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Shipowner's Liability for Marine Environmental Pollution: A Comparative Analysis within the Framework of Turkish Law and International Conventions

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Abstract: Global maritime activities, vital to 80% of world trade, pose significant environmental risks through oil spills, hazardous substance discharges, and vessel accidents. This study analyzes shipowners' liability for marine environmental pollution under Turkish law and international conventions, focusing on the 1969/1992 International Convention on Civil Liability for Oil Pollution Damage (CLC) and the 1971/1992 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FC). In Türkiye, the Environmental Law, Law No. 5312, and the Turkish Commercial Code (TTK) establish a strict liability framework, holding shipowners accountable without proving fault, though subject to financial caps and exemptions like natural disasters or third-party intent. The CLC assigns oil pollution liability to shipowners without requiring proof of negligence, mandating insurance coverage, while the FC provides supplementary compensation for damages exceeding CLC limits, funded by oil importers. Challenges include insufficient liability limits for major incidents, difficulties in quantifying ecological damage like biodiversity loss, and complications from substandard vessels and open registry systems that obscure ownership. Polar regions face unique risks due to slow degradation and cleanup difficulties. Recommendations include raising liability caps, improving shipowner transparency, expanding CLC coverage to hazardous substances and bunker fuel, and involving cargo owners and classification societies in liability frameworks. Through a comparative analysis, this study highlights gaps in Turkish and international regulations, advocating for stronger measures to enhance environmental sustainability and ensure effective compensation for marine pollution, especially in vulnerable ecosystems.

Keywords: shipowner liability; marine pollution; strict liability; international conventions; environmental sustainability

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1. Introduction

Maritime transport accounts for approximately 80% of global trade, making it a cornerstone of the world economy (UNCTAD 2023). However, the activities of vessels on water can cause significant environmental pollution due to factors such as oil spills, hazardous substance discharges, and accidents. In this context, the shipowner, defined as the person who uses their vessel on water for profit, Responsibility under the law for environmental harm caused by these activities. The devastating effects of environmental pollution on ecological balance, biodiversity, and human health have necessitated detailed regulation of shipowners' liability in both national and international legislation. Major environmental disasters, such as the 1967 Torrey Canyon incident, have highlighted the need for comprehensive regulations by the international community. In response, instruments such as the 1969 and 1992 "International Convention on Civil Liability for Oil Pollution Damage (CLC)" and the 1971 and 1992 "International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FC)" were developed. In Türkiye, regulations such as the Environmental Law, Law No. 5312 on "Emergency Response and Compensation for Damages in Cases of Pollution of the Marine Environment by Oil and Other Harmful Substances", and the Turkish Commercial Code (TTK) provide a framework for shipowners' liability for environmental damage.

This study aims to examine the extent and rules governing shipowners' liability for environmental damage, the limits of this liability, and the alignment between Turkish law and international regulations through a comparative approach. The research question adopted is: "To what extent is the shipowner's liability for marine environmental pollution effective in terms of environmental sustainability under Turkish law and international conventions?" In this context, existing literature will be reviewed to assess the shortcomings in the application of the strict liability regime for shipowners

under Turkish law and the effectiveness of international regulations in this area. Employing a normative legal analysis and comparative methodology, the study seeks to address both the theoretical and practical dimensions of shipowners' liability, offering recommendations for environmental sustainability and legal protection.

2. Shipowner and Liability Concepts

The responsibilities of shipowners arising from the environmental impacts of their vessels have been examined within the framework of global, regional, and national regulations. The term 'shipowner' encompasses both the owner and the operator of a ship. According to Article 1061 of the Turkish Commercial Code (TTK), "A shipowner is the person who uses their vessel on water for the purpose of generating profit." Based on this definition, the conditions for being a shipowner include the existence of a commercial vessel, ownership of the vessel, and its operation on behalf of the shipowner for profit (Kender, Çetingil and Yazıcıoğlu 1999). Shipowners are key economic actors in the maritime sector and typically operate with a profit-oriented approach. However, it is noted that their preference for operating substandard vessels to reduce costs may increase the risk of pollution (Tan 35). This is particularly associated with "flags of convenience" or open registry systems, which offer shipowners low taxes and flexible regulations, allowing vessels to operate with minimal oversight (Tan 47-62). This situation contributes to the issue of "sub-standard shipping" and increases the tendency of shipowners to evade liability.

