LEGAL RESPONSIBILITY OF THE STATE: LESSONS LEARNED FROM THE EXXON VALDEZ - DEEP-WATER HORIZON OIL RIG DISASTERS AND THE PROBLEM OF PREVENTING ACCIDENTS IN THE MEDITERRANEAN*

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"Technology laws and regulations and practices to contain, respond to and clean up spills lag behind the real risks associated with deepwater drilling in large, high-pressure oil and gas reservoirs located offshore and thousands of meters below the ocean surface." National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling ¹

SUMMARY: 1.- Introduction; 2.- Theoretical and legal principles of state liability in transboundary environmental oil pollution disasters; 3.- Structure of the international legal regime on oil pollution from marine accidents; 4.- EXXON Valdez Tanker accident and oil spills; 5.- BP Deepwater 2010 oil platform accident; 6.- The problem of accident prevention in the Mediterranean and oil traffic; 7.- Conclusion.

1.- Introduction

Recent oil contamination in the oceans has garnered significant attention from politicians, environmentalists, scientists from several disciplines, legal experts, and other professionals. The heightened scrutiny can be largely ascribed to several catastrophic incidents, including the adverse outcomes of drilling in the Santa Barbara Channel and the sinking of the Torrev *Canyon* near the English coast.² Despite the positive advancement of green alternative energy options to address the escalating energy requirements of the worldwide economy in the second quarter of the XXI st century, oil and LNG supplies continue to be in significant demand in the international market. Oil and gas constitute the principal energy sources globally. Oil spills have emerged as a significant environmental issue in recent years. Numerous factors contribute to oil spills. The majority of oil spills result from human error; however, they may also occur due to fatigue loading, which leads to the formation of cracks in aging pipelines, resulting in oil leakage. Moreover, military operations associated with regional conflicts and disputes have resulted in analogous instances.³ Notwithstanding the implementation of improved technologies in maritime transportation of hydrocarbon energy resources, as well as navigation safety and satellite-assisted preventive measures to avert mishaps, unforeseen incidents will inevitably result in marine pollution. Upon examining the international legal aspects of the issue, it becomes evident that, despite the environmental catastrophes resulting from oil pollution due to significant maritime incidents such as Torrey Canyon, Amoco Cadiz, Exxon Valdez, and Deep-Water Horizon being perceived as less severe than other forms of ship-related pollution, these events have nonetheless underscored the necessity for comprehensive

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¹ Deep Water, *The Gulf Disaster and the Future of Offshore Drilling*, Report to the President, Washington, 2011.

² P.G. Bradley, *Marine Oil Spills : A Problem In Environmental Management*, in *Journal of Natural Resources* (1974) 337-359.

³ O. Ogunbiyi, R. Al-Rewaily, J. Saththasivam, J. Lawler, Z. Liu, Oil Spill Management to Prevent Desalination Plant Shutdown from the Perspectives of Offshore Cleanup, Seawater Intake and Onshore Pretreatment, in Desalination 564 (2023) 2-9.

international contingency plans to effectively address the detrimental impacts of oil pollution at sea through legal frameworks, compensation claims, and environmental remediation efforts.⁴

Maritime transport is the backbone of trade and economic development (80% of goods are transported by maritime transport. The volume of global maritime trade and demand for maritime services has shown steady, albeit moderate, growth after the economic crisis of 2008-2009. In 2015, world seaborne trade volume exceeded 10 billion tons for the first time.⁵ In 2017, the world fleet continued to grow compared to 2016 (+3.15% in deadweight tonnage (dwt) or +2.47% in number of ships) - but growth has slowed since 2011.⁶ Oil spills are an inevitable occurrence. There is an immense variety of goods that are transported by sea freight. Oil is a significant commodity in transportation, holding a prominent position among import-export goods. In the absence of oil, forecasts suggest that the global energy supply would slowly deplete, leading to a significant decline in the driving force of the expanding world economy. Recognized for its diverse advantages, oil supply has consistently been sought after in the global market for an extended period. Maritime transport is essential for the European economy, representing approximately 75% of its foreign trade and 31% of its domestic trade. It guarantees seamless and effective trade movements into and out of the European Union (EU). Short sea shipping (SSS) specifically represents the majority, accounting for up to 60% of total maritime transport to and from the main EU ports.⁷ Oil slicks resulting from tanker accidents and the disposal of waste during standard ship operations, along with illicit activities like the discharge of oil residues from bilges or oil sludge from tanks, constitute the primary sources of hydrocarbon pollution in marine environments. Approximately one-third of global marine oil transportation transits through European waters. In addition to oil tankers, various cargo vessels present a persistent risk of small to medium-scale oil pollution due to the illegal disposal of oily waste, with approximately 3,000 significant incidents occurring annually across Europe.⁸

⁴ D.I. Little, S.R.J. Sheppard, D. Hulme, A Perspective on Oil Spills: What We Should Have Learned About Global Warming, in Ocean & Coastal Management 202 (2021).

⁵ (UNCTAD, 2016).

⁶ (UNCTAD, 2017a).

⁷ https://transport.ec.europa.eu/system/files/2022-09/2022-mos-dip.pdf

⁸ https://unepgrid.ch/storage/app/media/legacy/23/ew_oildischarge.en.pdf



About half of marine pollution caused by crude oil and other refined products comes from international maritime traffic. While oil slicks can have a serious impact on ecosystems due to the concentration of pollutants in a given area, as well as far-reaching physical and chemical effects, the magnitude of marine pollution is much more far-reaching than that caused by periodic accidents. Pollution usually originates from sources on land, from the atmosphere, rivers or coastal runoff to the seabed or marine waters. However, pollution caused by international fleets should not be underestimated.⁹ Oil from accidental spills during transit, tank ruptures, offshore drilling, and underwater pipeline leaks adversely affects marine ecosystems and populations. The problem becomes further complex and deteriorates if the leaking oil reaches the seashore, where biological production is elevated, and oil can linger on the shore for extended durations. Oil spill intelligence reports indicate that significant hotspots have predominantly emerged in the northeastern United States, the Gulf of Mexico, and the Mediterranean Sea. The severity of spill incidents is contingent upon the nature and quantity of oil discharged. The "International Tanker Owners Pollution Federation" (ITOPF) categorizes spills into three classifications: small scale (<7 tons), medium scale (7-700 tons), and big scale (>700 tons). Compared to the period from 2000 to 2009, the introduction of new vessels and enhancements in safety standards resulted in a 71.7% reduction in medium spills and a 43.75% reduction in major spills over the period from 2010 to 2019. Although the incidence of oil spills has diminished in recent decades, the mitigation and remediation of such events continues to provide a significant challenge.¹⁰ Transit points around the world for the transportation of oil by sea are a critical part of global energy security. Approximately 63% of the world's oil production moves through sea routes. The Strait of Hormuz and the Strait of Malacca are the

⁹ https://europe.oceana.org/wp-content/uploads/sites/26/oil-report-english.pdf

¹⁰ Z. Asif, Z. Chen, C. An, J. Dong, *Environmental Impacts and Challenges Associated with Oil Spills on Shoreline*, Montreal, 2022.

world's most important strategic transit points by oil transit volume. In 2013, total world oil and other liquids production was about 90.1 million barrels per day (b/d). EIA estimates that about 63% of this amount (56.5 million barrels/day) traveled through maritime trade. According to the United Nations Conference on Trade and Development (UNCTAD), oil tankers accounted for 30% of world maritime transport by the deadweight tonnage in 2013.¹¹ International energy markets depend on reliable transportation routes. *The inability of oil to pass through a major choke point, even temporarily,* can lead to *significant supply delays and higher transportation costs*, causing world energy prices to rise. While most choke points can be bypassed by using other routes that add significantly to transit time, some choke points have no practical alternative. In 2023, total world oil and other liquids supply amounted to about 101.9 million barrels per day (b/d). We estimate that about 76% of this amount (77.5 million b/d) traveled via maritime trade. According to the United Nations Conference on Trade and Development (UNCTAD), oil tankers accounted for almost 29% of world maritime transport by deadweight tonnage in 2022.¹²

2.- Theoretical and legal principles of state liability in transboundary environmental oil pollution disasters

Responsibility in international law is predicated on the sovereignty and equality of states, reflecting the characteristics of the international legal system. *The lack of a process to establish responsibility in international law does not imply that responsibility does not exist*. Conversely, responsibility serves as evidence of the existence of international law and a foundation for its efficacy. Nevertheless, it appears implausible to assert that this accountability system represents an ideal framework or that it functions optimally. *The existence of regulations regarding responsibility and the evaluation of their effective implementation* are distinct matters. For state responsibility to be established, there must be an action by the state that contravenes international law; the act or omission must be attributable to the state; and there must be no grounds for legal compliance. Two distinct problem clusters must be addressed when tackling the issue of global pollution. The initial group of issues focuses on mitigating environmental degradation while facilitating human growth. The second category of challenges pertains to society's approach to foreign affairs. The core of these issues lies in the North-South dispute and the formulation of marine pollution policy and maritime law during the 1990s.¹³

Liability has become a primary rule of customary international law, obliging a recalcitrant State to pay *compensation or make reparation for the harm for which it is responsible*. When this primary rule is violated, the responsible State is liable for secondary obligations under international law, whether the source of the rule is a Treaty or a norm of customary international law. The new links of international environmental law with intergenerational equity, sustainable development, environmental security and human rights are a clear indication of current perspectives on the question of responsibility and liability. Liability, or international responsibility of States, is a shortened version of international law. Most cases of international environmental harm entail the international responsibility of a State under both

vue/world_oil_transit_chokepoints.pdf

¹¹ 'World Oil Transit Chokepoints', EIA-US Energy Information Administration, November 10, 2014, https://www.connaissancedesenergies.org/sites/connaissancedesenergies.org/files/pdf-pt-

¹² https://www.eia.gov/international/analysis/special-topics/World_Oil_Transit_Chokepoints

¹³ https://digitallibrary.un.org/record/197532?ln=zh_CN

international and national law. In terms of international law, a *breach of the primary obligation not to harm others triggers State responsibility of the country where harmful effects* occur. The triggering of State responsibility triggers the legal consequences envisaged by a set of secondary rules in terms of rights and obligations between the injured State and the harming State and possibly third parties.¹⁴

Two distinct categories of concern must be addressed while tackling the issue of global pollution. The initial set of concerns focuses on halting environmental degradation while facilitating human growth. The second group of challenges pertains to society's approach to international matters. The notion that harm may transpire in areas outside national jurisdiction is not novel. The tenets of international law pertaining to international responsibility are equally applicable to commitments for environmental protection. The Trail Smelter Arbitration was the inaugural environmental case in contemporary history where the idea of state responsibility was the primary subject of interstate litigation. This case highlighted a novel perspective on the comprehension and implementation of the theory in pollution law. The obligation to avert transboundary harm is acknowledged as customary international law, imposing legal limitations on governments' rights to actions conducted within their jurisdiction. All states have acknowledged commitment to prevent environmental harm in regions beyond national control. The Trail Smelter rule is among the few unequivocal customary principles of international environmental law. The Polluter Pays Principle is absent from both the UN and the Kyoto Protocol. The Polluter Pays Principle is reflected in Principle 16 of the Rio Convention: "National authorities should seek to encourage the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should in principle bear the costs of pollution, in the public interest and without distorting international trade and investment. This principle therefore equates the price paid for the use of environmental resources with the cost of the harm caused to society by the use of those resources. ¹⁵ Under Principle 22 of the 1972 Stockholm Declaration of the United Nations Conference on the Human Environment, "States shall cooperate to further develop international law on liability and compensation for victims of pollution and other environmental damage caused by activities. Under Article 12 of the 1976 Convention for the Protection of the Mediterranean Sea against Pollution (Barcelona Convention), the parties undertook to "cooperate as soon as possible in formulating and adopting appropriate procedures for the determination of liability and compensation for damage to the marine environment resulting from pollution of the marine environment caused by violations of the provisions" of the Convention and its protocols.¹⁶

The breach of environmental protection obligations under international conventions due to environmental disasters stemming from transboundary human activities results in state responsibility (international liability) and consequently obligates states, as primary actors and legislators at the international level, to restore the status quo or provide compensation. ¹⁷ The legal concept of state responsibility is intertwined with public international law and

¹⁴ S. Sucharitkul, *Responsibility and Liability for Environmental Damage in International Law*, Golden Gate University School of Law, 1996.

¹⁵P. Schwartz, *Principle 16: The Polluter-Pays Principle''*, pp. 429-450, 2015, https://doi.org/10.1093/law/9780199686773.003.0020

¹⁶ https://treaties.un.org/doc/Publication/UNTS/Volume%201102/volume-1102-I-16908-English.pdf

¹⁷ Transboundary environmental risk assessment (for instance, Espoo Convention on Environmental Impact Assessment in a Transboundary Context, 1991: Article 2(1); Helsinki Convention on the Transboundary Effects of Industrial Accidents, 1992, Article 3(1)).

international environmental law, raising the issue of complicity in determining the responsibility of a state *to cause specific harm to another state or states. Accountability, responsibility* for *the wrongful acts and omissions* of subjects of international law and their consequences, is fundamental to the effectiveness and legitimacy of international law. Yet, international environmental accountability of states remains a difficult and controversial issue for both doctrinal and political reasons.

