

The Mediterranean Strategic Research Agenda

2nd SEAS-ERA Forum, 6 February 2013 Brussels




Med SRA: a SEAS-ERA key-deliverable

- To develop a Strategic Marine Research Agenda for the Mediterranean taking into account **national** priorities as well as **global**, **European** and **regional** trends and policies.
- In collaboration with WP1 and following the inventory that will be carried-out, workshops will be organized with participation of RFO, the marine and maritime research community and regional stakeholders (CIESM, UNEP-MAP, MedGOOS and MOON); out of these workshops a Strategic Research Agenda will be developed summarizing the national, regional & research community priorities.



SRA process Phase A: Strategic Workshop (Athens, Dec 2010)

Participants:

- National research funding agencies
- Regional Environmental protection agency (UNEP/MAP)
- Regional networks for marine science and observations (MOON, MedGOOS)

Needs and Gaps were identified








SRA process Phase A: Outcomes of Strategic Workshop

The Mediterranean SRA overarching concepts were agreed:

- From Knowledge to Innovation
- Ecosystem approach


And high level objectives were identified:

- Produce **new knowledge** – promote excellence
- Support **sustainable economic growth** ; innovation; bridge gaps between research and industry
- Support **knowledge based policy making** (environment, climate, fisheries, ..)
- Develop **new capacities**; emphasis on N-S **convergence**: bridge gaps – remove discrepancies



SRA process Phase A: Outcomes of Strategic Workshop

- Priority themes for the Med (preliminary):
 - MSFD – large differences between sub-basins / regions
 - Biodiversity with emphasis on NIS
 - **Observations** – especially south med + biochemistry
 - Natural hazards
 - Deep sea – extreme ecosystems
 - Climate change impacts
 - Coupling between catchment & coastal areas; effects of big cities
 - Pressures from maritime transport (oil spill risks) & tourism
 - Aquaculture; focus on NS gradient




SRA process Phase B: Specific priorities developed by experts group, (Feb–Oct 11)

- Group membership proposed by RFOs (Jan 2011)
- ToR developed (in col. WP1 – MB) & group finalized (Feb 2011)
- 1st meeting March 2011 – Athens
- First draft of priorities May 2011 (V1 – June 2011)
- 2nd meeting July 2011; review of draft (V2)
- Consolidated version, approved by RFOs delivered (Oct 2011)




Phase B: Experts Group

Name	Country	e-mail	Leader of Theme
1 Marco Zavatarelli	Italy	marco.zavatarelli@unibo.it	Climate change and impacts
2 Nikolaos Lampadariou	Greece	nlamp@her.hcmr.gr	Deep Sea ecosystems
3 Emilio Casamayor	Spain	ecasamayor@ceab.csic.es	Biodiversity & conservation biology
4 Philippe Cury	France	Philippe.Cury@ird.fr	Living Marine Resources
5 Argyro Zenetos	Greece	zenetos@ath.hcmr.gr	Ecosystem functioning and biodiversity
6 Joan Albaiges & Michael Angelidis	Spain-Greece	albaum@cid.csic.es , angelidis@unepomag.gr	Pollution
7 Jean-Francois Cadiou	France	Jean.Francois.Cadiou@ifremer.fr	Ocean & Human Health
8 Emilio Campana (INSEAN)	Italy	e.campana@insean.it	Ocean Energy
9 Maria Dogliani (IRMA)	Italy	maria.dogliani@irina.org	Maritime transport & Marine Environment
10 Yves Henocque (Ifremer)	France	Yves.Henocque@ifremer.fr	Socioeconomics & policies
11 Rafael Sardá (CEAB)	Spain	sarda@ceab.csic.es	MSP-ICZM
12 Adriana Janora	Italy	janora@szn.it	Marine biotechnology
13 Ahmet Yalciner (METU)	Turkey	yalciner@metu.edu.tr	Natural hazards
14 Nadia Pinardi (INGV)	Italy	n.pinardi@ingv.it	Operational oceanography
15 Aldo Drago (UOM)	Malta	aldo.drago@um.edu.mt	Capacities (training, infrastructures)



