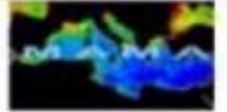


Mediterranean network to
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Monitoring and forecasting
Activity in the region

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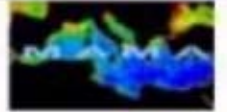
Review of MAMA WP 1 Activities January - June 2003

Aldo Drago
MedGOOS Executive Secretary
IOI – Malta Operational Centre
University of Malta
aldo.drago@um.edu.mt
Tel/Fax : +356 – 2123 2493



- MAMA 4th meeting - Rome 3-6 June 2003



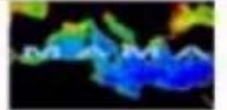


MAIN WP 1 Activities

Task 1.2

- **Country profiles on the current capabilities in pre-operational ocean forecasting**
- **Inventory on marine monitoring activities**





MAMA WP1

Country Profiles on Pre-Operational Ocean Forecasting

Aims of the country profiles:

- 1. Activities of institutes/agencies/organisations dealing with the monitoring, assessment and forecasting of the state of the ocean and coastal areas;**
- 2. The national structure for the support and conduction of marine monitoring and research activities;**
- 3. The key public administration/authorities responsible for marine affairs, and for environmental policy formulation and implementation;**
- 4. The relevance of the maritime sector in the economic activities of each country;**
- 5. Implications for MedGOOS in the optimal design and implementation of operational forecasting for maximal benefits to the coastal states.**





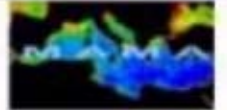
MAMA WP1

Country Profiles on Pre-Operational Ocean Forecasting

The targeted Institutions are

- Operational oceanography agencies
- Marine research institutions relevant to ocean monitoring
- Oceanographic data centres
- Potential users/recipients of operational marine services, such as coast guards, shipping companies, port authorities, environmental agencies, etc.





MAMA WP1

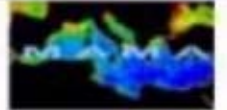
Country Profiles on Pre-Operational Ocean Forecasting

To be compiled by each of the MAMA responsible partners for their respective countries.

Provide the basis for an assessment on the needs and potentialities for operational oceanography in the region.

The country profile consists of three main sections





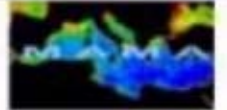
MAMA WP1

Country Profile on Pre-Operational Ocean Forecasting

Section A – Profile of relevant institutions

- Institute Name
- Institute Address and Contacts
- Type of Institution
- Mission
- Type of Activities
- Main Sectors/Fields of Activity
- Staff
- Ongoing Programmes
- Numerical Modelling and Forecasting
- Support services required for operational oceanography





MAMA WP1

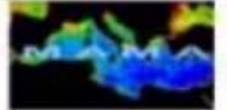
Country Profile on Pre-Operational Ocean Forecasting

Section B – Profile on the National Organisational Structure in Marine Affairs and Research

Describes the national organisational and institutional arrangements for the conduction of marine affairs and research in each country with an emphasis on the activities relevant to ocean monitoring and forecasting

- **List of Ministries/Environmental Authorities/Agencies & key entities with marine related responsibilities**
- **List of Marine research organisations**
- **List of co-ordinating bodies**
- **Research and Monitoring Programmes**





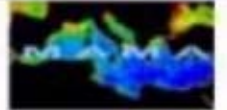
MAMA WP1

Country Profile on Pre-Operational Ocean Forecasting

Section C – Relevance of Marine Sector to the Economy

- **General description of the maritime economy of each country**
- **Identification of the relevance of the Sea as an economic resource**
- **Ranking key classes of maritime activities and identifying the associated trends**





MAMA WP1

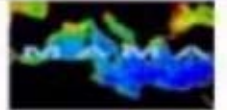
Country Profiles on Pre-Operational Ocean Forecasting

Results and analysis only as good as the quality of input data

**Initiative has established a general methodology of assessing
current state of operational oceanography in the region....
.... In future we can only be better!**

**Our community is basically of scientific expertise
....some may lack experience on management practices and
marine affairs in their country**





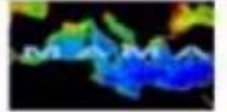
Overall response

6 out of 21 partners not responded at all
(Algeria, Israel, Palestine, Turkey, Yugoslavia)

1 partner reported problems for authorisation
(Egypt)

5 Profiles partly/largely incomplete
(France, Italy, Albania, Libya, Tunisia)





Main comments on Section A

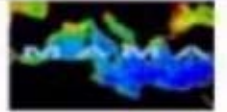
Overall number of institutes covered = 81

Some profiles with single entries in Section A
(France, Cyprus(?), Lebanon, Tunisia, Libya)

**Few describing potential users/recipients of
operational marine services**

20 out of 81 without staff info





Main comments on Section A

Revise staff deployment in monitoring vs forecasting
(Repetition? Revise? Effective man years)