With some critical exceptions, states have not addressed this question in international environmental agreements, nor have international courts been compelled to hear cases or request advisory opinions on environmental liability or state responsibility. In order to establish state responsibility, it must first be determined whether the breach of contract committed by a state-owned entity is attributable to the state. ¹⁸ According to the International Law Commission, there is an internationally wrongful act of a State if: (a) the conduct, consisting of an act or omission, is attributable to the State under international law; and (b) the conduct constitutes a breach of an international obligation of the State. This principle applies when a State breaches its international environmental obligations in the same way as when it breaches other international obligations. Indeed, the International Law Commission has defined "a grave breach of an international obligation of fundamental importance for the protection and conservation of the human environment" as conduct that may constitute an international crime. ¹⁹ The breach of an environmental protection obligation established by international conventions as a result of environmental disasters caused by transnational human activities gives rise to state responsibility (international liability) and consequently obliges states, as the main actors and legislators at the international level, to restore the status quo or pay compensation.²⁰

¹⁸ J. Crawford, *Historical Development*, in *State Responsibility: The General Part, Cambridge Studies in International and Comparative Law*, Cambridge, 2013, 3-44, A. Boyle, J. Harrison, *Judicial Settlement of International Environmental Disputes: Current Problems*, in *Journal of International Dispute Settlement* 4.2 (2013) 245-276.

¹⁹ As a member of the international community, the sovereign state is responsible for the consequences of its unlawful acts and acts. However, for the liability of the state to be in question, there must be a causal press between the unlawful act or omission and the damage caused, and it must have the ability to impute. In addition, the tort that leads to the breach of the obligation stipulated by the rule of international law must have an international legal person who causes a certain state of damage to which it can be attributed. The general acceptance of the institution of responsibility in international law is based on the principle of violation of obligations arising from the violation of international treaties and conventions. The limit of state liability is the breach or omission of its obligations based on international treaties, customary international or other sources of international law. The state is held accountable for the negligence of its international obligations and violations thereof. This responsibility of the state stems from its unfair activities in this area. At the arbitral hearing, it was held that the law relating to treaties was relevant, but that the legal consequences of a breach of a treaty, including the determination of circumstances that would exclude (and make the violation obvious) and appropriate remedies to remedy the breach, were matters of common law of state liability. M. Caşın, Temel Esasları of Modern International Law, Istanbul, 2019, 389-392. ²⁰ The inadequacies of existing law and the risks associated with the shipment of oil by sea entered the collective consciousness in March 1967, when the Torrey Canyon, an American-built, Liberian-flagged tanker, struck Pollard's Rock, a reef off the coast of Cornwall, England, and spilled more than 100,000 tons of crude oil into the English Channel. The sludge fouled British and French beaches, killing thousands of sea birds, and the

misadventures that followed might have been amusing in any other context. To burn off oil seeping from the wreckage, the Royal Air Force dropped 42 bombs, a quarter of which missed the target, while a contingent of French soldiers deployed to the beaches of Perros-Guirec armed with rakes and shovels.

Another problem regarding *State accountability is whether damage must be inflicted. The concept of state responsibility is a highly intricate aspect of international law.* Applying the concept of State responsibility in practice is challenging when addressing this intricate subject. Relating the concept of State responsibility to the environment is considerably more challenging. *The principle of State accountability pertains to a State's legal obligations for internationally unjust activities.*



The discussion pertains to tort liability, specifically whether States have responsibility for the detrimental effects of actions not forbidden by international law. This theoretical framework was initially created to examine the nature of culpability for transboundary environmental harm. This inquiry has garnered the attention of international law specialists for an extended period. ²¹The most prominent questions in this context are the following: Does transboundary environmental damage give rise to liability beyond the due diligence test? *What is the standard of liability for transboundary environmental damage under international law - fault-based, strict or absolute liability*? Is it possible to impose direct liability on States? What is the role of non-state actors and their contribution to environmental responsibility, and how does international law deal with their growing importance?

Coastal States have sovereign rights over hydrocarbons, mineral resources and renewable energy resources in their territorial waters, continental shelves and exclusive economic zones

²¹ T. Gehring, M. Jachtenfuchs, *Liability for Transboundary Environmental Damage Towards a General Liability Regime?*, in *European Journal of International Law* 4.1 (1993) 92–106.

(UNCLOS, Articles 2, 77 and 56). Article 193 of UNCLOS states that states have sovereign rights to exploit their natural resources in accordance with their environmental policies and in accordance with their obligations to protect and preserve the marine environment. These rights support the exploitation of oil, natural gas and renewable energy resources in the oceans. Coastal States are therefore also authorized with respect to offshore installations in these marine areas. The protection and preservation of the marine environment is mainly regulated in the UNCLOS between Articles 192 and 237. In these articles, a number of obligations are imposed on states.²² Furthermore, Article 1/4 of the UNCLOS defines pollution of the marine environment as "harmful effects...caused or likely to be caused...by substances or energy...deposited directly or indirectly into the marine environment by human beings"; in this context, it is not necessarily required that damage has occurred. In the Trail Smelter Case, the ICJ stated that the incident must involve "serious consequences". To the international responsibility of a state to arise, it is not sufficient for there to be an act or omission in violation of international law. The unlawful act or omission in question must be attributable to that state. The ICJ has also stated that it is a generally accepted customary rule of international law that acts committed by any state organ are acts of state action.²³

The principle of non-detriment has been *recognized in various international conventions* and *texts*. First, Principle 21 of the Stockholm Declaration states that states have the right to exploit their own resources but are obliged to ensure that activities within their jurisdiction or control do not harm the environment of other states or areas outside their national jurisdiction. Principle 2 of the Rio Declaration contains similar statements.²⁴ One may inquire about the specific content of the general rule about transboundary environmental damage. Does the rule pertain to the damage incurred or to the behaviors that resulted in the *damage*? The response to this inquiry carries various consequences for global accountability. If transboundary injury is prohibited, the nature of the activity producing it is inconsequential. Whatever the source, the damage is subject to compensation and must be compensated according to the rule that "the State responsible for an internationally wrongful act is under an obligation to compensate for the damage caused by that act".²⁵

Despite the analysis of contemporary maritime traffic potential indicating a substantial decrease in oil tanker accidents, spills resulting from larger-scale "oil spill" incidents have remained contentious for the past three decades. The duty of Coastal States and Flag States under current international agreements and maritime law to prevent accidents and mitigate environmental harm must be acknowledged, in light of the fundamental principle of state responsibility. Although operational spills can be governed by stringent laws and regulations,

²² As a matter of fact, Article 192 of the UNCLOS states that "States are responsible for the protection and preservation of the marine environment", thereby imposing a general obligation on States. Article 194 of UNCLOS states that "States shall take all appropriate measures, individually or jointly, to prevent, reduce and control pollution of the marine environment from any source of pollution and shall endeavor to harmonize their regulations and policies in this regard". It can be said that the obligations and responsibilities imposed by UNCLOS are part of customary law.

²³ https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf

²⁴ Article 194(2) of UNCLOS states that "States shall conduct activities under their jurisdiction or under their control in the exercise of their sovereign rights in accordance with this Convention in a manner that does not cause harm to other States", https://blog.response.restoration.noaa.gov/oil-pollution-act-1990-history-spills-and-legislation.

 $^{^{25}}$ T. Scovazzi, State Responsibility for Environmental Damages, in Yearbook of International Environmental Law 12.1 (2002) 43 – 46.

accidental spills, because to their unpredictable nature, cannot be entirely controlled by rigid procedures. In comparison to operational spills, the volume of oil released from a singular incident can exceed and be significantly more catastrophic than the cumulative total of multiple operational spills.²⁶

The concept of State responsibility is an extremely important mechanism for ensuring legal accountability and responsibility for *internationally wrongful behavior*. It is the fundamental principle that a State can be held responsible for inter-State claims under international law. Indeed, the practical utility of the concept of State responsibility lies primarily in the fact that a State can be brought before international courts for violations of its international legal obligations. In a certain sense, the function of responsibility can be said to have a dual character, but more precisely, as derived from the maxim "sic utere tuo ut alienum non laedas", the primary rule of responsibility entails a secondary obligation of restoration or restitution and repair. These are ex nunc and ~ tunc measures under the law of State responsibility that come into play as soon as the primary rule of international obligation is breached. Such international tort may arise from a breach of an international legal obligation ("primary law") established by *treaty* law (e.g. bilateral or multilateral environmental agreements) or a norm of customary international law (e.g. prohibition of environmental damage). The final consequences of secondary rules of *State responsibility may also include the adoption of ex ante or preventive* measures that are fully consistent with the precautionary and preventive principles advocated for all State conduct in environmental law.²⁷ Such breaches of international obligations may have legal consequences. Legal obligations may derive either from customary international law or from international conventions to which a State is a party. Thus, a breach of obligation under customary international law or a bilateral, regional or multilateral treaty gives rise to State responsibility. This has been established by various international arbitral awards and judicial decisions that have contributed significantly to the debate on the limits of State responsibility. The progressive development of international law on State responsibility owes much to these judgments. Many of these judgments have enriched and improved our understanding of the norms applicable to the problem of transboundary environmental damage. In this context, it is useful to reflect on some important milestones in the progressive development of international law on State responsibility for transboundary environmental damage. One of the important questions is international responsibility for environmental damage often considered a complex issue due to its substantive, procedural and even terminological intricacies? According to Principle 22 of the 1972 Stockholm Declaration of the United Nations Conference on the Human Environment, "States shall cooperate with a view to developing international law on liability and compensation for victims of pollution and other environmental damage caused by their activities". Another principle reflecting responsibility in environmental law is the "polluter

²⁶ https://www.pwsrcac.org/wp-content/uploads/filebase/resources/thennow/Then-and-Now_web.pdf

²⁷The prudential principle (PP) has been an important aspect of regulatory submission for nearly four decades. Although there is no universally accepted definition of PP, the various formulations are centered around the following elements: 1) the need for (environmental or health) protection; 2) the presence of a threat or risk of serious damage; 3) the understanding that the lack of scientific certainty should not be used to avoid taking action to prevent this harm, and – in the case of stronger formulations – the obligation to act in the face of uncertainty, 4) the need to provide evidence of safety ("reverse burden of proof"). https://reformsupport.ec.europa.eu/document/download/11112d2c-d5ad-48e6-9661-322a319088fd_en?filename=5b14362cen.pdf

pays" principle. According to this principle, those who engage in hazardous activities accept responsibility for the possible damages of their lawful acts from the very beginning.²⁸



It is widely accepted that obligations under international environmental law are obligations of conduct and a positive obligation to exercise due diligence. However, the development of international environmental law and the growing body of relevant case law requires further exploration of the content of such an obligation to act and the concepts involved. There is no doubt that obligations under international environmental law are preventive obligations. However, the relationship between the obligations to exercise due diligence and prevent transboundary harm is very complex and has yet to be resolved. A dividing line can be drawn between these two principles: prevention deals with concrete risks, while precautions deals with scientific uncertainty. Risks where the causal relationship between an event and harm is established by irrefutable scientific evidence fall under the prevention principle. Such risks can be characterized as certain because it is possible to establish a causal link between the initial event and its adverse effects and to calculate the probability of their occurrence. In fact, prevention does not require a perfect understanding of any risk: it is enough to suspect, anticipate, fear a risk. In such a situation, decision-makers cannot determine the threshold levels to which preventive actions are subject in order to avoid or minimize the occurrence of the risk. In other words, precaution means the absence of scientific certainty - or, conversely, scientific uncertainty: The existence or extent of a risk should no longer delay the adoption of preventive measures to protect the environment. To summarize, with a preventive approach, the decisionmaker intervenes provided that the threats to the environment are tangible, while under the precautionary principle, the authorities are prepared to tackle risks for which there is no conclusive evidence of a causal link between the suspected activity and the harm or that the suspected harm will occur. Given that prevention and precaution are in some respects closely

²⁸ Principle 16 of the Rio Declaration states that "In principle, national authorities should strive to promote the acceptance of environmental costs and the use of economic instruments to address them, taking into account the public interest and the approach that the costs of pollution should be borne without distorting international trade".

linked- like two sides of the same coin- the purpose of this chapter is to examine some of the key issues that arise in the debate over their status in international law.²⁹

As a necessity and consequence of being a person of international law, states that are responsible for the actions of states or persons or organizations that cause this pollution have certain responsibilities. Just as in domestic law, there is a liability for an unlawful act, in international law, there is international liability. With the extraction and exploitation of oil, natural gas and other natural resources from seabed's, sovereignty claims and disputes over marine areas have also increased. As can be seen, a clean marine environment is the basis for other living spaces. Therefore, marine pollution and protection of the marine environment are of great importance both in maritime law and environmental law. The prevention of marine pollution and the protection of the marine environment is a complex issue recognized as a matter of common interest for the international community.³⁰ The inherently bilateral nature of international law and the resulting State responsibility has not been entirely appropriate for compensation for environmental damage. Some concepts, such as the common concern of humanity in relation to climate change and biodiversity, require the attention of the entire community of States. In fact, this is limited by erga omnes and erga omnes partes obligations. These obligations give rise to various approaches and their implications for international environmental law are far from clear. This brief overview of liability/responsibility for environmental damage only points to specific issues that may merit further research. As suggested, the approach to liability/responsibility for environmental damage should be holistic, based on primary norms, i.e. the principles underpinning international environmental law, and secondary norms of state responsibility.³¹

In its traditional legal dimensions, *transboundary pollution* involves a scenario *in which a pollutant from State A contaminates a natural environment, such as air, water or soil, and causes damage in State B*. This type of environmental damage, exemplified by the Smelter case,

²⁹ Nicolas de Sadeleer:" The Principles of Prevention and Precaution in International Law: Two Heads of the Same Coin?", Research Handbook on International Environmental Law, pp.154-156, https://www.elgaronline.com/edcollchap/edcoll/9781847201249/9781847201249.00017.xml

³⁰ To date, millions of tons of crude oil have caused the death of millions of sea creatures due to marine accidents. The creatures most affected by marine pollution are microorganisms that maintain the material cycles in the ecosystem and predators that maintain the balance between prey and predator. The disruption of cycles also prevents marine plants from photosynthesizing.