Phase C: Common structure / coherent content with other regions

- Agreed structure of SRA
 1. A Shared Vision for the Mediterranean Marine Science
 2. The Mediterranean Sea: regional specificities and context
 3. High level Objectives and Benefits
 4. Specific Research Priorities for the Med
 - Basic Research & Fundamental Understanding (incl. new frontiers)
 - Science supporting Society & Economy
 - Research Support & cross-cutting issues
 5. High level roadmap





Vision

A shared vision for the Med

"By 2020 the Mediterranean Marine Science should be able to contribute with New Knowledge to efficient Policy Making and sustainable growth of Maritime Economy in response to the societal challenges for Food, Energy, Wellbeing, and a Healthy marine environment following the principles of Ecosystem Approach to Management of Natural Resources"



Specificities

Regional specificities & context

- A shared sea between EU and partner countries
- Important economic & cultural gradients
- But strong Mediterranean heritage in many aspects
- Science can play an integrating role
- Examples of successful collaborative efforts by the scientific community
- Limited (but existing) joint initiatives by RFO
- Various (but not coherent) funding opportunities



Specificities

Med specificities: stakeholders

- UNEP/MAP: Environmental protection (Barcelona Convention)
- Well established national research institutes (RPO) & their associations
- CIESM: science commission (committees, workshops, conference, monographs)
- MedGOOS: GOOS GRA / IOC
- MOON: Developing operational oceanography
- National research funding agencies (SEAS-ERA ...)



Specificities

Med specificities: Large collaborative efforts


- International programmes (POEM, MedCLIVAR)
- National & sub-regional programmes (MEDMEX, POSEIDON, SOCIB, ADRICOSM etc)
- Major EU funded projects (MATER, MFSPP/MFSTEP, PEGASO, SESAME,.....)
- Ocean of Tomorrow call for Med+Black Sea (PERSEUS, COCONET)
- Components of European scale projects (HERMES, MyOcean, EurOCEANS, MARBEF etc)



Specificities

Med specificities: Era-Nets

- MarinERA: specific regionally focused call
 - 3 Mediterranean projects:
 - MedEX (models+observations, high resolution, straits)
 - ReDEco (deep)
 - MedEcos (decadal variability)
- MariFISH
 - Joint call with several Med Partners
 - Collaborative programme “Ecosystem Approach – Med”
- AMPERA; Med partners; no specific regional approach