Ongoing Programmes

(should include descriptions of participation in international projects ...
but describe specific tasks)

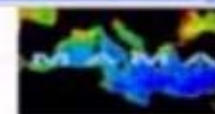
**Support services required from operational
oceanography**
(least response)



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Section A: Institute Activities

Country	INSTITUTES TOTAL	Research + Operational Monitoring/Forecasting	Research BUT NOT Operational Monitoring/Forecasting	Operational Monitoring/Forecasting BUT NOT Research	RECIPIENTS (non-research)
Spain	11	8	0	3	0
France	1	1	0	0	0
Italy	7	4	3	0	0
Malta	12	3	3	1	5
Slovenia	10	4	1	3	2
Croatia	5	4	0	1	0
B&H	7	0	1	1	5
Algeria					
Greece	7	3	0	2	2
Cyprus	2	2	0	0	0
Turkey					
Syria	6	1	1	2	2
Lebanon	1	1	0	0	0
Israel					
Palestine					
Egypt					
Libya					
Tunesia	1	1	0	0	0
Albania	5	2	1	0	2
Morocco	5	2	2	1	0
TOTAL	80	36	12	14	18



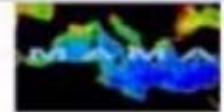
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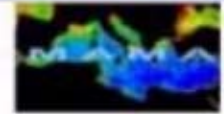


Section A: Institute Type



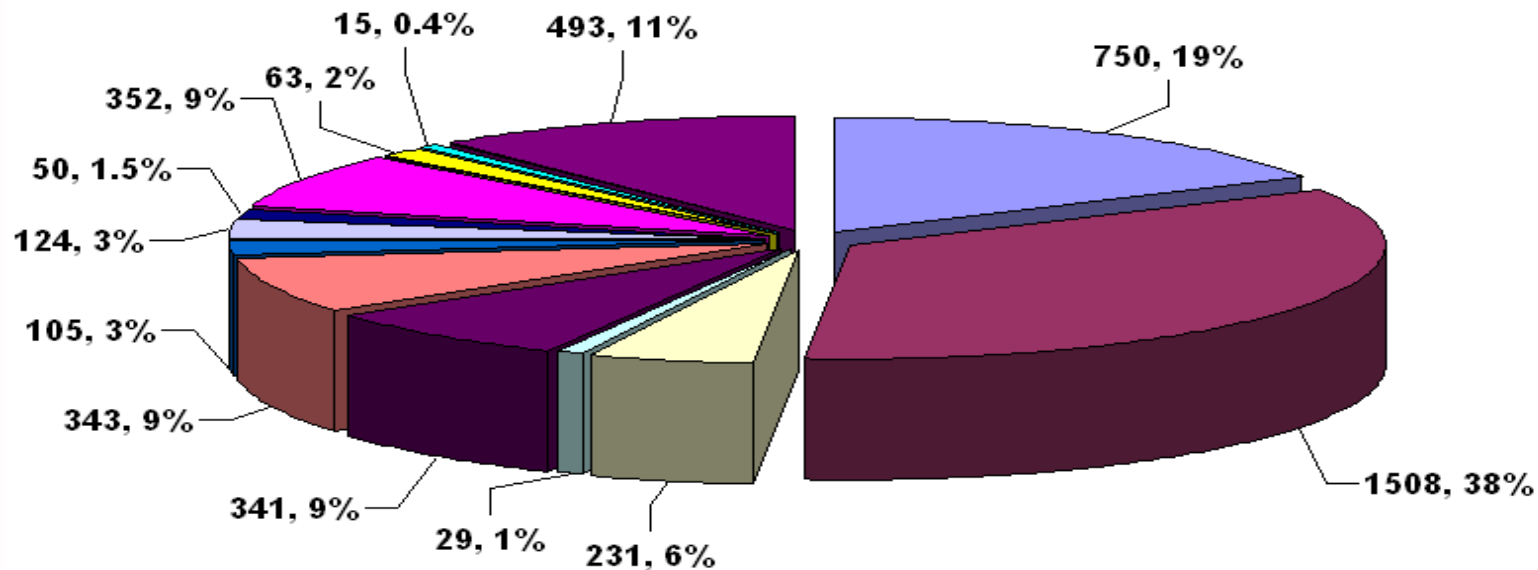
Country	PUBLIC	PRIVATE	RESEARCH	COMMERCIAL	GOVT	INDUSTRY	MILITARY	ACADEMIC
Spain	8		8		8			
France	1		1	1		1		
Italy					1			
Malta		1	1		3			2
Slovenia	1	1	4		2	1		2
Croatia	3		3		3			1
B&H	2				1			
Algeria								
Greece			3		1			1
Cyprus			2		1			
Turkey								
Syria			2		3			
Lebanon	1		1		1			
Israel								
Palestine								
Egypt								
Libya								
Tunisia	1		1		1			
Albania			2		1		1	
Morocco	3		1		3		1	
TOTAL	20	2	29	1	27	2	2	6





Staff (Res. + Monit. + Mod.)

