



Marine conservation challenges in an era of economic crisis and geopolitical instability: The case of the Mediterranean Sea

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ABSTRACT

In the Mediterranean Sea, socio-economic drivers may accelerate the process of exclusive economic zone (EEZ) declarations. Despite the challenges, the EEZ declarations may provide important opportunities for leveraging change to national policy towards the development of large-scale conservation of marine ecosystems and biodiversity in this zone. Using the Mediterranean Sea as a case study, we aim to highlight a set of best practices that will maximize the potential for the development of large-scale marine conservation initiatives. These include a range of approaches, such as using surrogates to fill the many biodiversity data gaps in the region, further the development of consistent and open access databases, and the utilization of technological developments to improve monitoring, research and surveillance of less accessible and under-explored marine areas. The integration of Mediterranean-wide and local conservation efforts, the facilitation of transboundary collaboration, and the establishment of regional funds for conservation will further enhance opportunities for marine conservation in this region.

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1. Introduction

1.1. Towards EEZ conservation planning

Spatial prioritization is challenging at large scales, especially when following an integrated approach that accounts for biodiversity features, threats to ecosystems, the feasibility of conservation actions and related costs [1,2]. While terrestrial conservation planning has rapidly advanced in recent decades, large-scale marine conservation

prioritization, which includes socio-economic and political factors, remains challenging and underexplored. This is partially due to difficulties in obtaining data on the distribution of biodiversity and human activities, and the fact that many marine areas have an ambiguous jurisdictional status [3].

The right to establish an exclusive economic zone (EEZ) is considered to be one of the most important provisions of the United Nations Convention on the Law of the Sea (UNCLOS) (Table S1 a). EEZs are defined as marine areas extending up to 200 nautical miles from the baselines from which the breadth of the territorial sea is measured. Within an EEZ, the coastal state has sole exploitation rights over all natural resources, but also the responsibility for the conservation and management of the zone

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(Article 61 of UNCLOS). In many countries around the globe, the declaration of EEZ has catalyzed marine conservation efforts offering new wide-ranging opportunities (Table S2).

Several countries have established or are in the process of establishing conservation areas and networks of marine protected areas (MPAs) within their EEZs. Often this is set within a broader framework of marine spatial planning (Table S2). Marine spatial planning is the process of analyzing and allocating the spatiotemporal distribution of human activities to achieve specific ecological and socio-economic objectives. It has emerged as a tool for resolving inter-sectorial disputes over maritime space [4,5]. Conservation planning places emphasis on the protection of ecological features and processes, and the persistence of biodiversity and other natural values [6,7]. These two approaches have started to converge within an overarching framework of ecosystem-based marine spatial management [5,8,9], and may often overlap in practice (Table S2).

The main aim of this work is to analyze the challenges and the opportunities for EEZ-scale conservation within an ecosystem-based marine spatial management approach, focusing on the Mediterranean Sea as a case study.

1.2. The Mediterranean Sea: A model for the world's oceans

The effective protection of biodiversity requires that nature conservation targets are reconciled with social, economic, cultural, and political needs. One of the best case studies for building a framework for marine conservation planning in a complex geopolitical context is the Mediterranean Sea. This basin has been described as a miniature ocean that can serve as a mesocosm of the world's oceans in order to investigate the impacts of climate change and other natural processes [10,11]. This also applies for the socioeconomic and political context. The Mediterranean Sea is a semi-enclosed sea (2969,000 km²) connecting three continents, surrounded by over 20 countries [12]. Inherent geopolitical complexity and the diversity of political, cultural, and legal systems have raised obstacles to marine conservation efforts, which are currently largely confined in coastal territorial waters [2,13–15].

In addition to the large diversity of species and habitats that the Mediterranean Sea hosts, there is wide variety of bathymetric and geological features, from shallow seagrass meadows and rocky reefs to deep trenches and hydrothermal vents [12,16–18]. Due to increasing levels of human use and the associated threats to biodiversity [19,20] (Fig. 1), the Mediterranean marine ecoregions are among the most impacted globally [21,22].

Despite many efforts for regional-scale conservation planning and increasing agreement on priority areas for conservation [23], the targets set by the convention for biological diversity are far from being achieved in the Mediterranean. Existing MPAs currently cover only about 4.6% of the region, with merely 0.1% under strict protection or designated as no-take reserves [14] and under-representation of off-shore areas [13].

The inherent geopolitical complexity and disputes over marine borders and jurisdictions (Fig. 2; Table S3) have raised obstacles to EEZ declarations and marine conservation efforts offshore in the Mediterranean. However, many of the drivers for EEZ declaration will expedite the process in the near future (see Section 2). This situation poses challenges to large-scale conservation planning in the EEZs of this region. Conversely, this could be a unique opportunity for the development of a coordinated regional conservation effort.

The Mediterranean Sea is unique in the fact that once all countries declare their respective EEZs there will be no 'High Seas'. This will make the EEZ a basic administrative unit for marine spatial planning and marine conservation [24]. Consequently, the legal obligation to protect biodiversity and manage marine resources within an EEZ will provide an unprecedented opportunity to expand the spatial scale of conservation planning in the

Mediterranean. Concurrently, there will be an opportunity to improve international coordination and integrate conservation efforts. The offshore areas of the region face reduced threats compared to the coastal areas, yet at the same time they include several biodiversity hotspots (Figs. 1 and 3).

2. Drivers for EEZ declaration in the Mediterranean

The relevant legal instruments applicable at global, regional, and European level (Table S1a and Table S1b) provide a wide-range of regulatory frameworks for environmental protection in the Mediterranean Sea. However, important legal instruments, such as UNCLOS, have not yet been signed and ratified by all Mediterranean states (Table S1a), while the level of application of these instruments varies widely among parties. A broad range of EEZ boundaries, ecological zones, and fisheries zones further complicate the situation. Some countries have a large number of potential EEZ boundaries [15], which suggests that successful conservation actions may depend on transboundary collaboration [25], the resolution of geopolitical or socio-economic conflicts, or mutual exploitation [26]. Overall, there are over a dozen marine border disputes in the Mediterranean Sea (Fig. 2; Table S3) that complicate the declaration of EEZs. In some instances these have led to military crises, such as the case of the Imia/Kardak conflict between Greece and Turkey in 1996 (Table S3).

However, multiple drivers for the acceleration of the EEZ declarations have recently emerged. These drivers, acting independently or synergistically, have forced multi-lateral discussions and negotiations, and even unilateral decisions by some countries to declare their EEZ.

Vital economic and political interests of States to secure marine resources can lead directly to the declaration of an EEZ. Coastal states located within geopolitically unstable regions may have greater incentives to secure independent energy resources (Box S1 in Suppl. material). The recent European sovereign debt crisis has severely struck the EU Mediterranean countries leading to a series of austerity measures and tough bailout programs [27]. In their struggle to recover from the crisis many governments are looking at fossil fuel reserves to reduce energy costs. In Greece the prospect of offshore gas and oil reserves in the Aegean and Ionian Seas are heralded by many politicians as the future 'El Dorado' that will save the country from bankruptcy. Similarly, the exploitation of hydrocarbon resources is closely linked to the recovery of the Cypriot economy. A direct result of this was that Cyprus and Egypt signed an agreement on their EEZs in 2003 [28]. Later Cyprus and Israel also agreed on the borders of their EEZs and to cooperate in the discovery and exploitation of joint hydrocarbon resources.

Ever progressing drilling technologies, dwindling shallow reservoirs, together with a rise in oil prices and demand for natural gas, encourage the hydrocarbon industry to explore and drill ever deeper [29]. Most of the large hydrocarbon discoveries in the eastern Mediterranean are within EEZs and in some cases on the border between countries (e.g. Israel and Cyprus). Plans for development are also being discussed in Western Mediterranean, e.g. in Spain. The viability of offshore drilling in the Mediterranean Sea is liable to speed up the process of EEZ declaration (Box S1 in Suppl. material).

3. Challenges and concerns for EEZ-scale conservation

The declaration of an EEZ brings a series of challenges and concerns for large-scale conservation efforts. The most important ones are highlighted below.

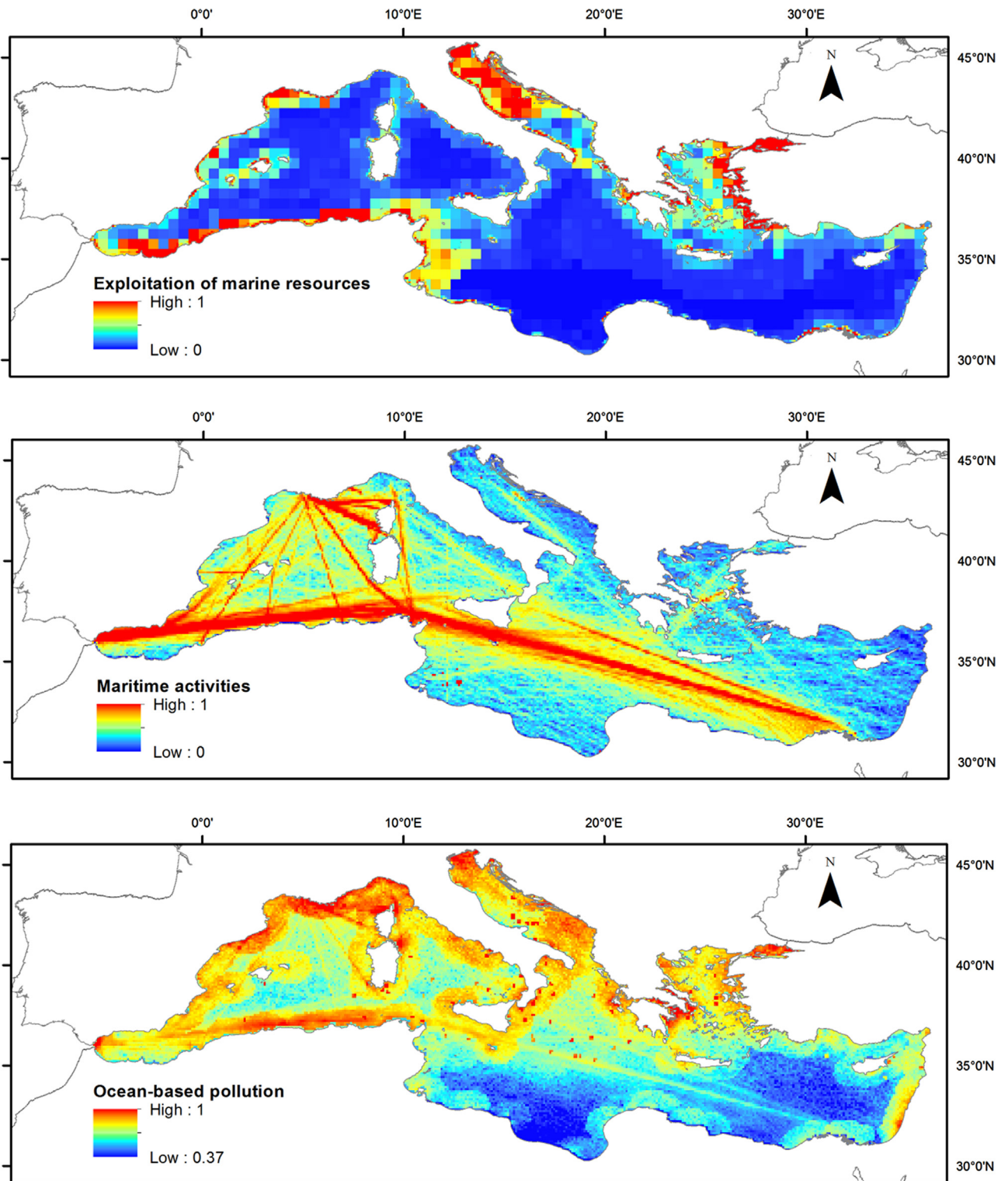


Fig. 1. Examples of human activities in the Mediterranean threatening conservation efforts (adapted from [19]).

3.1. Data and knowledge gaps

A large amount of biological and geophysical information has been gathered in the Mediterranean through various national or international initiatives. However, most of the available data on the distribution of ecological features refers to coastal and shelf areas [30]. Fine-scale habitat mapping is largely lacking, especially in offshore waters and data-poor regions such as the southern and eastern Mediterranean [19,23,31]. Even broad-scale classifications

of marine habitats are biased in favor of shallow habitats due to gaps in knowledge in deep-sea environments [17].

