

Assessment of
FEASIBILITY
and **ADDED VALUE**
to support a possible
SUSTAINABLE
BLUE ECONOMY
INITIATIVE
for the
WESTERN
MEDITERRANEAN



January 16, 2017

TOWARDS A SUSTAINABLE BLUE ECONOMY INITIATIVE FOR THE WESTERN MEDITERRANEAN

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Table of contents

1 INTRODUCTION AND OVERALL PROCESS.....	3
1.1 BACKGROUND PROCESS AND AIM.....	3
1.2 THE PROBLEM ANALYSIS	3
1.3 A FRAMEWORK FOR ASSESSING THE ADDED VALUE OF A SPECIFIC INITIATIVE FOR THE WESTERN MEDITERRANEAN SUB-SEABASIN.....	4
1.4 CHALLENGES IN THE WESTERN MEDITERRANEAN	5
1.5 RELEVANT POLICY INITIATIVES IDENTIFIED FOR THE ASSESSMENT.....	7
1.6 ADDING VALUE: CLASSIFYING GAPS.....	9
2 CHALLENGE 1: A MARITIME ECONOMY NOT SUFFICIENTLY FUTURE-PROOF.....	10
2.1 THE CHALLENGE AT STAKE.....	10
2.2 POLICY INITIATIVES POTENTIALLY RESPONDING TO THE SPECIFIC CHALLENGES IDENTIFIED	25
2.3 ASPECTS OF THE CURRENT POLICY FRAMEWORK THAT COULD BE STRENGTHENED	32
3 CHALLENGE 2: FOR A SAFER AND MORE SECURE SUB-SEABASIN.....	36
3.1 THE CHALLENGES AT STAKE	36
3.2 POLICY INITIATIVES POTENTIALLY RESPONDING TO THE SPECIFIC CHALLENGES IDENTIFIED	42
3.3 ASPECTS OF THE CURRENT POLICY FRAMEWORK THAT COULD BE STRENGTHENED	50
4 CHALLENGE 3: ENVIRONMENTAL STATE: ACUTE AND CHRONIC IMPACTS OF HUMAN ACTIVITY.....	53
4.1 THE CHALLENGE AT STAKE.....	54
4.2 POLICY INITIATIVES POTENTIALLY RESPONDING TO THE SPECIFIC CHALLENGES IDENTIFIED	62
4.3 ASPECTS OF THE CURRENT POLICY FRAMEWORK THAT COULD BE STRENGTHENED	70
5 CHALLENGE 4: HIGH UNEMPLOYMENT AND INSUFFICIENT MARITIME SKILLS/COMPETENCIES.....	74
5.1. THE CHALLENGE AT STAKE.....	75
5.2. POLICY INITIATIVES POTENTIALLY RESPONDING TO THE SPECIFIC CHALLENGES IDENTIFIED	77
5.3. ASPECTS OF THE CURRENT POLICY FRAMEWORK THAT COULD BE STRENGTHENED	81
6 ADDED VALUE OF POTENTIAL ACTIONS AT FULFILLING THE EMERGING GAPS	84
6.1 MARITIME ECONOMY: BUILD SYNERGIES ACROSS ACTIVITIES AND ACTORS	88
6.2 FOR A SAFER AND MORE SECURE SUB-SEABASIN	89
6.3 ENVIRONMENT: FOSTER ENGAGEMENT AND COOPERATION.....	90
6.4 MARITIME EDUCATION & TRAINING: DEVELOP BLUE SKILLS THROUGH COOPERATION.....	91
6.5 CROSS-CUTTING AREAS OF COOPERATION.....	92
ANNEX I: EXISTING GOVERNANCE STRUCTURES AND THEIR LEVEL OF COVERAGE TO IDENTIFIED CHALLENGES	96

FIGURES and TABLES

Figure 1:	Overall framework for assessing the added value of a specific western Mediterranean initiative	4
Figure 2:	Identified (specific) challenges	6
Figure 3:	Trends in visits and expenditures per person per night (northern shore)	11
Figure 4:	Monthly shares of visits (1 night or over) as of total year visit in 2014 (northern shore).....	12
Figure 5:	Contribution of tourism sector to the economy (southern shoreWestern)	12
Figure 6:	Trends in tourists arrivals and spending per person through time (southern shore).....	13
Figure 7:	Trans-shipping (“high intensity”) and short-sea shipping (“low intensity”) in the sub-seabasin	15
Figure 8:	Repartition of researchers working on aquaculture (selected countries where data is available)	18
Figure 9:	Key priorities for developing of marine renewable energy in the Mediterranean	20
Figure 10:	Repartition of international projects amongst universities involved in aquaculture research	23
Figure 11:	Intensity of pollution of maritime transport (shipping, ports and oil spills)	38
Figure 12:	Illegal border crossings on the “western route” of Western Mediterranean	39
Figure 13:	Illegal border crossings on the “eastern route” of Western Mediterranean	40
Figure 14:	Overview of major threats by group of species in the sub-seabasin	53
Figure 15:	Number of fish stock assessments per area of the Western Mediterranean sub-seabasin	56
Figure 16:	Urban population in the Mediterranean countries.....	60
Table 1:	Summary of selected strategic initiatives analysed for the present report	8
Table 2:	Composition and performance of the fleet in the Western Mediterranean: Vessels (nr.)	17
Table 3:	Repartition of clustering initiatives across various economic activities in the Blue Economy	23
Table 4:	Availability of Blue Economy data across the Western Mediterranean.....	24
Table 5:	Overview of areas of added value and links with specific challenges	84
Table 6:	Overview of areas of added value and links with gaps identified	86
Table 7:	Types and examples of actions through which the identified 6 governance framework may address Challenge 1: A Maritime economy not sufficiently future-proof.....	96
Table 8:	Types and examples of actions through which the identified 6 governance framework may address Challenge 2: For a safer and more secure sub-sea basin	100
Table 9:	Types and examples of actions through which the identified governance frameworks may address Challenge 3: Environmental State : Acute and chronic impact of human activity.....	103
Table 10:	Types and examples of actions through which the identified governance frameworks may address Challenge 4: High unemployment and insufficient maritime skills/competencies	107

1.1 Background process and aim

This report represents the first deliverable of Phase II for the project, and is aimed at defining more specifically the problems and opportunities not addressed by existing EU and regional/global initiatives in the Western Mediterranean sub-seabasin, to be potentially addressed by this Initiative, in light of a range of more general challenges faced by the sub-seabasin.

This report builds on evidence and views gathered in the initial Phase I (preparatory phase), where contextual information and feedback from a range of different stakeholders has been collected.

Two reports were produced in the framework of that phase:

- a non paper aimed at providing evidences, a context analysis and a basis for consultations;
- a report providing a review and assessment of the main results emerging from the stakeholders' consultation that took place during the first weeks of March 2016.

Both reports can be found and consulted at the project's website.¹

The outcome of this report will provide an input for additional discussions with stakeholders (as part of the feature of the dedicated website and in subsequent offline consultations to be upheld during phase II of the work. This in turn will allow to draft the specific features of the resulting initiative (in a separate report) to be discussed and finalised at the stakeholder conference which will be taking place early 2017.

1.2 The problem analysis

This report follows the general approach of an Impact Assessment, in order to specify a clear Intervention Logic for a possible initiative to be taken in order to address identified problems and opportunities, with a focus on the added value for the countries across the Western Mediterranean sub-seabasin². The EU Better Regulation Guidelines³ provide the specific methodological framework for an Impact Assessment, by stressing the fact that the problem for any policy intervention should be grounded on reliable and robust evidence, in order to assure the effect and impact of identified options. The guidelines provide a series of questions to be addressed, based on the key elements related to the "understanding of the problem", namely:

- What is the *problem* exactly? How can the problem be defined?
- What is its scale and can it be *verified* and measured?
- What are the *underlying factors and root causes* that underpin the problem? In order to assess the main factors behind such problems, a problem tree analysis is provided (EU Better Regulation, Tool 59⁴).

¹ <http://www.westmedstrategy.eu>

² The 5+5 countries are Algeria, France, Italy, Libya, Malta, Mauritania, Morocco, Portugal, Spain and Tunisia.

³ http://ec.europa.eu/smart-regulation/guidelines/toc_guide_en.htm

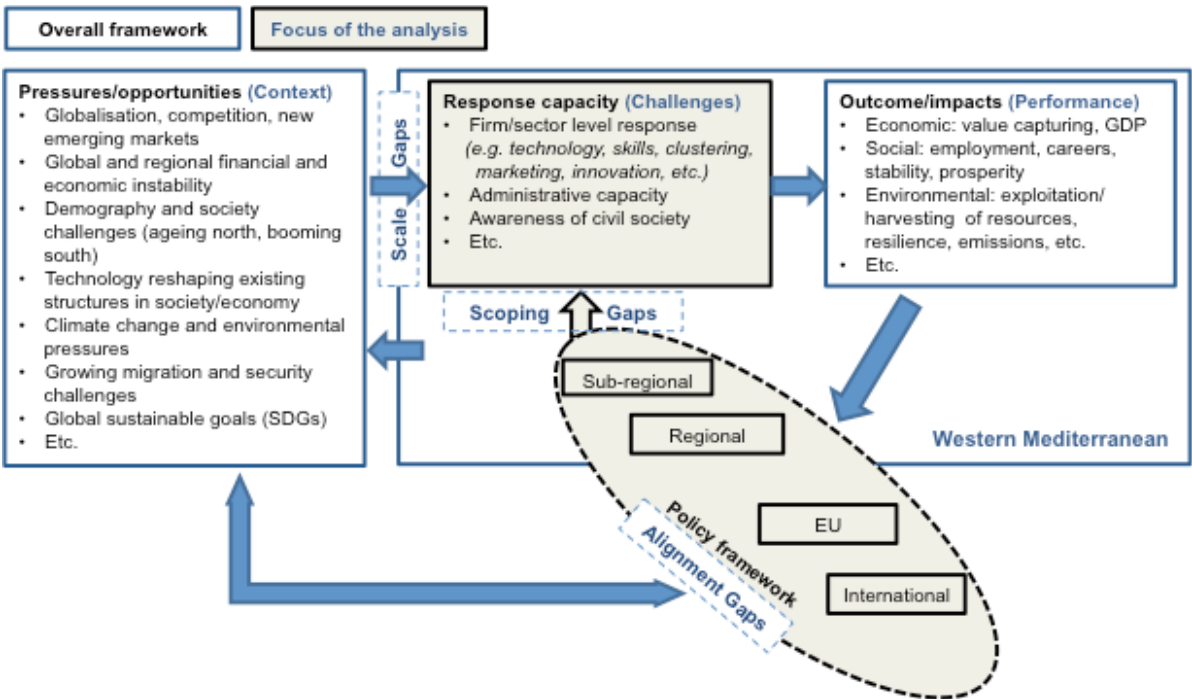
⁴ http://ec.europa.eu/smart-regulation/guidelines/tool_59_en.htm

Similarly to seabasin and macro-regional strategies, this Initiative will be underpinned by the three principles of better using existing rules, institutions and funds. A full impact assessment is not deemed necessary and this report therefore focuses on what is the problem and why is there a problem, as well as what should be achieved. The report then identifies the policy initiatives potentially responding to the specific challenges identified, and the persisting problems amongst these existing initiatives. The report then identifies the existing governance structures and their level of coverage to identified challenges, and the added value of potential actions at fulfilling the emerging gaps.

1.3 A framework for assessing the added value of a specific initiative for the Western Mediterranean sub-seabasin

To assess added value of a specific initiative for the western Mediterranean, this report builds on a framework proposed for assessing the potentials and challenges for the EU Blue Economy (Ecorys 2012) illustrated in the Figure 1.1 hereby. At the heart of this framework lies the **response capacity at different levels**, defined as the ability of systems and structures in the Western Mediterranean to fully address the range of **challenges and opportunities** posed by the regional and global context in which they operate. Key in this respect are administrative capacity and the awareness of civil society. If such response is not efficient and effective, the **outcomes and impacts** of such response are expected to be unsustainable (e.g. socially, environmentally and/or economically) either in the short- or the mid/long-term. A key element in the response capacity is the extent to which the existing **policy framework** is providing effective and efficient regulation and incentives, for the system to function properly. This approach allows for the identification of possible **gaps** emerging in such support through time, which may require additional action.

Figure 1: Overall framework for assessing the added value of a specific western Mediterranean initiative

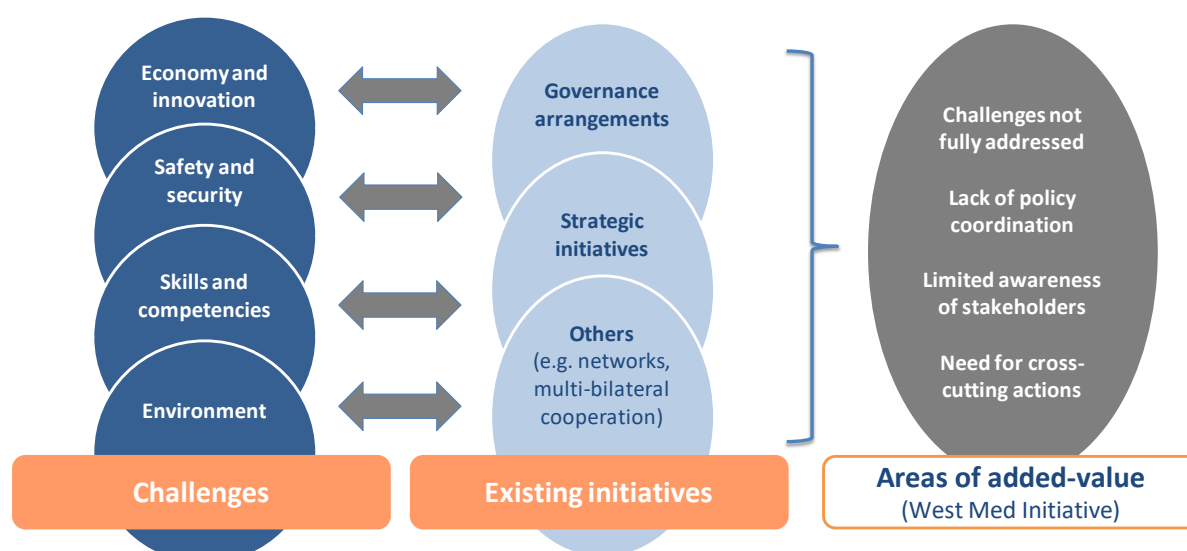


Source: Elaborated by the Consortium on the basis of previous models (Ecorys 2012)

Based on the framework illustrated above, this report assesses the following elements:

- What are the main problems **in the Western Mediterranean sub-seabasin performance** with respect to responding to challenges and opportunities?
- What are the **main root causes hindering the current response capacity** across the sub-seabasin, as emerged in the study so far?
- What are the **main existing policy frameworks** (i.e. governance and cooperation initiatives, as well as strategic initiatives by the EU and important actors in the region) addressing such problems?
- Are there **gaps and inconsistencies in the current policy framework**, where current initiatives could be further strengthened in the future?
- What is the possible **added value of further interventions** to address persisting problems? Who could be involved?

As a result, the report *aims at assessing gaps emerging in the available policy framework supporting a range of issues in the response capacity across the Western Mediterranean and identifying areas where added value of further actions can be proposed.*



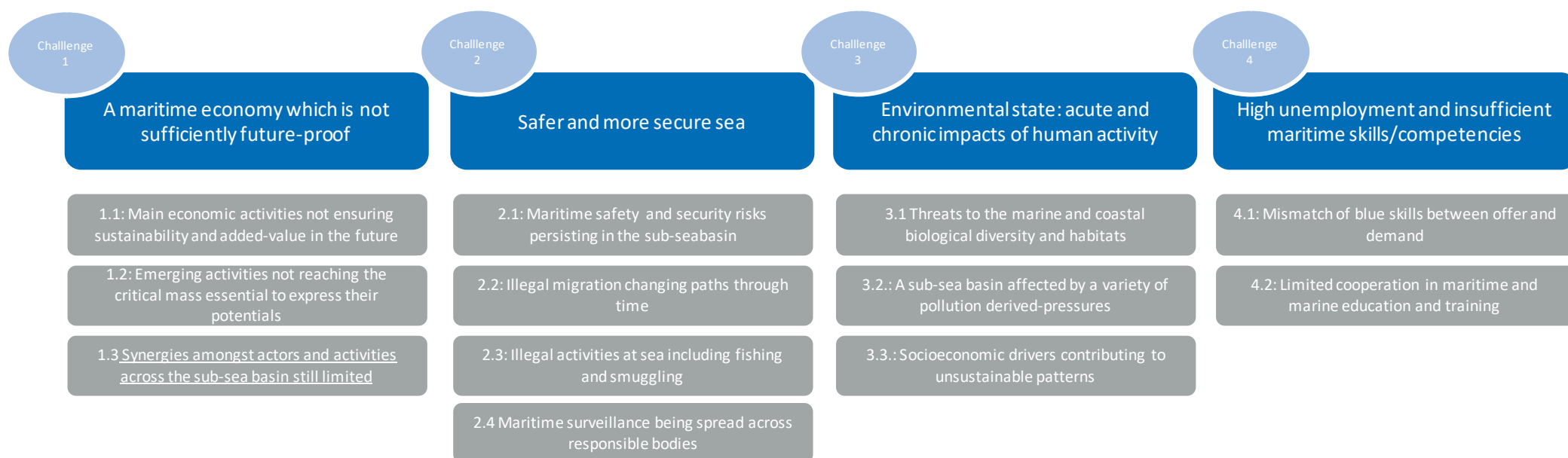
1.4 Challenges in the Western Mediterranean

Several **challenges** addressed in this report have emerged from previous contextual analysis (Report 1⁵) and further exchanges held at the local level with stakeholders across the sub-seabasin (Report 2⁶) and at the country level.

⁵ Ibid, p. 2

⁶ Ibid, p. 2

Figure 2: Identified (specific) challenges



As shown in the figure above, we propose to present the following main challenges, all of which are maritime in nature:

- Challenge 1 - A maritime economy which is not sufficiently future-proof;
- Challenge 2 – For a safer and more secure seabasin;
- Challenge 3 – Environmental state: Acute and chronic impacts of human activity;
- Challenge 4 – High unemployment and insufficient maritime skills/competencies.

These issues are further detailed in *specific challenges*, including an analysis of the general context from which they arise and their main features in respect to the specificities of the Western Mediterranean sub-sea basin.

1.5 Relevant policy initiatives identified for the assessment

Policy initiatives have been identified and reviewed on the basis of their potential relevance for the challenges assessed both across the southern and northern shores of the sub-region, amongst those emerged from expert review and specific suggestions from the stakeholders consulted at the local, country and regional levels. These are reported hereby, grouped by different relevant types:

- **Governance and inter-governmental cooperation initiatives:** Union for the Mediterranean (UfM), 5+5 Dialogue, Maghreb Arab Union, United Nations (i.e. UNEP-MAP, FAO, Regional Fisheries Management Organizations-RFMOs (General Fisheries Commission for the Mediterranean—GFCM; and International Maritime Organization (IMO); the assessment of governance structures is contained under Annex 1 of the report.
- **Strategic initiatives:** The initiatives assessed are those illustrated in Table 1 hereby, grouped amongst the main bodies promoting such initiatives (including those identified by above governance bodies).

Table 1: Summary of selected strategic initiatives analysed for the present report

Summary of selected strategic initiatives analysed for the present report
Challenge 1 : A maritime economy which is not sufficiently future-proof • Blue Growth Strategy (EU); • Blue Growth (FAO); • Common Fisheries Policy (EU); • Mediterranean Strategy for Sustainable Development (UNEP-MAP); • Integrated Maritime Policy (EU); • Maritime Spatial Planning Directive (EU) • CAMP Strategy (UNEP); • BlueMed Initiative (EU-MED); • PRIMA (EU); • Motorways of the Sea (EU) / Transport Action Plan (UfM); • Network of regional and local authorities: Inter-Mediterranean Commission (CPMR).
Challenge 2 : For a safer and more secure sub-seabasin • Regional Transport Action Plan (2014/2020); • 5+5 GMTO Initiative; • Regional Marine Pollution Emergency Response Centre (REMPEC); • European Union Maritime Security Strategy (EUMSS) and associated actions; • NATO Mediterranean Dialogue.
Challenge 3 : Environmental State : Acute and chronic impacts of human activity • Marine Strategy Framework Directive (EU); • Marine Knowledge 2020 initiative - EMODNET (EU); • Horizon 2020 for a Cleaner Mediterranean (UfM); • 5+5 Water Strategy • Ecosystem Approach Initiative (UNEP/MAP); • Mediterranean Strategy on Sustainable Development (UNEP/MAP); • SCP Action Plan (UNEP/MAP); • Regional Action Plan on Marine Litter (UNEP/MAP); • MedPAN Network. • ACCOBAMS
Challenge 4 : High unemployment and insufficient maritime skills/competencies • EU Blue Growth Strategy; • Blue Med Initiative; • EU Common Fisheries Policy; • Mediterranean Universities Union; • Blue Growth Initiative of FAO; • European Coast Guard Functions Forum. Network of regional and local authorities: CPMR Inter-Mediterranean Commission;

In addition to the above strategic initiatives, **funding and programme related initiatives** can be a powerful instrument as well. For example, various European Territorial Cooperation programmes are operating in the region – such as the MED programme. Other funding instruments are the European Neighbourhood Instrument CBC MED programme, the mainstream ESIF programmes, the Horizon 2020 programme, LIFE and Erasmus +. These initiatives are not assessed at this stage, as they will be detailed later in the process (Report 4 in this study).

1.6 Adding value: classifying gaps

On the basis of the overall framework above (table 1), an assessment needs to be made on where the current initiative can make a difference. We consider this to be potentially the case when the initiatives assessed leave one or more of the gaps below:

- **Type 1: Geographic or thematic scope of the existing initiatives (relevance and focus):** How relevant is the initiative for the Western Mediterranean sub-seabasin? All of the initiatives have their own *geographic scope*; many of them apply to the Mediterranean sub-seabasin as a whole; others are specific to the EU; yet others refer only to north-south cooperation or apply to a (limited) set of EU Member States. Put in other words, how well do the aims of the intervention, including the territorial dimension, relate to the challenges, opportunities and issues identified in the Western Mediterranean sub-seabasin? The current initiative can make a difference by tailoring the initiative to the needs of this sub-seabasin. With regard to *thematic* focus, the quest is whether the initiative is tailored to the issues addressed? Is it broader, or is it more specific? The current initiative can make a difference by proposing actions which are directly tailored to the specific challenges identified.
- **Type 2: Scale of the existing initiatives (proportionality, utility, horizontal coordination):** How does the scale of the initiative relate to the scale of the problem? Is the initiative proportional to the problem as identified in the Western Mediterranean? For example, is the capacity of involved bodies sufficient to assure that actions taken contribute to solving the problems and issues identified? Answering this question requires that adequate information and knowledge about the initiative and its impacts is in place (e.g. through evaluation studies or monitoring systems). The current initiative can make a difference by providing information about the effectiveness of existing initiatives and/or by reinforcing them. It can also step up in ‘blank’ areas where currently no initiatives apply. It can also help to provide (horizontal) coordination – allowing the grouping and possibly upscaling of similar initiatives and, finally, in certain areas, the initiative may also help to ensure that actions are implemented on the ground (enforcement).
- **Type 3: Awareness amongst local, regional and national-level actors (alignment, vertical coordination):** a third type of gap refers to the awareness of the initiative amongst relevant local, regional and national actors in the region. Therefore, it is important that key information about the initiative is effectively disseminated amongst those actors who need to know about it – and who can potentially benefit from it and/or contribute to it. As a consequence, it is important that (international) initiatives are aligned with local, regional ⁷and national level initiatives and vice-versa. They are expected to be more effective when stakeholders are engaged. The current initiative can make a difference by raising awareness amongst stakeholders and by helping to align policy frameworks where appropriate and desirable.

⁷ In this report, ‘regional’ refers to the subnational level. The Western Mediterranean level is referred to as sub-sea basin level.

Five economic sectors are driving the current maritime economy across the Western Mediterranean sub-seabasin, as illustrated in Report 1⁸ produced by this study: fisheries, aquaculture, coastal and maritime tourism, maritime transport and energy. Amongst those, coastal and maritime tourism, maritime transport and fisheries record the highest share of the cumulative performance in terms of both GVA and employment generated (Report 1, Chapter 2.2). A range of other activities, such as blue biotechnology and more technology-intense use of aquaculture, as well as blue renewable energy, have potentials for generation of sustainable growth and employment but remain at a more emerging stage.

Already in 2012, the EU Blue Growth study⁹ referred to the need to overcome challenges to assure a sufficiently future-proof maritime economy. On the one hand, activities historically at the forefront of the EU Blue Economy (i.e. tourism, transport and fisheries) require greater innovation and diversification to remain competitive through time, and ensure high levels of qualified employment across the sub-seabasin. On the other hand, a number of emerging and “niche” activities (e.g. blue biotechnology, maritime renewable technologies) require support to gain an adequate critical mass and foster more tailored R&D and piloting/testing investments so to deploy their full potential.

This chapter discusses the extent to which these and other challenges are relevant for the Blue Economy in the Western Mediterranean sub-seabasin. It does so by reviewing a range of publicly available secondary sources (as noted) and the feedback received in local focus groups held in Phase 1 (Report 2).

2.1 The challenge at stake

Three specific challenges will be reviewed here:

- Specific challenge 1.1: Main economic activities not ensuring sustainability and added value in the future;
- Specific challenge 1.2: Emerging activities not reaching the critical mass essential to express their potentials;
- Specific challenge 1.3: Synergies amongst actors and activities across the sub-seabasin still limited.

Specific challenge 1.1: Mature activities not ensuring sustainability and added value in the future

As mentioned above, maritime transport, maritime tourism and recreational activities, as well as fisheries, are currently the most prominent Blue Economy activities across the Western Mediterranean. Available trends across the two shores of the sub-seabasin suggest that lack of innovation (i.e. business models, service diversification, new technologies) is threatening the competitiveness and sustainability of these activities through time. Such evidence is presented and discussed in the next pages of this section.

Coastal and maritime tourism business models require innovation to remain sustainable through time

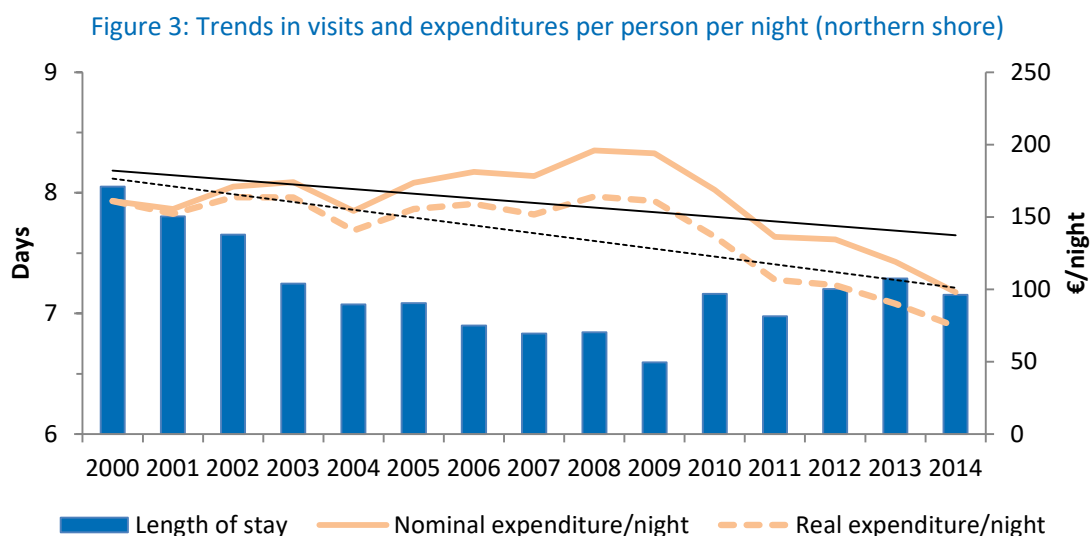
Western Mediterranean coastal tourism activities are particularly exposed to global competition and volatility of demand. In an interconnected world, traditional models of ‘sun and beach’ (e.g. Ecorys

⁸ Ibid, p. 2

⁹ http://ec.europa.eu/maritimeaffairs/documentation/studies/documents/blue_growth_third_interim_report_en.pdf

2013¹⁰) are pressured by the competition of global destinations offering greater value for money, more authentic experiences and/or high-quality services. Coastal and island destinations are also increasingly exposed to risks caused by climate change (World Conference on Climate Change 2016¹¹), and as such require greater efforts towards the adaptation of local systems in order to manage potential risks in the future.

Available economic evidence confirms some persisting challenges, both in the north and the south of the sub-seabasin. The figure below illustrates how the sector on the northern shore of the Western Mediterranean has been confronted with cyclical crises triggered by the volatility of visits through time. Decline in visits is attributable to pressure from global competition (i.e. years 2000/2005) and to global crises (i.e. years 2008/2009). In more recent years (i.e. 2009/2014) a partial recovery in visits has been coupled by a rapid decline in the expenditure per capita per night, limiting the economic gains for local operators and local communities.



Source: Eurostat – dotted line accounts for changes in real value, deflated of changes in price values

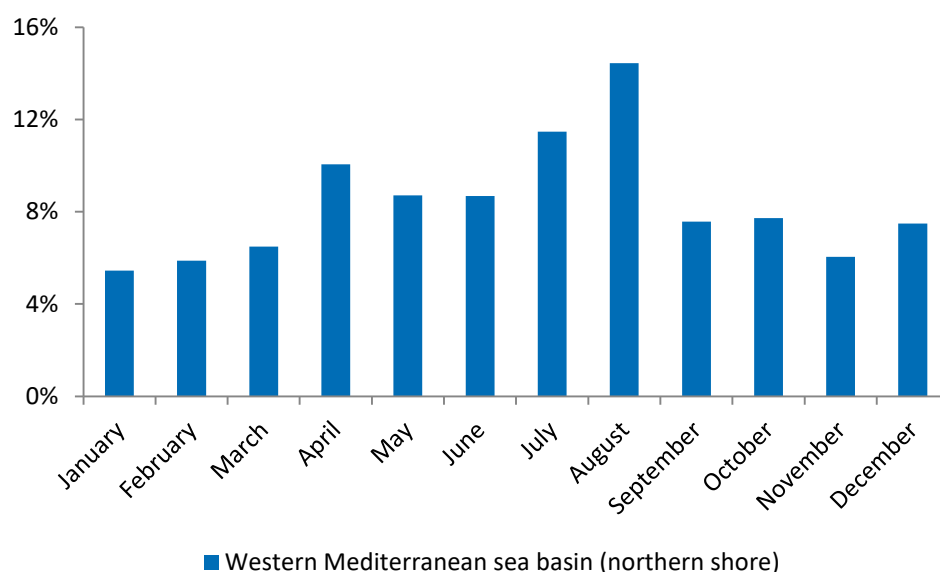
The high volatility of visits through time is coupled with a certain persistence in the “seasonality” of visits on the northern shore, intended as a general peak of presence over the summer season. Although visits are generally spread across the year, an important share is still concentrated in the months of July (~ 12%) and August (~15%). Such concentration exposes local communities to unsustainable pressures, including the congestion of local services and structures (e.g. high use of infrastructures such as waste/water management systems and pressure on local ecosystems, as discussed in Chapter 4) and risks of high economic losses in case of unprofitable “summer seasons”¹².

¹⁰ http://ec.europa.eu/maritimeaffairs/documentation/studies/documents/study-maritime-and-coastal-tourism_en.pdf

¹¹ <http://climatechange.conferenceseries.com/abstract/2015/climate-change-impacts-on-mediterranean-tourism-destinations>

¹² These can be due to a range of external factors, such as global competition, economic factors, climate conditions, etc.

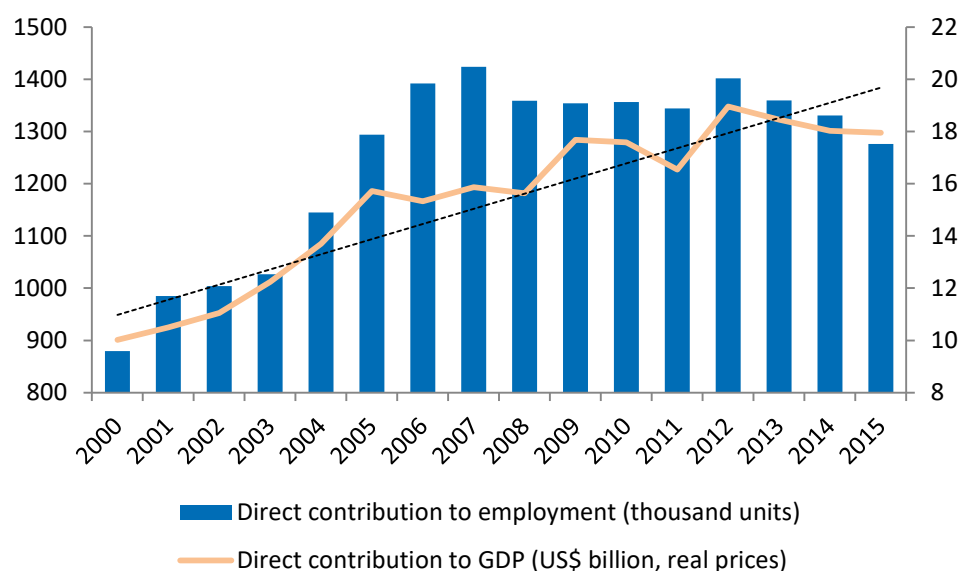
Figure 4: Monthly shares of visits (1 night or over) as of total year visit in 2014 (northern shore)



Source: Eurostat (2014), data from NUTS1 level

The southern shore has a high reliance of tourism as an engine for growth as well (e.g. in Morocco and Tunisia), with a growing direct contribution to employment and GDP through time (as illustrated in the figure hereby). After a steep growth in the period between 2000 and 2007, the effect of the global crisis (period 2007/2011) and the emergence of safety risks (particularly from 2012 onwards, as further discussed in Chapter 3) have made the tourism performance highly unpredictable (WTO 2012¹³, 2015¹⁴).

Figure 5: Contribution of tourism sector to the economy (southern shoreWestern)



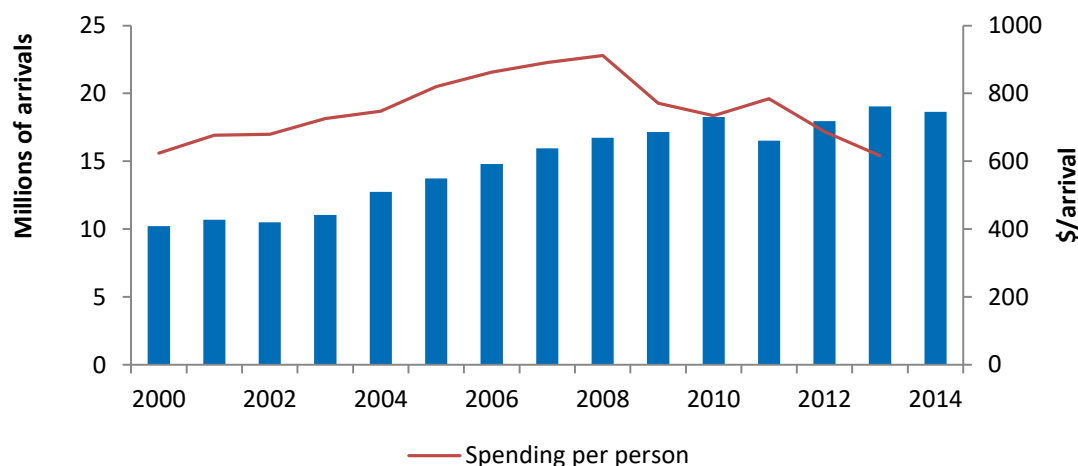
Source: WTTC (2016) – data series from Mauritania not available

¹³ <http://middle-east.unwto.org/event/unwto-atm-industry-forum-future-tourism-middle-east-and-north-africa-ensuring-sustainable-grow>

¹⁴ <http://media.unwto.org/press-release/2015-02-05/middle-east-north-africa-tourism-adapts-challenges-and-gains-new-momentum>

Importantly, in the south as for the northern shore, there has been a decline in terms of average amount spent per person over time, even in the context of a relative stabilisation of the length of stay per visit (as illustrated in the figure below). This pattern, although varying from country to country (Meea 2015¹⁵), is resulting from a persisting reliance of much of the local coastal and maritime tourism offer on ‘mass tourism’¹⁶ (Ecorys 2013¹⁷). A tourism offer based on standard services and low prices exposes local destination to a fierce and growing global competition, and reduces their ability to capture greater economic value through time (Med Sea 2015¹⁸).

Figure 6: Trends in tourists arrivals and spending per person through time (southern shore)



Source: WTO (2015)

The limited diversification in attractions and services is therefore hindering the development potentials of coastal tourism destinations (Ecorys 2013, 2016¹⁹). Case studies available on the competitiveness of the Blue Economy in the Mediterranean (ENETMAR 2014²⁰) highlight the need for greater innovation of existing models²¹ and promotion of higher quality standards to promote a future-proof and sustainable sector. Western Mediterranean actors, in particular, find it difficult to move towards more diversified, sustainable and competitive business models, often due to limited capacity to access to existing good practices and attract relevant investments to implement such practices (Ecorys 2016, Report 2). The ability to foster greater synergies between coastal tourism and other sub-activities (e.g. gastronomy, culture, underwater heritage, sport including fishery-tourism) has also been highlighted as a challenge for many stakeholders in the sub-seabasin (Report 2).

Greater networking and cooperation across Western Mediterranean destinations is required to assure greater promotion of sustainable tourism practices, attract long-term investments across the region and promote a regional “brand” to attract local and global visitors bringing more added value in economic,

¹⁵ <http://www.luc.edu/orgs/meea/volume17/pdfs/Hilmi-Safa-Teisserenc-Peridy.pdf>

¹⁶ Characterised by strong dependence of the sector on international visitors, with global operator capturing much of the value-added of more advanced offering, while local visitors rely on relatively low-value services, limited added value for local destinations, and peak of seasonal visits still pressuring local communities and ecosystems

¹⁷ http://ec.europa.eu/maritimeaffairs/documentation/studies/documents/study-maritime-and-coastal-tourism_en.pdf

¹⁸ http://www.medpan.org/documents/10180/0/presentation_tourism_25nov15_satta/0c6a1ee4-075b-4eea-9e75-052db62e9208

¹⁹ <http://bookshop.europa.eu/en/study-on-specific-challenges-for-a-sustainable-development-of-coastal-and-maritime-tourism-in-europe-pbEA0416261/?CatalogCategoryID=epQKABstV.EAAAEjDZEY4e5L>

²⁰ https://webgate.ec.europa.eu/maritimeforum/sites/maritimeforum/files/Report_1_full_final.pdf

²¹ Including more effective coordination of coastal tourism and other related local activities (e.g. cultural or inland tourism, fishing and traditional activities, sustainable cruise, yachting, and maritime transport).

social and environmental terms (UNPAN 2016)²². Innovation and cooperation is essential to promote greater sustainable management capacity and awareness across visitors, so to reverse current trends in land and sea pollution (discussed in Chapter 4) and foster the attractiveness of tourism destinations (Report 2, Chapters 2.2.1/2.2.2²³).