TOTAL STAFF IN MARINE RESEARCH

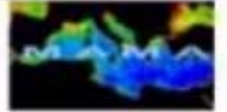


- | | | | | |
|---------|---------|---------|---------|----------|
| Spain | France | Tunisia | Malta | Slovenia |
| Croatia | Bosnia | Syria | Albania | Greece |
| Cyprus | Lebanon | Morocco | | |





Human resources: Main points

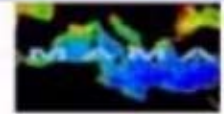


4404 in marine research + op. oceanography
(from 13 countries 6 EU; 7 non-EU [4SE])

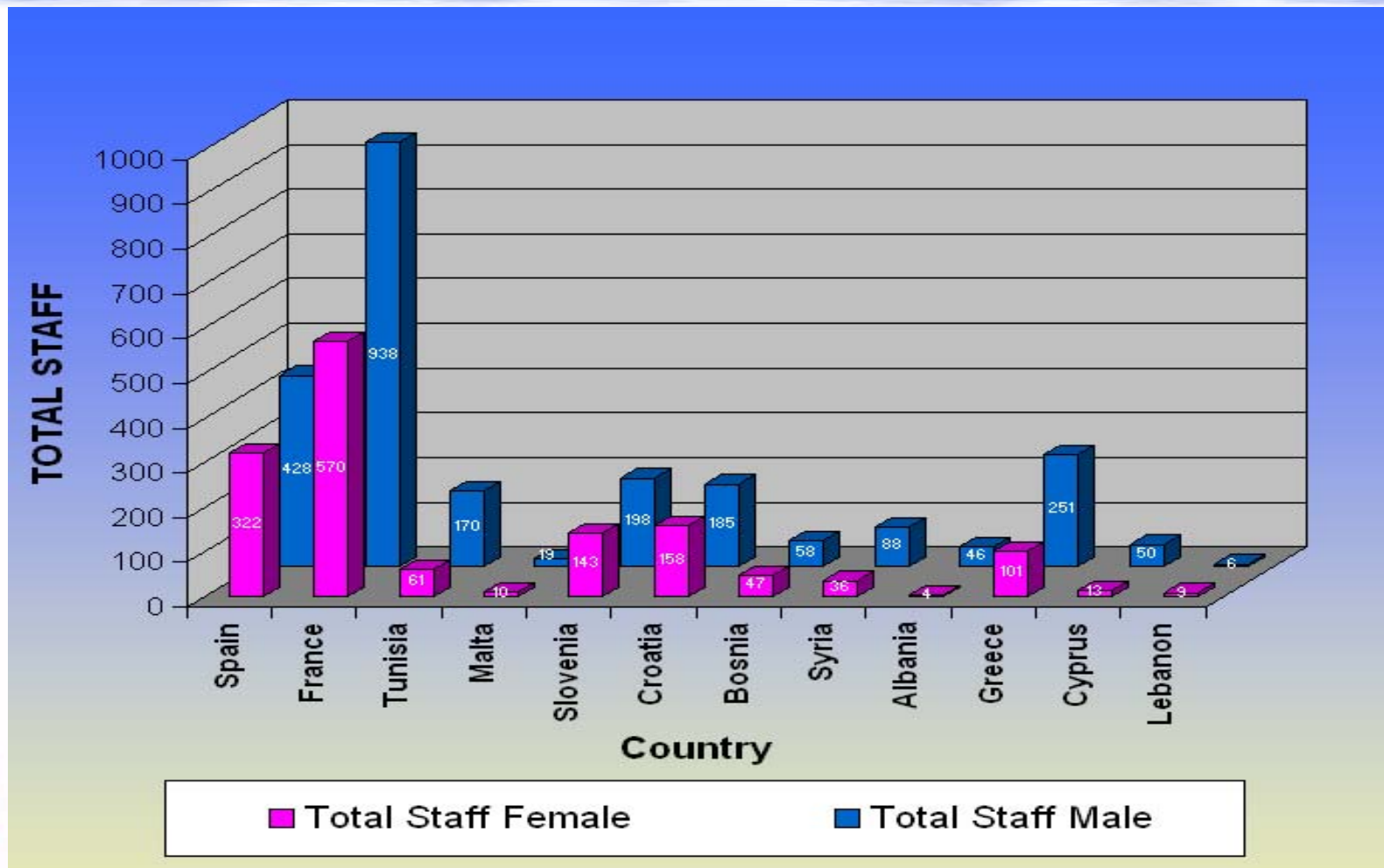
31% in non-EU countries
19% in SE Med. Countries

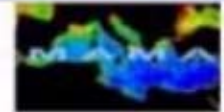
11% monitoring
2.5% modelling and forecasting





