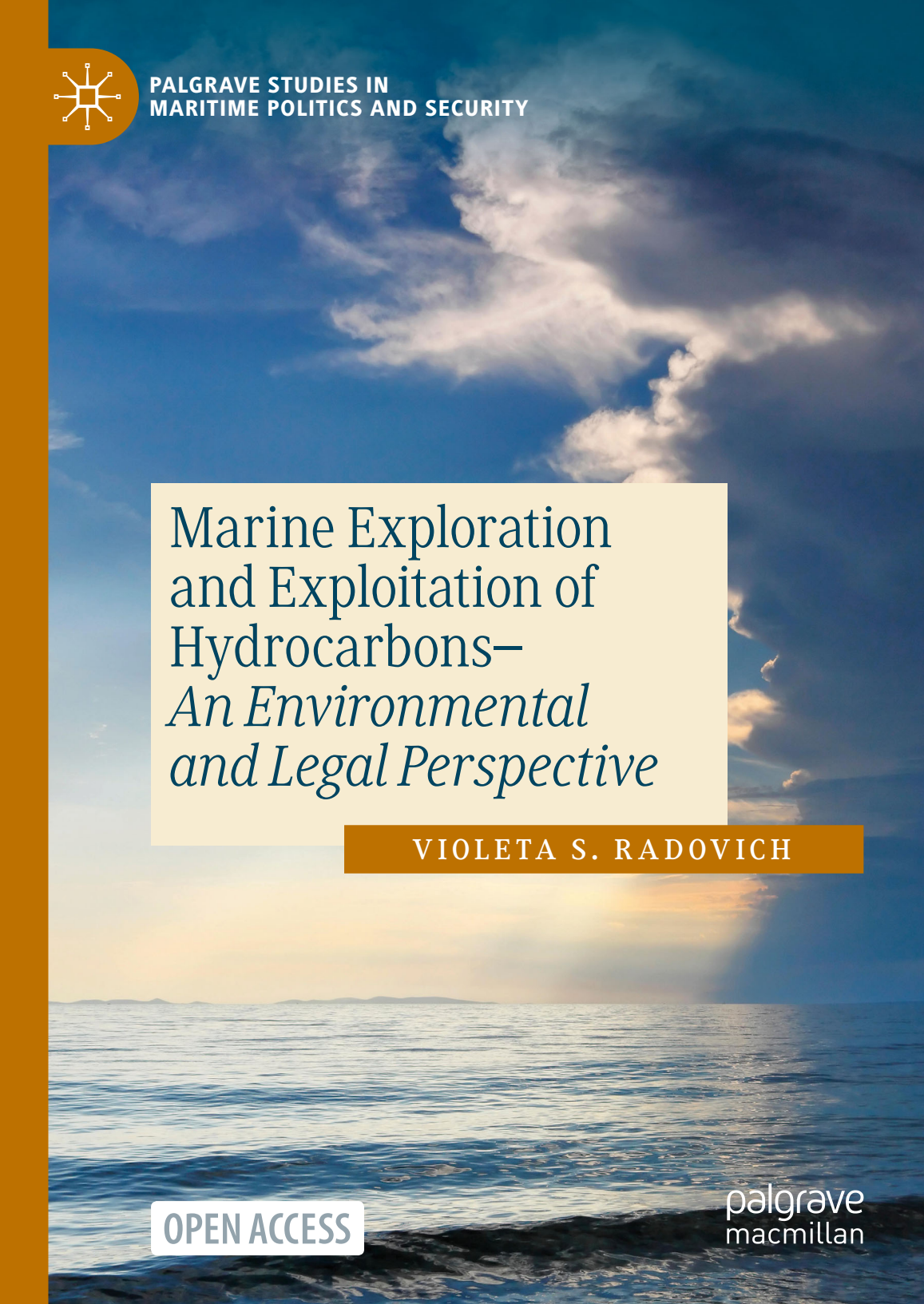
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Marine Exploration and Exploitation of Hydrocarbons–
An Environmental and Legal Perspective
VIOLETA S. RADOVICH
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Violeta S. Radovich

Marine Exploration and Exploitation of Hydrocarbons

An Environmental and Legal Perspective

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ISSN 2730-7972 ISSN 2730-7980 (electronic)
Palgrave Studies in Maritime Politics and Security
ISBN 978-3-031-75176-9 ISBN 978-3-031-75177-6 (eBook)
https://doi.org/10.1007/978-3-031-75177-6

Cover illustration: Nino Marcutti/Alamy Stock Photo

This Palgrave Macmillan imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

To the memory of my mother, Etel Sima.
To my lifelong partner, Andrés Luaces Rudyj, also for his contributions to this work.
To our children, Niceto and Ámbar.

Acknowledgments

This book is published open access thanks to the funds provided by the UiT Aurora Outstanding programme, UiT, The Arctic University of Norway and the Walther Schüking Institute for International Law, CAU University, Kiel, Germany.

Author's Note

This is an adapted and updated version of the doctoral thesis written in Spanish approved in September 2018 at Universidad de Buenos Aires, Faculty of Law, entitled "Implicancias ambientales de la exploración y explotación de hidrocarburos en el mar, con especial referencia al régimen de la República Argentina y del MERCOSUR" ("Environmental implications of the exploration and exploitation of hydrocarbons at sea, with special reference to the regime of Argentine Republic and MERCOSUR").

It is also an adapted and updated version of the book in Spanish entitled "Derecho Ambiental de los Hidrocarburos en el mar" ("Environmental law of hydrocarbons at sea"), published by UNDEF Libros in December 2022.

Contents

Abbreviations

ACHR	American Convention on Human Rights
ANCAP	Uruguayan Administration of Fuels, Alcohol and Portland
ASOS	Sub-regional Cooperation Program of National Specialists for the Upper Southwestern Atlantic
BOEMRE	Bureau of Ocean Energy Management, Regulation and Enforcement
BP	British Petroleum
CARI	Argentine Center for International Relations
CBD	Convention on Biological Diversity
CCCN	Argentine Unified Civil and Commercial Code, by its acronym in Spanish.
COFEMA	Argentine Federal Environmental Council
COP	Conference of the Parties
CMLA	Canadian Maritime Law Association
Commission	National Commission on Hydrocarbon Spill from the BP Deepwater Horizon Platform and Drilling at Sea
CONAE	National Commission for Space Activities, by its acronym in Spanish
CONICET	Argentine Council for Scientific and Technical Research
CN	Argentine Constitution, by its acronym in Spanish
CSJN	Argentine Supreme Court of Justice, by its acronym in Spanish
DOSI	Deep Ocean Stewardship Initiative
DPMA	Environmental Protection Direction
DPSN	Security Police Navigation Direction

EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIS	Environmental Impact Study
ENARSA	Argentina Energy S.A.
ENBPA	National Strategy on Biodiversity and Action Plan 2015–2020
EPA	Environmental Protection Agency
FARN	Argentine Environment and Natural Resources Foundation
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection
IACHR	Inter-American Commission on Human Rights
I/A Court H.R.	Inter-American Court of Human Rights
IANIGLA	Argentine Institute of Snow, Glaciology and Environmental Sciences
IBAMA	Brazilian Institute of the Environment and Renewable Resources
ICJ	International Court of Justice
ICM	Integrated Coastal Management
IOC	Intergovernmental Oceanographic Commission
IUCN	International Union for Conservation of Nature
ISA	International Seabed Authority
ISO	International Organization for Standardization
ITLOS	International Tribunal for the Law of the Sea
ITOPF	International Tanker Owners Pollution Federation Limited
IUU fishing	Illegal, Unreported and Unregulated Fishing.
LGA	Argentine Environmental Law, by its acronym in Spanish
LN	Argentine Navigation Law, by its acronym in Spanish
Montara Commission	Montara Information Commission
MERCOSUR	Southern Common Market
MPAs	Marine Protected Areas
MSP	Marine Spatial Planning
MSR	Marine Scientific Research
MTT	Marine Technology Transfer
MMS	Marine Minerals Management Service
NEPA	National Environmental Policy Act
NL	Navigation Law
NOAA	National Oceanic and Atmospheric Agency
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority

OCEATLAN	Regional Oceanographic Alliance for the Southwest Atlantic
OECD	Organization for Economic Cooperation and Development
OPA	Oil Pollution Act
OTA	Environmental Territory Planning, by its acronym in Spanish
Petrobras	Petróleo Brasileiro S.A.
PC	Contingency Plan
PNA	Argentine Naval Prefecture, by its acronym in Spanish
RFMO	Regional Fisheries Management Organization
SE	Secretary of Energy
SEA	Strategic Environmental Assessment
SEMS	Environmental and Safety Management System
SHN	Naval Hydrography Service, by its acronym in Spanish
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNESCO	United Nations Educational, Scientific and Cultural Organization
YPF	Yacimientos Petrolíferos Fiscales

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CHAPTER 1

Introduction

The book analyzes the environmental regulation of upstream marine exploration and exploitation of hydrocarbons, at the international, regional MERCOSUR and Argentine national level. It uses the concept of normative integration as a methodological approach, critically assessing the interaction between the law of the sea, maritime law, environmental law and human rights law in the field of study. The book analyses the legal framework in a timeline, giving context to the evolution of the different branches of international law with sparkles of history. In this sense, the book also analyses international conventions' bills on the subject that have not entered into force.

The manuscript focuses on the reports from two marine pollution events (Deepwater Horizon and Montara oil spills) to analyse the lessons learnt and the normative and institutional framework needed to ensure environmental safety in the marine exploration and exploitation of hydrocarbons. The book critically analyses marine platform accidents' official reports comprehensively in order to assess existing normative and institutional frameworks and to give a way forward regarding policies.

The book contributes to rethinking the governance of the ocean at the time of environmental challenges. In that context, it refers to the concept of normative integration and effectiveness. It takes the existing scholarship further by introducing the notion of "marine platforms" instead of

V. S. Radovich, *Marine Exploration and Exploitation of Hydrocarbons*,
Palgrave Studies in Maritime Politics and Security,
https://doi.org/10.1007/978-3-031-75177-6_1

"offshore platforms" to rethink the relationship between land and sea and to develop a functional approach to enhance existing regulations.

To overcome the fight against climate change, it is essential to generate energy generation from renewable sources. However, the exploration and exploitation of hydrocarbons both on land and at sea, still continues. This book studies the environmental regulation of marine exploration and exploitation of hydrocarbons and proposes guidelines for its improvement. Lessons learnt from this activity shall be considered for the regulation of marine renewable energy generation.

In the second chapter, ecosystem services provided by the sea are explained, the term "hydrocarbons" is defined and the different types of marine platforms are introduced. Furthermore, the concept "integration", which argues that the problems of marine spaces are closely related to each other and must be considered as a whole, included in the Preamble of the United Nations Convention on the Law of the Sea (UNCLOS),[1] is explained.

Integration is a relevant concept in the theoretical methodological framework of this book, whose objective focuses on intradisciplinary integration, in pointing out the contributions, the synergies of different branches of law to contribute to environmental management of the sea. In other words, sources from various branches of law will be analyzed in order to study their synergies and interconnect and systematize the tools and instruments that each one provides for the environmental management of the sea.

The purpose of this book does not include the study of the exploration and exploitation of hydrocarbons in the marine space called the "Area", which includes the seabed and oceanic subsoil outside the limits of national jurisdiction. This marine space has a special regime, where the International Seabed Authority (ISA), an institution created by UNCLOS, grants the exploration and exploitation permits.

Environmental impacts of marine exploration and exploitation of hydrocarbons affect marine biodiversity, for example, mangrove ecosystems and migratory fish, mammals, and birds. In the exploratory stage, examples of this impact are the sound emissions produced by seismic analyses that are carried out to confirm the presence of hydrocarbons.

[1] United Nations Convention on the Law of the Sea ("UNCLOS"), adopted December 10, 1982, 1833 UNTS 3 (entered into force November 16, 1994). Argentine Republic is a State party, approval law No. 25.453. Official Bulletin, 10/17/1995.

During the exploitation stage, pollution can be classified into operational pollution and accidental pollution. The former is the pollution that derives from the daily activities of the platforms such as discharges of substances, gas emissions, and discharges produced by tank washing. Accidental pollution results from accidents, for example, those that occurred on the platforms *Montara* and *Deepwater Horizon*, this latter type of pollution usually has greater significance in mass media.

From an environmental point of view, marine hydrocarbon activity can be divided into two stages. On the one hand, the stage prior to the installation of the platforms which I will call the preventive-precautionary stage, where safety aspects that must be taken in case the activity is authorized are outlined. On the other hand, the stage where platforms are installed and working, which consists of restoration of the environment or, where restoration is not possible, monetary compensation, in case the tools available in the preventive-precautionary stage have not been correctly implemented and environmental damage occurs.

The precautionary principle, which states that where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost - effective measures, in terms of costs, to prevent environmental degradation,[2] should be developed. Given the high level of existing uncertainty, for example in seismic analyses carried out during hydrocarbons exploration, appropriate tools shall be developed at this stage. These tools include specific preventive measures such as Strategic Environmental Impact Assessments (SEIAs). Another application of the precautionary principle is the creation of Marine Protected Areas (MPAs), where certain activities, such as exploration and exploitation of hydrocarbons, may be prohibited or limited.

As regards the subsequent stage, therefore, the liability regime, the principle of responsibility will be studied. In the specific case of Argentine Republic, the letter of the General Environmental Law (GEL) will be taken into account. GEL establishes a system of strict civil liability for collective environmental damage with full repair of the damage (arts. 27 and 28), joint and several (art. 31) and with specific factors of exemption from liability (art. 29) (Capaldo, 2009).

In the fifth chapter, lessons learnt by two major accidents that occurred in the development of this activity in the Timor Sea and in the Gulf

[2] Principle No. 15, Declaration on Environment and Development ("Rio Declaration"), adopted June 14, 1992, UN Doc.A/CONF. 151/126 (vol. I).

of Mexico, in the *Montara* and *Deepwater Horizon* platforms in 2009 and 2010 respectively will be analyzed. Through the study of the regulatory and institutional recommendations that the National Investigation Commissions have made, variables to be taken into account in the environmental management of the activity will be identified.

This is a novel problem, as marine platforms still lack a uniform international regulatory framework, despite several attempts were made to adopt international conventions within maritime law. In this sense, the convention bills that were drafted to regulate this specific topic and have not come into force will be studied. Moreover, the regulatory and institutional frameworks in force at the international level in legal instruments within the law of the sea, maritime law and environmental law branches of law will be studied, based on the "integration" concept.

As a turning point as regards marine platforms regulations, a regulation issued in the European region after the aforementioned accidents will be analyzed. In 2011, the "Protocol for the protection of the Mediterranean Sea against pollution resulting from the exploration and exploitation of the continental shelf, the seabed and its subsoil" (Offshore Protocol)[3] entered into force. It was adopted in 1994 and it is a Protocol to the Convention for the protection of the Mediterranean Sea against pollution from Barcelona in 1976 (Barcelona Convention).[4]

In the seventh chapter, once the analysis at the international level is concluded, the environmental and institutional regulatory frameworks for management of marine hydrocarbon activities currently in force in Argentine Republic, the Federative Republic of Brazil, the Oriental Republic of Uruguay and in MERCOSUR will be analyzed. The case studies referred to Brazil and Uruguay have been chosen because they are bordering states to Argentine Republic, given the transboundary pollution that this activity can generate.

In Argentine Republic, marine exploratory and extractive hydrocarbons activities are currently taking place. It is also relevant to remember

[3] Protocol for the Protection of the Mediterranean Sea against Pollution resulting from the Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil ("Offshore Protocol"), adopted October 14, 1994, 2742 UNTS 77 (entered into force March 24, 2011).

[4] Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean ("Barcelona Convention"), adopted February 16, 1976, 1102 UNTS 27 (entered into force February 12, 1978).

the sovereignty claim Argentine Republic maintains over the *Islas Malvinas, Georgia del Sur y Sandwich del Sur*, territories where the United Kingdom carries out marine hydrocarbons' exploration and exploitation. In this case, as there is no binational cooperation, in the event of an accident causing pollution, its management will not be straightforward.