Data on the distribution of threats to ecological features and processes are also rather poor. Important elements such as trace metals, persistent organic pollutants, and oil pollution are irregularly monitored throughout the Mediterranean Sea. The multi-gear and multi-species nature of Mediterranean fisheries remains a stumbling block to quantify the real impact of fishing [32]. Different countries and regional bodies use different data collection protocols and levels

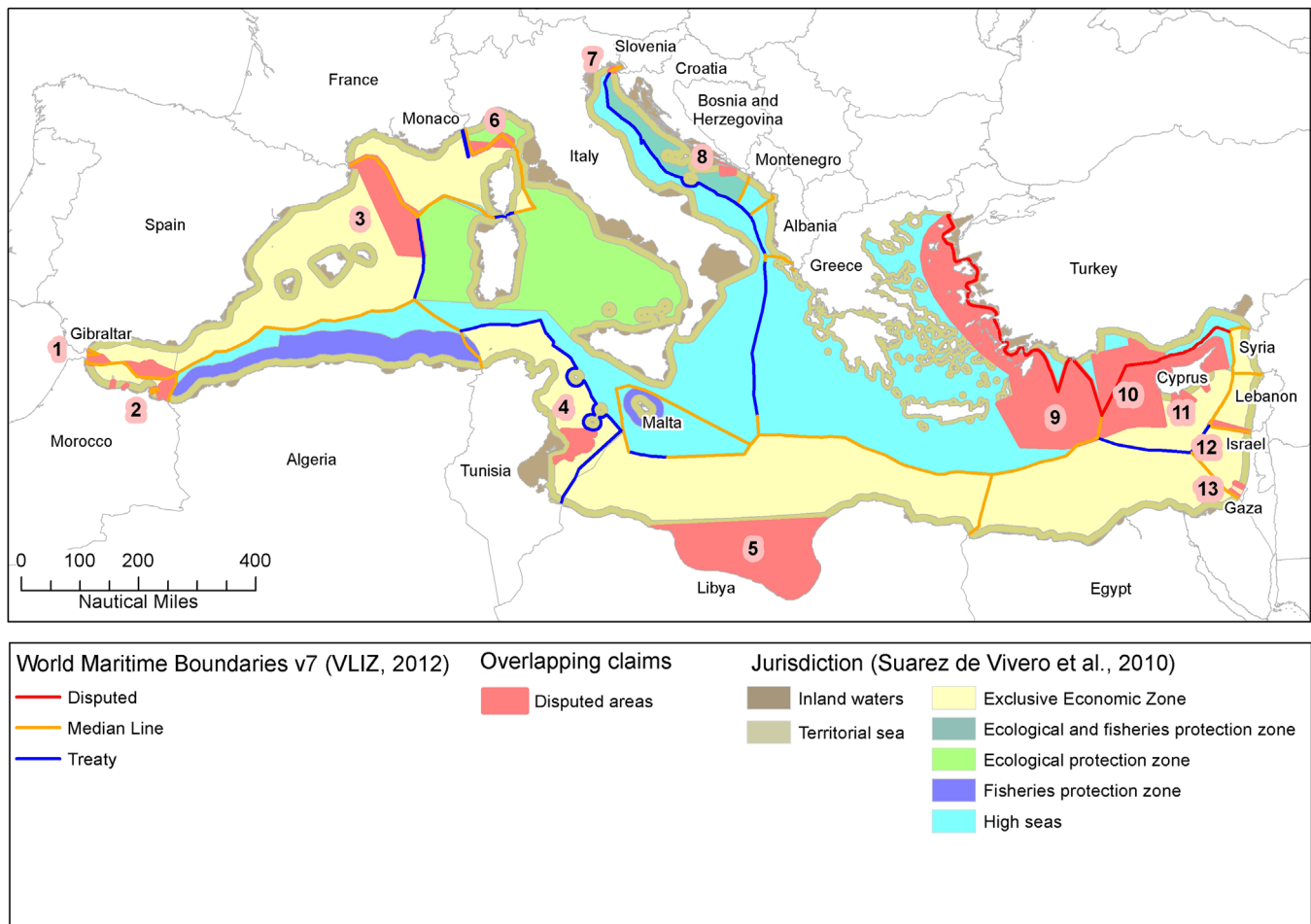


Fig. 2. Marine boundaries and disputes in the Mediterranean Sea. See Table S3 for details on the disputed areas.

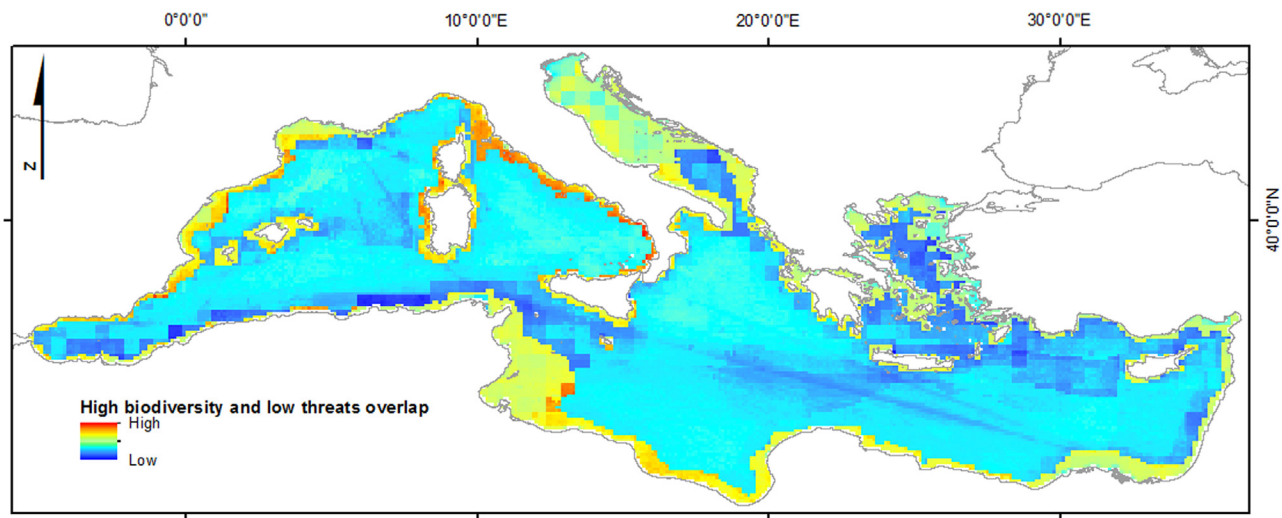


Fig. 3. Areas with high diversity of fish species under IUCN categories, and low cumulative threats. Details on the methodology applied for this analysis may be found in the [Supplementary online material](#).

of data aggregations, creating additional challenges to combine data and perform analyses at the relevant regional scale for shared stocks. Moreover, data on fishing effort and distribution is either unavailable or difficult to access in some regions [2,33]. The region is generally suffering from the problem of data ownership and accessibility [34].

The paucity of data and database accessibility issues – notably at a homogeneous cross-basin level as well as ecoregion – are a hindrance to

the development of ecosystem-based marine spatial management and marine conservation planning in general [31]. They impair the ability to calibrate oceanographic and ecological models, prevent the calculation and standardization of indicators, and restrict cross-border scientific collaboration. Habitat or species distribution models, when based on poor or limited datasets or global data, give predictions that might substantially deviate from field observations at regional levels (Fig. 4).

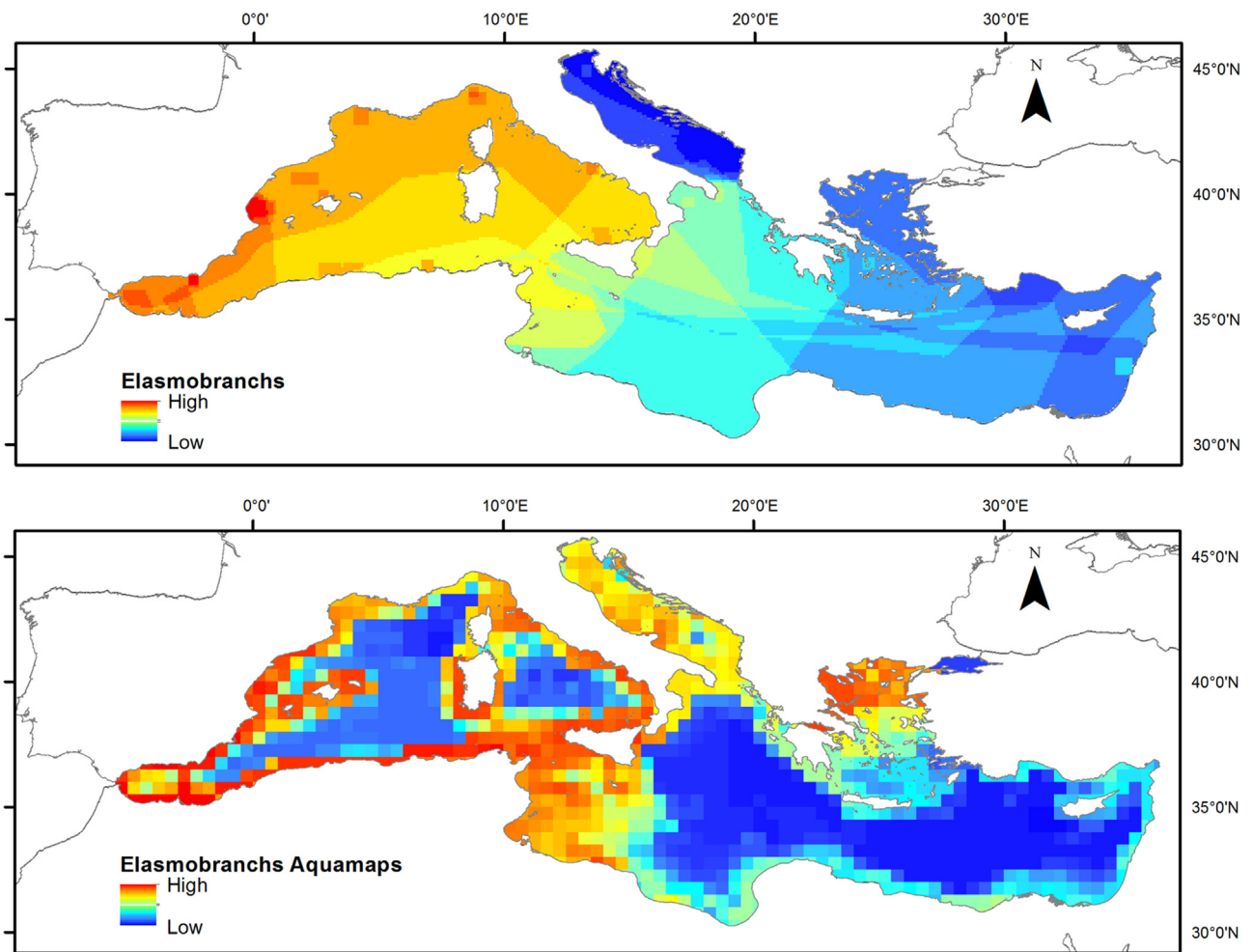


Fig. 4. Dependence of species distribution models on the quality and representativeness of available data. Different estimated patterns of elasmobranchs species richness in the Mediterranean Sea using expert knowledge data (top panel) and predicted results from species distribution models (bottom panel) (modified from [12]; see [Supplementary online material](#) for details on the methodology).

3.2. Monitoring, surveillance and enforcement

The offshore nature of EEZs makes the enforcement and surveillance particularly challenging. This task becomes even more difficult considering that a number of illegal activities, such as smuggling, piracy, illegal fishing, trafficking, waste dumping, and deliberate discharges from vessels take place in offshore areas [35,36].

To date, fisheries regulations in the Mediterranean Sea are poorly implemented. This poses special challenges for fisheries of shared or widely distributed stocks (such as bluefin tuna). The occurrence of illegal, unreported and unregulated (IUU) fishing not only in the high seas but also in “poorly regulated” EEZs [37] poses a challenge for the design, establishment and enforcement of MPAs within these zones [38–40]. Economic gains from IUU fishing are very high (up to U.S. \$ 23 billion per year; [41]), exceeding the expected cost of being apprehended, thus the potential for non-compliance is also high [37].

3.3. Increased pollution risks from hydrocarbon exploitation

Ultra deep-water hydrocarbon exploration (> 1500 m depths) is at the technological forefront of the industry. Ultra-deep drilling and pipe-laying are particularly risky in terms of their potential impacts on biodiversity and ecosystems [42]. The Gulf of Mexico disaster demonstrated that deep-sea spills can have fundamental

environmental and conservation impacts impacting both pelagic and benthic habitats [43]. In the eastern Mediterranean, exploratory drilling in the Leviathan gas well caused a major leak of brine in May 2011 (12–14 thousand barrels per day). Fortunately, it was brine that seeped out of the well and not hydrocarbons, but this event demonstrates the technical and engineering difficulties associated with such deep drillings. Oil and gas exploration and exploitation have also operational impacts on the environment which may affect conservation efforts, such as noise pollution, chemical discharge from drill cuttings, drill mud and routine operations [44,45], as well as a possible avenue for invasive alien species [46].

3.4. Environmental and conservation issues lower in the agendas

Citizen concern over environmental issues has been declining since 2009 globally, and by the end of 2012 had reached a twenty-year low [47]. In Europe, unemployment, the strained economic situation, inflation, and government debt are the main concerns of citizens at national level, while the environment, climate change, and energy issues are ranked 11th in the list [48]. It is obvious that the economic crisis has shifted environmental and conservation issues lower down the political agenda, thus having important implications on conservation efforts. This is more evident for the marine than the terrestrial environment [49], and even more

chronic for its offshore part, due to the lack of public familiarity with this region and the absence of easily observable impacts.

