This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 727453

blueMed

Coordination and Support Action

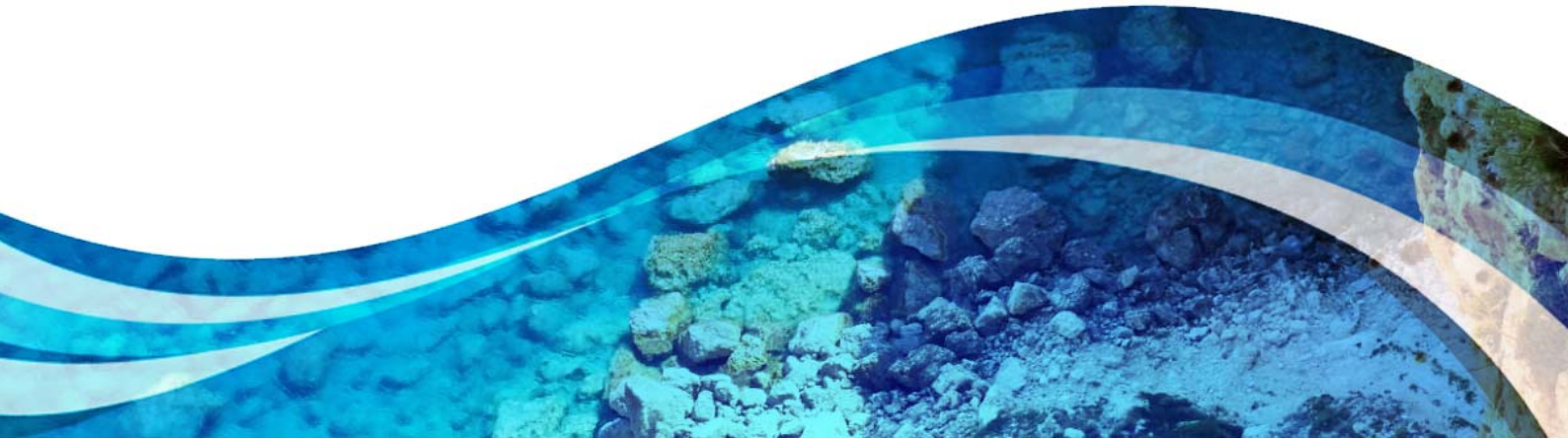
Horizon 2020 - BG-13-2016
Grant Agreement 727453

Non-EU stakeholders: analysis of R&D strategy/policy/programme and priorities

D5.2

Due date of deliverable: 30-06-2017
Actual submission date: 8 September 2017

Authors: JF. Cadiou, G. Herrouin, C. Ruel, C. Restif, N. Arnaud, L. Mortier, V. Papathanassiou, A. Bonanno, D. Gonzalez Martinez, C. García Soto, I. Vilibic, L. Tsoumpanou
Participants: IFREMER, CNRS, HCMR, CNR, MINECO, IEO, IZOR, RPF



Project Full title	BLUEMED		
Project Acronym	BLUEMED		
Grant Agreement No.	727453		
Coordinator	Fabio Trincardi - CNR (Italy)		
Project start date and duration	01-10-2016 (48 months)		
Project website	www.bluemed-project.eu		
Deliverable Nr.	5.2	**Deliverable Date**	8 September 2017
Work Package No	5		
Work Package Title	The global Med		
Responsible	Ifremer		
Authors & Institutes Acronyms	JF. Cadiou (Ifremer) G. Herrouin, C. Ruel (Pôle Mer Méditerranée) C. Restif, N. Arnaud, L. Mortier, (CNRS) V. Papathanassiou (HCMR) A. Bonanno (CNR) D. Gonzalez Martinez (MINECO) C. García Soto (IEO) I. Vilibic (IZOR) L. Tsoumpanou (RPF)		
Status:		**Final (F)**	●
		Draft (D)	
		Revised draft (RV)	
Dissemination level:		**Public (PU)**	●
		Confidential, only for members of the consortium (CO)	

CONTENTS

Abstract

A preliminary review and analysis of the strategies, policies and research and innovation priorities in the marine and maritime sectors has been carried out for the 14 non-European Mediterranean countries. This analysis is based on available literature and on documents or elements obtained from stakeholders of these countries and from contacts in international or European bodies/projects.

It comes out that the degree of concern and the level of formalization of the strategy and priorities in the field of marine research and innovation differ notably from a country to another. This can be related to the characteristics of the various countries which differ in terms of coast length, ratio of coastal population, weight of the maritime economy and potential resources. The political situation and the instability existing in some countries need also be taken into account.

When comparing these priorities with the key challenges of the BLUEMED SRIA, it can be seen that nearly all the countries have a great concern regarding marine and coastal environmental issues. This common aim of preserving a healthy and productive Mediterranean Sea is linked to the need of developing sustainable fisheries and aquaculture sectors which is strategic for many countries and to support the tourism which is a key economic area in most of the Mediterranean countries.

A priority is given to adaptation to climate changes by several countries, which are highly sensitive to the effects of warming, sea level rise and modifications of ecosystem functioning. There is an unequal level of concern regarding marine hazards.

The level of structure of marine clusters is much variable among Southern and Eastern countries. The field of maritime transport/ports is seen as strategic by many countries, mainly from an economic point of view. The necessity of preserving marine and coastal cultural heritage is well shared in the region. The development of business in the area of marine biotechnology and multipurpose platforms is not a priority.

In the Mediterranean regions, numerous cooperation and coordination bodies related to the marine domain are established. Some of them are intergovernmental (UfM, UNEP/MAP), some act at regional/local institutional level (CPMR, MedCities). Others are set on a sectorial or thematic basis (e.g. GFCM, CIESM, universities, Marine Protected Areas…). At subregional level, EUSAIR (Adriatic and Ionian) and WestMED (Western Mediterranean) initiatives provide an intermediate level of cooperation between countries. All these structures have set priorities and aim at a better coordination of Mediterranean actors in their domain.

Scope

BLUEMED aims at creating the conditions for extending and sharing initiatives to the non-EU countries, and organising their involvement in the work. To do that, a policy dialogue on BLUEMED vision and challenges need to be activated from the outset of the project with non-EU Mediterranean countries (Eastern Adriatic, Eastern and Southern Mediterranean.

This document is a preliminary analysis of the existing maritime and marine research and development strategies, policies and priorities in non-European Mediterranean countries. It will give a preliminary view of the vision of non-EU countries and is linked with the Policy dialogue Workshop with non-EU stakeholders that will occur in the last quarter of 2017. This workshop and the following ones, which are planned in the project, will allow to improve the picture and to identify the ways toward an alignment of the SRIA with the priorities of non-European countries and to elaborate a shared agenda.

1. Strategies and priorities at country level

This chapter presents the information gathered about strategies and priorities, which are established in relation with marine research and innovation, maritime economy and marine policies in the Southern and Eastern Mediterranean countries.

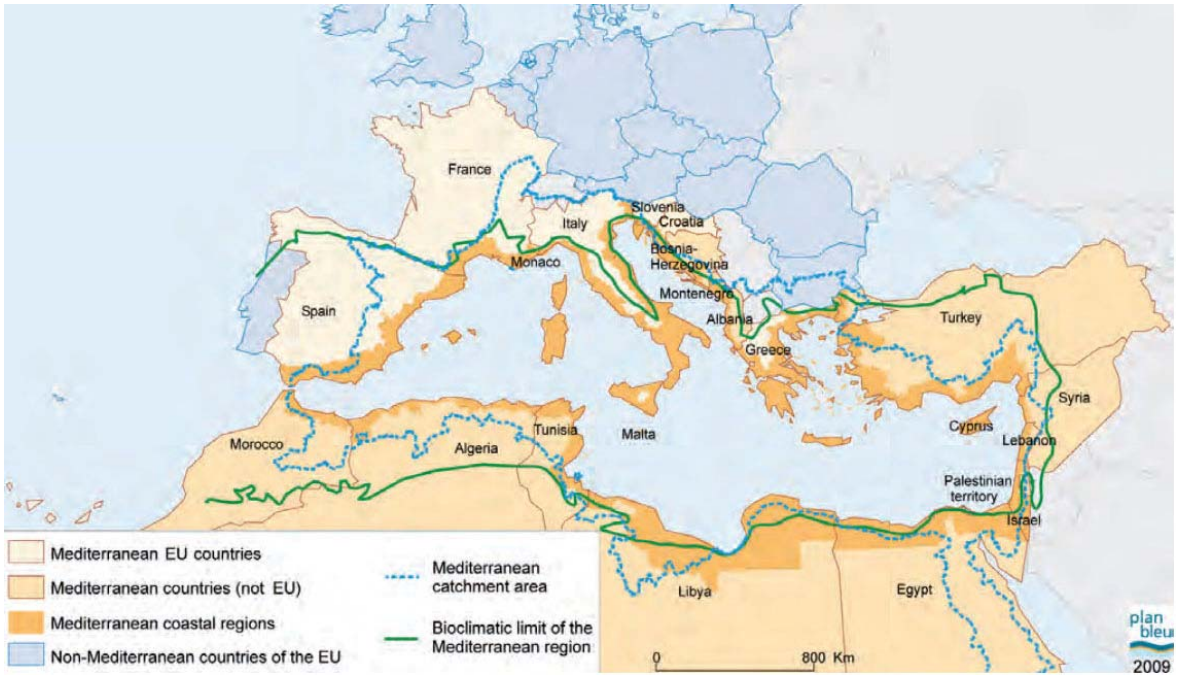
The analysis is based on available literature and on documents or elements obtained from stakeholders of these countries and from contacts in international or European bodies/projects. The information about strategies and priorities that is provided regards:

- Marine and maritime research
- Marine technology
- Blue Economy
- Governance

A brief description of the main institutions, programs and infrastructures involved in these fields is given.

The 14 non-European countries are considered even if there are very big differences between some of them, mainly due to the length of their coast, their level of development or the political situation.

The possibility to collect information about marine and maritime strategies/priorities differs largely from one country to another. The present analysis is mainly based on available literature (open access documents and information obtained from selected contacts). It must therefore be considered as preliminary. In the BLUEMED CSA project, several workshops with non-European stakeholders are scheduled. These workshops will be important milestones for a better understanding of the vision of Southern and Eastern Mediterranean countries in the area of marine and maritime research and innovation.



Source: Plan Bleu 2009 (adapted)

Fig. 1 - Mediterranean European and non-European countries

1.1 Albania

Albania is a Balkanic Peninsula Country and has 362 km-long coastline in the Adriatic Sea and the Ionian Sea. Albania is less than 72km from Italy, across the Strait of Otranto. The country surface area is 28800 km^2 and is populated by 2880000 inhabitants. The favourable geographical position makes Albania an important country for the development of maritime activities (sailing, fishing, construction and repair of ships, pleasure boating, etc.). Although the country has a very favourable geographic position for the development of activities related to the sea, the maritime sector in Albania is still in the early stages, by not exploiting the full potential of this sector in economic developments of the country.

1. Maritime economy

The maritime sector represents an important challenge for Albania's economy and general development:

- **Maritime transport and security**. The ports of Vlora and Saranda are the Region entry points for foreign vessels. Vlora seaport is the second important port in Albania. Albania has a strong interest in the "Corridor VIII", one of ten 'Trans-European Corridors', which plan to facilitate the exchange of goods, people, oil and other energy supplies among the EU, the Balkans and central Asia. Corridor VIII, once completed, will run from the southern Italian ports of Bari and Brindisi, the Albanian ports of Durres and Vlora, the cities of Tirana, Skopje, Sofia, Plovdiv. This Motorway of the Sea will connect Albania to the main networks of Southern Europe.
- **Ports**. Albania is served by two primary deep-sea ports at Durres and Vlora, and two secondary ports at Shengjin and Saranda used mainly by cabotage (coastal) shipping. Rehabilitation of infrastructure and superstructure of the Maritime Port of Durres, Vlora, Shengjin, Saranda are foreseen, including construction of specialized terminals to increase the anchoring and processing capacities of the ports.
- **Fishing.** There exist 911 fishing enterprises working in the sector (INSTAT, 2012) - these official figures are normally under-reported. Most enterprises have 1-4 workers being mostly registered as physical person. There are 26 enterprises with 5-9 workers and 9 enterprises with up to 50 workers, which are registered as Juridical Persons. National catches amount to 6929 ton, with a value which exceeds EUR 10 million. Approximately, 858 operators work in the fish sector. Until 2014[1], there were 67 selective fishing gears, 17 pelagic fishing gears, and 196 trawler fishing gears.
- **Aquaculture.** Aquaculture in Albania is developed on seaside mainly in Saranda and Vlora and in lagoons. Aquaculture is growing slowly, being constrained by slow growth in the domestic market demand and in access to exports, especially to EU (e.g. molluscs). Production of molluscs was 1,250 tons in 2012, while fish production was 1,300 tons in 2011. Coastal lagoons cover 11,000 ha. and marine cage cultures 70,000 m^2 of marine water surface. There were 23 marine cage aquaculture enterprises in 2012 providing a volume of cages of 1,872,100 m^3.

[1] Cfr. *Studies to support the development of sea basin cooperation in the Mediterranean, Adriatic and Ionian, and Black Sea* - Contract Number MARE/2012/07 - Ref. No 2 - Report 1 - Annex 2.1 - Country Fiche Albania, January 2014, p. 5.

- **Offshore oil and gas**. According to some assessments, there is a great potential of off-shore oil and gas in Albania, particularly in the Ionian area, in borderline with Greece. It is estimated that the value of the under-sea oil can be EUR 100 – 200 billion in Ionian Sea (figures to be confirmed by further exploration). As a consequence, disputes with Greece have risen regarding the borders/ share of territory.
- **Coastal area**: the most important economic development areas are concentrated in the coastal regions, especially in the most active seaside cities.
- **Tourism.** Coastal tourism is relatively developed in Albania. Data are not reported at NUTS 2 level, therefore we have no official information about the situation in coastal areas of Albania. However, most tourism activities are developed in coastal areas and thereby available information on whole tourism as such can be considered as indicative for the coastal tourism too. Until 2014, there were in total 735 hotels at country level including a total of 14,634 rooms and 28,672 beds.
- **Marine environment.** This issue is currently addressed by Albanian authorities. Law Nr. 8905, date 6.6.2002 "Protection for maritime environment from pollution and damage" aims to protect the marine environment from pollution and damage.
- **Renewable energy**. There is a lack of data on ocean renewable energy in Albania.

2. Marine research and technologies

Marine technologies in Albania suffer from still low levels of development, investment and modernization.

In terms of fisheries, the national fishery institute as part of the Agriculture University of Tirana is poor of human resources and research infrastructure. In particular, there is a lack or insufficiency of regularly fish stock assessment programmes, as a basis for having under control and monitoring the fishing activity through licensing of fishing fleet and fishing technology, used to avoid the over exploitation, which is besides the enforcement of the existing laws on licensing of fishing activity, fishing net mesh sizes etc.

Further institutions carrying out technological research in Albania are:

- The University of Tirana-based Institute of Geosciences, Energy, Water and Environment, which comprises departments on Climate and Environment, Geology, Seismology, Water Economy.
- The Albanian Center for Marine Research, which is a leader in nautical archeology, coastal ecology, and marine geology in the Balkans, and provides comprehensive analysis for scientists and integrative solutions for coastal managers, as well as cooperation with international partners.
- The Albanian Geological Survey (AGS), which carries out its activity in the field of geosciences, being responsible for the monitoring of the surface, underground and marine water's quality, risk assessment and soil pollution.
- The Association for Protection of Aquatic Wildlife of Albania (APAWA), established in 1999. APAWA is a non-governmental and non-profit social-scientific organization, whose main goals are: public awareness for the protection and preservation of aquatic wildlife; sustainable development in

coastal and wetland areas; influence for solution of the problems linked to the aquatic communities; monitoring of eventual amelioration of aquatic and coastal ecosystems. An important part of the APAWA's activities has been focused on international projects, especially related to the transboundary ecosystems between Albania and Montenegro, such as the Shkodra Lake (2006 and 2010; GEF), Buna River (2000-2001; REC) and Buna delta in the Adriatic Coast (2003 EURONATUR). Another important focus of APAWA's activities has been the marine and coastal environment, where several national and international projects have been implemented.

3. Maritime and coastal policies

Albania has recently selected some policies/interventions comprising the most promising marine and maritime activities. These policies also link to the Blue Growth objectives.

As for marine aquaculture and fish for human consumption, the "Strategy of Fisheries and Aquaculture Development 2007 - 2015" addressed three main Objectives:

- A: Rapid and diversified development of marine fisheries and aquaculture
- B: Support the development of fish processing industry
- C: Rapid development of port and marketing infrastructure

According to the "Intersectorial Strategy on Agriculture and Rural Development 2013-2020", these objectives should be targeted through investments in physical assets concerning processing and marketing of fishery products, and farm diversification and business development.

As of passenger ferry services, the "Sectorial Strategic Document of Transportation for 2013 - 2020" foresees the integration of different kinds of transportation, the modernization of ports and the increasing security of life in sea and protection of maritime environment.

Finally, the third involved sector is coastal tourism: increasing promotion and marketing of tourism image as well as diversifying the touristic products are the two main actions taken into account by the "Sectorial Strategic Document of Tourism for 2013 – 2020". These actions link to the Blue Growth objectives which aim, *inter alia*, at increasing the attractiveness of coastal areas.

Port infrastructure development

Albania has recently approved a law on maritime administration and on the establishment of a maritime directorate. The ports of Vlora and Saranda have been identified as the Region entry points for foreign vessels and deserve full marina facilities within the existing urban environment. Vlora seaport is the second important port in Albania, which has been defined as the second entry gate to Corridor VIII after the port of Durres. This port transfers passengers and goods, covering around 10% of the export-import goods. Infrastructures is currently being developed.

The Italian government will fund the first, second and third phase of the port empowerment project through 15.3 million Euros, which will also include the construction of the docks for goods and the ferry dock. Himara port serves as a secondary port, used mainly for tourism in Himara and the surrounding areas, and does not play any role in goods transfer.

Saranda seaport is a secondary port, which transfers passengers and goods. It is also being developed based on Regions the Master Plan, as a port with a tourist function for the transfer of passengers, while the transfer of goods will be made in Limani harbour (around 3 km from the town port). Funding is to be provided by the national budget and the World Bank. The Italian company La Petrolifera Italo-Albanese, based on a concession agreement with the Albanian Government, is constructing the Port of Vlora Bay. This port will be used for unload and storage oil, gas and their sub products. It will facilitate the processing by increasing security levels and environment protection. Among other ports that should be mentioned there are the Triport fishermen harbour, in Vlora, and the recently completed Orikum marina in the southern part of the Vlora Bay, which offers basic services to yachts, multipurpose spaces and apartments.

1.2 Algeria

Algeria is the largest country in Africa (2,381,700 km^2) and has a total population of 37.1 million. Algeria's coastline stretches over 1600 km between the Gibraltar Strait and the Sicily Strait, sharing with Morocco and Tunisia the African coasts of the Western Mediterranean.

The settlement of the Algerian territory presents a strong polarization on the north of the country, particularly on the "coastal strip" from 50 to 100 km width. This coastal fringe of 45,000 km^2 (1.9% of the national territory) concentrates 37% of the Algerian population (274 inhabitants / km^2).

1. Maritime economy

Maritime challenges are very important for Algeria's economy and general development:

- **Maritime transport and security**: most imports and exports (oil and gas) are made by sea. Algeria is very close to the main maritime road of the Mediterranean (Suez-Gibraltar). The Algerian national Vessel Traffic Management and Information System (VTIMS) facilitates economic growth and the integration of maritime transportation of goods and passengers via Algerian ports.
- **Ports**. Algeria main ports are either polyfunctional or specialized in the oil and gas traffic. Algeria is relying on the expansion of the port of Djen Djen east of the city of Bejaia to ensure the function of hub. The port has an additional area of 78 hectares for a capacity of 2 million TEU. This port could then become the gateway to sub-Saharan Africa. Three Maghreb port hubs are competing: Tanger Med in Morocco, Djen Djen in Algeria, and Enfidha in Tunisia.
- **Fishing and aquaculture**. There are 20 major fishing ports. The continental shelf is approximately of 13,700 km^2 and the fishing zone is of about 95,000 km^2. In 2013, the total of recorded vessels operating from these ports was estimated at 4,569 from which 526 were trawls and 1,231 purse seiners. The fisheries sector provided 43,700 jobs in 2013. Marine capture production is around 100,000 T/year. Bulk of the catches are small pelagic species.
- **Aquaculture** production is still marginal with the production of 350 tons of gilthead seabream from brackish water and a very small amount of mussels and oysters.

- **Offshore oil and gas** resources may soon be exploited on the Algerian continental shelf. Algerian state-owned oil firm Sonatrach is exploring offshore resources (2017) and has contracted for that with Western oil service firms to carry out seismic tests and drill offshore exploration wells.
- **Coastal area**: the most important economic development areas are concentrated in the coastal regions, especially in the most active seaside cities;
- **Tourism**: up to now this is not developed in Algeria, but real opportunities exist to boost this sector (coastal tourism, cruise ships, recreational activities).
- **Marine environment** represents a major asset in addition to coastal and submarine resources.
- **Renewable energy**. Algeria has created a green momentum by launching an ambitious program to develop renewable energies (solar and biomass) and promote energy efficiency. But there is only few potential for Marine Renewable Energy because the weak currents cannot be exploited by existing technologies and the offshore wind potential is weak (except in small spot in eastern part of the coast). SWAC (Sea-water air conditioning) could be interesting, but there is no implementation of this innovative system for the moment.