The Federative Republic of Brazil has carried out marine exploration and exploitation of hydrocarbons for years and has developed a network of specific regulations and institutions that will be analyzed. As regards the Eastern Republic of Uruguay, the first marine drilling for hydrocarbons started some years ago, three bidding rounds have been held and legislation has been enacted to regulate the activity.

CHAPTER 2

Environmental Governance of the Sea

1 Social, Economic and Cultural Considerations: The Value of the Sea

The sea covers more than 70% of our planet and is the place where life originated (Sánchez and Madriñán, 2013). However, only 4% of the ocean space is protected, unlike the terrestrial space, which occupies 29% of the planet and is protected in a 14% (Simard, Laffoley and Baxter, 2016). It has been recognized that the oceans "exert a profound influence on humanity and even on all forms of life on Earth".[1]

Since 1967, through the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP),[2] the scientific community took note of the role played by the ecosystem services provided by the oceans and their coasts. A research based on a hundred studies carried out during the last two decades estimates that the global value of the goods and services provided by marine and coastal ecosystems is around 23 trillion dollars per year, almost the Gross National Product

[1] Declaration adopted at the Copenhagen Conference on oceanographic research under the auspices of UNESCO, 1960.

[2] GESAMP is the *Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection*. It was created in 1967 to advise the various United Nations Agencies on scientific aspects of marine pollution problems, based on research and periodic evaluations. Since 1996 the GESAMP has established a Working Group on Environmental Assessment of the Marine Environment, its leading agency is UNEP.

V. S. Radovich, *Marine Exploration and Exploitation of Hydrocarbons*,
Palgrave Studies in Maritime Politics and Security,
https://doi.org/10.1007/978-3-031-75177-6_2

of all States on the planet (GESAMP, 2001 cited by Capaldo, 2009b, p. 574). For example, coral reefs constitute only 0.1% of the surface of the Earth, but they harbor 25% of all marine life, with an economic valuation close to 375 billion dollars (Constanza, 1997).

The sea provides a significant amount of ecosystem services, which are defined from an economic point of view as the contributions of the natural world that generate goods and services that people value (OECD, 2016). In the same vein, in the Millennium Ecosystem Assessment (2015), they are defined as the benefits that people obtain from ecosystems.[3] The sea provides the following services:

- Supply services: food, water, hydrocarbons, and medicinal products.
- Regulation services: flood control, temperature regulation.
- Base services: nutrient cycles.
- Cultural services: recreational benefits, such as the enjoyment of beaches and coasts (Alcamo et al., 2003).

Ecosystem services are classified into direct and indirect. Within the former is the production of provisions, for example, water and food (supply services). The indirect ones are those related to the functioning of ecosystem processes that generate direct services (support services), for example, the photosynthesis process. In addition, indirect ecosystem services offer non-material advantages, such as aesthetic, spiritual, and cultural values (Rosenfeld et al., 2017).

In relation to the phenomenon of climate change, the oceans suffer from global warming, which results in an increase in their temperatures, which generates more severe storms, the rise of sea level and the erosion of the coasts. Likewise, a continuous increase in ocean acidification is recorded, which can have severe effects on the marine animals.[4] In 2015, progress was made in regulating the relationship between climate change and the ocean, as in the Paris Agreement—result of the 21st

[3] Millennium Ecosystem Assessment (2015), http://www.millenniumassess-ment.org/en/About.html#1 [Last visited: October 2022].

[4] Report "Climate Change 2014. Impacts, adaptation and vulnerability" from the Intergovernmental Panel on Climate Change (IPCC), November 1, 2014, https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full_es.pdf [Last visited: October 2022].

COP of the United Nations Framework Convention on Climate Change (UNFCCC)—[5] for the first time the role of the ocean was mentioned.

The OECD (2016) listed the five most important initiatives in relation to the ocean, the first of them directly related to the subject of this book:

1. The need to develop international agreements on environmental and safety standards for drilling on the continental shelf, as well as an international convention that regulates liability and compensation in case of environmental damage.
2. The negotiation of a binding international agreement under the framework of UNCLOS, for the conservation and sustainable use of marine biological diversity in areas beyond the national jurisdiction of States.
3. The processes related to the requests of States with the purpose of extending the limits of their continental shelves beyond the 200 nautical miles.
4. The first steps to prepare for negotiations on the regulation of mining exploitation in the seabed by the International Seabed Authority (ISA).
5. The continued efforts to implement rules to combat overfishing and especially the so-called illegal, unreported, and not regulated (IUU fishing).

The OECD (2016) states that, as these and other initiatives develop, they will confront major challenges, from threats to peace and international security, to activities that will endanger the ecological integrity of the seas.

The indispensable role of the ocean, and the ecosystem services it provides to face the multiple challenges that the planet will be exposed to in the coming decades, is being increasingly valued. However, this role implies a challenge, as the ocean already suffers from overexploitation and pollution, so its biodiversity is in decline. To take advantage of the future potential of the ocean, responsible and sustainable approaches to its economic development are required (OECD, 2016). Cowder and Norse (2008), Douvere et al. (2007) and Douvere (2008), quoted by

[5] United Nations Framework Convention on Climate Change ("UNFCCC"), adopted May 9, 1992, 1771 UNTS 107 (entered into force March 21, 1994). Argentine Republic is a State party, approval law No. 24.295. Official Bulletin, 12/30/1993.

OECD (2016, p. 20), point out that the ocean economy is different from the terrestrial one for the following reasons:

1. The sea occupies much more space than the land.
2. Water is less transparent than the air (remote technology cannot penetrate the water column or the depths of the sea).
3. The sea is more three-dimensional than the land.
4. The sea is fluid and interconnected.
5. Marine species can move more than terrestrial ones.
6. Nutrients and pollutants can be retained for several decades until they are returned by ocean circulation.
7. The lack of ownership and responsibility in the ocean are less favorable to sustainable development. International authorities grant licenses in their jurisdiction areas, and ISA in the zone. In international waters, private activities have much less control.
8. Humans do not inhabit the ocean.

Ocean-based economic activities contribute approximately 1.5 trillion dollars (2.5%) to the gross global added value. The exploration and exploitation of hydrocarbons account for approximately one third of the added value of ocean-based industries, followed by marine and coastal tourism (26%), ports (13%), and marine equipment (11%). Ocean-based industries contributed approximately 31 million full-time jobs in 2010, almost 90% of international transport is carried out by sea (OECD, 2016).

As for social considerations regarding the exploration and exploitation of hydrocarbons at sea, Kloff, Wicks, and Siegel (2004) affirm that the expansion of the industry can create a wide range of socio-political problems.

Elim Salim (2004), quoted by Kloff, Wicks, and Siegel (2004, p. 7), argued:

> Not only have oil and gas mining industries not helped the poorest people in developing countries, but they have often made them worse off. Countries that rely primarily on extractive industries tend to have higher levels of poverty, infant mortality, civil wars, corruption, and totalitarianism than those with more diversified economies…

The discovery of oil and gas in areas of maritime boundaries that are not yet defined could lead to political problems between the countries

in question. These conflicts have already occurred between Nigeria and Cameroon, for example. It is recommended to reinvest the profits derived from the exploration and exploitation of oil and gas at sea into renewable energy sources, to reduce countries' dependence on the importation of energy at a high cost (Kloff et al., 2004).

2 Integration

According to the Preamble in UNCLOS, "the problems of ocean spaces are closely related to each other and must be considered as a whole", which Barnes (2012) conceptualizes with the term "integration". Likewise, this same phrase from the preamble has been attributed as an "implicit reference" to the ecosystem approach (Long, 2012, quoted by Barnes, 2012, p. 861). Barnes (2012) describes six types of integration: normative, spatial, sectoral, interdisciplinary, temporal, and user. Normative integration refers to the fact that legal norms should be considered part of a system of rules, implying that the meaning and application of individual norms are considered in light of related norms. That is, in the field of sea environmental management, concepts and instruments from UNCLOS, the CBD and the UNFCCC, among other conventions, should be integrated.