Objectives

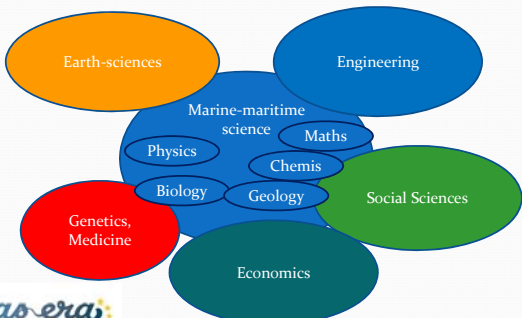

High level objectives and Benefits

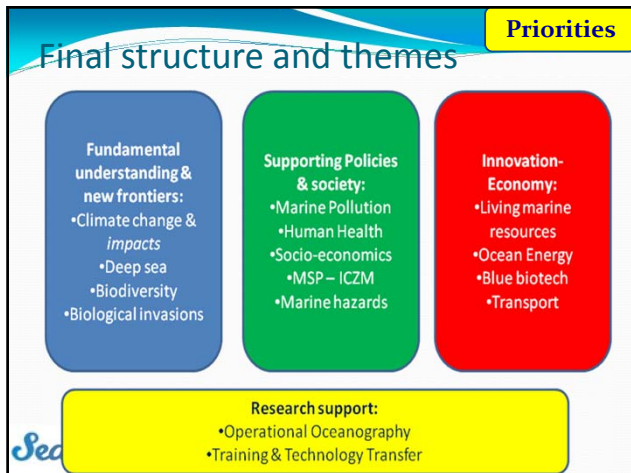
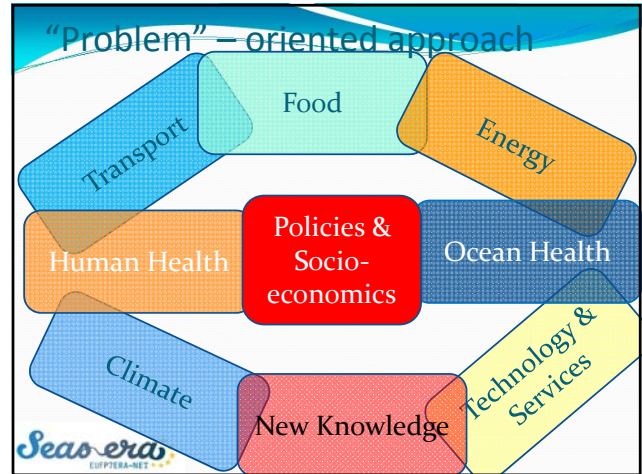
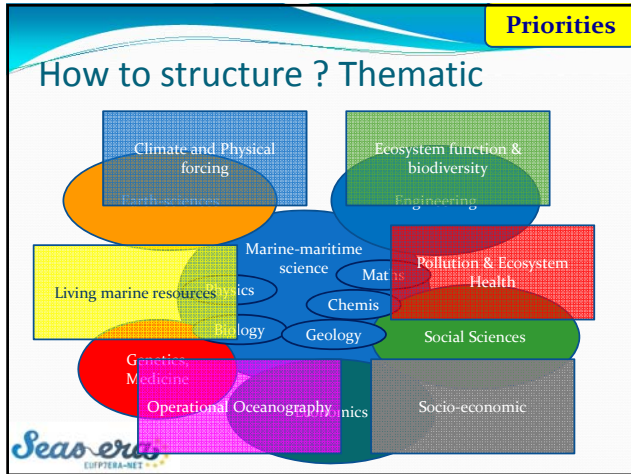
- Improve our understanding of Mediterranean Sea functioning and evolution
- Support sustainable economic growth in the region
- Support knowledge-based policy making and management
- Develop new capacities and promote convergence between Mediterranean countries



Priorities

Defining Research Priorities: Marine science is interdisciplinary



- ### Fundamental understanding and new frontiers (1)
- Climate change and impacts
 - Addressing the feedback of physical structure and dynamics on the biogeochemical cycling
 - Understanding climate induced changes in the Mediterranean biogeographical and biodiversity patterns
 - Evaluating the possibility for climate change induced "abrupt changes" or regime shifts in the Mediterranean Sea
 - Assessment of the changes of oceanographic coastal and near shore processes and their possible physical and societal impact
 - Monitoring the straits to constrain Mediterranean Sea changes in heat, salt and nutrient balance
- Seas-era EUPITERA-NET
- Priorities (FU)**

Fundamental understanding and new frontiers (2)

- Biodiversity and conservation biology
 - Biodiversity of the smallest Mediterranean Marine Food Web components
 - Marine Protected Areas (MPA) as a tool to manage species, habitats, and ecosystems
 - Further development of biological indicators to assess the ecosystem status in support of the GES
 - Marine Biodiversity and the provision of goods and services
- Deep sea ecosystems
 - Long term deep-sea observatory network
 - Deep-sea ecosystem goods and services: the role of biodiversity and ecosystem functioning
 - Human activities and impacts on deep-sea ecosystems
 - Larval ecology and recruitment: population connectivity – deep sea biodiversity



Priorities (FU)

Fundamental understanding and new frontiers (3)

- Biological invasions
 - Large scale/surveillance and monitoring
 - Basic studies / development of monitoring methodologies for biological invasions
 - Worst Invasive Aliens/ Assessment of impacts/ Risk assessments
 - Development of national/regional Data bases/ Alert lists



Priorities (FU)

Supporting policies and Society (1)

- Marine Pollution
 - Hazardous and noxious substances contamination
 - Marine litter and underwater noise
 - Assessment of anthropogenic pressures
 - Environmental Assessment Criteria (EACs) for key pollutants
- Ocean and human health
 - Risk assessment of contamination of marine resources by emerging pollutants
 - Harmful algal blooms (HAB), controlling factors and new toxic species
 - Shellfish microbiological contamination by pathogens