³¹ For example, there is an obvious link between the sustainable development of fisheries and their precautionary management. In 1988, the 94th Session of the FAO Council agreed that "Sustainable development is the management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such development conserves land, water, plant genetic resources, is environmentally nondegrading, technologically appropriate, economically viable and socially acceptable." This definition applies well to sustainable fisheries development and management. The strategies required to ensure a high degree of sustainability in human use of natural renewable resources systems are not easy to conceive and implement for at least two reasons: (a) our insufficient understanding of the laws governing these systems and the inherent uncertainty about the consequences of our decisions, and (b) the inadequate nature of our institutions and controls, particularly on access to resources. It is generally agreed that the inadequacy in management results essentially from the open access nature of the fisheries and the lack of effective mechanisms to directly control fishing effort levels in the absence of an explicit agreement on the allocation of resources between users. It is also being realized that, in addition, the problem lies partly in the non-recognition of the high levels of uncertainty that characterize fisheries and the related lack of precaution in most management regime. https://www.fao.org/4/w1238e/w1238e01.htm.

has been the focal point of work on the private international law aspects of liability in transboundary pollution dispute settlement, which in turn has influenced the subsequent efforts of other international bodies working in this area. In recent years, however, other types of international environmental litigation have emerged and even become dominant. While traditional transboundary pollution litigation and litigation in which transnational corporations and global value chains are sued in their home countries for environmental damage caused in developing countries present different regulatory challenges, it is important not to develop regulatory responses to these two types of litigation in isolation. Indeed, oil pollution cases related to merchant shipping are governed by the Protocol adopted in Brussels on November 29, 1969, as amended by the Protocol signed in London on November 27, 1992, governing the liability of shipowners for damage caused by oil spills. ³² The concept of international responsibility appears to be inextricably linked to the concept of State responsibility. Thus, the terms "responsibility" and "obligation" are used in treaties and case law in more than one sense. Responsibility refers to the obligations of States, while liability refers to the consequences of breach of those obligations. The UN Convention on the Law of the Sea has favored this interpretation. However, most liability treaties on oil pollution and nuclear damage use the term liability to refer to private law obligations, even if they distinguish between States' obligations under public international law. In its work, the International Law Commission uses the terms State responsibility and international responsibility quite differently, giving 'extended parallel meanings to both terms'. The Commission's decision to split the issue into two separate chapters has been questioned.³³

In legal terms, liability is the obligation to compensate for damage caused by an act for which a legal entity, such as a natural person, company or state, is responsible. *Environmental liability* law is a multilevel phenomenon where norms form part of international, transnational and national legal regimes, especially from a transnational perspective. Fault-based liability presumes fault or negligence if the damage was foreseeable and preventable but appropriate measures were not taken. As far as international law is concerned, States may expressly recognize or tacitly endorse a wide range of international approaches to prevent and address transboundary environmental harm. Under recognized sources of international law, States can impose international environmental obligations of conduct and consequences not only on themselves as international persons, but also on domestic public and private actors. Breach of these legal obligations triggers consequences for the obligor to compensate for the environmental damage caused. In turn, the obligation to compensate domestic public and private actors that cause transboundary harm can either be directly determined by international rules, or these rules impose a duty on States to apply the relevant rules of liability in their domestic legal order.³⁴ The issues are now addressed under two headings: (i) State responsibility for internationally wrongful acts, consisting of both primary and secondary obligations, and (ii) international responsibility for harmful consequences or activities that are not contrary to international law. On the other hand, the possible remedies available to States affected by transboundary marine pollution and the legal principles that may impose liability for damage on States that fail to fulfill their duties and obligations to protect and preserve the marine

³²https://www.imo.org/en/About/Conventions/Pages/International-Convention-on-Civil-Liability-for-Oil-Pollution-Damage-(CLC).aspx

³³ https://legal.un.org/ilc/texts/instruments/english/commentaries/9_6_2001.pdf

³⁴P. Gailhofer, D. Krebs, A. Proelss, K. Schmalenbach, R. Verhey (eds.), *Corporate Responsibility for Transboundary Environmental Harm. An International and Transnational Perspective*, Berlin, 2023.

environment from activities carried out under their jurisdiction and control are regulated by the 1982 United Nations Convention on the Law of the Sea (UNCLOS). Accordingly, firstly, the principles and provisions on the protection of the marine environment are more specific under UNCLOS than in other areas. Secondly, the rules on the responsibility of States for internationally wrongful acts in UNCLOS give injured States the right to seek remedies to prevent transboundary pollution of the marine environment. A third criterion is that the dispute settlement regime in UNCLOS allows States to bring compulsory actions against other States and hold them liable for failure to fulfill these obligations.³⁵Whether dumped intentionally or brought unintentionally, plastic waste, pharmaceuticals, toxic heavy metals, pesticides and other chemicals have reached every corner of the oceans. The consequences are catastrophic and often fatal, especially for marine life. The only good news is that international bans on some pollutants are starting to take effect. But the ocean pollution crisis cannot be tackled without radical changes in industry and trade. The United Nations estimates that humanity discharges around 400 million tons of pollutants into the sea every year. Evidence of this continuous pollution can now be found in all regions of the world's oceans - on remote islands, in the polar regions and in the deepest ocean trenches. Substances concentrated in the food chain are particularly harmful because they pose a real danger to marine organisms and humans. ³⁶*The* world ocean not only plays an important role in Earth's climate and species diversity crises. It is also affected by a third global environmental crisis: the widespread pollution of terrestrial and marine areas. Every year, up to 400 million tons of pollutants enter lakes and rivers and eventually the seas. These include thousands of different chemicals, food, plastics and other synthetic products, toxic heavy metals, medicines, cosmetics, pathogens, radioactive substances and much more.³⁷

³⁷https://worldoceanreview.com/en/wor-7/pollution-of-the-

oceans/?gad_source=1&gclid=Cj0KCQjw05i4BhDiARIsAB_2wfCj0XVEMX9CFE5INWTObScgzGreUPRxS YtH64VPbHm2u9iEYv99J3AaAnkBEALw_wcB

³⁵ Article 228: Suspension and restrictions on institution of proceedings, 1. Proceedings to impose penalties in respect of any violation of applicable laws and regulations or international rules and standards relating to the prevention, reduction and control of pollution from vessels committed by a foreign vessel beyond the territorial sea of the State instituting proceedings shall be suspended upon the taking of proceedings to impose penalties in respect of corresponding charges by the flag State within six months of the date on which proceedings were first instituted, unless those proceedings relate to a case of major damage to the coastal State or the flag State in question has repeatedly disregarded its obligation to enforce effectively the applicable international rules and standards in respect of violations committed by its vessels. The flag State shall in due course make available to the State previously instituting proceedings a full dossier of the case and the records of the proceedings, whenever the flag State has requested the suspension of proceedings in accordance with this article. When proceedings instituted by the flag State have been brought to a conclusion, the suspended proceedings shall be terminated. Upon payment of costs incurred in respect of such proceedings, any bond posted or other financial security provided in connection with the suspended proceedings shall be released by the coastal State. 2. Proceedings to impose penalties on foreign vessels shall not be instituted after the expiry of three years from the date on which the violation was committed, and shall not be taken by any State in the event of proceedings having been instituted by another State subject to the provisions set out in paragraph 1.3. The provisions of this article are without prejudice to the right of the flag State to take any measures, including proceedings to impose penalties, according to its laws irrespective of prior proceedings by another State. https://www.un.org/depts/los/convention_agreements/texts/unclos/part12.htm

³⁶ UNEP experts refer to the high levels of contamination on land and in the sea as a global pollution crisis that is depriving humanity of its own livelihood. In the long run, only nature in a healthy state will be able to provide people with sufficient food, drinking water and other vital services. Globally, three times more people are dying today from the effects of environmental pollution than from the deadly diseases AIDS, malaria and tuberculosis combined. Scientists have not been able to provide a clear explanation for the high contamination observed in the deep-sea amphipods from the Mariana Trench. https://worldoceanreview.com/en/wor-7/pollution-of-the-oceans/a-problem-of-immense-scale/

3.- Structure of the international legal regime on oil pollution from marine accidents

The effect of a determination of State responsibility in international law is that the State found liable to another is entitled to compensation."- The usual form of compensation for an unjust act or omission is restitution for the harm suffered. In the context of damage caused by transboundary pollution, in most cases restitution will not be possible. ³⁸ Accidental discharges from offshore production facilities and vessels are a significant outcome of the global reliance on oil as the principal energy source for economic advancement. The correlation between industry and pollution constitutes the cyclical nature of the problem. Oil pollution is a prominent manifestation of harm to the marine ecosystem. Oil contaminates the oceans not solely due to catastrophic incidents involving oil tankers or drilling platforms, but predominantly from dispersed sources, such spills during extraction, illicit tank cleaning activities at sea, or emissions into rivers that subsequently flow into the ocean. The establishment of maritime protected areas, enhanced regulations, and the utilization of double-hulled tankers are among the measures presently enacted to mitigate marine oil pollution.

A. Ship-borne marine pollution

The primary issue within the international framework for preventing oil pollution from vessels is the limited acceptance of relevant international conventions by states. Many conventions have remained unenforced for extended periods, failing to garner sufficient ratification to be effective, and, crucially, the existing regulations are not effectively enforced by states in practice. The majority of offshore oil and gas operations occur in waters inside national sovereignty. The coastal state possesses unique rights to investigate the seabed and subsoil, as well as to utilize both living and non-living natural resources inside its territorial seas, exclusive economic zone, and continental shelf. Consequently, to participate in offshore oil and gas operations, it is imperative to acquire the requisite permits from the appropriate authority. In enclosed or semi-enclosed oceans, offshore oil and gas operations between states with opposing coasts are often confined to the contiguous zone rather than the continental shelf due to the potential for transboundary pollution. Exploratory drilling or offshore oil and gas extraction near maritime boundaries between adjacent states constitutes a source of transboundary pollution that can be mitigated by bilateral measures.³⁹ As a direct extension of the Amoco-*Cadiz accident*, the passion for environmentalism was one of the strong drivers for the drafting of a new treaty on the law of the sea. This is the United Nations Convention on the Law of the Sea, signed in Montego-Bay on December 10, 1982. The environmental impact, which can be clearly identified in many of the 320 articles of this treaty, becomes much more evident in Chapter XII (Protection and Conservation of the Marine Environment), which is entirely devoted to this subject. Henceforth, within the framework of the 45 articles devoted to this

³⁸ S. Williams, *Public International Law Governing Transboundary Pollution*, in *University of Queensland Law Review* 13.2 (1984) 112-137.

³⁹ As a result of a tanker accident, 16% of the oil leaks into the water, 15% evaporates into the atmosphere, 22% biodegrades, 3% remains in bulk offshore, 16% washes ashore, and 28% settles to the bottom of the water. The extent of such pollution, which occurs as a result of oil spills from tankers and pipelines, refinery and tanker accidents, is usually assessed by the size of the areas covered by oil. Since the density of oil and its derivatives is on average 10% less than the density of seawater, the substances remaining on the water surface cannot maintain this position until they reach the shore. N.Y. Erik, *Oil tanker accidents and the environmental pollution they cause*, in *Mavi Gezegen* 20 (2015) https://www.jmo.org.tr/resimler/ekler/6f09a395543e3f9_ek.pdf

subject, States have undertaken obligations to protect and preserve the marine environment, to cooperate for this protection at all geographical levels, to mutually combat accidents and provide information, and to ensure continuous monitoring of pollution in the marine environment, regardless of the origin of the pollution (terrestrial, marine, atmospheric or transatmospheric pollution, etc.). ⁴⁰ Although oil is transported by different modes of transportation, maritime transportation is the most commonly used mode for oil trade due to its low cost. Intensive oil transportation at sea triggers environmental risks and accidents caused by oil tankers affects not only the structures in coastal states but also the lives of people in polluted areas. For this reason, compensation for the victims of oil pollution is a necessity.⁴¹ After the Torrey Canyon oil spill off the coast of England in 1967⁴², the Amoco Cadiz disaster in 1978 and the infamous Exxon Valdez oil spill in Alaska, there was a need to improve the international legal instruments covering liability and responsibility for accidental oil pollution damage. Accidents such as Erika 1999 and Prestige 2002 demonstrated the need for further changes and triggered international agreements under the auspices of the IMO to address legal liability for oil pollution damage. ⁴³

The first step towards the prevention of oil pollution from ships was taken in 1954 and the "International Convention for the Prevention of Pollution of the Sea by Oil" (1954 OILPOL Convention) was signed. Since then, the prevention of oil pollution from ships has become an important issue on the international agenda. Discussions on the need to reconsider the prevention of pollution from ships resulted in the signing of a new international convention. *The Convention in question is the "International Convention for the Prevention of Pollution from Ships" (1973/78 MARPOL) dated 1973 and subsequently amended in 1978 (Protocol of 1978 Relating to the International Convention, although state ships are excluded from the scope, the coastal state in the maritime areas where the coastal state has jurisdiction and the flag state on the <i>high seas can exercise the authority to prevent and punish the violating ships. Unlike the 1954 OILPOL Convention*, the subject and scope of the 1973/78 MARPOL Convention is much broader. This expansion has been in terms of both ships, oil derivatives and oil pollution caused by accidents.