Sectoral integration requires the coordination of activities that take place in the ocean space—such as fishing, navigation, exploration and exploitation of hydrocarbons, production of renewable energies—and that their cumulative impacts should be considered. This type of integration, along with the integration of marine spaces—that is, spatial integration—represent, according to Barnes (2012), the most substantive aspects of ocean regulation. However, Elferink (2012) argues that sectoral integration is given very little attention, only the case of the regulation of the impact that marine platforms can have on navigation can be named (quoted by Barnes, 2012, p. 861).

Inter and intradisciplinary integration are largely related to sectoral integration. In other words, despite the fact that UNCLOS is a legal regime, the implementation and development of its provisions require the action of jurists, legislators, and technical experts from a variety of disciplines, such as economics, marine biology, and geology. Temporal integration is related to the way one or different activities interact over time, so that cumulative adverse impacts can be identified and avoided.

The last type of integration, user integration, is mainly related to the regulation of interstate relations. However, the use of the oceans also concerns individuals and other legal entities, who should have a role in the regulation of oceanic space. Barnes (2012) argues that UNCLOS does not have the institutional capacity to accommodate a broad group of participants and structure their knowledge in ocean management, and that until there is appropriate institutional support for integration, it will be difficult to continue making significant progress. After the entry into force of UNCLOS, the notion of integrated sea management was also incorporated in chapter 17 of Agenda 21, developed in 1992.

2.1 Integrated Sea Management

In response to pressures on the marine environment, over the past few decades several coastal countries have strived to develop an integrated, comprehensive rather than sectoral, and ecosystem-based vision for ocean governance. Cicin-Sain et al. (2015), cited by OECD (2016, p. 225), argue that integrated management involves processes to coordinate the actions of the various governmental agencies involved in oceanic affairs.

Currently, ocean governance faces numerous risks and uncertainties, including the great fragmentation of agencies studying different activities, legal gaps, weak compliance and enforcement of standards, and emerging new issues. There are signs that indicate that ocean governance will continue to grow more sectorally, and not through comprehensive approaches. There is a clear need for the management of oceanic space to be more integrated (OECD, 2016). The pressures on the oceanic environment are mainly attributed to the historical management and regulation ad hoc—that is, sectoral—of oceanic activities. The OECD (2016) recommends three paths to carry out the urgent improvements required by integrated sea management:

1. Economic analysis and economic tools.
2. Innovation in governance structures and processes.
3. Scientific and technological research.

2.1.1 Economic Analysis

Traditional methods, such as environmental impact assessment (EIA), have limited capacity to incorporate economic analysis into their

frameworks. In contrast, integrated sea management, by incorporating economic information into its framework, provides an important comparison between the economic value of one activity and another. Therefore, it facilitates what is known as "best use" in decision-making (Tyldesley, 2004, cited by OECD, 2016, p. 229).

Economic benefits can be divided into three categories:

- Lower coordination costs.
- Lower transaction costs (including research, legal, administrative costs, and those derived from conflicts).
- Investment-friendly climate (Tyldesley, 2004, cited by OECD, 2016, p. 229).

Coordination costs would be lower because a comprehensive management approach would allow for effective and efficient coordination of the authorities and agencies involved in decisions related to oceanic issues (OECD, 2016).

2.1.2 Innovation in governance structures and processes

The Canadian case study shows that a first step in the application of integrated sea management has been the enactment of a comprehensive law on its management. At the end of 1996, the Canada Oceans Act was enacted, a comprehensive legislative body that allows the regulation of different uses of waters, seabed and subsoil at the national and provincial level (Suárez de Vivero, 2010). The law establishes that a federal network of marine protected areas (MPAs) must be developed and emphasizes the opportunity for the participation of different social and political actors in the process, for example, affected indigenous organizations and coastal communities.

Similarly, the 2002 Canada's Oceans Strategy emphasizes the cultural and identity burden of the oceans, similar to the concept of "oceanification", which seeks to highlight the relationship between human beings and the ocean (IMPAC 3, 2013).

However, the development of the new oceanic paradigm shows that an initiative based solely on the creation of a new regulatory framework is insufficient and incomplete if it is not accompanied by the parallel creation of ad hoc institutions (Suárez de Vivero, 2010).

Most OECD member countries, over the past two decades, have strived to develop a comprehensive and ecosystem-based vision for ocean governance. These countries include Australia, Belgium, Canada, France, Ireland, Japan, Korea, Norway, Portugal, Sweden, the United Kingdom, the United States, China, Indonesia, South Africa, Malaysia, and Vietnam. Among the countries that follow this trend in our continent, we can only mention the Federative Republic of Brazil. Approximately fifty countries have some ocean space management initiative underway (OECD, 2016).

Comprehensive sea management implies the challenge of achieving efficiency and institutional flexibility, in addition to improving coordination between different maritime sectors and authorities and levels of government. The OECD (2016) highlights the role of meso-institutions in comprehensive sea management, such as public offices (Department of Fisheries in the Ministry of Agriculture), agencies (NOAA, National Oceanic and Atmospheric Agency) and regional councils (RFMO, Regional Fisheries Management Organization, in English). Meso-institutions translate general rules into specific and operational rules, so they play an important role in law enforcement.

Ménard (2015, cited by OECD, 2016, p. 232) argues that efficient meso-institutions are one of the essential characteristics of sustainable governance structures in the future. He adds that, to achieve efficiency, their processes and decisions must be transparent, and all interest groups must participate in the decision-making process.

In many respects, the challenges of comprehensive sea management are common to many other areas of public management. There are several governance tools available, some of them are tools that allow multi-sectoral information sharing. A powerful mechanism to sustain this coordination is the reinforcement of the strategic capacity of the State at the center of government (OECD, 2013a, 2013b, cited by OECD, 2016, p. 233).

The role of technological tools is also important, for example, virtual meetings, sharing knowledge through applications, and electronic voting. As an illustration, in Europe the *Laboratory of the Blue Society* promotes initiatives to highlight the human and social dimension of ocean-related matters, working in dialogue with different segments of society, businesses, and the public sector. Another example is the *Deep Ocean Stewardship Initiative* (DOSI), which brings together experts from different disciplines to develop new ideas for balancing sustainability and responsible

use of deep-sea resources. This institution offers training to developing countries.

In this sense, Mc Leod and Leslie (2009) and Halpern et al. (2012), cited by OECD (2016, p. 225), affirm that during the last two decades there has been a strong increase in interest and action at various political levels to implement comprehensive sea management. Initially, it was through integrated coastal management (ICM) and MPAs, and in recent years, through marine spatial planning (MSP).

From Integrated Coastal Management (ICM) to Marine Spatial Planning (MSP)

Olsen, Tobey, and Kerr (1997) define ICM as an extension of the concept of land planning, a process of zoning for multiple uses of coastal areas (cited by OECD, 2016, p. 226). Prieur (2015) argues that ICM involves simultaneously considering various conflicting uses or interests in the same space.

ICM is a continuous and dynamic process by which decisions are made for the sustainable use, development, and protection of coastal and marine areas and the resources that inhabit them (Cicin-Sain and Knecht, 1998 cited by OECD, 2016, p. 226). Likewise, Cambers (2001) defines it as a dynamic process in which a coordinated strategy is developed to distribute environmental, socio-cultural, and institutional resources, to carry out the conservation and sustainable use of the coastal zone.

MSP extended the ICM approach to the sea in the 2000s. Lester et al. (2013, cited by OECD 2016, p. 226) stated that "MSP is a planning approach that offers the best opportunity so far developed for a more integrated and sustainable ocean management".

