The environmental protection regime for the offshore oil and gas installations in the Mediterranean Basin.

The case of Greece

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I hereby declare that the work submitted is mine and that where I have made use of another’s work, I have attributed the sources according to the Regulations set in the Student’s Handbook.

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Abstract

This dissertation was written as part of the in MSc in Energy Law, Business, Regulation & Policy at the International Hellenic University. In recent times, Mediterranean Sea has been at the global spotlight for petroleum exploration and exploitation, mainly due to the major discoveries made in the eastern region. Greece, in the years of financial crisis, has showed a strong interest to develop its offshore oil and gas sector and major developments are projected in the coming future. The offshore activity in Greece, as in rest Mediterranean states, is associated with major environmental hazards due to the semi-enclosed nature of the sea, the high ecological value and the vulnerability of the aquatic ecosystem. Large oil spills may affect numerous coastal states with devastating consequences, while operational discharges degrade dangerously an already polluted environment.

My thesis examines the issue in its legal dimension, viz from the scope of Greek applicable regime regulating marine pollution from offshore installations. In the first section, the magnitude of the risks is exhibited with the scale of Greek offshore sector growth, the pollution that arises from units and the Greek specific concerns. Afterword, the research centre’s at the main tools for safety, pollution prevention and response under the international law, the European law and Greek domestic law. The survey extends to the rules for the responsibility of oil and gas companies in case of damage, since a strict liability framework promotes the implementation of precautionary measures, while the issue of adequate remediation is also mentioned through the financial security provisions. By doing that, the scope is to determine the effectiveness of the instruments for Greek seas protection, to underline their gaps and limitations. Finally, the major weaknesses of the Greek regulatory system are considered, inter alia the insufficient implementation of EU environmental law. The concluding chapter makes specific recommendations on essential reforms in international legislation and Greek law and policy.

Keywords: offshore, oil, gas, environment, regulation

Ifigeneia Akzioti

16 February 2018
Preface

This dissertation is original and independent work by the author, Ifigeneia Akzioti.

At this point, I would like to express my gratitude to my thesis supervisor Professor Theodore Panagos for his prompt response to my inquiries, his resolute dedication and his valuable comments and guidance whenever I asked for.

Ifigeneia Akzioti
16.02.2018
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ABBREVIATIONS

BAT Best Available Techniques
CLC Civil Liability Conventions
CLEE Convention on Civil Liability for Oil Pollution Damage from Exploration and Exploitation of Sea bed Mineral Resources
EC European Commission
ECJ European Court of Justice
EEZ Exclusive Economic Zone
EU European Union
EUOAG European Union Offshore Authorities Group
EMSA European Maritime Safety Agency
GES Good Environmental Status
HHRM Hellenic Hydrocarbon Resources Management
ICZM Integrated Coastal Zone Management
IMO International Maritime Organization
IOC International Oil Companies
MAP Mediterranean Action Plan
MARPOL International Convention for the Prevention of Pollution from Ships
MODUs Mobile Offshore Drilling Units
OPRC International Convention on Oil Pollution Preparedness, Response and Co-operation
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<th>Acronym</th>
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<td>OSD</td>
<td>Offshore Safety Directive</td>
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<td>REMPEC</td>
<td>Regional Marine Pollution Emergency Response Center</td>
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<td>SPAs</td>
<td>Specially Protected Areas</td>
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<td>UNEP</td>
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INTRODUCTION

Mediterranean Sea is undoubtedly a unique marine environment. It’s a semi-enclosed sea with extreme ecological value, the birthplace of some of the most ancient civilizations, a hotspot in global maritime navigation and of course an area of continuous geopolitical tensions and war conflicts. Its marine environment faces various anthropogenic pressures, such as high maritime traffic, tourism, coastal development and irregular fishing. Another serious threat that is posed now comes from a dangerously rising human activity, offshore oil and gas drilling. There are more than 100 installations operating in the Mediterranean and the recent coastal states’ plans cover a remarkably large area of the basin, as depicted in a 2015 map in Annex I of this dissertation. The interest at the moment is concentrated in the Levantine Basin in eastern Mediterranean, where significant reserves have been spotted, such as the gas fields of Zohr in Egypt, the Leviathan and Tamar in Israel and the Aphrodite in Cyprus, which are also linked to midstream plans, the East Med pipeline connecting Israel, Cyprus and Greece, being an alternative energy corridor for EU gas market. Greece, in the years of financial crisis has also intensified its plans for oil and gas exploration, within the efforts to attract foreign investments for economic recovery, though it has lower oil and gas potentials compared to the Levantine basin littoral states.

Oil and gas drilling in Greece just like in rest Mediterranean states raises particular considerations. The enclosed nature of the sea, the extremely low level of waters renewal and the high proximity between neighboring states indicate that a large oil spill would have devastating consequences for numerous coastal states. Also is a highly sensitive area, it’s scientifically recognized as one of the 25 top global biodiversity hotspots which is being continuously degraded and is dangerously affected climate change. Another particularity that affects the environmental management of offshore operations is the jurisdictional challenge. Mediterranean Sea is the sole global example

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where most littoral states haven’t proclaimed their exclusive economic zones (EEZ), relying on bilateral delimitation agreements or sui generis rights, due to the bordering states disputes and the morphology of the basin as the shore to shore distance is nowhere above 400 nautical miles meaning that high seas would be eliminated in case of a states’ generic proclamation. Greece due to the conflict with Turkey over Aegean Sea zones, has conducted only one delimitation agreement in 1977 with Italy for the continental shelf of the two states in the Ionian Sea, while a similar agreement with Albania has failed to be completed.

The marine oil spills accidents that occurred in the past, such as the ones in the North Sea, the Ixtoc in Mexico and the recent ones of Montara field in 2009 in Australia and the Deepwater horizon (DWH) in 2010 in the Gulf of Mexico, as well as the legal problems that were faced in the aftermath, were a motivation to conduct a research on the applicable regime for the protection of Greek marine environment from offshore infrastructures. It’s crucial to check whether the occurrence of these events has lead to a more comprehensive legal framework. The thesis is also inspired by the recent Greek oil spill occurred on September 10, 2017 with oil tanker Agia Zoni II that sank in Saronikos Bay, close to the port of Piraeus, releasing approximately 2,500 tons of fuel oil and marine gas oil into sea. Within two days after sinking, the oil spill reached and contaminated several beaches of the southern Athens suburbs posing a serious threat to human, marine life and economy². The incident was particularly discomforting for Greek oil and gas future, as it showed the disproportionately large consequences that may have a relatively minor incident and the critical failures of Greek mechanism to timely constrain the dispersion of the oil slick occurred only some miles from the biggest national port and the central oil spill contingency authority.

It’s true that in offshore industry there is extensive self regulation for environmental safety. Internal safety rules and established good oilfield practices have been developed over the years out of economic reasons, as is less expensive to prevent the

damage than to respond to it, a lesson unambiguously learned after the DWH. However, a lesson that was also tragically learned by this catastrophic event is that even a super major oil company in a period of low oil prices, under insufficient regulation and relaxed supervision, can show an immense complacency in safety, with series of management failures and violations of protective barriers. So according to the above and keeping in mind that Greece is currently at a turning point for its offshore exploration, it’s thoroughly needed to examine the applicable framework for the protection of the marine environment. Within the scope of this research fall only the sea damage attributed to events linked to the operation of the units, either accidental (e.g. oil spills) or intentional (e.g. waste discharges). In that sense, the issue of units’ decommissioning won’t be examined as well as the external threats, such as terrorist attacks, civil protests, or piracy that relate to the protection of the units through security regulations.

With regard to the structure of this thesis, I will firstly discuss the recent resurgence of Greek offshore sector, the threats that arise generally and specifically for the Greek natural and socio-economic environment. Continuing on, I will centre in the most important regulations in the light of the international, European and domestic law with the aim to critically assess the effectiveness of the current regime and to underline the Greek system limitations. The customary international law and soft law principals won’t be elaborated as they are extremely vague and weak in nature and thus inappropriate in setting constrains to a highly dangerous activity as the offshore

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4 The investigation has shown that the company’s actions and state’s regulations were inadequate to prevent any accident, see ‘Deep Water. The Gulf Oil Disaster and the Future of Offshore Drilling’, Report to the President, National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, 2011, https://www.gpo.gov/fdsys/pkg/GPO-OILCOMMISSION/content-detail.html (accessed 12 February 2018).

drilling\(^6\). While focusing on the prevention of sea damage this review would be incomplete without the inclusion of the liability provisions, including the environmental, the civil and criminal liability of the offshore operators in case of damage, since when a stringent liability framework is in place, oil companies are urged to be more careful during operations and it is assured that responsibility is well established in case of damage\(^7\). In essence it is attempted to investigate the central notions of *precautionary principal* and *polluter pays principal*, how are enunciated in legal texts and whether are actually satisfied. To this direction and in order to ensure that liability rules leads to the proper compensation of the victims, the provisions on the financial security instruments used by the oil companies will be also included. Finally, the paper draws conclusions, on the future regulatory steps that have to be undertaken both beyond and within Greek borders.