The economic crisis and declining importance of environmental issues in public perception may affect conservation efforts in the Mediterranean in various ways: (1) Reduced funds for conservation, e.g. the designation of some Spanish marine reserves have been stalled because of fiscal and macroeconomic difficulties [50]; (2) intensification of environmental transformation through exploitation, as a diverse range of economic actors – from individuals and households to industries and governments, struggling to survive the crisis – accelerate their efforts to turn environmental assets into marketable commodities or even subsistence goods [51,52,53]; (3) environmental safeguards are often reduced due to the governmental efforts to promote investments through fast-track laws (e.g. law 3894/2-12-2010 in Greece aiming to speed up strategic investments also in coastal and marine areas, and proposal of Strategic Investment Law in Croatia) and non-transparent procedures; (4) financial agendas can disrupt conservation success stories (e.g. flamingo case in the Mediterranean; [54]); and (5) increase of poaching and other illegal activities [51,53].

3.5. Lack of sufficient funding for conservation

Conservation funds are regularly restricted. Offshore research and conservation are expensive and have little direct association to the day to day life of the citizen. Hence they are low in the agenda of policy makers. It has been estimated that in coming decades, unfunded conservation needs will average between \$1.9 billion and \$7.7 billion annually (<http://woods.stanford.edu/western-conservation-finance-bootcamp>).

In recent years, attempts were made to overcome the traditional reliance on public funding and philanthropic grants for conservation. A set of tax benefits, markets-based instruments, and a diversity of trusts were all developed with the aim to expand the funding base of conservation and mainstream it within the wider economy. These finance structures are more prevalent in the terrestrial realm, with the marine environment being a more difficult 'sell'.

4. Overcoming bottlenecks—conservation opportunities

4.1. Considerations for EEZ conservation planning

Conservation planning within EEZs should be based on the same fundamental principles as planning in territorial waters [23]. Accounting for stakeholder involvement, opportunity costs, connectivity among protected areas, and complementarity of priority areas all remain important aspects in order to achieve the most efficient conservation outcome, i.e. the persistence of all species of concern with minimum cost. The implementation of appropriate systematic conservation approaches [55] and decision-support tools should allow for zoning taking into consideration the opportunity cost from conservation for various stakeholders, e.g. using Marzone [56]. Ideally, the designation of MPAs within EEZs will account for the trade-offs in benefits and costs of all users and stakeholders involved [2]. Spatial prioritization should not necessarily result in closures but instead in management tailored to the specific threats that an area faces. In the Mediterranean Sea, many efforts to map biological diversity and its associated threats have been made [12,19,20]. The next step would be to incorporate these threat maps within a framework that links threats to specific conservation actions and their associated cost, and the assessment of benefits (both ecological and financial) deriving from the recovery of species, habitats, and ecosystems [57].

4.2. Using surrogates to fill data gaps

Knowledge gaps are a serious bottleneck for efficient conservation planning, especially when shifting from coastal to offshore EEZ-wide conservation. While deep-sea ecosystems represent the largest biome globally, deep-sea species richness is still largely unknown [58]. Sampling deep-sea biota over large areas is time consuming and costly [59]. In the absence of biodiversity data, the use of geomorphological, physical, and chemical oceanographic features as surrogates for biological data has become common practice both in coastal and deep-sea ecosystems [60]. Ward et al. [61] found that habitat surrogates can be a cost-effective method for the identification of priority areas for conservation in coastal ecosystems. Similarly Anderson et al. [59] found that the geomorphology of seabed is a good predictor of biological assemblage composition and percentage cover of key taxa living in deep-sea biomes. Regions of the seabed with complex sedimentology, unusual high temperatures, and structural features are considered as areas of high biodiversity [58]. Howell [62] described a hierarchical classification system for the North Eastern Atlantic based on four surrogates useful at progressively finer spatial scales; biogeography, depth, substrate, biological assemblages. However, the limitations of surrogates should be taken into account and uncertainty analysis should be developed.

4.3. Developing free-access homogeneous databases

The absence of open access databases limits the applicability and contribution of future publicly funded programs for conservation planning in the Mediterranean Sea. This is an issue that needs to be resolved, especially in the current context of limited resources. This requires that existing data are made accessible, harmonized, standardized, and checked for quality [30]. In the “global information era”, ensuring data availability, interoperability, and quality should be a compulsory requirement accompanying any publicly-funded initiative [34]. In the past few years, several initiatives have emerged that gather data and make them available online through free-access databases, such as EASIN (European Alien Species Information Network; <http://easin.jrc.ec.europa.eu/>), EIONET (European Environment Information and Observation Network; <http://www.eionet.europa.eu/>) or MAPAMED (marine protected areas in the Mediterranean; <http://www.medpan.org/mapamed>). Furthermore, data standards and protocols have been developed to improve interoperability.

4.4. Transboundary collaboration

Transboundary collaboration in marine conservation planning leads to substantial efficiencies over unilateral uncoordinated conservation [63]. It is particularly important to collaborate within ecoregions to achieve better representation of species, genetic and functional diversity [25,31,64]. For conservation of offshore areas and important conservation features (e.g. seamounts) that cross boundaries, the role of international organizations and their related mechanisms is critical.

Species, habitats, and physicochemical parameters, as well as pollution cross boundaries, thus creating strong interdependence between countries, especially when it comes to broad scale conservation planning. As such, transnational collaboration and coordination appear to be key factors in addressing EEZ-scale conservation issues. Networks of scientists as well as NGOs play an important role in developing, maintaining and promoting exchanges between countries.

The United Nations Environment Program's Mediterranean Action Plan (hereafter UNEP/MAP), in cooperation with the European Commission, initiated a formal regional process for the

identification of Ecologically or Biologically Significant Areas (EBSAs) in the Mediterranean (Fig. 5). This effort led to the identification of 12 such large offshore areas that were ultimately endorsed by all the contracting parties to the Barcelona Convention (21 Mediterranean countries and the European Union). Most of these areas encompass EEZs of more than one country, and many of them fall in high seas or disputed areas. To move this process forward, a major effort needs to be invested by all conservation actors and national governments in planning and implementation of protected areas and conservation zones within the agreed EBSAs [65]. Several efforts exist, varying extensively in their objectives and target species or habitats, identifying areas of conservation priority at different scales for the Mediterranean [23] (Fig. 5). Although these proposals contribute significantly to the identification of priority conservation areas in the Mediterranean Sea, none of them is embedded in a basin-wide binding legal framework, resulting in rather limited outcomes [65]. EEZ declaration has the potential to be quite important to moving the EBSA approach forward. With the existence of clear boundaries it will be easier for adjacent states to cooperate, and each country will have the responsibility and obligation to manage the part of the EBSA located within its EEZ. While the Mediterranean ‘high seas’ still exist, the responsibility for their conservation will also depend on the cooperation of third party States.

The future application of national jurisdiction to the current high seas could minimize irrational exploitation and the depletion of shared marine resources, known as “the tragedy of the commons” [66]. The full definition of EEZ designations will provide a consistent, predictable framework which will make it easier for states to not only apply control over their adjacent marine areas but also cooperate with other neighboring states. This could lead to the development of multi-country scale and Mediterranean-scale conservation planning utilizing regional instruments such as the Barcelona Convention and the European Union environmental legislation (Table S1).

4.5. Joint management zones and dispute settlement

Joint management zones can facilitate faster cooperation among riparian states [67]. A joint maritime zone can be a peaceful option for dispute settlement where parties do not fully agree on delimitation, for example in the Eastern Mediterranean Sea, where several claims have existed already by some coastal countries. Recent development of the oil exploration and exploitation in the

Eastern Mediterranean Sea shows that the states are reluctant and persistent for boundary negotiation. Thus, difficulties can be overcome with new and cooperation-oriented solutions to settle for common profits, prosperity and sustainable use of resources with peace [26,68]. The development of multinational management of large marine ecosystems has been promoted in numerous regions including the coral triangle and the Mesoamerican reef system [69,70].

4.6. Improving monitoring and surveillance

Securing appropriate monitoring and surveillance within EEZs is a prerequisite for successfully implementing conservation actions. Surveillance, especially in offshore areas, can be strengthened by technological means such as Vessel Monitoring Systems (VMS), Vessel Detection Systems (VDS), Automatic Identification Systems (AIS), radar, aircraft support, and even satellite observation platforms. However, the high cost of these integrated surveillance systems may not be a feasible solution for a number of states facing serious economic problems. Partnerships between governmental and private NGOs or foundations might enhance the surveillance and enforcement potential, as e.g. between the Galapagos Marine Reserve and the Sea Shepherd Conservation Society [71]. The integration of MPA surveillance into national marine security and national intelligence systems could prove quite effective and would decrease costs by reducing redundancy. Military systems have powerful technologies and many more assets than non-military agencies and could greatly assist the surveillance of vast marine areas. For example, the U.S. Coast Guard has maintained broad responsibilities for enforcing offshore MPAs established under federal authorities [72]. The use of ROVs for monitoring biodiversity of the deep seas has been ongoing for several decades, however the use of Unmanned Aerial Vehicles (UAVs) for conservation is new but has the potential to expand exponentially due to the low cost [73,74].

Currently, the EU system for fisheries controls makes extensive use of modern technologies such as VMS, VDS, and AIS to ensure that fishing fleets are effectively monitored and controlled (http://ec.europa.eu/fisheries/cfp/control/index_en.htm). Such control systems are applicable to the EU EEZ and offer efficient and cost-effective solutions for surveillance to EU member states. New research is being done in the European Commission's Joint Research Centre and elsewhere on innovative sensors for maritime surveillance (<http://ipsc.jrc.ec.europa.eu/?id=318>). By increasing

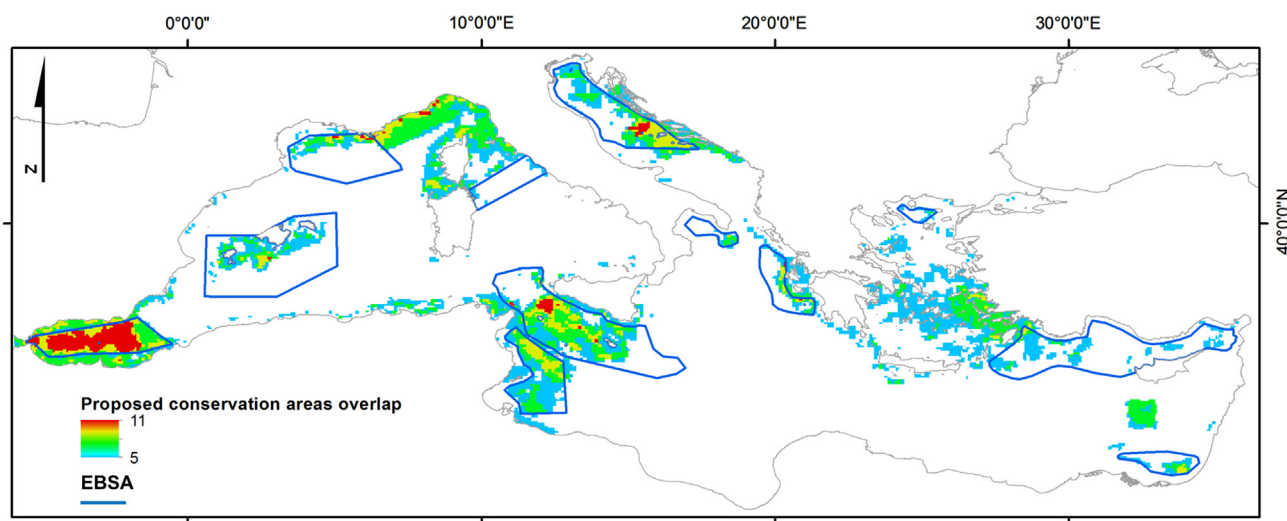


Fig. 5. The ecologically or biologically significant areas (EBSA) proposed in the Mediterranean Sea (adapted from UNEP-MPA RAC/SPA) and consensus areas of high conservation value as identified in [23] based on the overlap among proposed conservation plans (the overlap of at least 5 plans is shown).

the likelihood of sanctions due to better surveillance of EEZ waters, and thus raising the opportunity cost of non-compliance, compliance can be expected to increase.

4.7. Creation of a conservation fund

Currently, the EU is coordinating its legal and financial instruments to push for a Blue Economy, or Blue Growth in the fields of marine mineral resources, maritime-coastal-cruise tourism, aquaculture, ocean renewable energy, and blue biotechnology. As such, there is room to operate regional-scale trusts that reserve a portion of the revenue from resource exploitation for conservation and that allocate a further portion for risk mitigation and insurance. Such mechanisms exist at a national scale (e.g., Norway for the marine realm and in Israel for the terrestrial environment) but do not exist at regional level, such as the Mediterranean marine environment. It is likely that regionally coordinated conservation financing could lead to greater efficiencies in implementing new mechanisms and in using the limited and much-needed conservation funds, whose scarcity have become more acute during the financial crisis.