Maritime transport destinations requiring more synergies to capture greater value

The Western Mediterranean accounts for almost 200 ports and terminals located along its coasts (Report 1, Chapter 2.2²⁴) and represents a third of total ports of the Mediterranean region. Maritime transport is therefore a relevant and mature sector across the sub-seabasin. A number of relevant hubs (in terms of calls, container throughputs and freight transport) are distributed across the sub-seabasin²⁵. This high density of terminals involves a variety of potentially competing port authorities, both public and private. As a result, a fragmented governance structure hinders the sub-seabasin capacity in effectively addressing global trends, risks and opportunities (Portopia 2014²⁶).

The shipping sector has been facing a radical change in the business model after the 2009 crisis, with certain trends foreseen for the future. Amongst those, the persisting growth in size of deep-sea ships, the increasing concentration of the market in few large global carriers (Fortune 2015²⁷), the development of specialised ship types (e.g. LASH and SeaBee which carry floating containers and RoRo ships which may carry containers on truck trailers²⁸), as well as the constant need of innovation to reduce costs and environmental footprints of ships (Go-Maritime²⁹). Global carriers are increasingly concerned about economies of scales, so to save costs and maximise profits, including by posing pressures on terminals to rise their efficiency (i.e. reduce time and costs of their operations). This is possible due to their growing bargaining power *vis-à-vis* local port authorities (OECD/ITF 2015³⁰).

In such a global context, the recent developments on the southern shore (i.e. growing container terminal market in the Maghreb countries) have led to an increased competition with previous generation hubs in the north of the region (Portopia 2014). The Moroccan port sector, for example, is undergoing a significant reform since the last economic crisis (UNCTAD 2015³¹), aimed at attracting deep-sea shipping entering the Mediterranean due to its strategic position³² (Hal 2011³³). Similarly, North African countries are boosting traffic growth by being an active player in international trade networks, while the expansion of the Suez Canal potentially supports Western Mediterranean ports to regain positions compared to Northern Europe (Alex Bank 2015³⁴). The position of pure transshipment/interlining hubs is vulnerable, though, due to a highly competitive and volatile transshipment market (Wilmsmeier and Notteboom 2010, UNDEP 2014³⁵ UNCTAD 2015³⁶).

²² <http://unpan1.un.org/intradoc/groups/caimed/documents/caimed/unpan021015.pdf>

²³ Ibid, p. 2

²⁴ Ibid, p. 2

²⁵ In the north Barcelona, Fos-Marseilles, Genoa, Gioia Tauro, Valencia or Marsaxlokk, in the south Tangier, Algiers, Sfax or Bizerte, Tripoli or Benghazi, amongst others.

²⁶ <http://ec.europa.eu/transport/modes/maritime/studies/doc/2014-01-08-partim-transshipment-volumes.pdf>

²⁷ <http://fortune.com/2015/02/02/biggest-container-shipping/>

²⁸ <http://www.maritimecareers.ie/sea-faring/Pages/shiptypes.aspx>

²⁹ <http://www.go-maritime.net/european-maritime-industry/future-trends/Future-trends.php>

³⁰ <http://www.itf-oecd.org/impact-mega-ships>

³¹ <http://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=1374>

³² And a push on quality/reliability of services and infrastructures.

³³ <https://halshs.archives-ouvertes.fr/halshs-00553040/document>

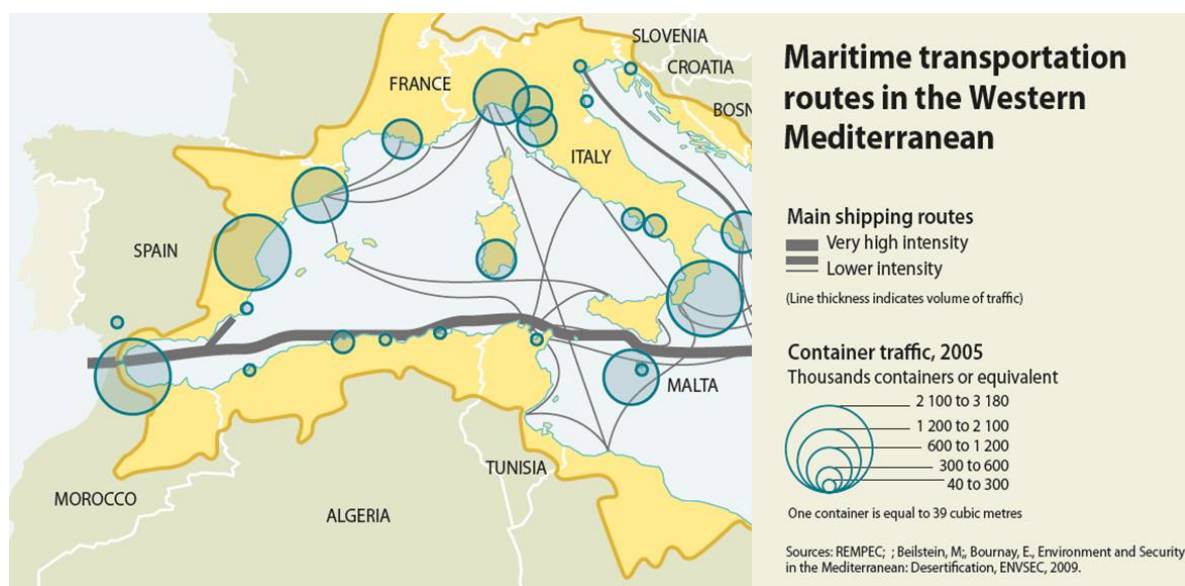
³⁴ https://www.alexbank.com/uploads/documents/The_New_Suez_Canal_Economic_Impact_On_Mediterranean_Maritime_Trade_En.pdf

³⁵ http://unctad.org/en/PublicationsLibrary/rmt2014_en.pdf

³⁶ http://unctad.org/en/PublicationsLibrary/rmt2015_en.pdf

By pursuing a traditional approach purely based on port competition, a range of potential opportunities in terms of cooperation and specialisation amongst existing transshipment hubs and gateway ports remain largely unexpressed (Portopia 2014). Seaports in the sub-seabasin should in fact be able to combine more effectively transshipment with a gateway cargo function, as currently implemented in northern EU ports (Ecorys 2013³⁷, Portopia 2014), and obtain a more stable position within shipping networks (Notteboom 2012³⁸). Western Mediterranean ports may therefore find it beneficial to further cooperate and invest in diversification (and greater inter-connectivity including in-land and multi-modal connections), rather than compete and reinforce the current regional fragmentation. For example, investments in efficient and effective infrastructures and integrated logistics services (ESPRIM 2013³⁹), including greater efforts to ensure adaptation to climate-change risks (Routledge 2016⁴⁰), could be more effectively attracted, if the sub-seabasin gets further organised and diversified (Portopia 2014). After all, the highest share of shipping of goods through Short Sea Shipping takes place between ports located in the same sea region (COWI 2015⁴¹, EUROSTAT 2016⁴²), with overall routes illustrated hereby.

Figure 7: Trans-shipping (“high intensity”) and short-sea shipping (“low intensity”) in the sub-seabasin



Source: Grid Arendal, 2013⁴³

With respect to the cruise industry, the Western Mediterranean sub-seabasin is expected to continue to see a build-up of capacity, with a competitive advantage in fuel costs, as most ports are close together for short sailing distances (Cruise Industry Web-news⁴⁴). The cruise model, though, has been reported (Ecorys 2013) as problematic in terms of added value generated in local destinations, due to business models aimed at maximising spending of visitors on-board, while externalising environmental

³⁷ <https://webgate.ec.europa.eu/maritimeforum/sites/maritimeforum/files/Annex%20III%20D%20-%20Final%20Sector%20Analysis%20deep%20sea%20shipping.pdf>

³⁸ <http://www.irso.it/wp-content/uploads/Notteboom-workshop-Milan-18april2012.pdf>

³⁹

<https://books.google.be/books?id=Ye8mAgAAQBAJ&pg=PA198&lpg=PA198&dq=integration+deep+shipping+and+short+shipping&source=bl&ots=JVwEeTNgfa&sig=mf7EX6UGi4gpoZPu49Or6l1DG9U&hl=fr&sa=X&ved=0ahUKewi9gNzIl7LOAhWCWRQKHrQCALEQ6AEIUTAH#v=onepage&q=integration%20deep%20shipping%20and%20short%20shipping&f=false>

⁴⁰ <http://web.uri.edu/abecker/climate-change-and-adaptation-planning-for-ports-available-for-pre-order/>

⁴¹ <http://ec.europa.eu/transport/modes/maritime/studies/doc/2015-june-study-sss-final.pdf>

⁴² http://ec.europa.eu/eurostat/statistics-explained/index.php/Maritime_transport_statistics_-_short_sea_shipping_of_goods

⁴³): http://www.grida.no/graphicslib/detail/maritime-transportation-routes-in-the-mediterranean_e5bd

⁴⁴ <http://www.cruiseindustrynews.com/cruise-news/11139-medcruise-western-mediterranean-opportunities-and-challenges.html>

and social costs (e.g. environmental and acoustic pollution and investment in expanded infrastructures). This is a common problem to all port destinations (WMF 2013⁴⁵), which requires greater coordination for ports to be able to bargain better conditions with the cruising sector, concentrated in the form of just few global players (Statista 2016⁴⁶).

More efficient and synergetic maritime activities across the Western Mediterranean can therefore provide an asset for boosting economic activities across the sub-seabasin, but potentials are currently hindered by the lack of integrated management of the ports system (GMF⁴⁷ 2011 p.4, Portopia 2014 p. 28/708-709). Amongst issues in cooperation remains the divergence in regulations and governance factors, including the need for harmonisation of international road freight and inter-modal transport systems (UfM 2103⁴⁸), a more efficient integration of the region into global supply chains and the full recognition of changes undergoing in global and regional traffic patterns and routes (Exchanges between ports CEOs and EU Commissioner, southern ports positions, 2015⁴⁹).

Fisheries requiring new business models and technologies to assure sustainability through time

Fisheries represent the third most important activity in terms of GVA and employment in the Western Mediterranean, after tourism and shipping (Report 1, Chapter 2.2⁵⁰). However, current exploitation models and techniques across the Western Mediterranean pose severe threats of overfishing and risks of deeply exhausting both local and shared fish stocks (EU Commission 2016⁵¹, FAO/GFCM 2016⁵²). The challenge is aggravated by the persistence of illicit fishing practices (Scientia Marina 2014⁵³). This trend is potentially threatening the fishery sector as a whole, unless more sustainable exploitation levels and techniques are introduced (FAO 2016⁵⁴). In order to respect the maximum sustainable yields across the Mediterranean, fishing practices could be possibly reduced up to 50% (Plan Bleu 2015⁵⁵).

If not properly managed, though, such transition may trigger strong negative impacts on local employment in the Western Mediterranean (GFCM 2016⁵⁶). The introduction of stricter regulation may in fact affect a number of smaller⁵⁷ vessels and fisheries (e.g. traditional fisheries) lacking the adequate knowledge and financial means to adapt to new regulatory requirements (FishSite 2016⁵⁸). Defined as “small tonnage and small crew size of 1 to 5 people” (Coppola 2006⁵⁹), and often based on family-run traditional practices (FAO 2014⁶⁰), such small-scale fisheries represent the majority of vessels and tonnage in the Western Mediterranean. An overview of the fleet composition is provided hereby.

⁴⁵ <https://www.wmf.org/sites/default/files/article/pdfs/Charleston-Report.pdf>

⁴⁶ <http://www.statista.com/statistics/204517/cruise-industry-market-share-worldwide-excluding-north-america/>

⁴⁷ <https://www.scribd.com/document/47184147/Maritime-Transport-and-Regional-Cooperation-in-the-Mediterranean-Basin>

⁴⁸

http://ec.europa.eu/transport/themes/international/european_neighbourhood_policy/mediterranean_partnership/docs/evaluation_report_en.pdf

⁴⁹ <http://ec.europa.eu/transport/modes/maritime/ports/doc/2015-01-19-report-exchange-of-views-comm-bulc-ports-ceos.pdf>

⁵⁰ Ibid, p. 2

⁵¹ http://ec.europa.eu/newsroom/mare/itemdetail.cfm?item_id=28947

⁵² <http://www.unimc.it/maremap/it/temi/risorse-biologiche/GFCM2016.pdf>

⁵³ <http://digital.csic.es/bitstream/10261/97483/1/sm78s1011.pdf>

⁵⁴ <http://www.fao.org/3/a-i5496e.pdf>

⁵⁵ http://planbleu.org/sites/default/files/publications/esa_ven_en.pdf

⁵⁶ <http://www.fao.org/3/a-bb171e.pdf>

⁵⁷ Larger fisheries operations may in principle have access to the investments and technological innovations required to change current practices towards more sustainable business models, although they may require planning intervention in order to assure full sustainability of those infrastructures and avoid conflict with other economic activities (<http://www.fao.org/3/a-bc866e.pdf>).

⁵⁸ <http://www.thefishsite.com/fishnews/27830/europes-smallscale-fisheries-and-the-landing-obligation/>

⁵⁹ http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=home.showFile&rep=file&fil=INDEMARES_doc_csic.pdf

⁶⁰ <http://www.ssf-symposium.org/Documents/FullVersion/BPI.pdf>

Table 2: Composition and performance of the fleet in the Western Mediterranean: Vessels (nr.)

Region	Small-scale artisanal fishing vessels	Trawlers and dredgers	Small-pelagic seiners	Tuna seiners (> 12 m)	Polyvalent vessels (> 12 m)	Total
Western Mediterranean Sea	14 369	2 969	1 745	67	938	20 088
% Western Mediterranean	71%	15%	9%	0.3%	5%	100%
% of WestMED on Mediterranean Sea (by fleet category)	25%	38%	53%	21%	28%	28%
Mediterranean Sea	57 936	7 889	3 281	317	3 397	72 820

Tonnage (tons)

Region	Small-scale artisanal fishing vessels	Trawlers and dredgers	Small-pelagic seiners	Tuna seiners (> 12 m)	Polyvalent vessels (> 12 m)	Total
Western Mediterranean Sea	492 465	122 786	25 778	13 755	14 055	668 840
% Western Mediterranean	74%	18%	4%	2%	2%	100%
% of WestMED on Mediterranean Sea (by fleet category)	13%	47%	2%	31%	2%	11%
Mediterranean Sea	3 853 013	260 407	1 213 547	44 245	822 250	6 193 463

Source: Plan Bleu (2015)⁶¹ based on GFCM⁶²

Artisanal (small-scale) fisheries (SSF) have been already declining in the past years, as a consequence of more strict regulations in some countries and a consistent decline of fish stocks in the Mediterranean region (GFCM⁶³, Panorama 2015⁶⁴, Vasilakopoulos 2014⁶⁵). As a consequence, they have been demanding greater attention by relevant policy makers and stakeholders across the Mediterranean (GFCM 2013⁶⁶, 2014⁶⁷ and 2016⁶⁸). Importantly, though, a number of positive practices have emerged (MEDpan 2014⁶⁹), suggesting the need for further diversification in fishing activities towards higher added value “niches”, fostering of new business opportunities (e.g. pesca-tourism and recreational fishing), and promotion of greater synergies amongst related sectors, as a strategy to cope with potential job losses and requalification of current fishermen across the sub-seabasin (MedPan, p. 9⁷⁰).

Specific challenge 1.2: Emerging activities not reaching an adequate critical mass

As mentioned already in the EU Blue Growth Study (Ecorys 2012), investments are essential to foster a range of emerging activities in the Blue Economy. Applied research, testing and demonstration activities are in fact necessary to move from a pre-commercial level to the commercialisation stage of the enabling technologies (e.g. in the area of marine renewable energy and marine biotechnologies). The

⁶¹ http://planbleu.org/sites/default/files/publications/esa_ven_en.pdf

⁶² <http://www.fao.org/gfcm/data/capture-production-statistics/en/>

⁶³ Ibid.

⁶⁴ http://www.iemed.org/observatori/arees-danalisi/arxiu-adjunts/anyuari/med.2015/IEMed%20Yearbook%202015_Panorama_MediterraneanFisheries_JordiLleonart.pdf

⁶⁵ [http://www.cell.com/current-biology/abstract/S0960-9822\(14\)00671-X?_returnURL=http%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS096098221400671X%3Fshowall%3Dtrue](http://www.cell.com/current-biology/abstract/S0960-9822(14)00671-X?_returnURL=http%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS096098221400671X%3Fshowall%3Dtrue)

⁶⁶ <http://www.ssfsymposium.org/SitePages/WelcomePage.aspx>

⁶⁷ http://www.ssfsymposium.org/Documents/Presentations/SideEvents/FAO%20SSF_final_05022014.pdf

⁶⁸ <http://www.fao.org/3/a-bb171e.pdf>

⁶⁹ http://www.medpan.org/en/actualites/-/asset_publisher/KUaBNU0gb2PK/blog/meeting-of-artisan-fishermen-marine-protected-areas-of-the-mediterranean-final-report-/18747

⁷⁰ Science for MPA management (Issue 1, March 2014)

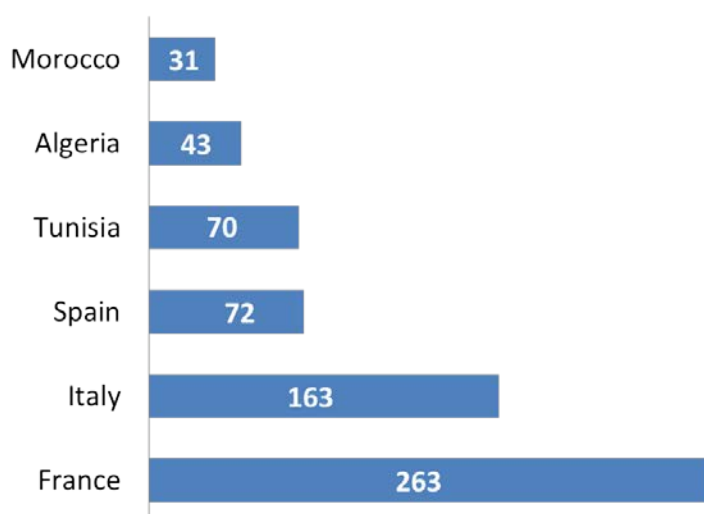
limited critical mass of those activities, together with poor track records in effective partnerships, is often preventing access to the investment required.

Anecdotal evidence gathered through available secondary sources, and feedback received from local stakeholders involved in the Phase 1 of this study (Report 2⁷¹), seem to confirm difficulties for emerging activities in gaining an adequate critical mass in the Western Mediterranean. While the south is still facing issues of political and institutional instability, as well as innovation and technology transfer capacity (AfDB, 2015⁷²), the situation in the north is potentially less critical. And still, developments on the northern shore are hindered by the still limited access to finance by local businesses (particularly so in case of SMEs and micro-enterprises⁷³).

Aquaculture and ‘blue biotech’ innovation pursued only by few

The Western Mediterranean shows a rather discrete share regarding the regional aquaculture production, value and employment (Report 1, Chapter 2.2⁷⁴), with differences emerging across the sub-seabasin. While on the northern shore evidence suggests a varied and well-developed industry (Nielsen and Motova, 2014⁷⁵), developments in the south are often at an emerging stage although showing some potentials if further supported (ENETMAR 2014⁷⁶, Ecorys, 2015⁷⁷). The low uptake of aquaculture research in a number of Western Mediterranean countries, as illustrated in the figure hereby, is nonetheless hindering the potentials for greater sustainable aquaculture deployment across the sub-seabasin.

Figure 8: Repartition of researchers working on aquaculture (selected countries where data is available)



Source: Aquamed (2013⁷⁸)

Exploration of the sea and exploitation of its marine biological resources are also slowly beginning to reach new horizons, with a wide range of uses and applications (Report 1, Chapter 2.2⁷⁹) and potentials

⁷¹ Ibid, p. 2

⁷² http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Africa_Competitiveness_Report_2015.pdf

⁷³ http://ec.europa.eu/europe2020/pdf/themes/2015/small_medium_enterprises_access_to_finance_20151126.pdf

⁷⁴ Ibid, p. 2

⁷⁵ The Economic Performance of the EU Aquaculture Sector (STECF 14-18) Scientific, Technical and Economic Committee for Fisheries (STECF), edited by Rasmus Nielsen, Arina Motova

⁷⁶ https://webgate.ec.europa.eu/maritimeforum/sites/maritimeforum/files/Report_1_full_final.pdf

⁷⁷ IMP-Med mini-study (2015) conducted by Ecorys for the EU Commission and not yet publicly available

⁷⁸ http://cordis.europa.eu/result/rcn/147463_fr.html

for future development (Report 2, Chapter 2.2.4⁸⁰). The marine biotechnology sector, though, has just begun to exploit the large biodiversity offered by marine environments in terms of new chemical compounds (Report 1, Chapter 2.2⁸¹). The sector has a vast biotechnological potential in diverse fields of industrial application⁸², but is still hindered by limited availability of investments and infrastructures for (applied) research and development (Report 2, Chapter 2.2.4⁸³).

More innovation in process and technology is required to boost the sector's potentials in a range of practices, including food production, pharmaceuticals, cosmetics, ship maintenance (anti-fouling) and environmental applications, such as oil remediation and marine micro-plastics biodegradation⁸⁴ (ENETMAR 2014). As suggested by local stakeholders (Report 2, Chapter 2.2.3⁸⁵), lack of harmonisation of practices and limited sharing of existing innovation in the field are two of the main barriers to the sector's development. Particularly, the limited ability of southern countries in accessing and benefitting from innovation fostered in the north is preventing greater innovation across the sub-seabasin.

Sustainable energy deployment requires greater capacity and investments

Maritime renewable energy potentials (EUCC 2011⁸⁶) remain largely unexplored across the Mediterranean sea-basin (Report 1, Chapter 2.4; Report 2, Chapter 2.2.2⁸⁷; CPMR 2015⁸⁸). Technologies where potential is greater are wind – although limited in offshore (EWEA 2015⁸⁹) and more promising in floating turbine (RSEA 2015⁹⁰) – tidal (Science Direct 2014⁹¹), wave (ENEA 2015⁹²) and seawater pumping (ENERCOAST 2014⁹³). Although not comparable in absolute terms with the expected capacity in northern Europe (European Science Foundation 2010⁹⁴), potentials for development in Marine Renewable Energy Technologies (MRETs) are relatively high. If relevant bottlenecks are addressed (SAGE 2016⁹⁵, MEEA 2014⁹⁶) MRETs could well support internal energy demand in the sub-seabasin (Med Maritime 2014⁹⁷).

Some initiatives on blue renewable energy are ongoing, largely on the northern shore (as suggested by some studies of the JRC⁹⁸, Committee of Regions⁹⁹, the Vectors Project¹⁰⁰), but often remain at a too

⁷⁹ Ibid, p. 2

⁸⁰ Ibid, p. 2

⁸¹ Ibid, p. 2

⁸² Fine chemistry, pharmaceutical and cosmetic industries; uses of biotechnologies and nanotechnologies for the maritime transport; medical applications, i.e. manufacture of anticancer drugs and as part of biosensor for immunoassays, vaccine development, biomedical activities, etc.; bioinformatics, gene and enzymes databases; or even offer opportunities for harvesting and for aquaculture alternatives (e.g. jellyfish commercialisation).

⁸³ Ibid, p. 2

⁸⁴ Amongst those, opportunities should be assessed in obtaining new and more robust micro-algae species, eukaryotic and prokaryotic marine microbial communities, and strains from the area to be exploited in the production of new bio-based products and fuels and greening the local chemical industry. Another priority for research and innovation is to evaluate the impact of marine litter and its in situ biodegradation and management, and possible in situ strategies for remediating oil spills and contaminated sediments.

⁸⁵ Ibid, p. 2

⁸⁶ <http://www.eucc.net/wp-content/uploads/2009/01/Dec2011-MAKMuir-SustainableOceans-Monaco-MarineRenewableEnergy.pdf>

⁸⁷ Ibid, p. 2

⁸⁸ <http://news.crpm.org/cpmr-news/energy-climate/the-mediterranean-sea-a-great-potential-for-blue-energies/>

⁸⁹ <http://www.ewea.org/fileadmin/files/library/publications/statistics/EWEA-European-Offshore-Statistics-2015.pdf>

⁹⁰ <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.723.574&rep=rep1&type=pdf>

⁹¹ <http://www.sciencedirect.com/science/article/pii/S1364032114001750>

⁹² <http://www.enea.it/it/pubblicazioni/pdf-eai/speciale-ocean-energy/4-marine-waves-energy.pdf>

⁹³ https://bib.irb.hr/datoteka/784638.ENERCOAST_Technology_data.pdf

⁹⁴ http://www.esf.org/fileadmin/Public_documents/Publications/MB_vision_document2.pdf

⁹⁵ <http://ocs.sagepub.com/content/early/2016/06/15/1759313116645822.full>

⁹⁶ <http://www.luc.edu/orgs/meea/volume16/pdfs/Hong.pdf>

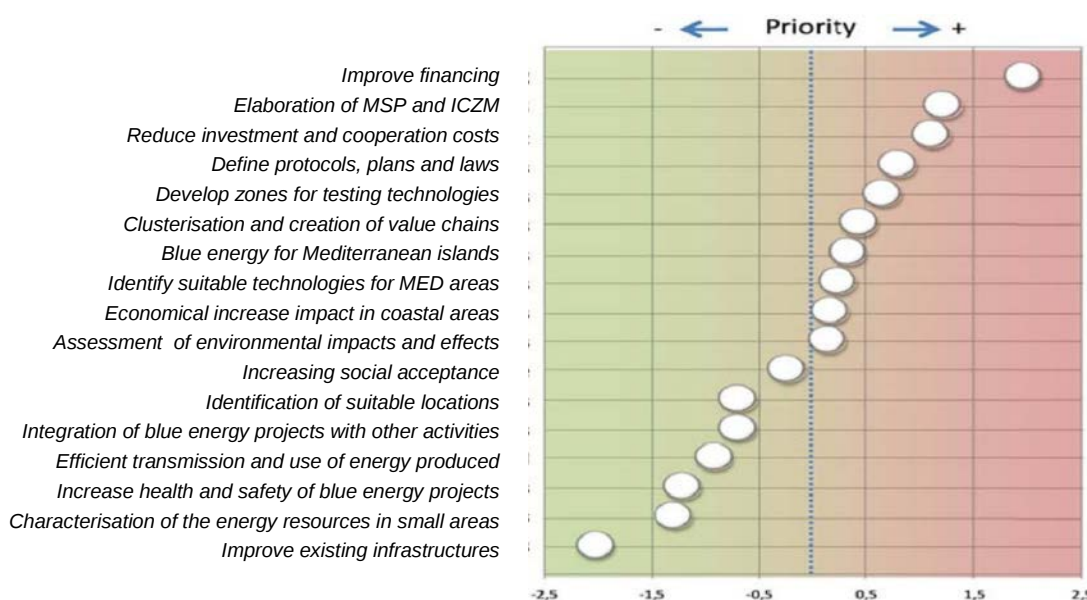
⁹⁷ http://www.medmaritimeprojects.eu/download/MyTemplate/Pdf/20150127_Blue_Energies_Preliminary_Conclusions.pdf

⁹⁸ <https://setis.ec.europa.eu/sites/default/files/reports/2014-JRC-Ocean-Energy-Status-Report.pdf>

small scale to be appealing for commercial adoption (Blue Energy in the Med, Conference 2014¹⁰¹). Broader investments are therefore required for further testing and development (Report 2, Chapters 2.2.3/2.2.5), both in generation and distribution technologies (e.g. business cases, deployment of adequate infrastructures). Case studies across selected countries in the sub-seabasin (EUNETMAR 2014) also highlight the poor cooperation between research and businesses as a cause for limited technology/knowledge transfer.

Available evidence suggests that installed capacity on renewable energy systems (RES) is mainly planned on the northern shore of the Western Mediterranean, while the south is expected to remain more depending on traditional energy systems (Res4Med 2015¹⁰²). The exception for the southern shore is Morocco, where renewable energy investments have been growing in the past (Oxford Energy 2014). But even in Morocco further investments are needed to boost overall innovation and efficiency (BMZ 2016¹⁰³). A range of bottlenecks currently exist in this domain, as illustrated in the figure below.

Figure 9: Key priorities for developing of marine renewable energy in the Mediterranean (northern shore)



Source: SAGE (2016¹⁰⁴)

Connectivity is also a crucial enabling factor for further deployment of the broader sub-regional level of emerging technologies. As such, it is an essential pre-condition for the full development of an innovative energy market across the two shores of the Western Mediterranean. Through interconnected renewable super-grids, growing energy needs on the southern shore (Oxford Energy 2014¹⁰⁵, UNECA

⁹⁹ <http://cor.europa.eu/en/documentation/studies/Documents/renewable-energy-mediterranean.pdf>

¹⁰⁰ http://www.marine-vectors.eu/Landing_pages/Energy

¹⁰¹ <http://www.medmaritimeprojects.eu/article/blue-energies-in-the-mediterranean-sea-marseilles>

¹⁰² http://www.res4med.org/uploads/activities/ConferenceMager2015/CREA_RES4MED_11%20June%202015.pdf

¹⁰³ https://www.bmz.de/en/press/aktuelleMeldungen/2016/februar/160229_pm_017_Boosting-Mediterranean-cooperation-fostering-investment-in-North-Africa/index.html

¹⁰⁴ <http://ocs.sagepub.com/content/early/2016/06/15/1759313116645822/F1.expansion.html>

¹⁰⁵ <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2014/01/MEP-6.pdf>

2012¹⁰⁶) could be partially fulfilled through access to renewable energy produced on the north and vice versa (Fraunhofer 2016¹⁰⁷). Investments in cross-border (smart) grids are therefore vital (e.g. underwater grid across the Western Mediterranean and connections between northern and southern countries), but remain nonetheless limited across the sub-seabasin (SETIS 2014¹⁰⁸).

Significant market barriers, including market failures, are relevant obstacles for the development of renewable energy technologies. These include “commercialisation barriers faced by new technologies competing with mature technologies, price distortions from existing subsidies and unequal tax burdens between renewables and other energy sources, failure of the market to value the public benefits of renewables, market barriers such as inadequate information, lack of access to capital, “split incentives” between building owners and tenants, and high transaction costs for making small purchases” (UCS, 1999¹⁰⁹). The critical ‘business climate’ across large parts of the region (World Bank 2015¹¹⁰), does not favour technological investments.

Such problems are aggravated by the limited capacity and experience in fostering business relations across the region, and a limited establishment of research and industrial partnerships across the sub-seabasin, as suggested by stakeholders (Report 2, Chapter 2.2¹¹¹). This enhances risks of failure of such investments and potentially discourages interested parties. And yet, successful initiatives exist across the region¹¹². To spread business cases for investments in the sub-seabasin, these should be further assessed, disseminated and potentially replicated across the Western Mediterranean.

Specific challenge 1.3: Fragmentation amongst Blue Economy activities and actors in the sub-seabasin

Although essential to boost innovative value chains in the region and attract investments (JRC 2015¹¹³), cooperation amongst stakeholders (e.g. businesses, researchers, cooperatives) and synergies between mature and emerging activities across the sub-seabasin are still limited (Report 2, Chapter 2.2). Innovation across the Western Mediterranean is hindered by such persisting fragmentation, including the substantial lack of coordinated data across the sub-seabasin. This is a further specific challenge for the sustainable development of the sub-seabasin.

Limited cooperation across the sub-seabasin to boost innovation in “traditional sectors”

Experience in other seabasins (North Sea Region 2013¹¹⁴) has shown that cross-country cooperation of regional players can foster innovation and visibility, and capture higher value from a growing global demand. A still relatively embryonic track record in cooperation across the sub-seabasin, though, is hindering the competitiveness of traditional activities in the Western Mediterranean (Report 2).

The coastal and cruise tourism sector, for example, largely lacks an integrated offer across the sub-seabasin, preventing it from building a common brand and marketing strategy to raise its profile globally. Such an integrated approach is challenged by a series of factors, including differences in

¹⁰⁶ http://www.uneca.org/sites/default/files/PublicationFiles/renewable_energy_sector_in_north_africa_en_0.pdf

¹⁰⁷ <https://www.ise.fraunhofer.de/en/press-and-media/press-releases/press-releases-2016/integration-of-renewable-energies-in-europe-and-africa>

¹⁰⁸ <https://setis.ec.europa.eu/publications/setis-magazine/smart-grids/medgrid-interconnecting-mediterranean>

¹⁰⁹ http://www.ucsusa.org/clean_energy/smart-energy-solutions/increase-renewables/barriers-to-renewable-energy.html#1

¹¹⁰ <http://data.worldbank.org/indicator/IC.BUS.EASE.XQ>

¹¹¹ Ibid, p. 2

¹¹² e.g. NORA, the world’s largest solar energy project built in Morocco

(<https://www.theguardian.com/environment/2016/feb/04/morocco-to-switch-on-first-phase-of-worlds-largest-solar-plant>)

¹¹³ <http://s3platform.jrc.ec.europa.eu/documents/20182/154989/Blue+Growth+and+Smart+Specialisation/9c313981-8c97-44bc-8284-b63df078e71c>

¹¹⁴ http://archive.northsearegion.eu/files/repository/20130523174329_CruiseGateway_Best_practice_guide_Sustainability_Summary.pdf

language, patchy quality standards and lack of seamless services across the sub-seabasin (Report 2). Similarly, sustainable development potentials (EU 2016¹¹⁵, Lisbon University 2010¹¹⁶) for Maritime Protected Areas (MPAs) are currently hindered by the lack of dialogue and cross-sectoral cooperation amongst a range of relevant stakeholders (e.g. biologists, operator, public authorities) across the sub-seabasin (Report 2).

Limited synergies for innovation across new and emerging activities

One essential element in fostering synergies amongst Blue Economy activities is the development of clustering initiatives (Ecorys 2013b¹¹⁷). Although some trends in clustering initiatives have emerged across the basin, with greater potential for growth with respect to the overall performance across the Mediterranean (ibid.), clusters in the Western Mediterranean are still limited. They are typically concentrated in traditional sectors (e.g. deep-sea shipping, shipbuilding and yachting) and often consist of local functional aggregations (i.e. ports), rather than organisations supporting sectoral innovation and connecting different industries and territories across diversified value chains. Only some more established clusters in the north (e.g. France¹¹⁸), or rapidly growing establishments in the south (e.g. Morocco¹¹⁹), are interested in international clustering cooperation, but in general the initiatives are limited when compared to other areas of the Mediterranean (Ibid.).

¹¹⁵ <http://ec.europa.eu/environment/nature/natura2000/marine/docs/Socio%20-Economic%20Benefits%20of%20EU%20MPAs.pdf>

¹¹⁶

https://www.researchgate.net/publication/303996321_MARINE_PROTECTED_AREAS_AND_SUSTAINABLE_TOURISM_A_SYNERGETIC_RELATIONSHIP

¹¹⁷ https://webgate.ec.europa.eu/maritimeforum/sites/maritimeforum/files/Med%20clusters%20-%20Annexes%20def_0.pdf

¹¹⁸ <http://www.cluster-maritime.fr/fr/economie-maritime/576/poles-de-competitivite-mer>

¹¹⁹ <http://www.tangerautomotivecity.com/about>

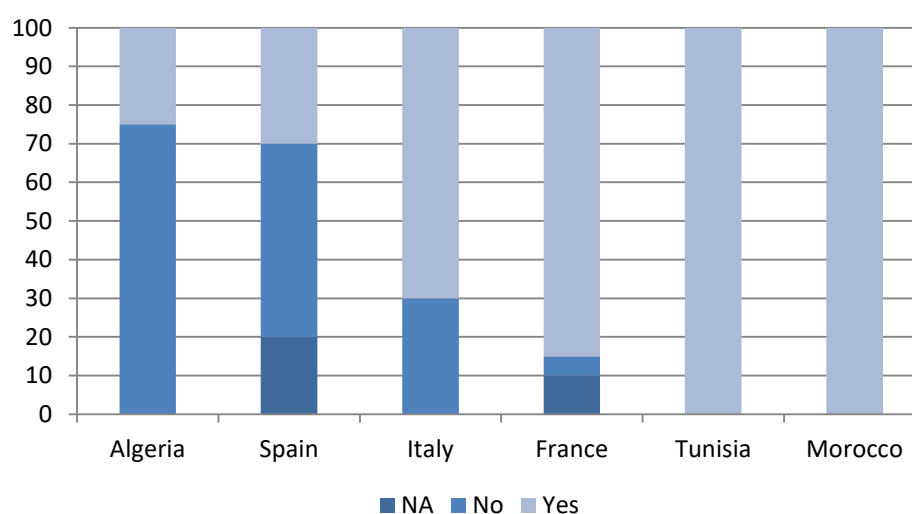
Table 3: Repartition of clustering initiatives across various economic activities in the Blue Economy

MEAs/Sub-seabasin	Jobs directly created (as part of total jobs in 2013)	Clustering activities (recurrence in clusters mapped)
Mature activities		
Short-sea shipping (incl. Ro-Ro)	9%	16%
Shipbuilding and ship repair	6%	13%
Deep-sea shipping	3%	15%
Passenger ferry services	5%	8%
Coastal tourism	46%	9%
Cruise tourism	4%	7%
Yachting and marinas	4%	12%
Catching fish for human consumption	18%	8%
Catching fish for animal feeding	0%	1%
Offshore oil and gas	1%	2%
Emerging activities		
Marine aquatic products	1%	2%
Blue biotechnology	0%	0%
Offshore wind	0%	0%
Ocean renewable energy	0%	0%
Carbon capture and storage	0%	1%
Aggregates mining (sand, gravel, etc.)	0%	0%
Marine minerals mining	0%	0%
Others (miscellaneous)	3%	4%

Source: Ecorys (2013b)

When it comes to emerging activities, networking and cooperation amongst researchers in the sub-seabasin are still limited. Available evidence confronting aquaculture research in selected Western Mediterranean countries (Aquamed 2013), suggests that international cooperation of researchers is particularly limited in certain countries, while in other countries it is the only source for research, as research financing capacity at the national level is limited (see figure hereby).

Figure 10: Repartition of international projects amongst universities involved in aquaculture research



Source: Aquamed (2013)

Limited availability of comparable and aggregated socio-economic data-series

Joint observatories and monitoring processes are certainly an essential element to boost a sustainable growth for the sub-seabasin, and yet these are still ineffective due to institutional and sectoral fragmentation (Report 2, Chapter 2.1¹²⁰). Access to data, trends and good practices across relevant Blue Economy activities across the southern and northern shores is limited, as illustrated in the table below. This limited amount of data prevents a proper understanding of the economic performance of the sub-seabasin, and limits the ability of policy makers to put in place effective support actions.