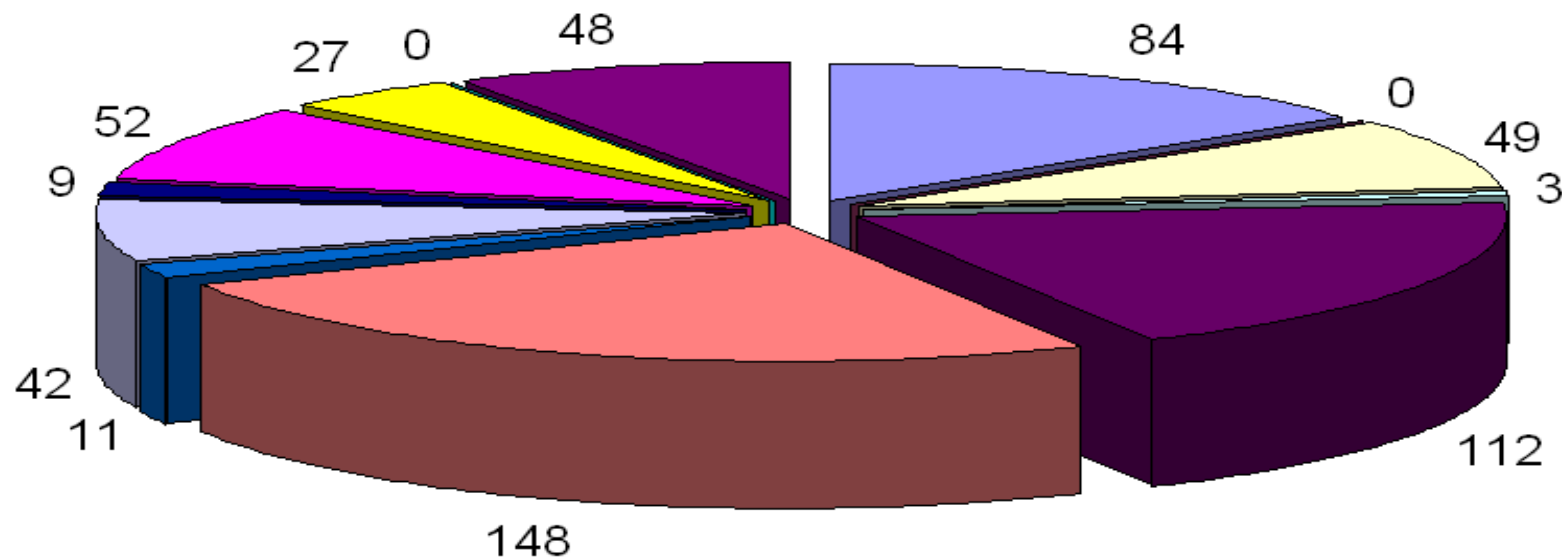
Total Staff (Male vs Female)





Staff: (Monitoring + Modelling)

STAFF DEPLOYMENT (MONITORING + MODEL/FORECASTING)

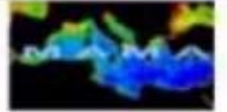


Spain	France	Tunisia	Malta	Slovenia
Croatia	Bosnia	Syria	Albania	Greece
Cyprus	Lebanon	Morocco		





Human resources: Main points



Max in France with 1508 in IFREMER alone

**Less than 5% (Malta, B&H,
Syria,Albania,Cyprus,Lebanon)**

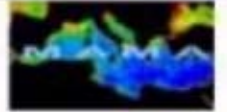
Less than 60 (Malta, B&H(?), Albania, Lebanon, Libya)

**PhD (24.7%); non-PhD (24.9%); Technical (25.5%)
Support staff (20.4%); managerial (4.5%)**





Section B: General Comments



6 complete; 8 incomplete

**Main incomplete information on R&M programmes
(6 profiles)**

Meant to include **ONLY those R&M programmes
(national/international) co-ordinated by entities in the
country**

**Often incompatible number of programmes wrt WP1
entries – largely incomplete**



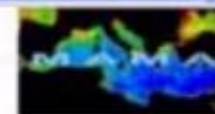
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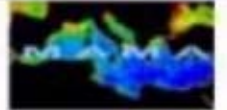


View on marine affairs



Country	MINISTRIES RELATED TO MARINE SECTOR	ENVIRONMENTAL OR MARINE - RELATED AUTHORITIES / AGENCIES	INSTITUTES CONDUCTING MARINE RESEARCH	CO-ORDINATING BODIES RELATED TO MARINE AFFAIRS
Spain	6		8	1
France	8	2	8	3
Italy	9	?	?	1
Malta	4	3	4	1
Slovenia	5		4	1
Croatia	4	1	5	1
B&H	2		1	2
Algeria				
Greece	3	1	7	1
Cyprus	1	1	2	2
Turkey				
Syria	3	2	5	
Lebanon	3		1	1
Israel				
Palestine				
Egypt				
Libya				
Tunisia	?	4	4	
Albania	3		4	
Morocco	7	1	9	
TOTAL			60	