Although both ICM and MSP are largely based on land planning processes, both concepts differ significantly in several principles and approaches. Ehler and Douvere (2007), cited by OECD (2016, p. 226), define MSP as the allocation through a political process of parts of three-dimensional maritime spaces to specific uses or non-uses, to achieve ecological, economic, and social objectives. In contrast, ICM does not assign spaces to activities in the way MSP does, but rather relies more on voluntary cooperation, not on the formal designation of areas for certain uses. Also, ICM has greater overlaps with land resources and focuses more on agencies and organizations with functions on land (Morrissey, in press, cited by OECD 2106, p. 226). The European Union Directive 2014/89/EU defines it as the process by which the competent authorities of

the Member State analyze and organize human activities in marine areas in order to achieve ecological, economic, and social objectives (art. 3.2).[6] A report from the European Commission (2011), cited by OECD (2016), indicated that MSP could provide significant economic benefits, from 170 million euros to 1.3 trillion euros in 2020.

The European Directive on Strategic Environmental Assessment (SEA)[7] has implications for MSP, as it requires that environmental assessments be carried out for individual projects or programs and development plans. The incorporation of SEA into MSP allows a holistic assessment of all uses of the oceanic ecosystem, rather than through the current sectoral approach. The SEA has already been used in Germany and in Poland as part of the *Balt Sea Plan*, and the next MSP will also include it (Schmidtbauer Crona, 2015, cited by OECD, 2016, p. 239).

The three approaches—ICM, MSP and MPAs—should be combined, because greater integration is needed between land and marine planning systems, which is partly due to the physical interaction between land and sea. For example, most marine pollution, such as plastics and eutrophication, originates on land, while the coastal environment is sensitive to maritime activities, such as aquaculture and navigation. Likewise, maritime activities benefit land communities. For example, ports and their associated industries require considerable land space for their development and at the same time provide employment and other socio-economic benefits (OECD, 2016).

Marine Protected Areas (MPAs)

Significant benefits are also expected through the creation of MPAs, as demonstrated by international valuation studies of MPAs (OECD, 2016). MPAs have become a tool for marine conservation, ecosystem management, and fisheries. They include a wide spectrum of protection, from areas fully protected from all extractive activity (marine reserves or intangible areas) to areas with short-term prohibitions regarding certain activities. These areas include both the biotic and the abiotic (biophysical environment) components and offer ecosystem-based management, not just a few species.

[6] Directive 2014/89/EU, July 23, 2014, http://eur-lex.europa.eu/legal-con-tent/EN/TXT/?uri=celex%3A32014L0089 [Last visited: October 2022].

[7] Directive 2001/42/EC, June 27, 2001, http://eur-lex.europa.eu/legal-con-tent/EN/TXT/?uri=celex:32001L0042 [Last visited: October 2022].

The International Union for Conservation of Nature (IUCN) defined the protected area in the 2008 Guidelines as follows:

> A clearly defined geographical space, recognized, dedicated and managed, through legal means or other types of effective means to achieve long-term conservation of nature and its ecosystem services and associated cultural values. (Dudley, 2008)

Currently, there is no precise definition for the term marine protected area. In the previous version of the Guidelines, the term "marine" was used.[8] Unlike protected areas on land, MPAs are designated in a three-dimensional fluid environment (Dudley, 2008). In 2014, the global network of protected areas in the world covered only 10% of coastal and marine areas within national jurisdiction and approximately 4% of the global ocean, including 0.25% of marine areas outside national jurisdictions (Martinez et al., 2016). However, the States party to the CBD at the 10th COP in 2010 in Aichi, Japan, agreed to protect 10% of the global ocean by 2020.

At that COP, two decisions highlighted the importance of regional efforts for the protection of marine and coastal environments. One decision was made primarily based on resilience and the role of regional sea conventions (Decision UNEP/CBD/COP/DEC/X/29), and the other, on the need to strengthen networks of protected areas through the development of ecological networks and ecological corridors (Decision UNEP/CBD/COP/DEC/X/33).

The Kunming-Montreal Global Biodiversity Framework adopted in December 2022 at the 15th COP to the CBD established that 30% of the ocean shall be protected by 2030.

Protected areas are defined in Article 2 CBD as a:

> geographically defined area which is designated or regulated and managed to achieve specific conservation objectives.

[8] The definition in the IUCN Guidelines of 1994 was as follows: "a terrestrial or marine area specially dedicated to the protection and maintenance of biological diversity, and of associated natural and cultural resources, managed through legal or other effective means".

While this definition applies both to terrestrial and marine areas, in 2004, the COP to the CBD adopted a particular definition of marine protected area as:

> any defined area within or adjacent to the marine environment, together with its overlying waters and associated flora, fauna and historical and cultural features, which has been reserved by legislation or other effective means, including custom, with the effect that marine and/or coastal biodiversity enjoys a higher level of protection that is surroundings.

In June 2023, the Agreement on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction (BBNJ Treaty) to UNCLOS was adopted.[9] It has not yet entered into force because State signatures are pending. One of the main topics of the Agreement is area- based management tools. Article 1 (9) of the BBNJ Treaty defines an MPA as:

> a geographically defined marine area that is designated and managed to achieve specific long-term biological diversity conservation objectives and may allow, where appropriate, sustainable use provided it is consistent with the conservation objective.

MPAs are one of the most effective tools in the fight against climate change. If properly managed, these areas can help conserve marine biodiversity and the services the ocean provides for the conservation of life on the planet (Simard et al., 2016).

Initially, MPAs were thought strictly for the conservation of marine fauna, but they are now considered useful for adaptation to climate change. However, it is a tool that has not been uniformly extended in different countries, because, of the 120 countries with a cost, 80% gather all the MPAs. For MPAs to be effective there must be connectivity between them, they must be flexible–this is achieved through the formation of regional networks—and they must be permanent. MPAs should be integrated into a broader scope, and in this sense two appropriate

[9] Agreement under the United nations convention on the law of the Sea on the conservation and Sustainable use of marine Biological Diversity of areas Beyond national Jurisdiction (BBNJ Treaty), adopted on 19 June 2023. available at: https://www.un.org/bbnj/ [Last visited: January 2024].

instruments to achieve this integration are MSP and ICM (Marzin et al., 2016).

Friedlander et al. (2003) and Sánchez et al. (2005), cited by Sánchez and Ardila (2013, p. 65) argue that, in general terms, the objectives of MPAs consist of protecting habitat, conserving biodiversity, recovering overexploited resources, maintaining and improving ecosystem services, as well as offering spaces for research, education, and recreation. However, Sánchez and Ardila (2013) affirm that MPAs are not necessary in all cases and that the definition and creation of a reserve does not guarantee the achievement of the contemplated goals and objectives. In this way, adaptive management through the evaluation of the results of these areas is essential to improve or redefine goals and achieve greater effectiveness of MPAs. In the same sense, Mora et al. (2006, cited by Sánchez and Ardila, 2013, p. 65) argue that MPAs are an interesting tool, but they do not constitute the panacea or the solution to all the problems of marine ecosystems, in addition to which they can have a limited impact due to global climate change. In this sense, they explain that there is consensus on the importance of community-based strategies (co-management) where there is interaction of this with ecological, political, and economic institutions for the success of MPAs.

Mora (2013) explains that it has been stated that at least 50% of protected areas would be needed for them to be effective. In contrast, by 2050 it was calculated that the area necessary to guarantee the global supply of food will be 76% of the productive coverage of the planet. As a result of this equation, about 26% of the planet's surface will be in conflict between being protected or being used to provide food for the growing human population (Musters et al., 2000, cited by Mora, 2013, p. 252).

Biosphere reserves are a type of protected area that was introduced by the Man and the Biosphere (MAB) program of UNESCO in 1972. They are ecologically representative geographical areas of the planet's habitat diversity, whether in terrestrial or marine ecosystems. Halffter (2011) argues that they constitute a distinct but not exclusive alternative to national parks and other types of conservation in situ. They are characterized by hosting human communities, which live from sustainable economic activities that do not endanger the ecological value of the site. They are territories whose objective is to harmonize the conservation of biological and cultural diversity with economic and social development, through the relationship of people with nature. They also serve as learning

and research sites, as they generate greater awareness in the local population and in government authorities about sustainable development. On the other hand, with the technical assistance of UNESCO experts, they can attract international funding sources or motivate joint work between countries, as happens with cross-border sites.[10]

The designation of the reserves is carried out by the MAB, after the nomination made by the interested State through a form to the International Coordinating Council of the MAB, which is governed by a Statutory Framework. Once the appointment is made, the reserve is internationally recognized under the sovereignty of the respective State, which must ensure compliance and safeguarding of the exceptional characteristics that made the nomination possible. Every ten years, the reserves are subjected to a management review.