Development priorities in the maritime area

Most traditional maritime activities are based on explicit and formal sectoral strategies implemented by specialized sectoral agencies, relying on comprehensive legal frameworks. They generally include environmental assessment studies at the level of projects, but this rarely constitutes strategic environmental evaluations at the level of policies, plans or programs. However, sectoral maritime policies are not entirely coherent at the strategic and operational levels.

Fisheries and aquaculture development are under the responsibility of the General Direction for fisheries and aquatic resources (Ministry of Agriculture and Rural Development). In general, the fishery resources are not fully exploited. Possibilities exist, in particular for the development of artisanal fisheries, especially on the rocky bottoms and of small pelagic fisheries. The fishery industry requires an important effort of modernization and investments, notably for the rehabilitation of the aging fleet (average age of the boats: 20 years) and of the processing facilities.

Aquaculture development has been identified as a strategic priority by the Government, which has recently launched an ambitious development programme.

There is good cooperation and coordination at the operational level in some specific areas, such as maritime surveillance and sea police activities.

2. Marine sciences and technologies

There are few international-level technologies developed by innovative laboratories and companies in Algeria.

The National School of Marine Sciences and Coastal Management (ENSSMAL) is the benchmark in the field of science. It is a training and research school in the fields of marines sciences, including fisheries, and coastal management.

Scientific research at **ENSSMAL** is organized in two research laboratories, the "*Conservation et Valorisation des Ressources Marine*" (CVRM) laboratory and the "*Marine and Coastal Ecosystems*" Laboratory (ECOSYSMarL).

The research domains are more precisely:

- Bio-geochemistry and marine pollution;
- Coastal marine ecosystem environment;
- Valorization of non-living resources;
- Marine-environment interactions;
- Organic pollution;
- Pollution and living resources;
- Pollution and coastal management
- Marine Biodiveristy
- Marine biotechnology

ENSSMAL is operating small coastal research vessels and a 25m one suitable for research in the Algeria basin, the latter presently being in heavy maintenance.

In the area of fisheries and aquaculture the main actor is the **National Center for Fisheries and Aquaculture Research and Development (CNRDPA),** which has recently been modernized. CNRDPA is organized is four divisions, the "*Fishery*" one, the "*Aquaculture*" one, the "*Industry and Processing of Fishery and Aquaculture Products*" one and the "*Aquatic Ecosystems*" division.

Several Universities have a recognized activity is marine science education and research, in particular the Algiers, Oran and Annaba Universities, International congress and thematic workshops are regularly organized by ENSSMAL and these universities, which reflects the existing potential of networking in the country regarding marine research.

The CNRDPA has elaborated a strategic plan in 2014. The priorities for the period 2014-2020 are:

1. Resource-environment interactions;
2. Aquaculture management of inland water resources;
3. Control of the reproduction of new species of economic interest for Algeria
4. Development of an Algerian mussel culture sector;
5. Dynamics of Exploited Ecosystems;
6. Analysis of management tools.

Source: http://www.mpeche.gov.dz/IMG/pdf/plan_strategique_du_cnrdpa_2014-2020_version_finale_2_.pdf

CNRDPA operates a modern 42m research vessel for fishery research, including a hydrological laboratory on board, making the vessel suitable for oceanographic research too.

Algeria is highly exposed to geological hazards. In the field of geosciences, in particular marine sciences, the leading institute is the CRAAG (CRAAG Astrophysical and Geophysical Astronomy Research Center). The CRAAG missions are:

- research in the fields of Astrophysics and Geophysics;
- public service in the field of seismic monitoring of the territory;
- support to socio-economic sectors.

A public company, the **"*Laboratoire d'Etudes Maritimes d'Alger*" (LEM)**, is excellent in the field of coastal studies especially for development work coastline. It has a capital of more than M€ 20.

LEM has 3 departments:

1- Port Facilities Department
2- Department of Environment and Coastal
3- Monitoring and Control Department

Very well integrated into the international coastal and environment engineering networks, particularly in Europe PIANC, the LEM has about 200 employees, including 60 engineers.

It has first-class equipment: Marine Model Test Center equipment, consisting of two large test rooms (50m x 70m and 30m x 60m) and two wave tracks (40m x 1m x 0.60).

It must be noted too, that the Hydrographic Service of the National Navy (SHFN) operates a hydrographic vessel of 28 m. The service is responsible for the continental plateau bathymetry and hydrological studies, and now develops its projects through growing collaborations with universities and research centres in Algeria.

Finally, the Algerian Space Agency (ASAL) maintains, since 2002 a series of satellites for earth observation, with multispectral instruments suitable for sea surface temperature remote sensing.

3. Policy

Algeria has not created exclusive economic zone (EEZ). However, its Fishery Protection Zone (ZPP standing for Zone de Protection de la Pêche) extends to 32 miles offshore West of Algiers and 52 miles offshore East of Algiers, which is slightly smaller than what would be the EEZ. Concerning Marine Research as considered by the UNCLOS, it seems that the ZPP is considered as an EEZ. Algeria is part of all main international maritime agreements (international maritime organization, Barcelona Convention, etc.).

Algeria has not yet developed a holistic maritime policy. A dedicated national maritime governance structure was created at the Government level (Higher Council for the Sea) in 1998, but this structure has not been activated.

Aware of the risks of non-sustainability of the socio-economic activities in the coastal area, and considering that the protection of the national coastline and its natural resources is a strategic issue, the Ministry of Regional Development and Environment (MATE) has commissioned PAP/RAC a study to establish a national strategy for Integrated Coastal Zone Management. See:

http://pap-thecoastcentre.org/pdfs/Ebauche%20SN%20GIZC%20Algerie.pdf (2015)

The « littoral » law of 5 February 2002 has created the National Commissariat for the Coastal Zone (CNL). The CNL was set up to implement the national coastal protection policy and to participate with the other institutions in valorizing it.

A strategy for ports has been established in 2005 by the country. (Source: Fatima Zohra Mohamed-Cherif "Les liaisons maritimes de l'Algérie dans l'espace Euro – Méditerranée : réalités et perspectives"; Territoires en mouvement, tem.revues.org).

1.3 Bosnia and Herzegovina

Coastal length of Bosnia and Herzegovina is 24 km, which is very small compared to the total country area: 51200 km^2. Its territorial sea (~140 km^2) is entirely surrounded by Croatia's inner waters. The population of the country is 3.52 millions inhabitants.

According to EU document and references within (https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/docs/body/bosnia_and_herzegovina_01_en.pdf) updated until February 2011, there are no maritime ports in the Bosnia and Herzegovina at the moment, but there are plans for the construction of a harbour in Neum.

Primary **maritime activities** are fishing and aquaculture (fish and shellfish). There are no plans for offshore wind energy or wave energy production, nor any marine protected areas.

In 2014 country fiche for Bosnia and Herzegovina has been produced by EUNETMAR (https://webgate.ec.europa.eu/maritimeforum/sites/maritimeforum/files/Bosnia_cf .pdf). This documents states that there are no exact figures on the role of the maritime economy, but quoting GDP of Bosnia and Herzegovina maritime area to be less than 1% of the total GDP of the country. Maritime activities listed in the document are fishing, aquaculture and coastal tourism, the latter indicated to have the largest potential for future growth.

In 2007 PAP/RAC produced document titled "National report on current policy, procedures, legal basis and practice of marine spatial planning in Bosnia and Herzegovina" (http://www.pap-thecoastcentre.org/pdfs/Bosnia%20and%20Herzegovina%20WEB.pdf), outlining state of affairs, problems and recommendations. The document accentuates the importance of tourism in coastal areas, while assessing supporting infrastructure (e.g. roads), associated problems (e.g. waste disposal) and potential for development of agriculture.

Herzegovina-Neretva Canton and West Herzegovina Canton are members of Adriatic Ionian Euroregion (AIE) (http://www.adriaticionianeuroregion.eu), an international association established in 2006 for promotion of trans-national and inter-regional cooperation in the Adriatic and Ionian basin. Therefore, these two administrative regions clearly indicate their orientation toward the Adriatic Sea.

In 2012 document titled "Water management strategy of the Federation of Bosnia and Herzegovina" was produced (http://fmpvs.gov.ba/upload_files/1440490897-276_1090_1675_e.pdf). This document explains legal framework for water management, including Adriatic Sea, and responsible institutions. In relation to professional institutions, Adriatic Sea River Basin District Agency (www.jadran.ba) has been established in Mostar.

On 17 June 2014 the European Commission has launched a new Strategy for the Adriatic and Ionian Region (EUSAIR, http://www.adriatic-ionian.eu). In this "macro-regional strategy" one EU country and one non-EU country are paired and are coordinating the development of each element of Action Plan (https://ec.europa.eu/maritimeaffairs/policy/sea_basins/adriatic_ionian_en). Bosnia and Herzegovina is paired with Slovenia and they are responsible for "Environmental Quality" that addresses environmental quality through better cooperation at the level of the Region.

On top of that, Bosnia and Herzegovina is also involved in European Territorial Cooperation program ADRION – Adriatic Ionian Cooperation Program for the period 2014-2020 (http://www.adrioninterreg.eu/).

Document on the fisheries and aquaculture sector in Bosnia and Herzegovina has been prepared in 2015 by the FAO, as preparation of IPARD Forest and Fisheries sector Reviews in Bosnia and Herzegovina (www.fao.org/3/a-au016e.pdf). Marine fisheries are reported very small "only 20 small-scale fishers work on the sea". This document was commissioned and monitored by the Delegation of the European Union.

In 2015 Mid-term development strategy for agriculture sector in the Federation of Bosnia and Herzegovina for period 2015-2019 was adopted by the Parliament (http://fmpvs.gov.ba/upload_files/1467797735-StrategijaKonacnaverzijazaFMPVS06052015.pdf, in Bosnian). This document states that although territorial sea is small it is not sufficiently exploited. There are two aquaculture farms involved in fish (sea bass and sea bream) and bivalve (mussel and oyster) production. Marine fisheries in Bosnia and Herzegovina is negligible, it is unorganized, catch is not registered and it is sold at local market. In part of this document dealing with the SWOT analysis, it is stated under opportunities that agriculture is defined at development priority in the Bosnia and Herzegovina, and that there is a need for developing complementary economic branches including tourism, indicating a potential for Blue Growth in this country.

With respect to marine and maritime research there are no institutions on the coasts, but Universities in Mostar and Sarajevo are occasionally involved in research and collaboration projects dealing with marine environment. However, according to EUNETMAR country fiche for Bosnia and Herzegovina from 2014, there is no maritime research related to marine aquaculture or coastal tourism.

1.4 Egypt

In Egypt a large majority of the population is settled along the Nile River, in the Nile Delta and along the coast. The length of the Egyptian Mediterranean coastline is 950 km. The surface area of the country is 1 M square kilometres.

The continuous population growth (96 M inhabitants in 2016) result in rapid urban development and in intense pressure on resources and environment. The increase of the use of Nile fresh water, in particular for irrigation led to a dramatic reduction of the Nile river discharge (~90%) to the Mediterranean Sea since the 60s. Changes in fresh water and sediment inputs to the sea has induced an increase of salinity of the coastal waters and serious coastal erosion in the Nile Delta area.

1. Maritime economy

Maritime transport and ports

Maritime transport is a key economic sector in Egypt especially thanks to the revenue generated by the Suez Canal. This connection between the Mediterranean and the Red Sea/Indian Ocean has been recently enlarged, in order to increase its traffic capacity.

Egypt has 15 main sea ports including 6 fishing ports. The highest Egyptian port in term of trading is Alexandria.

In 2016 the total volume cargo to and from Egyptian ports was 140 731 thousand tons. The total number of passenger arrivals to Egyptian ports was 446,891.

In the sector of maritime transport strategic goals have been set:

- The Egyptian fleet should carry 10% of Egyptian foreign trade (currently 5%) in addition to supporting maritime services sector (towage – pilotage – maritime services related to petroleum and gas platform and drillers etc...), developing ship, fishing vessels and yachts building, as well as engaging private sector in all maritime transport activities (services, agencies…).
- Transferring main and specialized ports to become a development locomotive for Egyptian economy as well as neigh boring Governorates and cities, focusing on engaging private sector in exploiting hinterland.
- Focusing on transit trade to take advantage from Egyptian location and the current increase of international trade development rates passing through Egypt, as well as conditions of neighbouring ports. Also taking into consideration transferring ports to the 5th generation to become logistic centres and one of the multimodal transport links able to face international wild competition.

Source : http://www.emdb.gov.eg

Fisheries and aquaculture

Fisheries management in Egypt falls under the authority of the General Authority for Fish Resources Development (GAFRD), which is responsible for administering the Fisheries Act.

The long coastline and the numerous inland waters are appropriate for the development of fisheries and mariculture. The fishing fleet includes industrial boats and numerous small units used by artisanal fishermen. Most of the fleet (62%, 3046 vessels) operates on the Mediterranean side.

Marine fish landings: 62.700 tons (2014). Source: FAO

Aquaculture production (not only marine) : 1.175 k tons

Sources:

Samy-Kamal M., Status of fisheries in Egypt: reflections on past trends and management challenges 2015

Reconstruction of marine fisheries statistics in the Egyptian Mediterranean Sea, 1950-2010. Hatem Hanafy Mahmoud et al 2015

http://www.fao.org

Tourism is an important sector in Egyptian economy. The cultural and archeological resources of the country are a main point for its attractiveness. Beach tourism is also a developed sector with big resorts on the Red Sea and Mediterranean coasts. Due the security situation in the Middle East, the tourism industry in Egypt has significantly decreased since 2010. For instance, tourist arrivals in January falls from 1.148M in 2011 to 363,000 in 2016.

Source: Egyptian Central Agency for Public Mobilization And Statistics http://www.msrintranet.capmas.gov.eg

2. Research and technology

Marine research is mainly performed by the National Institute of Oceanography and Fisheries **(NIOF)**

NIOF is affiliated to the Ministry of State for Scientific Research of Egypt. It was established to be specialized in oceanography and fisheries scientific research whereas its policy is being implemented through research programs of all specializations of oceanography, fisheries and aquaculture.

The main objectives of NIOF are:

- Maintaining, promoting and conserving the water environments and their natural resources
- Promoting the fish production as main food source
- Increasing fish productivity

Source: http://www.niof.sci.eg/

3. Policy

Government strategies and activities recognizing the active development and increasing pressure in coastal zones, the Egyptian Environmental Affairs Agency (EEAA) was appointed to coordinate national integrated coastal zone management (ICZM) activities through the Law for the Environment (Law 4/1994). A National Committee for ICZM was established and a national strategy has been formulated. The EEAA has also adopted environmental impact assessment (EIA) guidelines for projects in coastal areas.

Source: http://siteresources.worldbank.org/EXTMETAP/Resources/CZMP-Egypt.pdf

A project has been supported by the United Nation Development Programme regarding "**Adaptation to climate change in the Nile Delta through Integrated Coastal Zone Management in Egypt**". The objective was to integrate the management of sea level rise risks into the development of Egypt's Low Elevation Coastal Zone (LECZ) in the Nile Delta. Due to the concentration of much of Egypt's infrastructure and development along the low coastal lands and the reliance on the low lying Nile delta for prime agricultural land, coastal inundation or saline intrusion caused by anthropogenic climate change induced sea-level rise will have a direct and critical impact on Egypt's entire economy. The proposed project aims to integrate the management of sea level rise risks into the development of Egypt's LECZ in the Nile Delta by strengthening the regulatory framework and institutional capacity to improve resilience of coastal settlements and development infrastructure and implement adaptation measures.

Source: UNDP Egypt Project Document (June 24, 2009), http://www.adaptation-undp.org

1.5 Israel

Located in the Eastern part of the Mediterranea, Israel has a surface area of 22,100 km^2. It also has a very short coastline - only 205 km long and the country's population is approximately 8.5 million (World Bank). As such, there are 40,000 persons per km of coast in Israel; the highest rate amongst countries along the Mediterranean. In

addition, 70% of the population live within 15 km of the coast (Mare nostrum, EU project final report).

In terms of economy and social development is at a level similar to European countries. Its GDP per capita 37,293 USD in 2016 is nearly the same as for France. There is therefore a big gap if compared to neighbour countries. Egypt has for example a GDP per capita 10 times lower (see Annex 2).

1. Maritime economy

Israel main maritime activities concerns maritime transport. The country has 3 large ports (Ashdod, Haifa and Eilat) and 7 marinas along its coast.

With its unique cultural history and religious significance, Israel is at the crossroads of three continents and has a number of World Heritage cultural sites. Tourism infrastructure is mostly well developed, yet tourism and travel sector is not being developed with particular attention to the environment. Israel's tourism is affected by concerns about safety and security and instability from conflict.

Source: http://reports.weforum.org/travel-and-tourism-competitiveness-report-2015/index-results-the-travel-tourism-competitiveness-index-ranking-2015

Fishing activities are rather limited due to the low productivity of the sea in the area related to nutrients' deficiency.

The quantities given for 2014 (FAO) are:

- 2,078 tons of fish (traditional fishing)
- 20.9 tons of fish by mariculture

Natural gas reserves have been found in the EEZ (area 22,000km^2) of the country that is preparing their exploitation.

Source: FAO; Country report 2011, European Commission, Maritimes Affairs

2. Research and technology

IOLR - Israel Oceanographic and Limnological Research (IOLR) is a national research institution (non-profit governmental corporation) established in 1967 to generate knowledge for the sustainable use and protection of Israel's marine, coastal and freshwater resources.

The IOLR is affiliated with the Earth Sciences Research Administration of the Ministry of National Infrastructures.

The IOLR includes three research centres:

- The National Institute of Oceanography in Haifa
- The Yigal Allon Kinneret Limnological Laboratory near Tiberias
- The National Center for Mariculture in Eilat

The IOLR conducts scientific research in the fields of oceanography, limnology, mariculture and marine biotechnology.

www.ocean.org.il

Mediterranean Sea Research Center of Israel

The Mediterranean Sea Research Center of Israel (MERCI) is a consortium of seven universities and three governmental research institutes, working under the leadership of the University of Haifa to address an unprecedented array of scientific, technological, economic, security, and environmental challenges and opportunities resulting from the rapid development of the Eastern Mediterranean offshore.

The Mediterranean Sea Research Center of Israel focuses on:

- Developing the modern, scientific infrastructure needed to study the coastal and offshore Eastern Mediterranean
- Educating a new generation of scientists and researchers, who will serve as Israel's decision makers in academia, the government, industry and NGOs
- Ensuring sustainable development of Israel's national resources in the Eastern Mediterranean

Source: http://merci.haifa.ac.il

The Interuniversity Institute for Marine Sciences (**IUI**), situated near Eilat in the Gulf of Eilat/Aqaba, has been in operation since 1968, and is a national facility shared by all universities in Israel.

Source: http://www.iui-eilat.ac.il/

The country is renowned in the field of new technologies. Israel has a dynamic private sector and universities carrying out research and development in this area. As an example, it was recently announced a fund raising of 150 M USD from Chinese government for investment in technologies such as wind, wave, and solar energy; marine food, green and blue algae-based materials; drugs, cosmetics; artificial islands; sewage management; water purification and desalinization (in which Israel specializes); and even construction materials

Source: http://www.globes.co.il/en/article-blueconomy-investment-fund-raises-150m-1001174367).

3. Policy

Protection of the Coastal Environment Law (2004): covers the territorial waters and the land side up to 300 meters inland from the coastline and aims at:

- Protecting the coastal environment and its natural and heritage assets; restoring and preserving them as a resource of unique value and preventing and reducing any damage to them;
- Preserving the coastal environment and the coastal sand for the benefit of the public, for present and future generations;
- Establishing principles and limitations for the sustainable management, development and use of the coastal environment.

In the area of marine environment, key players are:

- Ministry of the Environmental Protection, Spatial Planning and Construction;
- Ministry of Environmental Protection, Spatial Planning and Construction.

The Committee for the Protection of the Coastal Environment was established in 2004 under the Protection of the Coastal Environment and consists of representatives of the ministries and other stakeholders and experts. It is responsible for decisions on coastal development plans and for coordinating the planning in the sea area, with the exclusion

of: shipping activities, fish fields definition, oil and gas exploration and extraction, military areas.

Source: Country report 2011, European Commission, Maritimes Affairs

1.6 Lebanon

Located on the far eastern coast of the Mediterranean, Lebanon is relatively small country of 10,500 km^2 with a coastline of 294 km. Its population has 6.01 millions inhabitants.

Many maritime issues are important to Lebanon. Although it has a relatively short coastline, Lebanon now claims both a 12-mile territorial sea and an EEZ (recently registered with the United Nations in accordance with the UN Convention on the Law of the Sea). The coastal zone hosts four public commercial ports in addition to 29 private ports and port facilities.

Lebanon's economic activities are concentrated in this area, which represents about three-quarters of the national income. A critical image, both in terms of the environment and aesthetics, as long as it is threatened by pollution problems and disfigured sites: many private leisure projects have arisen arbitrarily during instable politics periods.