From a legal perspective, a shipowner is the person who holds ownership of the vessel or operates it. However, in the modern maritime industry, identifying shipowners is often challenging due to the use of "one-ship companies" or complex corporate structures to obscure ownership (Tan 34-35 289). An OECD report highlights the complex structures of vessel ownership and control complicate liability regimes (OECD 2003). Similarly, another report emphasizes that substandard vessels increase pollution risks, underscoring the need for stricter regulations (Her Majesty's Stationery Office 1994).

Liability means being legally and financially responsible for pollution damage caused by a vessel. Legal systems impose an obligation on those committing unlawful acts to compensate for the resulting damage (Eren 83). Such obligations imposed by the legal system are referred to as liability. Liability encompasses the prevention and compensation of environmental harm. Legal liability is divided into "fault-based liability" and "strict liability."

- *Fault-based liability:*
  Fault-based liability holds an individual responsible for compensating harm caused to others as a result of their wrongful conduct. (Eren 540).
- *Strict liability:*
  Strict liability fault is not a prerequisite; the mere causation of harm by the responsible party is sufficient for liability to arise (Eren 515). The concept of liability is used in two forms: "liability for" and "liability arising from."
- *Liability for:*
  Liability for refers to the seizure of a debtor's assets by state authority when they fail to fulfill their obligations (Eren 83).
- *Liability arising from:*
  Liability arising from refers to the responsibility resulting from a person's actions that violate a legal rule or contractual obligation (Eren 510).

Liability is broadly categorized into contractual liability and non-contractual liability. Contractual liability refers to the responsibility of a person who fails to fulfill their contractual obligations to compensate for the resulting harm (Tandoğan 5). This is defined in Article 112 of the Turkish Code of Obligations (TBK) as follows: *"If a debt is not fulfilled or is improperly fulfilled, the debtor is obliged to compensate the creditor's resulting harm unless they can prove that no fault can be attributed to them."* Non-contractual liability, on the other hand, arises when there is no prior legal relationship between the party causing the harm and the harmed party, or when the harm occurs without breaching an existing relationship (Eren 532; Tandoğan 6). This is defined in Article 49 of the TBK as: *"A person who causes harm to another through a faulty and unlawful act is obliged to compensate for that harm."*

Shipowners are key actors in regulations concerning marine pollution caused by vessels (Tan 34-38). The liability regime is addressed in detail, particularly in the context of oil pollution, hazardous and noxious substances (HNS), and bunker fuel pollution (Tan 286-344). The CLC 69 and its 1992 Protocol impose strict liability on shipowners (Tan 287, 297-298), meaning they are held liable for pollution damage without the need to prove fault. However, this liability is subject to certain exceptions (e.g., natural disasters or intentional acts by third parties) and financial limits (Tan 296-297). Shipowners' liability is typically supported by insurance policies. Under CLC 69 and the 1992 Protocol, shipowners are required to have mandatory insurance coverage. Protection and Indemnity Clubs (P&I Clubs) play a significant role in this context, enabling shipowners to participate in insurance pools to cover pollution damage (Tan 41-43). However, it is noted that the insurance coverage of substandard vessels may be inadequate, reducing the effectiveness of the liability regime (OECD 2001).