\(^7\)There is also the issue of states’ responsibility in a trans-boundary oil spill accident which contributes to a stronger environmental protection frame but it won’t be examined in the present paper.
1. Offshore oil and gas installations and the Greek maritime area

In this chapter is intended to overview the reasons why a firm and adequate environmental regulation applicable to offshore units is absolutely necessary for the Greek case. These are the recently fast paced growth of the national projects, the pollution dangers attributed to platforms and the specific hazards arising from Greek offshore development.

1.1. The recent developments in Greek offshore oil and gas sector

Greece is not a newcomer in offshore hydrocarbon exploitation activity. It has an active offshore production, started from the early 1980’s in the Gulf of Kavala in the Northern Aegean. It is comprised by the Prinos oil field with an ongoing oil production at about 3,177 bbls daily (in 2016) and by the South Kavala gas field where gas is produced periodically covering only the energy needs of the operator, Energean Oil and gas⁸. In recent years, Greece’s attempts for new offshore (as well as onshore) exploration and exploitation have been intensified, especially after the creation for that purpose of the Hellenic Hydrocarbon Resources Management company (HHRM)⁹ in 2011 and the intense interest of major international oil companies. While the northern Aegean Sea is a promising area for offshore development, with the Sea of Thrace block close to Prinos field having been awarded for exploration to Hellenic Petroleum SA (HELPE)¹⁰ and Calfrac companies, the attention at the moment is concentrated in the offshore blocks in the Ionian Sea and Southern and Western of Crete, a maritime area that involves deep water sites ranging from 1.000 up to even 5.267m. (the deepest point of the Mediterranean sea, in southwestern of Peloponise in the Ionian Sea).

In the Ionian Sea, which is regarded “safe haven” as there are no the geopolitical tensions found in the Aegean Sea, is the majority of oil blocks. Off the coasts of

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⁸ A Greek oil company with an offshore activity also in other Mediterranean states, in Egypt, Israel and Montenegro. More information for the operations of Energean Oil and Gas in the official page: https://www.energean.com.


Peloponnese, the West Katakolon field awarded to Energean Oil, with estimated recoverable reserve of 10-12 mmbo, is the first at the development stage with oil production projected to start in 2019, using drilling from onshore\(^{11}\). Also, the Patraicos Gulf field with significant reserves (100 recoverable mmbo) awarded for exploration to HELPE and EDISON International where the first exploration well is scheduled to be drilled this year. In 2014, an offshore bidding round took place for 20 blocks in the Ionian Sea and South of Crete Sea (see the respective map in annex 2) and offers have been submitted for three blocks; block 10 in Kyparissiakos Gulf, where HELPE is the selected applicant for exploration, with similar estimated reserves to that of Patraikos Gulf, block 1 in the north Ionian Sea and block 2 for which a Lease agreement has been signed in October 2017 with TOTAL(operator)-HELPE-EDISON joint venture\(^{12}\). Following an expression of interest by the consortium of Total, ExxonMobil and HELPE for two blocks in the west and south west part of the continental shelf of Crete and one by Energean Oil and Gas for an Ionian block in the maritime area southern of Kerkyra, new international call of tenders has been published on 2 December 2017 in the Official Journal of EU\(^{13}\) for exploration and exploitation and will be open for applications by interested companies’ until the begging of March 2018. Based on that, new blocks will be awarded the next years and Crete’s maritime area (called as “a high risk high reward area”) is projected to enter rigorously in Greek hydrocarbon prospection.

\(^{11}\) A method already applied by the company to similar projects like Prinos oil field. More data on Katakolo operations available at: https://www.energean.com/operations/greece/katakolo/ (last visited on 12 February 2018).

\(^{12}\) See above note 3, exploration section.

1.2. Sources of pollution from offshore installations

The offshore operations, although they account only for a negligible share in marine pollution in relation to other sources\textsuperscript{14}, are associated with significant threats for the marine environment at all stages of development. Firstly, the identification of offshore reserves indispensably involves seismic surveys that create intense sound waves that fall within the scope of the established definition of marine pollution\textsuperscript{15} and have a harmful effect on the hearing or even the behavior of marine animals (mainly cetaceans and sea turtles). It also requires the emplacement of mobile drilling platforms and other structures (e.g. pipelines etc.), that entails the disturbance of the ecosystem and the emission of pollutants into the sea. When the drilling is on, the operational discharges represent a significant source of contaminants entering the sea from offshore operations\textsuperscript{16}. These are attributed to the drilling muds (essential for drilling and usually water based but in certain cases oil based which are highly toxic\textsuperscript{17}), the drilling cuttings (small pieces of crushed rock), the produced water (water that comes up with hydrocarbons) containing oil and chemicals, as well as the sewage and garbage disposals from the offshore platforms. A disturbing fact is that oil industry may be elusive for these pollutants as they’re not easily monitored and to some extent the chemical composition of the used fluids may be protected under commercial confidentiality.

\textsuperscript{14} Scientific data shows that land based sources are to be blame for the 80% of marine pollution.
\textsuperscript{15} Indicatively, marine pollution in UNCLOS, Article 1,para.1(4), is defined as “the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities”.
\textsuperscript{17} Estimates has shown that when oil based muds are used, the operational discharges represent the 75-90% of the oil discharged into sea, see Anyanova E, (2012), “Oil Pollution and International Marine Environmental Law”, in Sime Curkovic (ed.) Sustainable Development - Authoritative and Leading Edge Content for Environmental Management, InTech Chapter 2 pp. 29-54, p.:52, https://www.intechopen.com/books/sustainable-development-authoritative-and-leading-edge-content-for-environmental-management (last visited on 10 February 2018).
Moreover, the accidental oil spills, caused either by a well blow out (i.e. the loss of well control or the well integrity) as occurred in several oil spills incidents\textsuperscript{18} or a platform failure like the Piper alpha disaster (1988) in the British waters of North Sea, remain rare but the most devastating events in offshore oil and gas history with usually trans-boundary implications. A crude oil spill, depending on the type of the extracted oil (heavy or light), the size of the spill, the fragility of the marine ecosystem and the distance of the rig with the closest shores, it takes a deadly toll primary to sea birds and marine mammals that emerge in sea surface to breathe and in lower percentages to fish and rest of marine species. It causes a long-term contamination of shorelines\textsuperscript{19} and wetlands and a sharp decline in economic productivity. At the same time the use of chemical dispersants it may be an additional source of pollutants, because they diffuse oil in very small droplets that disperse in the water column and easily enter into the food chain and thus although the shores and the coastal wild life are better protected, the exposure of marine species to oil increases significantly\textsuperscript{20}. Another major danger pose the less known and unreported minor oil spills that may frequently occur during operations and can have a serious cumulative impact particularly in the Mediterranean Sea where thousands of oil slicks have been detected, as reported by the European Parliament Research Service and Joint Research Center, (precisely 9.700 in 1990-2007). Finally, at the end of their life and in the absence of a proper decommissioning process, the numerous fixed rigs may continue to burden the marine environment, especially if they are abandoned leading to a slow corrosion and release of contaminants or are removed using strong explosives.

1.3. Specific concerns over the oil and gas operations in Greek Seas

The creation of a network of oil and gas operations stretching from the Ionian Sea to the waters of Southern coasts of Crete is a multiply challenging decision. Most Greek

\textsuperscript{18} Indicatively it happened in the offshore accidents of Ekofisk Bravo in Norway (1977), Montara H1 well in Australia (2009) and DWH in the Gulf of Mexico, U.S. (2010).

\textsuperscript{19} The extremely lasting effects on sandy coasts were outstandingly verified by a 2007 research study that found that 26,000 gallons of oil from the Exxon Valdez oil spill (1989) was still trapped in the sand along the Alaska’s shoreline.

\textsuperscript{20} See above no.16, p.:19
blocks are located in the Hellenic trench area, which is a seismic hotspot globally. The Ionian Sea in particular, is referred as the most seismically active zone of Greece and East Mediterranean, as three tectonic plates collide (Apulian, Eurasian and African). Estimates\(^\text{21}\) show that the last decade the Greek oil and gas blocks had the highest seismicity of the Mediterranean fields, as dozens of seismic events of magnitude above 4 has occurred. The seismicity entails an indirect danger for units as it may trigger displacement of sediments, seabed fluid leaks or tsunami’s formation\(^\text{22}\) and should be duly assessed before the licensing and the placing of drilling platforms. At the same time, it has to be assured that the drilling process won’t activate a seismic activity, a consequence that until now is not verified by science or international practice\(^\text{23}\). Additionally, the very maritime area is the habitat of unique, protected and endangered marine and coastal species. The loggerhead sea turtle or Caretta caretta, the Mediterranean monk seal or Monachus monachus, numerous birds, cetaceans (e.g. sperm whales and dolphins) which are protected inter alia under ACCOBAMS (Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and contiguous Atlantic area)\(^\text{24}\) and extended fields of protected Mediterranean seagrass species of Posidonia oceanica.