Annex I of the MARPOL Convention is mainly focused on rules for the design and construction of oil tankers and their equipment. These requirements are closely related to the damage stability requirements for oil tankers. In view of the consequences of an oil spill, it is paramount to avoid the sinking of a tanker after an accident.⁴⁴ Today, tankers transport around 2,900 million metric tons of crude oil and oil products – the majority safely and without incident. Since the 1970s, despite a subsequent significant increase in the tanker fleet and growth in seaborne trade, oil pollution from ships has been dramatically reduced. This is just one example of the vital role MARPOL has played in regulating and helping change key industry practices, from ship design to operation and life at sea. There are two sides to the success of MARPOL.

⁴⁰ On March 16, 1978, the supertanker Amoto Cadiz ran aground off the coast of France after the steering gear failed in a storm. The ship spilled crude oil along 130 miles of the Brittany coast, causing serious damage to beaches and fishing grounds. This was the worst ship-source oil pollution accident in the history of tanker transportation. *Virginia Journal of Natural Resources Law* 5.1 (1985) 259-295.

⁴¹ B. Kamal, E. Çiloğlu, International Compensation System for Oil Pollution and Allocation of Liability, in Journal of Anatolian Environmental and Animal Sciences, 5.2 (2020) 161-172.

⁴² This event was the impetus for the creation of new contract law in both public and private maritime law.

⁴³ https://unctad.org/system/files/official-document/dtltlb20114_en.pdf

⁴⁴ https://www.deutsche-flagge.de/en/environmental-protection/oil

The first is more concrete: what has been achieved in reducing the levels of pollutants reaching our oceans from ships. While without limitation, *MARPOL has enhanced the protection of the environment from damage such as oil spills, chemical spills, sewage, garbage and air pollution.* As an illustration of this last impact, as of 2023 there are ECAs established along the Pacific and Atlantic Coasts in North America, as well as in the Baltic, Caribbean and North Seas. The second angle of MARPOL's achievement lies in its widespread acceptance. Some 160 counties have ratified the Convention – though the number of signatories varies per Annex – making MARPOL something of a poster child for international cooperation.⁴⁵

B. Marine pollution from oil platform

Offshore drilling platforms are categorized into two types: fixed platforms and floating platforms. Fixed platforms resemble onshore platforms but possess more sophisticated characteristics. The detonation of offshore oil and gas installations or wells significantly damages the maritime ecosystem. In recent years, several devices have been devised to avert explosions, particularly on oil rigs. Advanced drilling technologies, including blowout preventers and computer-controlled well data, have enhanced the safety of offshore oil and gas operations for both operators and the environment. In 1969, approximately 3.25 million gallons of crude oil were discharged into the Pacific Ocean following the blowout of oil well A-21 in the Santa Barbara Channel during seabed oil drilling six miles off the California coast, USA. Subsequent to the explosion, numerous litigations were initiated against oil and insurance corporations. The Union Oil Company, the consortium accountable for the Santa Barbara oil well, and their insurance disbursed around 60 million dollars in compensation. ⁴⁶ In 1979, a major blowout occurred at the Ixtoc I oil well in the Gulf of Mexico during operations by Petroleos Mexicanos (PEMEX) approximately 80 km northwest of the Bahia de Campeche area of the Gulf of Mexico. In the incident, during attempts to shut in the well, extremely high pressure caused drilling mud to flow into the drill pipe and onto the platform. The well then exploded and caught fire. The environmental pollution caused by the oil that leaked into the sea with the explosion caused major damage. The incident went down in history as the largest oil spill from a single source up to the time of the explosion. The well was only shut down 290 days after the explosion. According to PEMEX estimates, a total of 475,000 tons of crude oil leaked into the sea. ⁴⁷ The January 17, 1980 blowout of the Funiwa No. 5 well is one of the worst pollution incidents in Nigeria's history. Oil seeped into the sea for 13 days until the well was brought under control. The Department of Petroleum Resources reported that 400,000 barrels of oil leaked into the sea.⁴⁸ On August 21, 2009, an explosion occurred on the *Montara* oil platform drilling rig owned by PTTEP Australia, resulting in an uncontrolled leak of oil and gas. The oil and gas leak were only stopped 74 days after the explosion.⁴⁹ On April 20, 2010, the "Macondo" well of the Deepwater Horizon oil rig owned by Transocean and leased to

⁴⁵ https://marine-offshore.bureauveritas.com/magazine/bv-explains-50-years-marpol

⁴⁶https://www.latimes.com/environment/story/2020-03-13/pipeline-company-60-million-2015-oil-spill-near-santa-barbara

⁴⁷https://www.reuters.com/business/environment/mexicos-pemex-says-oil-spill-gulf-mexico-fixed-by-july-10-2023-07-26/

⁴⁸ K.N. Aroh, I.U. Ubong, C.L. Eze, I.M. Harry, J.C. Umo-Otong, A.E. Gobo, *Oil spill incidents and pipeline vandalization in Nigeria Impact on public health and negation to attainment of Millennium development goal: the Ishiagu example*, in *Disaster Prevention and Management*, 19.1 (2010) 70-87.

⁴⁹ P.K. Smith, B.N. Craig, Q. Wang, M. D. Larraña, *Human Error Analysis of the Montara Well Blowout*, in *Process Safety Progress*, 40.1 (2021).

British Petroleum (BP) exploded and sank into the Gulf of Mexico 41 miles off the coast of Louisiana. The explosion caused the largest oil spill on the US coastline. As BP was responsible for the oil drilling activity, BP was held liable for environmental and economic damages. However, it is debatable whether some of the responsibility for the damage lies with the US government or whether state actions mitigate BP's liability. ⁵⁰ When oil spills occur, the first step is to contain the source, "whether it's a ship, a pipeline or a leaking well," says Doug Helton, regional supervisor of the emergency response division at the Noaa Response and Restoration Office. "The second priority is to recover the oil at sea." The top priority is to prevent oil from reaching the shoreline where it can do the most damage. Helton says shoreline cleanups can take days or years, depending on the type of oil and the severity of the pollution. *Spilled oil tends to spread quickly in a thin layer on the sea surface. Within a few days, centimeter-thick layers become a film of a millimeter or less in drifting patches that spread over a large area.* Efforts to collect oil from the sea surface therefore offer diminishing returns as time passes. In the doctrine, Helton argued that "floating oil spreads very rapidly and there is a limited window of time in which offshore means are effective". ⁵¹

C. UNCLOS Regulations

Chapter XII of the Law of the Sea Convention addresses the issue of marine pollution. Oil pollution is prominently seen on sea surfaces and shorelines and is extremely detrimental to living organisms. Marine oil contamination is escalating in tandem with the expansion of oil production. The expansion of oil activities is propelled by the ever rising need for energy.⁵² According to Article 211/4 of UNCLOS, coastal States shall adopt laws and regulations for the prevention, abatement and control of marine pollution from foreign ships, including ships exercising the right of harmless passage through their territorial waters, without prejudice to the right of harmless passage. Many articles of UNCLOS emphasize the cooperation of states. ⁵³ In addition to these types of pollution, marine pollution can also be caused by illegal acts such as terrorist attacks, sabotage or arson on offshore oil and gas platforms. These illegal activities pose a significant pollution risk to the marine environment. United Nations Convention on the Law of the Sea (UNCLOS) The 1982 United Nations Convention on the Law of the Sea (UNCLOS) provides for liability for damages. However, the Convention is also of interest in terms of land swallowed by the sea as a physical phenomenon. Much of the Convention is considered to be a declaration of customary international law. To the extent that UNCLOS reflects customary international law, it is also binding on non-parties such as the United States. The provisions establishing the responsibility to provide in UNCLOS set out the obligations that States Parties must fulfill when exercising jurisdiction over entities under their authority and control, such as ships flying their flag or companies subject to their national jurisdiction. Transboundary pollution of the marine environment results from anthropogenic activity in and on the oceans. This context analyzes the obligations of States to avoid, reduce,

⁵⁰ https://www.epa.gov/enforcement/deepwater-horizon-bp-gulf-mexico-oil-spill

 $^{^{51}} https://www.bbc.com/future/article/20240905-have-we-improved-oil-spill-clean-ups-since-bp-deepwater-horizon$

⁵² E. Van Wie Davis, *Global Conflicts in Marine Pollution: The Asia Pacific*, in *The Journal of East Asian Affairs* 10.1 (1996) 192-222.

⁵³ For example, Article 197 of UNCLOS states that "States shall cooperate in the formulation and development of international rules, standards and recommended practices and procedures for the protection and conservation of the marine environment, taking into account the environment and the characteristics of the region, either directly or through competent international organizations on a global or regional basis".

and manage the harm to the marine environment resulting from such activities. This examines the possible remedies for States impacted by transboundary marine pollution and the methods by which liability for damage may be assigned to States that neglect their responsibilities to safeguard the marine environment from activities conducted under their jurisdiction and control. *The 1982 United Nations Convention on the Law of the Sea (UNCLOS), an internationally acknowledged framework regulating oceanic affairs*, delineates transboundary marine pollution in three significant ways. The concepts and rules regulating the conservation of the maritime environment are more detailed than those in other domains. Secondly, the provisions on State responsibility for internationally unlawful activities in UNCLOS granted the States the authority to pursue remedies to avert transboundary damage of the marine environment. The dispute settlement mechanism under UNCLOS permits States to initiate compulsory measures against other States and ensure accountability for non-compliance with obligations.

The first article of UNCLOS is devoted to the definition of the term "pollution of the marine environment". This definition has been taken as a basis in subsequent agreements. Article 1.4 defines pollution of the marine environment as the direct or indirect introduction by man into the marine environment of a substance causing harmful effects. Harmful effects mean damage to living resources, marine life and human health, and impairment of marine activities, including fishing and other legitimate uses of the sea, impairment of the quality of the use of sea water and reduction of opportunities. According to *Article 235 of the Law of the Sea Convention*, "States are responsible for the fulfillment of their international obligations concerning the protection and conservation of the marine environment. This regulation applies only before the occurrence of damage".⁵⁴ Under Article 194 (1) of UNCLOS, states are required to take measures to prevent, reduce and control pollution of the marine environment. Furthermore, states must ensure that activities under their jurisdiction or control do not cause pollution in areas outside the areas in which they exercise their external rights.

Article 1/4 of UNCLOS defines marine pollution. Accordingly, marine pollution is defined as *"pollution of the marine environment, the introduction of substances or energy into the marine environment by humans, directly or indirectly, resulting or likely to result in harmful effects on living resources, including estuaries, human health, interference with maritime activities, including fishing, deterioration of the quality of the use of sea water and reduction of visual beauty". Pollution is therefore caused directly or indirectly by human activities and results in undesirable harmful effects. Six sources of marine pollution are regulated in Articles 207 to 212 of Chapter XII of UNCLOS entitled "Protection and Conservation of the Marine Environment".*

- Pollution from land-based sources,
- Pollution from seabed activities subject to national jurisdiction,

⁵⁴ Principle 22 and Principle 7 adopted by the United Nations Conference on the Human Environment had significant implications for Article 253 of UNCLOS. See Nordquist et al. (1991b), p. 401. Principle 22 of the Stockholm Declaration reads as follows: "States shall cooperate to further develop international law on liability and compensation for victims of pollution and other environmental damage caused by activities within their jurisdiction or control in areas outside their jurisdiction. Principle 7 of the Stockholm Declaration reads: "States should fulfill their obligations to other States injured by pollution caused by their own activities or by organizations or individuals within their jurisdiction, in accordance with the principles of international law, and should cooperate in the development of procedures for the redress of such injuries and the settlement of disputes.

- Pollution from activities on the international seabed (pollution from activities in the Area),
- Pollution from waste dumped from ships or airplanes (pollution by dumping),
- Pollution from vessels,
- Pollution from or through the atmosphere.

According to Article 194/5 of UNCLOS, "Measures taken in accordance with this Part shall include those necessary for the conservation and protection of rare or vulnerable ecosystems and the conservation of the natural habitats of marine species and all other marine life in declining, threatened or threatened with extinction". UNCLOS underlines sets out the basic rules on state responsibility and liability. The UNCLOS provisions on responsibility and liability for pollution of the marine environment should be read in conjunction with the International Law Commission's 2001 Articles on the Liability of States for Internationally Wrongful Acts (2001 ILC Articles). A State may be liable for another State's failure to fulfill its obligations to prevent transboundary pollution of the marine environment resulting from activities within its jurisdiction and control that may cause significant pollution of the marine environment. Potentially injured States may apply to a court or tribunal for a State to fulfill its obligations under UNCLOS, including the obligation to cooperate and the obligation to conduct an EIA. UNCLOS also makes it clear that the suing State has the right to request interim measures to prevent serious damage to the marine environment. States have the right to seek compensation from another State for damage to their marine environment only if the internationally wrongful act has caused pollution of the marine environment. The dispute settlement regime in Chapter XV of UNCLOS gives injured States parties the right to bring claims against other States parties that violate their obligations under UNCLOS to prevent, reduce and control pollution of the marine environment. If a dispute arises concerning the interpretation or application of any provision of the Convention and the dispute cannot be resolved through negotiation and consultation between the parties, a party to the dispute may unilaterally bring an action against the other State.