Current liability regimes are deemed insufficient, particularly due to substandard vessels and open registry states (Tan 333-334). The lack of a *"genuine link"* between shipowners and the flag state weakens liability regimes (Churchill 2000). Major pollution incidents, such as the Torrey Canyon (1967) and Exxon Valdez (1989), have highlighted the inadequacy of shipowners' financial liability limits and the need for more comprehensive international regulations. It is argued that liability should not be limited to shipowners but should also include other actors such as cargo owners, ship operators, and classification societies (Tan 358-363). For instance, the 1996 HNS Convention envisages shared liability for cargo owners. It is also suggested that classification societies bear indirect liability in pollution incidents and should be subject to stricter oversight (Payer 65-66). In this context, imposing greater liability on *"non-owner interests"* (actors other than shipowners) has been proposed (Tan 358-363).

3. Environmental Damage

Marine pollution represents a major challenge to the preservation of environmental sustainability and ecological balance, originating from various sources. According to Article 2 of the Turkish Environmental Law, environmental pollution is defined as *"any adverse effect that occurs in the environment and may harm human health, environmental values, and ecological balance."* Similarly, UNCLOS Article 1(4) defines marine environmental pollution as *"the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to maritime activities, including fishing and other legitimate uses of the sea, impairment of the quality of seawater, and reduction of amenities."* The CLC Article 1(6) defines pollution damage as *"loss or damage caused outside the ship carrying hydrocarbons by contamination resulting from the escape or discharge of hydrocarbons from the ship, wherever such escape or discharge may occur."* The most comprehensive definition is provided in Article 3 of the *"Law on Emergency Response and Compensation for Damages in Cases of Pollution of the Marine Environment by Oil and Other Harmful Substances"*, which describes pollution as *"the introduction of oil and other harmful substances into the marine environment as a result of an incident, causing harmful effects such as harm to living resources and marine life, hazards to human health, hindrance to maritime activities, including fishing and other legitimate uses of the sea, impairment of the quality of seawater, and disruption of ecological balance."* The Regulation on the Investigation of Maritime Accidents defines a maritime accident as *"an event resulting in one or more outcomes, including environmental damage caused by a ship or ships."*

For liability to arise from environmental pollution, damage must occur. Damage is defined as the difference between the state of legally protected material and immaterial assets before and after an infringement (Tandoğan 63). Environmental damage refers to personal or property damage suffered by third parties due to environmental pollution. The operation of ships and incidents such as collisions or groundings are key causes of marine environmental contamination (Demir 241). Environmental damage caused by marine pollution from ships can be examined under categories such as oil pollution, hazardous and noxious substances (HNS), bunker fuel spills, air pollution, and biological pollution from ballast water (Tan 119-155):

- *Oil Pollution:*
  Oil spills cause significant harm to marine ecosystems, coastlines, and economic activities such as fisheries (Tan 288-290). The Torrey Canyon (1967) and Exxon Valdez (1989) incidents are historical examples illustrating the environmental and economic devastation caused by oil pollution. The compensation processes for damage to marine life, coastal ecosystems, and local communities caused by oil spills are detailed (IOPC 2002).
- *Hazardous and Noxious Substances (HNS):*
  Spills of chemical substances and other hazardous cargoes can create long-term toxic effects in the marine environment (Tan 336-339). The 1996 HNS Convention seeks to regulate such damage, but its effectiveness is limited due to implementation challenges. The detection of environmental damage from HNS is noted to be difficult due to their complex chemical structures, requiring specialized regulations (Payer 436).
- *Bunker Fuel Pollution:*
  Bunker fuel spills, particularly those involving heavy fuel oil, can cause significant environmental harm. The 2001 Bunker Convention was developed to address such damage, but the limited financial liability of shipowners has proven insufficient to resolve the issue (Tan 340-344).
- *Air Pollution:*
  Emissions from ships (sulfur oxides, nitrogen oxides, and carbon dioxide) have a significant impact on atmospheric pollution and climate change. MARPOL Annex VI aims to regulate such emissions, but implementation shortcomings persist (Tan 119-124). The contribution of ship emissions to acid rain and ecosystem degradation is detailed (OECD 1996).
- *Ballast Water and Invasive Species:*
  Ballast water causes biological pollution by transferring invasive species to marine ecosystems. The 2004 Ballast Water Management Convention was developed to address this issue, but its ratification and implementation processes have progressed slowly (Tan 151-155). Invasive species are noted to threaten biodiversity in local ecosystems.