5. Concluding remarks

Despite the new multifaceted challenges associated with the expansion of the state sovereignty to the EEZs in the Mediterranean Sea, significant conservation opportunities were highlighted. The suggestions provided, regarding conservation opportunities and overcoming difficulties are not restricted to the countries of the Mediterranean Sea but are likely applicable to many regions all over the globe. Collaboration is a fundamental concept for the successful management and conservation of shared resources between states. In many instances the need for transboundary coordination will require adjacent states to develop structures to resolve disputes and take forward economic opportunities for the benefit of all parties. In the Mediterranean Sea but also globally, there is an opportunity for the marine conservation community to step forward and be part of the planning process to protect vital areas of the EEZs.

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at <http://dx.doi.org/10.1016/j.marpol.2014.07.013>.

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Supplementary Online Material

This supplement accompanies the article:

Marine conservation challenges in an era of economic crisis and geopolitical instability: the case of the Mediterranean Sea

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Table S1a: Significant International regulatory instruments for the protection of the marine environment of the Mediterranean (the list is not exhaustive)

Treaty	Objectives	Entry into force *	Mediterranean Contracting Parties	Comments
UNCLOS 1982	Comprehensive global legal regime for the marine environment. Rules on maritime zones, uses and resources	16/11/1994	All Med States except Israel, Libya, the Syrian Arab Republic, and Turkey Not all the Med Contracting States are also Parties to the UNCLOS Agreement on Part XI (in force as from 28/07/1996), or the UN Fish Stocks Agreement (in force as from 11/12/2001)	Establishes/delimits Maritime Zones (including the EEZ); details rights and responsibilities of the Coastal State with regard to exploring, exploiting, conserving and managing the natural resources, the establishment of offshore installations and structures, marine scientific research and the environmental protection and preservation of the EEZs; reaffirms the freedoms of e.g. navigation, overflight and laying of submarine cables and pipelines in the EEZs enjoyed by the other States; prescribes transboundary obligations; provides for a global framework to manage the seas and oceans and establishes guidelines and/or procedures for economic and commercial activities, scientific research and the settlement of disputes; and prescribes a general obligation to protect and preserve the marine environment (Part XII of the Convention). Contracting Parties shall: take measures to prevent, reduce and control all type of pollution of the marine environment (including pollution from vessels); prevent accidents and deal with emergencies.
Bern 1979	Aims to conserve wild flora and fauna and their natural habitats and to promote European co-operation in that field	06/06/1982	Albania, Bosnia & Herzgovina, Croatia, Cyprus, France, Greece, Italy, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, Tunisia, Turkey, EU	Contracting Parties must act to: promote national policies for the conservation of wild flora and fauna (particularly those referred to in the Appendices I and II of the Convention), and their natural habitats; consider conservation of wild flora/fauna in their planning and development policies, and in their measures against pollution; promote relevant education; encourage and coordinate relevant research; co-operate to enhance the effectiveness of these measures through co-ordination of efforts to protect migratory species and the exchange of information and the sharing of experience and expertise.
CBD 1992	Conservation of biological diversity; sustainable use of its components; and fair and equitable benefit sharing of genetic resources	29/12/1993	All Med Coastal States	Contracting Parties shall (amongst others): ensure that activities within their jurisdiction/control do not cause damage to the environment of other States or in areas beyond their national jurisdiction; cooperate with other Contracting Parties, directly or through competent international organizations, in respect of areas beyond national jurisdiction for the conservation/sustainable use of biological diversity; develop national conservation strategies, plans or programmes; identify/monitor components of biological diversity that are important for conservation; establish a system of protected areas; regulate/manage biological resources important for biodiversity conservation; promote environmentally sound and sustainable development; rehabilitate/restore degraded ecosystems; prevent the introduction of, control or eradicate alien species that threaten ecosystems, habitats or species; integrate considerations of biological resource conservation and sustainable use into national decision-making; establish/maintain programmes for relevant scientific and technical education and training; promote/encourage research contributing to conservation; introduce appropriate

				procedures requiring environmental impact assessment for proposed projects; notify immediately potentially affected States of dangers/damages originating in areas under their jurisdiction/control.
CBD Protocol (Cartagena)	Seeks to protect biological diversity from the potential risks posed by the movement of living modified organisms (LMOs)	11/09/2003	All Med States, except Monaco and Israel	Aims to ensure the safe handling, transport, identification and use of living modified organisms (LMOs) that may have adverse effects on biological diversity and human health. Requires Parties to (amongst others): make decisions on import of LMOs for intentional introduction into the environment in accordance with scientifically sound risk assessments; cooperate in the development and/or strengthening of human resources and institutional capacities in biosafety; to promote and facilitate, on their own and in cooperation with other States and international bodies, public awareness and education, including access to information on the safe transfer, handling and use of living modified organisms (LMOs); consult the public in the decision-making process.
Espoo Convention (UNECE)	To assess environmental impacts in a transboundary context	10/09/1997	Albania, Croatia, Cyprus, EU, France, Greece, Italy, Malta, Montenegro, Spain, Slovenia	Sets out obligations for EIAs of certain activities at the planning stage; prescribes a general State Party obligation to notify/consult with other states on all major projects that can have significant adverse transboundary impacts; prescribes post-project monitoring requirements. The Sofia Amendment 2001 (not yet in force) allows non-UNECE States to join. The 2004 Amendment (not in force) will: allow affected Parties to participate in scoping; require compliance reviews; and revise the list of activities (Appendix I).
Espoo SEA Protocol 2003 (UNECE)	To assess early transboundary SEAs	11/07/2010	Albania, Croatia, EU, Montenegro, Slovenia, Spain,	Prescribes integration of EIAs into plans/programmes at the earliest stage; provides for Strategic Environmental Assessments-SEAs and for extensive public participation in the governmental decision-making in numerous development sectors.
Aarhus 1998 Convention (UNECE)	Establishes rights of the public (individuals and associations) with regard to the environment	30/10/2001	Albania, Bosnia & Herzegovina (B & H), Croatia, Cyprus, EU, France, Greece, Italy, Malta, Montenegro, Slovenia, Spain	Provides for: access to environmental information held by public authorities of the Contracting Parties; public participation in environmental decision-making; access to justice, i.e. "the right- to review procedures and challenge decisions made without respecting the above rights or environmental law in general"
RAMSAR 1971 Convention	Framework for national action and international cooperation for the conservation and wise use of wetlands and their resources	21/12/1975 Paris Protocol 01/10/1986 Regina Amendment 01/05/1994	All Med states (336 sites) Only 10 Med States are Parties to both the Paris Protocol and the Regina Amendments	Contracting Parties shall: designate wetlands (riparian, coastal and marine with water depths > 6 m at low tide) on account of their international significance in terms of ecology, botany, zoology, limnology or hydrology for inclusion in a <i>List of Wetlands of International Importance</i> ; formulate/implement wetland conservation planning; establish nature reserves in wetlands; encourage relevant research and information exchange; consult with each other about implementing obligations, especially in the case of shared wetlands

MARPOL 73/78 Convention (IMO)	To preserve the marine environment through the complete elimination of ship pollution (Annexes I & II are mandatory, Annexes III, IV, V & VI are optional)	Annexes I & II 02/10/1983; III, 01/07/1992; IV, 27/09/2003; V, 31/12/1988; VI, 19/05/2005	All Med States except Bosnia & Herzegovina (B & H) ** All except B & H, Turkey ** All except B & H, Israel and Turkey ** All except B & H ** All except Albania, Algeria, B & H, Egypt, Israel, Lebanon, Libya, Monaco, Montenegro **	Regulates against accidental/routine ship pollution described in its 6 Annexes; prescribes strict controls on operational discharges in special areas; <u>Annex I</u> covers oil pollution, with its 1992 amendments makes double hulls mandatory for new oil tankers; <u>Annex II</u> details discharge criteria/measures for about 250 noxious liquid substances-no noxious residue discharges are permitted in Territorial Sea, but no provision for EEZ; <u>Annex III</u> contains general requirements for standards on packing, marking, labelling, documentation, stowage, quantity limitations, exceptions and notifications for harmful substances; <u>Annex IV</u> prohibits sewage discharge, except when the ship has an approved sewage treatment plant-not comminuted or disinfected sewage cannot be discharged in the Territorial Sea, but no such provision for the EEZ; <u>Annex IV</u> specifies distances from land and the manner in which ship garbage may be disposed of (complete ban for plastics)-since the beginning of 2013, all garbage discharge is prohibited, except if otherwise provided; <u>Annex VI</u> sets limits on SOx, NOx, particulate matter and ozone depleting substance emissions-since the beginning of 2013, mandatory technical/operational energy efficiency measures reducing the amount of ship greenhouse gas emissions have been included.
London 1972 Dumping Convention and its 1996 Protocol (IMO)	To promote effective control and prevent marine pollution by waste dumping. Modernisation by the 1996 Protocol	Convention 30/08/1975 Protocol 24/03/2006	All Med States except Albania, Algeria, B & H, Israel, Lebanon and Turkey** Protocol ratified only by Egypt, France, Italy, Slovenia, and Spain**	One of the first global conventions for marine environmental protection; no compliance mechanisms are prescribed. Under the Protocol, all dumping is prohibited, except for wastes on the so-called 'reverse list' (i.e. dredged material, sewage sludge, fish wastes, vessels/platforms, inert mining wastes, natural organic material, bulky iron, steel and concrete items, and CO2 streams from CO2 capture processes for sequestration); a set of compliance procedure/mechanisms (Art.11) have been adopted, including a Compliance Group providing advice to the Parties.
Antifouling Convention 2001 (IMO)	To prohibit use of harmful organotins (TBT) in anti-fouling paints of ship hulls; to establish a mechanism preventing future use of other harmful substances	17/09/2008	All Med States except Albania, Algeria, Bosnia & Herzegovina Israel, Libya, Monaco, and Turkey**	Requires Parties to prohibit and/or restrict use of harmful anti-fouling systems on (a) ships flying their flag, (b) ships operating under their authority and (c) all ships entering their ports, shipyards or offshore terminals. Anti-fouling systems to be prohibited/controlled are listed in the Convention Annex (updated as and when necessary). Includes a clause for compensation entitlement for unduly detainment or delay while undergoing inspection for possible violations.
OPRC 1990 (IMO) OPRC-HNS Protocol 2000	To facilitate international co-operation and mutual assistance in preparing for and responding to major oil pollution incidents Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances	13/5/1995 14/7/2007	All Med States except Bosnia & Herzegovina, Cyprus, and Montenegro** Egypt, France, Greece, Malta, Slovenia, Spain, Syrian Arab Republic and Turkey**	Requires States to plan and prepare by developing national systems for pollution response, and by maintaining adequate capacity and resources to address oil pollution emergencies; OPRC-HNS Protocol 2000 extends the regulatory framework to address pollution incidents by Hazardous and Noxious Substances, i.e. chemicals. Contracting States are required to establish national systems for responding to oil (and HNS) pollution incidents, including designated national authorities and operational contact points and national contingency plans, which must be backstopped by minimum levels of response equipment, communication plans, regular training and exercises. The instruments also promote cooperation amongst Parties, through bilateral and multilateral agreements, to augment national level response capacity when needed. A mechanism is provided for Parties to request assistance from any other Party, when faced with a major

				incident.
CLC 1992, as amended in 2000 (IMO)	<p>Governs ship owner liability for pollution and damage caused by persistent oils escaped or discharged from tankers</p> <p>Replaces the 1969 CLC, which is still in force but is more restrictive, as it does not cover damages in EEZ or from unladen vessels and liability is limited to a maximum of <u>14 million SDR*** per incident</u></p>	30/5/1996	All Med States except Bosnia & Herzegovina and Libya (Libya is Contracting State to the CLC 1969)**	Mandatory liability of ship owner for oil pollution damage in Contracting States due to oil spill from tankers. Strict Liability (i.e. independent of fault), but is subject to limited exceptions and subject to a financial cap, dependent on ship-size, up to a <u>maximum of 89,77 million SDR ***per incident</u> ; requires compulsory insurance for ships carrying more than 2000 tons of oil in bulk and provides for direct action against insurers. Applies only to “ <i>persistent hydrocarbon mineral oil</i> ” spills (cargo or bunkers) from ships constructed/adapted for carriage of oil as cargo. Compensation is available – irrespective of where the incident itself occurred – for pollution damages in the territory, Territorial Sea, and the EEZ of a Contracting State. Compensation is also available for preventive measures ‘ <i>wherever taken</i> ’ after the incident to prevent/minimize pollution damage and further loss or damage caused by preventive measures. Compensation for environmental ‘ <i>impairment</i> ’ other than loss of profit is limited to the costs of ‘ <i>reasonable measures of reinstatement actually undertaken or to be undertaken</i> ’. Contributions may be made to the cost of post-spill studies, including studies to establish the nature and extent of environmental damage caused by an oil spill and to determine whether or not reinstatement measures are necessary and feasible.
IOPC Fund Convention 1992, as amended in 2000 (IMO)	Establishes a regime for compensation, when CLC 1992 is inadequate.	30/5/1996	All Med States except Bosnia & Herzegovina, Egypt, Lebanon and Libya** Only Contracting States to the CLC 1992 may accede to the Convention	Establishes a Fund financed by contributions from oil receivers in Contracting States to provide a second compensation tier for oil pollution damage from tanker oil spills. Provides compensation when (a) no liability for pollution damage arises under the 1992 CLC; (b) the ship owner is financially incapable of meeting his obligations in full and his insurance can not satisfy such claims; or (c) the damage exceeds the amount of the ship owner's liability under the 1992 CLC. Compensation up to <u>203 million SDR***per incident</u> (irrespective of ship-size). No compensation is available for oil pollution damage by warships or resulting from war, hostilities, civil war or insurrection.
Supplementary Fund Protocol 2003	Provides for additional compensation, when protection under the CLC 1992/IOPC Fund 1992 is inadequate.	3/3/2005	Croatia, France, Greece, Italy, Montenegro, Morocco, Slovenia, Spain and Turkey Only Parties to the IOPC Fund 1992 may accede to the Protocol	Establishes a Supplementary Fund financed by contributions from oil receivers in Contracting States to provide a third tier of compensation for oil pollution damage from tanker oil spills. Applies to established claims under the IOPC Fund only. Compensation is available up to an overall maximum of <u>750 million SDR*** per incident</u> .