Table 4: Availability of Blue Economy data across the Western Mediterranean

Areas of analysis	Northern Shore		Southern Shore	
	Source	Information	Source	Information
Fisheries and aquaculture	EUROSTAT FAO/GFCM ICCAT EMODNET	Aggregated data	FAO/GFCM FAO Regional Projects (COPEMED, ADRIAMED, MEDSUDMED, EASTMED) ICCAT	Aggregated data
Coastal and maritime tourism	EUROSTAT EMODNET	Limited and largely national (not coastal)	WTO	Limited and largely national (not coastal)
Blue-biotechnologies	Local sources Study-related	Largely disaggregated	Local sources Study-related	Largely disaggregated
Marine Renewables	Local sources Study-related EMODNET	Largely disaggregated	Local sources ¹²¹ Study-related	Largely disaggregated
Synergies across activities	Study-related	Largely anecdotal	Study-related	Largely anecdotal

Source: Based on secondary search done for this report

Although a range of data is certainly available at a more local level (e.g. sectoral datasets and related institutions at the NUTS 2 and NUTS 3 level in the EU and similar bodies in southern countries), these are often accessible only in local languages (i.e. French, Spanish, Italian, Arabic) and based on a variety of formats, definitions and territorial levels (e.g. city-level, province level, various sub-activities). Collection and elaboration of available data and the elaboration of primary sources are challenging and not always possible for specific years and sectors, making it difficult to provide broader cross-analysis of the Blue Economy as a whole through longer periods of time. The lack of solid and reliable comparable data may impair the judgment of policy makers as well as relevant stakeholders acting across the region.

¹²⁰ Ibid, p. 2

¹²¹ Algeria <http://portail.cder.dz/spip.php?article1571> <http://www.energies-renouvelables.org/observ-er/html/inventaire/pdf/15e-inventaire-Chap03-3.9.1-Algerie.pdf> / Tunisia <http://www.energies-renouvelables.org/observ-er/html/inventaire/pdf/15e-inventaire-Chap03-3.9.5-Tunisie.pdf> <http://www.energies-renouvelables.org/observ-er/html/inventaire/pdf/15e-inventaire-Chap03-3.9.5-Tunisie.pdf> / Morocco <http://www.energies-renouvelables.org/observ-er/html/inventaire/pdf/15e-inventaire-Chap03-3.9.4-Maroc.pdf> / Libya <http://www.energies-renouvelables.org/observ-er/html/inventaire/pdf/15e-inventaire-Chap03-3.9.3-Libye.pdf>

2.2 Policy initiatives potentially responding to the specific challenges identified

The main governance and cooperation initiatives (as listed in chapter 1.5) are now reviewed, and their main features are highlighted with respect to the specific challenges reviewed in this section (as identified in chapter 3.3). The initiatives described and assessed hereby are the following:

- Blue Growth Strategy (EU);
- Blue Growth (FAO);
- Common Fisheries Policy (EU);
- Mediterranean Strategy for Sustainable Development (UNEP-MAP);
- Integrated Maritime Policy (EU);
- Maritime Spatial Planning Directive (EU)
- CAMP Strategy (UNEP);
- BlueMed Initiative (EU);
- PRIMA (EU);
- Motorways of the Sea (EU) / Transport Action Plan (UfM);
- Inter-Mediterranean Commission (CPMR).

As for the governance and cooperation initiatives, the table 5 hereby provides an illustration of the relation between the features of strategic initiatives and the sub-challenges identified with respect to the challenge assessed in this section. The table highlights elements in the initiatives that may more directly address certain issues identified (as emerging from official sources).

Types of actions through which strategic initiatives may address each of the specific challenges identified (Challenge 1)

Specific challenges	EU Blue Growth	FAO Blue Growth	EU Common Fisheries Policy	MSSD	MSP/CAMP IMP-MED	Blue Med	PRIMA	Motorway of Sea / Transport Action Plan	CPMR Inter-Mediterranean Commission
1.1 Mature activities not ensuring a sustainable performance in the future	Promotion of innovation in the Blue Economy (e.g. tourism, aquaculture, blue energy, marine bio-technology)	Promotion of innovation in fisheries (sustainable management, aquaculture) Supporting sustainable infrastructures and ecosystem services linking to other sectors (e.g. tourism) Technical support local initiatives through funding	Innovation of fisheries (processes, products, models) Capacity building for fisheries intending to diversify Financing opportunities based on local development strategies	Support to innovative practices for socially and environmentally sustainable development.	Support the capacity of countries to promote integrated maritime (IMP) and spatial (MSP/CAMP) policy (transversal to the challenges)	Support fostering the development of smart technologies and dedicated services (e.g. tourism, transports, aquaculture)		Transparency and efficiency of ports	Working groups and political dialogue (e.g. tourism, energy) - Pilot initiatives, entrepreneurial development - Identify areas for broader support (e.g. EU funding)
1.2 Emerging activities not reaching an adequate critical mass	Promotion of sea basin based strategies and initiatives Channelling of existing funding Promotion of marine knowledge (EMODNET)	Promotion of ecosystem services (e.g. carbon capture) - Technical support of local initiatives through funding	Support to gather critical mass in local potential new sectors - Financing opportunities based on local development strategies			Support linking researchers, businesses and policymakers, fostering multi-purpose off-shore platforms, promoting innovative businesses based on marine bio-resources	Fostering of greater R&I resources		
1.3 Fragmentation amongst Blue Economy activities and stakeholders	Foster virtual knowledge, clustering development / cooperation (e.g. Smart Specialisation Platform ¹²² and the Vanguard Initiative ¹²³)	Synergies with in-land aquaculture potentials - Technical support of local initiatives through funding	Fostering of diversification for fisheries (i.e. new processes, activities and sectors) Networking of Fisheries Local Action Groups (FLAGs)	Promotion of data collation/collection and thematic studies to support sustainable practices	Foster policy cooperation amongst southern countries (IMP/CAMP)	Support to maritime clusters, and interoperable, fully integrated monitoring and forecast system	Research cooperation on food systems and water resources	Support greater integration of maritime transport in the logistics chain Greater regional cooperation	Promotion of stakeholder dialogue at various levels across the basin

Source: Developed internally based on publicly available information for each initiative

¹²² <http://s3platform.jrc.ec.europa.eu/>

¹²³ <http://www.s3vanguardinitiative.eu/>

The **EU Blue Growth Strategy**¹²⁴ is the long-term strategy promoted by the EU Commission to support sustainable growth in the marine and maritime sectors as a whole. As such, it focuses on essential areas with respect to the specific challenges identified in this section. The strategy in fact aims at supporting development for Blue Economy activities that have a high potential for sustainable jobs and growth across the EU (e.g. aquaculture, coastal tourism¹²⁵, marine biotechnology¹²⁶, blue energy¹²⁷), providing knowledge, legal certainty and security and fostering seabasin-wide strategies to ensure tailor-made measures and to foster cooperation between countries. Greater innovation on the northern shore of the basin is also potentially promoted through Smart Specialisation Strategies supported by the EU, but the relevance of Blue Growth, blue biotechnology and blue energy as part of such strategies is limited so far across EU regions in the Western Mediterranean (RIS3 2016¹²⁸).

In the Mediterranean sea-basin¹²⁹ the strategy promotes a range of activities, such as:

- Working Groups for Integrated Maritime Policy in the Mediterranean, involving all the countries bordering on the Mediterranean and regional organisations, which meet annually;
- Tripartite cooperation with the European Investment Bank and the International Maritime Organisation to develop maritime sectors, especially in southern partner countries;
- Fostering blue growth in cooperation with the Union for the Mediterranean and 5+5 dialogue.

At a cross-sectorial level, the strategy aims at:

- Supporting activities for the development of maritime clusters (i.e. map existing clusters, identify strengths and weaknesses, develop clusters and promote cluster sub-regional cooperation);
- Developing and innovating the maritime economy through the identification and sharing of data and practices via the Virtual Knowledge Centre for marine and maritime affairs;
- Identification of elements and geographical scope of maritime cooperation (as promoted in Northern Europe through the Vanguard Initiative¹³⁰ part of smart specialisation support).

The initiative is an essential element in providing strategic priorities for the support to economic innovation and diversification across the EU sea-basins, therefore also potentially addressing a wide range of specific challenges identified for the Western Mediterranean in this study. Nonetheless, the focus of the strategy is on EU countries.^{131 132 133} Actions have been promoted through ESI Funds, existing sea-basin strategies (e.g. Adriatic-Ionian Strategy¹³⁴), or Horizon 2020 calls (which, although increasingly open to non-EU partners, still tend to be too competitive and demanding for Southern Mediterranean partners¹³⁵). To foster greater cooperation with southern partners in the Mediterranean, dialogue is promoted (by the EU Commission) with relevant governance initiatives at sea-basin (e.g.

¹²⁴ http://ec.europa.eu/maritimeaffairs/policy/blue_growth/index_en.htm

¹²⁵ http://ec.europa.eu/maritimeaffairs/policy/coastal_tourism/documents/com_2014_86_en.pdf

¹²⁶ <http://ec.europa.eu/research/bioeconomy/index.cfm?pg=home>

¹²⁷ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014DC0008&from=EN>

¹²⁸ <http://s3platform.jrc.ec.europa.eu/eye-ris3>

¹²⁹ http://ec.europa.eu/maritimeaffairs/policy/sea_basins/mediterranean_sea/index_en.htm

¹³⁰ <http://www.s3vanguardinitiative.eu>

¹³¹ http://www.fes-europe.eu/fileadmin/user_upload/Claus_Schultze_DG_Mare_Blue_Growth_PPTs_3005_2016.pdf

¹³² <http://oar.marine.ie/handle/10793/921>

¹³³ http://ec.europa.eu/dgs/maritimeaffairs_fisheries/magazine/en/policy/small-businesses-can-drive-blue-growth-and-put-europe-road-recovery

¹³⁴ <http://www.thetis.it/blue-growth-and-eusair-strategy-download-the-final-report-of-thetis-workshop/>

¹³⁵ <http://www.universityworldnews.com/article.php?story=20131205141304240>

UfM) and sub-seabasin (e.g. 5+5) levels, with potentials for being expanded to other areas of cooperation¹³⁶.

The **FAO Blue Growth Initiative**¹³⁷, amongst other objectives, aims at promoting economic growth by building sustainable fisheries, ensuring tailor-made measures that foster cooperation between countries, acting as a catalyst for policy development, investment and innovation in the sustainable management of aquatic resources. The initiative supports policy design and implementation globally, by favouring south-south and south-north cooperation (e.g. exchange of good practices and technical advice) in a range of “components”¹³⁸. These are mainly related to the promotion of sustainable fisheries (e.g. good fish production, sustainable farming of fish, shellfish and marine plants) and development of eco-system services to assure broader economic growth in maritime activities (e.g. carbon capture, tourism). To provide information, knowledge products and expertise, the initiative builds on existing financing instruments, such as the Global Program on Fisheries (PROFISH¹³⁹).

The FAO initiative therefore provides a good reference for northern and, particularly, southern countries in the Western Mediterranean in order to strengthen and partially diversify current “traditional” fishing activities. By fostering synergies between fisheries and other related activities, and (sectoral) exchanges of practices, it also allows for certain diversification and innovation of more mature sector in those countries. It therefore addresses only some of the specific challenges identified for the sub-seabasin, although it success largely depends on the effective adoption of such practices by southern countries.

The **EU Common Fisheries Policy**¹⁴⁰, defines the main policy for the EU when it comes to management of fishing fleets and conserving fish stocks, and provides a framework to support greater economic sustainability and diversification¹⁴¹ of local fisheries towards practices with greater added-value and economic sustainability¹⁴². Through the Community-Led Local Development (CLLD), promoted under the European Maritime and Fisheries Fund (EMFF), the initiative brings together managing authorities, citizens and experts from across the EU as part of Fisheries Local Action Groups (FLAGs), with the aim of defining local sustainable development strategies¹⁴³. It provides a framework to support bottom-up approaches at the local level (i.e. typically at NUTS 2 level in EU regions). The local partnerships are coordinated at the EU level (FARNET¹⁴⁴), with some attempt of networking at a regional level (e.g. sub-seabasin) emerging although still limited¹⁴⁵. They can then finance projects through a dedicated funding initiative (i.e. EMFF) within the framework of local strategies aimed at responding to specific needs and opportunities identified locally¹⁴⁶. A specific Mediterranean Advisory Council has also been established and, under certain conditions, representatives of the fisheries sector and other interest groups from third countries may be invited to participate as active observers (including representatives of RFMOs).

¹³⁶ http://ec.europa.eu/regional_policy/sources/informing/dialog/2015/7_mare_blue-growth.pdf

¹³⁷ <http://www.fao.org/zhc/detail-events/en/c/233765/>

¹³⁸ <https://salmonintelligence.wordpress.com/2014/09/03/fao-global-blue-growth-initiative-policy-paper-global-aquaculture-advancement-partnership-gaap-component/>

¹³⁹ <http://www.worldbank.org/en/topic/environment/brief/global-program-on-fisheries-profish>

¹⁴⁰ http://ec.europa.eu/fisheries/cfp/index_en.htm

¹⁴¹ https://webgate.ec.europa.eu/fpfis/cms/farnet/files/documents/FARNET_Diversification-of-Fisheries-Areas-5_EN.pdf

¹⁴² Diversification is supported within the fishing sector (e.g. new fishing techniques and gear), across the fishing value-chain (e.g. direct sales, marketing), parallel to the core fishing (e.g. tourism or catering), in new sectors (e.g. social services, renewable energies or other emerging sectors).

¹⁴³ http://ec.europa.eu/fisheries/cfp/eff/farnet/index_en.htm

¹⁴⁴ <https://webgate.ec.europa.eu/fpfis/cms/farnet/>

¹⁴⁵ http://www.mps.hr/ribarstvo/UserDocsImages/EMFF/CLLD/KONFERENCIJA/FARNET_%20The_added_value_of_networking.pdf

¹⁴⁶ <https://www.gov.uk/guidance/european-maritime-and-fisheries-fund-emff-fisheries-local-action-groups-flags>

The aim of the initiative is to promote greater competitiveness for local fisheries through identification of areas for growth and change of models from more “traditional” and less competitive ones to businesses where greater added value can be generated. The policy is well established, as the EMFF is amongst the first EU funding mechanisms introduced, but the approach has been historically mainly targeting local fishermen and only more recently being open to broader economic sectors. It could be expected though, that a range of other potential stakeholders and beneficiaries are not entirely aware of such policy framework and funding opportunities.

The initiative provides an overall methodological approach to be implemented locally across all EU seabasins. The scope of activities may potentially further expand the engagement EU neighbouring countries and therefore reach the southern shore of the Western Mediterranean, although this does not seem to be the focus of its intervention so far¹⁴⁷. Furthermore, the scope of actions covered by such a framework is still relatively limited, if compared to the other “traditional” economic sectors with greater need for support (e.g. tourism and transport). Also, potentials for development of technology-rich emerging activities (e.g. energy) are possibly limited.

The **Mediterranean Strategy for Sustainable Development (MSSD)**¹⁴⁸ is a relevant initiatives promoted under the UNEP/MAP for the period 2016-2025. Although the initiative aims at a range of goals, its Objective 5 specifically refers to the “transition towards a green and blue economy”, and the need to foster decent jobs, sustainable consumption and production, environmentally-friendly and social innovation, integration of sustainability principles into decision making (private & public), reduction of social and environmental externalities. The MSSD is also making a direct reference to the maritime dimension of the region in its Objective 1 (Ensuring sustainable development in marine and coastal areas).

With many of the promoted action targeting support to institutions and sectors at the national levels, certain actions also address the Mediterranean seabasin as a whole. Amongst the latter, the improvement of regional and sub-regional coordination, exchange of good practices, including technology and local knowledge transfer (under Objectives 1 and 5) or the support to data collection and capacity building at national levels for the promotion of sustainable consumption and production, and the support to regional incubators, investment agencies and training schemes to foster environmental and social sustainable practices (under Objective 5).

The **BlueMed Initiative**¹⁴⁹ provides a strategic framework which, amongst other goals, aims at “tapping the full potentials of marine and maritime sectors in the region”¹⁵⁰. Based on a Vision Document presented at the EU Competitiveness Council of 5 December 2014¹⁵¹, it is the result of joint efforts by Cyprus, Croatia, France, Greece, Italy, Malta, Portugal, Slovenia and Spain, with the support of the European Commission. Although certain actions are potentially open to the broader “regional level” (as mentioned in the strategy itself), the BlueMED seems to be primarily focused on the northern shore of the Mediterranean (EU Member States), with an overall scope which is broader than the Western Mediterranean sub-basin.

¹⁴⁷ At least from what emerges from official strategic documentation.

¹⁴⁸ https://planbleu.org/sites/default/files/publications/mssd_2016-2025_final.pdf

¹⁴⁹ https://www.researchitaly.it/uploads/12471/BLUEMED_Vision.pdf?v=dc3e784

¹⁵⁰ <http://ec.europa.eu/maritimeaffairs/maritimeday/en/programme-items/bluemed-initiative-blue-growth-and-jobs-mediterranean>

¹⁵¹ <http://www.jpi-oceans.eu/news-events/news/bluemed-initiative-launched-venice>

The Strategic Research and Innovation Agenda (SRIA)¹⁵² is the tool identified to detail the range of areas to be supported through available financial resources (e.g. EU Horizon 2020¹⁵³, etc.). Its objectives include developing innovative marine-based technologies, fostering of innovative multidisciplinary research and cooperation activities, providing knowledge-based support, as well as creating an interoperable, fully integrated observing and forecasting system. As a result, the initiative aims at triggering greater innovation and diversification of mature economic activities (particularly tourism and transport), supporting applied research across emerging activities (e.g. energy and biotechnologies) and fostering greater synergies across stakeholders in the region¹⁵⁴ (although “*in primis* between the European countries bordering the Mediterranean coasts and the whole EU”¹⁵⁵). Most relevant objectives, with respect to the specific challenges discussed in this section, are:

- Generation of innovative businesses based on marine bio-resources in the Mediterranean (e.g. developing new technologies and tools, generating new products and services);
- Sustainable tourism practices in the Mediterranean (e.g. developing smart technologies and dedicated services, increasing the economic impact of the Mediterranean’s cultural heritage);
- Effective facilities and pre-conditions for economic growth (e.g. fostering the creation of maritime clusters in the Mediterranean moving from traditional maritime economic to blue growth activities);
- Enabling technology and capacity creation for the Mediterranean, (e.g. strengthening synergies among science, industry, policymakers and society, promoting multi-purpose off-shore platforms and green and sustainable transport infrastructures).

The BlueMED Initiative has only been recently adopted, though, and it is still to be fully implemented. It is not clear to what extent it will boost R&I investment, given the wide range of actions expected at various level (i.e. EU, Mediterranean and National). When presented and discussed with stakeholders during the local focus groups held in Phase 1 (Report 2¹⁵⁶), the initiative was still largely unknown. Currently, a Common Support Action (funded by EU Horizon 2020) is going to be deployed to support its implementation and monitoring. Indeed, there is a need to reach potential beneficiaries/stakeholders that are lacking capacity and are most in need of support.

The **Partnership for Research and Innovation in the Mediterranean Area (PRIMA)**¹⁵⁷ is a EU joint research and innovation programme called in 2014 by nine Member States of the European Union (EU) – Croatia, Cyprus, France, Greece, Italy, Malta, Portugal, Slovenia and Spain. The initiative is focused on the development and application of innovative solutions for food systems and water resources in the Mediterranean basin. Non-EU countries are taking part in the initiatives and notably Algeria, Egypt, Jordan, Lebanon, Morocco, Tunisia and Turkey.

Currently still under an Impact Assessment process, the main problems to be addressed are identified as: lack of coordination and cooperation between countries and research organisations (and duplication of research efforts), lack of cooperation between academic and non-academic actors, insufficient investments in R&I¹⁵⁸. Although focused on a narrower thematic scope than the Blue Med Initiative (i.e. water resources and food systems), the initiative aims at addressing relevant challenges identified in this report and as such is included in our analysis. No final decision has yet been taken on its approval.

¹⁵² https://www.researchitaly.it/uploads/12493/Bluemed%20SRIA_A4.pdf?v=d5dd4c7

¹⁵³ http://ec.europa.eu/rea/pdf/sc2_infoday_2015/afternoon_bg/sc2_info_day_bg_2016_4.pdf

¹⁵⁴ By promoting awareness and creating an interoperable, fully integrated observing and forecasting system.

¹⁵⁵ https://ec.europa.eu/programmes/horizon2020/sites/horizon2020/files/09.%20SC2_2016-2017_pre-publication.pdf

¹⁵⁶ Ibid, p. 2

¹⁵⁷ <https://ec.europa.eu/research/environment/index.cfm?pg=prima>

¹⁵⁸ https://ec.europa.eu/research/environment/pdf/prima/prima-ia_consultation_ssr.pdf#view=fit&pagemode=none

The **Maritime Spatial Planning (MSP) Directive**¹⁵⁹ establishes a framework aimed at promoting the sustainable growth of maritime economies, the sustainable development of marine areas and the sustainable use of marine resources. To establish and implement MSP, Member States (MS) shall consider economic, social and environmental aspects to support sustainable development and growth in the maritime sector, applying an ecosystem-based approach (cf. MSFD 2008/56), and to promote the coexistence of relevant activities and uses. MS shall aim to contribute to the sustainable development of energy sectors at sea, of maritime transport, and of the fisheries and aquaculture sectors, and to the preservation, protection and improvement of the environment, including resilience to climate change impacts. In addition, MS may pursue other objectives such as the promotion of sustainable tourism and the sustainable extraction of raw materials.

MSP is to support the Blue Economy and Integrated Maritime Policy across the EU seabasins, and although the initiative applies to EU Member States it has been supported by UNEP/MAP consultations¹⁶⁰, aiming at fostering cooperation amongst all Mediterranean countries. The initiative, although limited to the northern shore, is an important element in pursuing greater synergies and integration in maritime policy aimed at fostering a sustainable Blue Economy in the future (see also Chapter 7).

The **Coastal Area Management Programme (CAMP)**, promoted under the umbrella of UNEP/MAP, is oriented at the implementation of practical coastal management projects in selected Mediterranean coastal areas. It does so by fostering Integrated Coastal Zone Management (ICZM), particularly through: assisting national strategies for action plans, strengthening local capacity, implement pilot/demonstration project and fostering tools and methodologies, develop cooperation across countries. In the Western Mediterranean sub-seabasin, CAMP projects¹⁶¹ are ongoing in France, Italy and are completed in Algeria, Malta, Morocco, Spain, and Tunisia. Protocol implementation is supported by a dedicated Mediterranean Action Plan Regional Action Center (PAP/RAC).

The **Motorways of the Sea** aims to introduce new intermodal maritime-based logistics chains in Europe, which should improve the transport organisation by promoting better use of maritime transport resources and connection with rail and inland waterways, as part of an integrated transport chain. As identified in official sources, the Motorways of the Sea “should lead to the increase of cargo flows to be carried by maritime traffic, development of efficient ports and better port hinterland infrastructure as well as connectivity. All this with the aim to facilitate a smooth traffic”¹⁶². The recent Detailed Implementation Plan (UE 2016¹⁶³) identifies Ro-Ro and container traffic as relevant areas to be supported, through the implementation of the Motorway of the Sea of south-west Europe (western Mediterranean, connecting Spain, France, Italy and including Malta and linking with the Motorway of the Sea of south-east Europe and including links to the Black Sea). Although at the time being the initiative is mainly referred to the EU countries, there are important elements to foster a more connected and cooperative transport system across the sub-seabasin.

¹⁵⁹ (N°2014/089 EC)

¹⁶⁰ <http://www.thetis.it/consultation-meeting-on-iczm-and-msp/>

¹⁶¹ http://meetings.pap-thecoastcentre.org/docs/camp_assessment30042015.pdf

¹⁶² http://ec.europa.eu/transport/modes/maritime/motorways_sea/

¹⁶³ <http://www.onthemosway.eu/wp-content/uploads/2016/06/Motorways-of-the-Sea-DIP-June-2016.pdf?dbc3d9>

The **Regional Transport Action Plan for the Mediterranean (RTAP)**¹⁶⁴ has been set up for the period 2014/2020, to pursue regulatory reform and convergence in all relevant different transport sectors (maritime, civil aviation, road, railway and urban transport) between the EU and the Mediterranean Partners, as well as between Mediterranean Partners themselves. The plan also aims at the establishment of an integrated multimodal Euro-Mediterranean transport network by facilitating trade and connecting people.

The implementation is coordinated and monitored under the Barcelona process and continued by the Union for the Mediterranean (UfM). This dialogue structure, conducted by the European Commission with the support of the UfM Secretariat, gathers representatives of the Transport Ministries of the Mediterranean Partners and the EU Member States. Within this framework, dialogue is conducted through the Transport Ministerial Conference (political decisions and strategic orientations), the EuroMed Transport Forum (technical activities conducted through its thematic Working Groups), and the thematic Working Groups (technical issues including network and maritime transport).

The **CPMR Inter-Mediterranean Commission**¹⁶⁵ is an initiative potentially open to the different sub-national levels¹⁶⁶ in all Mediterranean countries although in practice mainly addressing EU countries. Amongst its goals is to ensure that European policies better address their issues when defining priorities and modalities of implementation when it concerns policy areas such as regional development and maritime affairs¹⁶⁷. The initiative also promotes working groups and political dialogue between its members, so to foster new project ideas (after being tested through pilot projects) to be supported by existing financing instruments promoted by relevant regional institutions including the EU. The Inter-Mediterranean Commission provides a platform for the networking of local stakeholders. Its role focuses on the promotion of conferences and workshops, while further actions and results depend on the alignment with other policy initiatives.

2.3 Aspects of the current policy framework that could be strengthened

This section assesses the main emerging gaps across the areas of intervention of the initiatives identified and described so far. The assessment is based on secondary sources mentioned in the previous sections and further insights specified in this chapter. Findings in the analysis so far are subjective to further evidence provided by stakeholders in the engagement actions foreseen in Phase 2 (i.e. feedback from 5+5 Countries, Relevant Initiatives Secretariats, other stakeholders).

As described in the previous section, many initiatives are in place and are addressing several elements in the specific challenges described earlier in this chapter. As a general assessment, the initiatives in place are often sectoral and largely addressing either the northern or the southern shore, with limited support in fostering synergies across activities and amongst southern and northern stakeholders. In this respect, Challenge 1.3 previously discussed remains largely unaddressed.

Although reviewed interventions are generally deemed positive, they are often too recent to be fully appreciated, especially when they are relatively known to stakeholders. This is particularly the case for

¹⁶⁴ http://ec.europa.eu/transport/sites/transport/files/themes/international/european_neighbourhood_policy/mediterranean_partnership/docs/rtap2014_2020_en.pdf

¹⁶⁵ <http://www.medregions.com/index.php?act=1,1>

¹⁶⁶ Partnership-based actions are promoted international organisations active in the area (e.g. European Commission, United Nations Agencies, OECD), member countries and their thematic networks, and networks of local authorities in the basin (e.g. Arc Latin, Med-Cités, the UCLG Med Commission, Arab Towns Organisation).

¹⁶⁷ <http://www.medregions.com/index.php?act=1,2,2>

the Blue Med Initiative, which is more explicitly aimed at fostering greater innovation across the Mediterranean, but appears to be less known to potential beneficiaries.

Thematic and geographic scope

An overview of the main areas where some gaps emerge, in terms of thematic and geographic scope, scale of intervention and alignment/awareness (as discussed in Chapter 1.6) is provided in the table below. Based on the assessment described in this section, further action is required to ensure greater coordination amongst existing initiatives, targeting similar sectors in the north and southern shores, and promote stronger synergies across the sub-seabasin (Challenge 1.3).

Thematic and Geographic Scope

Challenge 1.1	Challenge 1.2	Challenge 1.3
FAO Blue Growth (seabasin) CPMR Commission (northern mainly) EU Blue Growth (northern mainly) Mediterranean Action Plan (seabasin) Blue Med Initiative (northern mainly) PRIMA (med seabasin) EU Common Fishery Policy (northern) MSP (northern) / CAMP (southern) IMP (southern)	EU Blue Growth (northern mainly) Blue Med Initiative (northern mainly) Mediterranean Action Plan (seabasin) CPMR Commission (northern mainly) MSP (northern) / CAMP (southern) IMP (southern)	EU Blue Growth (northern mainly) Blue Med Initiative (northern mainly) Mediterranean Action Plan (seabasin) CPMR Commission (northern mainly) Motorways of the Sea (northern) Transport Action Plan (seabasin) MSP (northern) / CAMP (southern) IMP (southern)

Two important initiatives (e.g. FAO Blue Growth and EU Common Fisheries Policy) aim primarily at addressing the specific challenge 1.1 (i.e. fisheries mainly with certain link to tourism and related activities), with most others targeting both mature and emerging activities (i.e. EU Blue Growth and Blue Med Initiatives, UNEP-MAP and CPMR Inter-Mediterranean Commission) therefore potentially addressing specific challenges 1.1 and 1.2).

Challenges related to greater synergies and cooperation with respect to transport activities (i.e. challenges 1.1 and 1.3) are then addressed by initiatives such as the EU Motorways of the Sea (mainly for EU countries) and the UfM Transport Action Plan (across the Mediterranean), while the UNEP-MAP also supports knowledge transfer in a range of traditional (e.g. tourism and fisheries) and emerging (e.g. energy) activities. Support to transversal policy/planning capacity is finally provided in the north (MSP) and south (IMP and CAMP), instrumental in addressing all specific challenges discussed in this chapter.

Existing initiatives therefore cover a wide range of identified challenges, but often have a too narrow geographical scope, with limited impact in addressing the challenges described. Most of existing initiatives in fact target either the northern or the southern shore, and even those with a potentially broader scope (e.g. EU Blue Growth and Blue Med) are mostly addressed to EU countries.

The geographical scope of existing initiatives therefore limits their potential impact. This is the case, to a certain extent, when it comes to support emerging activities (Challenge 1.2), and largely when fostering cross-sectoral synergies and stakeholders cooperation across the sub-seabasin (Challenge 1.3).

Scale of intervention

The assessment of the scale of intervention requires additional evidence (e.g. evaluations), which is not always publicly available. The analysis is therefore provided on the basis of a limited number of

secondary sources and may be subject to revision in case of further documentation being made available (i.e. by feedback of countries and relevant bodies/stakeholders). Other initiatives such as the UfM Action Plan on Transport are often successful in providing joint agreements and overall policy frameworks for implementation of country actions, although available evidence suggests the need to “enhance cooperation by requiring support to all relevant actors in all sectors” (e.g. Transport Action Plan Evaluation, p. 8¹⁶⁸). The Motorways of the Sea Draft Implementation Plan (2016) is too recent to be properly assessed. Greater effort may also be required to make the MoS and the Transport Action Plan initiatives fully consistent and coordinated.

UNEP-MAP support in terms of knowledge transfer in relevant economic sectors (e.g. tourism, fisheries and energy) has been judged as “moderately satisfactory” in the past (Mid-term Review 2013¹⁶⁹). It should be noted, though, that the initiative largely relies on actions implemented by the involved countries, and aims at promoting environmentally sustainable practices rather than fostering economic competitiveness through innovation (the challenge discussed in this chapter).

The EU Blue Growth initiative has certainly been instrumental in channelling a range of relevant funding initiatives, so to address specific challenges (e.g. Horizon 2020 when it comes to promotion of innovation). It has also been increasingly benefitting from ERDF funding (e.g. smart specialisation approach and platform¹⁷⁰). The Common Fishery Policy is a well-established framework, funded by the EMFF, and with growing efforts put into supporting bottom-up strategies promoted by local communities (FLAGS).

In terms of support to policy/planning, the MSP Directive is currently under implementation, while IMP and CAMP are generally positively perceived by southern countries. A recent CAMP Assessment (2015¹⁷¹), though, suggests that projects supported have not necessarily been “mainstreamed” into institutional structures or strategies (p. 30), while leadership of the Ministry of Environment may have limited the adoption of spatial planning tools across all ministries (pp. 29/30).

Some of the initiatives promoted by the EU are still at a too early state to be properly assessed (i.e. Blue Med Initiative), at least on the basis of publicly available evidence, or are not yet fully implemented (i.e. PRIMA). No specific assessments of the efficiency and effectiveness for the CPMR Inter-Mediterranean Commission actions are publicly available. In general, data collected/generated across all initiatives assessed remains often un-coordinated and dispersed.

Awareness and alignment

Evidence collected, including feedback from stakeholders during local focus groups (Report 2), suggests that initiatives are generally well-known by potential beneficiaries. Gaps of awareness have so far only been registered with respect to the relatively new EU BlueMED Initiative, as reported by local stakeholders during the focus groups (Report 2¹⁷²). Unfortunately, no clear assessments emerge on the full ownership of the described initiatives by the affected stakeholders. Some observations are provided hereby, based on the nature of the actions promoted and the feedback collected locally (Report 2).

¹⁶⁸

http://ec.europa.eu/transport/themes/international/european_neighbourhood_policy/mediterranean_partnership/docs/evaluation_report_en.pdf

¹⁶⁹ https://www.unido.org/fileadmin/user_media_upgrade/Resources/Evaluation/GPRAB08004MED_Partnership_eval_rep_FINAL_JUL13.pdf

¹⁷⁰ <http://s3platform.jrc.ec.europa.eu/>

¹⁷¹ http://meetings.pap-thecoastcentre.org/docs/camp_assessment30042015.pdf

¹⁷² Ibid, p. 2

Initiatives such as the FAO Blue Growth, the EU Common Fishery Policy, Integrated Maritime Policy or CAMP can be generally considered as well-aligned to the needs of different stakeholders involved. They are in fact typically bottom-up (i.e. based on priorities identified by national Ministries or other relevant regional/local administration) and often involve rounds of consultations with local stakeholders, so to specify the specific types of interventions to be promoted.

Other EU initiatives (e.g. EU Blue Growth and BlueMED), implemented through calls (e.g. Horizon 2020), may not always reflect the specific needs of beneficiaries in the Western Mediterranean. As such, they may benefit from additional support so to be more aligned to the specific local needs and the resulting challenges they intend to address. The CPMR Inter-Mediterranean Commission can be considered a useful initiative to expand the engagement with (and awareness of) local public authorities beyond the national level, although its outreach is still limited on the Southern shore.

The western Mediterranean sub-sea basin is facing a growing number and more complex maritime threats leading to increasing concerns about the safety¹⁷³ and security¹⁷⁴ of human and economic assets. Safety and security are a pre-condition for investment and economic development. Growing concerns about personal security are currently threatening the full mobility of people and goods across the basin, lack of stability is threatening investments in new energy sources, while persisting environmental risks are threatening the sustainable development of the entire sub-seabasin.

Ensuring both safety and security of activities at sea is therefore an essential prerequisite for the sustainable development of a range of relevant Blue Economy activities, as well as for the wellbeing and stability of the region. Nonetheless, activities related to safety and security involve a range of bodies and coastguard functions at various levels in accordance with their specific roles. Implementation of safety and security aspects therefore require efficient and effective cooperation across the sub-seabasin, including data/information sharing, in order to get a clear understanding of the several maritime activities happening in the region.

3.1 The challenges at stake

The following specific challenges are being distinguished:

- Specific challenge 2.1: Maritime safety and security risks persisting in the sub-seabasin;
- Specific challenge 2.2: Illegal migration changing paths through time;
- Specific challenge 2.3: Illegal activities at sea including fishing and smuggling;
- Specific challenge 2.4: Maritime surveillance being spread across various bodies.

Specific challenge 2.1: Maritime safety and security risks persisting in the sub-seabasin

As already described in the Blue Growth Study (Ecorys 2012¹⁷⁵), an essential element in the development of the Blue Economy is the increased risk of overlaps and tensions in the use of maritime space by a range of different activities. Co-existence of activities in and synergies across maritime areas' specific locations (i.e. hotspots) are stimuli for developing the Blue Economy (as already discussed in challenge 1), but could also trigger spatial tensions if not fully managed. This is certainly a risk in the Western Mediterranean sub-seabasin, where a range of important economic activities are performed but the institutional setting across the sub-sea basin is fragmented over different countries and macro-economic governance frameworks (Report 1, Chapter 2.1¹⁷⁶).

Tensions are triggered by the development of certain activities which may expose the sub-seabasin to potential safety risks. For example, maritime traffic is particularly congested in narrow passages in the Western Mediterranean sub-seabasin, such as the Strait of Gibraltar, through which ships enter and exit

¹⁷³ To better focus on the specific aspects faced by the sub-seabasin, safety is here intended in respect to the protection of maritime professionals and the marine environment and implies the regulation of the construction of vessels and maritime installations, the regular control of their procedures as well as the education of maritime professionals in complying with regulations.

¹⁷⁴ According to International Maritime Organization's conventions (SOLAS, Convention for Suppression of Unlawful Acts against the Safety of Maritime navigation and the International Ship and Port Facility Security (ISPS) Code), maritime security refers to protection against illegal acts which are security threats

¹⁷⁵ http://ec.europa.eu/maritimeaffairs/documentation/studies/documents/blue_growth_third_interim_report_en.pdf

¹⁷⁶ Ibid, p. 2

the Mediterranean Sea. This concentration of ships enhances maritime collisions risks (REMPEC 2015¹⁷⁷), with consequent pollution and environmental risks (WWF 2015¹⁷⁸) linked to maritime traffic itself (noise pollution), but also maritime accidents and resulting oil discharges into the sea. In the last decade, nearly half of the accidents leading to significant spills (of more than 100 tonnes), as reported by REMPEC, occurred in the Western Mediterranean Sea (ICM 2015¹⁷⁹). These tensions require greater coordination across involved actors to increase maritime safety at sea in the region. The impact of maritime activities, including shipping and gas drilling, may affect other relevant activities in the region such as fisheries (EU Parliament 2013¹⁸⁰) or coastal and maritime tourism (Independent 2016¹⁸¹).

The following map represents the estimated intensity of pollution pressures across the Mediterranean and particularly the western Mediterranean, based on shipping tracks, port influence and oil spills, and can be used as a proxy for the risk of accidents in the sub-seabasin. The main degree of pressure shown on the map are in fact a result of oil spills that occurred in the region, mainly as a result of accidents, and sources report that “on average, there are annually 60 accidents on the Mediterranean, out of which 15 result from maritime accidents of tankers transporting petroleum or chemicals”¹⁸². Also, and importantly, an increase of raw material extraction should foster the future risks of accidents in the sub-seabasin. Even if offshore oil and gas exploitation is in a relatively early stage of development at the moment, future development would in fact expose the sub-seabasin to further collision risks if not properly addressed (Report 1, Chapter 2.2¹⁸³).

Because of potential collisions or interactions with maritime transport, maritime safety must address any risks resulting from maritime economic development across all maritime activities, including aquaculture (Inter-Research 2016¹⁸⁴) and renewable energy installations (Sea Energy 2011¹⁸⁵).