Environmental damage in polar marine environments poses a particularly serious threat due to the fragile nature of their ecosystems. Ship-related pollution, including oil spills, ship accidents, fuel discharges, or operational waste, can create long-term impacts on polar ecosystems (Rothwell 59-63). Hazardous and noxious substances leaking from ships cause damage to marine life due to their chemical cargoes (Brubaker 237). Waste and debris discharged from ships, particularly plastic waste, accumulate in regions like Antarctica, disrupting ecosystems (Joyner 116-119). Additionally, in the Arctic, radioactive waste dumping by ships or submarines of Russia's Northern Fleet poses a significant environmental risk (Stokke 200-220). Boyle (1993, International Law and the Environment) emphasizes that low temperatures and slow biological degradation processes in polar regions make such damage more persistent (Birnie and Boyle 321). Similarly, ship-related pollution is particularly devastating in ice-covered polar waters due to cleanup difficulties.

In addition to ship-related pollution, land-based pollution is a significant issue. Industrial processes such as mining and oil and gas extraction in polar regions lead to waste transfer from land to sea, adversely affecting marine ecosystems (Vidas 83-86). Waste from industrial facilities along Russia's Arctic coast, in particular, causes pollution in the Barents and Kara Seas (Stokke 200-207). Finally, atmospheric pollution leads to the accumulation of heavy metals and persistent organic pollutants (POPs) in marine ecosystems through long-range transport to polar regions.

4. Shipowner's Liability for Environmental Damage

The liability of shipowners for environmental damage is comprehensively regulated in both national and international legislation. Article 56 of the 1982 Turkish Constitution states, *"It is the duty of the State and citizens to improve the environment, protect environmental health, and prevent environmental pollution,"* thereby imposing a responsibility on both the state and citizens to

prevent environmental harm. The purpose of the Turkish Environmental Law No. 2872, as stated in Article 1, is to ensure the protection of the environment. The law defines environmental pollution as *"any adverse effect that occurs in the environment and may harm human health, environmental values, and ecological balance."* Article 28 of the Environmental Law provides a general rule regarding environmental damage: *"Those who pollute or cause damage to the environment are liable for the harm resulting from such pollution and degradation without the requirement of fault. The polluter's liability for compensation under general provisions remains reserved."* The continuation of Article 28 stipulates that this liability is subject to a five-year statute of limitations. However, the Environmental Law does not explicitly regulate who bears the burden of compensating for environmental damage caused by ships. While liability can be imposed on the shipowner, it is noted that, due to the objective liability framework in the Environmental Law, ship crew members cannot be held liable under this provision (Demir 249). Sanctions under the Environmental Law have a wide ambit due to the uniform treatment of all ship types-whether commercial, military, or state-owned for non-commercial use (Abdullahzade 703). Legal protection for individuals seeking recourse in cases of marine pollution can be ensured through the proper interpretation of the Environmental Law (Kahraman 75).

Like other legally competent persons, a shipowner may incur obligations and liability due to their actions or omissions (Kender, Çetingil and Yazıcıoğlu 101). The shipowner's liability for environmental damage falls under non-contractual liability and is characterized as strict liability, specifically as aggravated objective liability (Meriç 49). Until 2005, the general provisions of the Environmental Law governed the shipowner's liability for environmental pollution in national legislation. On 03/03/2005, Law No. 5312 on "Emergency Response and Compensation for Damages in Cases of Pollution of the Marine Environment by Oil and Other Harmful Substances" introduced specific regulations into national legislation. This law has two main objectives: first, to establish procedures and principles for eliminating pollution risks and responding to emergencies; second, to provide rules for determining and compensating for damage resulting from pollution (Meriç 81). Article 6 of Law No. 5312 explicitly lists the types of damage subject to compensation, including "…cleanup costs, costs related to preventive measures, damage to living resources and marine life, restoration of the degraded environment, costs for the transport and disposal of collected waste, damage to natural and living resources used for livelihood, damage to private property, damage resulting from personal injury or death, loss of income, damage to income and earning capacities, and other public damages…" Article 7 of the law stipulates that liability is not unlimited and that the limits of liability are subject to the provisions of international conventions to which Türkiye is a party. Additionally, the Regulation on the Implementation of Law No. 5312 and the Regulation on the Investigation of Maritime Accidents establish the procedural framework for application.