The Seville Strategy, a declaration made in the Second International Conference on biosphere reserves held in that city in 1995, proposed to move from passive conservation in which the priority is not to intervene in natural processes, to active conservation that includes restoration and sustainable use (Halffter, 2011).

Biosphere reserves have three types of zones:

- one or several core zones, whose main function is conservation—here economic activities are usually prohibited (Halffter, 2011)–,
- one or several buffer zones that cushion the effects of human actions on the core zones, and
- a transition zone, where sustainable economic activities are promoted to favor the socioeconomic development of the local populations.

Law 26.875[11] which created the AMP "Namuncurá - Banco Burwood" in the Republic of Argentina, established these three types of zones (art. 4).

[10] https://www.argentina.gob.ar/ambiente/areas-protegidas/programa-mab [Last visited: October 2022].

[11] Argentina. Law 26.875, *Creation of the Namuncurá – Burwood Bank Protected Marine Area. Objectives.* Official Bulletin, 08/05/2013.

2.1.3 Scientific and Technological Research

Bell et al. (2009) argue that scientific research is currently entering a "fourth paradigm", in which science has real-time and accessible data (OECD, 2016, p. 235). However, currently the collection of information related to the oceans is substantially fragmented. Because governance is highly sectoral, data collected for economic purposes are used only by their owners (for example, oil and gas sector) and the scientific data collected for scientific purposes are also not shared.

Regarding the management of marine data, efforts are being made in some regions to make the information more accessible. In certain countries, for example the United States, all data collected through public funds are accessible to the public. In the European Union (EU), the European Commission DG MARE developed the European Marine Observation and Data Network (EMODNET) and there is also the European Atlas of the Seas and the Copernicus Marine Service. With respect to the Atlantic Ocean, the *AtlantOS* initiative can be mentioned, which is a transatlantic effort between Brazil, Canada, South Africa and the United States to make data from this ocean available to the public.

The tools available to collect data and monitor the ocean have increased in the last decade, and include missions on ships, observatories, autonomous underwater vehicles (UAV) and satellites. Many of these new methods allow data collection in real time and in 3D format. Omerdic et al. (2009, cited by OECD, 2016, p. 237) argue that these advances are mainly due to the need to understand how anthropogenic changes alter ocean ecosystems and what effects these alterations will have in the long term. However, these tools are very expensive.

True control of the sea is not achieved only through the proclamation of limits, but also and fundamentally thanks to scientific knowledge, both of the waters adjacent to the coasts as well as of the whole of the oceans and their connection with the terrestrial territory and the atmosphere (González, 2012). Annick de Marffy, who was in charge of the Division of Ocean Affairs and the Law of the Sea of the UN (a forum organized by the Intergovernmental Oceanographic Commission of UNESCO), adopted a classification concerning the four pillars of the structure of ocean governance. The classification mentions the legal pillar, constituted by the instruments signed at a regional or global level; the political pillar, reflected in the negotiations held within the framework of these instruments; the institutional pillar, materialized in a "labyrinth"

of also global and regional institutions; and the research and capacity-building pillar, essential for understanding the marine environment. In this sense, scientific knowledge of the oceans has burst onto the international agenda in the middle of the last century, becoming the "fourth pillar" of the structure of ocean governance (González, 2012).

In this line of thought, in the declaration adopted at the Conference in Copenhagen on oceanographic research, sponsored by UNESCO,[12] it was stated:

> In order to properly interpret the value of the oceans for humanity, they must be studied from many points of view. While pioneering research and new ideas usually come from individuals and small groups, many aspects of oceanic research represent a task too formidable to be carried out only by one nation or even a few nations. For this, in the end, dynamic and coherent international action in the field of marine sciences is necessary.

Due to the importance that international cooperation has acquired for the scientific understanding of the oceans, the Intergovernmental Oceanographic Commission (IOC) of UNESCO was created in 1960 (González, 2012).

Marine scientific research (MSR) is defined as the activity or set of activities that allows the measurement of an indefinite number of ocean data subject to variations called "variables", both physical, chemical or biological. An international binding text containing the definition of this concept has not yet been negotiated due to a controversy between those who believe that a distinction should be made between a "pure" MSR—aimed exclusively at scientific knowledge per se—and an "applied" MSR—a means to achieve a non-scientific end, particularly the economic exploitation of resources—(González, 2012). In 1969, the IOC qualified marine scientific research as "of interest to humanity".

This doctrinal confrontation had an impact on geopolitical and even military conflicts, for example, the conflict between 44 and the United Kingdom over the *Islas Malvinas*. Freymond (1978, cited by González, 2012, p. 29) recounts that, in February 1976, in an episode that constituted a precedent in the *Malvinas* war conflict, the Argentine destroyer Almirante Storni forced the cessation of activities of the British scientific research vessel Shackleton. The Argentine government justified this

[12] Ibid., note 5.

action with the fact that the vessel was carrying out unauthorized geological prospecting in its jurisdictional waters, for the potential exploitation of hydrocarbons, opposing the British arguments that the *Shackleton* was conducting investigations related to the theory of a continental drift.

Going back to the origins in the dispute between Grotius and Selden, who at the beginning of the seventeenth century addressed the issue of the legal regulation of the sea from contrasting perspectives, González (2012) classifies States as "internationalists" and "territorialists". The former conceives scientific knowledge of the oceans as an important corollary of the principle of *mare liberum,* according to the postulates of Grotius, and the latter take refuge in the postulates of Selden about the *mare clausum* and consider that such knowledge is a component of the sovereignty rights that international law recognizes in the spaces that delimit the coasts, as well as the adjacent seabed and subsoil.

These conflicts around the regulation of the MSR are the same conflicts that are observed around the exploration and exploitation of hydrocarbons in the exclusive economic zone (EEZ) and on the continental shelf, as an international convention on the subject cannot be negotiated due to the opposition of countries with the largest oil industry, who consider that the issue should not be regulated by international law, but by the national law of each State in question.

Regarding Part XIV of UNCLOS, which regulates marine scientific research, González (2012) points out that many of its provisions seem to become *lettre morte*. For example, there is currently no international fund or mechanism for financing marine technology transfer (MTT) activities—of the type regulated by various environmental protection agreements such as the 1987 Montreal Protocol on the ozone layer—,[13] as demanded by Article 270 of UNCLOS.

In November 1998, the third COP to the UNFCCC agreed on the need to increase the number of observations in the oceans, particularly in remote areas, to improve climate monitoring and gain a better understanding of the role the ocean plays in the climate (Field et al., 2002, cited by González, 2012, p. 92).

[13] Montreal Protocol of 1987 on Substances that Deplete the Ozone Layer with its amendments of 1990, 1992, 1995, 1997, 1999, 2007, 2016, adopted on September 16, 1987, 1522 UNTS 3 (entered into force January 1, 1989). Argentine Republic is a State party, approval law No. 23.778. Official Bulletin, 28/05/1990.

In a report published in the same year, the Inter-American Development Bank (IDB) echoed the doctrine that considers that "the ability to apply marine sciences to manage coastal and marine resources is significantly lagging behind the management of terrestrial and freshwater systems".[14]

At the beginning of the twenty-first century, with the adoption of Resolution A/ RES/55/7,[15] it was recognized that the international community contemplates "the importance of marine science for promoting the sustainable management of the oceans and seas".

From 2003, in Resolutions A/RES/57/14117[16] and A/RES/58/24018[17] of the United Nations General Assembly, a link was drawn between marine scientific research and poverty reduction. The preamble, paragraph 11 of Resolution A/RES/59/24 of 2004 reads as follows:

> That marine science is important for eradicating poverty, contributing to food security, conserving the environment and the world's marine resources, helping to understand and predict the effects of natural phenomena and respond to them, and promoting the sustainable use of the oceans and seas, increasing knowledge, through sustained research activities and the evaluation of surveillance results, and applying this knowledge to management and decision-making.