¹⁷⁷

[http://www.rempec.org/admin/store/wyswiglmg/file/Information%20resources/Focal%20Points%20Meetings/2013/REMPEC%20Progress%20Report%202012-2013%20\(EN\).pdf](http://www.rempec.org/admin/store/wyswiglmg/file/Information%20resources/Focal%20Points%20Meetings/2013/REMPEC%20Progress%20Report%202012-2013%20(EN).pdf)

¹⁷⁸ http://www.medtrends.org/reports/MEDTRENDS_REGIONAL.pdf

¹⁷⁹ <http://arxiv.org/pdf/1510.00287.pdf>

¹⁸⁰ [http://www.europarl.europa.eu/RegData/etudes/note/join/2014/513996/IPOL-PECH_NT\(2014\)513996_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/note/join/2014/513996/IPOL-PECH_NT(2014)513996_EN.pdf)

¹⁸¹ <http://www.independent.co.uk/news/world/europe/emergency-declared-after-oil-spill-in-mediterranean-a6998331.html>

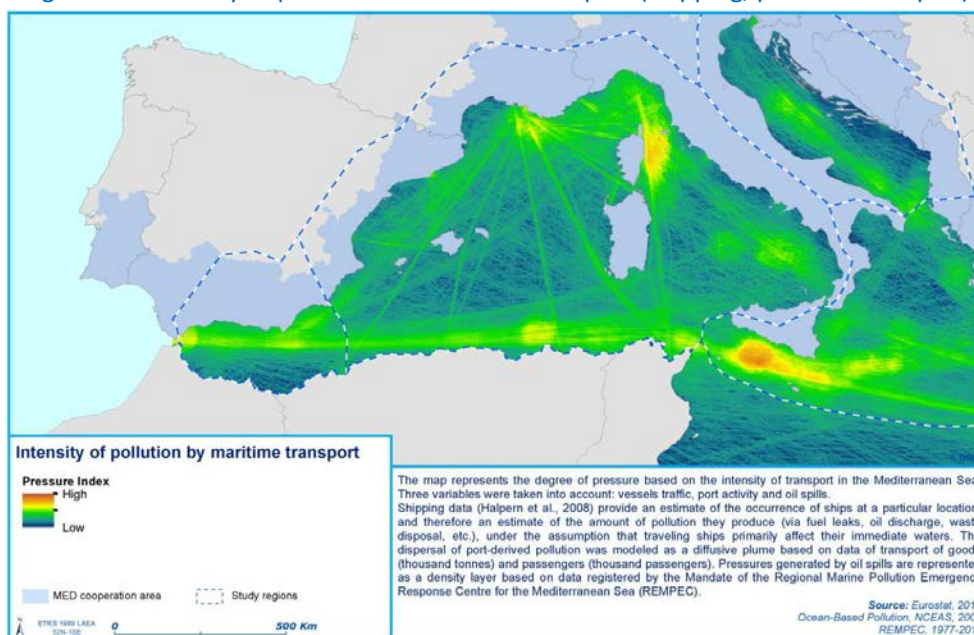
¹⁸² <http://nettuno.ogs.trieste.it/jungo/hazadr/problem.html>

¹⁸³ Ibid, p. 2

¹⁸⁴ <http://www.int-res.com/articles/aei2016/8/q008p041.pdf>

¹⁸⁵ http://www.seanergy2020.eu/wp-content/uploads/2011/11/111020_Seenergy2020_Deliverable3.2_Final.pdf

Figure 11: Intensity of pollution of maritime transport (shipping, ports and oil spills)



Source: Med-IAMER (2012¹⁸⁶)

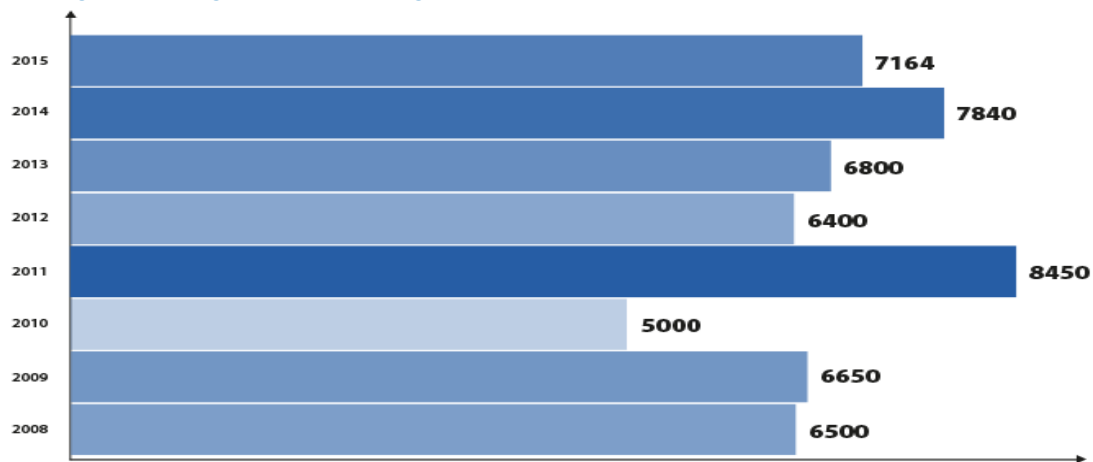
Specific challenge 2.2: Illegal migration changing paths through time

Although illegal migration flows are not unique to the Western Mediterranean, the sub-seabasin has been exposed through time to this challenge, with mainly two different routes being followed on the western and the eastern side of the sub-seabasin (Frontex 2016¹⁸⁷). A decade ago, migrants from Morocco to Spain were typically economic ones. Most of them came from Algeria and Morocco, hoping to find a job in Spain, France and Italy. Since then, however, they have increasingly been joined by sub-Saharan Africans, driven northwards by conflicts in Mali, Sudan, South Sudan, Cameroon, Nigeria, Chad and the Central African Republic (ibid).

¹⁸⁶ http://www.medmaritimeprojects.eu/download/ProjectMediamer/SH_Meeting_WME/WM_Transport_factsheet_300115.pdf

¹⁸⁷ <http://frontex.europa.eu/trends-and-routes/migratory-routes-map/>

Figure 12: Illegal border crossings on the “western route” of Western Mediterranean



Source: FRONTEX (2016)

There are various reasons for the fluctuation of overall numbers on this route. Spain has stepped up coastal patrols, installed the SIVE¹⁸⁸ maritime surveillance system along its southern border and signed bilateral agreements with Mauritania and Senegal (FRONTEX, 2016b)¹⁸⁹ It has also strengthened border checks at the main ports, a significant deterrent for would-be migrants secreting themselves aboard trucks and containers on ferries headed to Almeria and Algeciras – the traditional method of irregular entry (ibid.). The cooperation between Spain and Morocco is key in maintaining a low level of detections on the land route between the two countries. As a result, sub-Saharan migrants, who used to make a sea crossing to Spain, now increasingly opt for departing from Libya (ibid.). Rising unemployment in Spain, and therefore fewer opportunities for migrant workers, is also thought to be a factor influencing the attractiveness of this corridor (ibid.). In 2015, Syrians accounted for the biggest share of detections on this route. According to Frontex Risk Analysis Network Quarterly Report¹⁹⁰ in 2015, 5019 detections were accounted on this route although the preferred path for those flows of migrations was the “eastern route”. The latter in fact remained under intense migratory pressure in 2015, although the total number of migrants arriving in Italy that year fell to about a tenth lower than the record set in 2014 (FRONTEX 2015¹⁹¹).

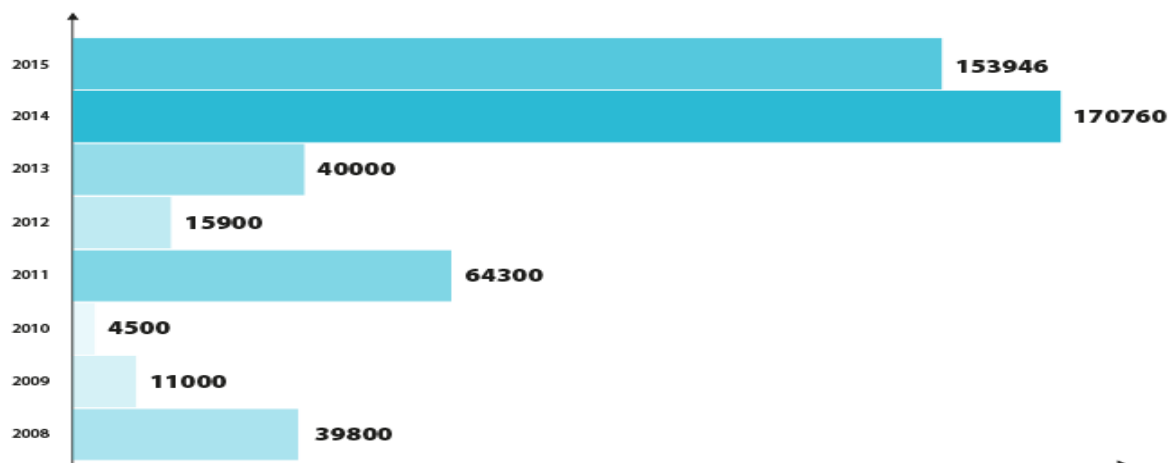
¹⁸⁸ SIVE(Sistema Integrado de Vigilancia Exterior) integrated surveillance system run by Guardia Civil

¹⁸⁹ <http://frontex.europa.eu/trends-and-routes/western-mediterranean-route/>

¹⁹⁰ http://frontex.europa.eu/assets/Publications/Risk_Analysis/Fran_Q4_2015.pdf

¹⁹¹ http://frontex.europa.eu/assets/Publications/Risk_Analysis/Fran_Q4_2015.pdf

Figure 13: Illegal border crossings on the “eastern route” of Western Mediterranean



Source: Frontex (2016)

The main reasons for the drop were the shift of Syrians to the Eastern Mediterranean route and a shortage of boats faced by smugglers in the latter part of the year. Smuggling networks remain well established in Libya, where migrants gather before crossing the sea. In 2015, Eritreans, Nigerians and Somalis accounted for the biggest share of the migrants making the dangerous journey (FRONTEX, 2016b). These statements are closely linked to the ability of the Libyan legal authorities to control the area. People smugglers typically put migrants aboard old, unseaworthy fishing boats, or even small rubber dinghies. These vessels are generally equipped with poor engines, lack proper navigation systems and often have insufficient fuel to reach Europe.

Due to the humanitarian consequence of illegal migration flows trying to cross the sub-seabasin, and the Mediterranean at large, maritime surveillance operations often move to contingent actions aimed at rescuing migrants under control of national responsible bodies. According to the International Organisation for Migration (IOM¹⁹²), the majority of casualties on the Western Mediterranean Sea were recorded along the Central Mediterranean Route. Control operations in the Central Mediterranean therefore act largely as “search and rescue” (SAR). Such a shift in mission is due to the humanitarian consequence of illegal migration flows trying to cross the Mediterranean Sea. The importance and change in direction of the flows may exceed the capacities of immigration authorities. The limited cooperation across the two shores of the sub-seabasin poses some challenges with respect to the needed flexibility of local operations (OSCE 2014¹⁹³), in order to respond to the potentially growing magnitude of illegal migration flows in the future and to quickly adapt to the evolution of the path of such flows through time (MPI 2016¹⁹⁴). This is particularly a challenge with respect to capacity in terms of data collection (IOM 2015¹⁹⁵), and capability of existing operations on the southern shore (IOM 2016¹⁹⁶).

¹⁹² <https://www.iom.int>

¹⁹³ <http://www.osce.org/secretariat/108481?download=true>

¹⁹⁴ <http://www.migrationpolicy.org/article/asylum-seeker-and-migrant-flows-mediterranean-adapt-changing-conditions>

¹⁹⁵ https://www.iom.int/sites/default/files/situation_reports/file/Mixed-Flows-Mediterranean-and-Beyond-Compilation-Overview-2015.pdf

¹⁹⁶ https://www.iom.int/sites/default/files/situation_reports/file/IOM-Libya-Migration-and-Assistance-Overview-28-July-2016.pdf

Specific challenge 2.3: Illegal activities at sea including fishing and smuggling

Security of the Western Mediterranean sub-seabasin also implies prevention of illegal activities. A relevant aspect is “illegal, unreported, and unregulated” (IUU) fishing activities, which is difficult to measure, but has been identified as an issue for the sub-seabasin (FAO 2016¹⁹⁷). This is an area where specific prevention and response are challenging, as areas under coastal State jurisdiction can be very large and IUU fishing activities may be difficult to detect (Guardian 2014¹⁹⁸). Curbing IUU fishing in these circumstances therefore depends mainly on ensuring that the coastal State has a real capacity to detect such activity, to apprehend the perpetrators and to deal with them under effective domestic laws and regulations. This presupposes the existence of appropriate, effective institutional arrangements and the resources necessary to put them into effect.

Another area of security concerns is smuggling. The Western Mediterranean sub-seabasin has long been a major conduit for drug-smugglers moving cannabis and cocaine towards the lucrative markets of the EU¹⁹⁹ (EMCDDA²⁰⁰). More recently (2016 Report²⁰¹), the Maritime Analysis and Operations Centre for Narcotics (MAOC-N) has been actively involved in the seizure of over 100 tonnes of cannabis resin off the coast of North Africa, at least some of which is thought to have been destined for European drug markets. In this respect a link has also been made between drug smuggling and the facilitation of illegal immigration to Europe, although the specifics of this are not well understood at present (Europol, 2015²⁰²). As for illegal migration issues, described above, greater cooperation across Coastguard operations in the sub-seabasin is required to more carefully monitor and identify illegal activities and assure an agile and prompt response in addressing those, as soon as they emerge (ICF 2014²⁰³) across the northern and southern shores of the sub-seabasin.

Specific challenge 2.4: Maritime surveillance being spread across responsible bodies

Under the responsibility of each country, maritime surveillance contributes to the national endorsement of international (e.g. IMO, UNCLOS, Convention on biological diversity) or regional (e.g. UNEP/MAP, GFCM) ratified piece of legislation. Each country is responsible for its effectiveness. As a consequence, dedicated capacities must be developed by each country in order to be able to fulfil national commitments. For the time being, it could be considered that an overall surveillance capacity exists in each Western Mediterranean sub-seabasin country [and it is supported with AIS data exchange \(Mediterranean AIS Regional Exchange System – MAREX\)](#). However, the geographical coverage of Automatic Identification Systems and Vessel Traffic Services is still heterogeneous and could be further expanded.

In the EU, at least four agencies have a competence related to maritime surveillance: EMSA (maritime transport), FRONTEX (migration, now evolving in the European Border and Coast Guard)²⁰⁴, EFCA (Fish) and the EEA (environment)²⁰⁵. Importantly though, cooperation and exchange of information is part of

¹⁹⁷ <http://www.fao.org/3/a-i5496e.pdf>

¹⁹⁸ <https://www.theguardian.com/environment/2014/oct/29/illegal-med-fishing-claims-up-to-two-tons-of-swordfish-per-boat-per-day>

¹⁹⁹ Estimated market size in 2013 for cannabis in EU is 9.3 billions € and for 5.7 billions € for cocaine

²⁰⁰ <http://www.emcdda.europa.eu/system/files/publications/2373/TD0216072ENN.PDF> (cf. tables 3.1 and 5.1)

²⁰¹ <http://www.emcdda.europa.eu/publications/eu-drug-markets/2016/online/cannabis/trafficking-of-cannabis-in-europe>

²⁰² <http://www.emcdda.europa.eu/publications/eu-drug-markets/2016/online/cannabis/trafficking-of-cannabis-in-europe>

²⁰³ <http://ec.europa.eu/transport/modes/maritime/studies/doc/2014-06-icf-coastguard.pdf>

²⁰⁴ <http://www.consilium.europa.eu/en/press/press-releases/2016/09/14-european-border-coast-guard/>

²⁰⁵ Even it is not an operational agency, there is an interest in environmental cumulative impacts.

the Agencies mandate²⁰⁶. Synergies amongst involved actors in the region must also comply with the European Integrated Border Management and Maritime Security Strategies.

3.2 Policy initiatives potentially responding to the specific challenges identified

The main cooperation initiatives (as listed in chapter 1.5) are now reviewed, and their main features are highlighted with respect to the specific challenges presented in this section. A first overview is provided in the table below, as a basis for a further assessment of main gaps emerging. The initiatives described and assessed hereby are the following:

- Regional Transport Action Plan (2014/2020);
- 5+5 GMTO Initiative;
- Regional Marine Pollution Emergency Response Centre (REMPEC);
- European Union Maritime Security Strategy (EUMSS) and associated actions;
- NATO Mediterranean Dialogue.

The table below provides an illustration of the relation between the features of strategic initiatives and the sub-issues identified with respect to the main issue assessed in this section. The table highlights elements in the initiatives that may more directly address certain specific challenges identified (as emerging from official sources).

²⁰⁶ Cf article 52 of REGULATION (EU) 2016/1624 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 14 September 2016 on the European Border and Coast Guard http://frontex.europa.eu/assets/Legal_basis/European_Border_and_Coast_Guard.pdf

Types of actions through which strategic initiatives may address each of the specific challenges identified (Challenge 2)

Specific challenge	Regional Transport Action Plan (2014/2020).	5+5 GMTO Initiative	Regional Marine Pollution Emergency Response Centre (REMPEC);	European Union Maritime Security Strategy (EUMSS) and associated actions	Mediterranean Dialogue (NATO)
2.1 Maritime safety and security risks	Supporting the improvement of national capacities to receive, share and analyse traffic monitoring information Technical cooperation relating to the transport of dangerous goods in order to ensure effective implementation of the relevant international maritime conventions, including through training.	Supporting actions and federation to provide Accidental Marine Pollution Project (POLMAR) Promotion of maritime pipelines « - maritime highways Interlinking and promoting cooperation in rendering maritime navigation safety services in accordance with commonly harmonized procedures.	Operational support for oil pollution Prevention and Emergency Definition and implementation of a Regional Strategy for the Prevention of, Preparedness for and Response to Marine Pollution from Ship (2016-2021) develop additional appropriate routing systems in the Mediterranean ships' routing and improvement of control of maritime traffic	Maritime security capacity building activities with third countries and regional organisations Promoting Maritime multilateralism for maritime security	
2.2 Illegal migration challenges				Supporting EU agency (FRONTEX-European Boarder and Coast Guard) – integrated migration border management. Supporting inter agencies cooperation (EU, national)	
2.3 Illegal activities at sea	Supporting the implementation of the mandatory SOLAS maritime security requirements in accordance with the ISPS code			Supporting EU agencies in combatting IUU fishing. (European Fisheries Control Agency (EFCA) and narco-smuggling (Maritime Analysis and Operations Centre - Narcotics (MAOC-N) Supporting inter agencies cooperation (EU, national)	
2.4 Maritime surveillance spread across various bodies.	Supporting the Implementation and/or enhancement of the VTMS systems along national coasts for properly monitoring, overviewing and recording all maritime activities	Promoting dedicated initiative on maritime surveillance with the use of VTS1/VTMIS2 Harmonising procedures and promoting data exchange Conducting dedicated studies on financing ways : legal, technical and economic feasibility study of a navigation due in the Mediterranean	Strengthening the capacities of the coastal States in the region to combat oil pollution Providing with a regional information system Providing a framework for the exchange of information on operational, technical, scientific, legal and financial matters;	Promoting establishment of a clear vision of cross-sectoral needs and capabilities for maritime security Promoting Integrated surveillance providing awareness pictures based on shared data and services standards	Supporting the Operational Capabilities Concept, Training and Education Enhancement Programme, ePRIME Partnership Realtime Information Management and Exchange System

Intended as a condition for economic growth and integration in the Mediterranean region, the **Regional Transport Action Plan (RTAP 2014/2020)** has the objective to “pursue, through concrete actions, both the regulatory reform and convergence in all relevant different transport sectors (maritime, civil aviation, road, railway and urban transport) and the establishment of an integrated multimodal Euro-Mediterranean transport network by facilitating trade and connecting people between the EU and the Mediterranean Partners and between Mediterranean Partners themselves”²⁰⁷. The RTAP is elaborated with and for the Mediterranean Partners from the southern neighbourhood²⁰⁸, and is designed to propose a reference framework for ensuring a complementarity and coherence between the bilateral, sub-regional, regional and international initiatives in the field of transport in the Mediterranean. Implementation of the RTAP is coordinated and monitored under the EuroMed dialogue structure set-up under the Barcelona process and fostered by the Union for the Mediterranean (UfM).

The **Conference of Ministers of Interior of the Western Mediterranean Member States (CIMO)** devotes special attention to the fight against transnational terrorism (expressing the need to coordinate regional cooperation to deal with crimes and neutralise the means by which these activities are financed, and the need for a security response based on the exchange of information); the free movement of persons (stressing the importance of enhancing legal migration and managing migration flows); cooperation in the area of civil protection (strengthening the civil protection system and communication among the national focal points); and finally the importance of local authorities in terms of sustainable development.

The **Transport Ministers of the Western Mediterranean (GTMO 5+5)** deal with maritime transport issues including maritime security, through a dedicated Secretariat of the Group. It is based on the 2007 Tunis protocol²⁰⁹ for cooperation in transport in the Western Mediterranean sub-seabasin. Under the umbrella of 5+5 GTMO, the initiatives on **Vessels Traffic Services (VTS1)** and **Vessels Traffic Management and Information Services (VTMIS2)**²¹⁰ are the result of the interest in improving maritime navigation safety and environmental protection at sea that has long been pursued by the GTMO 5+5. The initiative was conceived from the Statement of Conclusions of the Ministerial Conference (Algiers, March 2012) with two main objectives:

- To move towards equipping the Western Mediterranean coast with the necessary coastal vessel traffic services (VTS) to guarantee the safety of maritime navigation. There is still a lack of VTS along Tunisian shoreline²¹¹ therefore the permanent monitoring of the Sicily Strait is not fully achieved and requests VTS over-capacities from Italy.
- To move towards achieving a Vessel Traffic Management and Information Service for the Western Mediterranean (Western Mediterranean VTMIS) that allows for cooperation between existing and future maritime traffic services by harmonising procedures and promoting data exchange between the Western Mediterranean countries in order to improve the safety of maritime navigation and protect the marine environment.

²⁰⁷

http://ec.europa.eu/transport/sites/transport/files/themes/international/european_neighbourhood_policy/mediterranean_partnership/docs/rtap2014_2020_en.pdf

²⁰⁸ http://ec.europa.eu/neighbourhood-enlargement/neighbourhood/southern-neighbourhood_en

²⁰⁹ <http://www.cetmo.org/pdf/ProtocoleTunis.pdf>

²¹⁰ <http://www.cetmo.org/pdf/Speech%20in%20ENG.pdf>

²¹¹ cf. WEST MED Report 2

According to the conclusions of the working session of the GTMO 5+5 Experts Meeting in 2014²¹², the governance of maritime safety in the region could be improved. This is due mainly to the fact that several initiatives exist but there is a lack of cooperation and coordination among them. The conclusion is that setting up the GTMO 5+5 initiative to improve maritime safety on the Western Mediterranean Coast is pertinent and should be used to coordinate efforts. The results of the work done since 2012 on this GTMO 5+5 initiative to improve maritime safety and especially the conclusions of the Working Session on 5 May 2014 show that work should continue during the next period of GTMO 5+5 cooperation (2014-2016). Work should be divided into two different approaches:

- Infrastructure approach: a cooperation to provide infrastructure to ensure that the needs of VTS services along the entire Western Mediterranean coast are met;
- Horizontal approach: interlinking and promoting cooperation in rendering maritime navigation safety services in accordance with commonly harmonized procedures.

In order to develop the second approach, countries agree on the suitability of exploring ways to set up a working group to work on increasing Automatic Information System information exchange and harmonizing operating procedures and technical solutions. This analysis should always take into account the need for coordination and should avoid overlapping with existing initiatives with similar objectives.

GTMO 5+5 launched an initiative of the legal, technical and economic feasibility **study of a navigation due** in the Mediterranean²¹³ in order to meet the economic and social challenges of navigation and environmental protection in compliance with the principles and the spirit of the Conventions and the international agreements. The total estimated costs of the services to be potentially covered by the due (388,5 million €) is retained here as basis to approach and test, as an illustration, an amount of the due that could be charged on the diverse users.

The **Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC)**, formally called “Regional Oil Combating Centre” (ROCC), was originally established in 1976 by the decision of the Contracting Parties of the Barcelona Convention. It received the mandate to strengthen the capacities of coastal States in the Mediterranean region and to facilitate co-operation among them in order to combat massive marine pollution by oil. To do so, it is to particularly support them in the development of national capacities to combat oil pollution. It provides a regional information system with a view to dealing with marine pollution emergencies (shipwreck, illegal degassing at sea, ...) or reducing pollution risks (issue 2.1). In 2001, with a view to the adoption of the new Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, combating Pollution of the Mediterranean Sea (Prevention and Emergency Protocol, 2002), the Contracting Parties reaffirmed the involvement of the Centre in activities related to prevention of, preparedness for and response to marine pollution from ships.

REMPEC’s main fields of are:

- Strengthening the capacities of the coastal States in the region for response to pollution incidents;
- Developing regional cooperation in the field of the prevention of pollution of the marine environment from ships; Providing a framework for the exchange of information on operational, technical, scientific, legal and financial matters;
- Assisting coastal States of the region, which in cases of emergency so request.

²¹² <http://www.cetmo.org/pdf/VTSVTMIS%20conclusions.pdf>

²¹³ <http://www.cetmo.org/pdf/Study%20of%20a%20due%20Maritime%20navigation%20safety.pdf>

Established and proposed by REMPEC, the Regional Strategy for the Prevention of, Preparedness for and Response to Marine Pollution from Ship²¹⁴ (2016-2021) aims at preventing pollution from ships and maritime accidents and at enhancing the level of preparedness for response to major pollution incidents, in the Mediterranean region. The Regional Strategy (2016-2021) lists the priority issues to be addressed when implementing the Protocol concerning Co-operation in Preventing Pollution from Ships and a timetable for the implementation of its objectives to be achieved by 2021. The Regional Strategy (2016-2021) is in line with the Mediterranean Action Plan of the United Nations Environment Programme (UNEP/MAP)'s Mid-Term Strategy (MTS) (2016-2021), also adopted by COP19, which sets up a strategic framework that ensures coherence, continuity, increased efficiency, effectiveness and relevance of the MAP/Barcelona Convention system for the protection of the Marine Environment and the Coastal Region of the Mediterranean and contribution to sustainable development of the Mediterranean Region for the period 2016-2021.

Among its objectives, ships' routing and improvement of control of maritime traffic are to be addressed, so as to improve the safety of navigation, and therefore the prevention of marine pollution by ships, in converging areas and in areas with density of traffic. The expected results under this Specific Objective are for the Contracting Parties:

- To develop additional appropriate routing systems in the Mediterranean, where necessary, for possible adoption in accordance with international law;
- To establish Maritime Spatial Planning (MSP) under national jurisdiction when and where possible, and without prejudice to the sovereign right of the States, in close collaboration with the relevant national competent authorities and in cooperation with other Mediterranean Coastal States ensuring that their MSPs are coherent and coordinated across the Mediterranean region such as maritime highways.

To improve the control of maritime traffic, this specific objective is the establishment of a regime based on the use of Automatic Identification System (AIS) in conjunction with VTS and mandatory ship reporting systems. To reach the goal, the improvement of technical cooperation among VTS Centres of neighbouring countries is essential.

The Maghreb Arab Union established in 1991 a dedicated convention for cooperation in the maritime domain²¹⁵ signed between UMA partners (**Convention de coopération dans le domaine maritime entre les pays de l'Union du Maghreb Arabe**). It promotes cooperation and coordination for maritime security and safety (title II). A dedicated structure was to be defined and settled in order to fight against maritime pollution with means sharing and action plans definition. A dedicated action plan to prepare the fight against maritime oil pollution was defined and approved in June 2005²¹⁶ by Algeria, Morocco and Tunisia. This trilateral action plan is to answer their commitments to the Barcelona Convention. The action plan defines REMPEC's task to inform other Barcelona Contracting Parties and display public communication.

The **European Union Maritime Security Strategy (EUMSS)**²¹⁷ covers both the internal and external aspects of the Union's maritime security. It serves as a comprehensive framework, contributing to a stable and secure global maritime domain, in accordance with the European Security Strategy (ESS),

²¹⁴ [http://www.rempec.org/admin/store/about/RegionalStrategy/Regional%20Strategy%20\(2016-2021\)%20with%20cover%20page.pdf](http://www.rempec.org/admin/store/about/RegionalStrategy/Regional%20Strategy%20(2016-2021)%20with%20cover%20page.pdf)

²¹⁵ <https://www.issafrica.org/uploads/CONVMARITIMEFR.PDF>

²¹⁶ <http://faolex.fao.org/docs/pdf/mul67484.pdf>

²¹⁷ <http://register.consilium.europa.eu/doc/srv?l=EN&f=ST%2011205%202014%20INIT>

while ensuring coherence with EU policies, in particular the Integrated Maritime Policy (IMP), and the Internal Security Strategy (ISS). The EUMSS promotes:

- Maritime multilateralism: while respecting the institutional framework and the decision-making autonomy of the EU, cooperation with all relevant international partners and organisations, in particular the United Nations and NATO, and coordination with existing international and regional fora in the maritime domain;
- The establishment of a clear vision of cross-sectoral needs and dual-use capabilities for maritime security;
- The conduct of maritime security capacity building activities with third countries and regional organisations;
- Maritime governance and rule of law, including criminal justice and maritime law enforcement;
- Port and maritime transport security to international agreed standards;
- Capabilities to manage their own borders;
- Combating IUU fishing. Thereby existing international, EU and national export control regulations should be fully respected;
- Integrated surveillance providing a common awareness picture based on shared data and services standards;
- Innovative technologies and processes as they contribute to the improved efficiency, sustainability and effectiveness of operations.

The EU adopted in 2002 Directive 2002/59/EC establishing a community vessel traffic monitoring and information system. For the Western Mediterranean sub-sea basin, a pilot project will be carried out in 2016 in order to improve operational co-operation between three EU agencies (FRONTEX, European Maritime Safety Agency (EMSA) and the European Fisheries Control Agency (EFCA)). The EU also supported the BLUEMASSMED²¹⁸ project (2009 - 2012), which was the first European maritime surveillance pilot project, which had as an objective to catalyse and foster cooperation in maritime information sharing between 37 State partners from 6 Member States (MS) bordering the Mediterranean Sea and Atlantic approaches (Greece, Spain, France, Italy, Malta, Portugal). It was co-funded by the European Commission (DG Mare) and the partners. The project recommends keeping a network-centric and two-level architecture favouring national maritime information systems interoperability and avoiding hidden industrial interest's considerations, likely to compromise the cooperation between foreign partners. It enhanced in its conclusions the request to develop standards for data dissemination (format, exchange protocol), services, technical architecture (nodes), to promote the definition of a European legal framework dedicated to Maritime information-sharing or to share a Basic Common Maritime Picture". These recommendations have been taken into account in EUMSS and EMSA Projects. Based on the results of BLUEMASSMED, the project EUCISE2020²¹⁹ is an on-going Security Research project under the European Seventh Framework Programme (2014 -2020). It aims at achieving the pre-operational information sharing for exploitation of a Common Information Sharing Environment (CISE) between the maritime authorities of the European States. The specific objective of EUCISE2020 is to have a test-bed network of nodes connecting participating public authorities for cross sectorial information services and data exchange.

²¹⁸ <http://www.statewatch.org/news/2014/jul/eu-2012-bluemassmed-final-report.pdf>

²¹⁹ <http://www.eucise2020.eu>

To develop Euro-Mediterranean co-operation in the field of maritime safety and security, prevention of pollution from ships and marine environmental issues by providing technical advice and support to the non-EU Mediterranean countries identified in the 1995 Barcelona Process, the EU with European Maritime Security Agency (EMSA) launched in 2006 the first **SafeMed Project**. The objective is to get a balanced approach in the application of maritime legislation in the region. A coherent, effective and uniform implementation of the relevant international conventions and rules by the EU Member States and the Mediterranean partner countries is expected to work out in better protecting the marine environment in the Mediterranean region by preventing pollution from ships. The third SafeMed Project (SafeMed III) assists the Beneficiary countries (Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestinian Authority, Syria and Tunisia) with the further implementation of the 2007 adopted Regional Transport Action Plan (RTAP) for the Mediterranean (2007-2013) and builds upon the achievements of SafeMed I and SafeMed II projects. One of the specific objectives of SafeMed III is to directly assist the competent maritime authorities of the Beneficiaries to align their national standards and practices with those of the European Union in accordance with the actions 2 and 3 of the RTAP for the Mediterranean²²⁰ (2014-2020) endorsed by the UfM Transport Ministers in 2013. The aim is to promote a harmonised approach in the field of maritime safety, security and pollution preparedness/response. SafeMed III specific areas of assistance/cooperation are flag State implementation, port State Control, Vessel Traffic Monitoring and Information System (VTMIS), protection of the marine environment, security of ships and port facilities in the Mediterranean area.

Various instruments have been adopted in the European Union to promote strengthened cooperation among Member States to combat illicit drug trafficking. The June 9, 1997, Joint Action (97/372 JHA) fosters the development of customs cooperation and the October 25, 2004, framework decision (2004/757 JHA) establishes national standardisation criteria and lays the foundations for enhanced judicial and police cooperation at the European level. On September 30, 2007, an agreement was concluded among seven EU Member countries, including Italy, to set up a centre for analysis and coordination in operations against drug trafficking at sea, the **Maritime Analysis and Operations Centre – Narcotics (MAOC-N)**. Located in Lisbon, the centre aims to coordinate the operations carried out at sea by the authorities of the states concerned, as well as collecting, exchanging, and analysing drug-related information. It covers an area extending from the eastern part of the Atlantic Ocean to European and Western African coastal areas.

In addition to the above initiatives, three **EU Directives** have been adopted:

- For port security (DIRECTIVE 2005/65/EC²²¹) the EU has introduced measures to enhance port security in the face of threats of security incidents. This Directive shall also ensure that security measures taken pursuant to Regulation (EC) No 725/2004 benefit from enhanced port security. The measures consist of common basic rules on port security measures, an implementation mechanism for these rules, appropriate compliance and monitoring mechanisms.
- The 'Return Directive' (2008/115/EC) sets out common EU standards and procedures for returning irregularly staying third-country nationals. Member States were called upon to transpose the directive by 24 December 2010. The first report on its implementation was adopted in March 2014. The main areas for further action include ensuring its proper implementation, promoting consistent and fundamental rights-compatible practices, improving cooperation between Member States and enhancing the role of FRONTEX. One of the main tasks of the teams supporting national authorities at hotspots in Italy and Greece is to actually return people. On 9 September 2015, the European

²²⁰ http://ec.europa.eu/transport/sites/transport/files/themes/international/european_neighbourhood_policy/mediterranean_partnership/docs/rtap2014_2020_en.pdf

²²¹ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32005L0065&from=FR>

Commission published a European Union action plan on return (COM(2015) 453 final), which was endorsed by the Council the following October.

- Directive 2009/52/EC specifies sanctions and measures to be applied in Member States against employers who infringe the prohibition on employing illegally staying third-country nationals. Member States were required to transpose the directive by 20 July 2011. The first report on the implementation of the directive was submitted on 22 May 2014.

The EU is, at the same time, negotiating and concluding readmission agreements with countries of origin and transit for purposes of returning irregular migrants and cooperating in the fight against trafficking human beings. These agreements include reciprocal cooperation commitments between the EU and its third-country partners.

In response to the arrival of increasing numbers of migrants on the Mediterranean coasts of the Union and the growing number of shipwrecks since the end of 2013, the European Parliament adopted a resolution on 17 December 2014²²² on the situation in the Mediterranean and the need for a holistic EU approach to migration, which mandated the European Parliament's Committee on Civil Liberties, Justice and Home Affairs (LIBE) to draft an own-initiative report. The draft report was submitted in committee on 18 January 2016, before being tabled in plenary for adoption by the European Parliament as a whole.

The **EU Directive N°2014/089 EC** establishes a framework for maritime spatial planning (MSP) aimed at promoting the sustainable growth of maritime economies, the sustainable development of marine areas and the sustainable use of marine resources. To establish and implement MSP, Member States (MS) shall consider economic, social and environmental aspects to support sustainable development and growth in the maritime sector, applying an ecosystem-based approach (cf. MSFD 2008/56), and to promote the coexistence of relevant activities and uses. As a consequence, maritime spatial plans are to take in account safety challenges such as maritime routes and traffic flows (cf. article 8) in order to reduce maritime risks. Resulting plans are to be taken in account to develop and enhance maritime and marine surveillance.

The EU (DG MARE) funded the **Mediterranean Coast Guard Functions Forum**²²³ (**MedCGFF**), a non-binding, voluntary, independent and non-political forum bringing together representatives from institutions and agencies with related competencies in coastguard functions in the Mediterranean to facilitate multilateral cooperation on a wide range of issues such as maritime safety, security and environmental protection activities as well as the potential partnership for their application, seeking solutions to common problems and issues, confronting participating countries by sharing expertise and best practices in a cooperative and consensual manner.

Its specific objectives are to enhance cooperation and information sharing among Member States and third countries in their effort to detect, monitor, deter and intercept transnational maritime threats to the global safety, security, economy and environment; to develop a more effective cooperation among Member States and third countries of the Mediterranean Sea in matters related to maritime safety, security and environmental protection; to create inter-institutional connections oriented to facilitate stakeholders in their contribution for the best use of all different capabilities at national level; to contribute to develop cooperative disaster response plans to assist member states and third countries in

²²² <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P8-TA-2014-0105+0+DOC+XML+V0//EN>

²²³ <http://mcgff.org>

preventing natural and man-made disasters, mitigation and recovery, to contribute to promote common education and training standard.

The **Mediterranean Dialogue (MD)**²²⁴ was initiated in 1994 by NATO's North Atlantic Council. It currently involves seven non-NATO countries of the Mediterranean region: Algeria, Egypt, Israel, Jordan, Mauritania, Morocco and Tunisia. The Mediterranean Dialogue (MD) and its subsequent development has been based upon several principles, such as:

- Particularly Individual Cooperation Programmes (ICP) allow interested MD countries and NATO to frame their practical cooperation in a more prospective and focused way, enabling interested countries to outline the main short- and long-term objectives of their cooperation with the Alliance, in accordance with NATO's objectives and policies for the Mediterranean Dialogue;
- Two-way engagement: the MD is a "two-way partnership", in which NATO seeks partners' contribution for its success, through a regular consultation process; special emphasis is placed on practical cooperation;
- Complementarity and mutual reinforcement: efforts of the MD and other international institutions for the region are complementary and mutually reinforcing in nature; such as UfM and 5+5.

Improved interoperability between NATO forces and those of MD partners is a trusted step to establish a community of interests in the areas of capacities, education, training and exercises. As such, a number of programmes²²⁵ contribute to this process of consolidating interoperability, in addition to programmes for fighting against terrorism and those for modernizing defence (OCP Policy Centre 2016).

3.3 Aspects of the current policy framework that could be strengthened

This section assesses the emerging gaps (as defined in Chapter 1.6) across the areas of intervention of such initiatives. These are considered in respect to the sub-issues for the Maritime security and safety in the Western Mediterranean described so far. The assessment is based on secondary sources mentioned in the previous sections and further insights specified in this chapter. Findings in the analysis so far are subjective to further evidence provided by stakeholders in the engagement actions foreseen in Phase 2 of this study (described in Chapter 1.1).