D. Compensation funds for marine pollution accidents

Oil pollution refers to the release of liquid petroleum hydrocarbons into the environment, particularly marine ecosystems, because of human activities, constituting a significant environmental pollution issue. *Consequently, oil contamination can have catastrophic economic, environmental, and social repercussions for communities.* The expansion of offshore oil and gas facilities signifies a notable rise in oil spills from these origins. This requires the establishment of international conventions regarding oil pollution liability and compensation, formulated in reaction to the risk of ship-source oil pollution. The decline of ultra-large and very large crude oil transporters has resulted in a decrease in significant oil pollution incidents at sea. *Also, with the gradual installation of appropriate equipment, intentional oil spills* have decreased. However, oil pollution has not disappeared and remains a serious problem.⁵⁵ As oil transportation continues to increase worldwide, many communities are at risk of oil spill disasters and must anticipate and prepare for them. Factors affecting oil spill consequences are numerous and range from biophysical to the social. *We provide a brief literature review and overview framework to help communities systematically assess the factors and linkages that*

⁵⁵ J.C. Bongaerts, A.F.M. de Bièvre, *Civil Liability Insurance for Marine Oil Pollution Damages*, in *The Geneva Papers on Risk and Insurance* 12.43 (1987); *Liability, Insurance and Safety Regulation* (1987) 145-157.

may influence the consequences of a potential oil spill. The focus is on spills resulting from oil tanker accidents. Drawing primarily from empirical studies of previous oil spill disasters, we focus on several main areas of interest: The oil spill itself, disaster management, the physical marine environment, marine biology, human health, economics and policy. Key variables affecting the severity of consequences were identified and important interactions between variables were described. *The Supplementary Fund Protocol was adopted and in this context, it was agreed to establish the Supplementary Fund for Compensation for Oil Pollution*. Pursuant to this Protocol, the amount of compensation that could be collected from the Supplementary Fund for Oil Pollution was envisaged as 750 million Special Drawing Rights (SDRs), including amounts payable under the 1992 Liability and Fund Conventions.⁵⁶

The payment of compensation for damage caused as a result of ship-source oil spills is dependent to a large extent upon the legal regime applicable within the country in which the incident or damage occurs. Four International Conventions provide the basis for compensation in the majority of countries: The Civil Liability Convention (CLC) provides compensation for spills of persistent oil carried in tankers up to the shipowner's liability limit and is paid by the vessel's insurer. The Fund Convention provides a second tier of compensation for spills of persistent oil from tankers, paid by receivers of oil in countries that have signed the convention. A Supplementary Fund is available providing a third tier of compensation. The Bunkers Convention applies to spills of bunker oil from a variety of ships, again up to the shipowner's liability limit and is paid by the vessel's insurer. The Hazardous and Noxious Substances (HNS) Convention applies to spills of other oils such as non-persistent hydrocarbon oils, vegetable oils and chemicals, carried in bulk and in packaged form. The HNS Convention is not yet in force. Although different in their application, these conventions have many principles in common. For example, they apply primarily to spills in the waters of countries that have signed that convention. A claim for reimbursement of losses can be made under the conventions without the need to prove that the owner of the ship causing the pollution was at fault. However, each has a time limit during which claims can be submitted.⁵⁷

This framework can be used to clarify the complexity of oil spill impacts, identify lessons that can be transferred from other oil spill disasters, develop scenarios for planning, and inform risk analysis and policy. has led to discussions in local governments seeking to understand and reduce their vulnerability to potential spill disasters. *The first pillar of the compensation regime for oil pollution caused by tanker ships was established by the CLC 1969 and Fund 1971 Conventions*. This two-tier compensation system, which was later amended by the CLC 1992 and Fund 1992 Conventions, which increased the liability amounts of the tanker owner and the IOPC Fund, was introduced by the *Additional Fund Protocol 2003, which became effective in 2005 due to the increase in the amount of accident-related compensation*, thus creating a three-tier compensation system. The Fund's obligation to pay compensation is confined to pollution

⁵⁶ For example, the International Convention on Civil Liability for Oil Pollution Damage defines " pollution damage" as: (a) loss or damage caused outside the ship by contamination resulting from the escape or discharge of oil from the ship, wherever such escape or discharge may occur, provided that compensation for impairment of the environment other than loss of profit from such impairment shall be limited to costs of reasonable measures of reinstatement actually undertaken or to be undertaken; (b) the costs of preventive measures and further loss or damage caused by preventive measure. Protocol of 1992 to Amend the International Convention on Civil Liability for Oil Pollution Damage, supra note 10, 1956 U.N.T.S. at 285–86.

⁵⁷ Compensation for Ship-source Marine Oil Spills, https://www.itopf.org/knowledge-resources/documents-guides/compensation/.

damage suffered in the territories including the territorial sea of Contracting States. The Fund is also obliged to pay compensation in respect of measures taken by a Contracting State outside its territory. The Fund can also provide assistance to Contracting States which are threatened or affected by pollution and wish to take measures against it. This may take the form of personnel, material, credit facilities or other aid. In connection with its second main function, the Fund is obliged to indemnify the shipowner or his insurer for a portion of the shipowner's liability under the Liability Convention. The Fund is not obliged to indemnify the owner if damage is caused by his willful misconduct or if the accident was caused, even partially, because the ship did not comply with certain international conventions. ⁵⁸

Punitive damages are sums awarded to tort claimants beyond their actual damages. The idea of non-compensatory damage was known in ancient legal systems, but the modern doctrine of punitive damages dates back to the mid-eighteenth century. Originating in England, the doctrine was soon imported to America. Punitive damages are an exception to the general principle that tort damages should restore the victim to his or her condition before the tort (restitutio in integrum), and this principle is the most fundamental principle of modern compensation law. They are used as a complementary sanction in exceptional cases where compensatory damages do not provide the necessary levels of deterrence and retribution. The 1969 Convention on International Civil Liability provides for strict but limited liability for pollution damage caused by discharges from ships carrying bulk oil as cargo. The International Convention on the Establishment of an International Fund for Compensation for Oil Pollution, 1971, was concluded to complement the Convention on Civil Liability by establishing a fund for the payment of oil pollution damages and transferring the compensation for oil pollution damages to a fund. The IMO Civil Liability and Fund Conventions were strengthened by Protocols adopted in 1985 and 1992. These instruments increased the limits of liability, introduced compulsory insurance and provided for direct action against the insurer. The 1992 Protocols effectively created a new regime known as the 1992 Civil Liability and Fund Convention. In October 2000, it was agreed to increase the liability limits of the 1992 Civil Liability and Fund Convention by more than 50% with effect from November 1, 2003. Oil Pollution Compensation Funds, three funds (the 1971 Fund, the 1992 Fund as amended, and a Supplementary Fund established in 2005) financed by levies on certain types of oil carried by maritime transport are administered as an intergovernmental organization closely associated with IMO. One hundred and five states are parties to the various funds. The first level of compensation is set under the Civil Liability Convention, as amended: 4.51 million special drawing rights (SDR) for small tankers (5,000 tons or less) and a tonnage-based formula up to a maximum of SDR 89.77 million for larger tankers. The three funds provide additional levels of compensation up to a maximum of SDR 203 million. ⁵⁹ Most claims arising from tanker accidents are handled by IG clubs without the involvement of the IOPC Fund. The clubs within the International Group of Protection and Indemnity Clubs (IG), which is composed of 13 major Protection and Indemnity Clubs (P&I Clubs) insuring approximately 90% of the total tanker tonnage, cover the claims of the claimants through blue cards offered to their clients, the ship owners, and in this context, IG clubs issue approximately 7000 blue cards annually. At the diplomatic Conference held in London on 16 May 2003 under the leadership of the International Maritime Organization

⁵⁸https://www.imo.org/en/About/Conventions/Pages/International-Convention-on-the-Establishment-of-an-International-Fund-for-Compensation-for-Oil-Pollution-Damage-(FUND).aspx

⁵⁹ Y. Yang, Liability and Compensation for Oil Spill Accidents: International Regime and Its Implementation in China, in Natural Resources Journal 57.2 (2017) 465-492.

(IMO), a new revision of the 1992 Fund Convention was carried out. The 1992 Fund Convention aims to compensate for pollution damages on a scale that the CLC 92 is insufficient and its scope of application is the same as the CLC 92 Convention. The Nakhoda accident in Japan in 1997, the Erika accident in France in 1999 and the Prestige accident in Spain in 2002 led to the emergence of new searches for compensation for damages caused by oil pollution. Environmental non-governmental organizations and the relevant Administrations of the states affected by these accidents have demanded on 1 November 2003 a further increase in the already increased upper limits in the 92 Liability Convention and the 92 Fund Convention, and more radical decisions have been proposed in this regard. ⁶⁰

E. US Law and OPA -90 Oil Pollution Act

The Oil Pollution Act of 1990 (OPA) establishes a framework that addresses the liability of responsible parties in connection with the discharge of oil into the navigable waters, adjacent coastline or exclusive economic zone of the United States. Among other provisions, the OPA limits certain liabilities of a responsible party in connection with the discharge of oil into these areas. Under the OPA, a responsible party is strictly and jointly and severally liable for cleanup costs plus damages in connection with the discharge of oil into covered waters. However, the liability of the party responsible for damages under the OPA is limited. In addition, the Oil Pollution Act of 1990 provides that additional liability may be imposed on a responsible party under state law. ⁶¹ Before OPA, single-hulled tankers carried oil to, from and between U.S. ports. OPA phased in the transition to double-hull tankers, which have become the norm worldwide. In 1992, the International Maritime Organization (IMO) modified the International Convention for the Prevention of Pollution by Ships (MARPOL) to phase in and extend the double-hull requirement globally. Studies show that depending on the impact speed, double hulls can reduce the likelihood of a pollution incident by more than 60% compared to singlehull tankers. While double-hull tankers are not a panacea to stop oil discharges at sea, they provide greater protection from pollution incidents caused by groundings, or low-speed/lowimpact collisions. By way of example, in 2009, the double-hull tanker SKS Satilla alluded with a submerged oil rig in the Gulf of Mexico creating a huge gash in the vessel's outer hull, but no oil spilled. In 2021, a tug collided with the tanker Polar Endeavor in Valdez, Alaska tearing a four-foot hole in the outer hull, but no oil spilled; the inner hull remained intact. On the downside, double-hulled tankers are more expensive to build and maintain and may be less stable due to a higher center of gravity and greater free-surface effect in the ballast tanks. Under OPA, the "Responsible Party" or RP is strictly liable for an oil spill, though it may seek contribution or indemnity from other culpable parties. OPA requires the RP to immediately respond to a pollution incident by deploying an oil spill response organization (OSRO) to clean it up, failing which the U.S. Coast Guard (USCG) may take over the spill response and manage the operation at the RP's expense. One of the compromises that led to the passage of OPA is that cargo owners are not liable for pollution discharge, though a variety of states also have imposed strict liability on the cargo owner in the event of a pollution discharge. Oil spills in U.S. waters have decreased in both number and volume since OPA's enactment, though major

⁶⁰ M.M. Farahani, *Liability and Compensation Regime for Oil Pollution Damage under International Conventions*, in *LUP Student Papers*, Spring 2011,

⁶¹ J.E. Nichols, *Oil Pollution Act of 1990 (OPA): Liability of Responsible Parties*, Washington, 2010, 41-51, https://lup.lub.lu.se/luur/download?func=downloadFile&recordOId=1974126&fileOId=1977590.

incidents still occur from time to time. OPA has played a major role in altering the probability and recovery trajectory of oil spills in U.S. navigable waters.⁶²

US law is particularly relevant at the moment because the Deepwater Horizon case arising from the 2010 spill of an oil concession owned by BP is the first major case under the OPA 90 law. The US oil liability regime is much broader and more comprehensive than the international regime, which is limited to oil spills from ships carrying oil in bulk (oil tankers). The US is the most important maritime nation that has chosen not to become a party to the IMO Civil Liability and Fund regimes and instead developed its own national law on liability for oil pollution damages. Congress attempted to enact comprehensive oil pollution legislation from the mid-1970s and several bills were introduced and debated until the late 1980s. However, the Exxon Valdez disaster and a series of small and highly publicized oil spills in the months that followed mobilized public and political support for legislative reform. The Oil Pollution Act of 1990307 was passed by a vote of 99-0 by the Senate and 360-0 by the House of Representatives and signed into law by President George H.W. Bush on August 18, 1990. ⁶³ Because it came into force after the Exxon Valdez spill, the OPA did not apply to any of the claims arising from that incident. The highly complex two decades of litigation that followed the Exxon Valdez spill therefore shed little light on the new regulation. Judicial decisions on the OPA are sparse, and the Deepwater Horizon case could generate an interesting debate on various interpretive questions. As can be seen, the primary US law, the Oil Pollution Act of 1990 (OPA 90), was litigated over the Exxon Valdez spill for nearly 19 years, culminating in a landmark case in the US Supreme Court. The Exxon Valdez case was tried under the law that preceded OPA 90. Finally, an even bigger oil spill tragedy occurred in the US: In 2010, an explosion on the Deepwater Horizon oil platform spilled approximately 168 million gallons of oil into the Gulf of Mexico, an environmental disaster whose effects are still felt in the Gulf region. Research conducted in the years since the Deepwater Horizon spill has indicated that initial analyses likely underestimated how far the oil spread. A 2020 study by researchers at the University of Miami found that toxic "invisible oil" – concentrated below the surface, undetectable by satellite imagery and toxic enough to destroy 50% of the marine life it encountered – actually spread far beyond the impacted area all the way to the shores of Texas and into the current that pulls water from the Gulf toward Miami. The same study found that the oil's reach was 30% larger than previously thought, "potentially exterminating a vast amount of planktonic marine organisms across the domain."64

4.- EXXON Valdez Tanker accident and oil spills

As a case study, the framework is used to assess potential oil spills and their consequences in Vancouver, Canada. Large increases in oil tanker traffic are expected in this region, creating urgent new demands for risk information, disaster management planning and policy responses. The case study identifies specific circumstances that *distinguish the Vancouver context from*

⁶² K. Letourneau, *Maritime Law Column: The Legacy of the Oil Pollution Act of 1990*, in *Texas Lawyer*, 1 February 2024, https://www.law.com/texaslawyer/2024/02/01/maritime-law-column-the-legacy-of-the-oil-pollution-act-of-1990/

⁶³ T.J. Schoenbaum, Liability for Damages in Oil Spill Accidents: An Evaluation of US and International Legal Regimes in Light of Deepwater Horizon, in Journal of Environmental Law 24.3 (2012) 395-416.