BUNKER Convention 2001 (IMO)	To ensure adequate, prompt, and effective compensation to persons who suffer damage caused by oil spills by fuel carried in ships' bunkers	21/11/2008	All Med States except Algeria, Bosnia & Herzegovina, Israel, Lebanon, Libya and Monaco**	Applies to the Territorial Sea and EEZ of State Parties; covers loss/damages caused from the escape/discharge of bunker oil (except if covered by the CLC 1992 Convention-tankers); compensation for environmental impairment other than loss of profit shall be limited to costs of reasonable measures undertaken to reinstate the environment; prescribes covering of costs of preventive measures and of losses/damages caused by preventive measures; prescribes requirements for direct action, allowing compensation claims for pollution damage to be directly brought against insurers.
BARCELONA Convention 1976 as amended in 1995 (BC 1995)	Sets out the legal framework for regional/sub-regional agreements/cooperation for the protection of the marine and coastal environment of the Mediterranean Sea	09/07/ 2004	All Med states except Bosnia and Herzegovina (B & H) and Lebanon pending notification ****	Requires that the Contracting Parties shall take all appropriate measures (individually or jointly) in accordance with the provisions of the Convention and those of its Protocols to which they are a Party, to prevent, abate and combat pollution and to protect and enhance the marine environment of the Mediterranean Sea; encourages Parties to: cooperate and share information; establish a continuous pollution monitoring system; cooperate in the fields of science and technology; work out appropriate procedures for pollution liability and compensation; draft procedures for monitoring the application of the Convention. Main 1995 amendments concern the: coastal application of the Convention; application of the precautionary principle; application of the "polluter pays" principle; promotion of impact assessments; protection/preservation of biological diversity; prevention of pollution from cross-border movement of dangerous waste; access to information and public participation
BC SPA & Biodiversity Protocol 1995	Establishment/protection through concrete measures of Special Protected Areas-SPAs and the Biological Diversity See also CBD 1992	12/12/1999	All Med States, except Bosnia & Herzegovina, Greece, Israel, and Libya**** Amendments to ANNEXES II and III entered into force on 30/03/2014	The main tool for the <i>in situ</i> sustainable management of the Mediterranean coastal and marine biodiversity envisages: creation, protection and management of SPAs; establishment of a list of SPAs of Mediterranean Importance (SPAMIs); and species protection and conservation. Deals with the: conservation of typical for the Mediterranean marine and coastal ecosystems; protection of endangered habitats, or habitats necessary for the survival, reproduction and restoration of threatened or endemic species; protection of sites of scientific, aesthetic, cultural or educational interest; development/implementation of appropriate conservation management plans; setting up/promoting SPAs; conservation of endangered species; and sustainable use of biological resources.
BC Dumping Protocol 1976	Prevention of pollution by dumping from ships and aircraft or incineration at sea	Original 12/02/78; Amended 1995, Protocol not yet in force	All Med states except Montenegro ****	Prohibits dumping into Mediterranean of wastes/other matter, except dredged material, fish wastes, platforms and other man-made structures -no floating debris and without prejudice to the provisions of the BC Offshore Protocol 1994- and inert geological material not causing chemical pollution, following permits by competent National Authorities, issued after careful consideration) ; prohibits incineration at sea; wastes other than those listed could be considered in special circumstances (e.g. safety of human life) (Protocol 1995 amendments). See also the London Convention and its 1996 Protocol above

BC LBS Protocol 1980 as amended in 1996	Prevention of pollution from land-based sources and activities	11/05/2008	All Med states (and EU), except Algeria, Bosnia & Herzegovina, Egypt, Lebanon, and Libya. ****	Aims to: prevent, abate, combat and control pollution of the Mediterranean Sea caused by discharges from rivers, coastal establishments or outfalls, or emanating from any other land-based sources within the territories of State Parties; accelerate the development of short term and medium term regional action plans/programmes containing legally binding measures and timetables for their implementation
BC Hazardous Wastes Protocol 1996	Prevention of pollution by transboundary movement and disposal of hazardous wastes	18/01/2008	Albania, Malta, Montenegro, Morocco, Syrian Arab Republic, Tunisia and Turkey ****	Parties shall: take all appropriate measures to reduce and, where possible, eliminate generation of hazardous wastes, and prevent, abate and eliminate pollution caused by transboundary movements and disposal of such wastes; reduce to a minimum the transboundary movement of hazardous wastes, and if possible to eliminate such movement in the Mediterranean; reimport hazardous wastes if the transboundary movement cannot be completed; cooperate in scientific and technological fields related to pollution from hazardous wastes; take appropriate measures to implement the precautionary approach; introduce appropriate national legislation to prevent and punish illegal traffic; cooperate with a view to setting out appropriate guidelines for the evaluation of the damage, as well as liability and compensation rules/procedures for damage resulting from the transboundary movement and disposal of hazardous wastes.
BC Offshore Protocol 1994	Protection of the Mediterranean Sea from pollution resulting from Exploration/Exploitation of the Continental Shelf and the seabed and its subsoil	24/03/2011	Albania, Cyprus, Libya, Morocco, Syrian Arab Republic, Tunisia, and EU ****	Prescribes specific requirements relevant to authorization of sea-bed related operations, e.g. surveys concerning the environmental effects of proposed activities and, in appropriate cases, EIAs in accordance with Annex IV to the Protocol; regulates the release and management of wastes and HNSs related to exploration/exploitation activities; prescribes cooperation between the Parties to promote research on new methodologies for minimising pollution risks and preventing/combating pollution in the case of emergencies (Art. 22) ; requires the operator to assess the effects of the activities on the environment in the light of the nature, scope, duration and technical methods employed and of the characteristics of the area; provides for mandatory financial security measures to cover potential damage and requires verification of financial capacity of the operators; requires that the operators have a contingency plan to combat accidental pollution.
BC ICZM Protocol 2008	To promote Integrated Management of the Coastal Zone	24/03/2011	Albania, Croatia, France, Montenegro, Morocco, Slovenia, Spain, Syrian Arab Republic and EU ****	Aims to: facilitate sustainable development and use of natural resources through rational planning; ensure preservation of the integrity of coastal ecosystems; prevent and/or reduce the effects of natural hazards and climate change; achieve coherence between initiatives and public decisions; and ensure institutional coordination to facilitate comprehensive approaches. The parties shall: minimise use of natural resources and promote codes of good practice; ensure the preservation of coastal ecosystems; legislate, plan and manage in order to protect and conserve coastal habitats/species of high conservation value; ensure that fishing practices are sustainable and control inputs and wastes of aquaculture; encourage sustainable coastal tourism; undertake to adopt the necessary measures to prevent and mitigate coastal erosion; establish a zone where construction is not allowed (set-back' zone) in coastal zones; regulate sand extraction; create and/or strengthen existing appropriate monitoring mechanisms; and promote scientific and technical research, exchange of information and cooperation for the provision of scientific and technical assistance.

BC Prevention Emergency Protocol 2002	Co-operation in preventing ship pollution and, in cases of emergency, combating pollution	17/03/2004	All Med States (and EU), except Albania, Algeria, , Bosnia & Herzegovina, Egypt, Israel, Italy, Lebanon, Libya Tunisia ****	Sets the co-operation principles to combat accidents or operational discharges of oil or other HNSs; covers prevention of, preparedness for and response to pollution from marine sources, without prejudice to the sovereignty/jurisdiction of other Parties or other States. The Parties shall: maintain and promote, either individually or through bilateral or multilateral cooperation, pertinent contingency plans; develop/apply relevant monitoring activities; disseminate to the other Parties information concerning the competent national organization/authorities and their preparedness and response regulations; coordinate their communication means in order to respond speedily and reliably; assess the nature, extent, direction, drift speed and possible consequences of the spillage and take every practicable measure to prevent, reduce and, to the fullest possible extent, eliminate its effects; assess the environmental risks of recognized maritime traffic routes; cooperate in the salvage/recovery of released or lost overboard HNS substances in packaged form; require from offshore installations under their jurisdiction to have contingency plans; issue instructions to offshore units under their jurisdiction to notify them in case of oil and HNS pollution incidents by the most rapid and adequate channels (Art. 9 (4), see also the 1994 Offshore Protocol).
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*The date shown is the first date the Convention/Protocol entered into force, i.e. when the prescribed number of State ratifications was reached. For each Contracting Party, legislation enters into force upon ratification or accession. Information on the status of ratification is accurate as of 25 June 2014.

**Ratification status (25/06/2014) of the IMO Conventions according to <http://www.imo.org/About/Conventions/StatusOfConventions/Pages/Default.aspx>

***SDR is an international reserve asset (IMF, 1969) to supplement official reserves. It is fully convertible and its value is based on a basket of 4 key international currencies (25/06/2014 conversion rate 1 SDR ≈ \$1.55). For conversion rates see http://www.imf.org/external/np/fin/data/rms_sdrv.aspx

****Status of Ratification of Barcelona Convention and its Protocols <http://www.unepmap.org/index.php?module=content2&catid=001001004>

Key: UNCLOS 1982, United Nations Convention for the Law of the Sea. Note that not all Mediterranean Coastal States are parties to the Part XI of the Convention and/or the Agreement for the implementation of the provisions of the Convention relating to the conservation and management of straddling fish stocks and highly migratory fish stocks; ratification (18/09/2013) http://www.un.org/depts/los/reference_files/status2010.pdf. Bern Convention 1979, Convention on the Conservation of European Wildlife and Natural Habitats <http://conventions.coe.int/treaty/en/Treaties/Html/104.htm>. CBD 1992, Convention for the Biological Diversity <http://www.cbd.int/intro/default.shtml>; CPD Cartagena Protocol, The Cartagena Protocol on Biosafety to the Convention on Biological Diversity, <http://bch.cbd.int/protocol/text/>. Espoo Convention 1991, Convention on EIA in a Transboundary Context <http://www.unece.org/fileadmin/DAM/env/eia/documents/legaltexts/conventiontextenglish.pdf>; Espoo (Kiev, 2003) SEA Protocol, Espoo Protocol on SEA <http://www.unece.org/fileadmin/DAM/env/eia/documents/legaltexts/protocolenglish.pdf>. Aarhus 1998 Convention, Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters <http://www.unece.org/fileadmin/DAM/env/pp/documents/cep43e.pdf>. RAMSAR Convention (see also the EU Regulation 1367/2006), The Convention on Wetlands of International Importance http://www.ramsar.org/cda/en/ramsar-documents-texts-convention-on/main/ramsar/1-31-38%5E20671_4000_0. MARPOL 73/78, International Convention for the Prevention of Pollution From Ships 1973 (modified through the 1978 Protocol) [http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-\(MARPOL\).aspx](http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx). London Convention and Protocol, Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 and its 1996 Protocol <http://www.imo.org/OurWork/Environment/LCLP/Pages/default.aspx>. Antifouling Convention 2001, International Convention on the Control of Harmful Anti-

fouling Systems on Ships [http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-on-the-Control-of-Harmful-Anti-fouling-Systems-on-Ships-\(AFS\).aspx](http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-on-the-Control-of-Harmful-Anti-fouling-Systems-on-Ships-(AFS).aspx). OPRC Convention 1990, International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990; OPRC-HNS Protocol 2000, Protocol on Preparedness, Response and Co-operation to pollution incidents by Hazardous and Noxious Substances, <http://www.imo.org/OurWork/Environment/PollutionResponse/Pages/Default.aspx>. CLC 1992, International Convention on Civil Liability for Oil Pollution Damage, 1992. FUND Convention 1992, International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992; Supplementary Fund Protocol 2003, http://www.iopcfunds.org/fileadmin/IOPC_Upload/Downloads/English/explanatorynote_e.pdf. BUNKER Convention, International Convention on Civil Liability for Bunker Oil Pollution Damage [http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-on-Civil-Liability-for-Bunker-Oil-Pollution-Damage-\(BUNKER\).aspx](http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-on-Civil-Liability-for-Bunker-Oil-Pollution-Damage-(BUNKER).aspx).