²²⁴ http://www.nato.int/cps/en/natohq/topics_52927.htm

²²⁵ <http://www.ocppc.ma/sites/default/files/OCPPC-PB1616v2.pdf> Annual work program of Mediterranean Dialogue. : Individual Cooperation Program , Operational Capabilities Concept (OCC) Mediterranean (since November 18, 2005), Training and Education Enhancement Programme (TEEP), Political Military Framework (PMF), Partnership Coordination Cell (PCC), Partners for Peace Status of Forces Agreements (SOFA), ePRIME (Partnership Realtime Information Management and Exchange System).

Thematic and Geographic Scope

Challenge 2.1	Challenge 2.2	Challenge 2.3	Challenge 2.4
- 5+5 GMTO Initiative - Regional Marine Pollution Emergency Response Centre (med sea basin) - Regional Strategy for the Prevention of, Preparedness for and Response to Marine Pollution from Ship (med sea basin) - European Union Maritime Security Strategy (northern mainly) - Contribution of EMSA (northern mainly) - Convention de coopération dans le domaine maritime entre les pays de l'Union du Maghreb Arabe - Plan d'urgence sous-régional entre l'Algérie, le Maroc et la Tunisie pour la préparation à la lutte et la lutte contre la pollution marine accidentelle dans la zone de la Méditerranée du Sud-Ouest (southern mainly) - Mediterranean Coast Guard Functions Forum (med sea basin)	- European Union Maritime Security Strategy (northern mainly) - Conference of Ministers of Interior of the Western Mediterranean Member States (5+5 CIMO) - European Border and Coast Guard Agency (FRONTEX) (northern mainly) - Mediterranean Coast Guard Functions Forum (med sea basin)	- European Union Maritime Security Strategy (northern mainly) - GFCM IUU action plan (med sea basin) - contribution of EFCA, and MAOC-N (northern mainly) - Contribution of EFCA for IUU fight (northern mainly) - Contribution of MAOC-N for Narco fight (northern mainly) - Mediterranean Coast Guard Functions Forum (med sea basin)	- NATO Mediterranean Dialogue (med sea basin) - European Union Maritime Security Strategy (northern mainly) - SAFEMED, BLUEMASSMED, EUCISE projects (northern mainly) - European Border and Coast Guard Agency (FRONTEX) (northern mainly) - Mediterranean Coast Guard Functions Forum (med sea basin) - Contribution of EMSA (Safeseanet) and of EFCA

Different initiatives, as described in this section, are dealing with cross-border cooperation with respect to the issue of maritime security and safety. Their capacities of dedicated agencies differ (European Border and Coast Guard Agency (FRONTEX), EMSA, EFCA, or dedicated ministerial (interior or defence 5+5). Even if they can be used as seeds to enhance cooperation for maritime safety and security in the Western sub-seabasin, EU existing agencies are dedicated to EU policies and as a consequence focus on European “maritime waters”. Even if there are EU cooperation actions (capacity building with SAFEMED projects for instance), cooperation is mainly driven by the EU membership of the bordering countries of the Western Mediterranean sub-seabasin to support internal EU politics and strategies.

Scale of intervention

Maritime surveillance data-sharing is usually considered as sensitive by national authorities. Maritime security and safety are national regulatory competences. Consequently, the implementation of sub-sea basin decisions in the field depends on national choices and priorities. As a consequence, there are heterogeneities between national maritime surveillance capacities with progressing levels of integration between EU MS towards a European Maritime Information and Exchange System. Based on the EU regulatory framework, efforts have been registered (e.g. through SAFE MED,) in order to provide a shared and seamless maritime situation of awareness for maritime surveillance. These aspects have already emerged in previous evaluations (CEPS 2011²²⁶) and more recent analysis of policy initiatives suggests the need to move from a “humanitarian response” status towards more structured long-term

²²⁶ http://ec.europa.eu/dgs/home-affairs/e-library/documents/policies/security/pdf/maritime_case_study_csens_en.pdf

cooperation (CEPS 2016²²⁷). Heterogeneities between national maritime surveillance capacities remain therefore an important issue to be addressed. As monitoring takes place through separated systems, there is a progressing level of integration in surveillance of all activities responding to legal requirements such as the VTMS Directive for maritime transport. It constitutes a brake on the full evaluation of performance and impacts related to maritime surveillance at any level (national – sub-sea basin).

Awareness and alignment

The protection of the Western Mediterranean sub-sea basin is shared between national sovereign rights and commitments and UNCLOS (for High sea). At sub-regional level, there are different degrees of co-operation between coastguard functions bodies. At sub-sea basin, UNEP with REMPEC is to provide a dedicated capacity to support any party to the Barcelona Convention to prevent and fight maritime pollution of ships. Its effectiveness depends on national willingness. It is essential to avoid duplication and to ensure the maximum benefit from the assistance offered to all Mediterranean coastal States²²⁸. Most of the initiatives assessed are well established and clearly known to all the involved actors at various levels. Although no clear evidence emerges on these potential gaps, it could be expected that more focused actions tailored to the Western Mediterranean sub-seabasin may improve awareness and engagement of local stakeholders in the area. This is an aspect to be further addressed in the next steps of the project (i.e. on/off-line consultations foreseen for Phase 2).

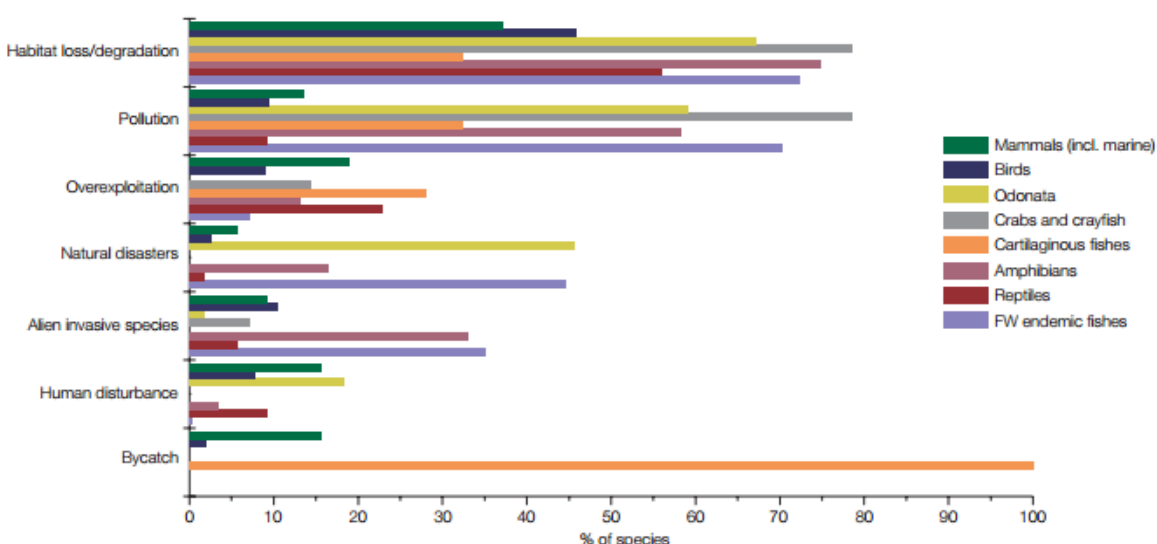
²²⁷ <https://www.ceps.eu/system/files/LSE%20No%2088%20SC%20and%20LdH%20EBCG.pdf>

²²⁸ <http://www.rempec.org/admin/store/Information%20Resources/11thFPM/11th%20Focal%20Points%20Meeting%202015/English%20Documentation/Working%20Documents/E-%20FPM%202015%20WG%2037-12%20Cooperation%20between%20REMPEC,%20EC%20&%20EMSA.pdf>

The Western Mediterranean sub-sea basin shares similar coastal features, generally very sensitive physical environments characterised by mountainous reliefs, which are particularly susceptible to erosion. The region is characterised by a unique and rich marine and coastal biodiversity, progressively vulnerable by reason of the wide spectrum of pressures to which it is subjected. Indeed, coastal fringes record progressively increasing population and economic development, principally in southern countries. The intense human activities that take place in the sub-seabasin (both in coastal and marine spaces) involve an increasing number of environmental threats causing high or very high impacts in marine and coastal ecosystems. It is widely accepted that the environmental degradation in the Mediterranean is severe and worsening in many areas.

Maritime and land-based activities -including in particular the industrial sector- along with the progressively more urbanised coastline are at the origin of such pressures. These range from high resource consumption (water, energy, food products, raw materials, coastal space), air and water pollution releases, to waste generation. In turn, they cause contamination, eutrophication phenomena, reduced or loss of biodiversity and degradation of marine and coastal habitats, changes in coastal dynamics, marine litter and noise. The fact that coastal areas are also touristic destinations, either traditional (i.e. France, Italy and Spain) or recent (Morocco, Tunisia) contributes to seasonal population peaks which aggravate environmental threats and impacts and challenge their appropriate management. In addition, global warming, through the intensification of climatic events (e.g. severe droughts or catastrophic floods) and/or environmental characteristics (sea surface temperature increases) further contributes to jeopardising marine and coastal resources and compromising their sustainability (UNEP/MAP 2011 and 2012).

Figure 14: Overview of major threats by group of species in the sub-seabasin



Source: RAC/SPA, 2010

4.1 The challenge at stake

The following specific challenges are presented here:

- Specific challenge 3.1: Threats to the marine and coastal biological diversity and habitats;
- Specific challenge 3.2: A sub-sea basin affected by a variety of pollution derived-pressures;
- Specific challenge 3.3 : Socio-economic drivers contributing to unsustainable patterns.

Specific challenge 3.1: Threats to the marine and coastal biological diversity and habitats

Loss of biological diversity and habitat

Species diversity in the Mediterranean increases from east to west, in agreement with differences in key environmental variables, such as latitude, salinity, temperature, and water circulation, in addition to the distance from the Strait of Gibraltar. The highest rate of species diversity is reported in the Western Mediterranean sub-seabasin (87%), likely owing to the influx of Atlantic species and the wide range of physicochemical conditions (Coll et al., 2010)²²⁹. The Western Mediterranean shows also more endemic species than other regions and a wide array of habitats: seagrass beds, rocky shorelines, frontal systems, estuaries and deltaic systems, underwater canyons, deepwater coral assemblages and seamounts. The basin also supports the greatest diversity of marine mammals, sea turtles and seabird life.

Loss, fragmentation and degradation of ecosystems and habitats as direct or indirect results of human activities (fishing, tourism, aquaculture, maritime transport, resource exploration and exploitation, etc.) rank first among main threats in the area and apply to all taxonomic groups. Species depletion and overexploitation have been evidenced since Roman times, but have been intensified since the onset of the Industrialisation period and accelerated over the second half of the 20th century, which has recorded many marine species depletion and eventual extirpation at the local scale.

Habitats such as seagrass meadows and coralligenous communities, key habitats and among the most productive in the Mediterranean, are severely threatened. Endemic *Posidonia oceanica*, the most important among Mediterranean seagrass ecosystems, shows declining trends in many areas of the Western Mediterranean (e.g. Marseille, Alicante and the Ligurian coast) and has completely disappeared from Toulon (France) and the Gulf of Gabes (Tunisia) due to pollution, coastal development, pleasure boating, fishing activities and non-indigenous species (NIS) introduction (UNEP/MAP 2012). In addition, habitats such as fossil rims of *Lithophyllum byssoides* or *Cystoseira* forests are considered to be most threatened.

Animal species are also endangered in the seabasin, in particular emblematic species such as marine mammals or reptiles, by the risks posed by chemical pollution, intense fishing activities, vessel collisions and, probably, underwater noise. Many species of mammals, common both in the northern (Ligurian Sea, Gulf of Lions) and southern (northern Algeria) waters of the sub-seabasin have reached dangerous low population levels and face high risk of extinction in the area. In particular, regarding the eight resident mammal species in Mediterranean, common bottlenose dolphin and fin whale are considered “Vulnerable” by the IUCN Mediterranean Red List in 2016²³⁰; the short-beaked common dolphin (which has vanished from the northern part of the Western Mediterranean), striped dolphin and sperm whale

²²⁹ Coll et al. 2010 <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0011842>

²³⁰ The IUCN Red List of Threatened Species. Version 2016-2. <www.iucnredlist.org>.

are considered as “Endangered”; while for other mammals limited information is available to assess population status and trends (i.e. Cuvier’s Beaked Whale, Long-finned Pilot Whale, Risso’s Dolphin), in particular regarding their occurrence and abundance in North-African waters. Mediterranean monk seal, listed “Critically Endangered”, once present, is today believed extinct from the Western Mediterranean sub-seabasin²³¹.

Loggerhead, leatherback and green turtles are becoming increasingly rare both at global and Mediterranean levels, and are also listed by the IUCN: resident (nesting) Mediterranean species, loggerhead and green turtles, are considered as “Endangered”, while leatherback turtle, regular visitor in the region and showing global declining trends, is listed as “Critically endangered”²³².

An assessment carried out by the IUCN targeting the status of 519 marine fish species and subspecies in the Mediterranean revealed that over 8% of them were threatened, and were thus listed as “Critically Endangered”, “Endangered” or “Vulnerable”. Of the 15 (3%) most threatened species (Critically Endangered), 14 were sharks and rays. Out of the 13 species listed as “Endangered” (2.5%), 9 were sharks and rays; finally, of the 15 species (3%) considered “Vulnerable”, 8 species were sharks and 7 species were bony fishes. An additional 22 species (4%), including 10 sharks and rays, are listed as “Near Threatened”, indicating the need for monitoring them in case their conservation status becomes more serious²³³.

Overexploitation of commercial fish stocks

Along with chemical contamination and loss of biodiversity and habitats, overexploitation of fishing resources is ranked amongst the most important pressures in the region. Pressures contributing to overexploitation of fishing resources in the basin are related to three aspects of fishing activities: first, extremely high fishing efforts and fishing mortality rates; second, the capture of non-targeted species (not desired), or by-catches, and consequent discards; and finally, illegal, unreported and unregulated (IUU) captures.

Today, according to the EEA and to recent GFCM data, most stocks for which a validated assessment exists are outside safe biological sustainable limits (up to 85%) (GFCM, 2016). Although the Western Mediterranean sub-seabasin remains amongst the most studied areas in the GFCM area, there are regional differences in the extent of knowledge of stock status: few stock units have been assessed in the Southern Alboran-Balearic basin, compared to the eastern Spanish coasts and the Gulf of Lions or even with the Tyrrhenian basin (see **Figure 15**).

In the last decade (2000-2011), landings in the three sub-basins of the Western Mediterranean (i.e. the Alboran-Balearic Sea, the Tyrrhenian Sea and the Gulf of Lions) have experienced decreases, particularly relevant in the Gulf of Lions and the Alboran-Balearic Sea, which landed in 2011 66% and 17% less fish by comparison to catches reported in 2000 (Med-Iamer Project, 2015²³⁴).

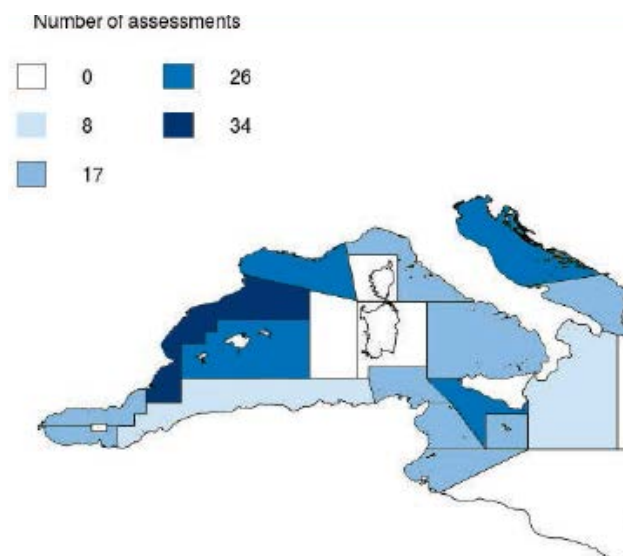
²³¹ IUCN (2012). Marine Mammals and Sea Turtles of the Mediterranean and Black Seas. Gland, Switzerland and Malaga, Spain: IUCN. 32 pages.

²³² Ibid.

²³³ Abdul Malak, D. et al. (2011). Overview of the Conservation Status of the Marine Fishes of the Mediterranean Sea. Gland, Switzerland and Malaga, Spain: IUCN. vii + 61pp

²³⁴ Med-IAMER Project: Maps of the Mediterranean Sea Region (Fisheries and Fishing trends). <http://www.medmaritimeprojects.eu/section/med-iamer-redirect/outputs>

Figure 15: Number of fish stock assessments per area of the Western Mediterranean sub-seabasin



Source: GFCM, 2016

By-catches or captures of non-commercial species are another key issue contributing to the unsustainable patterns of fisheries. Discard rates vary with fishing depth, gear used and targeted species: discards by unselective Mediterranean trawling fleets are significant. Besides resulting in mortality for non-targeted species (thus affecting the single species level) it can ultimately affect the ecosystem structure and functioning by disrupting food-webs and favouring scavenger species. If by-catch mortality is not monitored adequately, it is more difficult for scientists to understand the total impact of fishing activities on various species.

There are several gaps of knowledge concerning discards. By-catch studies are absent concerning certain fishing gears and sub-region; many of the existing studies cover relatively short temporal and small spatial scales, while a considerable amount of the existing information might be placed in grey literature, i.e. technical reports, publications of local interest, and possibly local databases (Tsagarakis et al., 2013²³⁵).

However, available information on discards for Mediterranean trawl fisheries confirms the magnitude of the problem. For example, total annual discards in Sicily during the 1980s were estimated at around 70 000 t (corresponding to 44-72% of the total catch); a regional study on discards in the Western Mediterranean gave discard estimations of 23-67% of total catches at depths of < 150 m; 13-62% at depths of 150 -350 m; and 14-43% at depths >350 m depth. The amount discarded, however, peaked at 75% and 67%, respectively, in the case of larger boats operating in spring and smaller ones operating in summer on shelf bottoms (< 150-m depth) (RAC SPA, 2010).

Finally, besides commercial “official” fisheries, another considerable impact from fishing is posed by illegal, unreported and unregulated (IUU) fishing activities (see also specific challenge 1.1.). These are believed to occur in virtually all capture fisheries, whether they are conducted within areas under national jurisdiction or the high seas. It is difficult to estimate precisely total catches from pirate fishing.

²³⁵ Tsagarakis, K., Palialexis, A., and Vassilopoulou, V. Mediterranean fishery discards: review of the existing knowledge. – ICES Journal of Marine Science, doi:10.1093/icesjms/fst074.

Data are scarce and scattered, and might come from countries' fisheries control agencies, experts' estimates, trade figures and the findings of independent research expeditions. Therefore, no estimated figures exist for the total IUU catch in the Western Mediterranean sub-seabasin. IUU fishing activities involve direct and significant threats to effective conservation and management of many fish stocks, causing multiple adverse consequences for fisheries and for the people who depend on them in the pursuit of their legitimate livelihoods. IUU fishing activities can lead to the collapse of a fishery or seriously impair efforts to rebuild depleted fish stocks. This, in turn, may result in lost economic and social opportunities, both short-term and long-term, and may diminish food security.

Invasion of non-indigenous species (NIS)

The terms of alien, exotic or non-indigenous (NIS) species refer to species that have been intentionally or unintentionally introduced, established populations and spread into the wild in a new host region. Some of these species become established in the new ecosystems and habitats, become an agent of change, increasing in abundance and distribution and threatening native biological diversity; they are then considered as alien invasive species (AIS), and a one of the biggest causes of biodiversity loss. They represent a growing problem, as AIS compete and on some occasions can replace native species, cause complex changes within the structure and function of the hosting ecosystem, and consequently impact the economy and human health (RAC-SPA, 2010). Pressures and impacts of NIS becoming established have been described in several reports and papers and in some cases their ecological, economic and health threats have been also documented.

About one thousand NIS have been recorded in the Mediterranean Sea (Zenetos et al., 2012²³⁶) and over 300 NIS are found in the Western Mediterranean sub-seabasin. While in the Mediterranean Sea over 50% of marine NIS were probably introduced by corridors (mainly Suez Canal), in the Western sub-basin maritime traffic (mainly ballast water taking on and discharging) and aquaculture activities are the main vectors for the introduction of all NIS groups (60% and 35%, respectively). Only a small fraction (ca. 15%) of NIS might have entered through corridors, although these show a slow but steady spreading progress over the region.

In the Western Mediterranean sub-seabasin, the Thau Lagoon (France) is revealed to be one of the major hotspots of marine species introduction to the Mediterranean Sea. The hard substrates of the Thau Lagoon are clearly dominated by the introduced species (mainly vegetal) to the detriment of indigenous flora. A highly probable vector of macroalgae introductions is the transfer of oysters, cultivated in the area. In this case, impacts affect not only the ecosystem: one of the introduced algae, *Sargassum muticum*, has developed fronds longer than 4m which limit the navigation in the area.

Specific challenge 3.2: A sub-seabasin affected by a variety of pollution derived-pressures

Pollution by hazardous substances

Chemical contamination makes up one of the main critical environmental concerns in the Western Mediterranean sub-sea-basin. Globally, estimates indicate that land-based sources and atmospheric inputs from land industry sources contribute 80% to marine chemical pollution, while the maritime transport sector accounts for 10% of human sources of marine contamination.

²³⁶ A. Zenetos, S. Gofas, C. Morri, A. Rosso, D. Violanti, J.E. García Raso, et al. (2012) Alien species in the Mediterranean Sea by 2012. A contribution to the application of European Union's Marine Strategy Framework Directive (MSFD). Part 2. Introduction trends and pathways, *Medit. Mar. Sci.*, 13/2, 2012, 328-352

Recent overviews targeting pollutant spatial trends in coastal sediments and biota have revealed high concentrations of trace metals, industrial and agricultural pollutants throughout the whole sub-seabasin, both in northern and southern coasts. River inputs (Ebro and Rhone) represent the most important source of contaminants (both industrial and pesticides) to the area. Oil and Polycyclic Aromatic Hydrocarbon (PAH) pollution are among maritime transport's main pressures to marine environments: satellite images allow the identification of oil spill hotspots, generally correlated with main shipping routes, which in the Western Mediterranean are located along the major west-east axis connecting the Straits of Gibraltar and the Sicily Channel, and along the routes towards major discharge ports of the Ligurian Sea and the Gulf of Lions. REMPEC reported that in the last decade (2000-2009) nearly half of the accidents leading to significant spills in the Mediterranean (> 100 tonnes) occurred in the Western Mediterranean, and as a result 4 200 tons of oil entered this sub-seabasin.

Marine litter

In the Mediterranean basin, marine debris are mainly composed of plastics (bottles, bags, caps/lids, etc.), aluminium (cans, pull tabs) and glass (bottles) making up 52% of total litter based on item counts. Smoking-related items account for another 40% (of total collected items), which is considerably higher than the global average (CIESM, 2014)²³⁷.

Debris concentrate more in bays than in open areas, and in shallow coastal areas rather than in deeper waters. However, it is worth mentioning that litter has been found at all surveyed locations in the Western Mediterranean sub-seabasin, including off Catalan coasts and canyons, the Gulf of Lions, and the Algero-Balearic basin, and high densities have been found at its north-western part and on the continental slope (Pham et al., 2014). A recent large scale study targeting floating debris reported densities between 0 and 195 items/km², of which 96% were polymers, with one of the maxima located in the Algerian Basin (CIESM, 2014²³⁸). Yet, only a tiny fraction of the (deep) seafloor has been surveyed to date, and submarine canyons are known to be important accumulation sites, transferring debris to deep-sea environments.

Impacts of marine litter are varied and can be divided into ecological, social and economic impacts. Ecological harm includes mortality or sub-lethal effects on organisms through entanglement, unintentional captures from ghost nets, physical damage and ingestion. Uptake of micro-particles may be connected with the release of associated chemicals, the facilitation of invasion by alien species, and the alteration of benthic community structure. Social harm includes the reduction of recreational, aesthetic or educational values of areas such as beaches, as well as risks to human health and threat to navigation. Economic harm includes direct cost and loss of income due to marine litter affecting a range of maritime sectors including aquaculture, fishery, shipping, tourism and leisure boating (CIESM, 2014²³⁹).

Eutrophication phenomena

Although the Mediterranean Sea is considered as an oligotrophic sea characterised by very low nutrient concentrations, some coastal hotspots receive excessive loads of nutrients from sewage effluents, river fluxes, aquaculture farms, fertilizers and industrial facilities. These result in intense eutrophic

²³⁷ CIESM 2014. Marine litter in the Mediterranean and Black Seas. CIESM Workshop Monograph n° 46 [F. Briand, ed.], 180 p., CIESM Publisher, Monaco.

²³⁸ Ibid. p. 62

²³⁹ Ibid. p. 62

phenomena with adverse effects for the marine ecosystem and humans. Eutrophication in the Western Mediterranean sub-seabasin is mostly limited to coastal areas, enclosed bays, river estuaries and coastal lagoons with restricted water exchange with the open sea. It has been more intense in the northern part of the sub-seabasin (i.e. the Gulf of Lions), yet special attention must also be given to the southern part: here, the population is steadily growing, certain agricultural and industrial activities are rapidly developing, and sewage treatment facilities are still lacking. EEA and UNEP/MAP have highlighted that five coastal countries of the sub-seabasin (Algeria, France, Morocco, Spain and Tunisia) have reported on medium-level eutrophication phenomena, generally near major cities.

Underwater noise

Cetaceans, seals and fish species are affected not only by chemical pollution but also by noise, which has become a ubiquitous form of marine pollution in particular in areas of heavy maritime traffic and along developed coasts. Underwater noise is hence a growing concern in the sub-seabasin: on one side, its northern part (Gulf of Lions, Tyrrhenian, and especially the Ligurian Sea, which registers high species richness) along with coastal waters off the Algerian coast record the highest numbers of cetacean frequentation in the basin; on the other side, the region shows the greatest level of vessel activity, and is expected to intensify in the coming years. Ship traffic does not generate very intense noise, yet remains constant over time and affects large areas of the marine environment posing a serious hazard not only to individuals but also to entire populations, and may alter species' spatial distribution (UNEP/MAP 2011 and 2012²⁴⁰).

Specific challenge 3.3: Socio-economic drivers contributing to unsustainable patterns in the Western Mediterranean sub-seabasin

Demographic pressure and coastal artificialisation

The demographic structure and population dynamics of coastal states in the Western Mediterranean sub-seabasin are experiencing important changes, varying from the northern to the southern rim, yet leading in both cases to demographic pressures on coastal areas.

With a mostly urban population, northern states are experiencing the slowing down of population growth and a substantial increase in the proportion of elderly people –i.e. ageing of the population–, due to the combination of low fertility and mortality rates. On the contrary, in southern countries age structures are still quite young and embody large potential growth: younger age groups (15-20 years-old), while decreasing in Europe, are several times higher in southern countries, and population is becoming progressively urban (see also Issue 4). As a result, urban areas are rapidly growing, often in an unstructured manner (Ros, 2014²⁴¹).

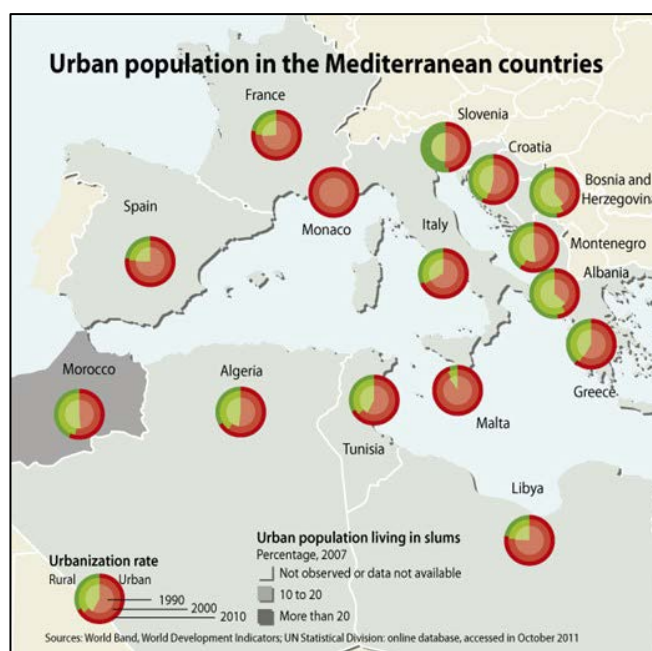
Today, the developments along the southern shores of the sub-sea basin are following northern countries' patterns, characterised by intensive urban growth and tourism development in coastal areas which have already caused sealing, artificialisation and modification of the coastal area, and damaged coastal terrestrial and marine ecosystems. Artificial surfaces occupied by housing, services and recreation in coastal zones (ports, marinas, transport, waste and water treatment facilities, etc.) and the

²⁴⁰ UNEP/MAP/MED POL (2011). Hazardous substances in the Mediterranean: a spatial and temporal assessment. United Nations Environment Programme, Mediterranean Action Plan, Athens.

²⁴¹ IEMED, On Environmental Conservation in the Mediterranean Region. Joandomènec Ros. Biologist and President of the Institut d'Estudis Catalans, Barcelona

armouring of shorelines by coastal defence equipment and ports lead to alterations in coastal landscapes, destruction of coastal habitats, changes in local hydrodynamics and coastal erosion.

Figure 16: Urban population in the Mediterranean countries



Source: World Bank, World Development Indicators. UN Statistical

Few data cover the extent of coastal artificialisation, particularly concerning the southern shores. Even for EU states, the lack of information and difficulties in analysing dispersed data have been obstacles to assessing the status and trends of coastal artificialisation and erosion. On the northern part of the basin, CORINE data have been used to produce an inventory of high ecological natural sites affected by coastal erosion. The Gulf of Lions, the Ligurian and the Tyrrhenian coasts contain many of such sites. CORINE coastal data have shown that, by the end of the 1990s, 1 500 km of the EU Mediterranean coast had been transformed to “artificial coast”. In the Western Mediterranean, this process mostly concentrated in the Balearic Islands, the Gulf of Lions and Sardinia. European harbours accounted for 1 237 km of this total. Over 60% of the French Mediterranean coastline might already be sealed and artificialised (data from PACA Water Observatory).

Unsustainable production and consumption patterns

Current patterns of economic development in Mediterranean riparian countries are often characterised by resource-intensive production processes and the adoption of consumption intensive lifestyles, which intensify pressures on local and regional ecosystems, contributing to resource scarcity (water, energy, raw materials), pollution and waste generation, and greenhouse gas emissions (climate change).

Environmental externalities of the many (intense) activities carried out in the basin may offset the incomes and benefits they provide (EEA, 1999). Cost-effective opportunities exist for countries to develop eco-efficient economies: the way in which good and services are produced, sold and consumed needs to be redesigned with the objective to drive the revitalisation of the industrial and socio-economic development towards no-waste, low-carbon, resource efficient, socially inclusive, green and circular economies.

Many Mediterranean countries are making progress in identifying sustainable consumption and production (SCP) patterns as a priority in their national policy agendas. The implementation of diverse SCP practices will certainly generate positive environmental, social and/or economic impacts with tangible and achievable benefits related to climate change or such cross-cutting issues as water and energy efficiency, land use, mobility and pollution. As an example, increasing the share of renewable energies is believed realistic for many Mediterranean communities (Ros, 2014²⁴²).

However, there are still many challenges that hinder the shift towards sustainable consumption and production patterns. These are linked to: i) legislation/regulatory frameworks and their implementation; ii) business competitiveness and related economic instruments; iii) eco-innovation for products and services; iv) lifestyle and education, and; v) civil society empowerment and awareness.

Climate change

The last report from the International Panel on Climate Change (IPCC, 2013) highlights the Mediterranean as one of the most vulnerable regions in the world to the impacts of global warming. The models issued by IPCC cast different scenarios for the area, all of them agreeing on a clear trend in the pattern of some climatic parameters. Regarding the thermal regime, the base scenario from 1980-2000 was used to estimate an increase in average surface temperatures ranging from 2.2 to 5.1 °C for 2080-2100. For the same period, models indicate pronounced rainfall regime changes in the Mediterranean, and estimate that precipitation over lands might vary between -4% and -27%.

The very few studies on the consequences that climate change could produce on species distribution and habitat features and ecosystems structure indicate that a serious alteration of biological and ecological patterns in both marine and terrestrial biomes is already taking place, generating mostly negative rather than positive impacts. The Mediterranean, and more especially the Southern and Eastern rim, is and will continue being more affected by climate change than most other regions of the world in the course of the next century. The impacts of the rise in temperatures, the decrease in rainfall, the multiplication of the number and intensity of extreme events (droughts and torrential rains) and the possible rise in sea level overlap and amplify the already existing pressures of anthropogenic origin on the natural environment. These phenomena will have a strong influence on biotic and abiotic systems, affecting marine ecosystems at different levels (changing biogeochemical cycles); they will threaten landscape and coastal biodiversity, in particular littoral wetlands and river mouths, and entail high coastal erosion; they are likely to enhance biological invasions and the proliferation of pathogens and diseases, endangering ecosystems and human health; and will potentially contribute to acidification of Mediterranean waters. Besides habitats and biodiversity, climate change is also expected to severely impact human activities (in particular agriculture, fishery, tourism, coastal infrastructures, urbanised coastal areas and hydropower production), entailing economic losses and damages. Knowledge concerning resilience and resistance of ecosystem components is however still limited, although crucial in order to set up managerial and conservation measures.

²⁴² Ibid, p. 64

4.2 Policy initiatives potentially responding to the specific challenges identified

The main cooperation initiatives (as listed in chapter 1.5) are now reviewed, and their main features are highlighted with respect to the specific challenges reviewed in this section (as identified in chapter 3.3). The initiatives described and assessed hereby are the following:

- Marine Strategy Framework Directive (EU);
- Marine Knowledge 2020 initiative - EMODNET (EU);
- Horizon 2020 for a Cleaner Mediterranean (UfM);
- 5+5 Water Strategy
- Ecosystem Approach Initiative (UNEP/MAP);
- Mediterranean Strategy on Sustainable Development (UNEP/MAP);
- SCP Action Plan (UNEP/MAP);
- Regional Action Plan on Marine Litter (UNEP/MAP);
- MedPAN Network.
- ACCOBAMS

As for the governance and cooperation initiatives, the table below provides an illustration of the relation between the features of strategic initiatives and the sub-issues identified with respect to the issue assessed in this section (chapter 4.1.). The table highlights elements in the initiatives that may more directly address certain issues identified (as emerging from official sources).

Types of actions through which strategic initiatives may address each of the specific challenges identified (Challenge 3)

Sub-issues	EU MSFD (northern shore)	H2020 Initiative for a Cleaner Med (sea-basin)	EcAp Initiative (sea-basin)	MSSD 2016-2025 (sea-basin)	SCP Action Plan (sea-basin)	Marine Litter Action Plan (sea-basin)	MedPAN (sea-basin)
3.1 Threats to the marine and coastal biological diversity and habitats	Elaboration, development and implementation of national strategies and action plans to achieve GES in the marine environment Cooperation and coordination requirement between MS to reach common objectives on shared marine areas using the mechanisms and structures of UNEP/MAP. Provision of regular updating of national strategies and progress reporting. Involvement of interested parties in the implementation process (management bodies or structures, including RSCs, scientific advisory bodies and regional advisory councils)		Elaboration, development and implementation of regional Med strategy and related action plans and programmes to achieve GES of marine and coastal environment Involvement of regional and national parties in all phases of elaboration and implementation processes Cooperation and coordination with similar ongoing processes, external (EU, others) or within the UNEP/MAP framework -	Strengthen implementation and compliance with existing regional policy instruments and initiatives - Establish and enforce regulatory mechanisms, including MSP, to prevent and control unsustainable open ocean resource exploitation. Enhance stakeholder awareness on ecosystem services' values & implications of biodiversity loss			Gathering and sharing data and information on marine protected areas - Funding and funding mobilisation to promote sustainable practices regarding sustainable protection of biodiversity
3.2 Pollution-derived pressures		Mobilisation of investments and funding for pollution reduction; provision of capacity building - Support research and generation of environmental data; support review and monitoring on H2020 progress.	2-year monitoring and assessment programme to evaluate the effectiveness of the programmes			Setting of pollution control and prevention measures, and actions to remove existent marine litter. Knowledge enhancement. Establish of partnerships with relevant stakeholders & synergies with related ongoing processes. Provide periodic reporting on AP progress.	

Sub-issues	EU MSFD (northern shore)	H2020 Initiative for a Cleaner Med (sea-basin)	EcAp Initiative (sea-basin)	MSSD 2016-2025 (sea-basin)	SCP Action Plan (sea-basin)	Marine Litter Action Plan (sea-basin)	MedPAN (sea-basin)
3.3 Socio-economic drivers contributing to unsustainable patterns				Promote SCP patterns and a greener and more inclusive market - Foster access of local producers to distribution channels and markets - Foster integration of sustainability criteria into decision-making on public and private investment - Promote education, research, and regional capabilities - Provide periodic monitoring MSSD 2016-2025 progress.	Enable policy and regulatory conditions to mainstream SCP in national policies - Establish financial mechanisms facilitating SCP implementation - Ensure SCP knowledge exchange - Foster the development of new SCP business models - Enhance public-private partnerships		Gathering and sharing data and information on MPAs - Provide support to MPA managers for the implementation of concrete actions, to improve management effectiveness and test new schemes/ tools to MPA management - Foster information, expertise and experience exchanges; provide capacity building for regional MPA managers on the promotion of actions to drive tourism and fisheries (within MPAs) sustainable - Funding & funding mobilisation to foster sustainable practices regarding biodiversity protection

Adopted in 2008, the aim of the **EU Marine Strategy Framework Directive (MSFD)** is to protect more effectively the marine environment. It consolidates the environmental pillar of the EU Integrated Maritime Policy, which aims to provide a coherent framework for joined up governance of the marine environment. The overarching objective of the MSFD is to achieve Good Environmental Status (GES) of the EU's marine waters by 2020, to protect the resource base upon which marine-related economic and social activities depend. In this sense, it outlines a transparent, legislative framework for an ecosystem-based approach to the management of human activities having an impact on the marine environment, integrating the concepts of environmental protection and sustainable use. It is the first EU legislative instrument explicitly regulating the protection of marine biodiversity, as the cornerstone for achieving GES.

To achieve GES by 2020, each Member State is required to develop a marine strategy for its marine waters. National marine strategies are to be implemented to protect and conserve the marine environment, prevent its deterioration, and, where practicable, restore marine ecosystems in areas where they have been adversely affected. The marine strategies are required to contain: i) an initial assessment of the current environmental status of that Member State's marine waters; ii) a definition of GES specific to the marine region; iii) targets and indicators to assess whether a Member State is achieving GES; iv) A monitoring programme to measure progress towards GES; and v) a programme of measures designed to achieve or maintain GES. In addition, following the principles of an adaptive management approach to keep them up to date, marine strategies must be reviewed in a 6 year-cycle.

The MSFD establishes European marine regions (including the Mediterranean Sea) located within the geographical boundaries of the existing Regional Sea Conventions (RSC's), taking advantage of the well-established spaces of cooperation they provide between Member States surrounding each marine region and neighbouring countries sharing the same marine waters. It is to be complementary to other key initiatives at the European level, such as the Habitats and the Birds Directive, the Water Framework Directive, or the Common Fisheries Policy (assessed under specific Issue 1.1, Chapter 2.1.).