Given that richness in fauna and flora of Greek waters, close or within the hydrocarbon blocks are located several Natura 2000 protected sites under the Habitat Directive (92/43/EEC for the protection of important marine ecosystems and the wild fauna) and flora and the Birds Directive (79/409/EEC as amended by 2009/147/EC over the safeguard of breeding or resting sites of migratory or endangered species). Some of them are the Zakynthos national marine park in Ionian Sea for the protection of

\(^{23}\) The only scientifically ascertained case for a correlation between drilling process and earthquakes and in once seismically stable regions, refers to oil and gas procedures that use the hydraulic fracturing technique known as “fracking” (e.g. in Oklahoma, Texas, U.S.).
\(^{24}\) Interestingly, ACCOBAMS members have pointed out 8 Greek regions (mostly in the Ionian Sea) that require international protection in a total of 15 in the Mediterranean basin.
Caretta caretta, the Kyparissiakos Gulf, which is the second most important Mediterranean breeding ground of Caretta caretta after Zakynthos and the national parks of Ambrakikos Gulf and Messolonghi, Kotychi lagoons in the Patraikos Gulf that are also protected under Ramsar Convention for the conservation of important wetlands. Offshore oil and gas exploration within these areas is not generally prohibited but requires a case by case careful examination for both environmental and economic reasons since properly managed Natura sites are associated with significant economic benefits and can be the driver for domestic green economy. We should also add that under EC pressures, Greece has lately expanded its Natura marine sites with 50743/2017 Joint Ministerial Decision (JMD) (OGG 4432/B/15-12-2017)25, adding two more sites in the focal areas, Kefalonia Ionian island and the north west coasts of Peloponnese and pursuant to EU mandates it’s on the process of constituting a more efficient operation and financing scheme of national Natura management agencies.

In strong correlation to the above lies the concern over the serious economic repercussions that would cause a marine environmental damage to the prevailing sectors of tourism, fishery, aquaculture and maritime navigation. It’s well known that at the moment tourism is the building block and the only driving force for the national economy. In 2016, according to the data of the World Travel & Tourism Council, it contributed the 18,6% of the GDP (32,8 billion EUR) and it offered the 23,4% of domestic employment. The Ionian Islands, the Western Greek coasts and Crete represent pivotal touristic areas with millions of tourists arriving every year and numerous recreational boats and cruise ships mooring at their ports. The damage suffered by an oil and gas accident would cripple the Greek economy requiring several years to recover and in that sense even out of pure economic reasons is necessary to guaranty that offshore exploration and exploitation will be conducted under the stricter possible set of rules over safety, oil spill prevention and response.

25 The protected marine sites increased considerably, from 6.12% to approximately 22% of its marine territory.
2. The pollution from offshore operations under international law

Given the global dimension of offshore operations, since it involves multinational companies with activities around the world and accidents of trans-boundary nature, regulation has to be made by international law. In this chapter the main global and regional instruments are presented as well as their insufficiency which is finally commented.

2.1 The main global international texts

2.1.1 UNCLOS

UNCLOS\(^26\) is certainly the fundamental global regulatory tool\(^27\) that governs the States rights and obligations over the use of the marine environment. The first notable provision for Mediterranean Sea protection is found in Articles 122,123 where the concept of enclosed and semi-enclosed sea is defined with Mediterranean Basin meeting all the required characteristics\(^28\) and an obligation being set for neighboring States concerted action through inter alia a regional regulation. The areas of exclusive economic zone (EEZ)\(^29\) and the continental shelf\(^30\) are defined, where States are granted the sovereign right to exploit natural resources found in the subsea while in the territorial sea they enjoy sovereignty. In article 81 is found the only clear mention to offshore drilling and the right for setting safety measures, as Coastal State shall have the exclusive right to authorize and regulate drilling on the continental shelf for all purposes. As per the marine environmental protection, the convention inspired by the principles of Stockholm Declaration 1972\(^31\), it dedicates part (XII) (art 192-237), the


\(^{28}\) Enclosed or semi-enclosed sea according to Art.122 UNCLOS “means a gulf, basin or sea surrounded by two or more States and connected to another sea or the ocean by a narrow outlet or consisting entirely or primarily of the territorial seas and exclusive economic zones of two or more coastal States”.

\(^{29}\) EEZ shall not exceed the 200 nautical miles from the territorial sea baseline (UNCLOS Art.57).

\(^{30}\) It may stretch up to 350 nautical miles from baseline depending on the geology, overlapping with the 200 miles EEZ zone (UNCLOS Art. 76).

\(^{31}\) UNCLOS third conference (1973–1982) initiated its works, a year after United Nations Conference on the Human Environment in Stockholm (1972) that declared basic principles for the environment and
second lengthiest part in the document. It stipulates framework rules that are strictly attached to the economic activities permitted in this Treaty\textsuperscript{32}. States are obliged to adopt laws for the prevention and control of marine environmental damage\textsuperscript{33} and to promote international assistance both in global and regional level, for the purpose to exchange knowledge and to combat pollution. Article 208 speaks for pollution prevention from seabed activities, requiring States to have a regime for prevention and remediation of pollution not less effective than the international rules (Art.208p.3) and recognizes regionalism as the mean for harmonized law creation (Art.208p.4,5). In the scope of liability, convention misses to act a concrete legal tool, since in article 235, while the need for adequate compensation in a pollution incident is confirmed the liability regime is to be developed by another legal system. In the sense of the above the convention sets only soft law principals\textsuperscript{34} and the guideline for regulation that should be created in the scope of national law and fails to establish specific practices that need to be adopted for pollution prevention. Its contribution diminishes even more if we consider that there is not an enforcement mechanism for UNCLOS environmental provisions. In that sense UNCLOS assist the creation of a possible patchwork of domestic law rules and serious contradictions in the regime of Greece and rest Mediterranean States, an outcome that goes against the Art.123 requirement for a harmonized regime in semi enclosed seas.

2.1.2. OPRC

Another important global international tool is the OPRC\textsuperscript{35}, conducted in 1990 under the auspices of IMO and in response to the devastating accident of Exxon Valdez in development, such as the 21th principal for State’s obligation to exploit its natural resources without causing pollution damage to other States that is a norm of customary Law.

\textsuperscript{32} See article 193 UNCLOS where “States have the sovereign right to exploit their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment”.

\textsuperscript{33} Art.194 UNCLOS.

\textsuperscript{34} Esmaeili H., (2001), The Legal Regime of Offshore Oil Rigs in International Law, Aldershot: Ashgate Dartmouth, 2001, p.156.

Alaska in 1989. The aim of this instrument is to establish comprehensive measures for an effective response to oil pollution, originated both from ships and offshore oil units. Unfortunately, sources of marine pollution other than oil such as accidental or deliberate operational discharges of other hazardous mixtures are excluded from the scope of the convention leaving outside a very important source of marine pollution. To fill this gap, in 2000 an extension to OPRC imperatives was adopted by the States members to OPRC for hazardous and noxious waste, (the Protocol on Preparedness, Response and Co-operation to pollution Incidents by Hazardous and Noxious Substances OPRC/HNS 2000 protocol) setting analogous response commitments but are applicable only to vessels source wastes and port facilities (Article 2 (3)). Under OPRC the offshore platforms definition is made in an effective, highly inclusive way and rules apply to fixed and floating units engaged in different types of operations, from exploration, production to loading and unloading of oil. Essential actions are mandated, such as the obligation of emergency response plans prepared by unit operators under Article 3 (2) and approved by the State authority (internal contingency plans) and States’ emergency plans under Article 6, (external plans) with a designation of competent authority for effective response to oil spills. In Article 4 (c) there is also a reporting commitment for the operators of oil platforms for “any event involving a discharge or probable discharge of oil or the presence of oil to the competent authority”. Particular emphasis is being paid to the creation of a regional response mechanism (Article 6 (2)), the need for international cooperation in the event of an oil spill (Article 7) and the possible financial (art7(2)) and technical (Art.9) assistance by IMO to States actions. This convention is fairly acknowledged as the most efficient in improving marine environmental safety as it sets out specific obligations and it specifies in detail the measures that States and offshore operators has to take to respond to oil pollution accidents.

36 art.2 (4)
37 See above note 34, p.158
2.1.3. The London Convention 1972

The Convention on the Prevention of Maritime Pollution by Dumping of Wastes and Other Matter (the London Convention)\textsuperscript{38} ratified by 87 States to date, is an effort of international law to manage and control dumping, meaning the deliberate disposal of waste and matter including oil into sea from ships, platforms or other man-made structures at sea. It follows the so called “black-and grey-list” approach\textsuperscript{39} according to which, the dumping of Annex I listed wastes is prohibited while the dumping of other wastes is allowed upon permission\textsuperscript{40}. However, as per the offshore activities, the applicability of the treaty is limited as the Article III (b) definition of dumping leaves outside the disposals during the normal operation of platforms and paragraph c of that article underlines that “the disposal of wastes or other matter directly arising from, or related to the exploration, exploitation and associated off-shore processing of sea-bed mineral resources will not be covered by the provisions of this Convention”. In that sense a variety of dangerous pollutants, the drilling wastes, e.g. the cuttings and the produced water is deemed to be outside of the scope of the convention. Also as per the civil liability rules though strongly related to the effectiveness of the issued prohibitions Article X similarly to UNCLOS provisions impose only the imperative for member States to identify the applicable framework for civil liability. In addition to that, Greece is not member to the dumping protocol of 1996, a refined legal version that superseded London Convention, following a more restrictive approach with a “reverse list approach”, where dumping is generally prohibited unless the waste or matter are on the approved list of substances and a much broader definition of dumping that includes also the deliberate disposal of oil platforms and structures.

