	Operators
MOMAR	2 stand-alone acoustic observatories and their transmission buoy	1700	2010	IFREMER, CNRS-IPGP, Univ. Azores
Ligurian sea / Var canyon	1 sub-sea mooring stand-alone observatory	1000	2013	IFREMER, CNRS
LoVe Hovden	1 seabed observatory	255	2013	IMR & Statoil
MARSITE SN4	1 stand-alone seabed observatory	167	2013	INGV, KOERI, IUT / EMCOL, ISMAR, IFREMER
Koljoe Fjord	1 cabled subsea observatory	42	2011	Univ. Gothenburg
MeDON Molene	1 cabled seabed observatory	20	2012	IFREMER, ENSTA Bretagne
MEDA	1 fixed pole subsea observatory	15	2013	GeoEcoMar

About new investments / what happens during the 2010-2014 period

, and 7 new subsea/seabed observatories planned in 2014-2015 :

Name	Type	Depth (m)	Year of installation	Operators
PLOCAN / ESTOC & Coastal observatory	1 stand-alone seabed observatory & 1 cabled seabed observatory	3670 & 100	2014	PLOCAN
Poseidon Pylos	1 cabled seabed observatory	1650	2015	HCMR
Ligurian Sea / Nice airport	1 cabled seabed observatory	50	2014	IFREMER, CNRS
Smartbay / coastal observatory	2 cabled subsea stations + 1 power buoy	23	2014	SmartBay Ireland Ltd, MI
OBSEA	A second cabled seabed observatory	20	2014	UPC, SARTI

OBSEA

5. From coordination to integration of distributed MRIs into networks

With light "Central Offices" heading up the national components :

MRI, like all RI for environmental and life sciences, are distributed into networks. An European ESFRI-like infrastructure could materialize at first by the addition of a light « Central Office » which heads up the national components to bring the adequate degree of European coordination.

EURO ARGO is now established with an ERIC structure, EMSO and EMBRC are in the same process.

The I3 projects of particular relevance for the marine sciences, beyond their current EC support, could as well sustain their consortium for coordination and common actions through a similar approach >>> Opportunity : *re opening of the ESFRI roadmap for a 3rd revision, proposals to submit by November 2014*

Recommendations include :

- to share a common vision of the governance and missions of such Central Office

- to mobilise the national authorities in supporting the development & strengthening of MRI European consortia in such approach, in the perspective of future joint scientific programmes to implement.

About integration thanks to H2020 topics

INFRAIA-1-2014-2015 : Research Infrastructures Integrated Activities

- for aquaculture >>> AQUAEXCEL follow-up opportunity
- for ocean drilling >>> ECORD follow-up opportunity
- for coastal observation >>> JERICO follow-up opportunity

>>> tough competition : 41 topics, only 50% ~ 20 projects selected.

INFRADEV-3-2015 : Individual implementation and operation of ESFRI projects

- List of targeted projects to be decided in May by the Council on a proposal by ESFRI

>>> low competition for the targeted projects, expectation for EMSO, for EMBRC

INFRADEV-4-2014-2015 : Implementation and operation of cross-cutting services and solutions for clusters of ESFRI and other relevant research infrastructure initiatives (I3, …)

>>> Environment and Earth sciences RI cluster expected, with a subdomain Marine RI

INFRASUPP-6-2014 : International cooperation for research infrastructures

>>> high competition : a lot of areas, among which marine science…., cooperation with USA, Canada (including for implementing the Transatlantic Research Alliance, launched by the Galway Statement on Atlantic Ocean Cooperation) and Russia, without excluding other relevant countries such as Australia and New Zealand

6. Public-Private collaboration on MRI : on shared use (both ways), on shared development

Recommendations :

✓ Improving information of the industrial sector through a dedicated portal :

- **For information on opportunities and potential of access,**
- **For information on current and expected MRI development and their technological challenges.**

✓ Designing the appropriate (co-)financing framework :

- **More open access to public RI at regional level** for the industrial sector (particularly SMEs) through the instrument of structural funds to stimulate the innovation process,
- **More use of private infrastructures by public research on two main tracks:**
  - **(i) ocean extended observations; (ii) aquaculture purposes,**
  - through dedicated FP calls in order to: fill sample gaps, make companies' attitude 'greener', commercially test products,

✓ Adopting the proper managing framework to foster mutual p-p access :

- **Providing MRI with a Liaison Office**, acting like a valorization service
- **Offering incentives and/or adopting directives** (e.g. mixed directive/incentive approach),
- **Adopting clear methodology according to the different scope of a MRI,** including performance indicators (for p-p collaboration on MRI) and a method to "anticipate the future" together,

About private/public use of RI for Ocean Observation

Combined fishing / research vessel "Libas" (2004, L 94 m, Owner : Lie Gruppen)

A purse seiner / pelagic trawler fishing vessel built also as a research platform :

✓ Cooperation in vessel design with IMR (Institute of Marine Research, No)

✓ To supplement the IMR's research vessels for marine resources and environment monitoring + some other multi-purpose tasks.


Fishing & RV Libas

« Reference Fleet » (No., since 2000) : a group of ~ 40 Norwegian fishing vessels (high seas and coastal) that provide IMR with data about their fishing activity and catches, also biological samples and environmental data deliveries according to a protocol against paiement.

Recopesca (Fr., since 2005) : participative approach with voluntary fishing vessels, using sensors with no trouble for the fishermen, tough enough to be fixed up on fishing gears, self powered and autonomous, to collect fisheries and *in situ* environmental data**.** **>>>>**

WOC "Smart Ocean/Smart Industries" program : commercial vessels and platforms collecting ocean, weather and climate data.

Next : 2014-2020 European context and perspective for MRI (beyond H2020)

From Seas-Era to JPI Oceans :

o MRI updated overview, repository and database :

>>> with EUROCEAN : http://rid.eurocean.org/

o Stakeholders workshop (5-6 june 2013) and consultation :

o MRI preliminary analysis towards needs and gaps to contribute to the Strategic Research & Innovation Agenda :

>>> Deliverable D6.1 (released january 2014)

o SRIA first draft by September 2014

DG Mare / EMFF (regulation to be adopted in April 2014)

o DCF at regional level, combined with some MSFD monitoring

o EMODNET >>> data portals for all users of the sea

DG Env / MSFD

DG Ent / Copernicus

Structural Funds opportunities (DG Regio & MS/Regions)

Thank you for your attention

Seas-Era deliverables related to MRI : http://www.seas-era.eu/np4/19.html

D4.1.1 “MRI updated overview, European integration and vision of the future” (October 2012) + annexes (Atlantic, Med, Black Sea, Baltic/Bonus RI, Satellites)

D4.2.1 “MRI common management guidelines for joint research activities” (March 2013)

D4.3.1 “Access methodology to both private and public MRI” (October 2013)

CSA Oceans deliverable related to MRI : http://www.jpi-oceans.eu/prognett-jpi-oceans/Nyheter/CSA_Oceans_mapping_and_preliminary_analysis_of_infrastructures/1253992746739/p1253960389452

D6.1 « Mapping and preliminbary analysis on marine research infrastructures and human capacity building » (Jan. 2014)