1. Maritime and coastal economy

Among the main maritime assets are:

- **Maritime transport and ports**: Maritime transport and port facilities are a major component of Lebanon's maritime enterprise. Although it has a relatively small merchant fleet, the ports of Beirut and Tripoli remain important in the Eastern Mediterranean. Beirut port is one of the most important port of the Eastern Mediterranean and is capable of handling about one million TEUs every year.
- **Fisheries**: The fisheries sector is traditional or artisanal, and consists of relatively large numbers of small boats (5,507 fishing boats according to a 2011 census). Catches are not substantial – around 3,800 tons per year – but for some coastal communities, dependency on fisheries is high.
- **Oil and gas**: Potentially substantial oil and gas fields have been discovered in the zone between Cyprus, Egypt, Israel and Lebanon. Agreements have been found between these countries except for a border conflict between Lebanon and Israel, which have no diplomatic relations. Lebanon launched a marketing campaign in February 2017 to promote its first licensing round.
- **Marine and coastal cultural heritage**: Lebanon is a key region in understanding the development and evolution of seafaring infrastructure and shipping, providing one of the richest and most continuous maritime archeological records in the Mediterranean. Important geo-archeological work has been carried out at Beirut, Byblos, Sidon and Tyre, all of which have a rich cultural heritage, both on land and at sea.
- **Tourism**: During the 1990s and the first part of the 2000s, tourism was a fast-growing sector in Lebanon, but national and regional political situations have

impacted it negatively. The Lebanese tourism industry is seeking to rebuild Lebanon as a cruise destination, but faces strong competition from Greece and Turkey. It is worth mentioning that Lebanon is surrounded by regional conflict areas (Syria, Israel) and that all North, East and South regions and borders are considered as unsafe. Only the West part of the country, meaning the coasts mainly, could be suitable for developing tourism.

- **Marinas:** Lebanon's civil war and political turmoil in the mid-20th century pushed a number of marinas to cease operations, but in the years that followed, many marinas reopened and resumed serving residents and tourists. Despite the relatively stable political situation, there are still problems that hurt marinas today. Many modern marinas in Lebanon embody luxury and opulence. The most popular and luxurious marinas are near the capital, Beirut.
- **Mariculture**: There is a very small amount of mariculture taking place in Lebanese waters, mainly for local consumption.

2. Research and technology

There is no Ministry for Research in Lebanon; the institution in charge of scientific research and policy in Lebanon is called CNRS-L (National Council for Scientific Research). The main mandates of the CNRS-L related to coastal and marine areas are to:

- supervise permanently the coastal zone and the sea by creating a national network of observation;
- evaluate the specific diversity by characterizing the migrant communities and their habitats;
- produce, transform and transfer the matter in the coastal and marine ecosystems;
- follow-up the origin and fate of continental matter fluxes (anthropogenic and natural) and their impact on coastal marine ecosystem.

The National Center for Marine Sciences, one of the 3 centres of the CNRS-L, is responsible for research in the marine sector. Its fields of competence include the study of primary and secondary production and determination of the presence of harmful algae; benthology; hydrobiology of seawater; chemistry; biochemistry; fishery; marine mammals and circulation of water masses.

The CNRS-L recently funded 3 projects related to the marine field:

- CANA plus project (2015-2017) entitled "Development of the Lebanese Marine Environment to Serve the Needs of Coastal Communities";
- CADMOS project (2015-2017) that is concerned with the maritime archeology in the marine coastal regions of Saida and Tyr;
- EastMed- FAO project (2014-2017) for the evaluation of the fish stock in the Lebanese sea.

The CNRS-L owns the CANA research vessel (27 meters length) allowing this institution to conduct research related to natural hazards, coastal pollution and marine resources.

The National Center for Marine Sciences is leading the Lebanese research in the marine field. Nevertheless, public and private universities in Lebanon are strongly contributing to research, trainings and implementation of programs in marine sciences, sometimes

in cooperation with CNRS-L. For example Saint-Joseph University (USJ), considered as one of the best universities in Lebanon, is dispensing a training at Master level in environmental sciences and management (including marine ecosystem and cetology), in cooperation with CNRS-L.

The biggest university in Lebanon and the only public one, the Lebanese University, is also dispensing a training in biodiversity and a training in hydrosciences.

Another example is the University of Balamand, located in the Northern coastal area of Lebanon. This private university has been participating to many reports and documents, often constructed in close association to public and societal stakeholders, about marine and coastal management in Lebanon, including a draft law for the Ministry of Environment in 2015 about marine and coastal biodiversity protection. Balamand dispenses also trainings in archeology and heritage management (both cultural and natural).

3. Maritime and coastal policies

The marine environment is subject to various threats, including uncontrolled urban expansion, increased privatization of public properties and beaches, reduced public access to the beach, solid waste dumping, wastewater discharges, sea filling, sand extraction, replacement of agricultural areas by human settlements, scattered industrial zones, etc. The management and treatment of waste barely exists; for example the Quarantaine zone in Beirut is an open air dumping site very close to the port of Beirut and to a fishery area. Beirut's rubbish management is even more difficult since the beginning of the trash crisis in July 2015; since then, tons of untreated rubbish have been dumped in the sea or over the country, burned in the open air or simply stored in legal or uncontrolled landfill. Moreover, since 2011 and the beginning of the Syrian conflict, Lebanon is facing an exponential growth of its population, and as a consequence of its waste production, due to the arrival of refugees from Syria.

There are two protected coastal areas in Lebanon: Palm Islands nature reserve near Tripoli in the North was created in 1992, while Tyre coast nature reserve was created in 1998 in the South. Biodiversity (migratory birds like grey heron, turtles, medicinal plants…) is protected on Palm Islands, under the supervision of the Ministry of Environment. Palm Islands, covering 5 sq km, are inhabited. Nevertheless, tourists can access the place during summer time. The reserve in Tyre, the largest sandy beach in Lebanon, is also a Ramsar site. The reserve is expanding over 380 ha, and includes a large area for agriculture; its northern part is open to the public.

In 2012, a proposal was developed to establish a National Committee on Integrated Maritime Policy, which has the objective of overseeing the development and implementation of an integrated maritime policy in Lebanon.

Existing maritime policies in Lebanon are highly sectoral. In some cases, maritime components of sectoral policies are not well-defined, and some of the organisational and legal frameworks are out-dated, incomplete or poorly implemented, although many laws exist. While some ministries have existing mechanisms for cooperation with other ministries and other stakeholders, in other ministries the mechanisms are soft or do not exist. Currently, there is no overall or integrated system for maritime governance or policy.

For coastal development, the Council for Development and Reconstruction replaced the Ministry of Planning, with duties not widened enough to include land use and planning functions.

The CDR was asked by the government to study and issue a master plan for the coastal sea defining the settlements, agricultural, industrial tourist and archeological zones. This plan is very important to restrict construction and bad utilization of the coast.

Source: Lebanon International Oil and Gas Summit in Beirut, Lebanon May 9, 2017. Ministry of Environment (www.moe.gov.lb)

1.7 Libya

Libya, located in the south-eastern part of the Mediterranean, has a long coastline about 2,000 km. For fisheries, FAO gives for 2014 an amount of about 25,000 tons of fish capture. Aquaculture production is supposed to be very low.

131 landing sites of fisheries were recorded along the Libyan coast.

There is a Marine biology research center at Tripoli-Tajura. Its sectors of research are: fish biology, aquaculture, marine environment, ecology of endangered species (marine turtles).

Marine environmental studies are funded by Libyan Authority for Research, Science and Technology.

Source: www.ciesm.org; presentation by E. Shakman Zoology department – Tripoli University – Libya (UNEP/MAP workshop on scales of assessment, Nice 27 April 2017)

1.8 Monaco

Monaco is a small independent state located between Nice and the Franco-Italian border. Its territory, which extends over an area of 2 km^2, with a coastline about 4 km long is very urbanized. Major works have been carried out in recent decades to gain building areas on the sea and develop the port facilities. Not being member of the EU, Monaco has adopted the Euro as currency. Neighbouring agreements (tax, customs, etc.) have been signed with France.

Although small in size, Monaco has long been involved in sea-related issues and remains very active internationally in this area.

1. Maritime economy

The specific geographical features of Monaco, the favourable tax system for residents and businesses and its international hub make the Principality of Monaco a very welcoming place for world-class events and the location of the headquarters of international companies or their agencies. The economy of the country relies mainly on financial and maritime activities and tourism.

Moreover, the historical pioneering role of oceanography in the 19th century, gives this territory an especially important international role in oceanography. This is why several maritime institutions are located in Monaco.

In addition for more than 150 years, the Principality of Monaco has chosen to adapt its urban development to the small size of its territory. To compensate the lack of real estate available, the Principality has gradually spread into the sea. To support its development, the Principality has launched a new urban expansion project at sea. This development will create a neighbourhood of six hectares, with great ambitions in terms of sustainable development and environmental protection.

The maritime vocation of Monaco is mainly focused on maritime traffic, offshore energies, large luxury yachts and coastal management innovation.

Several international shipping companies are located in Monaco. There are also companies involved in oil & gas offshore.

Luxury yachting activities

Industries and services to yachting is a development axis for the principality, targeting mainly super yachts. The Monaco yachting cluster has been established in 2014. A yachting training module has been integrated in a course of a Master degree, focused on luxury and management of the University of Monaco.

Port Hercules, a deep-water port, provides anchorage for up to 700 ships.

Monaco Yacht Show is a very important international trade fair for luxury ships and their equipment. This exhibition exposes very innovative yachts and beyond, for example underwater tourism with Yacht Based Submersibles.

This luxury yacht activity also led to the development of maintenance companies for these boats.

Coastal management innovation

Monaco has launched a €2 billions project for a new offshore urban extension, which will create a district of six hectares, with lofty ambitions in terms of sustainable development and environmental protection. An innovative characteristic of this project is the development of a large SWAC (Sea Water Air Conditioning or Heat pumps using sea water). The calorific energy recovered from the sea can supply buildings in heat and cold.

As an ecological compensatory part of this coastal project, Monaco has launched an unprecedented operation to transplant a large amount of the *Posidonia* affected by the reclaimed area.

2. Research and technology

By organizing oceanographic expeditions at the end of the 19th century and by founding the Oceanographic Museum of Monaco and the oceanographic institute in the 1910s, Prince Albert I installed Monaco in the oceanography landscape.

This commitment continues today and Monaco is behind or supports actions to protect and better understand the oceans.

The Monaco Blue Initiative, launched in 2010, is a discussion platform co-organized by the Oceanographic Institute - Albert I^{er} Foundation, Prince of Monaco and the Prince Albert II of Monaco Foundation. It meets once a year to address the current and future global challenges of oceans management and conservation. The aim is to encourage

exchanges between companies, scientists and decision-makers to analyse and promote the possible synergies between the protection of the marine environment and socio-economic development.

Monaco exploration: in association with the owner of a private vessel recently built for pleasure and oceanographic cruises (the Yersin, 77 meters ship), Monaco launched in 2017 a 3 year oceanographic campaign including a trip around the world. Scientific partners, including the Monaco Oceanographic Institute, are involved in the program.

Several international organizations are located in Monaco:

- IHO (International Hydrographic Organization) headquarters, which principal aim is to ensure that all the world's seas, oceans and navigable waters are surveyed and charted;
- CIESM (Mediterranean Science Commission). Cf. chapter 2;
- The Marine Laboratory of IAEA (International Atomic Energy Agency).

http://institut-ocean.org
www.ramoge.org
www.sanctuaire-pelagos.org http://
monacoexplorations.org/ http://
www.monacoblueinitiative.org

3. Policy

International agreements and institutions

The RAMOGE agreement was initiated by the Monegasque authorities in 1976. It represents an instrument for scientific, technical, legal and administrative cooperation between France, Monaco and Italy with the aim of preserving the marine environment and combating pollution. The agreement covers the coastal zone extending from Marseille to La Spezia. The permanent secretariat is provided by the Principality of Monaco. Supported by European directives and international conventions of greater scope, RAMOGE is today mainly a tool of regional cooperation associating the PACA and Liguria regions and the Principality of Monaco.

With France and Italy, Monaco signed the Pelagos agreement in 1999, creating a Sanctuary for marine mammals in the North-Western Mediterranean. This agreement is intended to promote concerted and harmonized actions between the three countries for the protection of cetaceans and their habitats against all causes of disturbances. The Permanent Secretariat of the Pelagos Agreement is located in Monaco.

1.9 Montenegro

Montenegro is a Mediterranean country of 13,812 km^2, with about 625,000 inhabitants and a population density of 45 inhabitants/km^2. The length of the Montenegrin coast is 294 km and the surface of the inner waters is 362 km^2, while the surface of the territorial waters is 2,098.9 km^2. The deeper parts of the Adriatic are found near the

Montenegrin coast (deepest point: 1,230 m). At the seaside, Montenegro is bordered by Croatia in the northwest and by Albania in the southeast.

According to EU document and references within (https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/docs/body/montenegro_01_en.pdf) updated regularly until February 2011, fisheries and mariculture constitute activities with a low share in the national GDP in Montenegro. In 2008 fish catches amounted to 900 tons. The national fishing fleet is rather limited (22 vessels of which 19 trawlers in the year 2008). Other fishing activities are performed by small-scale gears in the littoral part of the sea. There are currently no major energy production facilities in the coastal zone and no plans to their building. Limited offshore oil and gas explorations were conducted and plans for their continuation exist. The Montenegrin tourism sector contributed to around 15% of national GDP and is one of the country's main development priorities. Montenegrin coastal waters and the Montenegrin coast are primarily used for beach tourism over 75-km long sandy beaches and numerous bathing areas.

With regard to maritime transport it must be noted that several international ports are in operation (ports of Bar, Kotor, Zelenika and Risan) the latter three being located in the Bay of Boka, which implies intense use of space in this relatively small bay. The port of Kotor is exclusively used as a passenger terminal for liners and cruisers and accounts for 100% of cruising vessels turnover and 84% of nautical tourism turnover in Montenegro. In general, the volume of maritime transport (2.5 Mtons of goods and 66 000 passengers in 2008) is relatively low, although better use of port, railway and road capacity is planned. Nautical tourism is considered to be also strengthened in future.

Spatial Plan for the coastal zone/Public Maritime Domain as a Special Purpose Area was adopted by the Parliament of Montenegro in 2007. It was the first step the Montenegro took towards an integrated management of the coastal zone, encompassing both the land and the sea area of the entire region. Here marine part is considered to be the territorial sea, while the land is defined as a narrow coastal strip that makes a functional unit with the sea. The plan defines all important activities relating to the economy and the use of the coast. The management of this area is entrusted to the Public Enterprise for Coastal Zone Management – Morsko Dobro. The drafting and realization of the spatial plan is the responsibility of the Ministry of Spatial Planning and the Environment. With regard to marine policies, key competences lie with the Ministry of Maritime Affairs, Transport and Telecommunications. Furthermore, the following actors are also engaged in some aspects of spatial planning and/or marine and maritime policies: Ministry of Tourism; Ministry of Water Management; Ministry of Agriculture, Forestry and Water Management and Coastal municipalities. A part of the legislature is the obligation to prepare Environmental Impact Assessment for all facilities and interventions that pose a threat to the environment, while plans and projects with a bigger scope of work need to have a Strategic Environmental Assessment.

According to the Network of Managers of Marine Protected Areas in the Mediterranean (MedPAN), Montenegro has not yet established any Marine Protected Areas (MPAs), however, during the process of developing the National Action Plan for Reduction of Pollution from Land Based Sources, pollution hotspots and sensitive areas in the coastal sea were identified. The most pollution hotspots and sensitive areas are located in the Bay of Boka.

In 2014 country fiche for Montenegro has been produced by EUNETMAR (https://webgate.ec.europa.eu/maritimeforum/sites/maritimeforum/files/Montenegro_cf.pdf). This documents states that contribution of tourism to GDP is at the level of 15% and growing, with the predominant share of tourism in the coastal area. GDP per capita was EUR 5,211 (MONSTAT). There are listed a number of maritime activities but cruise tourism, yachting and marinas, coastal tourism and mariculture are four categories indicated as having most future potential.

In 2007 PAP/RAC produced document titled "National report on current policy, procedures, legal basis and practice of marine spatial planning in Montenegro" (http://www.pap-thecoastcentre.org/pdfs/CAMP%20MN%20Feas%20Study%20FINAL.pdf), outlining state of affairs, problems and recommendations. In this document importance of tourism in coastal area is accentuated, with respect to supporting infrastructure, associated problems and potential for development.

On June 17th 2014 the European Commission has launched a new Strategy for the Adriatic and Ionian Region. In this "macro-regional strategy" one EU country and one non-EU country are paired and are coordinating the development of each element of Action Plan (https://ec.europa.eu/maritimeaffairs/policy/sea_basins/adriatic_ionian_en). Greece and Montenegro are paired and responsible for "Blue Growth": this pillar intends to drive innovative maritime and marine growth in the Region, by promoting sustainable economic development and jobs, and business opportunities in the blue economy.

Montenegro is involved in several international initiatives: The Adriatic Euroregion (26 members - regional and local governments from Italy, Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, Albania and Greece); The Adriatic-Ionian Initiative (Albania, Bosnia and Herzegovina, Croatia, Greece, Italy, Slovenia and Montenegro); and The Trilateral Commission (for protection of waters of the Adriatic Sea and coastal areas from pollution) (Croatia, Italy, Slovenia and Montenegro). Several financial instruments has been available for implementation of the strategic documents and initiatives, like The IPA Adriatic Cross-Border Programme, The PlanCoast project, the European Territorial Cooperation program ADRION – Adriatic Ionian Cooperation Program for period 2014-2020 (http://www.adrioninterreg.eu), and other.

In June 2017, the Ministry of Science addressed to the Strategic Board of the BLUEMED Initiative an official intention to participate to the works, also by aligning at national level some strategic priorities from the BLUEMED SRIA.

With respect to marine and maritime research, the most active player is Institute for Marine Biology (http://www.ucg.ac.me/me/o-univerzitetu/info/clanice-univerziteta/institut-za-biologiju-mora), which is engaged in many research and collaboration projects dealing with marine environment on several EU platforms.

Sources of information used:

1. Dubljevic, V. Oil and Gas in Montenegro: PowerPoint presentation;
2. FAO, Yearbook of fishery statistics;
3. Government of the Republic of Montenegro, Ministry of Economic Development and the Ministry of Tourism and Environmental Protection, 2007, National Strategy of Integrated Coastal Area Management (NS ICAM) of the Republic of Montenegro;

4. PAP/RAC, 2007, National Report on Current Policy, Procedures, Legal Basis and Practice of Marine Spatial Planning in Montenegro, Budva;
5. PAP/RAC, 2008, Coastal Area Management Programme Montenegro – feasibility study, Podgorica;
6. The Network of Managers of Marine Protected Areas in the Mediterranean, www.medpan.org;
7. VLIZ, 2009, Maritime Boundaries Geodatabase, version X, available online at http://www.vliz.be/vmdcdata/marbound, consulted on 2009-12-14.

1.10 Morocco

Morocco is a Mediterranean country of 710,850 km^2 (including 264,000 km^2 of Sahara desert) with about 34.4 million inhabitants (official data of 2015) a predominant urban and young population (60.3% living in cities and 44.7% under 25 years old). Moroccan GDP is approximately $100.6 billion and its GDP growth is 4.5% with a 1.6% inflation (data of 2015 – source The World Bank).

The length of the Moroccan coast is nearly 500km with a 2.53% of its territorial waters classified as marine protected areas. Regarding fisheries, Morocco represents 1.02% of total catches of world leading producers with 964,704 tons (live weight).

1. Maritime economy

Maritime transport

Morocco is part of the GTMO 5+5 (Transport Group of the Western Mediterranean), which aims to promote cooperation and innovation on transport in the Western Mediterranean and to contribute to the Euro-Mediterranean Partnership. The members of GTMO are transport ministers from the ten countries in the region (Algeria, France, Italy, Libya, Malta, Mauritania, **Morocco**, Portugal, Spain and Tunisia). The EC Directorate General for Mobility and Transport and the General Secretariat of the Arab Maghreb Union (AMU) also participate as observers. CTMO performs the function of Technical Secretariat.

GTMO 5+5 is a group of cooperation on transport at the highest level that initiated its trajectory in 1995 in Paris, where the meeting of constitution of the group took place.

In 2016 a comprehensive report was launched by the Ministry of Economy and Finances of Morocco about the evolution and perspectives of maritime transport in the country (see bibliography). In its conclusions, the document stress the evolution that commercial exchange structures in Morocco have gained over 20 years and the respective pressure to the maritime transport. This multidimensional challenge has led to a number of initiatives such as the harbour reform, the creation of Tangier Med, the creation of regular lines, which improved the maritime connectivity of Morocco (from the 77 position to the 16 position in the Connectivity Index LSCI of Morocco).

Nevertheless, important challenges are still to be addressed. The demand of maritime transport is by itself fluctuant given the many factors (economic, social and environmental) of the import/export system. But even being fluctuant, it is growing and Morocco is nowadays in leading positions at global level in the exportation of

phosphates, cereals and a remarkable exporter of coal, hydrocarbons, sulphurs and ammonia.

Fisheries and aquaculture

Fishing is a key economic sector in Morocco. By 2015, catches amounted to 1,370,000 tons, a volume largely dominated by small pelagic fish caught on the Atlantic coast.

Aquaculture is marginal with a production of 1,050 tons (2015).

Source: FAO

Tourism: In this sector, Morocco is a leading country in the region. Tourism is considered a strategic industry for the country and has been developed considerably, representing almost 8% of employment, the highest share in the region. Tourists are attracted to Morocco's cultural resources and some natural resource hot spots, including popular beach resorts, while the industry benefits from a relatively safe setting and a favourable business environment. The country's infrastructure also plays a significant role, though air and ground transport have room for improvement.
Source: http://reports.weforum.org/travel-and-tourism-competitiveness-report-2015/index-results-the-travel-tourism-competitiveness-index-ranking-2015

2. Research and technology

INRH (Institut National du Recherche Halieutique) is the major research institute of Morocco in charge of marine resource management, contributing specifically to the development of sustainable fisheries and aquaculture, the national health and zoo-sanitary control system essential and the protection of consumers of fishery products.