\textsuperscript{39} Ibid, art IV (1) where the Annex I blacklist items dumping is prohibited, the Annex II grey-listed materials requires a special permit from a designated national authority and all other materials or substances can be dumped upon the issuance of a general permit.
\textsuperscript{40} Ibid, arts IV(1)(a), IV(1)(b).
2.1.4. Other applicable legal instruments

Among other international tools that apply to offshore units and worth noticing, is MARPOL 73/78\(^{41}\) that is attributed to the prevention of marine pollution by ships, but according to Regulation 39 of Annex I, also applies to fixed and floating platforms including drilling rigs, storage and offloading facilities, but only when they are in mobile configuration\(^{42}\). Regulation imposes on them under certain exceptions\(^{43}\) the same equipment requirements for vessels of 400 gross tones and above, including oil-water separators, sludge tanks and an oil discharge record and control system available in the unit. In essence, MARPOL governs only the discharge of machinery space drainage and contaminated seawater introduced into oil tanks (as outlined in Appendix 5 of Annex 1 of MARPOL 73/78), leaving outside the most important aspects of pollution dangers from offshore rigs that arise during operation such as accidental oil spills and drilling wastes that remain to be regulated under national or regional tools. The next worth mentioning is the MODU Code\(^{44}\), a soft law instrument drafted by IMO, in 1979, and amended in 1989 and 2009, for the construction standards of mobile typed platforms\(^{45}\), which is of limited value. Whilst is the only tool that tackles the issue of platform design, it’s a non binding document and construction is regulated as units being another type of vessel, with no reference to their exploratory activities\(^{46}\).

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\(^{42}\) Kashubsky, M., (2006), Marine Pollution from the Offshore Oil and Gas Industry; Review of Major Conventions and Russian Law (Part 1), Maritime Studies, p.4.

\(^{43}\) R39 (2), MARPOL 73/78 annex I.


\(^{45}\) Ibid, Chapter 1.3.1, “Mobile offshore drilling unit” or “unit” is a vessel capable of engaging in drilling operations for the exploration for or exploitation of resources beneath the sea-bed such as liquid or gaseous hydrocarbons, sulphur or salt”.

2.2. The regional legal tools

2.2.1 The Barcelona Convention

In 1975, Mediterranean Sea became the first region ever addressed by UNEP Regional Seas Program initiative with the adoption of the Mediterranean Action Plan (MAP) for the protection of the marine environment. A year later, the Barcelona Convention, a regional convention supplemented by specific protocols, was concluded for seventeen contracting members (including the European Community), being the legal instrument of Mediterranean Action Plan (MAP) that entered into force in 1978. In realization that regional tools can be more successful in tackling the special needs and problems of each marine ecosystem and easier in the adoption by the interested States, since they cede sovereignty to a regional instead of a global institution, Barcelona Convention was the first framework convention that provided for generic rules on States actions against different sources of pollution and environmental challenges. In 1995, a modification to the Convention was adopted within the MAP Phase II (that renamed the Convention to “Convention for the Protection of Marine Environment and the Coastal Region of the Mediterranean”), which came into force in 2004 for 22 Contracting parties including the European Union. The revised Barcelona Convention as it applies now, calls States “to prevent, abate, combat and to the fullest possible extent eliminate pollution of the Mediterranean Sea Area” (Article 4 (1)), to apply the precautionary approach and polluters pay principal, to undertake environmental impact assessment, to cooperate with Contracting States in pollution mitigation and to promote integrated coastal zone management (Article 4 (3)).

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50 The 21 Contracting States are Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, Syria, Tunisia and Turkey.
As an umbrella convention and at the same logic of UNCLOS, it codifies only generic rules that States needs to translate into specific national laws measures. It requires State actions against various forms of marine pollution, and specifically, for seabed activities, Article 7 states that “Contracting Parties shall take all appropriate measures to prevent, abate and to the fullest extent possible eliminate pollution from the Mediterranean Sea resulting from exploration and exploitation of the continental shelf and the seabed and its subsoil”. The issue of civil liability is treated the same way, conferring States the obligation to adopt effective civil liability and compensation rules (Article 16). Given that the Convention provides only the guideline for Mediterranean Sea protection, seven specific Protocols were adopted to address each of the environmental issues indentified in its articles. These are: the Dumping Protocol from ships and aircraft, the Prevention and Emergency Protocol\textsuperscript{51}, the Land-based Sources and Activities Protocol, the Specially Protected Areas and Biological Diversity Protocol\textsuperscript{52}, the Offshore Protocol (pollution from exploration and exploitation)\textsuperscript{53}, the Hazardous Wastes Protocol and the Protocol on Integrated Coastal Zone Management (ICZM)\textsuperscript{54}.

Among them, the Offshore Protocol having its legal basis on Article 7 of Barcelona Convention, It articulates specific and technical rules that govern the whole cycle of offshore operations, starting from the authorization process and the units establishment to the safety measures and monitoring during operation and the final step of structures removal. Until now, the Offshore Protocol along with its sister Protocol adopted in 1989 within the framework of the 1978 Kuwait Regional Convention, is the only comprehensive international text dedicated to the pollution arising from seabed activities. Interestingly enough, given its adoption date (1994), it remains a very forward thinking technical document and the high number of its

\textsuperscript{51} The Protocol Concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea adopted in 2002 and entered into force on 17 March 2004 replacing its old version.

\textsuperscript{52} The Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean adopted on 10 June 1995 and entered into force on 12 December 1999.

\textsuperscript{53} The Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil was adopted on 14 October 1994 and entered into force on 24 March 2011.

\textsuperscript{54} The Protocol on Integrated Coastal Zone Management in the Mediterranean was adopted on 21 January 2008 and entered into force on 24 March 2011.
requirements is the reason why remained inactive for more than fifteen years until to its entry into force in 2011 as well as the low number of ratifications. Only six States are bound by its requirements (plus the European Union) and Greece hasn’t ratified it yet. Cyprus is the only EU State that chose to apply its provisions. However, since to EU accession to the Protocol in 2013, it became binding for Greece and thus its contribution will be examined in the section 3.2. of this dissertation. For the same reasons and in the same chapter will be discussed two more protocols that influence the regulation of offshore development, the 1995 SPA and Biological Diversity Protocol and the 2008 Protocol on Integrated Coastal Zone Management (ICZM).

It’s worth noticing that Greece has followed a weak incorporation of the Barcelona rules, since the Protocols that has acceded to and have an impact on offshore drilling regulation are: the initial 1976 version of the Dumping Protocol that applies an outmoded treatment of discharges based on lists, the Emergency Protocol that caters for States emergency cooperation in a event of an oil spill with the assistance of Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), an important organization established mainly for this aim and the outdated 1982 SPA Protocol that doesn’t entail the problem of marine biodiversity.

Another aspect that needs to be put under consideration is the Barcelona’s System weak effectiveness, as both the Convention and the Protocols are characterised by a lack of enforcement mechanism and so poor implementation by contracting states. Indeed, the only means of compliance are a reporting commitment for Contracting States (Article 26, Barcelona Convention) and a compliance monitoring on behalf of Parties Conferences (Article 27, Barcelona Convention). Without the imposition of

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56 The 6 countries that have ratified the Protocol are: Albania, Cyprus, Morocco, Tunisia, Syria and Libya.
57 Similar to that of the above mentioned Dumping Convention 1972.
sanctions, it lies with States political will to actually implement the respective provisions. Another disappointing fact is that civil liability, although an inherent part for the success of the Mediterranean regime it remains unregulated. The only attempts to govern this notion were in 1997 UNEP-MAP Secretariat draft text proposing strict liability for environmental damage and the creation of a Mediterranean Inter-State Compensation Fund (for financial assistance in the event that an operator couldn’t meet the costs) and in 2008 with Mediterranean Guidelines a soft law document that pose only proposals for further actions that need to be taken.