The **EC 'Marine Knowledge 2020' initiative** (starting from its Communication of September 2010²⁴³) aims to unlock and assemble marine data from different sources and facilitate their use, embracing the full cycle from initial observation to interpretation, processing and dissemination, to stimulate innovation and improve our understanding of sea dynamics. The final objective is to contribute towards meeting Europe 2020 targets on employment, innovation, education, social inclusion and combatting climate change, and provide the knowledge base to facilitate the growth of a sustainable, job-creating 'blue economy', by improving the competitiveness and efficiency of industry, public authorities and researchers. For the maritime economy much of knowledge needed depends on observations of the rhythms and cycles of the sea. However, the data collected through these observations can only generate knowledge and innovation if they are easily findable, accessed, assembled and applied. The initiative aims to provide a unified framework for all ongoing activities on marine observation within the EU.

Central to this strategy was the concept of a **European Marine Observation and Data Network (EMODnet)**, to provide a single entry point for accessing and retrieving marine data derived from observations, surveys or samples from the hundreds of databases maintained on behalf of agencies, public authorities, research institutions and universities throughout the EU. EMODnet is a long term

²⁴³ Marine Knowledge 2020: marine data and observation for smart and sustainable growth, 8.9.2010 COM(2010) 461.

marine data initiative from the DG MARE, integrated by a consortium of organisations, and underpinning the Marine Knowledge 2020 strategy. It aims to assemble European marine data, data products and metadata from diverse sources in a uniform way; its main objective is to unlock fragmented and hidden marine data resources to make these available to individuals and organisations (public and private), and to facilitate investment in sustainable coastal and offshore activities through improved access to quality-assured, standardised and harmonised marine data which are interoperable and free of restrictions on use.

Currently in its 2nd phase of development, the EMODnet data infrastructure is developed through a stepwise approach in three major phases.

- Phase I (2009-2013) - developed a prototype with coverage of a limited selection of sea-basins, parameters and data products at low resolution;
- Phase II (2013-2016) - moved from a prototype to an operational service with full coverage of all European sea-basins, a wider selection of parameters and medium resolution data products;
- Phase III (2015-2020) - will work towards providing a multi-resolution digital map of the entire seabed of European waters, providing highest resolution possible in areas that have been surveyed, including topography, geology, habitats and ecosystems; accompanied by timely information on physical, chemical and biological state of the overlying water column as well as oceanographic forecasts.

Seven sub-portals are today in operation, providing access to marine data from the following themes: bathymetry, geology, physics, chemistry, biology, seabed habitats and human activities. As a dynamic process, new data, products and functionality are added regularly while portals are continuously improved to make the service more fit for purpose and user friendly with the help of users and stakeholders.

The '**UfM - Horizon 2020 Initiative for a Cleaner Mediterranean**'²⁴⁴, endorsed in 2008, has become today one of its key ("flagship") initiatives. It reflects the commitment of the Euro-Mediterranean partners to substantially reduce pollution in the Mediterranean region by 2020, and builds on the work carried out by national and regional institutions. Therefore, it operates within the framework of new and existing environmental policy instruments and supports the implementation of pollution-reduction commitments undertaken in the framework of UNEP/MAP and the Barcelona Convention. A number of concrete actions and a timetable were suggested at its first launching (2006); the corresponding roadmap for the first phase of implementation (2007-2013) led to concrete developments within each of its different components, i.e. pollution reduction investments, capacity building, review monitoring and research.

The mid-term review of the UfM Horizon 2020 initiative, coinciding with the declaration of the UfM Ministerial meeting on Environment and Climate change in 2014, reconfirmed the willingness to go forward and consolidated significant progress for its second phase (2014-2020) in: i) investments in critical infrastructures; ii) building human capital, and iii) mainstreaming environment into other policies. The review of the Initiative broadened its scope: it was agreed to enlarge efforts on pollution prevention, hazardous waste and marine litter. In addition, it resulted in increased synergies with the Barcelona Convention (in particular, with the EcAp Initiative and SCP Action Plan, as well as the UNEP/MAP's regional monitoring system (IMAP), hotspots list, and National Action Plans (NAPs)) and

²⁴⁴ Not to be confused with the Horizon 2020 EU funding programme for Research & Innovation.

consolidated an important milestone for regional environmental cooperation and commitment. It is worth noting the final commitment of the H2020 Initiative review regarding implementation and enforcement of existing legislation.

In addition, climate change has also climbed top of the UfM's priorities: Ministers in charge of environment and climate change of UfM countries adopted in 2014 the Athens Declaration, to join forces to clean up the Mediterranean Sea, improve cooperation against climate change (notably, providing support to UNEP/MAP regional climate change adaptation framework) and in the transition towards sustainable consumption; moreover, they agreed on the creation of the "UfM Climate Change Expert Group" to advance discussion on climate change priority actions and accelerate the identification and development of concrete projects and initiatives.

The **common strategy of water for the Western Mediterranean** was adopted in March 2015 in Algiers, by the water Ministers of the ten countries of the northern and southern shores of western Mediterranean attending the Ministerial Conference of the 5+5 Dialogue.

This strategy, intended to implement a common approach in terms of addressing water-related concerns, represents the effective start of the Euro-Maghreb dialogue in this sector. It is meant to establish the rules of lasting governance of water sector in all the member countries and places a particular emphasis on the need to set up an integrated management system for a better management of water demand while including the environmental component. The long-term objectives of the common strategy are to preserve water quality and to balance quantity of used and available water to achieve regional sustainable economic growth, social prosperity, access to water for all and environmental protection and rehabilitation. It also aims at stimulating the development of policy, cooperation and technological tools, promoting the exchange of knowledge and contributing to share prosperity.

An Action Plan is being developed as complementary to the strategy, in order to address specific water challenges and help achieve solutions to problems of regional concern with a focus on sustainability. It lays down a practical, action-oriented roadmap and details projects and initiatives with specific objectives, geographical scope, financing plans, foreseen indicators and schedule.

The **Ecosystem Approach Initiative (EcAp)**, promoted under the UNEP/MAP framework, aims to achieve good environmental status in the Mediterranean through i) strengthening the ability to understand and address cumulative risks and effects, and ii) better focusing actions on priority targets. The EcAp Initiative brings sectorial analyses and management measures into a single integrated framework, intended to result in an adaptive management strategy to be periodically monitored, evaluated and revised. Its implementation is developed in line with key EU policies (such as the MSFD, WFD, Habitats and Birds Directives, Urban Waste Water Treatment Directive, and Bathing Waters Directive), which take into consideration the ecosystem approach and aim to ensure the integration of environmental concerns into the different policies, agreements and legislative measures that have an impact on the marine environment.

Under the implementation of EcAp, the Integrated monitoring and Assessment Programme of the Mediterranean Sea and Cost (IMAP) has been elaborated as a very ambitious and novel tool, to establish the principles for the update of existing national monitoring and assessment programmes in order to address the Ecological Objectives (and corresponding indicators) laid down by EcAp. IMAP contains guidance on methodologies, monitoring and assessment techniques, for each common indicator and analyses key outstanding issues also in an integrated manner. IMAP is intended to be a common basis

for the development of the national integrated monitoring and assessment programmes allowing assessing good environmental status in the basin.

UNEP/MAP is also having competencies to address challenges and effects of climate change on the marine and coastal biodiversity, as underpinned by the Barcelona Convention and its relevant Protocols; in particular, regulatory instruments and strategic frameworks set up by UNEP/MAP to address climate change effects include the Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas, the MSSD 2016-2025²⁴⁵ and the Declaration of Almeria on the implementation of the Ecosystem Approach in the Mediterranean.

The **Mediterranean Strategy for Sustainable Development - MSSD (2016-2025)** is intended to provide an “umbrella” cross-cutting instrument taking consideration of all UNEP/MAP instruments and setting transversal objectives towards achieving sustainable development in the Mediterranean region. The MSSD (2016-2025) aims at bringing together environmental, social and economic aspects, without focusing on specific socioeconomic sectors but addressing issues across sectorial, institutional and legal boundaries, and highlighting the interrelations between environmental issues and economic and social challenges.

The Strategy lays down 4 major transversal objectives dealing respectively with economic, social, environment/sustainability, and governance issues. In addition, it establishes 7 areas of priority action and synergy, which deal directly with sustainable management of the sea, coastal areas and marine resources (priority area n° 7) and with socioeconomic activities threatened with unsustainable patterns (i.e. use of energy and renewable energies; transport and mobility; tourism; agriculture and rural activities; and urban development). To achieve progress in the seven priority fields, a series of indicative objectives, orientations and actions are proposed for each of them, with a view that they are applied by CPs throughout the basin.

The **Regional Action Plan on Sustainable Consumption and Production in the Mediterranean (SCP Action Plan)** aims at setting up a regional framework identifying sustainable consumption and production priorities and tools allowing a shift towards a sustainable, no waste, low carbon and resource efficient socioeconomic development in the Mediterranean region, based on a circular and green economy. Although it does not specifically focus on maritime sectors, it aims at addressing key human activities having, directly or indirectly, a particular impact on the marine and coastal environment. In order to reorganise the Mediterranean production and consumption model according to sustainable practices, strategic objectives along with a number of operational objectives and actions are defined and structured around four (traditional) priority areas:

- Food, fisheries and agriculture, including sustainable fishing practices;
- Goods manufacturing;
- Tourism;
- Housing and construction, including coastal urban development.

Issues such as land use; water, resource and energy efficiency; pollution (wastewater, chemicals and solid wastes); transportation and mobility; as well as consumer behaviour are considered as transversal and are addressed through the operational objectives established for each priority area.

²⁴⁵ Objective 4 – Addressing climate change as a priority issue for the Mediterranean

Following UNEP's global initiative on marine litter, and in the framework of the LBS Protocol to the Barcelona Convention, **the Marine Litter Regional Plan in the Mediterranean** has been recently approved (2013) by Contracting Parties and represents the most important action taken in the Mediterranean on this issue. The aim of the Action Plan is to provide response to the environmental challenges posed by marine debris, which have consolidated as a major global marine pollution issue affecting, in particular, in the Mediterranean Sea, considered as one of the areas most affected by marine debris in the world.

The Marine Litter Regional Plan details 4 major objectives: (i) Prevent and reduce to the minimum marine litter pollution in the Mediterranean and its impact on ecosystem services, habitats, species in particular the endangered species, public health and safety; (ii) Remove to the extent possible already existent marine litter by using environmentally respectful methods; (iii) Enhance knowledge on marine litter; and (iv) Achieve that the management of marine litter in the Mediterranean is performed in accordance with accepted international standards and approaches as well as those of relevant regional organisations and as appropriate in harmony with programmes and measures applied in other seas.

It provides a series of measures, among which, the development and implementation of appropriate policy, legal instruments, and institutional arrangements, which shall incorporate marine litter prevention and reduction measures; raising awareness by the development education programmes by the Contracting Parties; ensuring institutional coordination and close coordination and collaboration between national, regional, and local authorities in the field of marine litter; and key prevention measures for land based sources and sea-based sources.

The **MedPAN organisation** was created in 2008 at the request of some Mediterranean Marine Protected Areas managers. Its mission is to promote, through a partnership approach, the sustainability and operation of the MedPAN network of Marine Protected Areas (existing in the Mediterranean since the 1990s) which are ecologically representative, connected and effectively managed to help reduce the current rate of marine biodiversity loss. The MedPAN organisation is directly involved in both contributing to preservation of marine and coastal ecosystems and habitats, as well as achieving sustainable practices in traditional sectors such as fisheries or tourism within Mediterranean MPAs.

MedPAN works actively with its members and partners as well as with governmental and non-governmental organizations on a local, national, regional and international level to develop its activities. The MedPAN network aims to contribute to the implementation of the Barcelona Convention and, in particular, to its Protocol relative to Specially Protected Areas and Biological Diversity in the Mediterranean (Barcelona, 1995) and other regional structures (ACCOBAMS, GFCM). It also contributes to the implementation of various European Union policies, such as Habitats and Birds Directives and in particular the Natura 2000 at sea network, the Marine Strategy Framework Directive, the new Common Fisheries Policy (CFP), the Integrated Maritime Policy or the new Marine Spatial Planning Directive.

The **Conference of Peripheral Maritime Regions of Europe (CPMR)**, also considers sustainable development and conservation of the environment and biodiversity as priority issues. In particular, it focuses on energy policies and climate change mitigation and adaptation measures: indeed, island and coastal areas are likely to be severely affected by the direct and indirect consequences of climate change while have a huge potential in renewable energy, enabling them to contribute fostering a low carbon economy and to rising prosperity of their populations and industry. The CPMR works at an operational and a political level: it facilitates the development of cooperation projects between its members, supporting their implementation and directly investing in some of them; it acts as a political

forum, supporting the articulation of the common interests of peripheral and maritime regions at European level; it provides its member regions and European partners with analysis on topics of concern for their territories; and works to ensure that the interests of its member regions are taken into account when EU legislation is being prepared.

The **ACCOBAMS** (the CMS²⁴⁶ **Agreement on the Conservation of Cetaceans in the Black Sea Mediterranean Sea and Contiguous Atlantic Area**) is a cooperative tool for the conservation of marine biodiversity in the Mediterranean and Black Seas. The Agreement, which includes twenty-one countries²⁴⁷, came into force in 2001 and aims to assist international conservation efforts and scientific research of whales, dolphins and porpoises (collectively known as cetaceans) in the Mediterranean and Black seas and off the Atlantic coasts of north Morocco and south Portugal. Its main purpose is to take coordinated measures to achieve and maintain a favourable conservation status for cetaceans, reduce threats to cetaceans in Mediterranean and Black Sea waters while improving knowledge of these species. ACCOBAMS is the first Agreement binding the countries in these two seabasins and enabling them to work collaboratively to address a wide array of issues, by generating and/or improving knowledge and capacity building. These areas of work include: assessment of cetaceans' population structures in the ACCOBAMS area; by-catch and depredation, resulting from interaction with fishing activities; impacts of climate change on marine ecosystems; need for MPAs covering areas of special importance for cetaceans; impacts of underwater noise, in particular by improving knowledge to understand the magnitude of the problem; impacts of chemical pollution and marine litter; ship strikes, in a context of growing maritime transport; and stranding, by improving knowledge to address new outbreaks of these mortality events.

4.3 Aspects of the current policy framework that could be strengthened

Based on the main initiatives identified and described so far, this section assesses the main emerging gaps (as defined in Chapter 1.6) across the areas of intervention of such initiatives. These are considered in respect to the sub-issues related to the environmental and sustainability challenges highlighted for the Western Mediterranean. In addition, as stated earlier, findings in the analysis so far are subjective to further evidence provided by stakeholders in the engagement actions foreseen in Phase 2 of this study.

As seen in previous chapters, a range of aspects of the current policy framework that could be strengthened emerge when confronting the current policy framework with the specific challenges identified and discussed in this section, resulting in a puzzle of scope and aims which not always assure an adequate response to all the specific challenges identified.

Thematic and geographic scope

Thematic and geographic scope

Challenge 3.1	Challenge 3.2	Challenge 3.3
- EU MSFD (northern mainly) - EU CFP (northern mainly) - EU Marine Knowledge 2020 Initiative & EMODnet (northern mainly)	- EU Marine Knowledge 2020 Initiative & EMODnet (northern mainly) - 5+5 Water Strategy for the western Mediterranean / (WMed sub-seabasin)	- 5+5 Water Strategy for the western Mediterranean / (WMed sub-seabasin) - UNEP/MAP MSSD 2016-2025/

²⁴⁶ Convention on the Conservation of Migratory Species of Wild Animals

²⁴⁷ Albania, **Algeria**, Bulgaria, Croatia, Cyprus, **France**, Georgia, Greece, **Italy**, Lebanon, **Libya**, **Malta**, **Monaco**, **Morocco**, **Portugal**, Romania, Slovenia, **Spain**, Syria, **Tunisia** and Ukraine.

Challenge 3.1	Challenge 3.2	Challenge 3.3
- 5+5 Water Strategy for the western Mediterranean / (WMed sub-seabasin) - UNEP/MAP – Barcelona Convention (SPA/BD, ICZM Protocol) / (Med seabasin) - UNEP/MAP EcAp Initiative / (Med seabasin) - FAO / GFCM Mid-term strategy / (Med seabasin) - ICCAT / (Med seabasin) - MedPAN / (Med seabasin) - ACCOBAMS / (Med seabasin)	- UfM Horizon 2020 Initiative / (Med seabasin) - UNEP/MAP – Barcelona Convention (LBS Protocol, Dumping Protocol, Prevention and Emergency Protocol, Offshore Protocol, Hazardous Wastes Protocol) / (Med seabasin) - UNEP/MAP Regional Action Plan on Marine Litter / (Med seabasin)	(Med seabasin) - UNEP/MAP SCP Action Plan, although not maritime / (Med seabasin) - EU Marine Knowledge 2020 Initiative & EMODnet (northern mainly)

As seen in previous chapters, the geographic scope of most the governance structures mainly applies to (or includes) the Mediterranean regional scale (e.g. UNEP/MAP, UfM, MedPAN, FAO-GFCM²⁴⁸, ACCOBAMS²⁴⁹) thus encompassing the Western Mediterranean sub-seabasin. In addition, some of these, such as UNEP/MAP or FAO²⁵⁰, include sub-regional assessment areas considering the Western Mediterranean sub-seabasin as a single geographical / bioregional unit. This point is particularly highlighted as, even though all Mediterranean regions may suffer from similar environmental concerns, the relative importance of specific environmental issues may vary across the sea basins, and, occasionally, also their causes and/or possible managerial solutions might be different. This aspect is, in fact, related to common features and specificities of the Western Mediterranean (biogeographically and socioeconomically).

The 5+5 Forum fits precisely the Western Mediterranean area and targets specifically priority issues within this sub-seabasin. Finally, other initiatives are particularly relevant to a subset of countries within the sub-sea basin – either north shore or south shore (e.g. AMU, EU).

The set of initiatives displayed in the table shows that the different specific environmental challenges highlighted in the Western Mediterranean sub-seabasin are relatively well-covered. The analysis of governance structures and strategic initiatives allows visualising the coverage of the critical issues of environmental or sustainability nature by at least one of the structures and by several of the strategic initiatives. Therefore, environmental concerns in the sub-seabasin have been well-identified, in particular in the framework of the UNEP/MAP - Barcelona Convention, which is complemented by other initiatives under other governance fora. It is of note, however, that most of the initiatives launched under other frameworks have been done in cooperation/ collaboration with UNEP/MAP (e.g. UfM Horizon 2020 Initiative for a Cleaner Mediterranean, GFCM, MedPAN, ACCOBAMS). Even some less traditionally explored/ studied/ addressed issues are currently the object of many regulations, as is the case for marine litter (e.g. UNEP/MAP, EU MSFD, UfM) or underwater noise (UNEP/MAP, EU MSFD, ACCOBAMS).

Scale of intervention

Again, the assessment of the scale of the reviewed frameworks and initiatives will need from external inputs and evaluations not always available. The analysis may be modified in case of new references or

²⁴⁸ GFCM scope of application relates to Mediterranean and Black Seas

²⁴⁹ The geographic area of the ACCOBAMS applies to all maritime waters of the Black Sea and the Mediterranean Sea and the Atlantic area contiguous to the Mediterranean Sea west of the Straits of Gibraltar.

²⁵⁰ Not the GFCM, which subdivides major FAO fishing areas in a number of Geographical Sub- Areas (GSAs).

documentation found, or evidence provided by stakeholders consulted in the engagement actions planned to complete the present study.

Achieving a healthy status of ecosystems in the Western Mediterranean sub-seabasin demands a strong, solid and well-coordinated managerial framework addressing both environmental issues and underlying (socioeconomic) causes in an integrated manner, to overcome traditional sectorial evaluation and management. In this sense, as seen in the previous section (thematic scope), a variety of coordinated strategies and action plans have been boosted and endorsed under the different frameworks of cooperation acting at the scale of the sub-seabasin (UNEP/MAP, UfM, 5+5 Dialogue, etc.). Therefore, the past decades have witnessed an impressive number of initiatives and undertakings, focusing on a wide spectrum of environmental issues and targeting the shift of the current socio-economic model towards sustainable development (as described in the previous section).

In this context, the utility and proportionality of the existing cooperation mechanisms and strategies might be assessed in terms of their ownership and enforcement by users/ recipients, since, in the end, the responsibility and competence for their implementation lies with the national governments.

Agreements and initiatives have been signed up by most of the sub-seabasin surrounding countries, involving their national commitment to implementing them at the national level (and, therefore, enacting legislation, formulating policies and running resources). However, while a real willingness exists to resolve environmental concerns and shift unsustainable patterns, many challenges and gaps in implementation remain, in particular at the national level: a growing gap is visible (although not always documented) between ambition and effective action on the ground. In fact, the question lies in which manner the regional or sub-regional system can assist (financially, providing capacity building, technical assistance, etc.) countries to address what is called the ‘implementation gap’, so that cooperation initiatives and measures are put in place and result effective throughout the whole sub-seabasin. Effective enforcement of environmental legislation relies upon the availability of adequate staff and financial resources, the administrative and political will of the enforcement agencies and the level of awareness of environmental laws (UNEP, 2011²⁵¹).

The implementation gap has been reported for the obligations set up by the GFCM, as described in the present report above. In the same line, within the framework of the UNEP/MAP and the Barcelona Convention, the implementation gap might be evidenced partially by the difference between the number of countries signing up agreements and the number of countries ratifying them. UNEP/MAP, aware of this issue of “implementation gap”, has established a compliance committee as a tool aimed to provide advice and assistance to countries with their obligations; however, the committee does not act on a systematic basis yet when triggered by Contracting Parties or the UNEP/MAP.

On the other hand, inter-governmental initiatives such as the UfM and the 5+5, prioritise issues through Ministerial meetings. They lead to the prioritisation of the key environmental concerns in the regional/ sub-regional political agenda. Concrete initiatives might also emerge when one of the issues is ranked as of priority action (e.g. UfM Horizon 2020 Initiative for a Cleaner Mediterranean).

²⁵¹ Rose, G. L. (2011). Gaps in the Implementation of Environmental Law at the National, Regional and Global Level. Kuala Lumpur, Malaysia: UNEP.

Awareness and alignment

As for previous issues, in this case no consistent evidence has been found, nor in past project workshops with stakeholders. Initiatives assessed are known by all potentially interested parts in the Western Mediterranean sub-seabasin. Certainly, stakeholders are mobilised and involved in the development of cooperation initiatives seeking environmental protection and sustainable development in the sub-seabasin, as is evidenced by the regular participation of conservation agencies, supranational and intergovernmental organisations, research centres, universities, NGOs and other actors in the process of policy-making (elaboration of initiatives, action plans, programmes, etc.). This is the case, for instance, of UNEP/MAP and GFCM. In contrast, inter-governmental frameworks, such as 5+5 Dialogue (and also the UfM, to a certain extent), promote high political dialogue and cooperation engaging directly national authorities but remains remote from civil society and even public administrations and local authorities acting at the sub-national levels.

Yet, despite the fact that the public sphere has traditionally been involved in the processes targeting environmental protection and sustainability enhancement, the private sector has often been left behind. Indeed, protection of the environment and economic growth are often seen as competing aims. Consequently, agreements on the environment have been traditionally disconnected from actors involved in urban, economic and industrial growth, etc., of each country, both on northern and southern shores. In this context, the improved integration and networking within governments, between governments and with economic and community institutions outside governments (and in particular, with business structures and environmental non-governmental organisations) offers a way forward for a smart generation of environmental law. This approach might also offer a more comprehensive and effective coverage of environmental challenges, as closer partnerships across a wider range of networks collaborating for compliance favours more implementation opportunities to be taken up successfully (UNEP, 2011).

There is a need to highlight the financial benefits of an increased eco-efficiency, emerging from an eco-industry able to generate growth and jobs while fully respecting and protecting public health and natural resources. In the Mediterranean, the UNEP/MAP SCP Action Plan aims at addressing this gap -to a certain extent- as it intends to involve socio-economic sectors and enhance their role in the process of shifting towards sustainable consumption and production patterns, to achieve a sustainable, no waste, low carbon and resource efficient socioeconomic development in the Mediterranean region. Hence, it is still a start; it embraces (only) four activity sectors and does not specifically target the maritime dimension.

For its part, the EU “Marine Knowledge 2020” Initiative, adopting a different approach but also with the willingness to involve all public and private stakeholders, aims at achieving Blue Growth – a sustainable maritime economy- (and thereby meeting targets on employment, innovation, education, social inclusion and climate change) through assembling marine data from different sources and facilitate their use, to provide the knowledge base to stimulate innovation and improving the competitiveness and efficiency of industry, public authorities and researchers.

Overall unemployment and in particular youth unemployment remain a serious and structural problem across the Western Mediterranean sub-seabasin. On the northern shore, a considerable increase in unemployment has been recorded as a consequence of the economic and financial crisis, and these levels are only falling gradually now. Economic and employment performance on the southern shore varies, depending for a large part on political (in)stability (World Bank 2016²⁵²). However, variation between countries is strong both on the northern and the southern shore.

According to the International Labour Organisation (ILO), France, Italy and Spain saw the unemployment of their working population aged +25 increasing over the last 7 years, respectively from 5.7%, 5.5% and 9.8% in 2008 to 9.1%, 10.1% and 20.4% in 2015. Only Malta kept its unemployment rate (+25 years) at the same level of 4.8% to 4.2%. By contrast, Algeria's and Morocco's formal unemployment rate of aged+25 remained stable in this period, from 7.7% to 7.3% and 7.2% to 7.6% for the same years. However, Libya and Tunisia faced an increase, from 13.9% to 15.4% and from 9% to 11.4%. Mauritania's level of unemployment stayed stable at a high level from 27.5% to 27.4%.

When it comes to youth unemployment (up to 25 years old), the situation can be considered grim on both sides of the Western Mediterranean. Malta with 12% in 2008 and 12.3% in 2015 and Morocco with 18.4% and 19.3% appear on the low site of the spectrum. France and Algeria have seen strong increases, from respectively 17.9% to 24.7% and 24.7% to 28.6%. Italy's official youth unemployment has become higher than Tunisia over the course of 7 years. In 2008, it amounted to 21.2% (28.3% for Tunisia). In 2015, it had almost doubled reaching 42.1% (34.5% in Tunisia). Mauritania's level stayed stable from 46.2% to 47.3% but is no longer higher than Spain's which level rose from 24.6% to 49.4%. The highest youth unemployment level is recorded in Libya with 45.6% in 2008 to 50% in 2015.²⁵³

These numbers shall be considered in light of demographic forecasts, showing an ageing working population on the northern shore of the Western Mediterranean and a growing share of youth population on the southern one. As a consequence, according to one source, 84% of the potential supplementary workers until 2030 will be located in the South Mediterranean (IPEMED 2009²⁵⁴).

According to ILO, unemployment rates in the Western Mediterranean countries are expected to remain unchanged for the next 4 years²⁵⁵. More precisely, the ILO estimates that Libya, Malta, Mauritania, Morocco and Tunisia will not see any variation in their unemployment rates. Other countries in the region are expected to see a progressive reduction in levels of unemployment, but these will still be at substantial levels by the year 2020. In conclusion, according to the ILO's projections, the Western Mediterranean sub-seabasin will remain a high unemployment area for the period to come.

Amongst issues to be addressed when fostering employment potentials in the sub-seabasin, structural labour market problems seem to be recurrent: duality of the labour market, seasonality of many

²⁵² <http://data.worldbank.org/products/wdi>

²⁵³ https://www.ilo.org/ilostat/faces/help_home/data_by_subject/subject-details/indicator-details-by-subject?indicator=UNE_2EAP_SEX_AGE_RT&subject=UNE&datasetCode=YI&collectionCode=ILOEST&_adf.ctrl-state=d7bj8453a_98&_afLoop=246206722689739#!

²⁵⁴ http://www.ipemed.coop/adminipemed/media/fich_article/1323859454_Tomorrow_the-Mediterranean-2030_eng.pdf

²⁵⁵ ILO (ibid)

professions as well as low quality of jobs are only some concrete characteristics of the Western Mediterranean labour market, notably for youth (MedNet 2014²⁵⁶).

Within this context, the maritime economy shares many of these characteristics as well. In addition, and based on the review of available sources and feedback received by stakeholders as gathered in Phase 1 of this study, specific challenges have been highlighted with respect to labour market challenges in the Blue Economy for the Western Mediterranean. The first is the mismatch of supply and demand for blue skills and the second is the limited adoption and recognition of common standards for training and apprenticeships across the sub-seabasin (which in turns hinders mobility of workers – and youngster particularly – across the region). Limited cooperation on maritime education and training can be mentioned as well.

5.1. The challenge at stake

Two specific challenges will be highlighted here:

- Specific challenge 4.1: Mismatch of blue skills between offer and demand
- Specific challenge 4.2: Limited cooperation in maritime and marine education and training

Specific challenge 4.1: Mismatch of blue skills between offer and demand

A general concern for the Mediterranean, when it comes to employment and workforce, is the capacity to address the lack of professional skills in a range of relevant blue economy activities. In mature activities such as coastal and maritime tourism (Arco Latino 2014²⁵⁷) or maritime transport (MarinaMed 2015²⁵⁸), as well as in more innovative ones (UfM 2015²⁵⁹), in fact, a mismatch between skills requirements and demand expectations emerge. This is therefore not a specific concern to the Western Mediterranean, but the extent to which it becomes a relevant bottleneck in the overall sustainable development of the Blue Economy in the sub-seabasin makes it a relevant one. Traditional maritime activities, face shortages of skills and competencies much needed to innovate and diversify their offers, while innovative activities struggle to fill the competency gaps they face as curricula in the existing training and education offer is slowly responding to these innovation needs (EU Parliament 2015²⁶⁰).

Existing curricula offered across the Mediterranean, nonetheless, are often reported to be traditional and conventional (Ecorys 2016²⁶¹), and are not necessarily adjusted to the needs of the modern Blue Economy. Although innovative sea-related activities are developing, relevant skills and competences particularly at technical and scientific level are difficult to find in the sub-seabasin. This is the case for activities such as maritime transport, coastal protection, offshore oil and gas, blue biotechnology, aquaculture and maritime surveillance, maritime tourism, offshore renewable energy and environmental monitoring (Report 1²⁶²).

A survey amongst education and training providers, employers and government bodies carried out in the context of the above study pointed to skills mismatches particularly in the Western Mediterranean

²⁵⁶ http://edu.oxfam.it/sites/default/files/dossier_1_0.pdf

²⁵⁷ http://es.arcolatino.org/download/Doc_Marina_Med/Section_1-SUSTAINABLE_TOURISM.pdf

²⁵⁸ http://www.medmaritimeprojects.eu/download/MyTemplate/Pdf/20150629_Policy_Paper_final.pdf

²⁵⁹ http://ufmsecretariat.org/wp-content/uploads/2015/11/2015-11-17-declaration-on-blue-economy_en.pdf

²⁶⁰ https://ec.europa.eu/futurium/en/system/files/ged/18-ep_report_on_the_communication_on_innovation_in_the_blue_economy.pdf

²⁶¹ Ecorys, MRAG, « Study supporting a possible network of maritime training academies and institutes in the Mediterranean sea basin », 2016, see <https://webgate.ec.europa.eu/maritimeforum/en/node/3951>

²⁶² Ibid, p. 2

sub-seabasin. When asked about the mismatch between offer of skills and demand of the market, 20 out of 26 West Med public authorities pointed to a gap between the education & training world and the business sector. Of the private stakeholders 50% of respondents agreed on the existence of such mismatch.

When asked to indicate which maritime economic activities suffer from a demand/offer gap, public authorities in the West Med pointed to maritime transport as the sector in the Western Mediterranean for which skills & knowledge do not always meet concrete application followed by shipbuilding, marine aquatic products and coastal tourism. Private sector respondents saw such gaps emerging above all in environmental monitoring and ocean renewable energy, followed by coastal protection, yachting & marinas, coastal tourism and maritime transport.

If maritime educators and training providers wish to contribute to economic growth, they need to ensure the provision of knowledge as well as practical skills that support the sector. However, and as witnessed by the above survey results, this is not always easy. After all, the demands from employers can change rapidly, while education and training institutions need a long time to adjust. Curricula and testing systems have a long life cycle: changing a curriculum or developing a new programme can take years.

Having identified where skills gaps exist may therefore not prove sufficient in bridging offer and demand, as high capital costs are often associated to the development of maritime education and training curricula. These can therefore impact the financial sustainability of education and training as they often require ad hoc infrastructure including teaching materials, training simulators, laboratories, vessels, etc.

Specific challenge 3.2: Limited cooperation in maritime and marine education and training in the Western Mediterranean

Another important issue affecting the matching of demand and supply of blue skills is the limited cooperation, both between education providers and private sector as well as between education providers themselves. Cooperation, networking and coordination are in fact concrete means to collectively address challenges that are, very often, shared by multiple stakeholders in different regions and countries. At the same time, cooperation and coordination are likely to favour the generation of mutual benefits for the parties involved, hence leading to the strengthening of national capacities and therefore to higher employability of the workforce. This is even more pertinent in maritime affairs, where activities occurring at or close to the sea impact and affect all interested shores, as it is the case for the Western Mediterranean. Specifically, the UfM Declaration shed light on the need to further increase cooperation in the seabasin, reinforcing the exchange of best practices and strengthening links among education and training providers, public and private actors.

More specifically, cooperation and networking in the area of marine and maritime knowledge can help responding to the needs of the maritime economy and help building a modern, state-of-the art maritime education and training offer in the region. Because maritime education and training is expensive (due to high capital costs), cooperation can provide concrete opportunities for economies of scale, the pooling of resources as well as access to the necessary infrastructure (i.e. teaching materials, training simulators, laboratories, vessels, etc.). Moreover, cooperation can provide impulses to modernisation and innovation by ensuring that the education and training actors align their courses to the needs of the industry and the standards dictated in each profession. While financial and sustainability issues of training and education remain crucial, cooperation can help build and reinforce ties in the long run. In fact, creating opportunities for dialogue and exchange among the triple-helix component means

ensuring the necessary awareness raising on fundamental issues such as the appropriate legislative and policy frameworks for action, the financial sustainability of initiatives, the identification of shared needs and challenges.

Research conducted on the identification of cooperation initiatives on marine and maritime knowledge in the Mediterranean seabasin revealed that “the linkages between educational institutions with the countries on the opposite side of the Mediterranean seabasin are still weak and in many cases non-existent”²⁶³. Several obstacles exist that hamper the development and implementation of cooperation and networking opportunities, including:

- Wide variety between countries namely in terms of types of education provided and the legal status (public, private or other). VET education is the dominant type in countries such as Algeria, France, Italy, and Malta. However higher education is relatively important in Spain, and even more so in Morocco and Tunisia.
- Southern shore institutions tend to be much more public in nature, together with those in Malta and Spain, whilst institutes mapped are much more of a private nature in France and Italy.
- Lack of common methods for the recognition of qualifications in the maritime sector;
- Obstacles existing in terms of admission of students and visa requirements
- Different levels of education are different as well (i.e. France and Italy focusing much more on ISCED level 3, whilst other countries offer relatively more ISCED 5-8 levels);
- Some countries focus on students as target population, while others (i.e. Italy) focus much more on the education of professionals;
- Limited resources of the private sector, notably of Small and Medium Enterprises, for getting involved in cooperation and networking initiatives;

All of these differences contribute to fragmentation of the maritime education and training offer, which in its turn reduces the attractiveness of maritime education and training as well as the appeal of the maritime sector. By way of illustration, this intricate problem was discussed in depth by key stakeholders and practitioners in Malta in the context of the above study²⁶⁴; it is very hard to get qualified people and certified people from Malta and many students go abroad for their maritime education, to the UK notably. Students who do follow local training often miss out on sea-going experience; the maritime industry is not sufficiently attractive to work in and skills gaps extend even to the inspectorates of Transport Malta themselves. Clearly, more is needed to keep Malta’s maritime sector in the lead.

5.2. Policy initiatives potentially responding to the specific challenges identified

The initiatives described and assessed hereby are the following:

- EU Blue Growth Strategy;
- Blue Med Initiative;
- EU Common Fisheries Policy;
- Mediterranean Universities Union;
- Blue Growth Initiative of FAO;
- CPMR Inter-Mediterranean Commission;
- European Coast Guard Functions Forum.

²⁶³ Ecorys, MRAG, *op.cit.*

²⁶⁴ Workshop held on 11th December 2015, St. Julians, Malta

Types of actions through which strategic initiatives may address each of the specific challenges identified (Challenge 4)

Specific issue	EU Blue Growth Strategy	BlueMed	EU Common Fisheries Policy	UNIMED	FAO Blue Growth Initiative	CPMR Inter-Mediterranean Commission	Coast Guard Functions Forum
3.1 Mismatch of blue skills between offer and demand	Sector Skills Alliances European Sector Skills Councils EU Skill panorama European strategy for more growth and jobs in coastal and maritime tourism Strategic Guidelines for the sustainable development of EU aquaculture	Action to support clusters development	Priority on Employment and territorial cohesion	Implementation of EU Projects Creation of thematic Sub-Networks		Vasco da Gama (current project closed)	European Coast Guard Functions Academy Network project for European Sectorial Qualification's Framework for Coast Guarding (not existing yet)
3.2 Limited cooperation on maritime and marine education and training	European Qualifications Frameworks European Skills, Competences, qualifications and Occupations Knowledge Alliances	Action to support clusters development, training and mobility programmes,		Implementation of EU Projects Promotion of mobility in the Mediterranean region Training for academic and administrative staff of Universities		Vasco da Gama (current project closed)	Mapping of existing training centres of the Coast Guard Authorities of the Mediterranean countries (not done yet)

Source: Developed internally based on publicly available information for each initiative

Assessment of relevant strategic initiatives

The **EU Blue Growth Strategy**²⁶⁵ mentions the shortage of suitably skilled workers due to skills mismatches and lack of cooperation as an important hindrance to the development of the Blue Economy. The EU strategy relies on supporting and promoting the triple helix cooperation as a way to resolve the mismatch of blue skills. The EU calls upon Member States to promote maritime clusters putting together industries, suppliers and educational and training establishments. Such clusters would facilitate communication and exchanges between these different stakeholders on the skills needs and offers at short and long terms.

Several **more general EU initiatives** aim at tackling this issue at EU level. Two initiatives are being carried out in the frame of Erasmus⁺ to promote cooperation, exchange of practices and skills mismatch. The *Knowledge Alliances*²⁶⁶ are cooperation projects that offer the possibility to create partnerships between higher education institutions and business to boost innovation, develop entrepreneurship and stimulate exchange of knowledge between stakeholders. The *Sector Skills Alliances*²⁶⁷ seek to identify skills offer of VET systems and skills demand in specific sector. This lack of information and the need for a better anticipation are also addressed by the *European Sector Skills Councils*²⁶⁸ described in the EU's Agenda for New Skills and Job. Within these councils, labour demand and supply organisations meet and provide information on skills situation of specific sectors. Two of them have been set up for fisheries²⁶⁹ and shipbuilding²⁷⁰. The *EU Skills Panorama*²⁷¹ is a web platform dedicated to skills mismatches which monitors the evolution of labour markets and skills needs in Europe. Two main tools have been set up towards mutual recognition of skills and qualifications. The *European Qualifications Framework*²⁷² is a web platform that helps comparing the different qualifications systems in Europe. The *European Skills, Competences, Qualifications and Occupations portal*²⁷³ proposes a common classification for recognition and transparency of skills, competences and qualifications in all sectors.