Priorities (Po)

Supporting policies and Society (2)

- Socioeconomics & policies
 - Methodologies for strategic environmental assessment (SEA)
 - Building scenarios for the Mediterranean: a challenging scientific framework
 - Assessment methodologies to support the ecosystem approach
- MSP & ICZM
 - Promote research on management practices
 - Developing common frameworks for ICZM and MSP adaptable to varied social-ecological systems and spatial scales
 - Scientific tools and methods to support decision-making that integrates social science and natural science dimensions



Priorities (Po)

Supporting policies and Society (3)

- Marine Hazards
 - Enhancement of Historical Data on Marine Hazards
 - Tsunami Assessment
 - Coastal flooding and extreme atmospheric events

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EUPTERA-NET

Priorities (Po)

Innovation – Economy (1)

- Living Marine Resources
 - Towards implementation of the Ecosystem Approach to Fisheries (EAF)
 - Understanding the role of key species in regulating the flow of energy along the trophic webs.
 - Promoting the diversification of the Mediterranean aquaculture industry
- Ocean renewable energy
 - Exploiting low energy flows.
 - Develop Multi-use offshore platforms.

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Priorities (In)

Innovation – Economy (2)

- Marine biotechnology
 - Bioprospecting for Marine Drugs and Fine Chemicals
 - Technologies to Increase Sustainability of Aquaculture Production
 - Biofuels from Micro- and Macroalgae
- Marine transport & environment
 - Mapping and reducing the risk of maritime accidents (collisions, fires, etc.)
 - Development of integrated ocean services for navigation, ship routing and risk assessment
 - Mediterranean cruising laboratory for environmental monitoring, training in oceanography and maritime history

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Priorities (In)

Research Support (1)


- Operational oceanography
 - Mediterranean multidisciplinary real time observing system
 - Improvement of numerical ocean forecasts and quantification of uncertainties
 - Extend the forecasting capabilities to marine biogeochemical components
 - Develop applications for maritime safety, coastal environmental issues and offshore industry
- Training and technology transfer
 - Alignment of Training efforts
 - Technology Transfer

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Priorities (In)

SRA process Phase D: Presentation to the broader Med science community (Dec 2011 – ongoing)

- Presentation to the MOON-MedGOOS assembly (Athens, March 2012)
- Presentation to the Euro-Mediterranean conference (Barcelona, April 2012)
- Presentation to the Hellenic Symposium for Oceanography and Fisheries (Athens, May 2012)
- Presentation to IMP-Med meeting (Malta, June 2012)




Impact for SEAS-ERA activities

THEMES & PRIORITIES	Spain		France		Italy		Malta		Greece		Turkey		Total	
	CP	JC	CP	JC	CP	JC	CP	JC	CP	JC	CP	JC	CP	JC
1 Climate change and impacts	X	J	X	J	X	J	X	J	X	J	X	J	6	2
2 Deep Sea Ecosystems	J				X								1	1
3 Biological Invasions			X	J			X		X		X		4	2
4 Marine Pollution - MSFD	X	J	X	J			X		X		X		4	3
5 Living Marine resources	J				X						X		3	1
6 Ocean Renewable Energy					X									
7 Marine Biotechnology													2	
8 Maritime transport & Marine Environment													1	
9 Socioeconomics & policies														
10 Ocean and Health													1	
11 Marine Spatial Planning (MSP) - Integrated Coastal Zone Management (ICZM)	J										X		4	1
12 Natural Hazards	J				X								1	2
13 Operational Oceanography / Observing Systems	X	J	X	J	X	J	X	J	X	J	X	J	13	3
14 Training and Infrastructures			X								X		2	1

CP: Climate & O.O.

JC: MSFD - O.O. / Obs



Concluding remarks

- An SRA developed for SEAS-ERA needs but targeting a wider stakeholders' group
- Process based on mixed top-down and bottom-up approach
- Impact on SEAS-ERA activities but for implementation of a limited part of the agenda
- Aiming to affect / be combined with emerging initiatives:
 - JPI Oceans
 - Horizon 2020
 - A possible Art 185 for the Med
 - National programs