2.3. The inadequacy of international law

The survey of the applicable international law that regulates the offshore activities is clear the leads to disappointing conclusions. There isn’t any international text in place for Greece to govern all aspects of offshore oil and gas drilling. From both global and regional point of view the instruments for safety and pollution prevention give rise to either, generic and soft law principals for States action, (e.g. UNCLOS and Barcelona Convention) or rules that apply only to certain aspects of offshore drilling industry (i.e. MARPOL for discharges during transit and London Convention for few deliberate discharges) and both show poor enforceability. Although there have been series of evolution in offshore drilling activities, the legal regime still remains undeveloped and highly fragmented in nature. Authors suggest several reasons for this lacuna; the relatively recent scale up of offshore development, the low share in marine pollution in relation to other activities (i.e. land based industries), the occurrence of few major

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63 See notably Gavouneli and Kashubsky, above notes 6 and 42.
accidents worldwide, the strong opposition of oil companies, the fact that platforms are usually out of sight leading to the underestimation of their dangers and of course the significant unwillingness of States to hurdle a high state revenue producing industry. Irrespective of the reasons of this imbalance, the consequences for a State like Greece, that lacks experience and a sophisticated national law already established in other States (e.g. Norway) are huge, since there is no a universal model to adhere to or to use as a benchmark. Within the limits of EU Law, Greece has a wider margin of discretion in drafting safety and liability rules in national Law or in bilateral agreements and during its serious economic woes may tend to lessen its environmental regime in order to attract more offshore investments comparing to other Mediterranean countries\textsuperscript{64}. Also oil companies have dangerously more room for setting their own safety and response principals\textsuperscript{65}.

The absence of international instrument in the area of civil liability and compensation is particularly discomforting, given that an oil spill in Greece will possibly have transboundary effects involving both EU and third countries. With regard to the legal basis for third states to raise a claim for operators’ responsibility and compensation, no bilateral agreement has been signed between Greece and a third State and the application of private international law, civil liability and compensation claim rules of domestic law cannot appropriately handle the issue. While in vessel sourced pollution a comprehensive and international system has for long been in place and adopted by Greece, the Civil Liability Compensation Convention (CLC) 1969\textsuperscript{66} and the 1971 Fund Convention as both amended in 1992, setting strict liability\textsuperscript{67} on ship owners in case of

\textsuperscript{64} Gavouneli M. above note 6 p.118, where is underlined the inherent danger for softer liability provisions in a period of economic hurdles.


\textsuperscript{66} The International Convention on Civil Liability for Oil Pollution Damage (CLC) entered into force on 19 June 1975 and was replaced by 1992 Protocol that came into force on 30 May 1996.

\textsuperscript{67} Meaning the establishment of liability based on the causal link between the incident and the damage, without the need of fault or negligence on part of the operator.
an oil spill and covering high limit compensations not paid by the ship-owner, in offshore drilling and even after the recent devastating accidents, (e.g. Montara and DWH oil spills), the liability is an issue that traditionally evade international governance. This is verified by the striking failure of a civil liability convention for the civil liability for oil damage from offshore exploration and exploitation activities (hereinafter ‘CLEE’) that was drafted in 1977 at the same pattern of CLC provisions, setting strict liability of operators of a wide network of offshore installations as well as a mandate for adequate compensation in case of damage and a limit on the amount of damage that could be claimed against operators. It was the only global tool ever designed for offshore oil and gas activities that it didn’t eventually come into force, as only six States became signatories with no accessions. Adding to that the IMO’s stable refusal to include a liability treaty within its agenda and the weak efforts taken by the Barcelona Members in the issue it becomes evident that international community hasn’t learned its lessons from the past oil disasters. Remarkably, the only regulation in force is attributed to an industry’s private initiative, the Offshore Pollution Liability Agreement (‘OPOL’), which however applies only in oil spills from operations in the maritime areas of North and West Europe and according to which OPOL parties mutual guarantee to compensate the victims if a member should default.

So, in the view of the above, another issue that has to be checked in the next chapters is whether oil companies operating in the Greek oil fields and especially the small ones,

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69 Convention on Civil Liability for Oil Pollution Damage Resulting from Exploration for and Exploitation of Seabed Mineral Resources, 1 May 1977, 16 ILM 1451 (‘CLEE’).

70 CLEE, art. 20 requires no less than four states to ratify the convention in order to come into force.

71 IMO while being the only organization that can handle the issue properly and has already step in the offshore activities regulation with MODUs Code, in 2013 following a request of the Indonesian delegation, concluded that that there was no need for an international agreement, but only for IMO assistance to States legislative actions. For the different views expressed over the issue see R. Shaw (2011), “Trans-boundary Oil Pollution Damage Arising from Exploration and Exploitation of Offshore Oil. Do We Need An International Compensation Convention?” CMI News letter, pp. 18-23, available at: http://www.comitemaritime.org/Uploads/Newsletters/CMI%20News%202011-3.pdf, (accessed 13 February 2018).

72 Offshore Pollution Liability Agreement (‘OPOL’) came into effect 1 May 1975, amended 1 August 1986 available at http://www.opol.org.uk/. It covers damages up to a maximum of US $250,000,000 per incident.

73 OPOL clause 1 (8) excludes application to offshore facilities operating in the Baltic or the Mediterranean Sea.
in the absence of an agreement like ‘OPOL’ or a Compensation Fund (of global or Mediterranean range) will be able to absorb the damages of a large oil spill through effective financial security arrangements.
3. The main aspects of European regulatory regime

EU law is the main source of the Greek environmental legislation. In the area of offshore drilling, the applicable rules aim to supplement the deficit noted in international law. This scope is mainly materialized by a sector specific directive (2013/30/EU) and the incorporation of the Offshore Protocol of the Barcelona Convention.

3.2. The role of the offshore safety Directive (2013/30/EU)

EU is traditionally known for the pivotal attention that pays in environmental issues and for the adoption of high environmental standards. However, in the scope of offshore drilling, EU has showed a surprisingly late regulatory response. Based on EU’s shared competence with Member States on the environmental issues and following the rules of subsidiarity and proportionality of the Treaty on the functioning of the EU74, the 2013/3 EU Directive (hereinafter Offshore Safety Directive, OSD), is the first legal tool that EU has ever created specifically for the safety and regulation of offshore activities. In the light of DWH accident that fired serious international concern from countries and NGOs, over the way oil companies conduct their business and the sufficiency of the applicable regime, the European Commission (EC), realizing the gaps and the fragmented nature of EU regulatory regime, it published a Communication75 in 2010, where it pinpointed the improvements and the actions that need to be considered and a year latter submitted a proposal76 for a Regulation on the matter of EU offshore safety. Unfortunately the reactions posed by some States and the oil industry77 led unsatisfactory to the adoption of a Directive which is a less stringent tool as it grants legal flexibility in Member States. The new tool on safety of offshore oil and

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74 Articles 191,192,193 of TFEU are applicable for environmental protection. They need to be read in combination with Article 194 para.2 of TFEU which upholds that Member States have the right to determine the conditions for the exploitation of their natural resources but within the limits of EU environmental protection measures.
gas operations, published in 12 June 2012, with a transposition deadline until 19 July 2015 and it’s in essence an attempt to harmonize and ameliorate the existing EU instruments\textsuperscript{78}. These instruments are mainly: the Directives 2001/42/EC and 85/337/EEC (as amended) for the requirement for the offshore projects of a strategic environmental assessment (SEA) and an environmental impact assessment (EIA) respectively; the Hydrocarbons Directive 1994/22/EC on the conditions for granting authorization which mostly refers to EU competition rules; the Environmental Liability Directive 2004/35/EC that apply the polluters pay principal for environmental damage and sets strict liability for operators; the Council Directive 1992/91/EEC for the safety and health protection of workers in offshore drilling activities and the Waste Framework Directive 2008/98/EC on the responsibility for the proper management of produced wastes which covers the case of marine oil spills as is hold by the ECJ\textsuperscript{79}.

Although known as the safety Directive, it does not aim to generally safer and more sustainable offshore operations. It’s dedicated only to major accident prevention and this aim is satisfied by some minimum protective mandates\textsuperscript{80}. National licensing authorities are obliged to perform a due diligence assessment of the technical and financial capabilities of the applicant\textsuperscript{81}, extending the conditions for granting authorization under 1994/22/EC Directive and giving emphasis to the potential damage of highly sensitive ecosystems\textsuperscript{82} and the acceptance of alternative financial security arrangements to facilitate coverage (e.g. bonds, guarantees, insurance pools etc.) There is a commitment for an effective public participation and access to

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\textsuperscript{80}In respect of the limited scope of the directive in relation to the proposed regulation see L. SCHIANO DI PEPE, Offshore oil and gas operations in the Mediterranean Sea: regulatory gaps, recent developments and future perspectives, in J. JUSTE RUIZ, V. BOU FRANCH (ed.), Derecho del Mar y Sostenibilidad ambiental en el Mediterráneo, Valencia, 2014, 378-387, p.381 [e-mail].

\textsuperscript{81}Article 4, OSD.

\textsuperscript{82}Article 4(6) OSD.
information for the planned project\textsuperscript{83} which is pursuant to the rules set by Aarhus Convention\textsuperscript{84} which links human rights and environmental protection. But most importantly, at the heart of the regime lies the operator’s commitments to prepare a major hazards report\textsuperscript{85} and an internal contingency plan\textsuperscript{86} prior the commencement of operations, to adopt of an effective day to day accident prevention policy\textsuperscript{87} and to provide information of the well operation and design\textsuperscript{88}. The compliance of the operators with these requirements is supervised by an independent competent authority which is in charge of the assessment of operators’ submitted documents and the overall implementation of safety rules using inspections and enforcement measures. In fact the competent authority is the cornerstone for their implementation, acting under the assistance and guidance of the European Union Offshore Oil and Gas Authorities Group (EUOAG)\textsuperscript{89}. Continuing on, another important contribution is that European Maritime Safety Agency (EMSA) emergency response competencies are extended to oil and gas oil spills\textsuperscript{90}, and less experienced states like Greece may be aided by its technological and scientific assistance. This is a significant aid especially if we notice that in September 2017 the emergency response vessel of EMSA Aktea OSRV, operating in the Aegean Sea assisted within few hours the Greek authorities in the recovery of the leaking oil out of the wreck of Agia Zoni II oil tanker\textsuperscript{91}. Also a sheer reference to Mediterranean Sea is found in Article 33, with a mandate for coordination of preventative and response actions of member states and third countries.