⁶⁴ J. Horrox, K. Lamp, *The Deepwater Horizon oil spill is still wreaking havoc on the Gulf of Mexico*, in *Frontier Group*, 22nd October 2024, https://frontiergroup.org/resources/the-deepwater-horizon-oil-spill-is-still-wreaking-havoc-on-the-gulf-of-mexico/

other historic events; in particular proximity to a densely populated urban area, the type of oil transported, financial compensation plans and the local economic structure. It is important to draw lessons from other oil spill disasters, but this must be done with these fundamental differences in mind. Some types of impacts that were relatively minor in previous incidents may be very important in the *Vancouver case*. The Exxon Valdez case can be better understood as a state-sponsored crime where decisions made by various organizations made grounding a likely outcome. As the Aosc report records, "Today's error-producing system often posits human error as the explanation for an accident. This argument effectively closes off detailed analysis of the system itself by placing the blame on the most appropriate person available, the captain, the officer of the watch, or both. General company policies that may have led to the accident - such as excessive working hours leading to officer and crew fatigue, route shortening to save time, and a general misunderstanding in the maritime industry of the general advantages, disadvantages and effects of automation - are not blamed."⁶⁵

Three-phase federal court case: 1. Trial determined Exxon and the captain were reckless; jury found a company is responsible for a managerial employee. 2. Compensated commercial fishermen and native Alaskans. 3. Calculated punitive damages against Exxon and the ship's captain. Thousands of Exxon employees, federal responders and Alaskans worked for months to contain the disaster, but the oil eventually spread nearly 1,300 miles down the coast, killing hundreds of thousands of animals, crippling Alaska's fishing industry and creating pockets under the sand that could still be released today by an earthquake or storm. The United States Supreme Court's decision on punitive damages in the Exxon Valdez case stemmed from lawsuits brought by commercial fishermen and Alaska Natives against Exxon. The factual basis for the award of punitive damages was simple. The Exxon Valdez captain, a recovering alcoholic, had consumed enough alcohol to incapacitate a non-alcoholic shortly before boarding the ship and inexplicably left the bridge during a critical maneuver, leaving the difficult course correction to unlicensed subordinates. Although the captain's supervisors knew he had completed an alcohol treatment program, it was unclear whether they were aware of his relapse. At trial, the jury found Exxon reckless (and thus potentially liable for punitive damages) under instructions that provide that a corporation is liable for the reckless acts of employees acting in a managerial capacity within the scope of their employment. Later, in 1994, the jury awarded \$287 million in compensatory damages to the commercial fishermen (less early voluntary payments). The jury also awarded \$5000 in punitive damages against the captain and \$5 billion against Exxon.⁶⁶

⁶⁵ S. Haycox, *Fetched Up: Unlearned Lessons from Exxon Valdez*, in The Journal of American History 99.1 (2012); *American History Petrol* (2012) 219-228.

⁶⁶ "US Supreme Court slashes punitive damages award in Exxon Valdez oil spill case",

https://www.jenner.com/a/web/bnH6W9eb64AjcRbutfjSX/4HRMZQ/IBA_Negligence_Damages_October08_S chaner_Ho.pdf?1313677474



Source: https://oceanservice.noaa.gov/podcast/mar14/mw122-exxonvaldez.html

For more than a decade, the matter went back and forth between the district court and the appellate court until the appellate court sent the case back, and the number of punitive damages increased to \$2.5 billion. While the Court of Appeal reiterated its view that punitive damages are intended to punish and deter and are limited to cases of "magnitude" where the defendant's conduct is outrageous because of gross negligence, willful, wanton, wanton and reckless indifference to the rights of others, or even more deplorable conduct, it ultimately held that a 1:1 ratio was a fair upper limit in such maritime cases based on the principle that the severity of the punishment should be reasonably foreseeable, and therefore reduced the punitive damages to \$507.5 million. Arguably, the problem of conflicting regulations on the scope of liability was finally overcome in the Exxon Valdez case. It has been nearly 20 years since the ill-fated oil supertanker, Exxon Valdez, ran aground on Bligh Reef in Prince William Sound, Alaska, on March 24, 1989. The ship's hull was split open spilling millions of gallons of crude oil into the pristine waters of the Sound resulting in an environmental and economic disaster.

Following the *Exxon Valdez accident in 1989, more than 200 lawsuits involving more than 30,000 claims were filed in federal and state courts.* Exxon's liability to commercial fishermen was undisputed. In fact, Exxon undertook a voluntary compensation program and ultimately paid \$303 million to fishermen whose livelihoods were disrupted, mainly from 1989 to 1994. In addition, 10,000 commercial fishermen were allowed to sue in federal court and subsequently received \$286.8 million in compensatory damages based on the market value of the fish they would have caught had the spill not occurred. However, even fishermen were only allowed to recover the value of their lost catch; they were denied recovery for the reduction in the value of their fishing permits and lost profits from other businesses. The US Supreme Court ruled on compensation in June 2008. In 1989, federal law stated that only people who physically touched

the oil could receive compensation for physical or economic damage caused by an oil spill. *In 1990, in response to the Exxon Valdez spill, the federal government passed the Oil Conservation Act*, which lifted this prohibition and allowed people who suffered economic harm to recover monetary damages even if they had not physically touched the oil. The Supreme Court reduced the punitive damages awarded against Exxon from \$2.5 billion to just over \$500 million. ⁶⁷

5.- BP Deepwater 2010 oil platform accident

The US Congress responded by passing the Oil Pollution Act of 1990 (OPA), which gave the Environmental Protection Agency-EPA more authority to prevent and respond to oil spills. To address the root causes of the Exxon Valdez spill, OPA mandated that oil tankers be double-hulled and provided for the review and revocation of licenses for alcohol and drug use. To prevent future spills, OPA also increased penalties for oil companies responsible for spills; imposed strict joint and several liability on responsible parties and limited their defenses; authorized EPA and the Coast Guard to draft new regulations for storage facilities and tankers; and established the Interagency Coordinating Committee on Oil Pollution Investigations to research and develop new technologies to prevent and reduce oil spills. On oil spill response, OPA established the Oil Spill Liability Trust Fund (OSLTF) to finance oil spill cleanup when the responsible party is unable or unwilling to do so. ⁶⁸



⁶⁷https://www.lawinfo.com/resources/personal-injury/environmental-exposure/oil-spill/the-legal-differences-between-the-exxon-valde.html

⁶⁸ J. Isacks, *Deepwater Horizon Ten Years Later : Regulations, Rollbacks, and Where We Go From Here,* journals.library.wustl.edu/lawpolicy/article/8634/galley/25438/view/

Locations of oil platforms in US and Mexican waters, from BSEE GoM OCS Region and Centro Nacional de Informacion de Hidrocarburos. Image: Courtesy of Gerardo Toro-Farmer and Erin Pulster, University of South Florida.

In April 2010, a massive explosion destroyed the BP Deepwater Horizon oil rig in the Gulf of Mexico 53 miles off the coast of Louisiana, killing 11 workers. The accident occurred when an explosion occurred on the Deepwater Horizon, a mobile offshore drilling rig, while drilling at the Macondo Prospect on the seabed about forty-one miles off the southeast coast of Louisiana. In the aftermath of the accident, the government's fire suppression and emergency response began immediately. The Coast Guard assumed command of the response under the National Contingency Plan, established Incident Command Centers in Houma, Louisiana and Houston, Texas, and deployed resources to fight the fire and search for survivors." BP mobilized skimmer vessels to begin collecting oil from the surface and spreading chemical dispersants that break down the oil, allowing it to dissolve and mix into the water. Eventually, more than 45,000 responders from the Coast Guard, Louisiana National Guard and various federal agencies were deployed to begin cleanup efforts.⁶⁹ The rig was owned and operated by Transocean, the largest offshore drilling contractor globally, and leased to BP, a major energy company and the lessee and primary operator of the Macondo field. The explosion resulted in an uncontrollable oil spill, leading to the deaths of eleven workers and igniting a fire that caused the rig to submerge. Subsequent to the explosion, the endeavor to engage the blowout preventer (BOP) was unsuccessful, resulting in oil surging into the Gulf of Mexico, inflicting severe harm on the marine ecosystem, contaminating the shorelines of Alabama, Florida, Louisiana, and Mississippi, and incurring billions of dollars in losses to the fishing and tourism sectors, among others



⁶⁹ S.L. Tatum, H. Strand, *The Deepwater Horizon Oil Spill: A Review of Historic Civil and Criminal Liabilities and Resulting Fund Flows from America's Worst Environmental Disaster*, Texas A&M University School of Law, 2017.

The best predictions for what will happen to oil after the BP Deepwater Horizon disaster (Source: Noaa/BBC)

. On July 15, over three months following the catastrophic blowout, BP declared that it had successfully sealed the leaking well and halted the discharge of crude oil into the Gulf. On August 3-4, substantial drilling mud followed by cement was injected from a surface vessel through a choke line into the compromised well. By mid-June 2010, numerous lawsuits had been initiated against BP on behalf of tens of thousands of victims, while Gulf Coast states pursued compensation for lost revenue and further losses. The recent catastrophe in the Gulf of Mexico underscores the hazards linked to pollution from oil production and transportation, including the potential for physical injury and fatalities, significant environmental degradation detrimental to wildlife and natural resources, among other problems.⁷⁰

The OPA provides that "each party responsible for a vessel or facility that discharges oil ... into navigable waters or adjacent coastlines or the exclusive economic zone ... is liable for cleanup costs and damages ... resulting from such an incident". The law clearly applies to the Deepwater Horizon case. The exclusive economic zone extends to 200 nautical miles from the baseline from which the width of the territorial sea is measured. At the time of the incident, the drilling rig was in the Macondo Prospect, approximately forty-one miles off the southeast coast of Louisiana, within the US exclusive economic zone. Moreover, the oil spill soon spread throughout US territorial waters and coastline is clearly a responsible party for the oil spill as the lessee of the Deepwater Horizon site. Technically, BP's partners in the Macondo Prospect -Anadarko Petroleum (with a twenty-five percent working interest) and Mitsui (with a ten percent stake) - could also be held liable. Transocean is also a responsible party because the Deepwater Horizon was a "mobile offshore drilling unit" (MODU), which is not just an offshore facility or part thereof, but a vessel, and Transocean owned and operated it. Not surprisingly, the Coast Guard has officially named both BP and Transocean as "responsible parties" in the incident. According to Transocean officials, the company's contract with BP obligates BP to compensate it for the costs and liabilities incurred in the wake of the spill. Nevertheless, BP has already paid claims and may seek compensation from other parties. OPA recognizes three limited defenses to liability. It provides that the party responsible will not be liable for removal costs and damages only where the spill was caused by (1) a natural disaster, (2) an act of war, or (3) the act or omission of a third party. The first two apply in highly unusual circumstances. The third (act of a third party) is narrowed in two critical respects.⁷¹

Among the most enduring images of the disaster, television viewers will recall heartbreaking photographs of brown pelicans, Louisiana's state bird and a species made famous by John James Audubon's watercolor paintings, hopelessly weighted down with raw sewage-colored sludge.

⁷⁰ Commercial fishermen, oystermen, crabbers and the like may lose their livelihoods. Their customers, such as seafood restaurants, retail outlets or canned food manufacturers, may incur additional costs or even close temporarily, and suppliers of goods and services to the local fishing industry may lose profits. Owners of hotels, resorts, recreation areas and other tourist-based businesses along the coastline may suffer economic losses. Owners and charterers of ships that cannot pass through the spill zone and owners of cargo delayed by the obstruction could also suffer losses. In coastal states, those in the real estate sector, such as builders, real estate agents, bankers and lawyers, may experience a decline in business. Suppliers, customers, employees and relatives of any of the above could lose profits or incur unexpected expenses.

⁷¹ R. Perry, *The Deepwater Horizon Oil Spill and the Limits of Civil Liability*, in Washington Law Review Association 86.1 (2011) 9-24.