The context and the fisheries problems have evolved considerably since its creation, passing questions of prospecting and development of new fisheries to issues of biodiversity, the effects of climate change or safety of the marine environment.

The diversity of INRH's fields of action and research fields is based, on a central organization based on three scientific departments for the coordination and national supervision of scientific activities:

- **Department of Fisheries Resources**: Its role is to: (i) Assessing fishery resources, establishing diagnoses of the state of stocks, determining their levels of exploitation and studying the factors governing their evolution; (ii) Prepare all the biological, technical or economic data necessary for the implementation of management plans.
- **Marine Water Quality and Safety Department**: Its role is to: (i) To monitor the safety of fishery and aquaculture products in their environment; (ii) Ensure the continuous monitoring of the various sources of marine pollution, in particular chemical and microbiological pollution.
- **Oceanography Department:** Its role is to carry out studies and research in the field of oceanography along the Atlantic and Mediterranean coasts of Morocco, with the aim of deepening knowledge on the marine environment and better understanding its effects on the dynamics of fisheries resources.

Regarding marine technologies, INRH is the major player at national level. The institute has in Agadir since 2004 a specialized centre for the valorisation of products of the sea (CSVTPM) and related technologies.

The main objectives of the centre are:

- The development of transformative technologies for products of the sea;
- The contribution to increase the added value of fisheries resources;
- The contribution to improve the quality and hygiene management;
- The improvement of the analysis systems of the products of the sea;
- The optimisation of industrial transformation activities;
- The anticipation and follow up of innovative technologies.

Source : www.inrh.ma

3. Policy

Moroccan national system of research and innovation

The situation of research and innovation in Morocco is similar to many others in southern Mediterranean countries with the exception of Israel: there is a lack of investment and resources for research, especially within the public sector and a low valorisation of research and innovation and technology transfer to industry.

Nevertheless, since 2009 there is a stronger promotion and support to industrial innovation and there is a raising generation of entrepreneurs and SMEs technology based, supported by risk capital, which is creating a higher dynamism with innovative projects.

The Moroccan innovation policy is centralized by the state through its government. Policy is mainly done by the two ministries involved: the Ministry of Education (MENESFCRS) and the Ministry of Industry. These two main actors, together with a number of public bodies and private entities, develop innovation policies through the implementation of specific actions and programmes.

In 2015, Morocco has adopted a law on the protection of the coastline whose objectives are:

- the preservation of biological and ecological balances, natural and cultural heritage, historic and archeological sites, natural landscapes and the coastal erosion control;
- prevention, control and reduction of pollution and degradation of the coastline and rehabilitation of polluted or deteriorated areas and sites;
- planning, in particular through a national littoral plan and compatible regional coastal schemes, in perfect harmony with spatial planning documents;
- the involvement of associations, the private sector and the local and regional authorities in the decision-making regarding coastal management;
- the guarantee of free access to the shore;
- the promotion of a research and innovation policy aimed at valorising coastal resources

Source : www.environnement.gov.ma/fr/134-actualites/1013-adoption-de-la-loi-n-81-12-relative-au-littoral-par-le-parlement

Regarding fisheries collaboration between EU and Morocco, an EU-Morocco Fisheries Partnership Agreement Protocol for 2014-2018 was set up to periodically review the implementation of the protocol: both the fishing activity carried out by the EU fleet and the implementation of the EU support to the Moroccan fisheries sector. So far, as much as 74% of the sectorial support funds have been absorbed and directed towards the common objectives. The Protocol is having a good progress and an agreement was made to introduce a number of new measures that will make fishing operations more efficient and improve compliance with mandatory landings.

Sources of information used:

1. ICEX report for Morocco by the Spanish Economic and Commercial Office in Rabat (update August 2016)
2. MoU on marine resources between Morocco and Spain (2016)
3. European Commission websites on Maritime Affairs related with Morocco (Fisheries Partnership, Integrated maritime policy, Cooperation in the Mediterranean Sea basin) https://ec.europa.eu/maritimeaffairs/content/progress-made-eu-%E2%80%93-morocco-fisheries-partnership_en
https://ec.europa.eu/maritimeaffairs/policy
https://ec.europa.eu/maritimeaffairs/policy/sea_basins/mediterranean_sea_en
4. Eurostat fisheries statistics
http://ec.europa.eu/eurostat/statistics-explained/index.php/Fishery_statistics
5. Centre d´Études des Transports pour la Méditerranée Occidentale
http://www.cetmo.org/e_gtmo.htm
6. European Union External Action website on the Union for the Mediterranean (UfM) https://eeas.europa.eu/headquarters/headquarters-homepage/329/union-for-the-mediterranean-ufm_en
7. The World Bank IBRD-IDA database – Morocco
http://data.worldbank.org/country/morocco
8. Institut National de Recherche Halieutique (INRH) websitehttp://www.inrh.ma/fr
9. Plan Bleu – Building the Mediterranean future together – website information http://planbleu.org/en
10. Green Economy in Morocco – UN report (FR)
11. COLUMBUS project website http://www.columbusproject.eu/
12. Le transport maritime des marchandises au Maroc: Evolution et perspectives https://www.finances.gov.ma/Docs/depf/2016/Le%20transport%20maritime%20d es%20marchandises%20%20Evolution%20et%20perspectives%20%20V%202016. pdf

1.11 Palestine

Officially the State of Palestine is a *de jure* sovereign state in the Middle East claiming the West Bank and Gaza Strip. The Gaza Strip is a coastal strip on the eastern side of the Mediterranean Sea, with a total coastal length of 40 kilometres. The total area of the Gaza Strip is 365 square kilometres. The Gaza Strip is home to about 1.54 million. It has the world's largest population density, at about 4,206 inhabitants per square km[2].

[2] http://www.palestineeconomy.ps/files/server/20152501101729-1.pdf

Israel exercises military and civil control over various parts of Palestine, including the maritime waters[3]. Access to waters for Palestinian is restricted to a 3-nautical-mile limit.

1. Marine economy

Due to the political context and the restricted control that the Palestinian authorities has over the maritime space, the maritime sector faces many challenges and constraints that have limited the ability to develop resources, technology and industries upon its maritime and coastal assets.

- **Maritime transport and ports**: Currently, Palestine only has a small port in Gaza City, the Port of Gaza. It is the home port of Palestinian fishing-boats and the Palestinian naval police.
- The establishment of a Gaza seaport was mentioned in the Oslo I Accord. The project started in 2000, but was stopped in an early stage due to the war with Israel. The 2005 Agreement on Movement and Access re-announced the start of the works, however, the construction has not been resumed[4]
- **Desalination**: The Palestinian Water Authority has carried out feasibility studies and the Secretariat of the Union for the Mediterranean has offered support for the development of a desalination plant[5], but no plans have yet been finalised for development.
- **Fisheries**: Although the Eastern Mediterranean is less productive than the West, a number of commercially valuable fish species are present off the Gaza coast and have been intensively fished in the past. Traditionally the Palestinian fisheries may plays a major role in the activities of the national economy. Most of the high value fishes are the demersal species of which are the main exports to foreign markets, whilst the pelagic landings are consumed locally providing an important source of protein in the diet of the inhabitants[6]. However, out-dated fishing equipment, overfishing[7], damaged infrastructure and limited fishing areas due to hostilities have severely limited the ability of the fishing industry[8].
- **Oil and gas:** There are substantial oil and gas reserves in the waters off the Gaza coast, but jurisdictional rights over the area are in dispute between Palestine and Israel.

[3] http://51.255.195.60//En/imp-med_9_page '*Integrated Maritime Policy in the Mediterranean (IMP-MED)' The Project on Integrated Maritime Policy in the Mediterranean (IMP-MED) is an ENPI South-funded project which seeks to provide opportunities to nine southern Neighbourhood States in the Mediterranean to engage in and to obtain assistance for developing integrated approaches to maritime affairs. The nine Partner Countries are: Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, Syria and Tunisia.*

[4] https://en.wikipedia.org/wiki/Port_of_Gaza

[5] http://ufmsecretariat.org/the-desalination-facility-for-the-gaza-strip-project/ http://ufmsecretariat.org/wp-content/uploads/2016/02/EW-Gaza-strip_EN.pdf

[6] http://overfishing.org/interesting/documents/fisheries_gaza/2002_gaza_briefing_paper.pdf

[7] http://overfishing.org/interesting/documents/fisheries_gaza/2002_gaza_briefing_paper.pdf

[8] http://51.255.195.60/En/palestine_30_pp#?

- **Tourism in Gaza strip:** Due to the hostilities, the tourism in Gaza is virtually non-existent though the climate of the Gaza Strip (an average temperature of 26°C in August) and its coastline make it suitable for foreign tourism.

2. Marine and Maritime Research

Marine research and environmental survey is poorly developed in Palestine. The Ministry of Higher Education and Scientific Research was established in 1996. Scientific research activities were initiated after 1995, as a result of grants received from international fund raisers.

Among the sixteen scientific research centres existing in the Palestinian Universities there is the Palestinian Excellence Center for Marine Sciences and Coastal Management of the Islamic University of Gaza[9]. At governmental level, there are some research centres, such as the National Research Centre of the Ministry of Agriculture and Water Management Research at the local Water Authority. However, it should be mentioned that research still lacks funding and a national policy for science, technology and research is required[10].

Monitoring of the seawater quality of Gaza strip is limited, information on the structure of the seawaters, such as hydrocarbons, nitrates, heavy metals and other pollutants appears to be lacking.

3. Policy

A high level of pressures is exerted on the marine ecosystem of Gaza strip, which have serious impacts on marine life. The following points summarizes the pressures and the associated impacts of the marine ecosystem:

- Overfishing lead to deterioration of fish population and non-sustainable fish population growth;
- Illegal methods for fishing;
- Discharge of untreated or partially treated sewage to the seawater and solid waste dumping in the coastal area;
- Seasonal flooding of Wadi Gaza discharge large quantities of pollutants which affects marine water and destruction of marine habitat.

More specifically, the discharge of untreated wastewater into the shallow waters of Gaza strip is a serious problem for the status of the marine ecological system. About 80% of the wastewater generated in Gaza strip is currently discharged without treatment into the sea. Marine habitat destruction (including from land filling, dredging, building, etc.) is also a serious problem.

Palestine lacks a coordinated maritime policy, with no single organisation having responsibility for the administration of maritime affairs and no national strategy, vision or policy for the maritime sector. There are various administrative entities, which have maritime interests, but they are invariably poorly resourced, lack capacity and frequently do not address maritime issues extensively in policies or strategies.

[9] http://pecmas.iugaza.edu.ps/en/About_us
[10] http://eacea.ec.europa.eu/tempus/participating_countries/overview/oPt.pdf

Nevertheless, various strategies and plans exist, including: the National Action Plan for Reduction of Pollution of Mediterranean from Land Based Sources, the Agriculture Strategy, the National Sector Strategy for Water and Waste Water in Palestine 2011 – 2013 and the Biodiversity Strategy and Action Plan. Furthermore, the Ministry of Environmental Affairs has established the Coastal and Marine Environmental Protection Committee, as a cross-ministry coordination body.

As in other areas, a major priority for maritime policy concerns Palestinian aspirations for statehood, and relations with Israel. An Agreement exists between Israel and Palestine Liberation Organization (Cairo, 4 May 1994) that includes agreements on the use and responsibilities for the maritime space off the Gaza coast, but there are disputes about its implementation[11].

1.12 Syria[12]

Syria is situated in the Eastern Mediterranean region. The country population has 18.4 millions inhabitants. Syria has maritime boundaries with Turkey, Cyprus and Lebanon. Its surface area is 185,000 km^2. The coastline of Syria measures 183 km.

Although Syria did not ratify the UNCLOS13, Syria can claim an EEZ. The country is divided into fourteen governorates, of which two are located along the coast, namely Latakia governorate and Tartus governorate[14].

Syria ratified the ICZM - Integrated Coastal Zone Management in the Mediterranean Protocol of the Barcelona Convention in November 2010.

Syria is mainly considered an 'inland country'; overall there are still few human maritime activities, especially along the northern Syrian coast.

In spite of the ongoing war a few elements are given about the Syrian blue economy. However, due to the instability of the political situation of the country, they must be considered cautiously.

1. Blue Economy

- **Ports:** In the last century, the Syrian coast witnessed the development of large maritime facilities including the Banias oil terminal, the commercial sea port of Latakia and the commercial sea port and oil terminal of Tartous. However, overall there are still relatively few human maritime activities, especially along the northern Syrian coast.
- **Oil:** In 2010, Syria remained dependent on the oil and agriculture sectors. The oil sector provided about 40% of export earnings[16]. Proven offshore

[11] http://51.255.195.60//En/palestine_30_pp#
[12] In May 2011The European Union decided to suspend all cooperation with Syrian authorities therefore limited information is available onwards.
[13] ESaTDOR European Seas and Territorial Development, Opportunities and Risks ANNEX 12 to the Scientific Report Governance Case Studies: Mediterranean Sea
[14] Exploring the potential of maritime spatial planning in the Mediterranean, European Commission study
[15] http://www.pap-thecoastcentre.org/
[16] http://siteresources.worldbank.org/INTSYRIANARAB/Resources/Syria_Web_brief.pdf

expeditions have indicated that large reserves of oil exist in the Mediterranean Sea floor between Syria and Cyprus.

- **Fisheries:** According to Syria's General Directorate of Ports (responsible for the management and monitoring of fisheries) the Syrian fishing fleet is composed of about 2,000 "artisanal" fishing boats using various gear (e.g. gillnets, trammel nets, long lines). It also includes 55 purse seiners (working at night with lamps and targeting epipelagic fish) and 25 bottom trawlers. From 2005, Syrian bottom trawlers are only allowed to fish in international waters (Ministerial Decree No. 15/T of March 19th, 2004). Trawling within the 12 nm of Syrian territorial waters was banned since the Syrian Government acknowledged the decline in catch per unit effort, and decided to prevent further damage to the marine environment (including declining seagrass beds, Marttin *et al.* 2006).[17] FAO estimates fish captures to 1,600 tons in 2014. This is twice less than in 2008. Aquaculture production is estimated to 2,500 tons (year 2015), which is much less than in 2008 (8,600 tons).

2. Marine research/technology

The main organisations involved in marine research activities are:

- At governmental level : the General Commission for Environmental Affairs, the Ministry of Local Administration and Environment, the Ministry of Agriculture and the Ministry of Higher Education.
- The High Institute of Marine Research, Tishreen University - Lattakia[18]
- Laboratory of Marine Sciences and Aquatic Environment, Faculty of Agriculture- Department of Basic Sciences, Tishreen University[19]
- The Environmental and Scientific Research Centre (ESRC)

3. Policy

Like many Middle East and North Africa countries, Syria faces major challenges in terms of environmental and natural resources sustainability. The strongest impact of human activities on the marine environment is water pollution, mainly caused by untreated wastewater discharges originating from the cities.

With regard to the marine environment, Syria's continental shelf is naturally characterised by low bioproductivity due to the high salinity of the coastal water, relatively low freshwater inputs, a slow sea current and a low tidal level.

In Syria, an integrated legislative and managerial base covering the entire coast does not exist. Hence, sectoral legislation and management dominates[20]. The most relevant authorities as regards maritime policy, spatial planning and the management of the coastal zone are:

– Ministry of Local Administration and Environment;

[17] http://www.dolphinbiology.org/_download/literature/Gonzalvo_Bearzi_Syria_2008.pdf
[18] http://www.ciesm.org/online/institutes/inst/Inst46.htm; http://en.tishreen.edu.sy/
[19] http://members.seaturtle.org/TotEM/syriawww/LMSAE.htm
[20] Exploring the potential of maritime spatial planning in the Mediterranean, European Commission study

– Directorate of Ports - Ministry of Transportation[21];
– State Planning Commission (The central planning authority of the country).

There is a low level of environmental awareness with both the public and the national / regional administrations. Nevertheless, additional Maritime Spatial Plannings have been proposed in 2004 and in 2009 Syrian biodiversity experts participated in a series of workshops on MPA management and planning, which were conducted by the IUCN in partnership with the Syrian Ministry of Environment.

In 2008 an ICZM Policy Brief 'Towards a Strategy for Syria's coast' was developed in the framework of the SMAP programme as a first step to achieve a sustainable development strategy for Syria's coast called "Coast 2025"[22]. The main conclusions of the policy brief are:

– A strategic integrated approach to spatial planning of the coastal area is still absent; lack of scientific data, reliable statistics along with inadequate identification or diagnosis of problems weakens planning in general;

– Low level of environmental awareness by both the public and the administrations, although the country faces a high degree of pollution;

– Undervaluation of the coastal zone;

– Low degree of public participation in policy making, including social and academic sensitivity to coastal issues.

Syria's Multilateral Environmental Agreements

- Convention for Protection of Marine Environment of the Mediterranean and Coastal Region (1978)
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes (1992)
- Convention on Wetlands of International Importance (1997)
- Rotterdam Convention (2003)
- Convention for Protection of Marine Environment of the Mediterranean and Coastal Region (2005)
- Stockholm Convention on Persistent Organic Pollutants (2005)
- UN Sustainable Development (2012)

1.13 Tunisia

Tunisia, occupying a central place in the Mediterranean, opens up widely onto the sea, mainly on its eastern and southern shores. It has more than 1 300 km of coastline, limited on the west by Algeria and on the south by Libya. With a total area of 164,000 km^2, Tunisia is the smallest country in North Africa with a population in excess of 10 million.

[21] http://www.gdp.gov.sy/pages/en/english.html
[22] SMAP (Short and Medium-term Priority Environmental Action Programme) is a framework programme of action for the protection of the Mediterranean environment, within the context of the Euro-Mediterranean Partnership; the programme was supported by the European Commission, DG Environment between 1995 and 2006.

The Sicily channel (passage crossed by the maritime road connecting Suez to Gibraltar) is the sea arm located between Tunisia and Sicily; its narrowest part is located between Cap Feto and Cap Bon and is 145 kilometres wide. This channel represents an international maritime space: islands, maritime safety and security, environment, transport, fishing, etc.

The Gulf of Gabes located on the eastern side of the country extends to the Tunisian-Libyan coast. It represents another important maritime zone, associated with important environmental, tourism and fishing challenges.

In Tunisia, the main cities and economic centres are located on the coast, and 76% of the urban population lives in coastal cities.

1. Maritime economy

Maritime economy constitutes an important maritime challenge for the overall development of Tunisia. Main sectors are:

- **Maritime transport and security**: most imports are made by sea, and Tunisia occupies a major strategic position in the Sicily Channel (longitudinal and cross-sectional traffics, submarine wires and pipelines). The Enfidha port, 75 km south of Tunis, is a deep-water port infrastructure planned for a total capacity of 5.7 million TEU at a cost of € 1.4 billion spread over 20 years. The purpose of the port is to capture a part of the container transhipment market. By 2020, it is expected that Enfidha port will boost development of the hinterland in the area and create 20,000 direct and indirect jobs.
- **Fishing and aquaculture**. Fisheries represent a relatively important economic activity (seaside economy, exports). Fisheries contribute about 1.4 percent to the Gross National Product (GNP);
- **Aquaculture** in Tunisia is not developed at the pace expected by the public authorities. Current production levels are about 14,425 tons (year 2015) according to FAO. Today, around 1,000 people are directly and permanently employed in aquaculture. Over the last decade, aquaculture has evolved to a certain extent through the implementation of projects to breed new species, in order to diversify aquaculture products and weaken crucial competition for species such as the European seabass and the gilthead seabream on the European market. In line with this four shellfish farming projects were established in the Bizerte Lagoon, and four blue fin tuna fish fattening projects on the east coast. Another fish farm has just been opened to breed Nile tilapia in Southern Tunisia. FAO reports aquaculture production shares as following: freshwater fish species (42%), shell-fish (5%), Bluefin tuna (16 %) and marine fishes (37%).[23]
- **Tourism**: it is mainly coastal with many opportunities still offered to further boost this sector (coastal tourism, cruise ships and pleasure activities). This sector could be further developed taking advantage of the considerable coastal natural heritage and valuable marine environment

[23] FAO publications related to aquaculture for Tunisia

- Oil and Gas: Offshore oil and gas resources are explored and exploited at the level of the Tunisian continental shelf for a long time ago. The upstream oil industry is still modest and upcoming as compared to its neighbouring countries. Tunisia imports more petroleum products than it exports crude oil. Negotiations are under way with Algeria, Italy and Libya for the delimitation of the continental shelf. A large number of offshore concessions (30+) have been allocated to several international oil companies in the Gulf of Tunis, the Gulf of Hammamet and the Gulf of Gabes. The main operators in this area are : 1 - **ETAP** the state-owned industrial and commercial company, created by the law of 1972. ETAP is responsible for the management of oil and gas exploration and production activities on behalf of the State; 2 - **SEREPT** "*Société de Recherches et d'Exploitation des Pétroles en Tunisie* » (Tunisian Company for Oil Research and Exploitation) a subsidy of ETAP, 500 employees. The SEREPT Geology & Geophysics team provides geophysical and geological services for several companies

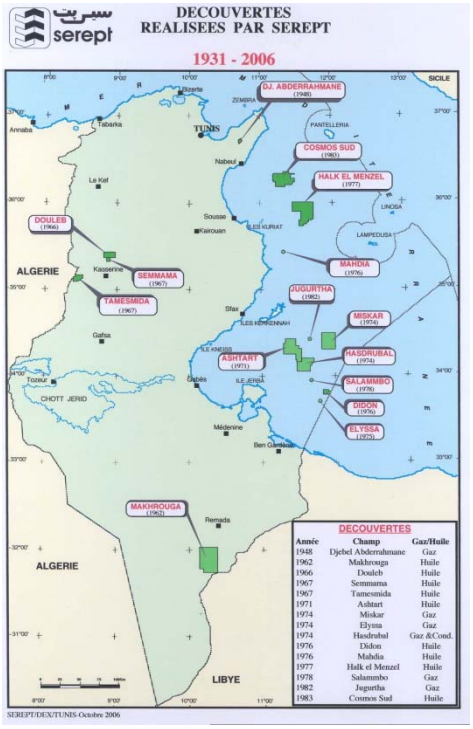


Fig. 2 – Tunisian O&G offshore fields

2. Research and technology

The main institution in the field of marine sciences is "*Institut National des Sciences et Technologie de la Mer*" (**INSTM**).