On the issue of liability, OSD, as all the tools reviewed so far, fails to constitute a comprehensive regime, as Article 7 merely channels civil liability to licensees, leaving Member States to define its nature (strict or fault based) and its range (limited or not),

\textsuperscript{83} Article 5 OSD.
\textsuperscript{85} Articles 12,13 OSD.
\textsuperscript{86} Article 14 OSD.
\textsuperscript{87} Article 19 OSD.
\textsuperscript{88} Article 15 OSD where is found the only imperative related to the construction of units after the adoption of MODU IMO Code.
\textsuperscript{89} More about EUOGAS role in https://euoag.jrc.ec.europa.eu/
\textsuperscript{90} Article 10 OSD.
while Article 38 extends the application of 2004/35/EC Directive for environmental liability\textsuperscript{92} to cover damages caused in the areas of EEZ and Continental Shelf of the Coastal States. However, although the issue of civil liability and compensation remains in national hands, Article 39 orders a review by EC of the effectiveness of national law provisions and the availability of efficient financial instruments with the view to broaden EU corresponding provisions. It also looks at the potential of bringing oil and gas platform accidents under the scope of criminal Law under the Environmental Crime Directive 2008/99/EC since this is within the competencies of EU if it’s deemed necessary for the EU environmental protection policy implementation\textsuperscript{93}. The first EC report pursuant to Article 39 was published on 14 September 2015 and highlighted the limited availability of alternative financial instruments, with Greece (and most Member States) accepting only insurance as well as the heterogeneity in domestic civil liability rules but it concluded that is too early to introduce any changes\textsuperscript{94}.

The survey of new Directive provisions indicates that is surely a step further and the basis for the safer conduct of the increasing oil and gas operation in the Greek Seas. Notwithstanding, this case lies in the effective incorporation into national law and implementation. Greece has recently transposed the OSD into national law, on 28 July 2016 with L.4409/2016\textsuperscript{95} more than year after the given deadline and after an infringement procedure initiated by the European Commission (25 February 2016)\textsuperscript{96}. A problematic point of L.4409/2016 is that the role of the competent authority is conferred to the HHRM company, a société anonyme which operates under private law and under the supervision of State, that is its sole shareholder\textsuperscript{97}. As stated in art.8 (4) L.4409/2016 and in tandem with Article 8(3) OSD, until the creation of a district legal person and provided that the number of offshore operations is below six, the duties of the Greek competent authority are entrusted to HHRM although its main


\textsuperscript{93} We should note that by contrast this necessity has declared in vessel source oil spills as they are already included in the list of EU environmental crimes.

\textsuperscript{94} REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL on liability, compensation and financial security for offshore oil and gas operations pursuant to Article 39 of Directive 2013/30/EU COM(2015)422 and COMMISSION STAFF WORKING DOCUMENT that accompanied the report, SWD/2015/0167 final.

\textsuperscript{95} OGG 136/A/2016.

\textsuperscript{96} Formal requests were also addressed against Portugal and Netherlands.

\textsuperscript{97} See Art.145-154 L.4001/2011 for the establishment of the HHRM.
purpose is the economic development and the management on behalf of the State of the Greek oil and gas fields. However, besides this OSD granted exception, the duties of safety and environmental protection shall be fulfilled by the company in an independent and objective way in relation to its economic development targets. This requirement is not satisfied in HHRM. Article 36 (1) L.4409/2016 (that amended art.147, 2 (c) of L.4001/2011), stresses that sources of HHRM income are all the revenues for oil and gas concessions, i.e. royalties, surface fees, signature and production bonus and although this is an accepted source of finance under OSD, the company show high dependence to them as these resources truly guarantee its operation and liquidity. Also on these resources is depended the functionality and the proper staffing of the company with additional employees empowered with the new responsibilities. In that sense the Greek offshore development is at HHRM company’s best economic interest and thus in HHRM duties there is a clear contradiction which is against the scope of OSD (Art.8 (2) OSD). It’s revealing to note that this was exactly a problem realized by the US authorities in the aftermath of Deepwater Horizon when the supervisory duties were removed from the Minerals Management Service, an agency mostly interested in generating and collecting lease revenues rather than securing environmental safety. This is a problem of paramount importance for the lawful implementation of OSD rules and needs to be tackled promptly with the creation of a distinct, truly impartial authority by Greek State and

98 Ibid.
99 See Recital 21 and Art. 8 para 2 of OSD.
100 Art.8,(7) OSD.
102 Is important to note that art.8 (2) L.4409/2016 mentions only the general obligation for independence and objectivity of the first sentence of the corresponding Art.8(2) OSD while the latter continues on clarifying that “conflicts of interest shall be prevented between, on the one hand, the regulatory functions of the competent authority and, on the other hand, the regulatory functions relating to the economic development of the offshore natural resources and licensing of offshore oil and gas operations within the Member State and the collection and management of revenues from those operations”. So the Greece choice of HHRM is deemed to be against the meaning and the scope of this article.
essentially by EC intervention for an incorrect transposition and even the establishment of an EU agency to oversee domestic authorities’ efficient operation.

3.2. EU and Mediterranean regime integration

In the aftermath of the DWH accident EU also turned its focus on the Mediterranean Sea and the dangers that arise from the increasing number of oil and gas operations, proposing the accession of the European Union to the Barcelona’s Offshore Protocol provisions. The EU historically has been a strong partner in Mediterranean legal system having acceded to almost all of its Protocols, but for the Offshore Protocol at the time of its adoption in 1994, Community didn’t sign it preferring the establishment of a European tool. It was in 2011 when the Protocol was realized to be essential to increase safety of oil and gas activities in the Mediterranean and the final Council Decision was adopted on 17 December 2012. The effect of this action is that now the Offshore Protocol has entered into the EU legal framework under Article 216 of TFEU as second level legislation instrument, ranked below the Treaties but above Directives. That’s of great significance for Greece, since, although it hasn’t ratified the Protocol, its provisions have a direct effect into national law order, so is obliged to apply it and to participate to the Offshore Contracting Parties discussions and actions for the promotion of its implementation such as the recently adopted Offshore Action

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106 Article 216 of TFEU: “1. The Union may conclude an agreement with one or more third countries or international organisations where the Treaties so provide or where the conclusion of an agreement is necessary in order to achieve, within the framework of the Union’s policies, one of the objectives referred to in the Treaties, or is provided for in a legally binding Union act or is likely to affect common rules or alter their scope. 2. Agreements concluded by the Union are binding upon the institutions of the Union and on its Member States”; Treaty on the Functioning of the European Union (consolidated version), Official Journal of the European Union, 9 May 2008, C 115/47, C 115/199.
Plan (2016-2024)\textsuperscript{107}, that inter alia urges for the ratification of the Protocol by all Parties and most importantly calls for financial and technical assistance to States to achieve regional safety. Also, since the Protocol is part of EU Legal framework, its embodiment to Greek legal system falls within the competencies of EC and the European Court of Justice with the availability of implementation and compliance control means used for EU environmental Law\textsuperscript{108}.

A question however that needs to be answered is whether the Offshore Protocol from its incorporation into EU law, besides facilitating the uniform regulation for Mediterranean offshore development, it actually establishes new rules other than that of the OSD for Greece and rest EU Mediterranean States. It’s true that the two instruments share many common provisions, since EU has adopted to a great extend the Protocol’s rules, (e.g. the prior authorisation environmental, technical and financial evaluation, the contingency planning and the creation of a competent authority), but there are some important differences. A comparative analysis of the two instruments show that the Protocol has a more refined definition of “operator” as its rules apply also to the person that is \textit{de facto} in control of the unit, while the Directive refers only to the authorised operators. Also, the section III of the Protocol sets detailed rules for the proper management of wastes, i.e. harmful and noxious substances drilling cuts, sewage and garbage that should be read in parallel with the applicable European legislation, the Waste Framework Directive. As per the liability issue, the rules unfortunately are similar to that of OSD Directive, as in Article 27 of the protocol notes that until States develop their own liability rules, liability for damages shall be linked to operators and they should use adequate financial security tools, without though clarifying the types of the damages that shall be covered\textsuperscript{109}. Besides the focal differences the two instruments, the most important aspects of EU and Barcelona

\textsuperscript{107} Decision IG.22/3 - Mediterranean Offshore Action Plan in the framework of the Protocol for the Protection of the Mediterranean Sea against Pollution resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil, adopted on 12 February 2016.