At the international level, significant regulations address the shipowner's liability for environmental damage. The 1967 Torrey Canyon maritime accident marked a turning point for international regulations (Demir 257). Following the accident, a commission was convened, leading to the adoption of the CLC 69 and the FC 71. The CLC and FC conventions underwent comprehensive revisions in 1992 and have since been adopted by numerous states, including Türkiye. The compensation provided under the 1992 revisions is more than double that of the 1969 and 1971 conventions (Meriç 184). Prior to the 1969 and 1971 conventions, the Tovalop and Cristal agreements, established to prevent, clean up, or control oil pollution in the seas and mitigate the shipowner's liability, found significant application (Kahraman 38). Türkiye recognized the CLC and FC conventions in 2001, with their implementation beginning on 17/08/2002. Article 1336 of the Turkish Commercial Code (TTK) explicitly states that the CLC and FC conventions apply, and a special provision clarifies that *"in cases where these conventions are applied directly or under this Code, other provisions of the legislation regarding matters regulated by these conventions shall not apply."*

Other significant international conventions addressing the shipowner's liability for environmental damage include the 1954 International Convention for the Prevention of Pollution of the Sea by Oil and Its Derivatives, the 1962, 1969, AND 1971 Brussels Conventions, the 1996 *"International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea"*, and the 2001 *"International Convention on Civil Liability for Bunker Oil Pollution Damage"*

4.1 International Convention on Civil Liability for Oil Pollution Damage (CLC)

The CLC 69 is a fundamental international regulation addressing the compensation of environmental and material damage caused by oil pollution. The primary objective of the CLC is to ensure rapid and effective compensation for victims of oil pollution, such as coastal communities, fishermen, and states (Brubaker 236-238). The convention regulates the liability of shipowners for damage resulting from oil spills caused by ships and provides a framework for addressing such damage (Tan 287). It was developed in response to the devastating environmental and economic impacts of major oil spills, such as the 1967 Torrey Canyon disaster (Tan 288-290).

Under the CLC regime, shipowners are subject to strict liability, which requires them to compensate for oil pollution damage irrespective of any proven fault (Tan 296). Nevertheless, this liability is not unlimited; it is subject to financial limits determined by the ship's tonnage and must be secured through insurance or equivalent financial assurances (Rothwell 59). The conditions under which a shipowner may be released from liability are specified in Article 3(2) of the CLC:

- *"If the damage resulted from an act of war, hostilities, civil war, insurrection, or a natural phenomenon of an exceptional, inevitable, and irresistible character,*
- *If the damage resulted wholly from an act or omission done with intent to cause damage by a third party,*
- *If the damage resulted wholly from the negligence or other wrongful act of a government or other authority responsible for the maintenance of lights or other navigational aids in the exercise of that function."*

Proof of any of these circumstances is sufficient for the shipowner to be exempt from liability (Demir 260). Additionally, Article 3(3) provides that a shipowner may be wholly or partially relieved of liability if they prove that *"the pollution damage resulted wholly or partly from an act or omission done with intent to cause damage by the person suffering the damage or from their negligence."* As the shipowner's liability is characterized as aggravated objective liability, they cannot escape liability by claiming a lack of fault or having taken necessary measures, except in the specified exceptional circumstances (Demir 260). Article

3 of the CLC designates the shipowner liable for pollution damage as follows: *"The owner of the ship at the time of the incident, or, where the incident consists of a series of occurrences, the owner at the time of the first such occurrence, shall be liable for all pollution damage caused by the ship, except as provided in paragraphs 2 and 3 of this article."* Paragraph 5 of the same article stipulates that, under certain conditions, the shipowner has the right to seek recourse from third parties for compensation paid.