INSTM's missions are:

- Conduct contract research programs in areas directly or indirectly related to the sea and resources: fisheries, agriculture, marine environment, marine technologies, oceanography, etc.;
- Participate in various national, regional and international networks related to the sea;
- Contribute to solve problems related to the development of urban and economic activities on the coast and in territorial waters;
- Transfer its know-how and research findings to decision makers, marine professionals and scientists;
- Support decision-making for the sustainable management of the sea and its resources;
- Contribute to the dissemination of marine cultural heritage and to public awareness about the protection and preservation of the sea and biodiversity
- Contribute to university training;
- Contribute to the socio-economic development through specific studies for investors;
- Carry out laboratory analysis within the framework of national monitoring networks;

- Organize scientific and technical events.

Priority research programmes are identified as a result of discussions jointly with the Ministry for Research and Technology, Professions and Administration (*Ministère de la Recherche et des technologies).*

It should be noted than INSTM has recently created a department of biotechnology.

Source: www.instm.agrinet.tn

The **APAL** - Agence de Protection et d'Aménagement du Littoral/Agency for Littoral Protection and Planning - was created in 1995. It is responsible for the implementation of the State policy in the field of coastal protection in general and maritime public domain in particular. Its main areas of intervention concern:

- The management of coastal areas and the monitoring of development operations, ensuring that they comply with the rules and standards set by the laws and regulations in force relating to the development of these spaces;
- The regularization and clearance of existing land situations and which do not comply with the laws and regulations relating to the littoral and maritime public domain;
- The preparation of studies relating to the protection of the coastline and the development of natural areas and the development of the necessary research, studies and expertise;
- The establishment of a littoral observing system;
- The rehabilitation and management of natural coastal zones and sensitive areas (wetlands, coastal forests, islands ...).

Source: http://www.apal.nat.tn

In 2008 **OGIM** (Institute of Oil and Gas of Monastir) has been created. It is specialized in training in the area of oil and gas exploitation and exploration. OGIM works closely with internationally renowned institutions in related fields, including Schlumberger for reservoir engineering software, KAPPA for well testing software, APC Training and SEA Group for Instrumentation and Valves Control, and institutions Tunisia: Monastir Engineering, ISSAT Sousse and other renowned institutions. OGIM offers training in the areas of geology and reservoirs, petroleum technology

3. Maritime and coastal policies

Tunisia has not yet developed a global maritime policy. For instance, there is no specific maritime governance structure at the level of the Government or of the Parliament (neither at the decision making nor at the implementation level). Similarly, there is no national forum (maritime council, etc.) where all national maritime stakeholders could meet and discuss maritime issues.

Most traditional maritime activities are based on explicit and clear sectoral strategies implemented by specialized sectoral agencies, relying on comprehensive legal frameworks that are mostly sector-specific. Frameworks usually include an environmental assessment study at the level of projects, but rarely constitute strategic environmental evaluations at the level of policies, plans or programs.

Each sector developed specific resources (such as agencies and services) to conduct studies, surveillance or sea police operations. Some coordination and cooperation exists at the operational level: legislation (through the National Sea Rights Commission created in 1998) and sea operations.

Tunisia did create an EEZ but it is not yet demarcated. Tunisia has signed various agreements with neighbouring countries concerning maritime borders. There are agreements to demarcate the continental shelf. Tunisia is part of all main international maritime agreements (international maritime organization OMI, Barcelona Convention, etc.).

Several maritime and coastal threats and risks have been identified and mainly concern biodiversity, water quality, climatic changes, coastal risks, growing urbanization, industrial pollution, smuggling and illegal fishing activities and migration. Some conflicts in the coastal and maritime space start to emerge in different coastal areas.

In 2009, Tunisia has elaborated a National Strategy about Climate Change. (http://www.environnement.gov.tn/fileadmin/medias/pdfs/dgeqv/chang_climatique_3.pdf).

1.14 Turkey

Turkey occupies a strategic position at the junction of the Mediterranean and the Black Sea. The main Turkish city, Istanbul is located on the Bosphorus, the narrow strait connecting these two seas and place of intense maritime traffic.

The surface of the country is 785400 km^2. Its population was 79.51 M inhabitants in 2016. The length of the Mediterranean coastline is around 5300 km (excluding Marmara Sea, 1474 km.

1. Maritime economy

Maritime economic activities form a strong sector in Turkey offering 280.000 jobs and reaching a total GVA of more than 4.39 billion EUR, with four activities (coastal tourism, short-sea shipping, shipbuilding and fisheries representing 82% of the jobs. Istanbul is the main maritime hub. The 4 other main **port** cities are Izmir, Antalya, Mersin and on the Black Sea Samsun.

The **ship building** and repair sector employed around 20500 people in 2011 (*Eunetmar country fiche*.

Fisheries and aquaculture are essential economic sectors in Turkey. The total fishery capture were 431.9 k tons in 2015 (FAO. Aquaculture has produced 239 k tons in the same year. Anchovy is the main caught sea fish species. Fisheries in the Black Sea are the most important fishery by far.

The Turkish coast features are favourable for the development of **tourism** and there are in the country many historical and archeological sites. Coastal tourism is important sources of revenue for the country (GVA of 1599 M€ in 2009, Eurostat.

2. Research and technology

Turkey has started several initiatives to develop marine and maritime research capacity in Turkey. Targets for the development of marine and maritime researches are taken place in the strategic plans of several ministries that have marine related departments.

1. The Ministry of Energy and Natural Resources[1]
   - General Directorate of Mineral Research and Exploration (MTA)[2]
   - General Directorate of Turkish Petroleum (TPAO)[3]

The Ministry of Energy and Natural Resources has a 2014-2018 strategic plan[4] that includes increasing green energy capacity from solar, wind and wave energy. The other targets are:

- Exploration of new marine hydrocarbon resources in Turkish and international waters by TPAO;
- Generating new geological, geophysical and oceanographic dataset for natural hazard, climate change, coastal protection researches by MTA.

2. The Ministry of Transport, Maritime Affairs and Communication[5]

The Ministry of Transport, Maritime Affairs and Communication has targets to develop maritime capacity in Turkey in the 2017-2021 strategic plan[6]:

- Developing action plans for short and long term maritime transport;
- Contributing to the development of the maritime affairs;
- Developing combined transport;
- Developing maritime security strategies.

The most recent and comprehensive strategy document related to marine and marine research in Turkey is the Turkish National Marine Research Strategy (TUDAS) document of the Turkish Government that is signed by the ministerial cabinet on October 2nd 2014.

The Turkish National Marine Research Strategy (TUDAS) was prepared by the Navigation, Hydrography and Oceanography Services, Planning and Coordination Council consisting of all the marine related governmental institutions, university departments and private companies in Turkey. The aim is to realize the marine research priorities of Turkey as a whole towards national interests and necessities in order to reach a level that effectively competes with international research, productively, scientifically and technically in order to promote our country as an arbiter and leader on the international platform.

The Ministry of Development (which is responsible for fund allocation of the national budget) of Turkey is preparing a specific SSS document to comply in parallel to that in EU countries and this SSS is expected to incorporate TUDAS actions.

The main aims of TUDAS are:

1. to accumulate strong, scientific knowledge regarding our seas and areas of interest;
2. to develop and maintain existing observation devices and systems for long term monitoring;

3. to develop a national marine data and information management system and to establish the data/info sharing network;
4. to support the decision makers creating policies regarding the ecosystem approached management of seas and marine protected areas and the management and planning of integrated coastal areas;
5. to prepare and implement a National Marine Research Programme (NMRP) in a cooperative and coordinated manner;
6. to raise the level of scientific infrastructure and knowledge to contribute to regional and international marine research projects and marine policies whilst considering Turkey's national interests;
7. to increase the number of scientists studying in this field.

Within the scope of the TUDAS, the Ministry of Development opened a call in 2017 to examine the present marine research capacity at national level, and to create a road map for future investment on marine research. This project will be performed by the common effort of the three leading marine sciences institutes in Turkey.

The National Sciences and Technology Policy (2003-2023 includes an objective related to marine technologies: Developing new technologies for sustainable water management resources, and for marine pollution.

The main institutions involved in marine research in Turkey are:

- **TUBITAK** (Scientific and Technological Research Council of Turkey), governmental funding agency. *www.tubitak.gov.tr*
- **METU** - Middle East Technical University/Institute of Marine Sciences - *www.ims.metu.edu.tr*
- **ITU**, Istanbul Technical University - *www.itu.edu.tr*
- Dokuz Eylul University (Izmir), *www.deu.edu.tr*
- Ege University (Izmir), *www.ege.edu.tr*
- **IU**, Istanbul University, Institute of Marine Science and Management - *www.istanbul.edu.tr*

3. Marine policy

As a candidate country, Turkey is aiming to comply with several EU directives including the Marine Strategy Framework Directive, Marine Spatial Planning. The Marine Strategy Framework Directive (MSFD) requires member states to achieve Good Environmental Status (GES) of the EU's marine waters by 2020 and to protect the resource base upon which marine-related economic and social activities depend. Marine Spatial Planning (MSP) endorsed by the European Parliament as a piece of legislation that should assist Member States to develop plans to sustainably and efficiently coordinate marine resources.

The Ministry of Environment and Urbanisation[7] has the responsibility for the implementation of the MSFD and MSP in Turkey. An integrated marine monitoring program has been applied along the Turkish coastlines in Mediterranean and Black Sea with the contribution of the main marine science institutions.

In the strategic plan[8] (2013-2017) the Ministry of Environment and Urbanisation is targeting:

- Preparing marine spatial plans;
- Implementation of Integrated Coastal Zone Management;
- Preparing action plans to decrease the marine pollutants including marine litter;
- Creating a water quality monitoring action plan from watershed to deep sea.

In accordance with these objectives the Ministry of Forestry and Water Affairs has a strategic plan[12] (2017-2021) aiming: to

- Creating a national water information system to protect the water resources;
- Monitoring the quality of water to comply the related EU directives.

The General Directorate of Fisheries and Aquaculture under the Ministry of Food, Agriculture and Livestock[9] is responsible for the sustainable use of aquaculture and water resources.

One of the objective taken place in the strategic plan[10] (2013-2017) is to create a Vessel Monitoring System to remotely monitor all fishing boats over 15 meters, in order to keep the pressure on fish stocks under control, and to prevent illegal catching.

The quality of water resources will be verified and kept under control to utilize aquaculture resources in a sustainable manner to protect the stocks in the inland resources.

Other strategy documents closely linked with marine ecosystems are:

- National Biological Diversity Strategy and Action Plan (2008-2017) of the 9th Developmental Plan: Monitoring ecological indicators for coastal and marine biodiversity evaluation; Determination of marine genetic resources; Monitoring of climate change through remote sensing, etc.;
- Turkish Climate Change Strategy (2010-2023): Increasing capacity to deal with the negative consequences of climate change; Determination of climate change effects on sensitive ecosystems, etc.;
- National Basin Management Strategy (2014-2023): scaling up the rehabilitation of large watershed areas in order to reverse the long-term trend of environmental degradation; guiding watershed management to adapt effectively to climate variability and change;
- National Strategy for Marine and Coastal Protected Areas (2014-draft): Improving the management of protected areas; implementing the principles of ecosystem-based management into the use of marine resources in and adjacent to Marine Protected Areas;
- Turkey is also a part of the United Nations Decade on Biodiversity - Aichi Targets agreement that contributes to the implementation of the Strategic Plan for Biodiversity for the period 2011-2020;
- Ministry of Development, National Strategy For Regional Development (2014-2023): Support for sustainable environment and green economy, and for new marine ecosystems protection approaches.

Additionally, Turkey is a member of two regional environmental organisations; the Barcelona Convention (for the Mediterranean) and the Bucharest Convention (for the Black Sea).

- Sources: information in this part mainly comes from a communication by Devrim Tezcan, Mustafa Yucel and Baris Salihoglu, Institute of Marine Science, IMS-METU, Edermli, Turkey. Other sources : Eunetmar (European Networking Group for Maritime Policy) ; A.G. Harlioğlu, Present status of fisheries in Turkey, 2011

[1] http://www.enerji.gov.tr/en-US/Mainpage

[2] http://www.mta.gov.tr/eng/

[3] http://www.tp.gov.tr/eng/

[4]http://enerji.gov.tr/File/?path=ROOT%2f1%2fDocuments%2fStrategic%20Plan%2fStrategicPlan2015-2019.pdf

[5] http://www.udhb.gov.tr/eng/

[6] http://www.udhb.gov.tr/images/hizlierisim/e0e8096be3b7b23.pdf

[7] http://www.csb.gov.tr/gm/yfken/

[8] https://www.csb.gov.tr/db/strateji/editordosya/STRATEJIK%20_PLAN.pdf

[9] http://www.tarim.gov.tr

[10] http://www.tarim.gov.tr/SGB/Belgeler/Stratejik%20Plan%202013-17-EN.pdf

[11] http://www2.ormansu.gov.tr/osb/MainPage.aspx?sflang=en

[12]http://www.ormansu.gov.tr/docs/default-source/default-document-library/tıklayınıze19292deda89642aade2ff000015211d.pdf?sfvrsn=0

2. Regional/subregional cooperation

2.1 Cooperation at Mediterranean level

This chapter gives a description of the main organization and networks existing in the Mediterranean and aiming at a better cooperation between the actors of the region. This includes bodies operating at institutional level and networks of stakeholders acting in the area of marine science, environment or economy.

1. Union for the Mediterranean

The **Union for the Mediterranean (UfM)** is an intergovernmental organisation bringing together the 28 European Union Member States and 15 countries from the Southern and Eastern shores of the Mediterranean (all non-EU countries excepted Syria that has suspended its membership on December 1, 2011 and Libya which has an observer status in the UfM). It provides a unique forum to enhance regional cooperation and dialogue in the Euro-Mediterranean region.

Projects and initiatives are implemented within the framework of the UfM in six strategic priority areas which are business development, social and civil affairs, higher education and research, transport and urban development, water and environment, and energy and climate action.

In November 2015, Ministers in charge of maritime affairs from 43 countries comprising the Union for the Mediterranean (UfM), the UfM Co-Presidency and the UfM Secretariat committed to closer cooperation on blue economy and maritime governance.

UfM has 6 priority areas:

- Business Development;
- Transport & Urban Development;
- Energy & Climate Action;
- Water & Environment;
- Higher Education & Research;
- Social & Civil Affairs.

UfM supports several actions directly related to the sea:

- the de-pollution of the Mediterranean Sea, including coastal and protected marine areas;
- the establishment of maritime and land highways that connect ports and improve rail connections so as to facilitate movement of people and goods.

A UfM Ministerial Conference on *"Strengthening Euro-Mediterranean Cooperation through Research and Innovation"* was held on 4 May 2017 in Malta, in order to strengthen Euro-Mediterranean regional cooperation through research and innovation. The Ministers called for the identification of innovative solutions to create more opportunities for youth, and thus help to address the current pressing challenges of the Mediterranean region. They welcomed PRIMA, the "Partnership for Research and Innovation in the Mediterranean area – PRIMA" and the "BLUEMED Initiative on research and innovation for blue jobs and growth in the Mediterranean" seen as emblematic for the region.

http://ufmsecretariat.org

2. UNEP/MAP – United Nation Environment Programme / Mediterranean Action Plan

The "Convention for Protection of the Mediterranean Sea against Pollution" was established in 1976. It was amended in 1995 to become the "Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean". This "Barcelona Convention" involves 21 countries bordering the Mediterranean (Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, Syria, Tunisia, Turkey) and the European Union. In order to implement its objectives, the creation of the MAP (Mediterranean Action Plan) under the auspices of the United Nations Environment Program (UNEP) was established in 1977.

The MAP Coordination Unit (located in Athens) is responsible for the implementation of MEDPOL (Mediterranean Pollution Assessment and Control Program) and coordinates the activities of six Regional Activity Centres (RACs):

- PB/RAC, Plan Bleu Regional Activity Centre providing future scenarios to assist in decision-making;
- RAC/SPA, Specially Protected Areas;
- REMPEC, Regional Marine Pollution Emergency Response Centre;
- PAP/RAC, Priority Actions Program which provides assistance in the field of sustainable development of coastal zones;
- SCP/RAC, Regional Activity Centre for Sustainable Consumption and Production;
- INFO/RAC, Regional Activity Centre for Information and Communication.

An important project of UNEP/MAP is the Ecosystem Approach (EcAp-MEDII 2015-2018) which aims to assist the Southern Mediterranean countries to implement the Integrated Monitoring and Assessment Program (IMAP), adopted by COP 19 and which is in coherence with EU Marine Strategy Framework Directive.

This will enable for the first time a quantitative monitoring of the status of the Mediterranean Sea and coast on a regional basis, covering biodiversity and non-indigenous species, coast and hydrography, and pollution and marine litter monitoring in an interlinked manner.

In addition, the project addresses some specific challenges of the ecosystem approach implementation, by strengthening science-policy interface, addressing sub-regional implementation needs, and responding to data and information challenges in the region.

The Protocol on Integrated Coastal Zone Management in the Mediterranean (ICZM Protocol) was signed in Madrid, on 21 January 2008. To date, nine countries and the EU have ratified it. Consequently, on 24 March 2011, the Protocol entered into force. It will allow the countries to better manage their coastal zones, as well as to deal with the emerging coastal environmental challenges, such as the climate change. The Coastal Area Management Programme (CAMP) is oriented at the implementation of practical coastal management projects in selected Mediterranean coastal areas, applying ICZM as a major tool.

The Mediterranean Strategy for Sustainable Development (MSSD 2016-2025/Investing in environmental sustainability to achieve social and economic development.

In February 2016 the contracting parties of the Barcelona Convention adopted the revised Mediterranean Strategy for Sustainable Development (MSSD 2016-2025. The MSSD is a an integrative policy framework and a strategic guiding document for all stakeholders and partners to translate the United Nations 2030 Agenda for Sustainable Development at the regional, subregional and national levels.

"MSSD 2016-2025 is based on the principle that socio-economic development needs to be harmonized with the environment and protection of natural resources. It emphasizes that investing in the environment is the best way to secure long-term sustainable job creation: an essential process for the achievement of sustainable socio-economic development".

Although not exclusively focused on marine issues, 2 among 6 of the objectives of the MSSD are closely related to the sea:

- **O1** Ensuring sustainable development in marine and coastal areas

It is particularly recommended to establish and enforce regulatory mechanisms including Marine Spatial Planning by initiatives taken at national of regional levels in accordance with the Ecosystem Approach roadmap and the Integrated Coastal Zone Management Protocol.

Subregional policies development like EUSAIR (European Union Strategy for the Adriatic and the Ionian Region is encouraged.

The establishment of protected areas including areas of national jurisdiction and beyond national jurisdiction (deep sea habitats… is recommended. The target is to conserve at least 10% of coastal and marine areas by 2020.

The "blue economy" concept is promoted through strong partnership between maritime sectors and public authorities. There is a growing need to provide effective and efficient response to the impacts of climate changes in coastal and marine areas.

- **O5** Transition towards a green and blue economy.

This objective promotes renewable energy, waste management, and sustainable consumption and production.

In the priority area of food, agriculture and fisheries, operational objectives are provided on: the promotion of best environmental practices technologies and innovation in growing and harvesting; policy and legal framework to promote sustainability; the education of actors and the development of appropriate market tools.

Support actions to networks of eco-incubators, training programs is recommended.

Sources:

http://www.unep.org/unepmap

http://planbleu.org/sites/default/files/publications/mssd_2016-2025_final.pdf

http://wedocs.unep.org/bitstream/handle/20.500.11822/10576/IMAP_Publication_2016.pdf

3. The Horizon 2020 Initiative

The "Horizon 2020 Initiative" aims to de-pollute the Mediterranean by the year 2020 by tackling the sources of pollution that account for around 80% of the overall pollution of the Mediterranean Sea: municipal waste, urban waste water and industrial pollution.

The initiative was endorsed during the Environment Ministerial Conference held in Cairo in November 2006 and is now one of the key initiatives endorsed by the Union for the Mediterranean (UfM) at its launch in Paris in 2008. H2020 initiative thereby became a joint endeavour and commitment of all 43 UfM countries. It is supported and the European Commission neighbourhood policy.

Horizon 2020 builds on existing institutions, initiatives and results, filling gaps, where it could bring added value. It operates within the framework of existing and developing policy instruments, and supports the implementation of the commitments undertaken in the framework of the Barcelona Convention: MAP's Strategic Action Programme (SAP) to address pollution from land-based activities (SAP MED); the Mediterranean Strategy for Sustainable Development (MSSD) established under the United Nations Environment Programme Mediterranean Action Plan (UNEP/MAP).