\textsuperscript{108} Some of the characteristic EU tools for implementation are: reports and inspections for monitoring, claimants and petitions for EU Law violations, the cutting of EU financial assistance and the infringement procedures, available at: http://ec.europa.eu/environment/legal/law/compliance.htm [last visited on 12 February 2018].

\textsuperscript{109} Article 27 uses only the word “damages”, missing to clarify the type of damages (ecological or financial) covered by the liability provision.
Protocol convergence is the creation of synergies between EU and Barcelona regional institutions in the area of Mediterranean marine protection, with EMSA and REMPEC possibly join their forces for oil spill prevention and response.

Obviously, the two legal documents are the main elements of Greek legal toolbox. More importantly, their provisions should be implemented in accordance to the objectives set in Marine Strategy Framework Directive (2008/56/EC) based on which Greece has to take measures for the “Good Environmental Status” (GES) of its seas by 2020. Also, the sustainable use of Greek marine spaces is further reinforced by the incorporation into EU *acquis* of two more Barcelona Protocols that confine offshore fossil fuel plans and Greece has also missed to ratify: the SPAs and Biological Diversity Protocol and the ICZM Protocol. The SPAs and Biological Diversity Protocol, ratified by EU in 1999\(^{110}\), sets the mandate to protect biodiversity and endangered species through the establishment of Specially Protected Areas of Mediterranean Importance (SPAMI) and correlates with the Convention on Biological Diversity adopted by Greece in 1994\(^{111}\), as being essential tools for the conservation of Greek Seas which are biodiversity hot spots and the habitat of several endangered and rare species. Naturally, according to Article 21 of the Offshore Protocol in these zones the offshore activities are allowed only under specific constrains. Nevertheless, Greece until now has missed to create any SPAMI within its waters. On the other hand, the 2008 Protocol on Integrated Coastal Zone Management (ICZM)\(^{112}\) is the seventh protocol and entered into force the same date with the Offshore Protocol (on 24 March 2011) and its scope is the preservation and the sustainable use of coastal zone which extend from the external limit of the territorial sea to landward limit of the coastal zone (as defined by each State)\(^{113}\). Based on its text, Greece needs to follow an integrated approach taking into consideration the protection of both the aquatic environment

\(^{110}\) Council Decision 1999/800/EC allowed the Community to accede to the revised SPAS and Biological Diversity Protocol.

\(^{111}\) The Convention on Biological Diversity (CBD) was opened for signature at the Earth Summit in Rio de Janeiro on 5 June 1992 and entered into force on 29 December 1993. Greece’s currently implements the first biodiversity protection strategy (2014-2029) under the Convention aiming inter alia to fill the gap of poor scientific knowledge over the issue in the Greek Seas.

\(^{112}\) Council Decision 2010/631/EU of 13 September 2010 allowed EU to adopt the ICZM Protocol that entered into force on 24 March 2011.

\(^{113}\) Article 3, paragraph 1(a),(b) ICZM Protocol.
and the human activities (fishing, tourism etc.) and to ensure the least possible impact to coastal ecosystem at the stage of authorisation of offshore drilling activities\textsuperscript{114}. And this is highly crucial if we consider that Greece owns the most extensive coastline in EU, complex coastal configurations and especially in the Ionian Sea where the forthcoming oil exploitation will take place in close distance to the coasts of the western Greece and of numerous islands and islets. The coastal waters are already heavily impaired, by municipal wastes and maritime traffic and now the scheduled oil activities pose a new serious threat. The Protocol alone however, cannot bring any visible result for cleaner and better safeguarded coastal zones, as sets only the guideline for States actions and there isn’t any commitment for specific results\textsuperscript{115}. Greece has to take further legal actions in order to ensure that the offshore exploration won’t cause dangerous degradation of the territorial seas, an effect that would jeopardise the country’s main economic activities.

\textsuperscript{114} Article 9,(2),(f), ICZM Protocol.
4. The Greek national law provisions

The proper examination of the legal regime is concluded in this chapter with the main domestic law provisions for sea environmental protection and liability in offshore operations. Afterword, an assessment is made for the critical failures of the Greek system that hinder the effective regulation of the respective activities and the protection of its seas.

4.1 The system of applicable laws

The protection of the environment in Greece as in most developed states worldwide is a pivotal issue. Based on a constitutional provision (Article 24 of Greek Constitution of 2008) the living in a clean and ecological stable environment is a human right that anyone has to enjoy and a fundamental state’s obligation materialized through the implementation of specific precautionary and suppressive measures. In offshore operations, the pillars for environmental regulation\textsuperscript{116} are the national laws that transposed the European and International instruments, the environmental law L.1650/1986 that sets fundamental rules and mechanisms for the conservation of Greek seas and the Hydrocarbons law L.2289/1995 as amended by L.4001/2011. Also the regulation is supplemented by secondary legislation, (e.g. ministerial decisions etc.) and the contractual obligations of the licensee under the lease agreement which is mostly preferred by Greek state compared to the other type of concession contract, the production sharing contract. Is useful to note at this point that based on Greek Hydrocarbon law (Article 11 para.12) and although Greece hasn’t proclaimed its maritime zones, the units within the areas of EEZ and the continental shelf are considered Greek territory as per the application of domestic legislation and Greek Courts are granted jurisdiction.

Starting from the initial stage of offshore governmental plans, a strategic environmental impact assessment is required, (according to JMA 107017/2006 which transposed the directive 2001/42/EC), where state has to evaluate the environmental

consequences from oil and gas operations, to investigate alternative choices and to conclude whether the plan should proceed and under which restrictions. Since this report is approved by the competent authority, the Ministry of Environment and Energy, it becomes binding during the whole time of operation proceedings. After that, follows the administrative procedure of environmental licensing governed by L.4014/2011, which involves the elaboration of an EIA by the selected applicant which, if approved, leads to a decision on approval of environmental terms issued by the Ministry of Environment and Energy. This act confers the compatibility of the project with the natural environment for certain period of time, with the provision of renewal or extension whilst the compliance of the operators to the terms is monitored by environmental authorities. By contrast, in less dangerous activities such as seismic surveys only a scheme of the precautionary measures (e.g. visual monitoring etc.) is required.

The content of the documents of environmental licensing as well as the procedural rules, is governed by several Ministerial Decisions and a very detailed content of the submitted file on offshore drilling is required (Appendix 4.5 of MD 170225/2014) including technical procedures and measures that satisfy both the requirements of EU Law rules and interestingly Offshore Protocol rules. For reasons of publicity and transparency, the EIA document is uploaded in a special website (electronic environmental registry) where the entire licensing procedure can be monitored in tandem with EU obligations. Also, L. 4409/2016 article 4.6 highlights the particular attention that is paid for the licensing decision the technical and financial competencies of the applicant with regard to the protection of valuable marine ecosystems for the mitigation of climate change and specially protected sites. However, for marine Natura sites, there is a fragile compromise between environmental and financial targets. Article 10 of L.4014/2011 does not preclude the emplacement of offshore platforms in Natura sites even when the findings of EIA are against the delivery of the project, for reasons of high economic value or public interest and provided that specific compensatory measures are taken.
As per the protective measures taken during operations, applicable is the L.4409/2016 incorporating the OSD requirements which are mentioned above and are summarized in an ongoing environmental management system and accident prevention policy and the hydrocarbon law L.2289/1995. According to Article 12a of the latter law (that was added by L.4001/2011) and until the publication of specific regulations for oil and gas operations by the Ministry of Environment and Energy after HHRM proposal, the licensee has to fully apply the national environmental legislation and the established oilfield practises and is *inter alia* obliged for: a) the sustainable use of natural resources within the licensed area, b) the prevention of release or discharge of hydrocarbons and other extracted elements during operation c) the use proper storage and the application of solid and hazardous wastes rules for hydrocarbon discharges, d) the creation of the least possible impacts for marine ecosystem and the compliance with licensor decisions for the adjustment of practices or the cease of operations in case of a serious safety breach. In paragraph 6 is noted that the 20% of the HHRM oil revenues are attributed to the special section of green national fund for the purposes of marine pollution action plans. Moreover, based on the article 12 for environmental protection of the current Model lease Agreement for exploration and exploitation, the lessee, shall apply Good Oilfield Practices and national law requirements and to inform his workers and contractors over his obligations, since they will be also caught liable in case of damage. On oil spill response, a contingency plan is set by Ministry of Shipping and the Hellenic Coast Guard as provided in the laws for the accession to OPRC and Barcelona Emergency Protocol.