Other **EU initiatives focussed on Blue Economy activities**. The *European strategy for more growth and jobs in coastal and maritime tourism*²⁷⁴ outlines two issues faced by the tourism industry, seasonality and lack of career progression opportunities. Education and training are mentioned as tools to match supply of skills with labour demand. The EU initiatives in this regard do not seem to have been implemented yet (e.g. a 'blue jobs' section in the EURES Portal). The EU **Common Fisheries Policies**²⁷⁵ cover skills mismatch and structural labour issues in its priority related to Employment and territorial cohesion. This priority is particularly devoted to diversify coastal, fisheries and aquaculture communities' activities. In its *Strategic Guidelines for the sustainable development of EU aquaculture*²⁷⁶, the EU proposes the Member States to use their means (including national EMFF funds) to support training and education in the field of aquaculture. The Commission commits to support research and innovation for aquaculture through the use of EU programmes and the EMFF.

²⁶⁵ http://ec.europa.eu/maritimeaffairs/documentation/publications/documents/blue-growth_en.pdf

²⁶⁶ https://eacea.ec.europa.eu/erasmus-plus/actions/key-action-2-cooperation-for-innovation-and-exchange-good-practices/knowledge-alliances_en

²⁶⁷ https://eacea.ec.europa.eu/erasmus-plus/actions/key-action-2-cooperation-for-innovation-and-exchange-good-practices/knowledge-alliances_en

²⁶⁸ <http://ec.europa.eu/social/main.jsp?catId=784>

²⁶⁹ <http://europeche.chil.me/european-council>

²⁷⁰ <http://www.seaeurope.eu/humanCapital>

²⁷¹ <http://skillspanorama.cedefop.europa.eu/en>

²⁷² https://ec.europa.eu/ploteus/search/site?f%5B0%5D=im_field_entity_type%3A97

²⁷³ <https://ec.europa.eu/esco/>

²⁷⁴ http://ec.europa.eu/maritimeaffairs/policy/coastal_tourism/documents/com_2014_86_en.pdf

²⁷⁵ http://ec.europa.eu/fisheries/cfp/index_en.htm

²⁷⁶ COM(2013) 229 final

The **BlueMed initiative**²⁷⁷ aims at supporting research and cooperation in the Mediterranean sea basin and at developing education and training for sea-based jobs. It also seeks to create a new and qualified “sea-based” jobs, scientists, professionals, technicians and entrepreneurs, to tackle maritime challenges. Its agenda²⁷⁸ defines goals to be reached through sets of actions. While most of them are directly linked with research and innovation, several actions focus on education and training, particularly in the fields of tourism and protection of cultural heritage. Other relevant actions support the transition from traditional maritime economic activities to blue growth activities by promoting and facilitating maritime clusters development and by implementing training and mobility programmes.

The **FAO Blue Growth Initiative**²⁷⁹ aims at promoting and supporting the development of the Blue economy particularly with the promotion and the implementation of sustainable aquaculture, capture fisheries, efficient seafood value chains and regulated eco-system services. That initiative focus on providing tailored expertise and capacity building at regional and national level. No specific program to tackle maritime unemployment seems to exist. This initiative does not have a Mediterranean dimension.

The **Mediterranean Universities Union (UNIMED)**²⁸⁰ brings together Higher education institutions from Mediterranean countries. UNIMED seeks to contribute to scientific, cultural, social and economic cooperation through university research and education. It implements EU funded projects in the field of Higher education, for instance to improve employability and mobility of students, to rise support capabilities of university staff or facilitate the understanding of qualifications and skills. Some projects targets blue growth sectors (tourism).

The **CPMR Inter-Mediterranean Commission**²⁸¹ has a Working group on Economic and Social Cohesion. Its actions aim at enhancing socio-economic development and promoting dialogue in the Mediterranean. Several initiatives targeting specifically employability of young people are being discussed within this working group. CPMR IMC is studying the feasibility of Vasco da Gama Med, a Mediterranean version of the program. *Vasco da Gama* is an umbrella initiative promoted by CPMR that supports and promotes mobility in the maritime transport sector. It aims at matching skills offer and demand in the maritime sectors and industries, and at developing attractiveness of maritime careers among Europeans. The current project is closed, but CPMR aims to make the initiative more structural in nature, and foresees specific a strand focusing on the Mediterranean sea-basin.

The **European Coast Guard Functions Forum (ECGFF)**²⁸² gathers the Coast Guards of 25 EU Member States and Schengen Associated Countries, the EU and its relevant agencies. Aims of this forum are related to the joint approach to challenges in the fields of maritime safety and border security, marine environmental protection and other maritime issues. Coherence between Member States and EU bodies’ activities is also pursued, notably through assigning to the Forum a double role of meeting place for sharing Coast Guard issues and that of possible instrument to supply effective technical counselling for the European Institutions. The ECGFF – co-financed by the European Union – is currently implementing the ECGFA NET project which aim is to build a network of academies and training institutions for Coast Guard functions on ECGFF level. The project includes the establishment of Sectorial

²⁷⁷ <https://www.researchitaly.it/en/understanding/press-media/news/the-marine-and-maritime-sectors-the-blumed-initiative-documents-now-online/>

²⁷⁸ https://www.researchitaly.it/uploads/12493/Blumed%20SRIA_A4.pdf?v=d5dd4c7

²⁷⁹ <http://www.fao.org/zhc/detail-events/en/c/233765/>

²⁸⁰ <http://www.uni-med.net/fr/>

²⁸¹ <http://www.medregions.com/>

²⁸² <http://www.ecgff.eu/>

Qualifications Framework for Coast guard functions and is currently piloting actions and procedures to establish a Coast Guard Functions (CGF) Exchange Programme for students and experts²⁸³.

The *Mediterranean Coast Guard Forum* (MEDFORUM)²⁸⁴, which brings together Coast Guards and related Coast Guards institutions and agencies of both Southern and Northern countries of the Mediterranean, aims at providing a discussion and exchange platform on common maritime matters. One of its specific objectives is to contribute to the promotion of common education and training standards. In this sense, among the agreed initiatives is the mapping of existing training centres of Coast Guard Authorities in the Mediterranean, following the similar exercise carried out at a wider level by ECGFA NET.

5.3. Aspects of the current policy framework that could be strengthened

Based on the main initiatives identified and described so far, this section assesses the main emerging gaps (as defined in Chapter 1.6) across the areas of intervention of such initiatives. The assessment is based on secondary sources mentioned in the previous sections and further insights specified in this chapter.

A range of aspects that could be strengthened seems to emerge when confronting the current policy framework with the specific challenges identified and discussed in this section, resulting in a puzzle of scope and aims which not always assures an adequate response to all the specific challenges identified.

Thematic and geographic scope

Thematic and Geographic Scope

Challenge 1.1	Challenge 1.2
5+5 Malta Declaration (West Med subseabasin) EU Blue Growth Strategy (EU) EU Common Fisheries Policy (EU) EU Blue Med Initiative (northern mainly) FAO Blue Growth (southern) Mediterranean Universities Union (Med seabasin) UfM Mediterranean Strategy on Education for Sustainable Development (Med seabasin) CPMR Commission (northern mainly)	UfM Mediterranean Strategy on Education for Sustainable Development (Med seabasin) Mediterranean Universities Union (Med seabasin) CPMR Commission (northern mainly) European Coast Guard Functions Forum (EU) 5+5 Malta Declaration (West Med subseabasin)

As for other issues, the geographic and thematic scope of the majority of those initiatives are often either broad or partial (e.g. north shore versus south shore). The only initiative covering more specifically the sub-seabasin territory is the 5+5 initiative (fostering dialogue amongst northern and southern countries in the Western Mediterranean). Among the priority areas to support cooperation in the sub-seabasin, the 5+5 Malta Declaration includes education and skills as one of the top areas of interest, including among its envisaged activities the support to initiatives to develop education and training, the enhancement of employability of youth, the establishment of a Euro-Mediterranean qualifications framework based on the recognition and transfer of skills and qualifications for the 10 countries or to encourage institutions of higher education to sign cooperation agreements to foster the

²⁸³ <http://egov.yen.gr/pages/61-ecgfa-net-fact-sheet>

²⁸⁴ http://mcgff.org/?page_id=557

mobility of students and teachers, to implement joint degrees according to the respective national rules (including the creation of common academic research programs). All these activities appear highly relevant to the issues at stake and could help in mitigating the gap between skills offer and demand.

The large amount of strategic initiatives identified are addressing indirectly and partially the sub-seabasin, with EU initiatives focusing on EU Member States at large (EU Blue Growth and related EU initiatives, EU Common Fishery Policies, Blue Med Initiative, European Coast Guard Functions Forum) and the FAO initiative addressing the southern shore of the whole Mediterranean. UNIMED and CPRM IMC are initiatives opened to the whole sea basin. Higher education institutions (in the case of UNIMED) or regional authorities (in the case of CPRM IMC) voluntarily join. Therefore not all Western Mediterranean countries are included in their geographic scope. When it comes to thematic scope, the FAO supports only food related Blue Growth national and regional plans. CPMR's Vasco da Gama mobility programme focuses mostly on the maritime transport sector. The current project has come a close, but there is an ambition to engage in a more structured initiative with a specific Mediterranean strand. Other mentioned initiatives are multi-sectoral.

Scale of intervention

The assessment of proportionality and capacity of the reviewed initiatives requires additional evidence (e.g. evaluations) which is not always publically available or recent enough to be considered. The analysis is therefore provided on the basis of identified secondary sources and may be subject to revision in case of further documentation being made available.

Having said this, it can be deducted that the large amount of work done by the Union for the Mediterranean on this topic is already offering useful tools and initiatives to confront the identified issues referred to training and skills (as for instance the New Change Mediterranean Forum or the Med4Jobs initiative, just to mention a few). Outside of the scope of activity of the UfM, the Western Mediterranean Forum has developed some exchanges and conferences on the topic but still this range of activity should be scaled up. And for the rest of the governance structures analysed, with the exception of IMO and the World Maritime University (based in Sweden though), neither concrete actions nor useful initiatives to tackle the identified issues have been identified so far.

By contrast, the EU initiatives analysed do offer a wide range of activities on the improvement of skills and place employability at the cornerstone of their respective activities. However, not much evidence can be found at implementation level. Many of the EU Blue Growth Strategy initiatives still remain to be implemented, particularly regarding its inclusion in the Erasmus+ programme. While initiatives such as the Sector skills alliances and the Knowledge alliances are based on the triple helix, they are still leaving apart most or all blue sectors. BlueMed is a very recent initiative and no projects aiming at developing sea based jobs seem to be implemented. Common fishery policies are mostly put in place by Member States.

As for the European Coast Guard Functions Forum, it only recently started developing a Sectorial Qualification's Framework for Coast Guarding in the context of the project for a European Coast Guard Academy Network. So far, a common training portal was launched, while the identification of basic elements and minimum requirements for a Sectorial Qualifications Framework is currently ongoing. Development work is planned to continue during the planned Phase II of the ECGFA NET project in 2016-2017, which will also include the piloting of an exchange programme for students. Although the sectoral and cross-border initiatives developed by the European Coast Guard Functions Forum should be considered as pioneering actions for a sector – maritime security and surveillance – characterised by a

high fragmentation of actors and governance structures, the ECGFF does not dedicate special attention to the Mediterranean sea basin.

Nevertheless, recommendations included in the Final Report for Phase I encouraged the launching of training cooperation with those third countries which share a common sea border with the EU, and in particular with those that are either EU's Candidate Countries or EU's European Neighbourhood Policy (ENP) Countries (those Eastern and Southern ones with Coast Guard Functions). The idea to expand training related cooperation activities to third countries only once the Network is well established has also been mentioned, together with the suggestion to explore the possibilities of having training related cooperation agreements with third countries. Here again, the scope of suggested actions potentially covers the Mediterranean area without focusing on it.

Most of non EU initiatives do not seem to have been evaluated recently. The FAO Blue Growth Initiative started after the 2012 Rio+20 Conference and no report on its effects on targeted countries appears to be available. The UNIMED network implements small-scale EU projects which have to be evaluated individually or at EU level. According to CPMR General Secretariat's initial conclusions²⁸⁵, the Vasco Da Gama project has contributed to improving mobility, education and training in the field of maritime transport thanks to its triple helix based partnership and transnational approach. Nevertheless, the conclusions also outline that the CPMR should establish "informal multi-stakeholder platforms" in the field of maritime education and training. They also recommend that its actions should be in line with key European initiatives and programmes.

Awareness and alignment

According to stakeholders participating to focus groups, a recent initiative such as BlueMed is still little known by targeted practitioners. This gap of awareness may probably be filled with the implementation of projects. No other evidence has been found and evaluating the awareness regarding these initiatives is as challenging as for previous issues. Similarly, no clear assessments emerge on the full ownership of the described initiatives by the affected stakeholders.

In any case, the Governance Structures assessed are well established and mature and are quite known to most of the involved stakeholders at various levels. Organisations such as the UfM, the 5+5 Dialogue, the GFCM or UNEP MAP have already a respected status in the region and efficient engagement and communication networks.

However, the fact that their geographical scope goes beyond the sub-seabasin, might imply some levels of difficulties for the alignment or the engagement of local stakeholders. In this respect, and from the analysed initiatives, the UfM and the CPMR Inter-Mediterranean Commission could play a fundamental role to combat this type of gap.

²⁸⁵ http://www.crpm.org/pub/docs/462_en_notevdg_02-2016.pdf

Western Mediterranean added value is additional to the value created by actions of individual countries. It may result from different factors, such as coordination gains, greater effectiveness or complementarities and can be generated. For each of the challenges described in this study, specific areas where added value can be created are now proposed. The table below provides an overview of the areas where value added can be created and their links with the specific challenges as presented in this report.

Table 5: Overview of areas of added value and links with specific challenges

	Maritime economy	Safe and secure sea-basin	Environment	Maritime education & training
1. Maritime Economy: build synergies across activities and actors				
<i>a. Innovation in coastal and maritime tourism</i>	1.1 Future-proof			
<i>b. Tailored research and innovation</i>	1.1 Future-proof 1.2 Emerging activities			
<i>c. Boosting innovative sustainable aquaculture practices</i>	1.2 Emerging activities			
<i>d. Incentivise innovative maritime cluster and incubators</i>	1.3 Fragmentation			
2. A safer and more secure sub-seabasin				
<i>a. Synergies between maritime surveillance cooperation</i>		2.1 Maritime safety risks 2.2 Illegal migration 2.4 Responsibilities spread across bodies		
<i>b. Maritime Highways Development</i>		2.1 Maritime safety risks 2.4 Responsibilities spread across bodies		
<i>c. Expand and intensify Coastguard cooperation</i>		2.2 Illegal migration 2.3 Illegal activities 2.4 Responsibilities spread across bodies		
3. Environment: foster engagement and cooperation				
<i>a. Support</i>			3.1 Biological	

	Maritime economy	Safe and secure sea-basin	Environment	Maritime education & training
<i>implementation of existing initiatives</i>			diversity 3.2 Pollution 3.3 Socio-economic patterns	
<i>b. Foster actions to address marine litter and waste water management</i>			3.2 Pollution	
<i>c. Sustainable development in Marine Protected Areas</i>			3.1 Biological diversity 3.2 Pollution 3.3 Socio-economic patterns	
3 Maritime education & training: develop blue skills through cooperation				
<i>a. Mitigation of mismatch of blue skills between offer and demand</i>				4.1 Mismatch
<i>b. Strengthen cooperation among maritime training and education institutions in the sub-seabasin</i>				4.2 Limited cooperation
4 Cross-cutting areas of cooperation				
<i>a. Socio-economic and environmental data: Blue Economy Observatory</i>	1.1 1.2 1.3		3.1 3.2 3.3	
<i>b. Maritime Spatial Planning</i>	1.1 1.2 1.3	2.1	3.1 3.2 3.3	
<i>c. Climate change mitigation</i>	1.1 1.2 1.3	2.2	3.1 3.2 3.3	

As shown by the above table, each of the areas of intervention proposed addresses one or multiple challenges. Cross-cutting areas of cooperation are potentially addressing several of the challenges addressed across the sectors.

Added value can only be created when compared to the already existing initiatives, which have been extensively studied and presented in this report. On the basis of the overall framework as presented in Chapter 1, three types of added value can be created by the Initiative for the sustainable development of the blue economy in the Western Mediterranean, and in relation to the existing initiatives:

- **1: Tailor responses to challenges (tackling asymmetries in terms of geographic or thematic scope):** This Initiative can help to target challenges that are not (fully) addressed yet and to tailor the response to the Western Mediterranean sub-sea-basin. Possible examples:
 - Focus on cross-border threats in order to reduce risks and mitigate their consequences
 - Benchmarking for decision-making requiring a strong commitment to use results with the aim of facilitating evidence based decision making.
- **2: Bundle interventions and promote horizontal coordination:** This Initiative can help bundle the available strategic initiatives, actions and/or resources or extend the duration of the actions undertaken. Furthermore, the Initiative can help to provide (horizontal) coordination to existing actions (spread across bodies). In certain areas, the Initiative may also help to ensure that actions are implemented on the ground (enforcement). Possible examples:
 - Economies of scale with the aim of using money more efficiently and providing citizens with better services
 - Implementing international and regional agreements and ensuring that legislation/commitments are correctly implemented
- **3: Promote awareness, alignment and vertical coordination:** This can help raise awareness of existing strategic initiatives and/or actions amongst stakeholders at local, regional or national level. It can help ensure vertical coordination amongst actors involved at various levels – and align policy frameworks where appropriate and desirable.
 - Promotion of best practice in all participating countries in order for EU citizens to benefit from the state of the art best practices
 - Networking as an important tool for disseminating results to all countries including non-participants

The table below provides an overview of how the areas of added value presented in this report relate to the existing initiatives, and in which way the current Initiative is expected to add such value.

Table 6: Overview of areas of added value and links with gaps identified

	Tailor responses to the challenges	Bundle interventions (horizontal coordination)	Awareness and alignment (vertical coordination)
1. Maritime Economy: build synergies across activities and actors			
i. <i>Innovation in coastal and maritime tourism</i>	Promote ad-hoc actions bridging the two shores	Foster cooperation between EU Blue Growth and EU CFP	Ensure cooperation of practitioners across the sub-seabasin
ii. <i>Tailored research and innovation</i>	Extend the BlueMED Initiative to the 5+5 level	Build critical mass in research infrastructures	Ensure cooperation of practitioners across the sub-seabasin
iii. <i>Boosting innovative sustainable aquaculture practices</i>	Promote ad-hoc actions bridging the two shores	Foster cooperation between EU CFP and FAO Blue Growth	Ensure cooperation of practitioners across the sub-seabasin
iv. <i>Incentivise innovative maritime cluster and incubators</i>	Extend the BlueMED Initiative to the 5+5 level (build value chains across the sea-basin)	Build critical mass	Ensure cooperation of practitioners across the sub-seabasin

	Tailor responses to the challenges	Bundle interventions (horizontal coordination)	Awareness and alignment (vertical coordination)
2. A safer and more secure sub-seabasin			
<i>a. Synergies between maritime surveillance cooperation</i>	Extend Safe Sea Net and MAREZ to the Southern shore	Foster cooperation across existing initiatives (GETMO, REMPEC, EUMSS)	Ensure cooperation of practitioners across the sub-seabasin
<i>b. Maritime Highways Development</i>		Support development of pilot initiatives (e.g. GETMO)	Ensure cooperation of practitioners across the sub-seabasin
<i>c. Expand and intensify Coastguard cooperation</i>	Enhance capacity building on Southern shore	Coordinate the implementation of EU and UfM declarations	Share best practices (MEDFORUM)
3. Environment: foster engagement and cooperation			
<i>a. Support implementation of existing initiatives</i>	-	Provide capacity building	Foster involvement of local stakeholders
<i>b. Foster actions to address marine litter and waste water management</i>	-	Support implementation where capacity is limited	Foster private sector involvement
<i>c. Sustainable development in Marine Protected Areas</i>	Tailor responses by improving knowledge	Promote capacity building	Enhance cooperation amongst local practitioners
4. Maritime education & training: develop blue skills through cooperation			
<i>i. Mitigation of mismatch of blue skills between offer and demand</i>	Promote specific actions at the sub-seabasin level	Support the mapping of needs and innovation of existing training initiatives	Foster local dialogue amongst training institutions, businesses, and administrations
<i>ii. Strengthen cooperation among maritime training and education institutions in the sub-seabasin</i>	Promote specific actions at the sub-seabasin level	Bring together existing approaches	Foster cooperation also with private sector
5. Cross-cutting areas of cooperation			
<i>a. Socio-economic and environmental data: Blue Economy Observatory</i>	-	Support the implementation of the UfM Virtual Observatory (at 5+5 level)	
<i>b. Maritime Spatial Planning</i>	UNEP/PAP/RAC actions across the sub-seabasin level	Encourage the implementation of MSP/ICZM at the sub-seabasin level	Foster cooperation amongst planning authorities at all levels
<i>c. Climate change mitigation</i>	Promote specific responses tailored to the sub-seabasin	Co-ordination between national approaches	Promote awareness amongst all stakeholders

Each of the areas of intervention will now be presented below.

6.1 Maritime economy: build synergies across activities and actors

A vital maritime economy which provides sustainable jobs and growth is of key importance to the Western Mediterranean sub-seabasin. Several areas have been identified where added value can be provided, particularly with the aim of fostering cooperation and joint initiatives covering both mature and emerging Blue Economy activities and across the sub-seabasin (i.e. with reference to the specific challenge 1.3 discussed in Chapter 2).

a. Innovation in coastal and maritime tourism, including tourism routes and networks

The analysis has pointed to the importance of tourism across the region as a job creator, however existing business models require innovation to remain sustainable. Cooperation can help to boost the potential and visibility of relevant activities across the Western Mediterranean, and increase its socio-economic performance (e.g. investments, GVA, employment). Networks of sustainable operators, including SMEs, can be set up in nautical and cruise tourism, but also in relation to (underwater) cultural heritage, fishery-tourism and sport-fishing. Harmonising quality standards for marinas and recognition of skipper licenses can be covered too.

b. Tailored research and innovation, focusing amongst others on renewable energy

The BlueMed initiative deserves to be extended to the 5+5 level, and critical mass can be built in areas across the sub-sea-basin. Renewable energy is a key area to focus on, however the Western Mediterranean provides very specific circumstances that require equally specific responses (e.g. floating wind energy, seawater airconditioning, etc.). Examples to use the potentials of blue renewable sources of energy across the sub-seabasin include resource mapping and forecasting, assessment of needs, and demonstrating and testing new technologies in open water conditions. (Smart) grids are another aspect to cover when rolling out marine renewable energy across the sub-seabasin.

c. Boosting innovative sustainable aquaculture practices

The Western Mediterranean Sea has specific potentials to be exploited, however practices vary widely between the two shores, whilst existing initiatives focus on either the north shore (EU framework, Blue Med initiative) or the south shore (FAO). Biotechnology provides opportunities for boosting innovative and sustainable aquaculture practices as well. Capacity building (including training) is much needed in this area, and exchange of experiences across the sub-seabasin (e.g. through cooperation of researchers and students, supported by mobility programmes) can make a major difference (see also the section on maritime training and education).

d. Incentivise innovative maritime cluster and incubators

Maritime clusters are of key value to creating innovation, jobs and growth. They also provide an opportunity to connect 'traditional' with 'emerging' activities across the sub-seabasin. In this respect, the BlueMed initiative deserves to be extended to the 5+5 level, and critical mass can be built in economic activities currently not appealing to private investors. Maritime clusters can also help to identify and build innovative value chains across the sub-seabasin (in line with the 'Smart specialisation' concept). Support to Blue Economy incubators can finally foster entrepreneurial development across the sub-seabasin as well.

6.2 For a safer and more secure sub-seabasin

The overall policy framework currently in place is certainly covering an extensive range of specific challenges for the western Mediterranean. Nevertheless, there is a clear need to reinforce existing initiatives and help them address the major challenges that the region is facing, including the need to tackle the migratory crisis. The below areas for added value are quite interconnected and intertwined.

a. Synergies between maritime surveillance cooperation

Each of the assessed initiatives promotes the development of maritime surveillance for maritime security and safety. But this promotion and means allocation are done at different levels or with different partners. Progress has been made in the interoperability efforts to facilitate data exchanges (SafeSeaNet/ MAREΣ) for maritime surveillance and in specific crises such as oil pollution events. Nevertheless, for the time being no western Mediterranean sub-sea basin common maritime picture is available. This Initiative could promote synergies and avoid duplication for global effectiveness of maritime security and safety as highlighted during the 11th Meeting of the Euro Med Maritime Working Group.²⁸⁶

The set-up, maintenance and innovation of coordinated data-systems for the Western Mediterranean are a pre-requisite to foster greater coordination in safety and security policy. Define full and permanent maritime surveillance data sharing in order to provide a global maritime surveillance overview, which will allow the effective use of national capacities. Even if interoperability efforts are being done in order to facilitate data exchanges in project or in specific crisis or oil pollution exercise and in all sectors of Coast Guard Functions, for the time being the implementation of the EU regulatory framework aims at continuously improving one European Maritime Information and Exchange System for the MS. The objective is also to extend the services of the EU integrated maritime services and sharing information from the north western African countries within the existing system avoiding duplication of efforts (i.e. by supporting the Implementation and/or enhancement of the VTMS systems along national coasts for properly monitoring, overviewing and recording all maritime activities). Still, fostering coordinated and complete western Mediterranean sub-seabasin maritime pictures (including non-EU countries) may require further efforts.

b. Maritime Highways Development

Supporting regulation efforts with “maritime pipelines: “maritime highways” settlement (already supported by UfM or 5+5 GETMO) for instance between Gibraltar to Sicily Straits. Such a project should take in account not only the surveillance capacity, but also provide dedicated rules in accordance with maritime spatial planning development in the subregion.

Maritime pipelines’ settlement could be helped with a maritime due (as studied by 5+5 GETMO) which could be collected to support maritime security and safety in the sub-seabasin (CAPEX and OPEX).

c. Expand and intensify Coastguard cooperation

The Coastguard plays a crucial role in the safety and security of the region, and the recent establishment of the European Border and Coast Guard to help provide integrated border management at the external borders of EU. It will ensure the effective management of migration flows and provide a high level of security for the EU. At the same time, it will help safeguard free movement within the EU and

²⁸⁶ in April 2016 cf. <http://www.rempec.org/rempecnews.asp?NewsID=372>

respect fully fundamental rights.²⁸⁷ The challenge is not EU MS cooperation for border surveillance, but it aims to foster cooperation between all Western Mediterranean sub-basin bordering countries in order to provide with a safer and more secured sub-basin. In accordance with UfM²⁸⁸ and EU²⁸⁹ declarations, this Initiative could help to build on existing experiences and in the region, through:

- Enhancement of capacities building EU efforts with EMSA in the Southern Countries (as done during SafeMed III project);
- Enhancement of the cooperation and coordination of dedicated existing and shared structure: REMPEC with a close link with EMSA;
- Definition with the technical support of REMPEC and EMSA, of the minimum level of surveillance capacities and the priority to get a global performing surveillance capacities covering environment and legal and illegal activities monitoring all around the sub-seabasin;
- Share best practices in a Western Mediterranean sub-basin forum based on the Mediterranean coastguard functions forum (MEDFORUM)²⁹⁰. One of its topics could be maritime surveillance issue in an integrative approach to monitor legal and illegal activities and environment all around the sub-sea basin.

6.3 Environment: Foster engagement and cooperation

A variety of policy and governance frameworks covering the Western Mediterranean sub-sea basin are already set and they cover the extensive range of specific environmental issues of concern described in the first section of the present chapter. This fact reflects that international, regional and sub-regional awareness exists regarding environmental and sustainability issues, as well as the willingness to address them.

Additional actions supported by a dedicated Initiative could bring further value by addressing the range of gaps that have been identified across the existing initiatives, which mainly relate to lack of awareness, ownership and/or enforcement. Some areas for intervention are suggested below.

a. Support implementation of existing initiatives

As from exchanges with consulted stakeholders during the project's workshops, intervention could be related to a number of aspects:

- Provide capacity building to Western Mediterranean sub-sea basin actors (governmental, institutional, local authorities, actors from the private sectors, etc.) enabling them to get involved and/or implement existing initiatives and measures seeking environmental conservation and/or integrated management of socioeconomic activities;
- Promote spaces for interaction and/or exchange on best practices regarding environmental conservation and/or integrated management of socioeconomic activities.

b. Foster involvement of the private sector: e.g. in marine litter and waste water management

Fostering greater visibility of existing initiatives with respect to potentially concerned actors in the sub-sea basin might allow them to be aware of their objectives and potential, and favour their active involvement.

²⁸⁷ <http://www.consilium.europa.eu/en/press/press-releases/2016/09/14-european-border-coast-guard/>

²⁸⁸ http://ufmsecretariat.org/wp-content/uploads/2015/11/2015-11-17-declaration-on-blue-economy_en.pdf

²⁸⁹ such as COM(2016) 385 on establishing a new Partnership Framework with third countries under the European Agenda on Migration http://ec.europa.eu/dgs/home-affairs/what-we-do/policies/european-agenda-migration/proposal-implementation-package/docs/20160607/communication_external_aspects_eam_towards_new_migration_ompact_en.pdf

²⁹⁰ <http://mcgff.org>

- Foster the dissemination of initiatives, promoting communication events/fora/platforms (virtual or physic) to make information available and easily accessed; present these in such a way that private actors are engaged.
- Marine litter and waste water management lean themselves well for such concrete actions; progress in these areas requires cooperation of the private sector, and effective engagement is likely to produce tangible results.

c. Sustainable development in Marine Protected Areas

An important and growing part of the Western Mediterranean Sea qualifies as Marine Protected Area (MPA), a concrete response to the need for protecting biodiversity. The challenge in these MPAs is to come to a balanced approach which respects both environmental, economic and social considerations. Considerable experiences have been gained in promoting sustainable forms of activities (e.g. eco-tourism, whale watching, etc.), which can foster greater economic gain locally by ensuring the protection of local ecosystems. Promotion of multi-stakeholder dialogues across the sub-seabasin can help with the dissemination and the broader take-up of such experiences.

- Support the improvement and update of current knowledge on marine and coastal biodiversity on various scales of integration (national, sub-regional), as is being done in the context of the EC Marine Knowledge 2020 Initiative (including the development of EMODnet), in particular concerning: i) species, habitats, ecosystems, trophic networks, functioning, etc., particularly in deep areas, high seas and areas beyond national jurisdictions, as well as in southern areas of the sub-sea basin; ii) cumulative and synergistic effects of pressures and impacts on marine and coastal biodiversity; iii) socioeconomic activities and interaction with ecosystem components (e.g. fishery discards; links between eutrophication and aquaculture, etc.);
- Provide capacity building to enhance technical and scientific skills as regards marine and coastal biodiversity and habitats (e.g. taxonomy);
- Enhance international cooperation and the sharing and exchange of knowledge, practices and experiences on marine and coastal biodiversity and habitats;
- Support the development of detailed and updated national and regional syntheses of inventories of marine and coastal biodiversity and habitats.

6.4 Maritime education & training: develop blue skills through cooperation

Equally in this area, it is important to fully capitalise on existing cooperation experiences and the available resources. Nevertheless, a number of areas can be identified, and these have been carved out in the context on a recent study carried out on the subject.²⁹¹ The study also points to an important coordinating role for the UfM in this domain.

a. Mitigation of mismatch of blue skills between offer and demand...

- Promote apprenticeship schemes and mobility programmes across the seabasin, with a view to strengthen linkages between education and the labour market;

²⁹¹ Ecorys, MRAG, « Study supporting a possible network of maritime training academies and institutes in the Mediterranean sea basin », 2016, see <https://webgate.ec.europa.eu/maritimeforum/en/node/3951>

- Enhance the attractiveness of the sector and increase the number of people entering the sector. A starting point could be the opening of existing apprenticeship schemes (that target more traditional sectors) to less traditional topics in the maritime sector;
- Identify the needs and challenges for the Blue Economy in the Western Mediterranean through the mapping of available skills and competences, to be used as a basis for taking informed decisions on;
- Create opportunities for dialogue and exchange among private sector, public authorities and education providers in order to help setting common themes and priorities for the training and education offer and to develop a gap analysis on competences needed to move from traditional to emerging maritime economic activities.

b. Strengthening of cooperation among maritime training and education institutions in the Western Mediterranean

- Facilitate the shared use of training facilities, training ships, simulators, large marine research infrastructure, etc. to
- Encourage the sharing of best practices and lessons learned among stakeholders. Creating opportunities for dialogue is a powerful tool to ensure that all mainstream institutions, public authorities, professional organisations and education and training providers understand the fundamental importance of addressing blue skills issues in the Western Mediterranean;
- Engage with both public authorities and the private sector to ensure that all training and education approaches used in the Western Mediterranean sub-seabasin are brought together. In this sense, the creation of a Western Mediterranean platform or a series of local and regional triple-helix clusters could facilitate the creation of more specific cooperation schemes;
- Focus efforts on common challenges and issues and target the needs of specific professional profiles/skills/qualifications. This could be done, for instance, through the creation of joint education and training activities, such as summer schools, opened to students and researchers from the sub-seabasin and;
- Enable new forms of cooperation across sectors and across actors. A need to involve business, research and government actors in this respect.

6.5 Cross-cutting areas of cooperation

In addition to the above areas, a number of cross-cutting areas of cooperation have been identified where this Initiative could make a difference, mostly as an accelerator and integrator of existing initiatives.

a. Socio-economic and environmental data: Blue Economy Observatory (e.g. UfM Virtual Observatory)

In order to inform policies and initiatives, and to allow for monitoring, a need for harmonised and up to date socio-economic data is needed, notably in areas of investments, GVA, employment). Such data can help to inform actions related to Blue Economy activities (e.g. coastal tourism, trans- and short-shipping, biotechnologies, renewable energy) as well as cross-cutting aspects (e.g. research/innovation, clustering, cross-sectorial cooperation). In this context, a Virtual Observatory (e.g. Blue Economy Observatory) specific to the sub-seabasin can be considered.

A lot of effort (and subsequent progress) has been put in recent years to improve knowledge on Mediterranean ecosystems, ecological processes and relationships between human pressures and

ecosystem response. In fact, much of ecological research and species discovery carried out in the Mediterranean has targeted its Western sub-sea basin, yet it is principally confined to its northern area.

This need to continue filling knowledge deficiencies stems from four principal reasons: 1) the need to keep increasing our knowledge in the fields of marine sciences; 2) the need to identify opportunities for activities' development and growth ; 3) the need to adopt managerial measures based on scientific evidence, since a wide range of knowledge gaps might lead to public unawareness and poor decision-making (voluntary or not); and 4) the need to monitor and assess whether environmental initiatives and measures put in place are taken effect.

In order, to fill in the gaps on current knowledge of marine and coastal biodiversity and the state of the marine and coastal ecosystems in the Western Mediterranean sub-sea basin, several areas for support and intervention might relate to the following aspects:

- Support the improvement, updates and homogeneity among states of statistics and information regarding maritime socioeconomic sectors, at different aggregation levels (national, sub-regional) and in particular concerning the maritime share of such activities;
- Support the effective surveillance, monitoring, data collection and statistics generation regarding interaction between environmental and socioeconomic spheres which might be key to an efficient integrated management of maritime activities (e.g. recreational fishery landings, fishing by-catches and discards, efficiency of sewage discharges, etc.).

b. Maritime Spatial Planning

Accommodating all desired economic and human activities (e.g. maritime transport, coastal tourism, defence, fisheries and aquaculture, (renewable) energy activities, etc) whilst providing the necessary space to conservation and habitat protection can lead to spatial pressures and 'tensions'. Not all activities can always be combined in the same spaces. Indeed, the Western Mediterranean Sea is subject to an increase in such pressures and 'tensions'.

Article 4.3(e) of the Barcelona Convention, requests the Contracting Parties to promote the integrated management of the coastal zones, taking into account the protection of areas of ecological and landscape interest and the rational use of natural resources. In 2008 a Protocol was developed to provide a common framework for the Contracting Parties to promote and implement integrated coastal zone management. Having been ratified by six contracting parties, the Protocol entered into force the 24th of March 2011.

Several initiatives have recently been taken, notably the EC Directive N°2014/089, establishing a framework for maritime spatial planning (MSP) aimed at promoting the sustainable growth of maritime economies, the sustainable development of marine areas and the sustainable use of marine resources. To address such pressures and spatial 'tensions', the implementation of the EU Maritime Spatial Planning (MSP) Directive, the EU Marine Strategy Framework Directive (MSFD), combined with efforts in implementation of the Barcelona Convention and its protocol on Integrated Coastal Zone Management as well as reinforcing the effectiveness and data framework of the GFCM are steps in the right direction.

A more structured and inclusive approach (i.e. accrued country ownership within a sub-regional perspective) is needed to ensure that this process is supported by the best possible marine and maritime knowledge (for activity environmental impact assessment) and implemented at national and

sub-regional levels. UNEP/PAP/RAC action with a more maritime application of ICZM protocol in its CAMP strategy could help at West Med scale as all of the Countries have at least signed the Protocol ²⁹².

c. Climate change mitigation

Climate change has specific impacts on the Western Mediterranean, and relates to biodiversity related to sea water changes, coastal erosion, maritime infrastructure adaptation and renewable energy.

Besides the wide set of mitigation measures that will be set up in the next decades, adaptation measures will be also necessary on a regional and local scale to reduce the effects of the anticipated evolution and variability of the climate (IPCC, 2013). Some Mediterranean countries (e.g. France) have set up specific inter-ministerial authorities to coordinate efforts made in the different sectors and define climate change mitigation and adaptation strategies. In contrast, most countries do not have specific tools to monitor the progress made in terms of prevention or adaptation to climate change, with particular reference to marine and coastal biodiversity.

A sub-regional approach may provide an effective support framework for the development of (national?) strategies addressing climate change, yet remaining coherent/ consistent not only among countries but also among all players/ stakeholders. The sub-regional action could:

- based on existing infrastructures (in particular UNEP/MAP RACs (SPA and PAP), research centres, observatories, etc.), foster cooperation actions on the establishment of networks of such infrastructures for marine observation and research (including coastal observatories and ships), and on the development of climate change forecasting models;
- support setting up a monitoring and evaluation system for climate change impact on biodiversity, to evaluate the climatic sensitivity of the ecosystems in question and their capacity to adapt to related changes (resilience);
- promote awareness-raising activities regarding climate change observations and effects, specially oriented to policymakers and managers, researchers, university students, stakeholders, NGOs and the general public.
- considering global, regional, national and local existing strategies (related to UNFCCC, UNEP/MAP, national efforts, Agenda 21) support climate-relevant work and involvement of local and regional authorities (besides national), as well as civil society and the private sector, regarding both mitigation of cc:
 - Actions to minimise causes responsible for cc;
 - Setting up measures to reduce the emissions of greenhouse gases;
- and adaption to cc:
 - increase the flexibility through good management of the vulnerable ecosystems;
 - enhance the inherent adaptation capacity of the species and ecosystems, reduce the environmental and social pressures which could increase vulnerability to climatic variability.