Some of our country's most endangered species have been hit particularly hard. For example, all five species of Gulf Sea turtles are endangered - the spill has killed some 7,600 large sea turtles and 160,000 juvenile sea turtles. Populations of endangered sperm whales suffered an estimated 7% decline, which will take 21 years to recover. Half of Bryde's whales were affected by the spill, resulting in a 22% population loss, which means it will take 69 years to put them back where they were. ⁷² After the oil drilling platform malfunctioned, then exploded and leaked 87 million gallons of oil over 200 days, the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling (OCS; BP Deepwater National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling) conducted an 8-month review that produced recommendations on disaster response, stricter regulations and the oil and gas drilling program on the US Outer Continental Shelf. But OPA90 predates the development of ultra-deep oil exploration and its associated risks by more than a decade. While regulators have examined and approved ultra-deep oil development, no new laws have been enacted specifically regulating this risky area of exploration and production. More broadly, in the wake of the DWH, the United States has made little progress in adopting ecological or ethical standards where protectionism in oil and gas development is applied to public policy. Worse, ecological and human well-being in affected habitats is a secondary regulatory concern to the economic drivers of oil and gas development.⁷³

6.- The problem of accident prevention in the Mediterranean and oil traffic

The significant maritime traffic and the recent surge in oil and gas exploration render the Mediterranean one of the waters with the highest risk of oil leaks globally. European nations procure their crude oil and natural gas from the Gulf countries of the Middle East and the Caspian states of Russia, Kazakhstan, and Azerbaijan. Numerous fuel tankers traverse the Mediterranean canal, an obligatory route for the conveyance of oil and gas to Mediterranean ports from two origins: the Turkish Straits and the Suez Canal.

⁷² https://www.nrdc.org/stories/what-we-learned-bp-oil-disaster

⁷³ https://pmc.ncbi.nlm.nih.gov/articles/PMC6829012/

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Source:https://www.eia.gov/international/analysis/special-topics/World_Oil_Transit_Chokepoints

Russia *has redirected* the flow of oil *to countries such as China and India, and once refined, this oil eventually reaches Western countries.* With the Urals price breaching the \$60 price cap since July 11, 2023, there is a growing need to assess compliance with sanctions.⁷⁴ However, for thousands of years, the life, work and prosperity of the peoples living along the Mediterranean coast has been closely linked to sailing and navigation in general. The Mediterranean lies at the crossroads of three major sea gateways: the Strait of Gibraltar to the *Pacific Ocean and the Americas, the Suez Canal, the main shipping gateway to Southeast Asia via the Red Sea, and the Bosphorus Strait to the Black Sea.* Eastern Europe/Central Asia. With its strategic location, the Mediterranean is an important transit lane for international trade and hosts transshipment activities. It is also a busy traffic area due to Mediterranean maritime traffic (movement between a Mediterranean port and a port outside the Mediterranean) and short sea shipping activities (connecting two Mediterranean ports). The total oil tanker capacity of the Mediterranean littoral states is 92,771 dwt, representing 17% of the world oil tanker capacity (534,855 dwt in 2017).

 $^{^{74}\} https://www.usni.org/magazines/proceedings/2024/june/red-flags-russian-oil-tradecraft-mediterranean-sea$



Operational procedures for ship-to-ship transfers

It is estimated that around 30% of the volume of international seaborne trade originates from or is routed through Mediterranean ports or gateways. Approximately 20.25% of the world's seaborne oil traffic passes through the Mediterranean. While the figures given below are estimates and not entirely accurate, they should serve to illustrate the intensity of maritime traffic in the region: 2,000 commercial vessels over 100 GRT are at sea at all times; 250-300 of these are oil tankers; 200,000 commercial vessels over 100 GRT cross the Mediterranean annually. ⁷⁵ Around 370,000,000 tons of oil are transported annually in the Mediterranean (more than 20% of the world total) and around 250-300 oil tankers pass through the sea every day. ⁷⁶An important destination is the Port of Trieste, the starting point of the Transalpine Pipeline, which supplies 40% of Germany's oil needs (100% for the states of Bavaria and Baden-Württemberg), 90% for Austria and 50% for the Czech Republic. Accidental oil spills are frequent, with an average of 10 spills per year. A major oil spill can occur anywhere in the Mediterranean at any time. The Dardanelles/Marmara Sea/Istanbul Straits complex: Traffic through this international waterway, which connects the northeastern part of the Mediterranean Sea, i.e. the Aegean Sea, to the Black Sea, is estimated at 50,000 vessels per year (1997). It has increased significantly in recent years. Estimated traffic was 15 ships per day in 1938, 125 ships per day in 1995 and the above figure for 1997 corresponds to 137 ships per day.⁷⁷

content/uploads/2018/04/turkish_straits_tudav.pdf

⁷⁵ https://planbleu.org/wp-content/uploads/2021/12/MARITIME_TRANSPORT.pdf ⁷⁶ https://maritimescrimes.com/marine-pollution/

⁷⁷https://www.mfa.gov.tr/the-turkish-straits.en.mfa,https://tudav.org/wp-



Maritime traffic in the Turkish Straits Black Sea Source: https://www.shiptraffic.net/military/BOSPHORUS%20STRAIT/ship-traffic-tracker

It is estimated that at least one LPG carrier will pass through this waterway every week. The importance of the Straits is confirmed by the statement of Nicolae Titulescu, the representative of Romania at the Montreux Conference: "The Straits are the heart of Turkey, but also the lung of Romania". Transit densities measured in terms of vessel calls are dominated by high frequency, small-sized intra-Mediterranean passenger traffic. In 2006, ships operating in or through the Mediterranean were *deployed on 31,000 unique port-to-port routes, including* 16,000 unique intra-Mediterranean port-to-port connections. ⁷⁸However, the majority of trade, including petroleum oils and gases, is concentrated on larger vessels deployed at lower frequency levels. The 20 largest ports in the Mediterranean account for 37 percent of all calls and 43 percent of DWT capacity in the Mediterranean. With a few exceptions, most of the top ports are in the Western Mediterranean: Crude Oil and LNG trade is concentrated around a relatively small population of loading and unloading ports and routes in the western and central Mediterranean. Crude oil shipments from Novorossiysk to Mediterranean destinations and from Sidi Kerir to both Mediterranean destinations and ports west of Gibraltar, as well as exports from the Persian Gulf via Suez across the Mediterranean dominate the main traffic lanes. In the LNG sector, North African exports to other Mediterranean destinations dominate.

 $^{^{78}\} https://mmla.org.mt/wp-content/uploads/2015/07/Study-of-Maritime-Traffic-Flows-in-the-Mediterranean-Sea.pdf$



Shipping routes and Oil Spills in the Mediterranean Source: REMPEC. Environment and Security in the Mediterranean (2009)

The average age of ships calling at ports in the Eastern Mediterranean is significantly higher than in the Western and Central Mediterranean. Since the 1990s, the significance of the hydrocarbon resources in the Eastern Mediterranean has markedly escalated. Improvements in seismic exploration and drilling technologies, coupled with escalating energy prices, have resulted in extensive discoveries and the identification of substantial reserves of oil, particularly natural gas.



Maritime traffic in the Mediterranean, Source: www.marinevesseltraffic.com

Recent findings indicate that this region will emerge as one of the globe's foremost sources of natural gas during the next fifty years.⁷⁹ The average age of vessels calling at Limassol, Alexandria, Valletta and Mersin is over 20 years old, while in the Western Mediterranean ports of Algeciras, Augusta, Palma, Barcelona, Genoa, Genoa, Fos and Gibraltar it is below 14 years old. Given the correlation between ship age and accident risk, the deployment of older tankers in the Eastern Mediterranean potentially exposes this region to a higher risk of accident-related pollution incident. In 2006, 4224 loaded oil tanker movements were observed in the Mediterranean Sea, carrying 421 million tons of crude oil. Of these, 457 transits between ports outside the Mediterranean, involving tankers carrying 72 million tons of crude oil. The future development of new export routes for crude oil from the Caspian region, the development of new pipelines by passing the Bosphorus and the expansion of existing pipeline capacity could lead to a significant increase in the density of tanker deployments in the eastern Mediterranean with more than 2000 voyages per year.⁸⁰ Oil tankers are not the only vessels polluting the sea with hydrocarbons: cargo ships, fishing boats, recreational vessels and warships also discharge their waste, adding thousands of tons more of marine pollution. Between accidents and illegal dumping of oil, bilge water, etc., hydrocarbon discharges from non-oil carrier operations have been estimated to reach about 280,000 tons per year. On November 13, 2002, the oil tanker Prestige began to break up off the coast of Galicia in northern Spain.



Maritime traffic in the Black Sea Source: https://www.marinevesseltraffic.com/BLACK-SEA/ship-traffic-tracker

The French, Spanish and Portuguese governments refused to allow the ship to take refuge in a port, and on November 19 it broke apart and sank about 200 km off the Spanish coast, releasing more than 60,000 cubic meters of oil into the sea. The spill caused massive ecological damage, contaminating thousands of kilometers of coastline and more than a thousand beaches. *The cost*

 $^{80} https://mmla.org.mt/wp-content/uploads/2015/07/Study-of-Maritime-Traffic-Flows-in-the-Mediterranean-Sea.pdf$

⁷⁹ J. Stocker, *Middle East Journal* 66.4 (2012) 579-597.

of the cleanup operation was estimated at 2.8 billion dollars. The accident created a high level of public awareness in Spain and across Europe and led to the strengthening of measures to ensure that countries cooperate to deal with oil spills.



Density of Shipping in the Mediterranean Source: www.marinevesseltraffic.com

In 2002, the European Union established the *European Maritime Safety Agency (EMSA) to improve maritime safety* and reduce pollution, reduce environmental damage and increase the capacity and effectiveness of oil spill cleanup.⁸¹ In April 2007, EMSA started offering a service called Clean Sea Net (CSN), using data from satellites to identify possible oil slicks, under a cooperation agreement between the European Space Agency (ESA) and EMSA on the Use of Space-Based Systems and Data to Support Maritime Activities. Since 2015, this has included the use of Sentinel-1 imagery to produce the CSN service. ⁸²EMSA's contracted experts analyze the images taken to identify potential oil slicks and possible contaminants, transfer this information to EMSA, which sends alerts within minutes to be authorized users designated by national competent authorities. ⁸³ The successful implementation of such projects has contributed significantly to the conservation of a valuable and sensitive ecosystem such as the Mediterranean Sea. Today, the risk of a large-scale oil spill incident is greater than ever due to the deployment of several offshore installations in the Mediterranean. According to a study by the Mediterranean Oil Industry Group (MOIG), there are around 100 processing oil facilities

82 https://pure.iiasa.ac.at/id/eprint/18594/1/Clean-Seas-in-the-Mediterranean-final.pdf

⁸¹ EU funded projects identified in this report can be broadly classified into three general categories: 1. Oil spill risk assessment, modelling and monitoring. 2. Oil spill response capacity building and training. 3. Oil spill response technological development. Directive2005/35/EC of the European Parliament and of the Council of 7September 2005on ship-source pollution and on the introduction of penalties for infringements. Article6 of Directive 2005/35/ECof7 September2005 on ship-source pollution and on the introduction of penalties for infringements for infringements for infringements for infringements of a Member State has been engaged or disengaging a discharge of polluting substances into any of the areas referred to in Article3 (1) that Member States shall insure that an appropriate inspection ... is undertaken". Areas listed in article 3 of the Directive include the high seas.

⁸³ https://www.emsa.europa.eu/

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in the Mediterranean. Of these, 40% are refineries, 24% ports, 26% oil terminals and 10% offshore platforms. Accurate figures on the existing oil rigs are not easy to obtain and reported figures vary widely. ⁸⁴More recent analyses of the Clarksons Database Data for the Mediterranean put the number of fixed offshore structures related to the oil and gas industry in the Mediterranean at 367, with an additional nine FPSOs located in the region. These offshore installations pose a major risk to the marine and coastal environment, and the consequences of a large-scale accident could be devastating not only at the local but also at the regional level, affecting the economies of many countries at the Mediterranean Basin level.



In Mediterranean countries, one in three people live in the Mediterranean coastal region. The share of the coastal population ranges from 5% in Slovenia to 100% in island countries (Cyprus, Malta) and Monaco. Source: <u>https://www.obs.planbleu.org/en/maps/sea-coast-maps-illustrating-the-relationship-between-pressures-from-human-</u>

activities-and-the-environmental-states/

UNCLOS also encourages cooperation in closed and semi-closed seas, which are much more vulnerable to problems threatening the marine environment. ⁸⁵Article 123 of UNCLOS on closed and semi-closed seas stipulates that the littoral states of these seas are under an obligation to cooperate in terms of both the utilization of living resources and the protection of the marine environment. Cooperation in the protection and preservation of the international marine environment is not only an act of good faith on the part of States, but also constitutes an obligation under international environmental law as expressed in a growing number of international instruments. Article 123 provides for a special provision for States bordering

⁸⁴ The properties of crude oil or mixtures of hydrocarbon compounds, like their sizes, composition, and volatility, depend on the conditions of the geological formation area. Crude oil can be divided into four primary classes, each containing various chemicals, including saturated, unsaturated, aromatic, and polar compounds. The saturated components in crude oil have the most hydrogen atoms surrounding each carbon. Unsaturated compounds have fewer hydrogen atoms than the maximum possible around carbon atoms.