Barcelona Convention (BC) Amended (1995), Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean http://195.97.36.231/dbases/webdocs/BCP/BC76_Eng.pdf , http://www.unep.ch/regionalseas/regions/med/t_barcel.htm. BC SPA & BD Protocol 1995, BC Special Protected Areas and Biodiversity Protocol, 1995 http://195.97.36.231/dbases/webdocs/BCP/ProtocolSPA95_eng.pdf. BC Dumping Protocol, BC Protocol for the Prevention and Elimination of Pollution in the Mediterranean Sea by Dumping from Ships and Aircraft or Incineration at Sea http://195.97.36.231/dbases/webdocs/BCP/ProtocolDumping76_Eng.pdf. BC LBS Protocol 1996, Barcelona Convention Protocol 1996 Against Pollution from Land-Based Sources and Activities http://195.97.36.231/dbases/webdocs/BCP/ProtocolLBS80_eng.pdf, <http://ec.europa.eu/world/agreements/downloadFile.do?fullText=yes&treatyTransId=13905>. BC HW Protocol 1996, BC Protocol 1996 for the Prevention of Pollution by Transboundary movements of Hazardous Wastes and their disposal http://195.97.36.231/dbases/webdocs/BCP/ProtocolHazardousWastes96_eng.pdf. BC Offshore Protocol 1994, Protection of the Mediterranean Sea from pollution resulting from exploration and exploitation of the Continental Shelf and the seabed and its subsoil http://195.97.36.231/dbases/webdocs/BCP/ProtocolOffshore94_eng.pdf. BC ICZM Protocol 2008; Barcelona Convention Integrated Coastal Zone Management 2008 Protocol <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:034:0019:0028:EN:PDF>. BC Prevention Emergency Protocol 2002, Protocol concerning Cooperation in Preventing Pollution from Ships and, in cases of Emergency, Combating Pollution of the Mediterranean Sea http://195.97.36.231/dbases/webdocs/BCP/ProtocolEmergency02_eng.pdf.

*The date shown is the first date the Convention/Protocol entered into force, i.e. when the prescribed number of State ratifications was reached. For each Contracting Party, legislation enters into force upon ratification or accession.

**Ratification status (18/11/2013) of the IMO Conventions according to <http://www.imo.org/About/Conventions/StatusOfConventions/Pages/Default.aspx>

***SDR is an international reserve asset (IMF, 1969) to supplement official reserves. It is fully convertible and its value is based on a basket of 4 key international currencies (end of November conversion rate 1 SDR ≈ \$1.5). For conversion rates see http://www.imf.org/external/np/fin/data/rms_sdrv.aspx

****Status of Ratification of Barcelona Convention and its Protocols <http://www.unepmap.org/index.php?module=content2&catid=001001004> .However, the official Table provided by UNEP MAP, has not been updated since April 2013

Table S1b: European legislation relevant to the environmental protection of the Mediterranean (the list is not exhaustive).

Directive	Objective	Date*	Comments
Wild Bird Directive (79/409/EEC), amended by Directive 2009/147/EC in response to scientific and technical progress and the successive EU enlargement	To create a comprehensive protection scheme for rare and/or vulnerable bird species through the designation of Special Protection Areas (SPAs).	15/02/2010	Plans/projects likely to have significant effects (either individually or in combination) on SPAs, shall be subject to assessment (see also Art. 7 of the Habitats Directive); regularly occurring migratory species should be protected; Member States shall encourage research required for the protection, management and use of the population of all bird species (Art. 1), with emphasis on Annex V subjects (Directive 2009/147/EC)
Habitats Directive (92/43/EEC) Several amendments in response to enlargement of the EU	To promote/ensure the preservation of biodiversity.	06/1994	Requires cooperation for the maintenance/restoration to a favourable conservation status of certain rare, threatened, or typical natural habitats(SACs) and species; establishment of necessary conservation measures corresponding to the ecological requirements of natural habitats; to take steps to avoid deterioration in SAC habitats; plans/projects likely to have significant effects shall be subject to assessments (Art. 6)
Environmental Impact Assessment (EIA) Directive (85/337/EEC)	To ensure that environmental consequences of development projects are identified and assessed before authorisation	3/07/1988	Definition of projects subject to Environmental Impact Assessments (EIAs); definition of procedures/contents of EIAs; Annex I projects are subject to mandatory EIAs, whereas for Annex II projects Member States can determine the EIA scope ("screening"); envisages public participation in the authorisation procedure.
Amended Environmental Impact Assessment (EIAA) Directive (97/11/EC),	To widen the scope of EIA by increasing the number of types of projects covered, and the number of projects requiring mandatory EIA (Annex I); to introduce changes to align the EIA Directive with the ESPOO Convention	14/03/1999	Strengthening of the procedural base of the EIA Directive; provision for new screening arrangements and minimum information requirements for Annex II projects; Member States may determine projects requiring assessment on a case-by-case basis (Art. 4(2)). The EIAA Directive was further amended by Council Directive 2003/35/EC, to align provisions on public participation with the Aarhus Convention 1998 on public participation in decision-making and access to justice in environmental matters
Water Framework Directive (WFD) (2000/60/EC)	To establish a framework for action in water policy preventing further deterioration of aquatic ecosystems;	22/12/2003	To enhance protection/improvement of aquatic environment through specific measures; to phase out discharges, emissions and losses of priority substances; although the WFD does not apply offshore of a line set at a distance of one nautical mile from the UNCLOS 1982 baseline (Art. 2) is relevant to EEZ conservation, as it aims to reduce river-induced marine pollution.
Strategic Environmental Assessment (SEA) Directive (2001/42/EC)	To contribute to the integration of environmental considerations into the preparation/adoption of plans/programmes; to ensure that environmental assessments are carried out for certain plans/programmes, likely to have significant effects	21/07/2004	Covers more activities, entire sectors, wider geographic areas and longer time periods than project EIAs; does not replace project EIAs, but streamlines incorporation of environmental concerns into decision-making; assesses combined impacts of multiple projects/activities; competent authorities should report on probable environmental effects, consult other environmental authorities and the public, and consider the findings when reaching a decision; Art. 3(8) includes an exemption in the case of plans/programmes the sole purpose of which is to serve civil emergency; monitoring allows for identification/remediation of unforeseen impacts; transboundary obligations;
Freedom to access to information Directive (2003/4/EC)	To impose a general duty on public authorities to make environmental information available upon request. Seeks to implement provisions by the relevant Aarhus Convention.	14/02 2005	Member States must provide relevant information on relevant legislation, policies, plans/programmes, monitoring data, environmental state reports, authorisations with significant environmental impacts and environmental impact studies and risk.
The Marine Strategy	To develop strategies/take measures to achieve	15/07/2010	Establishes a science-based and participatory policy-making framework to maintain and restore

Framework Directive-MSFD 2008 (2008/56/EC)	and maintain 'good environmental status' in the marine environment of EU Member State jurisdiction at the latest by 2020; (Art. 1)		to a 'good environmental status' the EU marine environment, using adaptive management that considers climate change, declining biodiversity, damage to habitats, eutrophication, and pollution; pollution must be phased out together with significant risks to and impacts on marine biodiversity and ecosystems, human health and the legitimate uses of the sea (Art. 1); strives to integrate the fragmented EU marine environment conservation framework; adopts an 'ecosystem approach' for the 3 EU 'Marine Regions' (the Mediterranean and Baltic Seas and the NE Atlantic) to reflect environmental particularities and promote specific solutions; adopts coordinated approaches according to which Regional/sub Regional Member States must cooperate to achieve coherence/coordination in assessing the environmental status, and the impacts of human activities (Art. 10), define qualitative descriptors/indicators, establish/implement monitoring programmes (Art 11), update targets and develop measures to achieve/maintain good environmental status (Art. 5) by set dates; imposes duties to Member States to ensure that all interested parties can participate and publish/make available strategy summaries (Art. 19); prescribes that transboundary impacts must be considered through relevant assessment/monitoring methodologies and measures and provides for involvement of all States bordering (and within) the catchment of a Marine Region or Sub-Region, regardless of EU membership.
Safety of offshore oil and gas operations Directive 2013 (2013/30/EU)	To reduce as far as possible the occurrence of major accidents relating to offshore oil and gas operations and to limit their consequences	02/ 07/2013**	Member States shall ensure that: installations and connected infrastructure are operated only in licensed areas; operators report on major hazards and all suitable accident-preventing measures are taken; impacts on SPAs, SACs and ecosystems relevant to climate change mitigation/adaptation are carefully considered; licensees are financially liable for the prevention and remediation of environmental damages and are not relieved of their duties by the fact of actions/omissions by contractors; procedures for prompt/adequate handling of compensation claims are established; possible adverse environmental effects are early and effectively communicated to the public; independent and objective competent regulatory authorities are appointed; operators/owners prepare emergency response plans and establish independent verification schemes; their competent authorities exchange knowledge, information and experience with other competent authorities through e.g. the EU Offshore Oil and Gas Authorities Group (EUOAG); and transboundary emergency preparedness and response plans are developed.
Proposal for a Directive establishing a framework for maritime spatial planning and integrated coastal management Not yet adopted	The aim is for Member States to establish processes which cover the full cycle of problem identification, information collection, planning, decision-making, management, monitoring of implementation, and stakeholder participation.	COM(2013) 133 final Proposed Directive endorsed by European Parliament on 17/4/2014	Member States will be asked to draw up maritime spatial plans that will identify all existing human activities and the most effective way of managing them. They will have to fulfil minimum requirements: (i) consider interactions between the sea and land; (ii) establish appropriate transboundary cooperation between Member States; (iii) establish means of public participation for stakeholders, authorities and the public; (iv) use the best available data and organise information sharing between stakeholders. Member States retain the prerogative to define the content of the plans and strategies according to their specific economic, social and environmental priorities, as well as their national sectorial policy objectives and legal traditions.

*The date referred to in the text is either the date that the Directive entered into force or the latest transposition date into the national legislation of the EU Member States; the inconsistency arises due to the successive EU enlargement.

** Latest transposition date: 19/07/2015

EU legislation applies to the EU Mediterranean Coastal States: Cyprus, France, Greece, Italy, Malta, Slovenia, and Spain. Most recently, Croatia also became an EU Member State.

Key: Wild Bird Directive, Directive on the conservation of wild birds (2009/147/EC) (<http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009L0147:EN:NOT>).

Habitats Directive, Directive on Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC)

Consolidated version 2007, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:01992L0043-20070101:EN:NOT>. See also , http://ec.europa.eu/environment/nature/natura2000/marine/index_en.htm

Environmental Impact Assessment (EIA) Directive, Directive on the Assessment of the effects of certain public and private projects on the environment (85/337/EEC) (last amended version <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1985L0337:20090625:EN:PDF>).

Environmental Impact Assessment Amended Directive, Directive amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment (97/11/EC) (<http://ec.europa.eu/environment/eia/full-legal-text/9711.htm>).

The Strategic Environmental Assessment (SEA) Directive, Directive on the Assessment of the effects of certain plans and programmes on the environment (2001/42/EC) (<http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2001:197:0030:0037:EN:PDF>).

The Freedom to access to information Directive, Directive on Public access to environmental information repealing Council Directive 90/313/EEC (2003/4/EC) (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:041:0026:0032:EN:PDF>).

Water Framework (WFD) Directive, Directive establishing a Framework for Community action in the field of water policy (2000/60/EC) (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2000:327:0001:0001:EN:PDF>).

Marine Strategy Framework Directive (MSFD), Directive establishing a framework for community action in the field of marine environmental policy (2008/56/EC) (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:164:0019:0040:EN:PDF>).