²⁹² except Libya http://www.pap-thecoastcentre.org/about.php?blob_id=56&lang=en

ANNEX I

EXISTING GOVERNANCE STRUCTURES AND THEIR LEVEL OF COVERAGE TO IDENTIFIED CHALLENGES

Under Annex 1, the main governance and governmental cooperation initiatives (as listed in chapter 1.5) are now reviewed, and their main features are highlighted with respect to the specific challenges analysed in detail in the previous sections of this report.

As indicated in the introductory chapter of this document, the same governance initiatives have been analysed for the four challenges at stake to assess the response capacity to fully address the challenges and opportunities identified in the Western Mediterranean:

1. Union for the Mediterranean (UfM) – UfM Forum on the blue economy
2. 5+5 Dialogue;
3. Maghreb Arab Union;
4. General Fisheries Commission for the Mediterranean (GFCM);
5. UNEP/MAP Barcelona Convention;
6. International Maritime Organization (IMO).

An overview of the main types of actions promoted by the initiatives above, with respect to the challenges and the specific challenges identified under the previous chapter is provided in the tables hereby and then further described.

Due to the complexity of the reviewed initiatives and the related activities, the tables that follow for each of the four identified challenges are intended as an exemplification. The information in each cell is therefore not intended to be exhaustive, but it rather offers an overview to be used as a basis for the analysis of main “gaps” emerging across the initiatives and where further action can be identified (based on official sources). A further review of the main features of the initiatives illustrated in the table is provided in this section.

Challenge 1: A Maritime economy not sufficiently future-proof

Table 7: Types and examples of actions through which the identified 6 governance framework may address Challenge 1: A Maritime economy not sufficiently future-proof

Sub-Challenges	1. UfM (sea basin)	2. 5+5 (sub-sea basin)	3. AMU (southern shore)	4. GFCM (sub-sea basin)	5. UNEP-MAP (sea basin)	6. IMO (global)
1.1 Traditional activities generate limited added value for the region	Action Plans (e.g. maritime transport) and political declarations (e.g. Blue Economy) implemented by countries - Project support (e.g. fostering business development,	Support to sub-seabasin sustainable development through thematic policy dialogue (decisions to be implemented by countries) - Data collection in certain areas	Political agreements (i.e. conventions) indirectly promoting greater sectoral competitiveness, efficient infrastructures deployment and investment attraction (implemented by countries)	Setting obligations and planning (implemented by countries) - Sustainable practices in the management and diversification of fisheries and	Identification of common goals and actions to promote more sustainable “traditional” sectors and industries (e.g. tourism)	Standards related to maritime activities

Sub-Challenges	1. UfM (sea basin)	2. 5+5 (sub-sea basin)	3. AMU (southern shore)	4. GFCM (sub-sea basin)	5. UNEP-MAP (sea basin)	6. IMO (global)
	virtual knowledge, blue investments, sectoral project replicability, urban and territorial sustainability)			aquaculture		
1.2 Limited critical mass for emerging activities				Setting obligations (to be implemented by countries) -	Identification of common goals and actions to promote renewable energy power plants and related sustainable infrastructures	
1.3 Fragmentation amongst Blue Economy actors	Political dialogue (i.e. Ministerial Conferences), stakeholders exchanges (i.e. Blue Economy Forum), project replicability and Action Plans implemented by countries (e.g. maritime transport)		Political dialogue at governmental level and greater integration amongst member countries		Promotion of data collation/collection and thematic studies to support sustainable practices	

Source: Developed internally based on publicly available information for each governance framework

The **Union for the Mediterranean (UfM)**²⁹³ is certainly a relevant political initiative involving EU Member States and southern partners in fostering sustainable blue economy development across the Mediterranean. It has in fact endorsed the principles and goals of the Blue Economy (UfM Declaration 2015²⁹⁴) to promote growth, jobs and investments, and has expressed concerns in the limited research and innovation capacity, as well as uptake of clustering and networking initiatives across the basin²⁹⁵. Within this framework, the UfM is acting to coordinate the work of countries across the Mediterranean towards a range of relevant areas:

- The core priority area for the UfM in this respect is that of “business development”²⁹⁶, aiming at i) fostering job creation and support the development of SMEs, ii) implementing the strategy for private sector development, and iii) advancing the digital economy and support creative industries in the region. The work is coordinated through the actions and declarations of several Ministerial Conferences, amongst which those on Industrial Cooperation²⁹⁷ and Digital Economy²⁹⁸.
- The priority area of “transport and urban development”²⁹⁹ contributes to address some of the specific challenges highlighted in this section. It does so, for example, by fostering port efficiency and regional multimodal connectivity (i.e. Transport Action Plan³⁰⁰), sustainable and innovative urban and territorial initiatives, through the “Euro-Mediterranean sustainable urban strategy”³⁰¹.

²⁹³ <http://ufmsecretariat.org/>

²⁹⁴ http://ufmsecretariat.org/wp-content/uploads/2015/11/2015-11-17-declaration-on-blue-economy_en.pdf

²⁹⁵ https://webgate.ec.europa.eu/maritimeforum/sites/maritimeforum/files/2015-11-17-declaration-on-blue-economy_en_0.pdf

²⁹⁶ <http://ufmsecretariat.org/business-development/>

²⁹⁷ <http://ufmsecretariat.org/union-for-the-mediterranean-ufm-ministerial-meeting-on-industrial-cooperation-takes-place-in-brussels/>

²⁹⁸ <http://ufmsecretariat.org/union-for-the-mediterranean-ufm-ministers-in-charge-of-the-digital-economy-launch-new-digital-cooperation-initiatives/>

²⁹⁹ <http://ufmsecretariat.org/transport-urban-development/>

³⁰⁰

http://ec.europa.eu/transport/themes/international/european_neighbourhood_policy/mediterranean_partnership/docs/rtap2014_2020_en.pdf

³⁰¹ <http://ufmsecretariat.org/the-euro-mediterranean-sustainable-urban-strategy-is-on-its-way-2/>

These are indirectly relevant for economic diversification, as may foster growing needs for renewable energy, for example, as well as improve the quality of local tourism destinations.

- With respect to “energy and climate action”, the UfM aims at i) reinforcing structured regional dialogue on energy and climate change between member states, regional organisations, financial institutions, industry and experts, ii) supporting project promotion from identification of priorities until implementation with appropriate resources and iii) fostering projects replicability. Again, it does so through the work of Ministerial Conferences such as Energy and Regional Cooperation.
- The “higher education and research” policy area, although mostly relevant for aspects to be discussed under Issue 3 (Chapter 4), focuses on a range of actions. Amongst those, the facilitation of North-South dialogue within Mediterranean scientific research frameworks, promoted through engaging with local stakeholders and under the coordination of the Euro-Mediterranean secretariat for Research and Innovation³⁰².

The UfM is also actively supporting local economic players through a range of strategic/flagship initiatives (e.g. Med4Jobs³⁰³), including the promotion of knowledge and sharing of practices (e.g. UfM Forum on Blue Economy³⁰⁴, Virtual Knowledge Centre³⁰⁵ on marine and maritime affairs). As a result, although not expressly targeting the specific needs of mature and/or emerging sectors (besides renewable energy), the actions promoted by the UfM seem to provide a useful coordination framework for supporting response capacity of local stakeholders active in the Blue Economy.

There is some capacity to implement certain actions on its own, as to foster the potential impact of the identified priorities, beyond actions promoted by member organisations. Actions largely depend on available external financing (e.g. EU and members funding).

The **5+5 Western Mediterranean Forum**³⁰⁶ provides an opportunity for Ministries of Foreign Affairs from all countries to convene and discuss areas of common economic development, including opportunities for strengthening socio-economic cooperation across the region. The 5+5 is the only inter-governmental coordination initiative entirely focussed on the actual geographical scope of the sub-seabasin, which makes it an important reference point for this study. Although, it does not formally involve the EU.

Areas of cooperation are therefore identified on the basis of joint declarations, with follow-up responsibility by individual countries. The implementation of such decisions across the sub-seabasin largely depends on the adoption of cooperation practices at the country levels both in the north and the south.

The **Arab Maghreb Union (AMU)**³⁰⁷ provides a platform for agreements on economic cooperation amongst Arab countries of the Maghreb in North Africa. Its territorial scope is related to the southern shore of the sub-basin, and limited with respect to the territorial scope required if compared to the other two cooperation initiatives assessed so far.

³⁰² <http://ufmsecretariat.org/the-ufm-secretariat-attends-the-euro-mediterranean-conference-on-research-and-innovation/>

³⁰³ <http://ufmsecretariat.org/mediterranean-initiative-for-jobs-med4jobs/>

³⁰⁴ <http://ufmsecretariat.org/1st-meeting-of-the-blue-economy-working-group/>

³⁰⁵ <http://51.255.195.60/En/image.php?id=%20555>

³⁰⁶ <http://westmediterraneanforum.org/the-forum/>

³⁰⁷ <http://www.maghrebarabe.org/en/index.cfm>

With respect to the issue assessed in this section, the AMU provides a relevant platform for cooperation when it comes to economic partnerships across its members. Nonetheless, such cooperation is mostly related to general conventions on trade, shared institutions and overall economic structures, rather than specific micro-economic support towards innovation, economic diversification of local value chains, or greater cooperation across sectors in the region.

Implementation of conventions signed by the AMU³⁰⁸, depends on the further actions promoted by individual countries in the southern shore of the sub-sea basin.

The **General Fisheries Commission for the Mediterranean (GFCM)**³⁰⁹ is an important initiative to foster sustainable development of fisheries³¹⁰ including innovative aspects such as aquaculture³¹¹. Its membership coverage is quite broad compared to other cooperation initiatives assessed so far, not only because it includes territories beyond the whole Mediterranean (i.e. Black Sea), but also as it is open to all specialised agencies acting in its area of application³¹².

Within this specific scope of activities, a range of support actions are provided in order to assure the sustainability of fisheries activities through the adoption of adequate management measures (e.g. by providing data and information³¹³ across the sector's value chain, as well as additional support for sharing of good practices, technical assistance and cooperation³¹⁴) to be implemented at the country level on the basis of the specific needs identified locally. The implementation of its actions in the sub-seabasin largely depends on the adoption of them at the country levels.

The **UNEP Mediterranean Action Plan (MAP)**³¹⁵ aims at fostering local capacity in promoting sustainable development across the Mediterranean through a range of actions, with a territorial coverage which is therefore broader than the Western Mediterranean. Specifically aimed at promoting greater sustainability, and therefore further discussed with respect to Challenge 3, rather than focussing on economic innovation per se, the initiative promotes a more sustainable response (by local/regional authorities and businesses) to current challenges and opportunities in prominent Blue Economy activities in the Mediterranean (i.e. Tourism, Energy, Transport³¹⁶).

The interventions³¹⁷, with respect to the issues discussed in this section, promote technological transfer across industries, adoption of innovative and sustainable energy power plants, regional and international cooperation to promote sustainable tourism in the region, and sustainable maritime transport infrastructures. The initiative provides an overall framework for local stakeholders to take action so to improve their response capacity in addressing local and global challenges and promoting sustainable outcomes in a range of relevant economic activities.

In order to foster support at the local level, the Strategic Partnership for the Mediterranean Large Marine Ecosystem (MedPartnership)³¹⁸ has been promoted as part of the UNEP/MAP cooperation

³⁰⁸ <http://www.maghrebarabe.org/fr/conventions.cfm?type=1>

³⁰⁹ <http://www.fao.org/gfcm/en/>

³¹⁰ <http://www.fao.org/gfcm/activities/fisheries/en/>

³¹¹ <http://www.fao.org/gfcm/activities/aquaculture/en/>

³¹² <http://www.fao.org/gfcm/background/about/en/>

³¹³ <http://www.fao.org/gfcm/data/en/>

³¹⁴ <http://www.fao.org/gfcm/activities/technical-assistance-and-cooperation/en/>

³¹⁵ <http://www.unepmap.org/index.php?module=content2&catid=001001002>

³¹⁶ http://www.unepmap.org/index.php?module=content2&catid=001003&ocat_id=001003

³¹⁷ http://195.97.36.231/dbases/webdocs/BCP/MAPPhaseII_eng.pdf

³¹⁸ <http://www.unepmap.org/index.php?module=content2&catid=001026>

initiative, with the overarching goal to catalyse the policy, legal and institutional reforms at the local levels, and the investments necessary to reverse current trends across the region. The initiative works through two lines of actions, which are supporting countries on the southern shore³¹⁹ including technical and policy support led by UNEP/MAP (Regional Project) and project financing led by the World Bank (Investment Fund/Sustainable MED). The implementation in the sub-seabasin, though, largely depends on the adoption of such practices at the country levels.

The International Maritime Organisation (IMO)[1] is the global standard-setting authority for the safety, security and environmental performance of international shipping. Its main role is to create a regulatory framework for the shipping industry that is fair and effective, universally adopted and universally implemented. This regulatory framework may have some impact on the sub-challenges identified: energy efficiency, new technology and innovation, maritime education and training, maritime security, maritime traffic management and the development of the maritime infrastructure thanks to the development and implementation of global standards for a green and sustainable global maritime transportation system.

Specific relevance for the challenge on the maritime economy are in fact those actions aiming at: ensuring access to affordable, reliable, sustainable and modern energy for all; building resilient infrastructure; promoting inclusive and sustainable industrialization and fostering innovation³²⁰. The implementation of such initiative in the sub-seabasin largely depends on the adoption of such practices in the south.

Challenge 2: For a safer and more secure sub-sea basin

Table 8: Types and examples of actions through which the identified 6 governance framework may address Challenge 2: For a safer and more secure sub-sea basin

Sub-challenges	1. UfM (seabasin)	2. 5+5 (sub-seabasin)	3. AMU (southern shore)	4. GFCM (seabasin)	5. UNEP-MAP (seabasin)	6. IMO (global)
2.1 Maritime security and safety risks	Labellisation of projects of pipelines "Maritime highways"	Ministerial meetings of Transport Ministers of the Western Mediterranean 5+5 (GTMO 5+5) with the support of CETMO : studies on pipelines "Maritime highways" Accidental Marine Pollution Project (POLMAR)	Convention de coopération dans le domaine maritime entre les pays de l'Union du Maghreb Arabe Plan d'urgence sous-régional entre l'Algérie, le Maroc et la Tunisie pour la préparation à la lutte et la lutte contre la pollution marine accidentelle dans la zone de la Méditerranée du Sud-Ouest		Definition of Prevention and Emergency Protocol, Regional Strategy for the Prevention of, Preparedness for and Response to Marine Pollution from Ship (2016-2021)	Drafting and adoption of conventions, protocols, (SOLAS, MARPOL Convention, Strategic plan, ...)

³¹⁹ Albania, Algeria, Bosnia and Herzegovina, Croatia, Egypt, Lebanon, Libya, Morocco, Montenegro, Syria, Tunisia and Turkey, with the Palestinian Authority also participating.

[1] <http://www.imo.org/en/About/Pages/Default.aspx>

³²⁰ <http://www.imo.org/en/OurWork/TechnicalCooperation/Pages/Default.aspx>

Sub-challenges	1. UfM (seabasin)	2. 5+5 (sub-seabasin)	3. AMU (southern shore)	4. GFCM (seabasin)	5. UNEP-MAP (seabasin)	6. IMO (global)
2.2 Illegal migration challenges		Meeting of Interior ministers of the Western Mediterranean (CIMO) : dealing with cooperation to reduce illegal migration				
2.3 Illegal activities at sea smuggling		meeting of Interior ministers of the Western Mediterranean (CIMO) : dealing with cooperation to tackle smuggling		Definition of IUU fishing roadmap and dedicated reporting		
2.4 Maritime surveillance being spread across responsible bodies			Convention de coopération dans le domaine maritime entre les pays de l'Union du Maghreb Arabe plan d'urgence sous-régional entre l'Algérie, le Maroc et la Tunisie pour la préparation à la lutte et la lutte contre la pollution marine accidentelle dans la zone de la Méditerranée du Sud-Ouest	Supporting and leading Pilot study towards the elaboration of a centralized VMS and control system		Definition of dedicated protocol (Prevention and Emergency Protocol)

The **Blue Economy UfM ministers' declaration** has recognised that “improving maritime safety, in accordance with the Conventions of the International Maritime Organization (IMO), capacity to react against manmade and natural disasters and prevention of pollution from ships in cooperation and within the agreed legal framework, with relevant regional organisations and through regional initiatives such as the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), the European Maritime Safety Agency (EMSA) and the SAFEMED III initiative.

It has also recognised the importance of supporting human resources capacity building and students, as well as researchers and workers mobility to promote the creation of blue jobs.

Furthermore, the UfM has promoted (since 2012) the labelling of projects in the field of “Maritime highways”³²¹ for traffic regulation, for maritime safety (pollution prevention, seamless maritime surveillance coverage) and spatial planning (dedicated or promoted routes).

5+5 Western Mediterranean Forum is the only governmental structure involving exclusively the 10 countries that surround the Western Mediterranean sub-seabasin. Regarding maritime safety and security, joint declarations or initiatives were launched in sectorial or dedicated ministerial meeting (Transport, Interior affairs, Defence).

³²¹ <http://51.255.195.60/En/image.php?id=144>

The **Maghreb Arab Union** established in 1991 a dedicated convention for cooperation in the maritime domain³²² signed between UMA partners (Convention de coopération dans le domaine maritime entre les pays de l'Union du Maghreb Arabe). It promotes cooperation and coordination for maritime security and safety (title II).

Under the umbrella of **UNEP/MAP** and IMO, REMPEC is to assist the Contracting Parties in meeting their obligations under Articles 4 (1), 6 and 9 of the Barcelona Convention. Dedicated strategy and protocols have been adopted by the Contracting Parties in 2016 which key objectives and targets are reflected in the overarching Mediterranean strategies (i.e. Mediterranean Strategy for Sustainable Development (MSSD), the United Nations Environment Programme/Mediterranean Action Plan (UNEP/MAP)'s Integrated Six Year Programme of Work for the period 2016 to 2021 (Mid-Term Strategy) and the Ecosystem Approach (EcAp)).

The **General Fisheries Commission for Fisheries (GFCM)** adopts every year binding recommendations linked to monitoring, control and surveillance aspects in order to come to grips with IUU fishing in the region. These recommendations encompass a vast array of measures that go from relevant international agreements to FAO soft law instruments. The list of recommendations includes an authorised vessel list, an IUU list, port State measures, VMS and a process leading to the identification of cases of non-compliance.

GFCM also defines obligations of its Contracting Parties to submit common and shared data on fishing vessels, in accordance with established standards and protocols. In order to have a practical tool for GFCM Members to rely upon, the GFCM Secretariat is currently devising a pilot study towards the elaboration of a centralised VMS and control system which is expected to facilitate the control of industrial and artisanal fleets through a modular approach.

Finally, the **International Maritime Organization (IMO)** is the international competent authority for legal and technical issues related to shipping activities. Conventions, rules and regulations on Safety adopted under the aegis of the IMO provide international legal framework and practices for protecting the human life at sea and the marine environment, and deal with different areas, such as safety (e.g. SOLAS Convention, COLREG, STCW), prevention of operational and accidental pollution (e.g. MARPOL Convention), response to accidental pollution (e.g. Intervention 1969, OPRC and OPRC-HNS protocol), and liability and compensation (e.g. CLC, IOPC Fund, Bunkers Convention). It administrates with **UNEP/MAP**, the REMPEC. IMO is also competent to define and enhance the security of the maritime transport network, including vital shipping lanes, and to reduce piracy and armed robbery against ships as well as the frequency of stowaway incidents, through IMO Strategic Plan (for the six-year period 2016-2021³²³). This includes the promotion of a comprehensive and cooperative approach, both among Member States within the Organization and between IMO and other intergovernmental and non-governmental organizations, as well as awareness-raising on IMO security measures and promoting their effective implementation.

³²² <https://www.issafrica.org/uploads/CONVMARITIMEFR.PDF>

³²³ <http://www.imo.org/en/About/strategy/Documents/A%2029-Res.1097%20-%20Strategic%20Plan%20for%202016-2021.pdf>

Challenge 3: Environmental State: Acute and chronic impacts of human activity

Table 9: Types and examples of actions through which the identified governance frameworks may address Challenge 3: Environmental State : Acute and chronic impact of human activity

Sub-Challenges	1. UfM (sea-basin)	2. 5+5 (sub-sea basin)	3. AMU (southern shore)	4. GFCM (sub-sea basin)	5. UNEP/MAP (sea-basin)	6. IMO (global)
3.1 Threats to the marine and coastal biological diversity and habitats	Ministerial Conferences on Water and Env.: Enhancing regional political dialogue, regional stakeholder exchanges, and project replicability regarding regional priority concerns. - Implementation of key initiatives (Horizon 2020 Initiative for a Cleaner Mediterranean) at the country level			Elaborating reports and reviews on the impacts of fishing activities on marine ecosystems and habitats - Setting obligations and recommendations on exploitation of commercial resources (fish stocks and red coral), and conservation of ecosystem components (to be implemented by countries) - Establishing permanent scientific working groups on demersal and small pelagic fish species to provide data, facilitate analysis and provide best scientific advice to better manage fishing activities and fish stocks - Setting obligations and recommendations on management of fishing activities (to be implemented by countries) - Data collection and periodic reporting on the state of fisheries	Elaboration of thematic Action Plans targeting specific issues related to marine and coastal ecosystem protection and conservation - Elaboration and implementation of regional holistic initiatives to apply the Ecosystem Approach management of socioeconomic activities and apply/develop economic sustainable patterns - Mobilising and establishing partnerships with relevant actors (policy-makers, scientists, fishermen representatives, fish workers, civil society, NGOs, research institutions, international organizations). - Funding for implementation (southern shore) - Promotion of data collection and thematic studies to support sustainable practices - Identification of common goals and actions to promote more sustainable “traditional” sectors and industries (e.g. tourism)	Elaborating Guidelines and setting binding obligations to minimize the transfer of invasive species (BWM Convention)

Sub-Challenges	1. UfM (sea-basin)	2. 5+5 (sub-sea basin)	3. AMU (southern shore)	4. GFCM (sub-sea basin)	5. UNEP/MAP (sea-basin)	6. IMO (global)
3.2 Pollution-derived pressures	Ministerial Conferences on Water and Env.: Enhancing regional political dialogue, regional stakeholder exchanges, and project replicability regarding regional priority concerns. Implementation of key initiatives (Horizon 2020 Initiative for a Cleaner Mediterranean) at the country level	Ministerial Meetings on Env. and Ren. Energy: Informal exchanges searching cooperation and support for combating marine pollution				Setting binding obligations on pollution, sewage and garbage prevention (MARPOL Convention) Enhancing implementation and enforcement, both by flag and port States, including action plan shore-based reception facilities for ship generated waste Elaboration of guidelines to reduce underwater noise from commercial ships.
3.3 Socio-economic drivers contributing to unsustainable patterns	Ministerial Conferences on Energy and Climate: Enhancing regional political dialogue, regional stakeholder exchanges, and project replicability regarding regional priority concerns; - Promotion of synergies including stakeholders, the private sector and various levels of governance.	Ministerial Meetings on Sustainable Tourism: Informal exchanges targeting the cooperation and promotion of sustainable Euro-Mediterranean tourism respectful of environmental resources and values - Ministerial Meetings on Env. and Ren. Energy: Informal exchanges targeting action and cooperation in the field of waste management and resource; protection of the coastline and integrated management of coastal area; good management of drinking water; and renewable energies.		Gathering periodic data and reporting on fleet segmentation, capacity and activity, and fishing effort Identification of actions and measures to drive aquaculture activities and small-scale fisheries sustainable Funding/ funding mobilisation to promote sustainable practices in the management and diversification of fisheries and aquaculture Mobilising and establishing partnerships with stakeholders (policy-makers, scientists, practitioners, fishers representatives, fish workers, civil society organizations, NGOs, research institutions, international organizations).		

Two of the **Union for the Mediterranean (UfM)** strategic priority areas of action are directly related to sustainability and/or environmental issues and might concern some of the sub-challenges identified under challenge number 3 related to the environment:

- **Water and Environment:** through this priority area, the UfM aims to tackle Mediterranean environmental threats, related to biodiversity, natural resources, habitable areas and health. Among its strategic objectives, the UfM aims to:
 - promote access to water resources and water management;
 - protect the Mediterranean Sea, its environment, and overall promote sustainable development;
 - contribute to de-pollution and pollution prevention efforts in the region, through the implementation of the 'Horizon 2020 Initiative for a Cleaner Mediterranean'.
- **Energy and Climate Change:** taking into consideration that Climate and Energy are two key interconnected areas placed high in the international political agenda, the UfM aims to deal with energy vulnerabilities and climate change threats in the region, with the final aim of advancing towards more secure and sustainable energy models. Since 2014, climate change has been included for the first time as a priority area of cooperation for the UfM.

Strategic objectives within this priority area include:

- supporting and reinforcing regional dialogue -between member states, regional organisations, financial institutions, and industry and experts- in the field of on energy and climate change, as well as on related (regional) priority concerns (e.g. energy, water scarcity, desertification, food security, overpopulation and resilience to extreme weather events);
- supporting project promotion from identification of priorities until implementation with appropriate resources;
- ensuring project replicability in the region.

The **5+5 Western Mediterranean Forum** has over the years evolved from merely political initiative to a body for strengthened regional and multidisciplinary cooperation in the sub-seabasin. It has therefore expanded to include other spheres, including since 2010 the issue of “environment and renewable energies”, recognising the need to address critical environmental concerns in the area.

In the context of environment and renewable energies, joint Declarations focus on a number of issues, some of which having been identified as critical concerns in previous sections, including: protection of the marine environment and combating against marine pollution; integrated coastal zone management; sustainable management of water resources; adequate waste management, both household and industrial (dangerous); and preservation of biodiversity. In particular, joint Declarations call for the ratification and implementation of already existing regulatory tools, such as IMO legal requirements and measures or UNEP/MAP IZCM Protocol, emphasising the need to take ownership and implement already existing initiatives applying to the sub-sea basin.

Due to the geographical and thematic scope of the **Arab Maghreb Union (AMU)**, dealing exclusively with agreements concerning economic and cultural cooperation amongst Maghreb Arab countries in North Africa, and considering the analysis described in previous sections of the report, this platform might remain of little relevance regarding the environmental issues highlighted under chapter 4. It

should be noted, nevertheless, that the 2012 joint communication by the EU and the High Representative of the EU for Foreign Affairs and Security Policy declaring their support for fostering cooperation and regional integration in the Maghreb, and inviting AMU to develop a high-level dialogue concerning a number of areas, includes energy and the environment as main topics of interest.

The **General Fisheries Commission for the Mediterranean (GFCM)**, although covering a geographical area much broader than that of the Western Mediterranean sub-seabasin, consolidates an important governmental framework targeting important environmental issues. In particular, it focuses on the conservation and sustainable use of living marine resources as well as the sustainable development of fisheries and aquaculture activities in the Mediterranean and in the Black Sea. Therefore, it is a relevant framework regarding some of the challenges described under this topic, especially regarding loss of biodiversity and habitats; overexploitation of commercial fish species, in particular concerning fish stocks shared by more than one state; and unsustainable patterns of fishing and aquaculture activities. GFCM actions and activities include the provision of (binding) measures (recommendations) to CPs for the sustainable exploitation and management of marine resources, as well as for the appropriate management of fishing and aquaculture activities to drive them sustainable. The GFCM is also in charge of providing periodic scientific data, information, advice and evaluation to address the status of marine resources and monitor economic activities. It also seeks cooperation between regional actors and stakeholders to ensure ownership and, therefore, implementation of measures at national level.

The **Mediterranean Action Plan (UNEP/MAP)**, although not exclusively focusing on the Western Mediterranean sub-sea basin, appears the most relevant governmental structure for the achievement of a good environmental status of its marine and coastal ecosystems. Since adopted in 1975 by the Mediterranean countries and the EC, it has been the first-ever Regional Seas Programme established under UNEP's umbrella, and has provided a UN consolidated and legally-binding framework targeting specifically environmental protection in the Mediterranean. Seven Protocols addressing specific aspects of Mediterranean environmental conservation and sustainable development have been signed and complete the UNEP/MAP legal framework:

- Dumping Protocol (from ships and aircraft)
- Prevention and Emergency Protocol (pollution from ships and emergency situations)
- Land-based Sources and Activities Protocol
- Specially Protected Areas and Biological Diversity Protocol
- Offshore Protocol (pollution from exploration and exploitation)
- Hazardous Wastes Protocol
- Protocol on Integrated Coastal Zone Management (ICZM)

Although UNEP/MAP's initial focus was entirely dedicated to address marine pollution, over the years its mandate has gradually widened to include initiatives and strategies regarding integrated coastal zone spatial planning and ecosystem-based management, unsustainable development patterns and the achievement of a Blue Economy in the basin. Therefore, it is considered a key governance structure in the Western Mediterranean sub-seabasin providing stable, long-lasting and very valuable assistance and support with respect to the issues described in the previous section, as its scope of action is progressively widening according to the (environmental, social, economic) challenges of the region.

Regarding the protection of marine and coastal ecosystems and mitigation of impacts, UNEP/MAP has designed and seeks today to implement a number of regional and strategic action plans targeting specific issues, such as conservation of biological diversity; invasive species; reduction of land-based and offshore pollution; or marine litter, etc.).

From a holistic, integrated approach, the UNEP/MAP has elaborated a wide diversity of initiatives aiming to address unsustainable patterns in the basin and achieve sustainable development:

- The Ecosystem Approach Initiative (EcAp);
- The Mediterranean Strategy for Sustainable Development (2016-2025);
- The Regional Plan on Sustainable Consumption and Production Patterns.

For the environmental issues of concern, the **International Maritime Organization (IMO)**, although involving the international level, is directly addressing several aspects of two issues of concern affecting the Western Mediterranean sub-seabasin:

- Threats to the marine and coastal biological diversity and habitats, by elaborating practical guidelines and the setting binding obligations (through the Ballast Waters Management Convention) to minimize the transfer of invasive species; and
- Pollution-derived pressures, addressing chemical, eutrophication and marine litter through the setting of binding obligations on pollution, sewage and garbage prevention (MARPOL Convention); as well as underwater acoustic pollution, through the elaboration of guidelines to reduce underwater noise from commercial ships.

Challenge 4: High unemployment and insufficient maritime skills/competencies

Table 10: Types and examples of actions through which the identified governance frameworks may address Challenge 4: High unemployment and insufficient maritime skills/competencies

Specific challenges	UfM (sea-basin)	5+5 (sub-seabasin)	AMU (southern shore)	GFCM (sub-seabasin)	UNEP-MED (sea-basin)	IMO (global)
4.1 Mismatch of blue skills between offer and demand	New chance Mediterranean Network (MedNC) The Euro-Mediterranean University of Fes Mediterranean Initiative for Jobs (Med4Jobs) Declaration on the Blue Economy	High-level sectoral conferences have taken place including education as a topic Malta Declaration October 2012 including education as one of the top areas of interest				The strengthening of maritime capacity-building and the establishment of partnerships with governments, organisations and industry as strategic directions for the organisation World Maritime University (WMU) as a reference training institution for the maritime industry
4.2 Limited cooperation on maritime and marine education and training	Strategic objective (Facilitate North-South dialogue within Mediterranean scientific research frameworks)					

Source: Developed internally based on publicly available information for each initiative

The **Union for the Mediterranean (UfM)**³²⁴ is a key actor addressing the specific problem on the mismatch of offer and demand and the limited existing cooperation among training and education institutions.

One of the formal working priority areas for the organisation is education and research, aiming at:

- Empowering the two regional centres for Euro-Mediterranean Higher Education: the Euro-Mediterranean University of Fes and the EMUNI University;
- Facilitating coordination and provide a platform for Mediterranean higher education and youth mobility;
- Improving the quality of vocational training and higher education in the region in view of increasing the student employability;
- Facilitating the North-South dialogue within Mediterranean scientific research frameworks.

A number of concrete valid examples illustrate the range of activities undertaken in this domain by UfM since the First Euro-Mediterranean Ministerial Conference on Higher Education and Scientific Research took place back in 2007³²⁵. Three specific initiatives can be highlighted:

- New chance Mediterranean Network (MedNC): Conceived as a platform for exchanging knowledge and sharing experiences for the purpose of helping young people from the Mediterranean region become more employable, the New Chance Mediterranean (MedNC) project consists of promoting a regional network of “New Chance” accredited orientation, training and professional integration centres that share the same approach, but which are specifically adapted to the context and needs of Mediterranean countries³²⁶.
- The Euro-Mediterranean University of Fes (Université Euro-Méditerranéenne de Fès, UEMF), a new regional centre of excellence contributing to regional stability and integration through the promotion of dialogue, intercultural exchange, sharing of knowledge and cooperation in the fields of higher education, research and innovation. Its particular regional approach is reflected in the diversity of nationalities of the students and staff as well as in the contents of study programmes, which focus on important topics for the integrated development of the Mediterranean region³²⁷
- Mediterranean Initiative for Jobs (Med4Jobs), a flagship initiative of the Union for the Mediterranean to help increase the employability of youth and women, close the gap between labour demand and supply, and foster a culture of entrepreneurship and private sector development.

Furthermore, the Declaration of November 2015 on the Blue Economy³²⁸, underlines the need to improve education, training and scientific capacity and skills development in the maritime domain and to increase the potential for cooperation on maritime and marine knowledge such as the work of the Arab Academy for Science, Technology and Maritime Transport and the International Maritime Safety, Security and Environment Academy. This clearly provides the grounds for future action in this field of activity. In this respect, the Declaration also calls for setting in motion a network/networks and/or reinforcing existing networks between relevant education, training and research institutions answering the needs of marine and maritime professions. This is believed to be beneficial in terms of developing new curricula, academic programmes and professions in the blue economy, such as on new technologies

³²⁴ <http://ufmsecretariat.org/>

³²⁵ http://ufmsecretariat.org/wp-content/uploads/2012/09/cairo_declaration.pdf

³²⁶ <http://ufmsecretariat.org/mednc-new-chance-mediterranean-network/>

³²⁷ <http://ufmsecretariat.org/the-euro-mediterranean-university-of-fez/>

³²⁸ http://ufmsecretariat.org/wp-content/uploads/2015/11/2015-11-17-declaration-on-blue-economy_en.pdf

and maritime security and safety of the seafarers, boosting skills and employability in the Mediterranean Sea basin.

The **5+5 Western Mediterranean Forum** produced a Malta Declaration concluding the Second Summit of the Heads of State and Government of the Member States of the Western Mediterranean Forum 5+5 Dialogue of 5-6 October 2012³²⁹. The Declaration reaffirms the importance of the dialogue between the Arab Maghreb Union and the European Union, underlines its interest in deepening the relations between the two parties, and calls for the establishment of regular meetings between the two organisations. Among the priority areas to support cooperation in the sub-seabasin, education and the enhancement of youth's potential is included as a fundamental element for the development and the prosperity of the West Mediterranean region. In particular, the Declaration opens the ground to cooperation in the following topics related to education and skills:

- Supporting initiatives that can be taken to develop education and training;
- To enhance the employability of youth, encouraging measures to develop vocational education and training;
- The establishment of a Euro-Mediterranean qualifications framework based on the recognition and transfer of skills and qualifications for the 10 countries;
- To encourage institutions of higher education to sign cooperation agreements to foster the mobility of students and teachers, to implement joint degrees according to the respective national rules and to create common academic research programmes.

The **Arab Maghreb Union (AMU)**³³⁰, is much related to the above mentioned 5+5 Dialogue and, as indicated in previous sections of this report, provides a platform for potential agreements on economic cooperation amongst Arab countries of the Maghreb in North Africa. In 2009, the AMU signed a Cooperation Agreement with UNESCO on education, human resources development and culture. However, from the publically available resources consulted for the purpose of preparing the present report, no education-related initiative can be found since amongst the various specialised commissions of the organisation³³¹.

The **General Fisheries Commission for the Mediterranean (GFCM)** Framework Programme (FWP) is articulated around four thematic areas, being one of its main lines of action to provide technical assistance to enhance cooperation. Within this domain, in its rationale of intervention, the reduction of young unemployment in the Mediterranean was identified as an immediate need and training programs on the topic are described as useful tools. However, no visible relevant activities or practices pertinent to this issue could be recorded.

The **UNEP Mediterranean Action Plan (MAP)** classifies its activities into six different categories:

1. Sustainable development
2. Land-based sources
3. Maritime traffic
4. Coastal Management

³²⁹ <http://gov.mt/en/Government/Press%20Releases/Documents/pr2192a.pdf>

³³⁰ <http://www.maghrebarabe.org/en/index.cfm>

³³¹ In fact, at a recent workshop organised by UMA with the African Development Bank, seeking to identify a potential portfolio of projects to be supported, the following five priorities were considered: Industry and value chains, Renewable energy, Transport and Logistics, Financial Services and Agriculture and food security.
<http://www.maghrebarabe.org/fr/communiqués.cfm?id=163>

5. Biodiversity
6. Information

Regarding Category 6 on information, the INFO/RAC^[3] is the regional centre which strives to apply various tools and methodologies to the essential challenge of promoting information sharing and communications between MAP stakeholders and the wider user community concerned with the future of the Mediterranean. These initiatives and projects do not only address technological (ICT) components but also skills development, partnerships, education or public exposure events (including specific media activities). In fact, one of the key issues of INFO/RAC's scope of action is the promotion of education initiatives and participation and ownership of Contracting Parties. Furthermore, INFO/RAC adopts a multi-disciplinary approach to its mission by always seeking to integrate the best partners and skills from other sectors including public, private and civil society. Despite the above, no concrete education-related initiative has been identified in the public available resources consulted.

The **International Maritime Organization (IMO)** includes in its High-level Action Plan of the organisation and priorities for the 2016-2017 Biennium³³² as strategic directions the strengthening of maritime capacity-building programmes. The organisation will be seeking the establishment of partnerships with governments, organisations and industry to improve the delivery of such training programmes.

Furthermore, this specialized agency of the United Nations, acting as the global standard-setting authority for the safety, security and environmental performance of international shipping, places maritime education and training at the top of their priorities.

In particular, the *World Maritime University (WMU)* ³³³ was established by IMO in Malmö, Sweden, in 1983 and has become an outstanding institution, bringing together young people with various educational, cultural and social backgrounds to study. WMU is a centre of excellence for maritime post-graduate education and research, promoting the highest standards in teaching maritime affairs, including maritime law and policy, maritime safety and environmental administration and management, maritime education and training, shipping management, port management, marine environment and ocean management, and international maritime transport and logistics.

^[3] <http://www.info-rac.org/en>

³³² <http://www.imo.org/en/About/strategy/Documents/A%2029-Res.1098%20-%20HLAP%202016-2017.pdf>

³³³ <http://www.wmu.se/>



TOWARDS A MARITIME STRATEGY

TOWARDS A SUSTAINABLE BLUE ECONOMY INITIATIVE FOR THE WESTERN MEDITERRANEAN

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