During the first UfM Ministerial meeting on Environment and Climate Change in Athens on 13 May 2014, ministers renewed their commitments and endorsed the second phase of the Horizon 2020 Initiative with emphasized the need to :

- more focus on pollution prevention and pay attention to emerging issues including hazardous waste and marine litter;
- increase synergies with the Barcelona Convention;
- implement and enforce legislation;
- apply the SEIS (Shared Environmental Information System) principles and practice in the region in line with the EcAp (Ecosystem Approach) of UNEP/MAP;
- welcome the Mediterranean Hot Spots Investment Programme (MeHSIP).

Regarding the research component, the 2015-2020 work program points the need to promote the participation of non-EU countries in EU programmes and to improve the science-policy interface.

Sources :

www.h2020.net
ufmsecretariat.org
https://www.eea.europa.eu/publications/horizon-2020-mediterranean-report
http://www.unep.org/unepmap/

4. GFCM - General Fisheries Commission for the Mediterranean

The General Fisheries Commission for the Mediterranean is a regional organization established by FAO in 1949 to promote the development, the conservation, the rational management and the optimum and sustainable use at the biological, social, economic and environmental level of living marine resources in the Mediterranean and the Black Sea, as well as the sustainable development of aquaculture. It brings together 22 member countries bordering the Mediterranean and the Black Sea (including Albania,

Algeria, Croatia, Egypt, Israel, Lebanon, Libya, Monaco, Montenegro, Morocco, Syria, Tunisia and Turkey), as well as the European Union and Japan. Bosnia & Herzegovina, Georgia and Ukraine are not contracting parties but are associated to GFCM.

GFCM adopts binding recommendations for fisheries and aquaculture governance and provide technical assistance. The European Union - member since 1998 - relies on the GFCM for expert opinions.
In the GFCM mid-term strategy (2017-2020), 5 targets are set:

- Reverse the declining trend of fish stocks through strengthened scientific advice in support of management;
- Support livelihoods for coastal communities through sustainable small scale fisheries;
- Curb Illegal, unreported and unregulated fishing through a regional plan of actions;
- Minimize and mitigate unwanted interactions fisheries and marine ecosystems and environment;
- Enhance capacity building & cooperation.

The GFCM supports projects (e.g. COPEMED) that aim at strengthening scientific knowledge and regional cooperation and at developing the capacities of Southern countries, in order to achieve sustainable management of the Mediterranean fisheries.

Concerning tuna, the GFCM takes into account the recommendations issued by ICCAT (or ICCAT, International Commission for the Conservation of Atlantic Tunas). Covering a much wider geographical area than the Mediterranean, ICCAT is responsible for the conservation of tuna and allied species living in the Atlantic Ocean and adjacent seas (including the Mediterranean).

www.gfcm.org

http://www.fao.org/gfcm

5. PRIMA - Partnership for Research and Innovation in the Mediterranean Area

In December 2014, 9 EU Member States (Croatia, Cyprus, France, Greece, Italy, Malta, Portugal, Slovenia and Spain) proposed a joint research and innovation program focusing on innovative solutions for sustainable management of water and agro-food systems in the Mediterranean area. This initiative falls under Article 185 of the Treaty governing the functioning of the European Union, which allows the EU to support coordinated research programs proposed by several Member States and implemented within the framework of Horizon 2020.

PRIMA partnership aims at strengthening the integration and alignment of R&I systems and activities in the Mediterranean countries in the field of water provision and agro-food systems.

A EU funded Coordination and Support Action (CSA 4PRIMA) started in May 2016 that is developing a SRIA.

PRIMA can currently count on the participation of 19 Euro-Mediterranean countries, including 11 EU-countries (Croatia, Cyprus, France, Germany, Greece, Italy,

Luxembourg, Malta, Portugal, Slovenia and Spain) and 8 non-EU countries (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Tunisia and Turkey).

So far, the Participating States have committed €269 million, matched by a contribution of €220 million from the Union[24] through its current research framework, amounting to a total of €489 million. Participating States can support the initiative by contributions in cash and/or in kind. The contributions by the Union and the Participating States are managed by a funding body (PRIMA-IS) and the national funding bodies respectively.

This budget should be mobilized for PRIMA from 2018 and for a period of 10 years.

Focused on water resources, agriculture and innovations in agro-food systems, PRIMA does not include a specifically marine component. However, fisheries and aquaculture, as food production systems, are within the scope of the program.
Sources: www.prima4med.org , http://www.4prima.org

6. CIESM

The CIESM (International Commission for the Scientific Exploration of the Mediterranean or Mediterranean Science Commission) is a centennial institution. It brings together 23 member countries and supports multilateral research in the Mediterranean and the Black Sea. Through its actions, CIESM promotes exchanges and dialogue between researchers involved in projects aimed at understanding, monitoring and protecting the Mediterranean Sea.

The headquarters of CIESM are located in Monaco and the executive committee of CIESM is chaired by Prince Albert of Monaco.

The activities of CIESM consist mainly of organizing symposia and thematic workshops and publishing publications from these workshops. The institution is also committed to supporting innovative research and observation programs (e.g. Jellywatch, Tropical signals). A "Marine Economics Program" has been recently created.

Every 3 years, CIESM organizes a congress, which is a major event for the marine science community in the region. The last one occurred in September 2016 in Kiel, Germany.

Although CIESM has limited resources (not comparable with those provided by the European Commission for Marine Research in the Basin), CIESM remains a recognized and historic actor, notably in the countries of the southern Mediterranean and makes a significant contribution to networking in the field of marine research in the Mediterranean.
Source: www.ciesm.org

7. **MONGOOS** - Mediterranean Oceanography Network for Global Ocean Observing System

MONGOOS is the result of the merging of MOON (Mediterranean Operational Oceanography Network) and MedGOOS. It is a network of institutions, agencies and

[24] Approved by EU parliament in June 2017

universities operating in the fields of oceanography, including partners from Egypt, Israel, Montenegro, Morocco and Turkey. MONGOOS is part of the regional alliances of the Global Ocean Observing System (GOOS) coordinated by UNESCO IOC (www.ioc-goos.org).

MONGOOS main objective is to promote operational oceanography and to coordinate the services offered in the Mediterranean region. It is one of the five regional operational systems coordinated by EuroGOOS, a pan-European Ocean Observing Network under GOOS.
www.mongoos.eu

8. CPMR - Conference of Peripheral Maritime Regions/InterMediterranean Commission

Created in Andalusia in 1990 to express the shared interests of Mediterranean Regions in important European negotiations, the CPMR InterMediterranean Commission (IMC) encompasses the issues raised in all the Regions bordering the Mediterranean Sea.
The CPMR InterMediterranean Commission gathers around 40 Member Regions from 9 different EU Members states and other countries (Albania, Cyprus, France, Greece, Italy, Malta, Morocco, Spain and Tunisia). It is open to all the different sub-national levels in all Mediterranean countries.

Fig. 3 - Members regions of the InterMediterranean Commission of the CPMR

The InterMediterranean Commission work focuses on the development of the Euro-Mediterranean dialogue and territorial cooperation, concentrating its efforts on Transport and Integrated Maritime Policy, Economic and Social Cohesion, Water and Energy. Its priorities are:

- Defending the interests of the Mediterranean Regions in key EU policies;
- Incorporating the territorial concept and the role of the regional authorities in the Euro-Mediterranean concept;
- Undertaking strategic "pilot" projects on key themes with a forceful territorial impact.

In February 2017, the CPMR InterMediterranean Commission Political Bureau issued a Declaration giving its position regarding the "Blue Economy Agenda for the

Mediterranean and other key thematic issues of strategic interest for the Med Regions". This declaration delivered following political messages:

- Boosting the blue economy, while protecting the environment through emerging strategies & initiatives;
    - The support to subregional strategies (WestMED, EUSAIR) as well as the UfM BlueEconomy Agenda is asserted;
    - Actions and tools (MSP, ICZM…) leading to a better coordination of stakeholders at different levels are promoted.
- Increasing the involvement of regions in the decision making processes regarding migration management and the support to their actions;
- Boosting integrated territorial development and cohesion in the Mediterranean.

http://cpmr-intermed.org

9. Mediterranean Commission of UCLG (United Cities and Local Governments)

The Mediterranean Commission of UCGL has members from European countries and from Lebanon, Libya, Morocco, Palestine, Tunisia and Turkey. It aims at promoting exchanges of good practices and improving coordination of local authorities in the fields of decentralization, urbanization, environment and employment.

http://www.commed-cglu.org

10. MedCities

MedCities is a network of Mediterranean cities created in Barcelona, in November 1991.

The creation of MedCities was a consequence of the willingness to strengthen decentralised actions involving technical assistance as the best means of promoting awareness on urban environmental problems and making those actions into a vehicle for empowering municipalities in developing countries, in respect of management of urban environmental issues. MedCities continues offering this support. Since then, MedCities has extended its activities from the initial local environment to the wider local sustainable development field. The main aims and purposes of the network are:

- to develop the awareness of interdependence and common responsibility, as regards policies of sustainable development, environmental conservation and social cohesion of the Mediterranean basin;
- to reinforce the role, competences and resources (institutional, financial and technical) of local administrations in the adoption and implementation of sustainable local development policies;
- to develop citizens' awareness and involvement in the sustainable development of their towns and cities;
- to get under way and develop policies for direct cooperation and partnership between partners and with other associations.

Fig. 4 - Map of MedCities network members cities

http://www.medcities.org

11. Maritime clusters and networks of clusters in the Mediterranean

Concept of cluster

The concept of cluster creates strong interest for economic development professionals and policy-makers, attracted by the success of certain clusters of international renown. It was in the early 1990s that Michael Porter, Professor at the Harvard Business School, popularized the concept of clustering and describing the phenomena of business clustering. Nevertheless, it is important to recall that the first studies devoted to the external agglomeration economies enjoyed by firms in geographical groupings date back to the end of the 19th century.

Over the past two decades, economists and politicians have paid particular attention to clusters. Indeed, this type of organization meets the needs of innovation-oriented economies, which must be able to mobilize the competitiveness factor: the knowledge and the capacity to innovate. The cluster makes it possible to better resist the competitive pressure resulting from the internationalization of production in the context of globalization.

There are many cluster approaches at international level but all of these initiatives share common objectives: competitiveness through increased innovation capacity, the emergence of collaborative projects, the stimulation of entrepreneurship, and the international visibility. There is today a large agreement on the definition and merits of clusters. The definition commonly given is: "A cluster is a geographical proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and externalities". (Michael E. Porter, On Competition)

While remaining competitive in the same market, companies can and do have an incentive to develop cooperation between them. Clustering allows them to deploy a more ambitious strategy than if they remain isolated. The innovations are the result of collaborations that are formed on the territory between companies and other institutions of the knowledge economy: technical support organizations, research and training in particular. Geographical proximity becomes an asset by promoting the rapprochement between these different players and by creating opportunities for innovation.

Maritime Clusters in the Mediterranean

Maritime clusters have in common that they are networks of industry, research and public actors active in the maritime sector that work together to promote sustainable economic development. However, the clusters are highly diverse.

Fig. 5 – Mapping of Maritime clusters - source ECORYS

The clusters are organized very differently, with some benefitting from highly formalized structures and extensive resources for cluster facilitation, and others functioning in a more organic and uncoordinated manner, where several actors undertake cluster facilitation activities. The amount of activity differs greatly, with some clusters gathering quite few actors and others benefitting from the presence and engagement of many different organizations from across the triple-helix (Private sector, Academic and research, public authorities).

In the Mediterranean, as pointed out in a recent survey from ECORYS, where clusters have been mapped, there are an "extraordinary variety of maritime actors and activities" but, where Innovative maritime sectors are underrepresented. Indeed, the Mediterranean context presents "a strong concentration around similar and rather traditional activities" (short-sea shipping; coastal tourism; cruise tourism; shipbuilding and ship repair; deep-sea shipping; passenger ferry services; and, catching fish for human consumption)[25].

A total of 94 clusters are identified in the Mediterranean area of which 38 clusters are located in non-EU countries:

Country	Cluster name	Cluster Governance (Yes/ No)	Country	Cluster name	Cluster Governance (Yes/ No)
Albania	Marinal	Yes	**Montenegro**	Ulcinj	No
	FishNAR	Yes		Boka Kotorska	No
	AgriDUC	Yes		Budva - Bar	No
	ALTourism	Yes	**Morocco**	Agadir Haliopole	Yes
	TRANSAL	Yes		Oceanopole Tan Tan	Yes
Algeria	Skikda Ports	No		Nador Port	No
	Algiers Port	No		Tanger Med Port	No
	Bejaia Port	No		Technopole d'Oujda	Yes
	Oran Port	No	**Palestine**	Gaza Strip	No
Egypt	Alexandria	No	**Tunisia**	Port of Rades	No

[25] *ECORYS 2014 "Support activities for the development of maritime clusters in the Mediterranean and Black Sea areas*

	Damietta	No		Port of Bizerte	No
	Port Said	No		City of Sfax	No
Israel	Haifa	No	**Turkey**	Istanbul - Marmaras Sea	No
	Eilat	No		Izmir	No
	Ashdod	No		Mersin	No
Jordan	Aqaba	No			
Lebanon	Beirut Port City	No			
Libya	Port of Benghazi	No			
	Port of Darna region	No			
	Port of Elbrega	No			
	Port of Khoms	No			
	Port of Marsa	No			
	Port of Tripoli	No			

In the EU countries, 56 maritime clusters have been identified:

Country	Cluster name	Cluster Governance (Yes/ No)	Country	Cluster name	Cluster Governance (Yes/ No)
Cyprus	MARINEM	Yes	**Malta**	Maltese Maritime Cluster	No
	Cyprus	No	**Slovenia**	Slovenian Transport and logistic cluster	No
Greece	Kavala	No		Slovenian Waterborne Technology Platform	Yes
	Thessaloniki	No	**Spain**	Cluster Nautic de Barcelona	Yes
	Piraeus	No		Forum Maritim Catalan	Yes
	Crete	No		Port of Barcelona	No
	Rhodos	No		Port of Valencia	No
	Igoumenista	No		IDIMAR (Balearic Cluster on Maritime innovation)	Yes
Croatia	Brodograevni cluster	No		Cluster Maritimo de Malaga	No
	Cluster Male Brodogradnje Ltd	Yes		Port of Algeciras Bay	No

	Klaster intermodalnog prijevoza	No		Naval y Del Mar	Yes
Italy	NAPA	Yes		Spanish Maritime Cluster	Yes
	STARNET	Yes	**France**	Pôle Mer Méditerranée	Yes
	Adriatic Cluster club	Yes		Port of Toulon	No
	Port of Pescara	No		Grand Port Maritime de Marseille	No
	Nautico di Diporto Puglia	No		Ports d'Azur	No
	Port of Bari	No			
	Turismo Pugliese	Yes			
	Polo di innvazione Risorse Aquatiche e Filiere Alimentari della Pesca	Yes			
	Ditretto ittico di Rovigo	No			
	Gulf of Venezia	No			
	DITENAVE	Yes			
	FARUS	Yes			
	Port of Trieste	No			
	DLTM	Yes			
	Italian Maritime Cluster (under development operational this year)	Yes			
	Mazara dei Vallo (District of fishery)	Yes			
	Messina (Agro Bio fishery)	Yes			
	Port of Catania	No			
	Port of Messina	No			
	Port of Palermo	No			
	Port of Genova	No			
	Port of La Spezia	No			
	Port of Napoli	No			
	Gioia Tauro - Technological District of Logistics and Transformation	Yes			
	Vibo Valentia - Aqua resources and Fishery production chain	Yes			
	Port of Cagliari	No			

	Port of Livorno	No			
	NAVIGO	Yes			
	Port of Civitavecchia	no			

Most of the clusters identified in the non-European countries have no formalized governance structure (78.9 % of them), which makes the interactions with BLUEMED much more complicated. Only Morocco and Albania launched cluster policies with cluster benefiting from public support.

Additionally and as stated in the ECORYS report, the sectors covered by these clusters are traditional and lack of innovation.

Coordination tools between Maritime Clusters

There are no specific tools or mechanisms to coordinate the maritime clusters in the Mediterranean. However, different past and current initiatives and projects, supported by the European Commission, can be highlighted.

CoRINThos: Maritime Clusters supporting Research & Innovation to enhance Blue Economy Entrepreneurship (ended in 2015)

Supported by the INTERREG Mediterranean programme (Maritime integrated project), the projects aims at investigating the development or reinforcement of 5 maritime clusters in the MED area. Some maritime clusters remain untapped within maritime leading traditional sectors. New ones, connected with Blue Economy, have a key potential to foster economic growth. R&D is notably one of the core driving factors of maritime clusters which were not fully exploited yet. CoRINThos project tackled R&D gaps as a driving factor of maritime clusters, identifying and contextualizing them within Blue Economy sectors and geographical eco systemic synergies, at national and transnational level[26] .

BlueNET: Maritime Clusters Network for Blue Growth (running)

Supported by the Executive Agency and by the European Maritime and Fisheries Fund, the project's overall objective is to enhance the SME's capacity to develop networking among maritime clusters in the Mediterranean, in particular in the area from the Adriatic-Ionian Seas to the Black Sea. The aim is to diffuse innovation and achieve an added value in relation to the maritime policy of the target area.

Project activities will be implemented in the framework of Integrated Maritime Policy of the European Union and will allow:

- Exchange of good practices for cluster management and development of the business sector mainly for the SMEs;
- Empowering maritime clusters and/or regional centres of competence to go blue-innovative – Enhanced intensive networking among the stakeholders in the involved countries Moreover strong networking among partners will grow during the project and will give rise to a structured process for mutual cluster development.[27]

[26] http://www.medmaritimeprojects.eu/section/corinthos
[27] http://bluenet-project.eu

PROTEUS: A Mediterranean cluster dedicated to Maritime Surveillance (running)

Supported by the INTERREG Mediterranean programme, the project aims at exploiting the growth potential of the Maritime Surveillance industry that can play a crucial role in the socio-economic development of MED area and in the generation of new job opportunities.

This objective will be addressed through the establishment of a Mediterranean Cluster based on 5 local clusters, existing or new ones (France, Greece, Italy, Cyprus, Spain and Portugal), fostering innovation and R&D capacities, knowledge and technology transfer, as well as transnational cooperation among the involved key MSs actors, focusing on maritime security and safety mechanisms in MED area. The Cluster will offer customized services, in order to identify and exploit technologies related to Maritime surveillance and will achieve transferability through the creation of concrete linkages with other Blue Growth sectors that face common challenges and growth opportunities.

PELAGOS: A Mediterranean cluster dedicated to Marine Renewable Energy (running)

Supported by the INTERREG Mediterranean programme, the project aims to increase the innovation capacities and cooperation of blue energy actors in the Mediterranean through promoting a transnational cluster, bringing them together in order to develop a shared understanding of the challenges and collectively devise workable solutions.

The Mediterranean Blue Energy Cluster will promote novel technologies and provide a mix of support activities to beneficiaries such as technology providers, enterprises, financial operators, authorities, NGOs and citizens.

The project will enhance internationalization of the Cluster members through a range of activities that will jointly identify opportunities of Blue Energy in Mediterranean insular and coastal regions.

At European level, the **European Cluster Collaboration Platform** initiative offers both virtual facilities and live activities like cluster matchmaking events to be organized both in Europe and beyond.

The virtual services include:

- A dynamic mapping of profiled cluster organizations worldwide with new search facilities based on special filters;
- Detailed information on the European Strategic Cluster Partnerships;
- A “marketplace” where cluster organizations can exchange their offers and demands;
- Existing “gateways” as organizations supporting SMEs internationalization processes;
- A unique collection of profiled cluster-related projects developed under various European programs besides special sections for matchmaking or for showcasing good practices as inspiration sources.[28]

[28] https://www.clustercollaboration.eu/vibrant-platform-service-cluster-organisations

This platform is open and connected to the whole world, with a special focus on certain specific third countries of strategic interest, of which Mediterranean countries. The platform could be used to bring closer Maritime clusters from both reams.

12. UniMED – Mediterranean Universities Union

UNIMED, the Mediterranean Universities Union, founded in October 1991, is an association of Universities from the countries of the Mediterranean basin. It counts 93 associated Universities coming from 22 countries of both shores of Mediterranean.

UNIMED include universities from following non-EU Mediterranean countries: Albania, Algeria, Egypt, Lebanon, Libya, Montenegro, Morocco, Palestine, Syria, Tunisia, Turkey.

UNIMED's aim is to develop university research and education in the Euro-Mediterranean area in order to contribute to scientific, cultural, social and economic cooperation.

http://www.uni-med.net

13. MedPAN - Mediterranean Protected Areas Network

MedPAN is the network of managers of marine protected areas in the Mediterranean. Its objective is to facilitate exchanges between Mediterranean marine protected areas, in order to improve the efficiency of the management of these areas. More than 90 MPA from 18 Mediterranean countries are members of MedPAN.

The strategy of MEDPAN for 2013-2017 has 3 axis:

- Be a network of knowledge, information, anticipation and synthesis;
- Develop the interactivity among the members of the network and their ability to effectively manage MPAs in conjunction with other players in the territory;
- Consolidate the sustainability, visibility, governance and resources of the MedPAN network.

www.medpan.org

2.2 Cooperation at subregional level

1. EUSAIR

EU Strategy for the Adriatic and Ionian Region (EUSAIR)

The EU Strategy for the Adriatic and Ionian Region (EUSAIR) is a macro-regional strategy adopted by the European Commission and endorsed by the European Council in 2014. The Strategy, reported in the Communication COM(2014) 357 and in the Action Plan SWD(2014) 190 of the European Commission, was jointly developed by the Commission, together with the Adriatic-Ionian Region countries and stakeholders, in order to address common challenges together.