Proposal for a Directive of the European Parliament and of the Council establishing a framework for maritime spatial planning and integrated coastal management COM(2013) 133 final. (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2013:0133:FIN:EN:PDF>)

Table S2: Examples of countries that have designated marine protected areas for nature conservation within their Exclusive Economic Zones

Country	MSP applied? [legal status]	Sectors included in MSP	Conservation Planning	Ecological Features protected	Related legislation (for conservation)	Comments	References
Australia	Yes, divided into six extensive commonwealth marine planning regions [advisory; zoning plan for the GBRMP is regulatory and enforceable]	All	A network of marine reserves is proposed for each regional plan. The Great Barrier Reef Marine Park (GBRMP) is one of the first and best examples of ocean zoning.	All habitats and species, including coral reefs, seagrasses, rocky reefs, deep habitats, marine mammals, sharks, turtles, seabirds etc.	Environment Protection and Biodiversity Conservation Act	Plans have been prepared for 5 of the Australia's bioregions. MPA network in Australian EEZ is the largest in the world covering an area as large as India. The plan will ban oil and gas exploration in all marine national parks. There is criticism of no quantitative conservation objectives in the existing plans and lack of representativeness (except the GBRMP).	Day, 2002; Fernandes et al 2005; UNESCO 2013; Bar and Possingham 2013; Devillers et al in press; http://www.environment.gov.au/coasts
Belgium	Yes [regulatory & enforceable]	Oil and gas, sand and gravel mining, wind energy, pipelines and cables, mariculture, and protected areas (navigation and fishing not included)	A legally binding marine spatial plan has been adopted (March 2014)	sand banks, reefs, marine mammals, birds, fish	Habitats Directive (EU); Birds Directive (EU); OSPAR; Marine Protection Act (20/1/1999); Belgian EEZ Act (22/4/1999); Continental Shelf Act (13/6/1969); Royal Decree of 20 March 2014 "Marine Spatial Plan for the Belgian Part of the North Sea"	One of the drivers of MSP is the requirements for the protection and conservation of ecologically and biologically important areas (Natura 2000 sites); 1 potential Site of Community Importance (SAC) in the EEZ is in design phase	Maes et al. 2005; Douvere et al. 2007; Olsen et al. 2013; UNESCO 2013

Germany	Yes [regulatory & enforceable]	Marine transport (shipping), pipelines and cables, oil and gas exploration, offshore wind farms, aggregate extraction, nature conservation	Site selection based on Natura 2000 criteria; 10 Natura 2000 sites in the German EEZ were nominated as pSCIs in 2004.	sand banks, reefs, birds, marine mammals	Habitats Directive (EU); Birds Directive (EU); Federal Nature Conservation Act (esp. § 57)	In the German MSP special effort was made for the safety and efficiency of navigation. Fisheries have not been included in the MSP. Natura sites were selected before the MSP process and were then included in the plans. Protected areas comprise ~45% of the German EEZ.	Fock 2008; UNESCO 2013; http://www.bsh.de/en/Marine_us/Spatial_Planning_in_the_German_EEZ/index.jsp
New Zealand	No	-	There is a range of seamount closures (2000) and Benthic Protection Areas (BPAs) established in the EEZ (2007), closed to bottom trawling, encompassing 23% of New Zealand's EEZ.	mud plains, seamounts, volcanic vents, other deep habitats, benthic fish and invertebrates	Exclusive Economic Zone and Continental Shelf (Environmental Effects) Bill; Marine Mammals Protection Act (1978); Wildlife Act (1953); Fisheries Act (1996)	The establishment of BPAs was advocated by the fishing industry. The BPAs include 52% of seamounts and 88% of active hydrothermal vents. The establishment of MPAs in the EEZ is currently postponed.	Brodie and Clark 2003; Leathwick et al. 2008; Helson et al. 2010; UNESCO 2013; http://www.fish.govt.nz/en-nz/Environmental/Seabed+Protection+and+Research
Portugal	MSP efforts started in 2008 through POEM (Planning and Ordering of Maritime Space) - to be implemented in 2013	maritime transport, tourism, fisheries, mineral resources, archeology, renewable energy, nature conservation	Areas protected for marine conservation have been included in the MSP plan. Protected areas in EEZ have already been implemented or proposed through the NATURA 2000 and the OSPAR network of MPAs (e.g. Sedlo seamount). The Azores Marine Park has been established to create a coherent network of offshore MPAs (also including EEZ).	reefs, deep habitats (seamounts, hydrothermal vents, cold corals etc) and associated fauna, seabirds	Habitats Directive (EU); OSPAR; Decrees-Laws 142/2008, 140/99, 49/2005, 380/99, 46/2009; Regional (Azores) Legislative Decrees 15/2007/A, 20/2006/A, 28/2011/A (Azores Marine Park)	One Natura 2000 SPA (Berlengas Islands) is under designation partly in EEZ, mostly in territorial waters (<12 Nm). One offshore seamount (D. João de Castro) and two offshore hydrothermal vents fields (Lucky Strike and Menez Gwen) have been approved as SCIs (Natura 2000). These sites together with the Sedlo seamount were nominated to the OSPAR Network of MPAs. The further extension of the Natura 2000 in the EEZ is ongoing.	Santos et al. 2009; Calado et al. 2010, 2011; Olsen et al. 2013

The Netherlands	Yes [advisory; policy rule]	Marine transport (shipping), oil and gas, pipelines and cables, commercial fishing, mariculture, military, nature conservation	The boundaries of four areas in the EEZ are set, in the frame of the Natura 2000 network and the OSPAR network: part of the Kustzee, Friese Front, Klaverbank and Doggersbank	sand banks, reefs, cold seeps, marine mammals, birds, fish	Habitats Directive (EU); Birds Directive (EU); OSPAR; Natuurbeschermingswet 1998 (National Nature protection law)	Designation of MPAs in the EEZ of The Netherlands is being done in the framework of the Natura 2000 framework.	van Haastrecht & Toonen 2011; Olsen et al. 2013; UNESCO 2013
UK - England	Ten sub-plans in progress (started in 2011; two will be adopted within 2013, all by 2021) [regulatory and enforceable, when implemented]	Marine transport (shipping), renewable energy, oil and gas, pipelines and cables, commercial fishing, mariculture, military, nature conservation	A parallel process has identified 127 Marine Conservation Zones (MCZ); recommendations currently under review. There are 20 sites in the UK's EEZ that have been protected/proposed under the Habitats Directive.	Deep habitats, marine mammals, seabirds, turtles, fish and invertebrates. MCZ sites are selected to protect not just the rare and threatened, but also the representative range of marine wildlife.	Marine and Coastal Access Bill (2009); OSPAR; Habitats Directive (EU); Birds Directive (EU)	Marine Conservation Zones (MCZ) protect nationally important marine wildlife, habitats, geology and geomorphology; possible designation of MCZ within 2013. A network of MCZ is provisioned in the Marine and Coastal Access Bill.	Olsen et al. 2013; UNESCO 2013; http://jncc.defra.gov.uk/protectedsites/sacselection/SAC_list.asp?Country=OF

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Table S3: Conflicts in the Mediterranean Sea

No.	Conflict	States Involved	Summary	Reference
1	The Dispute over Gibraltar	UK, Spain	Gibraltar is a British overseas territory since 1713, near the tip of the Iberian peninsula. The territory is the subject of a disputed irredentist claim by Spain. Thus, also having a negative impact on outlining the EEZ.	Gutiérrez Castillo, 2009; adapted by Suárez de Vivero et al., 2010
2	The Alboran Sea Dispute	Morocco, Spain	Morocco claims that the boundary should be determined by an equidistant line between its coast and the Iberian Peninsula, with the assumption each side of the straits belonged to a single state (thus ignoring Spain's so-called 'plazas de soberanía' ('places of sovereignty' or overseas territories in North Africa). Spain on the other hand, considers the Spanish territories in Africa as a lawful and sovereign part of the Spanish state. Thus, they have their own jurisdictional waters. These territories include: Perejil island, Ceuta, Melilla, Vélez de la Gomera rock, San Antonio islet, Alhucemas rock and the islets of Mar and Tierra, the Chafarinas Archipelago, Alboran island and Las Nubes islet. Due to these conflicting claims, no delimitation agreement has been formalized.	Gutiérrez Castillo, 2009; adapted by Suárez de Vivero et al., 2010
3	Gulf of Lion Dispute	France, Spain	France refuses to accept the principle of equidistance in the Gulf of Lion because the coastal arrangement – concave on the French side and convex on the Spanish - benefits Spain. Moreover, they argue that the proximity of the Balearic Islands should be taken into account for a fair outcome. Due to these claims, no delimitation agreement has been formalized.	Gutiérrez Castillo, 2009; adapted by Suárez de Vivero et al., 2010
4	Mammellone Dispute	Italy, Tunisia	Albeit several fishing agreements between Italy and Tunisia (1963, 1971, 1976) and an extension by Tunisia to 12 nautical miles (1973) and, in order not to prejudice Italy, signed a fishing agreement (1976) allowing Italian fishers to fish in the Tunisian territorial sea, except in the area of Mammellone --- This agreement only remained in force for three years and another has not been signed to replace it. In 1979, Italy declared Mammellone a repopulation area and prohibited fishing. In 1988, the Italian and Tunisian navies signed a cooperation agreement to patrol these waters and thus avoid disputes.	Gutiérrez Castillo, 2009; adapted by Suárez de Vivero et al., 2010

5	Gulf of Sidra Dispute	Libya, Italy	The delimitation of the gulf is dependent on a few factors: (1) the outcome of the delimitation between Malta and Italy. (2) Libya's declaration of the gulf as a historic bay. Due to these claims, no delimitation agreement has been reached.	Faramiñán, 2007; Gutiérrez Castillo, 2009; adapted by Suárez de Vivero et al., 2010
6	Gulf of Genoa Dispute	France, Italy	'French-Italian negotiations for the delimitation of their continental shelf failed for a number of reasons, including the following, in particular (...): the two parties did not agree on an assessment of the coastal physiognomy, specifically the effect that the profile of the north-eastern coast of the French island of Corsica (pointed and projecting) would have on the boundary. This pointed nature of the coast of the French island would have a decisive impact on the delimitation of the boundary, a position which although logical is not very well-received by Italian doctrine.'	Suárez de Vivero et al., 2010
7	The Gulf of Piran Dispute	Croatia, Slovenia	In 1991, the delimitation proposal following both countries' proclamations of independence, Slovenia proposed establishing the border in the Gulf of Piran's center. However, Slovenia changed the draft the following year --- declaring its sovereignty over the entire Gulf on 5 June 1992. Since then Slovenia has continued to insist on this position. Croatia claims that the boundary should be an equal distance from each shore. Slovenian claims are based on the same article. However, it favors the second sentence, which stipulates that historical claims or other unusual circumstances supersede the equidistance rule. Due to these conflicting claims, no delimitation agreement has been formalized.	Faramiñán, 2007; Avbelj and Letnar, 2007; Blake and Topalovic, 1996; Vidas, 2008; adapted by Suárez de Vivero et al., 2010; Mackelworth et al., 2013
8	Klem-Neum Bay Dispute	Croatia, Bosnia and Herzegovina	Following the border treaty between both states in 1999, two contestations have emerged: - Dubrovnik County claimed that the end of the Klek peninsula had historically belonged to it and therefore did not belong to Bosnia-Herzegovina, as established in the treaty, but to Croatia. - Croatia claimed the islets allocated to Bosnia-Herzegovina around the Klek peninsula, for historic reasons. The question has been reopened since 2002, with Croatia's intention to build a bridge across the Mali Ston Canal which is located outside of the territory in dispute but which Bosnia-Herzegovina interprets as a possible obstacle to navigation in the Neum Bay. Due to these conflicting claims, no delimitation agreement has been formalized.	Blake, 1992; Klemenčić and Topalović, 2009; adapted by Suárez de Vivero et al., 2010

9	The Aegean Dispute	Greece, Turkey	Several of the Aegean issues deal with the delimitation of both countries' zones of influence in the air and on the sea around their respective territories. (1) Many Islands, islets and rocks make the proposed delimitation difficult. (2) In regards of the continental shelf, the dispute between both countries is around the principle of equidistance (Greece) vis-a-vis the principle of fairness (Turkey).	Faramiñán, 2007; Inan and Acer, 2002; Blake, 1992; adapted by Suárez de Vivero et al., 2010; Dyke, 2005
9	Imia/Kardak (The Aegean Dispute)	Greece, Turkey	Imia/Kardak was the object of a military crisis and subsequent dispute over sovereignty between Greece and Turkey in 1996. The Imia-Kardak dispute is part of the larger Aegean dispute, which also comprises disputes over the continental shelf, the territorial waters, the air space, the Flight Information Regions (FIR) and the demilitarization of the Aegean islands. In the aftermath of the Imia/Kardak crisis, the dispute was also widened, as Turkey began to lay parallel claims to a larger number of other islets in the Aegean. These islands, some of them inhabited, are regarded as indisputably Greek by Greece but as grey zones of undetermined sovereignty by Turkey.	Pratt and Schofield, 1996
10	The Mediterranean Oil Dispute	Cyprus, Turkey	The Mediterranean Oil Dispute is a current political incident and standoff between the Republic of Cyprus and Turkey, and potentially affecting other neighbouring states in the Eastern Mediterranean, such as Israel, Lebanon, and Egypt. The illegal breakaway territory of Northern Cyprus also advocates its interests as part of the dispute. The dispute is primarily focused on Turkish and Turkish Cypriot objections to the drilling of potentially substantial oil and gas reserves in the Eastern Mediterranean, specifically in waters that Cyprus has legally asserted a claim to under international maritime law. Turkey is currently the only member of the United Nations to refuse to recognise the sovereignty of the Republic of Cyprus.	Başeren, 2011
11	UK bases in Cyprus (Akrotiri and Dhekelia)	UK, Cyprus	The UK hold two <i>sovereign base areas</i> . These areas are located adjacent to the Republic of Cyprus on the island of Cyprus, which was formerly governed by the United Kingdom.	Gutiérrez Castillo, 2009; adapted by Suárez de Vivero et al., 2010