At another point in the Resolution, the importance of ocean observation for climate change forecasting and tsunami warning operation recognized in operative paragraph 124 of Resolution A/RES/62/215[18] is acknowledged.

[14] Inter-American Development Bank, Department of Sustainable Development, Environment Division (1998, pp. 28 and 29).

[15] Distributed on February 27, 2001.

[16] Distributed on February 21, 2003.

[17] Distributed on March 5, 2004.

[18] Distributed on March 14, 2008.

3 The Legal Regulation of the Ocean: The Delimitation of Marine Spaces

UNCLOS establishes the delimitation of marine spaces, which are as follows: the territorial sea, the contiguous zone, the EEZ, the continental shelf, the high seas and the Area. The breadth of the territorial sea cannot exceed 12 nautical miles measured from baselines determined by UNCLOS (art. 3). In the territorial sea, the sovereignty of the coastal State extends to the airspace over the territorial sea, as well as to the seabed and subsoil of this marine space. The outer limit of the territorial sea is the line whose points are, from the nearest point of the baseline, at a distance equal to the breadth of the territorial sea (art. 4). This outer limit is relevant since there it begins the continental shelf, where exploration and exploitation of hydrocarbons are carried out, is measured.

The contiguous zone cannot extend beyond 24 nautical miles counted from the baselines from which the breadth of the territorial sea is measured. In this zone, the coastal State has the power to take the necessary control measures to prevent infringements of its customs, fiscal, immigration or sanitary laws and regulations, and to punish infringements of these laws and regulations (art. 33).

The EEZ will not extend beyond 200 nautical miles counted from the baselines from which the breadth of the territorial sea is measured (art. 57). In this zone, the coastal State has sovereign rights for the purposes of exploration and exploitation, conservation and administration of natural resources—both living and non-living, of the waters superjacent to the seabed and of the seabed and its subsoil—and with respect to other activities for the economic exploration and exploitation of the zone, such as the production of energy from water, currents and winds (art. 56.1.a.). Furthermore, the coastal State has jurisdiction with respect to the establishment and use of artificial islands, installations and structures; marine scientific research and the protection and preservation of the marine environment; among others (56.1.b). The coastal State must consider the rights of other States when exercising its rights. The rights stated in this article with respect to the seabed and its subsoil shall be exercised in accordance with Part VI, which regulates the continental shelf (art. 56.3).

Regarding the continental shelf, it comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea and throughout the natural prolongation of its territory to the outer edge of the continental margin, or to a distance of 200 nautical miles counted from the

baselines from which the breadth of the territorial sea is measured, in cases where the outer edge of the continental margin does not reach that distance (art. 76.1). The continental margin comprises the submerged prolongation of the continental mass of the coastal State and consists of the seabed and subsoil of the shelf, the slope and the continental rise. It does not include the deep ocean floor with its oceanic ridges or its subsoil (art. 76).

The coastal State exercises sovereign rights over the continental shelf for the purposes of exploring and exploiting its natural resources (art. 77.1). These rights are exclusive. That is, if the coastal State does not explore the continental shelf or does not exploit its natural resources, no one may undertake these activities without the express consent of that state (art. 77.2). UNCLOS establishes that the rights of the coastal State over the continental shelf are independent of its actual or fictitious occupation, as well as of any express declaration (art. 77.3), and clarifies that the natural resources mentioned in this part are the mineral resources and other non-living resources of the seabed and its subsoil, as well as the living organisms belonging to sedentary species (art. 77.4). In other words, unlike the EEZ, where the rights of exploration and exploitation are not exclusive, in this zone they are. Both in the EEZ and on the continental shelf, the coastal State will have the exclusive right to build, as well as to authorize and regulate, the construction, operation and use of installations and structures for the purposes related to the exploration, exploitation, conservation and administration of natural resources, and for other economic purposes (arts. 60 and 80).

The coastal State shall have exclusive jurisdiction over such installations and structures, including jurisdiction over customs, fiscal, health, safety and immigration laws and regulations. The construction of these facilities or structures must be duly notified, and permanent means must be maintained to warn of their presence. Abandoned or disused facilities or structures shall be removed to ensure the safety of navigation, considering the generally accepted international standards established in this regard by the competent international organization. For the purposes of removal, fishing, the protection of the marine environment and the rights and obligations of other States will also be taken into account. Appropriate notice of the depth, position and dimensions of the installations and structures that have not been completely removed will be given (art. 60.3). The coastal State shall have the exclusive right to authorize and regulate drilling for any purpose carried out on the continental shelf (art. 81).

Most hydrocarbons are found on the continental shelf. The continental shelf is at the lowest level of the tides, up to 200 meters deep. Also, the continental shelf is the area of greatest commercial interest to humanity, as most fishing activities occur there (Sánchez and Ardila, 2013).

The existence of mineral resources, including oil, is one of the first justifications for States to seek to appropriate the continental shelf over which to exercise their rights of sovereignty (Cançado Trindade, 2015).

UNCLOS provides for the possible extension of the continental shelf up to 350 nautical miles measured from the baseline (art. 76.4). In this regard, Argentine Republic made a submission to the Commission on the Limits of the Continental Shelf (CLCS) on April 21, 2009, which was approved in March 2016 by consensus.

The work was carried out by the National Commission on the Outer Limit of the Continental Shelf (COPLA), created in 1997 by Law 24.815. COPLA is an inter-ministerial Commission, under direct dependence and chaired by the Ministry of Foreign Affairs and Worship. In addition, it is composed of a member of the Naval Hydrography Service (SHN) and a member of the Ministry of Finance and Public Finance. It includes professionals from the various disciplines involved: geodesists, hydrographers, geologists, geophysicists, cartographers, oceanographers, experts in geographic information systems, lawyers and experts in international law.

The geographical extension of the Argentine continental shelf from the baseline to the 200 nautical miles is approximately 4,799,000 km^2. With the approval of this submission, Argentine Republic has added more than 1,782,000 km^2 of continental shelf. This extension represents a 35% increase in Argentine maritime jurisdiction and a 48% of the country's land surface.

The next marine space is the high seas, consisting of all areas of the sea not included in the EEZ, in the territorial sea or in the internal waters of a State, nor in the archipelagic waters of an Archipelagic State (art. 86). The use of the high seas exclusively for peaceful purposes is enshrined (art. 88) and it is established that no State may legitimately claim any part of the high seas as its sovereignty (art. 89). Likewise, the right of all States to lay submarine cables and pipelines on the seabed of the high seas beyond the continental shelf is enshrined (art. 112).

Finally, part XI regulates the marine space called "the zone". "Zone" means the seabed and ocean floor and its subsoil outside the limits of national jurisdiction (art. 1.1). The zone was declared common heritage of mankind (art. 136). The exploration and exploitation of hydrocarbons

in this marine space, which has a special regime since ISA is the authority that grants exploration and exploitation permits in the zone (art. 157), is not the subject of this book.

CHAPTER 3

Hydrocarbons in the Sea

1 Definition of Hydrocarbons

The purpose of this book focuses on the stage called *upstream* regarding hydrocarbons in the sea, that is, on the exploration and exploitation stage that is carried out using marine platforms. The stage called *downstream*, composed of industrialization, marketing and transport steps, is not covered by the purpose of this book.

Oil and gas are two of the hydrocarbons that are explored and exploited in the sea. Oil is a substance composed of a variable mixture of hydrocarbons, mainly liquids, although it can also have gaseous hydrocarbons in solution—the so-called light crudes—or solids—heavy crudes—, and other materials derived from the transformation of organic bodies. It is a complex and irreplaceable substance found in natural reservoirs called basins, where sedimentary accumulations formed overlapping strata. Therein, the organic matter of plants and small animals was subjected to the action of bacteria that extracted oxygen and nitrogen and enriched the sediments with carbon and hydrogen (Nonna, 1998). Marine basins accumulate a large amount of organic material from waste and dead organisms on the marine surface. Such accumulation of organic material can be up to 1000 m thick and, over millions of years, its fossil transformation is what we know today as oil (Kaiser et al., 2006). Oil is a non-renewable natural resource that is distributed irregularly on the

V. S. Radovich, *Marine Exploration and Exploitation of Hydrocarbons*,
Palgrave Studies in Maritime Politics and Security,
https://doi.org/10.1007/978-3-031-75177-6_3

planet. It is the raw material for a series of commercial activities and a fundamental source of energy for the world (Nonna, 1998).