⁸⁵ G. Zodiatis, *Projects on Oil Spill Response in the Mediterranean Sea*, in *The Handbook of Environmental Chemistry* (2017) https://www.researchgate.net/publication/318177823

closed or semi-closed areas. Such areas are particularly vulnerable to pollution and other environmental stressors, often due to limited water exchangeability and the resulting barrier to oxygen exchange, with the possible consequence of increased eutrophication. Therefore, States bordering closed or semi-closed areas, in the exercise of their rights and duties under UNCLOS, should coordinate in the management of the living resources of the sea, in the exercise of their rights and duties relating to the protection and conservation of the environment, and in the conduct of scientific research and programs. Overall, it can be concluded that UNCLOS provides a comprehensive and systemic regulation of the protection and conservation of the marine environment, of which the obligation to cooperate is a key component. Therefore, the effective protection and conservation of the marine environment is both global and regional in nature and can only be achieved through effective inter-State cooperation. For this reason, multilateral environmental agreements often delegate to States the task of designing specific rules and measures that can address regionally changing conditions. Taking into account the above-mentioned considerations, the regional cooperation among the littoral States for the protection of the marine habitat in the Mediterranean region should be viewed positively, given its role as a vital maritime transportation corridor for the Middle East and Caspian oil and gas resources to reach European markets via the Turkish Straits and the Black Sea.

7.- Conclusion

The Deepwater Horizon oil spill is the largest accidental oil leak in global history. In contrast to the Exxon Valdez case, which was adjudicated under general maritime law and specialized legislation for nearly two decades, the Deepwater Horizon catastrophe is regulated by the Oil Pollution Act, enacted subsequent to the *Exxon Valdez spill*. *The 2010 BP Oil Spill constituted one of the most significant environmental disasters in history. It* has resulted in a substantial body of legal literature and, as will be demonstrated, much litigation. The post-spill developments offer valuable insights for structuring risk regulation to minimize the likelihood of repeat leaks. The case elucidates the issue of how to pay victims of pollution effectively and equitably. The lessons from the BP Spill are primarily pertinent to the United States, however they possess broader ramifications. With the global rise in oil transportation, numerous communities face the threat of oil leak catastrophes and must proactively anticipate and prepare for such events. ⁸⁶

State responsibility can only arise from illegal acts. Today, there are many activities permitted by international law that can cause catastrophic damage to the environment. The concept of state responsibility has become inadequate and state responsibility has developed in response to this gap. To prevent significant transboundary harm, states must take all appropriate measures to minimize the risk of harm. Furthermore, states must cooperate in the prevention of harm. It should be noted that international cooperation plays an important role in protecting the environment, especially before the occurrence of harm. The Obligation to Cooperate is similar to Article 19 of the Rio Principles of 1992: - States shall provide early and timely notice and relevant information to potentially affected States of activities that may have a significant adverse transboundary environmental impact and shall consult with those States at an early stage and in good faith. In accordance with Principle 22 of the 1972 Stockholm Declaration of the United Nations Conference on the Human Environment, "States shall cooperate to further develop international law on liability and compensation for victims of pollution and other

⁸⁶ S.E. Chang, J. Stone, K. Demes, M. Piscitelli, *Consequences of Oil Spills: A Review and Framework to Inform Planning*, in *Ecology and Society* 19.2 (2014) 26.

environmental damage caused by activities. In this respect, new regulatory legal arrangements should be quickly and adequately put in place by the international community in relation to compensation for environmental damage caused by maritime transport and all damage caused by marine pollution. Although international cooperation is believed to play a key role in preventing environmental damage, practice and numerous cases have shown the opposite. The recent nuclear accident in Japan has highlighted the flaws in existing legal instruments and the need for improvements.



Main oil spills in the Mediterranean 1977-201, Source: REMPEC 2018

In view of the increasing danger of marine pollution, as outlined in this short article, both precautionary economic compensation incentives and cooperative activities of shipping owners and the private sector cannot be the only way to address the issues raised by concerns about oil pollution and marine environmental protection, which concern the fundamental interests of an entire society, whether national or international.

- *Marine environment protection policies* should make use of all available instruments, including those based on the adoption, implementation in concrete cases and enforcement of the legal provisions of existing legal conventions.
- In reassessing the law applicable to marine oil pollution, the relevant concerns of policy makers and any attempt to define the limits of legal liability should be considered. With the increase in offshore oil and gas activities, it is important to determine what the impacts of these activities will be on the marine environment.
- To commence the collaborative efforts of academic and operational personnel, including maritime, oil sector, and environmental experts, insurers, and legal professionals from Mediterranean countries, all under the unified framework of EU, NATO, and UN organizations. To facilitate the information sharing of joint emergency response joint teams by supporting new legal, political and technological cooperation methods in oil

spill response in platforms consisting of coastal countries and ship owners between ports and waterways between Mediterranean countries, supported by satellite combat systems, Artificial Intelligence systems.

- To develop modern, efficient, cost-effective, environmentally friendly solutions for the cleanup of environmental damage caused by oil spills, emergency response, crisis management and environmental protection solutions; to develop trainings that will raise public awareness.
- Legislators, maritime law experts and environmental legislation norms and systems should pay more attention to oil-source marine pollution.
- The maritime and energy sectors should support models that contribute more positively to environmental compliance assessment. Without clean seas, energy transportation will be extremely difficult and perhaps impossible.
- Universities, research institutes, UN, EU, NGOs, media outlets, the scientific community should be supported by new standards for satellite monitoring, reporting and forecasting in the development of R&D practices, while providing services and advice to legislators and other stakeholders.
- The consequences of oil spills on the environment, ecosystems, and coastal populations can be extensive. The marine ecology of the semi-enclosed Mediterranean Sea is scientifically acknowledged as distinctive, with a finite capacity for absorbing oil contaminants in these delicate maritime regions. Consequently, Mediterranean regions require enhanced governmental oversight and refined rapid reaction strategies. National legislation and regional collaboration among Mediterranean States must be prepared for operational implementation, requiring more examination to ascertain whether they encompass the essential components of "oil spill response."
- The environmental consequences of an oil spill are challenging to anticipate. The impact of an oil spill is more contingent upon the geographical location of the incident, the maritime response capabilities, the resilience of the marine environment, the proficiency of emergency response teams, and the timing of the response, rather than solely on the volume of oil released.
- Moreover, existing Mediterranean normative national measures aimed at preventing, limiting or responding to oil pollution need to be cross-examined against the backdrop of participatory international law shaping emergency response and response. As a final sentence, underlining the fact that preventive interventions are more pragmatic than solutions after potentially regrettable accidents, although the Mediterranean region has not experienced any major marine oil spill incidents, accidents are considered as inevitable events and the risk of their occurrence soon cannot be ruled out.

Abstract.- In the second quarter of the XXI st century, accidental spills from offshore production facilities and ships are a major consequence of the world's dependence on oil as the primary source of energy needed to drive economic development on a global scale. *The Exxon Valdez* oil *tanker, one of the pioneers of large tankers* in international maritime oil transportation, struck a reef in 1989, spilling millions of gallons of crude oil onto the shores of

Alaska's Prince William Sound, causing environmental pollution and habitat damage. ⁸⁷ The second environmental disaster was the explosion and sinking of the Deepwater Horizon offshore drilling rig on April 20, 2010, causing a massive oil spill in the Gulf of Mexico.⁸⁸ The Exxon Valdez oil spill in Alaska highlighted the need to develop international legal instruments governing responsibility and liability for accidental oil pollution damage. ⁸⁹ Following *the 1989* Exxon Valdez oil spill off the coast of Alaska, Congress enacted the Oil Pollution Act of 1990 (OPA), providing that any party responsible for a vessel or facility from which *oil* is discharged or which poses a substantial threat of discharging oil into navigable waters, adjacent coastlines, or the exclusive economic zone is liable for cleanup costs and damages resulting from the incident (Oil Pollution Act of 1990, 33 USC §2702(a)). The OPA also authorized private actions for damage to real or personal property; loss of taxes, royalties, rents or fees and other federal or state government revenues; damage to natural resources; and loss of profits or loss of earning capacity due to the cost of public services. ⁹⁰ On April 20, 2010, following the explosion of the Deepwater Horizon offshore drilling rig in the Gulf of Mexico, federal, state and local government agencies and responsible parties faced an unprecedented challenge. The oil spill continued for 87 days, resulting in the largest oil spill in history and the largest environmental disaster in US territorial waters. In fundamental respects, the existing international law of the sea discussed here predates the discovery of vast deepwater and ultra-deepwater oil and gas resources and the development of technology to exploit them. ⁹¹ In the wake of the Deepwater Horizon oil spill, the parties found responsible have faced both criminal and civil investigations and penalties. The Deepwater Horizon oil spill affected not only the ecology and citizens of the Gulf Coast, but also the courts in the Gulf. The United States government filed a complaint with the District Court in December 2010 and initiated criminal investigations against all companies involved. The investigations focused mainly on whether the relationship between company officials and federal regulators caused the Deepwater Horizon accident and whether environmental laws were violated. The cases also included claims under the Clean Water Act

⁸⁷ The inadequacies of existing law and the risks associated with the shipment of oil by sea entered the collective consciousness in March 1967, when the Torrey Canyon, an American-built, Liberian-flagged tanker, struck Pollard's Rock, a reef off the coast of Cornwall, England, and spilled more than 100,000 tons of crude oil into the English Channel. The sludge fouled British and French beaches, killing thousands of sea birds, and the

misadventures that followed might have been amusing in any other context. To burn off oil seeping from the wreckage, the Royal Air Force dropped 42 bombs, a quarter of which missed the target, while a contingent of French soldiers deployed to the beaches of Perros-Guirec armed with rakes and shovels.

⁸⁸In 2011, one year after the spill, BP agreed to provide up to \$1 billion toward early restoration projects in the Gulf of Mexico. On October 5, 2015, we proposed a comprehensive, integrated, ecosystem restoration plan to address impacts from the spill to the Gulf of Mexico. "The Deepwater Horizon oil spill, ten years later", 20 April 2020,https://disasterscharter.org/web/guest/-/the-deepwater-horizon-oil-spill-ten-years-later, https://darrp.noaa.gov/oil-spills/deepwater-horizon

⁸⁹ The ledger of remittances Exxon made after the grounding included: \$2.1 billion in cleanup costs; \$125 million in criminal fines and restitution for violations of the CWA and other laws; \$900 million in civil penalties for restoration of natural resources - land, water, wildlife - under a consent decree with the United States and Alaska; \$303 million in voluntary settlements with fishermen, property owners, and other claimants; \$507.5 million in compensatory damages, which represents an aggregation of 21 distinct payouts, settlements, and verdicts;36 \$507.5 million in punitive damages, in accord with the Supreme Court's 1:1 maritime common law rule; \$470 million in interest that compounded annually at 5.9 percent after 1996; and \$70 million in court costs.

⁹⁰ M. Atkins, Analysis: The Oil Pollution Act of 1990, in Oil and Gas, Natural Resources & Energy Journal, 7.4 (2022) 836-841; C. Kraus and J. Schwartz, BP Will Plead Guilty and Pay Over \$4Billion, The New York Times, 16 November 2012, A1.

⁹¹ J.E. Hickey Jr., *Law-Making and the Law of the Sea: The BP Deepwater Horizon Oil Spill in the Gulf of Mexico*, Maurice A. Deane School of Law at Hofstra University, 274-276.

and the Oil Pollution Act. Investigators also discovered that the procedures used during the attempt to cap the Macondo well may not have undergone any formal risk assessment before being put into practice. The parent company and developer of the drilling site agreed to plead guilty to criminal charges and pay up to \$1 billion for restoration projects in the Gulf of Mexico. They also issued a notice filed with the court agreeing to pay all legitimate claims of the plaintiffs, regardless of the limits of liability under the Oil Pollution Act. But this was only the beginning.⁹² As indicated by both *environmental catastrophic* accidents *examined in* this short article, the jurisdiction of coastal states exposed to potentially catastrophic damages due to both supertanker accidents in international waters and production accidents, such as BP-induced oil spills of oil rigs and production facilities on the high seas, and state liability for damages to the marine environment, especially marine ecosystems, are of utmost importance. In terms of these approaches, this short article attempts to determine the nature and legal scope of "state responsibility" under customary international law norms, with reference to the Exon Waldez and Deep-Water Horizon environmental disasters involving international disputes. Using the Exxon Valdez case and the Deepwater Horizon oil platform explosion, which caused significant oil pollution in the marine environment, as case studies, this academic article analyzes the maritime accidents caused by oil traffic, especially in the Mediterranean Sea, which is a semienclosed sea, within the framework of the international law of the sea, and examines the ways in which legal reforms introduced through subsequent legal international conventions can solve the problem of preventing marine oil pollution. In this framework, the Mediterranean region, which is a semi-enclosed sea, plays an important role in the transportation of Middle Eastern and Russian-Caspian oil and gas resources to the European and US markets:

- What are the accidents and pollution problems caused by oil and gas transportation by tankers in the Mediterranean?
- Considering the capacities of Mediterranean ports in the next 25 years, what should be the legal responsibilities of states and preventive legal measures to be taken to prevent possible oil accidents and environmental disasters?

Keywords.- Marine accidents, oil pollution, Exxon Valdez, Deepwater Horizon, Mediterranean Sea, IMO, UNCLOS, State responsibility, US Oil Pollution Act.

⁹² What Happened at the Deepwater Horizon?, https://morrisdewett.com/what-happened-at-the-deepwater-horizon/