12	The Israeli-Lebanese Dispute	Israel, Lebanon	<p>In 2010, Israel discovered massive deposits of natural gas off its coast in the Mediterranean Sea. While Israel's find is within its territorial exclusive economic zone, the dispute stems from the possibility that the gas field spans to Lebanon's boundary. A general principle in such a situation is the Rule of capture where each side is permitted to lift as much as it can on its side. Israel has already started exploration and construction on its side, while Lebanese authorities have not yet officially demarcated its exclusive economic zone or initiated a process of attracting bids for exploration rights. ^[11] Lebanese Energy Minister Gebran Basil warned that Lebanon would not allow Israel or any company "serving Israeli interests" to drill gas "that is in our territory". Beirut had previously warned the American Noble Energy company not to approach its territory. In response, Israeli Infrastructure Minister Uzi Landau warned Lebanon that Israel was willing to use force to protect the gas reserves discovered off its shores. On 17 August, the Parliament of Lebanon passed authorising exploration and drilling of offshore oil and gas fields. The law called for the establishment of a treasury and a committee to oversee exploration and drilling. Speaker Nabih Berri's advisor, Ali Hamdan, said that he expected rights to be up for auction by the end of 2011. "This is definitely a major cornerstone in Lebanon's oil policy... and will help Lebanon divide its reserves into blocks an eventually bring in tenders and start looking into power-sharing agreements."</p>	Wählich (2011)
13	The Israeli-Palestinian Conflict	Israel, Gaza	<p>The Gaza–Israel conflict is an ongoing dispute within the frame of the long-term Israeli–Palestinian conflict, in the territory of the Gaza Strip and Southern Israel. The dispute has initiated in its current form in summer 2006 and is considered low level ongoing, though Hamas (controlling the Gaza Strip) and Israel remain at an official cease-fire, achieved following operation Pillar of Defense in November 2012.</p>	Faramiñán, 2007; adapted by Suárez de Vivero et al., 2010

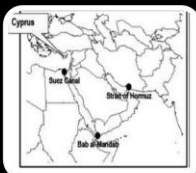
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Box S1

Box S1: The nexus between energy security and EEZ declaration and planning: The Israeli case - causal mechanism



Regional Systemic Features

- Highly sensitive political tensions between actors
- Political conflict
- Relative economic-political isolation



The Pursuit of *Energy Security*

- The search for new fossil fuel reserves
- Coastal states may begin offshore exploratory drilling projects



EEZ Declaration & Planning

- States will declare EEZ's to legalize/legitimize offshore operations and to secure their rights over discoveries.
- State bureaus and agencies will be required to plan the EEZ (security, economics, environmental aspects, science-based conservation, etc.)

In recent decades, the nexus between geopolitics, political economy, policy and energy security has been at the center of interdisciplinary scientific inquiry (Davis, 1974; Doern and Toner, 1985; Clark, 1990; Stokes and Raphael, 2010), as scholars claimed that “energy and politics are intrinsically interlinked” (Shaffer, 2009). However, the relationship between energy security and EEZ (Exclusive Economic Zone) declaration & planning has generated very little scholarship over the years (Murinson, 2012) and remains somewhat under-investigated and overlooked.

From its inception in 1948, Israel engaged in efforts to discover new fossil fuel reserves in order to assure its energy security and independence. These efforts were primarily driven by Israel’s geopolitical setting; a highly politically sensitive region; characterized by intractable conflict, and a state of enmity with some of its neighbouring states (Sela, 1998). Furthermore, these aspects further isolated Israel economically, politically and diplomatically in the Middle East. In Recent years, Israeli companies (under the auspices of the Israeli government) put more and more weight on offshore exploratory drilling operations. These efforts came to fruition in 2009, as large natural gas reserves were discovered at the “Tamar” & “Dalit” drilling sites, just 90-100 km off of Israel’s shore (Stocker, 2012; Zhukov, 2013).

Additional regional dynamics, such as events related to the “Arab Spring” intensified the process, as the Israeli-Egyptian gas pipeline was attacked more than a dozen times in the last two years (Stocker, 2012). Due to these external pressures and the need to solidify legal claims of ownership, Israel declared an Exclusive Economic Zone in July 2011. As a result, relevant ministries and bureaus responsible for security, economics, transportation, environmental aspects and science-based conservation have started engaging in large-scale EEZ planning.

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Figure 3: Conservation opportunities – Methodological details

The new information about marine fish status in the Mediterranean Sea (Abdul Malak et al., 2011; Cavanagh and Gibson, 2007) and the new spatially detailed data on human threats (Coll et al., 2012), was used to estimate the areas in the Mediterranean Sea, where threats are low and diversity of fish species under IUCN categories is high.

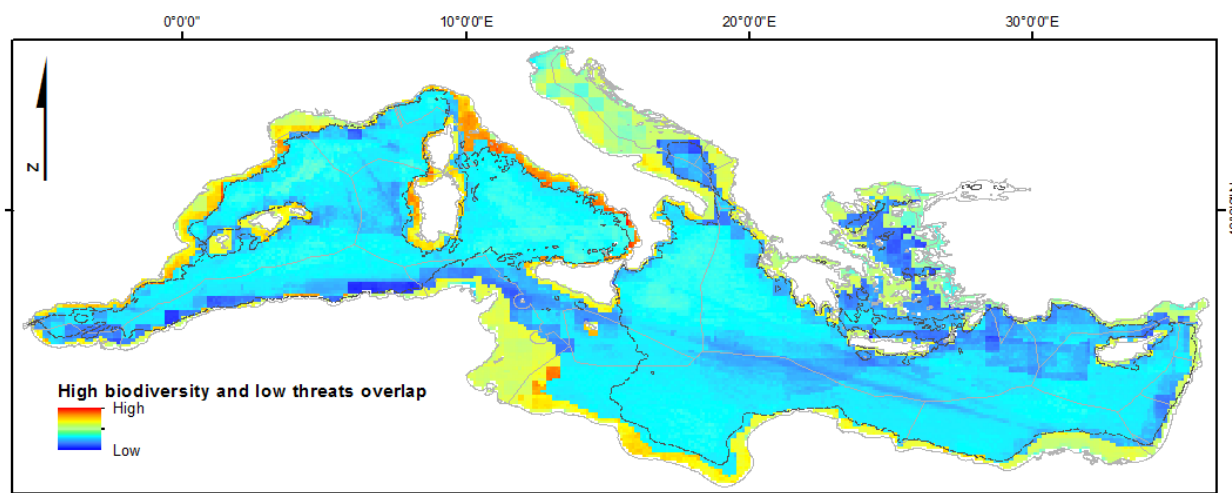


Figure 3: Areas with high diversity of fish species under IUCN categories, and low cumulative threats. The depth limit of -1000 m is indicated with a grey dotted line. The theoretical EEZ boundaries are indicated with a blue line (but see Figure 1 for disputed areas). Details on the methodology applied for this analysis may be found in the Supplementary Online Material.

Such areas are found in both the western and the eastern Mediterranean Sea. In the western side, they are mainly located at the end of the continental shelf and in the slopes of the French and Spanish EEZs, along the coastal and shelf areas of the Liguria and Tyrrhenian Sea, and surrounding the coastal waters of the Balearic Islands, Corsica and Sardinia. Smaller areas are located as well in the North African coasts. In the eastern basin, southern Italian waters, continental shelves and slopes of Tunisia, Libya and Egypt, and coastal areas of the Aegean and Ionian Seas are identified as important areas.

The potential of high biodiversity - low risk areas as candidates to contribute to protected areas network for the Mediterranean Sea by 2020, should be explored by examining the nature of the threats (stoppable vs unstoppable) in each high biodiversity - low risk area and estimating the cost of conservation actions required for threat abatement within those areas.

Methods

a) Spatial distribution of species at risk

We collected all available spatial information about the IUCN diversities or distribution of the IUCN fish species. In 2011 the IUCN presented the first comprehensive regional IUCN Red List assessment of the native marine fish fauna for an entire sea, in this case the Mediterranean Sea (Abdul Malak et al., 2011), including all the cartilaginous fish (Cavanagh and Gibson, 2007). In this report, of 519 native fish species of the Mediterranean Sea, 43 (>8%) species are considered threatened. They are either CR (with 15 species, 3%), EN (with 13 species, 2%) or VU (with 15 species, 3%), and an additional 22 species are being listed as NT (4%). Moreover, there is also a high percentage of fish species classified as DD (with 151, 29%), and a high percentage of endemic fish species (with 24 species, 5%).

We used all detailed spatial data, mostly available in the form of expert-drawn maps or sighting locations, to map the spatial patterns of these vertebrate species using Geographical Information Systems (GIS) software (ArcGIS v.9.3 by Environmental Systems Research Institute). Following the methodology by Coll et al. (2010), we estimated the IUCN species diversities of different species groupings as the sum of the species co-occurring by overlapping distribution maps at fine-scale resolution (0.1 x 0.1 degree grid cell). With the above information, we defined and mapped the distribution of fishes at risk.

b) Spatial distribution of cumulative threats

Data previously gathered from a variety of sources on eighteen direct and indirect anthropogenic threats in the Mediterranean Sea were included (Coll et al., 2012) to identify spatial distribution of cumulative threats. We considered all those human activities with available data documenting both direct and indirect impacts on marine species (Coll et al., 2012; Coll et al., 2010). Specific information on sources and analysis for developing threat layers is provided in (Coll et al., 2012). Previous work had aggregated the information from the different human activities in six layers of potential cumulative anthropogenic threats (Coll et al., 2012).

We used ArcGIS 9.3 software and a 0.1 x 0.1 degree grid cell resolution to map the spatial distribution of cumulative threats and estimate the presence or absence of each threat to create cumulative threat layers (or threat models). Each continuous threat was first $\log(x+1)$ -transformed and then normalized (expressed between 0 and 1) in order to compare the intensity of threats. This data was used to build a spatial cumulative threat model for fish (following Coll et al., 2012). This threat model was built using specific vulnerability weights applied to each threat layer estimated using published data on specific taxa and expert opinions (Coll et al., 2010).

c) Identification of high biodiversity – low risk areas

High biodiversity – low risk areas (potentially interesting for conservation) were identified by overlapping the distribution of the fish species at risk and the cumulative threat models for fish.

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Figure 4: Methodological details

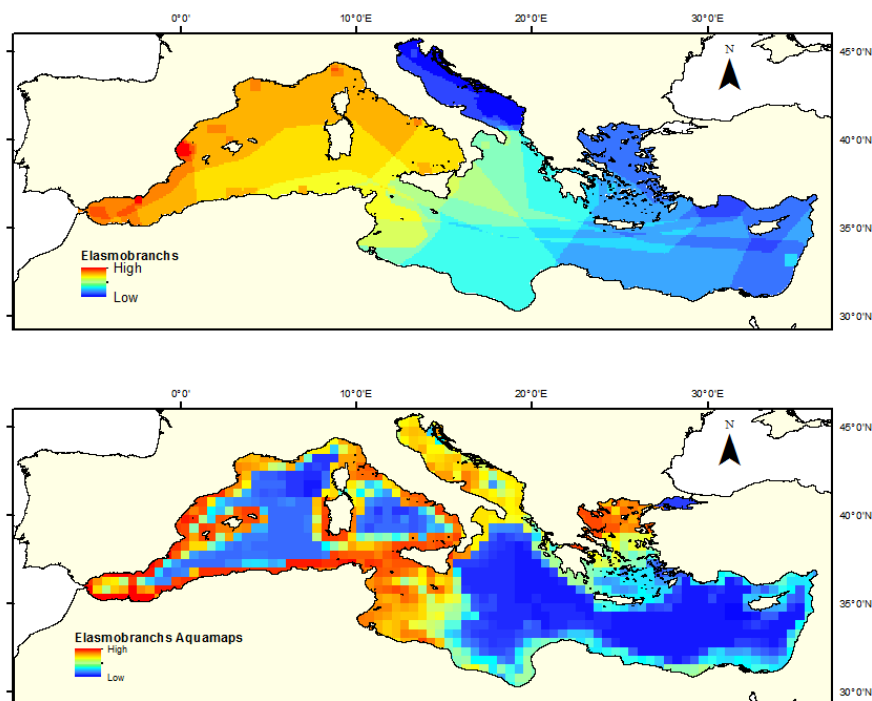


Figure 4: Dependence of species distribution models on the quality and representativeness of available data. Different estimated patterns of elasmobranchs species richness in the Mediterranean Sea using expert knowledge data (top panel) and predicted results from species distribution models (bottom panel) (modified from Coll et al. 2010).

Top panel: Data for fish species were available from the FNAME atlas (Whitehead et al. 1986) and data compiled by Ben Rais Lasram et al. (2009)

Bottom panel: We used the global species distribution model AquaMaps (Kaschner et al. 2009) to generate standardized range maps of species occurrence. AquaMaps is a modified version of the relative environmental suitability (RES) model developed by Kaschner et al. (2006). This is an environmental envelope model that generates standardized range maps, within which the relative probability of occurrence for marine species is based on the environmental conditions in each 0.5 x 0.5 degree cell of a global grid. We produced AquaMaps of predicted patterns of biodiversity for different taxa in the Mediterranean by overlaying the respective subsets of the available distribution maps for Mediterranean species and counting all species predicted to occur in a given cell. We assumed a species to be present in each cell for which the species specific predicted relative probability of occurrence was greater than zero.

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