On the issue of liability, there is a strict responsibility for environmental damage for both the operator and the licensee governed by the Presidential Decree 148/2009 (that transposed the environmental liability directive (2004/35/EC)) and by article 7 of L.4409/2016 respectively. However, this discrimination between license and operator has limited value based on the model lease agreement as the operator cannot be a

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118 See above note 116 p.157.
legal entity different from the lessee. Marine pollution either from an oil spill or waste discharges is a criminal offense under Greek environmental law (Art. 28 L.1650/1986) where penalties of imprisonment and monetary penalties are imposed according to the gravity of the caused damage. There are also administrative fines that are imposed irrespectively of criminal sanctions. Liability for traditional damage is based on Article 29 of L.1650/1986 which provides that “whoever, whether a physical person or legal entity, causes pollution or other degradation to the environment, is liable for compensation, unless he proves that the damage is due to a force majeure or was the result of a third party’s culpable act”119. Based on this broad wording a strict and uncapped liability is imposed on the polluter which covers bodily injury, property damage and the consequential economic losses. Even pure economic damage is covered by this provision, which stand for the loss of profits caused in the absence of property damage or bodily injury (e.g. the lost incomes from the cancelled recreations trips after a marine spill). Also all those types of damages are covered by Civil Code in case of an offshore accident but fewer claims are to be satisfied as it stipulates a fault based liability and claimant has to show the defendant negligence in causing the damage120.

As per financial security products, the only legislative provision until recently was found in Greek Hydrocarbon Law (Article 12a) stating that the Minister for the Environment, Energy and Climate Change may require by licensee the submission of a guarantee or an all risk insurance but this obligation covers only the licensee compliance to the safety provisions and the coverage of environmental damage. It is only the latest L.4409/2016 that set the basis for alternative financial security instruments. In article 4.3 is specifically proclaimed a legislative act for the facilitation of the use of innovative forms of financial security besides traditionally accepted insurance that will allow oil companies to better hedge their risks and victims to be fully compensated. At the same article is also proclaimed a highly essential legislative

119The translation is attributed to the author of this paper.
act for the acceleration of judiciary procedures for compensation claims as Greece shows extreme delays in justice delivery where victims cases can be last several years (or decades) before finally settled.

Particular emphasis should be given to the current Model lease agreement as it hasn’t a sheer mention either to the issue of strict liability of the lessee in case of a sea spill or to the acceptance of alternative financial security products. It only provides that the lessee shall “*indemnify, defend and hold the Lessor harmless against claims, losses and damages of any nature whatsoever, including, without limitation, claims for loss or damage to property, injury or death to persons or damage to the environment caused by or resulting from Petroleum Operations*” (Art. 9.2 (i)) and “...to effect and maintain for Petroleum Operations insurance coverage of the type, and in such amount, as is customary in the international petroleum industry in accordance with Good Oilfield Practices...” (Art. 9.2 (g)). Contrarily, the text of 2012 Model agreement (article 12.2(b)) called “Lessee...to take all necessary and adequate steps...to ensure adequate compensation for injury to persons or damage to property by the effect of the Petroleum Operations”\(^{121}\).

### 4.2. Current limitations of the Greek regulatory system

There might have been considerable developments in the applicable regime, but its effectiveness, ultimately depends on the quality of its implementation, the monitoring and enforcement actions of the competent authorities. It’s true that in the Greek system there are serious imperfections. These are the extremely poor implementation of EU environmental law and the deficits in financial, human and technical resources. Greece is the second MS with the worst EU environmental law implementation with 24 open cases of infringement and 5 non compliance cases to the decisions of EU Court of Justice (2016 data). This leads to high infringement penalties\(^ {122}\), estimated in dozens

\(^{121}\) ibid p.61.
\(^{122}\) The cases are mainly about illegal landfills, urban waste and water treatment.
millions of euros, that burden the already constrained public budget. It’s very alarming to note that in case of Greece offshore drilling companies operate in a State with a combination of extreme financial weaknesses and a relaxation in natural assets protection.

More specifically, in the area of environmental assessment of offshore projects there are major legal weaknesses. Greece until now hasn’t created a maritime spatial plan, even though more than a year has been passed from the transposition deadline of the respective Directive 2014/89/EC. Also, it hasn’t incorporated the revised EIA Directive 2014/52/EU (whose transposition deadline has also expired since May 2017) that would simplify the overall licensing procedure and it hasn’t adopted a clear framework for the management and the extent of acceptability of offshore activities within Natura sites\textsuperscript{123}. All the above pose strong barriers in the effectiveness of SEA and EIA and the overall licensing procedure whilst they are against the IOC need for legal certainty. These should be also combined with the lack of marine environmental information, (as is noted in the recent strategic assessment for Ionian sea blocks\textsuperscript{124}) as well as the deficits of Ministry of Environment and Energy, which is in charge of the review of the environmental assessments report, in human resources and independence from political and economic motives. With regard to the conservation of Greek seas, ten years after the adoption of Marine Strategy Directive, Greece hasn’t yet undertook any concrete measures toward the achievement of the GES of Greek waters\textsuperscript{125} and as already noted above, there is no legislation for ICZM. In the contrary, in the years of crisis, economic goals have been prioritized over environmental issues and policies regrettably are oriented in the stimulation of large carbon intensive investments like


\textsuperscript{124} The lack of data refers \textit{inter alia} to the environmental state of the sea bottom (the mapping of \textit{posidonia oceanic} and possible coral reefs) and the scientific analysis of blocks seismicity. See above note 22 pp.36-39.

offshore drilling and not in making benefit from sustainable forms of development focusing in renewable energy sources given the country’s huge potential.

The HHRM company, as already analysed above, cannot fulfil its role of the guarantor of OSD rules implementation and it’s also dubious that the competent environmental inspection bodies are able to monitor the compliance of oil industries to the environmental terms and to check the good state of the sea habitat during operations. It’s a demanding action performed with the use of adequate vessels, scientific personnel and research studies which requires high public costs but most importantly, a strong political commitment for seas protection which is absent until now in Greece. The history until now has shown that limited improvements have been made in environmental policy even after the EC intervention. Characteristic examples are the diachronic failures of Greek State to protect the Carretta carretta Community importance sites in Zakynthos island and Kyparissiakos Bay. Several violations have been noted by ECJ, including the illegal construction of buildings and even the operation of a landfill within the protected area. Additionally, the environmental authorities until now have shown low inspection action for the enforcement of law and only a small percentage of imposed environmental fines have being collected. So, all the above data show a disappointing contradiction. Greece has to be the guarantor of the compliance of oil companies with protective rules which the state itself has traditionally failed to implement. State has to reverse this situation promptly especially if we take into consideration the disparity of power that exists between the financially weak Greek state and the powerful oil companies.
OBSERVATIONS AND CONCLUSIONS

The purpose of this dissertation has been to detect and assess the key instruments for the protection of Greek marine environment from offshore oil and gas units. The findings have shown that in the area of safety, pollution prevention and response there have been important legal developments. The two regulatory pillars for offshore installations in Greece are found in the offshore safety directive and the offshore Barcelona Protocol while the protection of marine environment is supported mainly by the European legislation.

A global convention to ideally govern all aspects of offshore drilling does not exist and there is no projection to be created in the foreseeable future. However, the future regulatory reforms should focus on the main problem, which is the absence of a clear framework for liability and compensation in case of a trans-boundary oil spill accident. It should be tackled either in a global level with the revival of the CLEE, which seems a difficult task at the moment or with the adoption of a Mediterranean regulation. In order to achieve that, the offshore Protocol has to gain more power with its full ratification by the Barcelona members including the EU states. Contracting members should renew their discussions for the establishment a Mediterranean compensation Fund extending them to the adoption of a regional rule for the strict liability of operators. Moreover, the option of a private initiative by companies active in the Mediterranean should be explored, for the creation of a compensation agreement in the model of OPOL, which will ensure adequate compensation, a stronger commitment to safety and creation of common objectives, as companies will become bound to one another.

In a national level, the only way for Greece to develop its upstream offshore activity without environmental compromises, is to undertake serious legal and policy actions for the protection of its marine environment. Since domestic offshore oil and gas plans are now at a tipping point, the state must correct the failures and commit on a complete adoption and enforcement of environmental rules. In order to do that, the competent authorities that monitor the oil and gas operations, shall be independent
and truly functional, with sufficient financial, administrative and technical capacities. Finally, oil and gas activities should be subject to a national strategy for the conservation of marine protected areas and the sustainable use of marine environment taking into account the economic revenues that clean seas create. All the above are challenging tasks for Greece, because under serious economic hurdles has to change established bad practices and to increase its public expenses dedicated to environment. For this reason is extremely important the role of environmental non-governmental organisations to put pressure for state’s actions, to monitor the effects in sea habitat from the offshore infrastructures and to raise public awareness over the issue.

To conclude, the renewed Greek interest on hydrocarbons should not to be seen as a chance to recover from the ongoing financial crisis. The inherent regulatory weaknesses and the fragility of marine environment indicate that the benefits that will arise in public revenues, employment and national growth are negligible compared to the magnitude of the dangers and their consequences. It’s true that no amount of money will be enough to repair the damage of an oil spill in Greek sensitive marine areas. Following the global clean energy mandates, Greek government has to reconsider its offshore oil and gas strategy, looking at green economy options that respect the natural habitat and take advantage of the huge domestic potentials. With still fresh the wounds from the tanker oil spill incident in Greek waters in September 2017, it’s a national mandate to achieve a true change in Greece’s environmental policy and mentality.
ANNEX I

Map of oil and gas contracts in the Mediterranean Sea (2015)

ANNEX II

The 20 blocks of the second licensing round (2014)

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