The CLC governs cases of pollution caused by tankers engaged in the carriage of crude oil or fuel oil and is applicable to damage occurring in the territorial waters or exclusive economic zones (EEZ) of contracting states (Brubaker 236-238). The 1992 Protocol expanded this geographical scope to include the EEZ and increased liability limits to address larger-scale damage (Tan 296-297). However, pollution incidents in the high seas remain outside the scope of regulation. In polar regions, the applicability of the CLC is reinforced by Article 234 of the 1982 *"United Nations Convention on the Law of the Sea (LOS Convention)"*, which grants coastal states the right to adopt stricter environmental regulations in ice-covered areas (Brubaker 223-224). However, low temperatures and ice-covered areas in polar waters make oil spill cleanup challenging, complicating compensation processes (Brubaker 231-233). Although the CLC does not explicitly include regulations specific to polar regions, its general framework can be applied to oil pollution incidents in these areas.

Shipowners are obligated by the CLC to maintain financial coverage, such as insurance, for oil pollution liabilities. Ships must carry documents proving such insurance and present them during port state inspections (Tan 287). Protection and Indemnity Clubs (P&I Clubs) play a significant role in this process, providing support to shipowners in meeting their financial liabilities (Payer 65-66). The scope of compensation includes cleanup costs, economic losses (e.g., damage to fisheries or tourism), and reasonable environmental restoration expenses. However, compensating for pure ecological damage (e.g., loss of biodiversity) is challenging due to the complexity of quantifying such damage (Tan 296-297). The application of this principle and the processing of compensation claims are detailed (IOPC 2002).

The CLC is complemented by the 1971 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (Fund Convention), which provides an additional compensation mechanism for damages exceeding the shipowner's liability limits (Brubaker 236-238). The 1992 CLC Protocol, adopted to enhance the convention's effectiveness, increased liability limits and expanded the scope of compensable environmental damage. However, these limits have proven insufficient in cases of large-scale environmental damage, such as the Exxon Valdez incident in 1989 (Her Majesty's Stationery Office 1994). For the 1969 CLC, as revised in 1992, to apply to an incident, the pollution must have resulted from persistent oil, the oil must have escaped or been discharged from a tanker, and the damage must have occurred in a contracting state (Meriç 116). When these conditions are met, the convention's provisions apply to the compensation of damage.

4.2 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FC)

FC 71 provides a complementary mechanism to CLC 69 for compensating damages caused by oil pollution. Developed in response to the inadequacies of the CLC's liability limits exposed by major oil spills such as the 1967 Torrey Canyon incident (Tan 298), the FC aims to ensure adequate compensation for victims of oil pollution, such as coastal communities, fishermen, and states, by providing an additional compensation mechanism for damages exceeding the shipowner's liability limits under the CLC (Brubaker 236). Article 2 of the convention states that its purpose is *"to provide compensation for pollution damage to the extent that the protection afforded by the 1992 Liability Convention is inadequate"* (Demir 266).

The FC covers oil pollution damage that takes place within the territorial waters and exclusive economic zones (EEZ) of states party to the convention. The 1992 Protocol expanded this scope to explicitly include the EEZ and increased compensation limits to protect a greater number of victims (Tan 299). The fund is financed by contributions from entities receiving or importing oil in contracting states, typically oil companies, calculated based on the quantity of oil imported. According to Article 10 of the FC, the fund is financed by entities importing more than 150,000 tons of oil annually (Brubaker 236). The fund is organized as an entity with a general assembly, an executive committee, and a secretariat.