The EUSAIR covers eight countries: four EU Member States (Croatia, Greece, Italy, Slovenia) and four non-EU countries (Albania, Bosnia and Herzegovina, Montenegro, Serbia).

The strategy mainly concerns the opportunities of the maritime economy: "blue growth", land-sea connectivity, energy connectivity, environmental protection and sustainable tourism, all of which are designed to play a crucial role in creating jobs and stimulating Economic growth in the region.

The EUSAIR is structured in the following four pillars:

Pillar 1: BLUE GROWTH focusing on three topics

Topic 1 - Blue technologies;
Topic 2 - Fisheries and aquaculture;
Topic 3 - Maritime and marine governance and services.

Pillar 2: CONNECTING THE REGION focusing on three topics
Topic 1 - Maritime transport;
Topic 2 - Intermodal connections to the hinterland;
Topic 3 - Energy networks.

Pillar 3: ENVIRONMENTAL QUALITY focusing on two topics:
Topic 1 - The marine environment;
Topic 2 - Transnational terrestrial habitats and biodiversity.

Pillar 4: SUSTAINABLE TOURISM focusing on two topics:

Topic 1 - Diversified tourism offer (products and services);

Topic 2 - Sustainable and responsible tourism management (innovation and quality).

For further information about EUSAIR, pillars and topics, please see Communication COM (2014) 357 of the European Commission, the EUSAIR Action Plan SWD(2014) 190, and the EUSAIR Web site (http://www.adriatic-ionian.eu/).

After the BLUEMED kick-off meeting (on November 2016) an exercise for matching priorities between EUSAIR Action Plan and BLUEMED SRIA was carried out. The exercise highlighted that there is an overall good match between EUSAIR and BLUEMED actions. EUSAIR actions are more detailed in some cases, and all priorities set in EUSAIR have correspondence with exception on Aquaculture, where some misalignment occurs. For more details, please see Annex 5: "EUSAIR-BLUEMED_Ecomondoworkshop_matching_RI_priorities_pillars1234.pdf"

* Interreg ADRION Program (2014-2020)

The countries participating in the ADRION PROGRAMME are 8, of which 4 are EU Member States (Croatia, Greece, Italy and Slovenia), 3 are candidate countries (Albania, Montenegro, Serbia) and 1 potential candidate country (Bosnia and Herzegovina).

Although not being focused on the sea and blue economy, ADRION program partners are mainly coastal regions (25 over 31). ADRION is connected to EUSAIR strategy and the fourth axis of the program is "Supporting the governance of the EUSAIR". The other 3 axis are:

- Innovative and Smart Region - Strengthening research, technological development and innovation
- Sustainable Region - Preserving and protecting the environment and promoting resource efficiency

- Connected Region - Promoting sustainable transport and removing bottlenecks in key network infrastructures .

www.adrioninterreg.eu

2. WestMED Initiative

In October 2016, the Foreign Affairs Ministers of Algeria, France, Italy, Libya, Malta, Mauritania, Morocco, Portugal, Spain and Tunisia encouraged further work on an initiative for the sustainable development of the blue economy, together with the Union for the Mediterranean Secretariat.

The purpose of the WestMED Initiative is to foster sustainable blue growth and jobs, improve safety and security and preserve ecosystems and biodiversity in the western Mediterranean region. The Initiative focuses mainly on the seas and coasts surrounding Algeria, France, Italy, Libya, Malta, Mauritania, Morocco, Portugal, Spain and Tunisia. The Initiative builds on the Union for the Mediterranean process and its Ministerial Declaration on the Blue Economy adopted on 17 November 2015.

Therefore, the 10 countries concerned have been fully involved through national authorities consultations and stakeholder workshops, in order to prepare the Initiative. Based on the results of this work, the European Commission has issued in April 2017 two documents:

- A "Communication from the Commission to the European parliament, the council, the European economic and social committee and the committee of the regions - Initiative for the sustainable development of the blue economy in the Western Mediterranean"
- An accompanying documen: "Commission staff working document - Framework for action"

However, given that it concerns both EU and partner countries, the Initiative will have to be politically endorsed first in the EU and then in the Union for the Mediterranean. It is intended that the coordination of the Initiative implementation will be provided through the existing mechanisms and processes of the Union for the Mediterranean. Operational coordination will be ensured through a WestMED Task Force linked to the Union for the Mediterranean Working Group on the Blue Economy and will include national focal points from the relevant ministries, the European Commission and the Union for the Mediterranean Secretariat. Representatives of existing Mediterranean regional organizations could be also invited to join the Task Force.

The Initiative will focus on 3 main goals that address core challenges for the region:

- A safer and more secure maritime space;
- A smart and resilient blue economy;
- Better governance of the sea.

For each goal, priorities are defined:

1. A safer and more secure maritime space:

- Cooperation between coastguards;
- Maritime safety and response to marine pollution.

2. A smart and resilient blue economy:

"This goal largely builds on existing initiatives such as BLUEMED and its Strategic Research and Innovation Agenda, and encourages partner countries to be better involved".

Selected priorities are:

- Strategic research and innovation
- Maritime clusters development
- Skills development and circulation
- Sustainable consumption and production (maritime transport, ports, maritime and costal tourism, marine aquaculture)

3. Better governance of the sea.

- Spatial planning and coastal management
- Marine and maritime knowledge
- Biodiversity and marine habitat conservation
- Sustainable fisheries and coastal community development

http://www.westmed-initiative.eu

https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/com-2017-183_en.pdf

3. General analysis and conclusion

At **national level**, it comes out that the degree of concern and the level of formalization of the strategy and priorities in the field of marine research and innovation differ notably from a country to another. This can be explained by the differences among Southern&Eastern Mediterranean countries in terms of coast length, ratio of coastal population, weight of the maritime economy and potential resources.

It should be noted than in a few countries, particularly in the South Eastern part of the region, the political instability and the existing conflicts are a major obstacle to the establishment of a sound strategy in marine research and innovation sectors.

That said, the analysis shows that some priorities are common to nearly all the countries.

The table below is an attempt to summarize the elements collected about priorities in non-European countries with regards to the twelve BLUEMED key challenges. It must be noted that:

- This analysis is preliminary and is based on the information gathered in the first step of the project. These elements will be updated and consolidated thanks to the meetings which are planned with non-European stakeholders.
- Three countries (Libya, Palestine and Syria) are not included in the table because of the instability of the political situation.

	BLUEMED SRIA key challenges											
Country	Mediterranean Sea ecosystems: services, resources, vulnerability and resilience to natural and anthropogenic pressures	Mediterranean Sea dynamics: developing services in the field of sustainable adaptation to climate change and plans for mitigation	Hazards and the protection of coastal areas in the Mediterranean[2]	Innovative businesses based on marine bio-resources in the Mediterranean	Ecosystem-based management of Mediterranean aquaculture and fisheries	Sustainable tourism in the Mediterranean	Maritime clusters in the Mediterranean[1]	Maritime Spatial Planning and Integrated Coastal Zone Management in the Mediterranean*	Smart, greener maritime transport and facilities in the Mediterranean	Observing systems and operational oceanography capacities in the Mediterranean	Multi-purpose offshore platforms in the Mediterranean	Marine and coastal cultural heritage in the Mediterranean: discovering, protecting and valuing
Albania								*			?	?
Algeria								*			?	
Bosnia & Herzegovina												
Egypt												
Israel							?	*				
Lebanon									?			
Monaco								*				
Montenegro		?						*				
Morocco				?				*			?	
Tunisia								*				
Turkey				?								

* Countries that have signed or ratified the Protocol on Integrated Coastal Zone Management in the Mediterranean (source: PAP/RAC)

[1] cluster(s) existing at the national or regional scale

[2] Additional source: CIESM Monograph- Marine Geohazards in the Mediterranean - Nicosia, February 2011

Priority in the area (or related to) set by the country or major public institutions (even if not fully implemented)

Not identified as a priority but the country is potentialy concerned by the issue

Not a challenge with regard to the characteristics of the country

A few conclusions can be drawn from this table and from what was previously said in the document:

- Nearly all the countries have a great concern regarding marine and coastal environmental issues (challenges 1 and 8)

- This common aim of preserving a healthy and productive Mediterranean Sea is linked to :
    1. the need of developing sustainable fisheries and aquaculture sectors (challenge 5), which is strategic for many countries;
    2. the importance of tourism (challenge 6); which is a key economic area in most of the Mediterranean countries.
- A priority is given to adaptation to climate changes (challenge 2) by several countries which are highly sensitive to the effects of warming, sea level rise and modifications of ecosystem functioning;
- There seems to be an unequal level of concern regarding marine hazards (challenge 3);
- There are various levels of structure in the area of marine clusters (challenge 7) among Southern and Eastern Mediterranean countries;
- The field of maritime transport/ports is seen as strategic by many countries, mainly from an economic point of view. However, the need to develop a smart and green maritime transport sector (challenge 9) does not emerge strongly ;
- The necessity of preserving marine and coastal cultural heritage is well shared in the region (challenge 12) ;
- The development of business in the area of marine biotechnology and multipurpose platforms do not appear as a priority (challenges 4 and 11)

Besides UfM, which is a major body for **international partnership in the Mediterranean**, numerous established organisations and initiatives aims at a better coordination in the region. Some of them act at institutional level (national, regional or local). Others are set on a sectorial basis (e.g. universities, Marine Protected Areas…).

Should especially be mentioned:

- UNEP/MAP in the area of marine environment
- GFCM for fisheries and aquaculture
- CIESM in the field of marine sciences
- And more recently PRIMA in the area of fresh water and agro-food resources

At **subregional level**, EUSAIR and WestMED initiatives provide an intermediate level of cooperation between the whole Mediterranean and the national levels. They have the advantage of focusing the cooperation on Mediterranean sub-basins that can be seen as large marine ecosystems with more homogeneous features. Having a limited number of countries involved in these strategies makes easier the discussion and the decision process compared with those covering the whole region.

Annex 1: H2020 – Associated countries

As of 1st January 2017, the following Mediterranean countries are associated to Horizon 2020 Research & Innovation Programme:

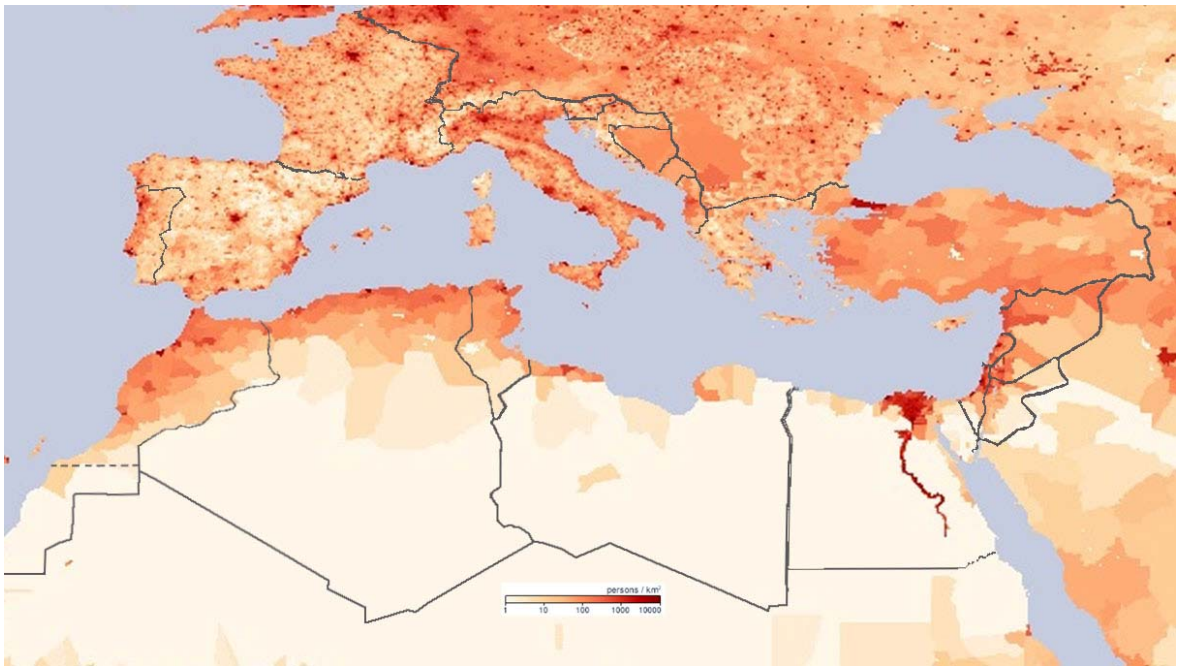
- Albania
- Bosnia & Herzegovina
- Israel
- Montenegro
- Tunisia
- Turkey

Annex 2: GDP per capita

Country	GDP per capita (USD, 2016)
Albania	4,147
Algeria	3,844
Bosnia & Herzegovina	4,709
Egypt	3,515
Israel	37,293
Lebanon	7,914
Monaco	162,000 (2011)
Morocco	2,832
Tunisia	3,689
Turkey	6,389

Source: http://data.worldbank.org

Annex 3: Population density



Source: Nasa Earth Observation - neo.sci.gsfc.nasa.gov

Population density in the Mediterranean region (year 2000)

Annex 4: Travel & Tourism Competitiveness Index of 6 non-EU Mediterranean countries, Ranking 2015 by the World economic forum

	TTCI INDEX	Enabling Environment Pillars, values					T&T Policy and Enabling Conditions Pillars, values			Infrastructure Pillars, values			Natural and Cultural Resources Pillars, values	
Country/Economy	Regional rank	Business Environment	Safety and Security	Health and Hygiene	Human Resources and Labour Market	ICT Readiness	Prioritization of T&T	International Openness	Price Competitiveness	Air Transport Infrastructure	Ground and Port Infrastructure	Tourist Service Infrastructure	Natural Resources	Cultural Resources & Business Travel
Morocco	4	4.73	5.83	4.54	4.05	4.03	5.27	2.56	4.94	2.86	3.48	4.44	3.11	2.51
Israel	7	4.61	4.85	6.06	4.81	5.25	4.63	2.54	3.24	3.16	3.91	4.20	2.47	1.98
Tunisia	9	4.42	4.86	5.16	4.31	3.94	4.91	2.38	5.61	2.53	3.02	4.54	2.36	1.58
Egypt	10	4.11	3.40	5.40	4.12	3.80	4.56	2.17	6.19	2.93	2.84	3.60	2.45	2.40
Lebanon	11	3.76	3.81	6.04	3.99	3.62	5.22	2.50	4.84	2.46	3.10	5.18	1.71	1.47
Algeria	14	3.78	4.90	4.97	4.04	3.09	2.74	1.51	5.50	1.98	2.56	2.03	2.04	2.05
Middle East and North Africa average		4.69	5.19	5.24	4.35	4.38	4.33	2.18	5.27	3.01	3.66	4.10	2.29	1.77

Travel and tourism competitiveness index for 6 Mediterranean Southern and Eastern countries - 2015 (adapted from http://reports.weforum.org/travel-and-tourism-competitiveness-report-2015/index-results-the-travel-tourism-competitiveness-index-ranking-2015/)

This reports note that : “The region’s countries can be divided into three groups: (i) those which have created a strong business environment, developed sound infrastructure, grown specific niches and remained relatively safe as destinations (Morocco in the table above); (ii) those that maintain great tourism attractiveness, but have experienced safety and security concerns or infrastructure limitations (Egypt, Tunisia and Lebanon); and (iii) those that are not leveraging enough their T&T capacity (all the others)”.

Annex 5: Matching priorities between EUSAIR action plan and BLUEMED SRIA

MATCHING PRIORITIES BETWEEN EUSAIR ACTION PLAN AND *BLUEMED SRIA*.

WG 1, Sustainable Aquaculture and Fishery; Marine Biotech: Nuno Lourenco, Sofia Loukmidou, Milena Krasic,J M Gonzalez, I Gauci-Borda, E Klein, P Moretti

EUSAIR Pillar 1 – Blue GROWTH		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
Blue tec hnologies	**R&D&I platforms on deep sea resources**: **1** **Deep sea observation network:** to map and monitor the seabed and analyse potential deep sea resources which can contribute to strengthening economic activities in the blue sector. **2** **Research platform marine robotics:** e.g. to strengthen unmanned marine vehicles for underwater and seabed operations	**1E - 1B, 2B, 3B,4B** **2E - 4B,5B**	**Promoting sustainable exploitation of biotic and abiotic resources** **Towards an observing system of systems** **Taylor-made sensors and**	1 Develop and implement management plans for sustainable exploitation of coastal to deep-sea biotic and abiotic resources, including gas hydrates, minerals, molecules of industrial interest 2 Depict the deep sea, mapping the topography of seabed, characterizing the geomorphology and substrate types, identifying geo-habitats 3 Developing an integrated Mediterranean observing system based on existing European networks and consortia, including European Strategy Forum on Research Infrastructures, and national infrastructure, in line with the overall European contribution

EUSAIR Pillar 1 – Blue GROWTH		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
			platforms	to global observing systems 4 Develop new ideas for robotic systems and devices to explore and work on the seabed in deep-sea areas 5 Develop Unmanned Autonomous Vehicles and related infrastructure that can extend the area - on the sea surface and underwater - for different types of operation, e.g. monitoring illegal activities, supporting search and rescue activities, helping the Civil Protection service respond to disasters, supporting offshore economic activities
	3 **Research platform on biosecurity, bio-technologies and the exploitation of micro-organisms** growing in the Adriatic and Ionian seas for the production of pharmaceuticals and cosmetic products.	**3E - 6B#, 7B**	**Developing new technologies and tools**	6 New or more robust micro-algae species, eukaryotic and prokaryotic microbial communities and strains for biorefinery schemes and for greening the chemical industry 7 Optimize cultivation and metabolic/production potential (omics techniques) of known and new marine microbial species as well as their industrial up-scaling

EUSAIR Pillar 1 – Blue GROWTH		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
				8 Evaluate the potential of marine litter from macro and micro pollutants, including nanomaterials and plastics; assess its impact on marine organisms and develop in situ bioremediation actions 9 Integrated valorisation of by-products and waste of fishery and aquaculture
	4 **Macro-regional cluster development:** to support the establishment of transboundary clusters on promising sectors such as green shipbuilding and new materials in order to enhance exploitation of emerging technologies and internationalisation of Small and Medium Enterprises.	**4E - 10B**	**From traditional maritime economic to blue growth activities**	10 Foster and facilitate cluster development in the Mediterranean area through collaboration of local SMEs, large companies, scientific institutes and innovative actors
	5 **Researcher mobility:** **"Blue technology 'brain circulation' in the Adriatic and Ionian Region"** to support researcher mobility in the areas of blue technology and build on the experience of UNIADRION. This may also involve the development of a "cloud environment", for facilitating the matching between researchers and institutes and companies, and for setting up a scheme for supporting researcher mobility.	**5E - 10B** **Other actions not in the BLUEMED table**		
Fisheries and	**Scientific cooperation on fisheries and**		**Develop optimal fishing**	11

EUSAIR Pillar 1 – Blue GROWTH		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
aquaculture	**fish stocks**: **6** **Increasing data collection and scientific capacity",** in the fields of scientific thematic areas of investigation to be jointly explored by (national) research institutions, e.g.: (i) the ecology of larval and juvenile stages and stock recruitment relationship of small pelagic and demersal fish relevant for fisheries; (ii) stock connectivity at sea basin level of the most important fishery resources; (iii) the biology and ecology of important coastal resources (e.g. Sparidae) targeted by the small scale fishery. **7** **New knowledge for minimising maritime damage caused by fishing,** e.g. focusing on developing improved multi-species modelling, fishing gear and related techniques and technologies so as to minimise carbon footprint, seabed damage, discards and by-catch. **8** **Data sharing on fishery impacts to support evidenced based decision making**, sharing socio-economic and environmental data to enhance managers' understanding of the socio-economic and ecosystem impacts of fisheries management measures and establish synergies between the fishing sector and other maritime activities (e.g. aquaculture, shipping, tourism, amateur fishing, small-scale fisheries,	**6E - 11B,13B#** **7E - 12B** **8E - matches MSP actions not in the BLUEMED table**	**strategies, technologies and practices**	Develop optimal strategies, technologies and practices for **sustainable exploitation of biological resources**; take into account socio-economic and ecosystem considerations, in line with the Common Fishery Policy (CFP) and the General Fishery Commission for the Mediterranean (GFCM) 12 **Adapt fishing gear**, reduction of discards, by-catch and reduction of other impacts of fishing 13 Develop appropriate **monitoring, assessment, management and governance regimes** for sustainable small-scale and recreational fisheries

EUSAIR Pillar 1 – Blue GROWTH		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
	etc.). **9** **Fish stock monitoring platforms**, monitoring the state of fish stocks in the Adriatic and Ionian Seas and evaluating the main elements for sustainable fisheries management, such as fishing pressure levels, catch/discards composition, habitat mapping, genetics, tagging, etc. Using to the greatest extent existing cooperation frameworks, e.g. the GFCM.	**9E - 11B** **6E and 9E are strictly connected with the big degree of overlap**		
	10 **R&D platform for seafood:** Seafood-related R&D and internationalisation of existing seafood clusters are critical to increasing the added value of fisheries and aquaculture products. Actions include research aiming at improving productivity, quality and environmental sustainability of aquaculture (including offshore aquaculture), as well as at increase the industry's ability to respond to market needs and to diversify its offer (new species).	**10 E - 15B#, 16B** **BLUEMED does not have anything on internationalisation of existing seafood clusters**	**Develop optimal aquaculture strategies, technologies and practices**	14 **Adapt aquaculture** activities (species and systems) and capacities in a changing environment 15 Develop **new strategies, technologies** and practices to ensure sustainability of **aquaculture** 16 Promote the **diversification of aquaculture** and the use of multi-trophic marine farming systems
	11 **Developing skills:** Professional skills and competencies are needed as well as higher capacity to develop them. This action focuses on promoting and strengthening networks of academies and training institutes aiming to	**No matches in the BLUEMED table, but mentions to blue carriers do exist in the SRIA (not sure if they comprise fisherman and aquaculture training)**		

EUSAIR Pillar 1 – Blue GROWTH		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
	develop specific educational and (joint) training programs for fishermen and aquaculture			
	Diversification and profitability of fisheries and aquaculture **12** **Improvement and diversification of fishing activities** **13** **Sustainable aquaculture, site location and management**	**12E - no match with B** **13E - 14B, 15B#**		

TABLE LEGEND

E - EuSAIR

B - BLUEMED

 # -Partial match

GENERAL COMMENTS:

- We approached the table considering firstly the fact that EUSAIR has prioritized actions and has implementation plan. So each EUSAIR action was confronted with BLUEMED and not the inverse.
- There is a overall good match between EuSAIR and BLUEMED actions. EUSAIR actions are more detailed in some cases, and all priorities set in EUSAIR have correspondence with exception on Aquaculture, where some misalignment occurs. Some topics depicted in the table for EuSAIR and BLUEMED do exist, but in other pillars and are not present in the table, so links cannot be performed.