Section C

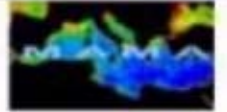
Relevance of the marine sector to the economy

- **Ranking of 7 areas**
(Transport, Tourism & Leisure, Fisheries & Aquaculture, Oil & Gas, Ship building/Repair, shipping, sand & gravel)
- **Potential for each area**





Section C: General Comments



13 replies from 21

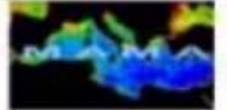
All respondents completed this field

2 need revision

Only 2 gave a figure to the contribution to GDP

9 based on official statistics





Ranking index definition

J = nos. of sector areas

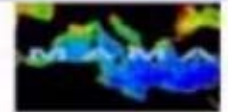
**n_i = overall nos. of entries with ranking i
where $i = 1, J$**

N = nos. of countries

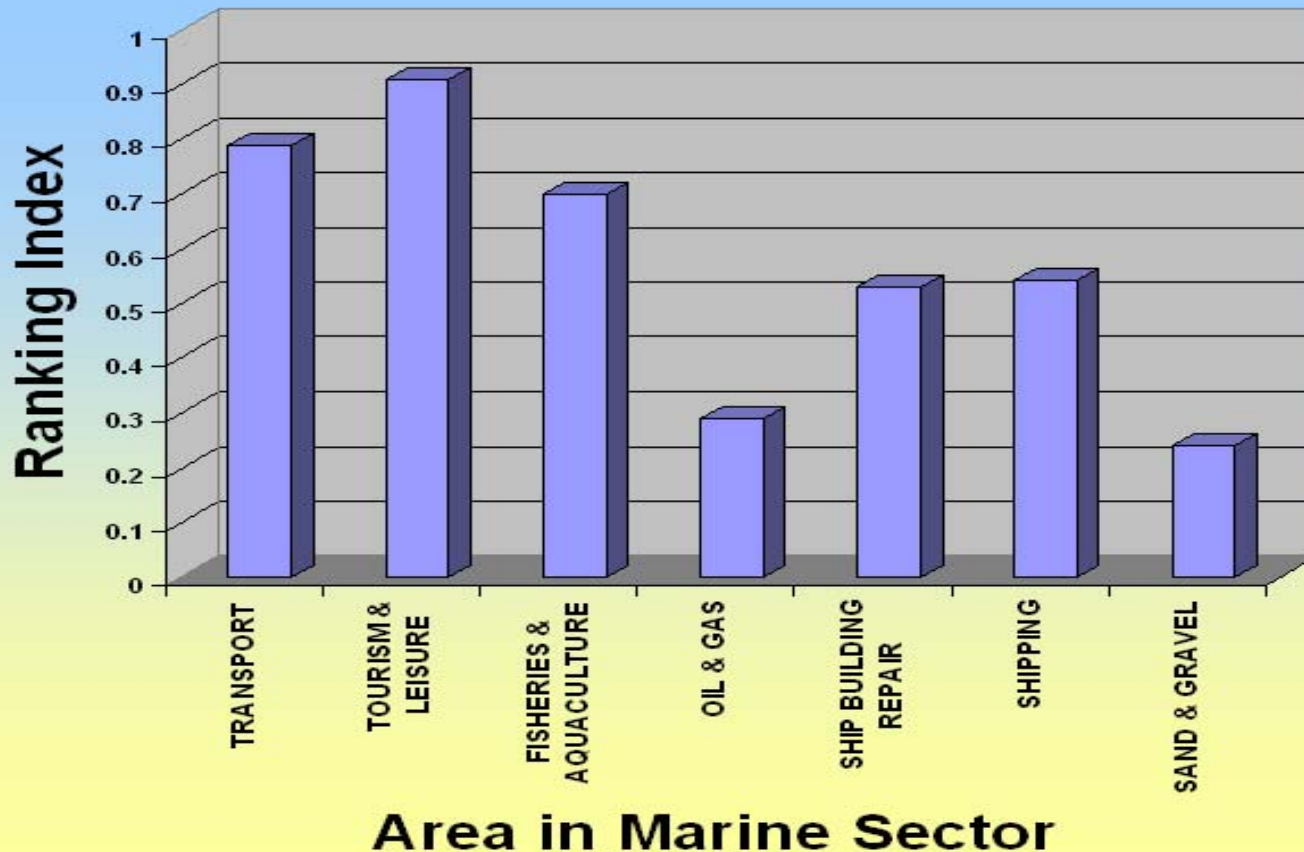
Ranking index $r \in [0, 1]$

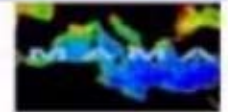
$$r = \left[\sum_{(i=1,J)} n_i (J+1-i) \right] / (J \times N)$$