The FC supports the strict liability principle established by the CLC, under which shipowners are liable for oil pollution damage without proof of fault, subject to financial limits (Rothwell 59). The FC intervenes when these limits are insufficient, providing additional compensation to victims. The scope of compensation includes cleanup costs, economic losses (e.g., damage to fisheries or tourism), and environmental restoration expenses. However, like the CLC, the FC faces limitations in fully compensating for pure ecological damage, such as biodiversity loss, due to the complexity of quantifying such damages (IOPC 2002). In cases of large-scale oil spills, where the shipowner's financial capacity or insurance coverage is inadequate, the fund compensates victims for their losses. However, certain exceptions, such as war, natural disasters, or the victim's negligence, may exempt the fund from its compensation obligations (Brubaker 238). According to Article 4(3) of the FC, the fund may be wholly or partially relieved of its obligation to pay compensation if it is proven that the victim contributed to the damage. These exceptions aim to prevent misuse of the fund but may lead to victims' loss of rights in some cases.

The FC plays a significant role in addressing environmental and material damage caused by oil spills in polar regions, but the lack of specific regulations for these regions is a notable gap. Article 234 of the 1982 LOS Convention supports this gap by granting coastal states the right to adopt stricter environmental regulations in ice-covered areas. The low temperatures and ice-covered conditions in polar waters complicate cleanup processes, making compensation procedures more complex.

In conclusion, FC 71 is a critical regulation that strengthens international cooperation in compensating for oil pollution damage. By working in tandem with the CLC, it ensures coverage of damages exceeding shipowners' liabilities, distributing the burden between shipowners and the oil industry. It plays a significant role in protecting sensitive ecosystems, particularly in polar marine environments. However, the unique environmental conditions and implementation challenges in polar regions highlight the need for more specific regulations to enhance the fund's effectiveness.

The FC plays a critical role in compensating for oil pollution damage by complementing the CLC. The FC provides an additional compensation mechanism for damages exceeding the shipowner's liability limits, sharing the burden with the oil industry to create a fair system. However, its scope is limited to oil pollution, it struggles to fully compensate for pure ecological damage (e.g., biodiversity loss) due to quantification challenges, and difficulties posed by open registry states restrict its effectiveness. Documents

from the IOPC Funds, Lord Donaldson's Inquiry, and ICONS reports highlight these shortcomings and propose solutions, including expanding the FC's scope, better assessing ecological damage, ensuring shipowner transparency, and advocating a more active role for the International Maritime Organization (IMO).

To address the shortcomings of the CLC, the following recommendations are proposed:

- *Increasing Liability Limits:*
  Higher financial limits could more effectively address the damage caused by large-scale oil spills.
- *Shipowner Transparency:*
  Greater transparency in shipowners' ownership structures could prevent strategies to evade liability.
- *Expanding Scope:*
  The CLC should be extended to cover other types of pollution, such as hazardous and noxious substances (HNS) or bunker fuel pollution.
- *Involving Stakeholders:*
  Including other actors, such as cargo owners and classification societies, in the liability regime could distribute the burden of responsibility more equitably.

These recommendations could enhance the compensation of oil pollution damage and strengthen environmental sustainability. The central role of shipowners in the liability regime should be supported by more transparent, comprehensive, and effective regulations at both national and international levels

5. Conclusions

The activities of shipowners on water can lead to environmental damage through oil spills, ship accidents, and other operational waste. The increasing profitability and technological diversification of maritime activities have necessitated the development of international conventions to address such damage. The 1969 *"International Convention on Civil Liability for Oil Pollution Damage (CLC)"* and the 1971 *"International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FC)"* regulate the compensation of environmental damage, with the 1992 protocols marking a turning point by enhancing their scope and effectiveness. Türkiye adopted these conventions in 2001, incorporating them into its national legislation through provisions such as Articles 1336 et seq. of the Turkish Commercial Code (TTK), the Environmental Law, and Law No. 5312 on *"Emergency Response and Compensation for Damages in Cases of Pollution of the Marine Environment by Oil and Other Harmful Substances"*. Currently, shipowners bear broad liability for environmental damage resulting from their maritime activities, their responsibility is limited by exceptions such as war, natural disasters, or the victim's negligence, as well as financial caps.

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