SPECFIFIC COMMENTS:

1. **Diversification and profitability of fisheries and aquaculture not included in the table (EUSAIR)**
2. **Some BLUEMED actions such as training and carreers are not in table**
3. **Internationalization on seafood clusters and MSP are missing in BLUEMED**
4. **Marine Litter exists in BLUEMED and in EUSAIR pillar 3 (not in table)**

WG 2, Sustainable Trasportation and ports; off-shore platforms: Pierpaolo Campostrini, Cosmo Forte, Pierfrancesco Moretti, Branko Cermelj A. Norcini Pala, E. Reja

EUSAIR Pillar 2 – Connecting the region		Matching	BLUEMED	
Topic	**Indicative Action (EUSAIR AP)**[i]		**Priority**	**Action**
Maritime Transport **Intermodal connections to the hinterland**	Clustering port activities/services *(e.g. Sharing strategic functions and harmonizing ports processes)* Developing ports, optimizing port interfaces, infrastructures and procedures /operations *(e.g. Creation of an accessible maritime transport database allowing the design of new itineraries* *Support port multimodal connectivity through the development of Short- Sea Shipping.)* Improving the accessibility of the coastal areas and islands. Cross-border facilitation ***(e.g. Adoption of common standardized administrative***	**Note: matching pillar 1 new materials for green vessels and facilities** **e.g. hull-cleaning with ROVs in controlled environmental conditions**	**From traditional maritime economic to blue growth activities**	Foster and facilitate cluster development in the Mediterranean area through collaboration of local SMEs, large companies, scientific institutes and innovative actors Consolidate existing infrastructures that support the development of innovative green technologies performed by the Mediterranean clusters Implement training/mobility programs to share knowledge and best business practices in maritime clusters with other regions

EUSAIR Pillar 2 – Connecting the region		Matching	BLUEMED	
Topic	**Indicative Action (EUSAIR AP)[i]**		**Priority**	**Action**
	procedures at border crossings and implementation of small and target scale investments and joint training programmes.) Developing motorways of the sea ***(e.g. Identifying transnational IT tools for tracking and tracing of ITUs using MoS in the Adriatic Ionian Region, supporting intermodality through its integrated with inland terminals and port / inland operators and improving last mile connections.)*** Developing the Western Balkans comprehensive network by developing integrated planning for infrastructure developments.		**Effective maritime spatial planning in the Mediterranean**	Use integrated decision tools for selecting appropriate sites for off-shore installations, fulfilling energy and environmental requirements
Maritime transport **Intermodal connections to the hinterland** **Energy**	Clustering port activities/services – Common certification of the ports on safety, sustainability and computerization Improving the accessibility of the coastal areas and islands. Gas pipelines **[*e.g. LNG bunkering and car/truck fuelling, cold ironing; Design and develop innovative /efficient solutions to interconnect LNG terminals (offshore and onshore) to gas network to provide secure and competitive gas supply ; Converting ship engines to dual fuel use (by the year 2020)]***		**Greening vessels and facilities**	Design and develop innovative infrastructure solutions to improve the sustainability of ports, with special reference to energy efficiency and externalities relating to the surrounding built environment Develop new vessel concepts, i.e. hybrid systems, with lower manufacturing, construction, installation and decommissioning costs
			Safer Maritime transport in the Mediterranean	Identify and implement safer, secures and clean off-shore installations/devices

EUSAIR Pillar 2 – Connecting the region		Matching	BLUEMED	
Topic	**Indicative Action (EUSAIR AP)**[i]		**Priority**	**Action**
Maritime Transport	Improving and harmonizing traffic Monitoring and management ***(e.g. Enhancement and simplification of the existing ADRIREP Mandatory Ship Reporting system and proposal for the amendment of the IMO Res. MSC n.139(76). Implementation of an integrated Adriatic and Ionian common VTMIS, the related alerting system and the common training and certification schemes of the operators)*** Develop tools/software to enhance and simplify the existing reporting system and to speed up administrative procedures to increase the efficiency of maritime transport (***e.g. Adoption of a common framework for the development of Single Window systems (Directive 2010/65/EU) allowing exchange of information between the ship and the onshore competent authorities and operators for streamlining administrative procedures)***. Developing ports, optimising port interfaces, infrastructures and procedures /operations Implementation of ICT and tracking and monitoring to improve the efficiency, reliability and safety/security of the port operations and of the delivery system ***(e.g. Adoption of a common framework for the development of green shipping solutions as the necessary facilities for bunkering with alternative fuels (LNG) and cold ironing in Adriatic-Ionian ports.)***	**EGNOS today and GALILEO soon improve the reliability of satellite navigation system. Their integration in AIS will improve the system and is key for the approach in Adriatic ports, especially in difficult weather conditions. The guidance inside ports can be improved with the help of new technologies, with the effect to improve the port efficiency in any condition. It is essential to have some pluri-national "practical experiences" which can be funded by regional cooperation programs.** **A regional data acquisition and sharing appears fundamental, too** **Considering leisure traffic, with no obligation of AIS, the voluntary adoption of AIS-like systems should be promoted by adding high value services related to leisure navigation** **In a longer time frame, the use of an acoustic sensor network for the identification and tracking of any vessel could be studied in the Adriatic, due to the favorable conditions In the shorter**	**Safer Maritime transport in the Mediterranean**	Improve the transport systems for smart and safe mobility in coastal zones, lagoons and restricted areas Develop innovative technologies for safer vessels, with real time structural monitoring, ability to navigate in degraded conditions (safe return to port) and ship capacity to sail and operate in extreme environmental situations (resilient ship) and sensitive areas, also with the use of European GNSS

EUSAIR Pillar 2 – Connecting the region		Matching	BLUEMED	
Topic	**Indicative Action (EUSAIR AP)[i]**		**Priority**	**Action**
		term, a feasibility cost-benefit study can be conducted.		
Maritime transport	Develop tools/software to enhance and simplify the existing reporting system and to speed up administrative procedures to increase the efficiency of maritime transport	**Considering security and emergency planning and management as a side aspect of transport, strictly connected to its possible development becomes important to explore the R&D aspects in this field.**	**Tailor-made sensors and platforms**	Develop new technologies and systems to enable spatial and temporal resolution and observation parameters to be improved in the coastal region (using both in situ and remote tools) Develop Unmanned Autonomous Vehicles and related infrastructure that can extend the area - on the sea surface and underwater - for different types of operation, e.g. monitoring illegal activities, supporting search and rescue activities, helping the Civil Protection service respond to disasters, supporting offshore economic activities
Intermodal connections to the hinterland	Developing the Western Balkans comprehensive network *(e.g. Development of a joint lifelong learning plan, training tools and methodologies in transport and energy sectors to address requirement of private sector (shipping, trade, port operations) and public administrations (port management, coast guard/ surveillance, safety and security)*		**Changing the rational, one offshore platform - multiple uses and activities**	Spatialize and cross-check: offshore fixed and mobile infrastructures distribution and environmental monitoring and surveillance needs from coasts to open sea Develop new concepts and protocols with private companies and the maritime operators to maximise the use of infrastructures, ships and platforms for scientific and environmental monitoring, safety and security purposes

EUSAIR Pillar 2 – Connecting the region		Matching	BLUEMED	
Topic	**Indicative Action (EUSAIR AP)[i]**		**Priority**	**Action**
				Develop tailor made solutions and new technologies to improve efficiency on installations, maintenance and exploitation of marine renewable energies (wind, current and waves) and the power grid charge

WG 3, Marine ecosystems and dynamics; MSP; Observing systems: Vassilis Likousis, Laurant Mortier, Marilaure Gregoire, Senad Oprasic, Gaspar Zupancic, Andrea Barbanti

EUSAIR Pillar 3 – Environmental quality		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
Maritime governance	**Governance of maritime space**: **Maritime governance and services task force** ensuring the legal framework for exploiting deep-sea water and marine mineral resources in a sustainable manner, through governance mechanisms such as establishment of maritime zones. **Implementing coordinated Maritime Spatial Planning (MSP) and Integrated Coastal Management (ICM),** based on the experience of e.g. ADRIPLAN, with the aim of improving the on-going process to develop Maritime Spatial Planning (MSP) in the sea basin, of overcoming barriers to full participation of all neighbouring countries in the process and of promoting sound technically/scientifically based political decisions. This will promote a coherent transnational approach to the spatial planning of the two seas and support implementation of the MSP Directive. The ultimate aim would be good governance of economic activities in this sea region and implementation of common plans.	**Maritime Spatial Planning** based on an ecosystem approach supported by advanced knowledge and tools. **International coordination on MFSD descriptors (e.g. ICES for the Mediterranean).** **Integration between GES assessment and MSP** **Management of the exploitation of marine resources based on a sound ecosystem approach and assuring sustainability at long-term scales.** **Sound risk assessment of compromising the GES (at short and long time scales) due to multiple pressures and blue growth exploitation.** **Integrated Marine Observing Systems:** (Adriatic, Ionian and especially in regions which are actually not enough covered to manage the GES). **Coordination** between countries is requested and need of **standardized approach**	**Cleaning the Mediterranean Sea** **Promoting sustainable exploitation of biotic and abiotic resources**	Implement coordination/cooperation schemes and comparable risk assessment of the effects of multiple anthropic pressures at different depths, including deep sea areas; comply with regional conventions and the Marine Strategy Framework Directive (MSFD) Identify the trade-offs between ecological dynamics and socio-economic needs in order to improve adaptive management scenarios of resource uses Implement multidisciplinary integrated methodologies to evaluate the impact of ship and harbors on the environment at trans-national level on the light of the specific characteristics of the Mediterranean basin

EUSAIR Pillar 3 – Environmental quality		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
		(capacity building, data delivery, same protocols, coherence of the approaches, definitions of essential variables) **New needs for data to support the blue growth** **Sustainability of the system over the long term (e.g. to assess climate change)** **Mapping of the system** **Climate change (impact) assessment and reporting to policy (e.g IPCC for the Mediterranean , MEDEC initiative)** **Development of Adaptation and mitigation actions based on robust scientific tools**		

EUSAIR Pillar 3 – Environmental quality		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
Threat to coastal and marine biodiversity	**Implementing Maritime Spatial Planning and Integrated Coastal Management:** by ensuring coordination of different projects/initiatives with the frameworks provided by the Maritime Spatial Planning Directive and the Priority Action Plan of UNEP/MAP.		**Promoting sustainable exploitation of biotic and abiotic resources**	Promote innovative devices and approaches for limiting coastal erosion and pollution by strengthening the synergy between science, industry and policy makers and foster joint initiatives with European marine regions

EUSAIR Pillar 3 – Environmental quality		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
				Depict the deep sea, mapping the topography of seabed, characterizing the geomorphology and substrate types, identifying geo-habitats
	Increasing marine knowledge: To ensure a sound basis for actions related to Maritime Spatial Planning (MSP), Integrated Coastal Management (ICM) and implementation of the Marine Framework Strategy Directive, it is important for the Region to: - Make an inventory of marine biodiversity and detailed habitat mapping in coastal and offshore areas. - Agree on a common approach to be applied across the Adriatic and Ionian sea basin for monitoring diversity descriptors on the status of the marine environment the two seas, and for determining Good Environmental Status indicators and targets. - Establish a common infrastructure platform in terms of data collection, marine research, lab analysis through common survey programs, research vessels and laboratories. - Develop a Web-GIS Observatory Network to gather and process geographical and statistical data related to sustainable development and the marine environment.		**Understanding the functioning of the Mediterranean Sea ecosystem** **Towards an observing system of systems**	Develop tools/software to describe impacts on coastal environments taking into consideration the social and economic aspects Improve the knowledge on land-sea nexus and develop coastal ecological engineering solutions and measures to reach a 'good environmental status' Develop tools able to assess cumulative impacts of human activities for an eco-sustainable exploitation of marine resources Assess inputs from atmosphere-land-sea and anthropogenic pressures leading to alteration of the marine and coastal ecosystems; limit the specific emerging risks and impacts on both ecosystems and human health and wellbeing Maintain updated data/information on erosion phenomena and coastal risks harmonizing and expanding the coastline monitoring systems at basin scale

EUSAIR Pillar 3 – Environmental quality		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
				Develop common methodologies to implement the Marine Strategy Framework Directive (MSFD) in shared waters, enhancing coordination and cooperation among Member States to achieve the Good Environmental Status (GES) Tailor made solutions for sensors and platforms Develop new technologies and systems enabling the increase of the spatial and temporal resolution and observation parameters at the coastal region (both using in-situ and remote tools) Develop and commercialize environmental sensors for assessment of impacts of human activities and the implementation of Marine Strategy Framework Directive (MSFD)

EUSAIR Pillar 3 – Environmental quality		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
Threat to coastal and marine biodiversity	**Enhancing the network of Marine Protected Areas**: By possible designation of new areas in coordination with the process of designation of Specially Protected		**Promoting sustainable exploitation of biotic and abiotic resources**	Implement managing solutions and conservation plans, including MPAs networks, of coastal to deep sea ecosystems and their relationship to the

EUSAIR Pillar 3 – Environmental quality		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
	Areas of Mediterranean Importance under United Nations Environment Programme – Mediterranean Action Plan (UNEP MAP); by establishment of Fisheries Restricted Areas under the General Fisheries Commission for the Mediterranean (GFCM), by completing marine NATURA 2000 network under Birds and Habitats Directives; by designating further protected areas to form a coherent and representative network of MPAs according to the Marine Strategy Framework Directive; and by ensuring their joint or coordinated management, also in relation to maritime spatial planning and integrated coastal management		**Understanding the functioning of the Mediterranean Sea ecosystem**	environmental changes of natural and anthropogenic origin Identify the origin of invasive/alien species and routes of invasions, environmental conditions conducive for invasions and major effects on local habitats
			Understanding and forecasting the Mediterranean Sea dynamics	Provide numerical modelling, forecasting, indicators and trends definition in the Mediterranean environmental conditions along with long-term monitoring Implement downscaling models of climate change for the Mediterranean Sea and sub-basins; assess the (global) impacts on marine ecosystems and their resources from regional to local scales
Pollution of the sea	**Implementing a life cycle approach to marine litter**: - Establishing a coordinated monitoring system and database on marine litter and marine pollution, including sources		**Generating new products**	Evaluate the potential of marine litter from macro and micro-pollutants, including nanomaterials and plastics; assess its impact on marine organisms and develop in situ

EUSAIR Pillar 3 – Environmental quality		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
	and types of litter and pollution and a GIS database on the location and sources of marine litter27. - Strengthening collaboration between sectors for the development of new possibilities for marine litter recycling including production of packaging waste and fishing gears to enable recycling; - Preparation of a joint strategy for the assessment, prevention and reduction of marine litter, building on the work of MED POL programme28 and in line with the Regional Plan of the Barcelona Convention on Marine Litter Management in the Mediterranean, including an economic assessment of the costs and benefits of different options for reducing marine litter, as well as actions intervening at different stages of production, sources, transmission and loss. - Supporting the preventative measures to address Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG), implementing gear marking and gear registration, marine spatial management, codes of practice for fishermen.			bioremediation actions
	Supporting clean-up programmes for both floating and sunken litter, integrating these activities with recycling programmes, and investing in necessary infrastructure.		**Cleaning the Mediterranean Sea**	Measure and identify chemicals compounds and other sources of pollution, including contaminants dispersal, in different marine matrices;

EUSAIR Pillar 3 – Environmental quality		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
				characterize sources, pathways and impacts on marine ecosystems; develop early warning tools to detect pollutants
	Identifying hotspots and investing in reducing emissions of pollutants by realising a Hot Spot Inventory and aiming to depollute the sea.		**Cleaning the Mediterranean Sea**	Identify areas with potential hot spots of conflicts particularly exposed to the impact of multiple stressors and possible solutions
	Drafting and implementation of a joint contingency plan for oil spills and other large-scale pollution events, building on the work on the sub-regional contingency plan developed by the Joint Commission for the protection of the Adriatic Sea and coastal areas, and on the forthcoming Action Plan for the Offshore Protocol of the Barcelona Convention. Implementation of measures to enable joint contingency planning and coordinated emergency response.		**Reducing risk disasters**	Develop adapted sampling strategies; better assess marine geo-hazards, from paleo records and from analysis and characterization of active faults Implement high resolution swath bathymetry mapping; reveal detailed morphology of the seafloor and large scale and local seismic profiling surveys; locate and study active geological features. Develop operational platforms and decision matrix for tackling destructive tsunami events generated by different sources, e.g. seismicity, volcanoes, landslides, atmosphere. Implement coordinated methods and approach to achieve a dedicated science-to-policy network on hazards in the Mediterranean.
			Cleaning the Mediterranean	Develop a new generation of

EUSAIR Pillar 3 – Environmental quality		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
			Sea	Decision Support System tools for emergency response in relation to marine pollution from accidents, including the analysis of the state of damaged platform/carrier Develop new tools, materials and methods to ease and improve the decision making process in managing on board emergency situations

WG 4, Sustainable Tourism, Marine/Costal Cultural heritage: Margherita Cappelletto, Vlado Malačič, Vangelis Papathanassiou, Sonia Popa (NB: Blanka Belosevic absent and justified) C. Aspris

EUSAIR Pillar 4 – Sustainable tourism		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
	Fostering Adriatic-Ionian cultural heritage. In order to diversify the Region's profile in the eyes of its visitors and to extend the tourism inflows beyond the summer season, the rich cultural background and assets should be further exploited. This could be achieved by strengthening cultural cooperation. In this way the implementation of the Ljubljana process will be reinforced and there will be increased demand for use of the creative, cultural and natural industries sector. With a critical mass of cultural hotspots at macro-regional level certain areas could be rejuvenated and enjoy increased tourism attention. Possible interventions are: **Adriatic-Ionian Museum Network** for the establishment of a regional network that will direct visitors to the various museums, cultural events and premises across the Region. *In the case of marine Museums (coastal and underwater) a preliminary mapping is needed.* **More emphasis on archaeological sites** for the promotion of the Region as a global destination for archaeological tourism, including coastal and	Assessment of available surveys that map objects and spots relevant for coastal and underwater Museums, as preliminary step for knowledge exchange, data harmonization, and capacity building. Taking advantage of retrieved data and information and establishing a network for collaboration between marine and archaeological institutions	**Toward a shared management approach to the Mediterranean cultural heritage** **Increase the economic impact of the Mediterranean's cultural heritage**	Creation of a common disclosure and data sharing policy Exploit large-scale seabed mapping databases to locate shipwrecks and target areas for high resolution seabed mapping Explore and protect natural and cultural heritage at coast and underwater through multidisciplinary approach, combining efforts from national level programmes for stocktaking Establish a network for collaboration, e.g. between marine and archaeological institutions Create sustainable integrated touristic offers and services, e.g. scuba diving circuits, to make best use of the Mediterranean's cultural heritage while preserving it Develop advanced concept of smart robotic systems for

EUSAIR Pillar 4 – Sustainable tourism		Matching	BLUEMED	
Topic	**Action**		**Priority**	**Action**
	underwater. **Creative Adriatic-Ionian Region.** Globally, creative industries are among emerging drivers of the economy. Networking of creative industries actors for exchanging ideas, know-how and experience will help distribute the creative potential across the entire region. This project would identify issues of common interest and concentrate on knowledge, experience, information and sharing of excellence in support of artistic entrepreneurship, creative start-ups and contemporary art festivals.	can lead to development of products for a Virtual Museum of Mediterranean Coastal and Submarine Archaeology. This could be a sample of the EUSAIR Adriatic-Ionian Museum Network for the establishment of a regional maritime network that will direct visitors to the various museums, cultural events and premises across the Region.		coastal and submarine archaeology Take advantage of retrieved data and information to create a Virtual Museum of Mediterranean Coastal and Submarine Archaeology Train a new generation of marine technicians/scientists to conduct research on the protection of the marine cultural heritage

[i] NB : in *Italic* are highlighted possible projects related to EUSAIR's Topics as listed in the Action Plan**;** in ***Bold italic*** are highlighted priority sub Actions identified by the EUSAIR's Thematic Steering Group for Pillar 2.


European
Commission