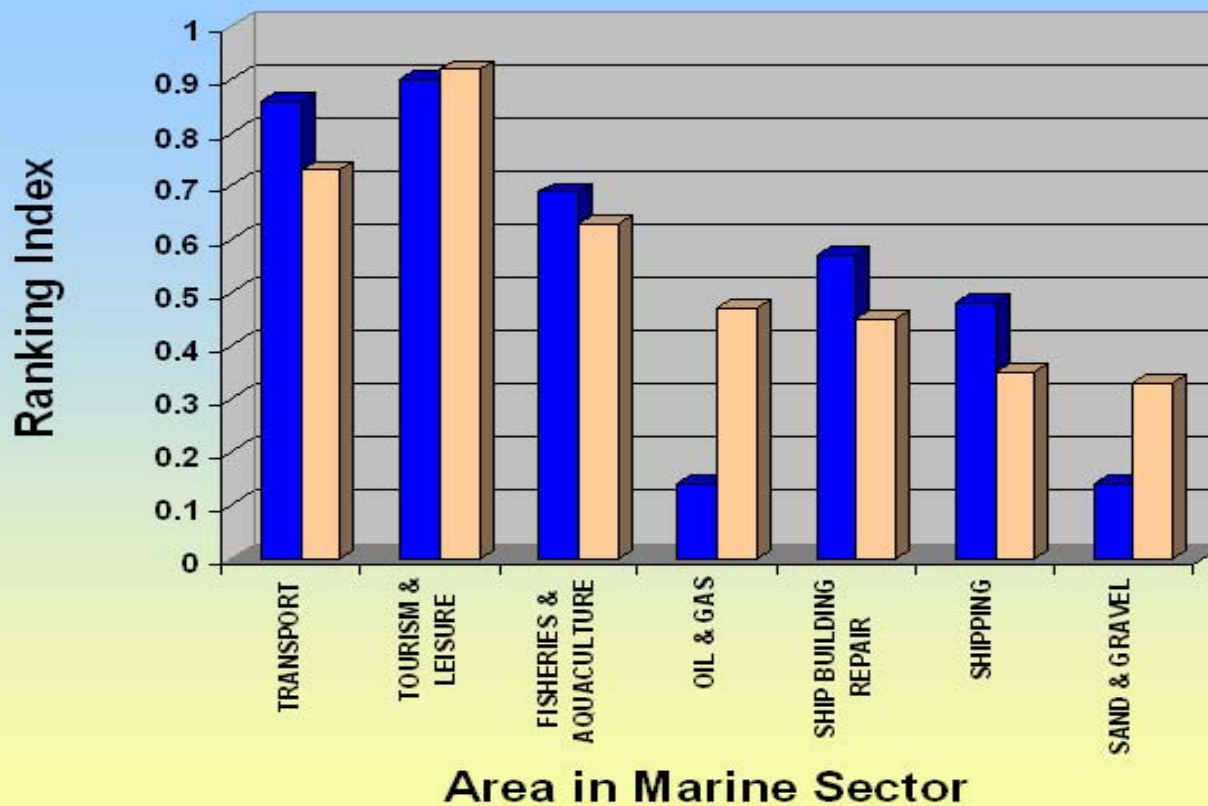


Ranking indices in key areas of marine economic activities



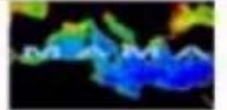


Comparison EU/non-EU



■ EU members/candidates ■ Non-EU Mediterranean countries





Potentiality index definition

**n_i = overall nos. of entries with potentiality i
where $i=1,2$ or 3**

N =nos. of countries

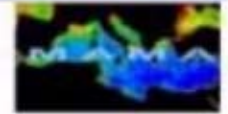
Ranking index $P \in [0, 1]$

$$P = \left[\sum_{(i=1,3)} n_i(4-i) \right] / (3N)$$

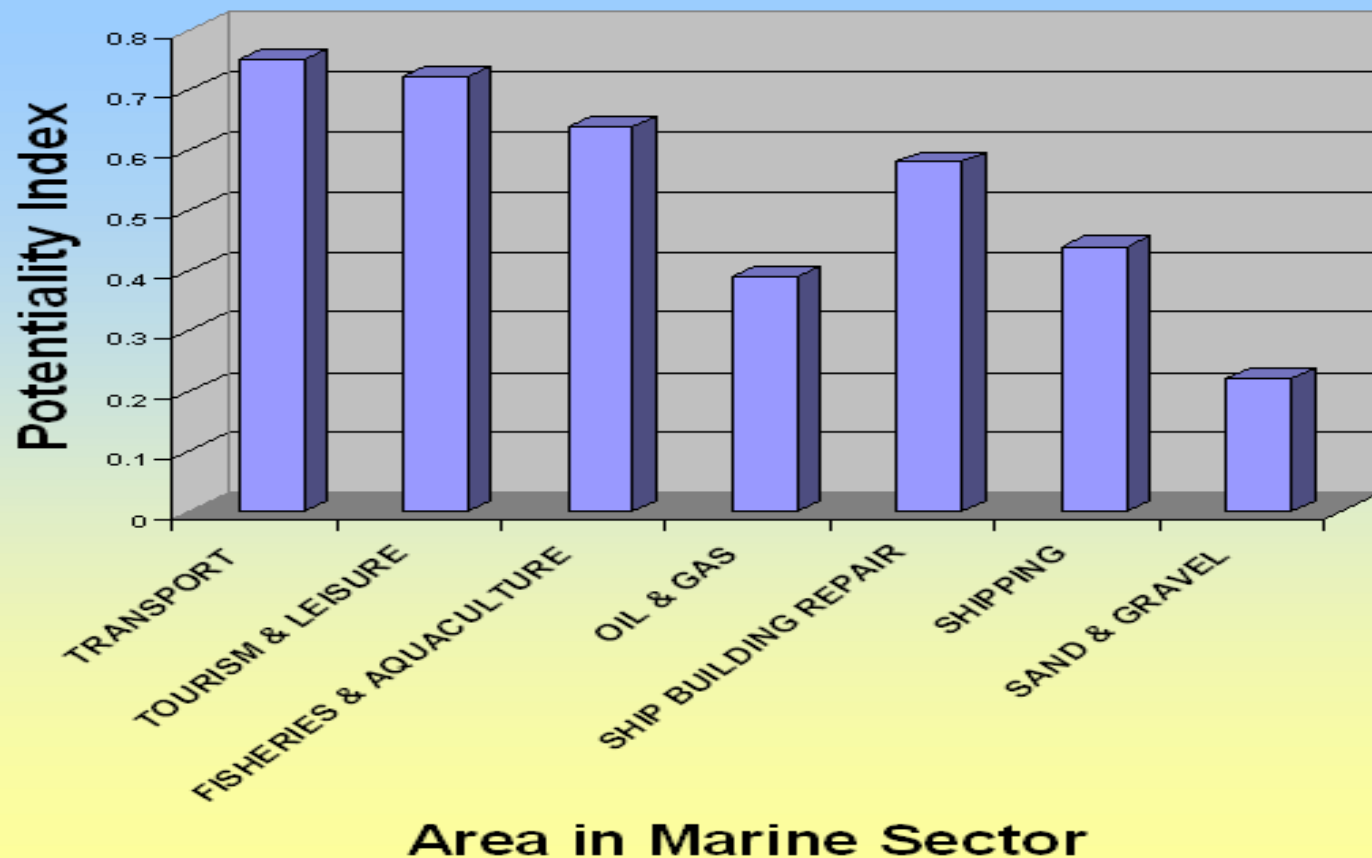
**$P=0$ area not applicable
 $P=2/3$ (medium)**

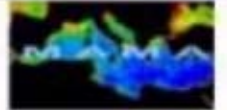
**$P=1/3$ (lowest)
 $P=1$ (highest)**





Potentiality indices in key areas of marine economic activities





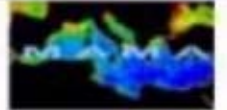
MAMA WP1

Inventory on marine monitoring activities in the Mediterranean

Inventory of what?

- Ongoing and routine observations on same area of sea
- In the Mediterranean and relevant to MedGOOS
- Entries on the basis of applications (Part1) and observing programmes (Part2) rather than responsible institutes
- Separate entry form for each application (Part 1) and each monitoring activity (Part 2)





MAMA WP1

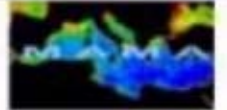
Inventory on marine monitoring activities in the Mediterranean

Methodology

- conducted by means of an electronic questionnaire
- conducted in two parts
- electronic entry form for each part
- support of pull-down multiple choice answers
- supported by hypertext help
- facilitate a streamlined compilation
- mandatory/non-mandatory fields

....conducted in each country by the responsible MAMA partner





MAMA WP1

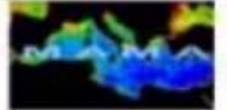
Inventory on marine monitoring activities in the Mediterranean

Structure

Part 1: National requirements for the monitoring of the marine environment

- main recipients
- key requested deliverables
- details on products and services provided,
- type of monitoring activities required to support the service
- main parameters measured
- type of analysis and assessments made to adapt measurements to user needs
- how deliver the service
- extended potential benefits?





MAMA WP1

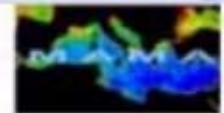
Inventory on marine monitoring activities in the Mediterranean

Structure

Part 2: Description and practices of the marine monitoring activities

- technical details
- current practices
- details on platforms, instrumentation, sensors, telecom systems, data storage and exchange codes and formats, maintenance, etc.





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National Requirements for the Monitoring of the Marine Environment

[Go to top of section](#)

B 9 Annexes

Questionnaire II

B 9.1.2 -- Required I

B 9.1.3 -- Potential I

B 9.1.4 -- Benefits :

Species Type	Maintenance Frequency	Maintenance Need	Collection Method
	1 Month or less	Calibration	
	1 Month or less	Calibration	
	1 Month or less	Calibration	
	1 Month or less	Calibration	

B 9.1.2.1 -- Long Term Maintenance on Buoy, Mooring and Associated Equipment (Level 1 Maintenance)

List of Operations		Frequency of Operations
1		months
2		months
3		months
4		months

B 9.1.2.2 -- Interface Table :

B 9.1.2.4 -- Timescale of Access :

Continuous Updating

Discrete Updating

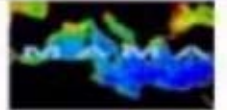
B 9.1.2.5 -- Mode of Access :

Dedicated Inquiry Dedicated Delivery

Online Inquiry Online Delivery

Reset Submit





WP1 Questionnaire

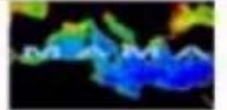
TYPE of programmes

National vs international
Level of funding

Human resource deployment
Infrastructural resources

Traditional vs ship-based surveys vs automated
(manual sampling, lab. analysis, near coast, bottle sampling, bio-monitoring, heavy metals) (waves, multi-par. buoys, sea level)





WP1 Questionnaire

TYPE of programmes

Open-ended vs limited period
(intention to continue) (ending date)

Coastal zone vs coastal sea vs open sea
(land + sea) (nearshore) (beyond coastal limits)



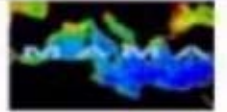


WP1 Questionnaire Comments

48 received so far
(only few from EDIOS)
(several more as deduced from CPs)
(some partners only covered own programmes)

NO returns yet from
ISRAEL, TURKEY, PALESTINE, LEBANON,
EGYPT(UoA), SYRIA, TUNISIA, LIBYA, ALGERIA and
MOROCCO





First Analysis

Sea level observations

**Spain (3), Italy, Malta, Slovenia, Croatia(2), Albania, Greece (2), France(?),
Cyprus, Israel(?), Tunisia, Morocco
NOT in Syria, Lebanon, Egypt(?), Libya, Algeria(?)**

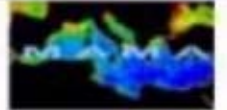
Oceanographic surveys by research vessel

Spain, France, Italy, Croatia, Cyprus, Tunisia, Morocco

Waves

Spain, Italy, Malta, Albania, Greece





First Analysis

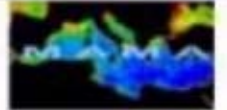
Multi-parameter buoys

Spain (several from 2 programmes), Italy (4), Greece (several from POSEIDON and MFSTEP), France (2)

Traditional monitoring programs

(water quality/bio-monitoring/pollution/heavy metals)
France (several), Italy (several), Malta, Slovenia, Egypt, Croatia, Albania, Cyprus(?), Greece (?), Syria, Lebanon, Tunisia, Libya(?), Morocco(?)





First Analysis

Internet connection

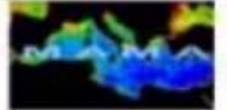
**7 countries still rely on dial-up connections
...inadequate for uninterrupted data flow**

Standard PCs with MS Windows most common

**Common data exchange protocols are based on
HTTP/FTP**

MS Internet Explorer most commonly used



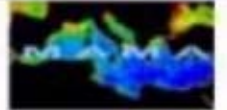


MAMA WP1

WHY?

- Identify gaps and capacity building needs
- identify existing infrastructure/expertise/activities/capacities that can provide building blocks to the initial observing system
- design the ocean monitoring and forecasting system that addresses the needs of the region
- target the niche for operational oceanography



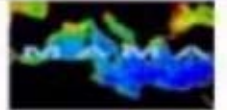


MAMA WP1

WHAT DELIVERABLES?

- **Regional report on the current capabilities in pre-operational ocean forecasting in the Mediterranean**
- **Baseline info for the design of the initial observing system (WP2)**
- **Compile info for the Medir-OP web-based directory/database (WP6)**
- **Country profiles as a framework for NAW Meetings**
- **Forward look to how individual countries can benefit from operational oceanography**
- **Target how individual countries can benefit from future plans to implement ocean forecasting in the region**





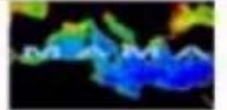
Forward to MeDir-OP

**One comprehensive database difficult...
...large variety of info and relatively few
entries for useful correlations between parts**

Opt for specific databases

- **institutes**
- **monitoring programmes**





Forward to MeDir-OP

Visual representation

Use clickable layered maps

Location of main monitoring programmes

Locations of key institutes

Positions of buoys

Country descriptions of resources (eg human)





Your part!

Receive missing CP replies

Refine current CPs filling missing parts

Obtain wider coverage of monitoring activities

Revise current questionnaires

AS IT IS INFO IS INSUFFICIENT!!