The main components of crude oil are carbon and hydrogen. The percentage of each varies—in the case of carbon from 82 to 87%, and in hydrogen from 12 to 15%. Different compounds are obtained from oil, the best known is gasoline, which derives from the process called breaking or *cracking*.

In the Argentine legal system, there is no definition of hydrocarbons. On the contrary, in the Uruguayan legal system they are defined according to Decree 454/06,[1] which approved the regime of presentation of offers for the award of contracts for the prospecting, exploration and exploitation of hydrocarbons in that country, specifically in clause I of the contract sample: "Hydrocarbons: includes crude oil, natural gas as well as liquefied gases, in any of the conditions and relationships in which they are linked".

The model also defines crude oil as a "mixture of hydrocarbons in their natural state or obtained by condensation or extraction from natural gas and which remain liquid under normal conditions of pressure and temperature".

On the other hand, it defines natural gas as follows:

Natural gas: a mixture of gaseous hydrocarbons in their natural state, under any of the conditions defined below:

- Associated gas: is the gas linked to oil fields, which can be found under the pressure and temperature conditions of the reservoir, either dissolved in the oil or free, forming a gas cap in contact with it.
- Gas from a gas field: is the gas that, being in that state under the pressure and temperature conditions of the reservoir, lacks retrograde condensation properties.
- Gas from a condensate gas field: is the gas that, being in that state under the pressure and temperature conditions of the reservoir, has components that, due to isothermal pressure reduction, undergo the phenomenon of retrograde condensation.

[1] Uruguay. Regulatory Decree 454/06, *State Contracts. Exploration and Exploitation of Hydrocarbons*. National Register of Laws and Decrees: volume 1, semester 2, 2006, 28/11/2006.

Therefore, natural gas is found in properly individualized gas deposits, or associated in high areas of oil fields or in solution in the liquid phase.

In Uruguay, there is another definition of hydrocarbons, approved by Decree 316/11,[2] which states the basic facts for the selection process of oil companies for the exploration and exploitation of hydrocarbons at sea and the contract sample to be celebrated: "Hydrocarbons: generic denomination of carbon and hydrogen compounds that includes Crude Oil, Natural Gas, as well as Liquefied Gases in any of the conditions and relationships in which they are linked".

The most important characteristic of crude oils is their density, as it is a direct reflection of their chemical composition. Density is a representative criterion of the economic quality of crude oil, and it is used to set its price. It is expressed in gr/ml or in gr/cm3, or, more commonly, in API degrees (American Petroleum Institute), which evolve inversely. The commercial terms used are: light crudes (31.1°API), medium (22.3–31.1°API), heavy (10–22.3°API) and extra heavy (<10°API).

The density increases with the percentage of hydrocarbons and heavy products, especially resins and asphaltenes, and decreases with the temperature at which the oil was in its generation environment, which implies that deep deposits, buried at greater depths, will contain less dense crude oils. This implies that, from an economic point of view, they are more profitable as they present a higher API degree (Brussoni, 2017).

2 Oil and Its Impact on History

In the late nineteenth and twentieth centuries, the use of hydrocarbon resources, like mineral resources, became the basic input for various industrial activities in general, for example, the automotive industry and the war industry. In 1859, Edwin Drake built the first modern oil well in the United States and managed to extract the resource only 20 meters from the surface (Zarabozo Mila, 2014).

Until World War II, no explorations were carried out at sea. In 1880, shallow wells were drilled in California. In 1920, more significant deposits were discovered in the same area and in Laguna Maracaibo. After World War II, the search intensified, and the first offshore well was drilled 30 km

[2] Uruguay. Regulatory Decree 316/11, Approval of the Basis for the selection process of oil companies for the exploration and exploitation of hydrocarbons off the coast of the Republic.

from *the east of* the coast of Louisiana, in the United States (Commission, 2011). The excessive costs discouraged this type of exploration.

Since then, the technique has evolved, and currently, a third of the oil and a quarter of the natural gas consumed worldwide come from the sea (Roach, 2010). In 2001, there were more than 8000 offshore platforms and 700 exploration wells located in about 5000 marine deposits across more than a hundred countries (Esmaeli, 2001, cited by Ferrara, 2015). Courteau (2011), cited by Silva Oliveira and Silva Savio (2015, p. 170), states that there are more than 15,000 offshore oil platforms in the world and that there is an increasing number of drilling projects exceeding 1000 meters in depth.

Hydrocarbons have triggered wars. Even World War I was called the "oil war". Japan invaded Pearl Harbor to protect its flank while seizing the oil resources of the East Indies, just as Hitler had the strategic objective to invade the Soviet Union and take over the oil fields of the Caucasus (Nonna, 1998).

Until an alternative source is found, oil will continue to affect the world economy. Its price fluctuations will boost economies or, on the contrary, produce inflation and recession, as humanity currently depends on oil to carry out daily activities (Nonna, 1998). In this same sense, the Commission that studied the accident of the Deepwater Horizon platform (owned by the British Petroleum company in the Gulf of Mexico), when asked why a company was drilling in the search for oil in deep waters –49 nautical miles off the coast of Louisiana–, responded that it was because American people currently consume a large amount of oil products (approximately 18.7 million barrels per day). Furthermore, the Commission (2011) explained that, even though work is being done to improve the efficiency of vehicle fuels and in the development of alternative fuels, these marine resources will still not be set aside in the near future.

Oil has a dual character: it is a non-renewable natural resource that must be preserved, and it is also an element that pollutes the environment and, in that sense, it is a powerful weapon, not only as a factor of international power and pressure, but also as a war instrument (Nonna, 1998).

The exploration stage is a complex process that comprises three phases. The first stage is the realization of geological mapping, which is a sampling of rocks and their corresponding analysis. The second stage

consists of the use of the information obtained in the so-called seismic prospecting. Finally, in the third stage, the proper drilling.

In the first stage, aerial photography and satellite images are used. When the initial recognition delimits an area with trapping probabilities, seismic studies begin. At sea, seismic ships are used that drag hydrophones receivers of the rebound waves, generated by compressed air charges applied to the water. All the information provided by geological and geophysical procedures is analyzed and interpreted by experts to decide if it is justified to drill exploratory wells in the studied area (Nonna, 1998).

Finally, in the drilling phase at sea, several exploratory wells are located in possible areas, using sophisticated equipment. The process is complex and costly (Nonna, 1998).

3 A Conceptual Clarification: *Offshore* vs. Marine

The platforms that are used to explore and exploit hydrocarbons at sea are commonly referred to as "*offshore*". Its generalized Spanish translation is "*costa afuera*". The term *offshore* is an adjective that means "away or at a distance from the coast".[3] It was adopted to describe something opposite to *onshore*, which means "on the coast". However, the term *offshore* identifies these platforms from a perspective based on the coast, not on the sea, so I argue that it does not adequately convey recent developments in the exploration of the seabed and the subsoil.

Initially, exploration was carried out near the coast, but in the last eighty years it began to be carried out in deep waters, due to technological innovations. This particularity has implications for environmental safety measures, which must be appropriate to the techniques that are being developed, especially those techniques that are used in the deepest waters, which are subject to the effects of high pressure that increases at greater depth at sea. In fact, the platforms in question are in the marine environment, not "outside of the coast", so I argue that the platforms should be considered from the marine point of view, not from the terrestrial or coastal one.

[3] Cambridge Dictionary.

In the first attempts to regulate the issue, the term *offshore* was not used. For example, the first regulatory attempt, the Convention on Civil Liability for Oil Pollution Damage resulting from the Exploration and Exploitation of Seabed Mineral Resources (CLEE, 1977),[4] did not use the term *offshore*, but referred to the "seabed" (art. 2.1). The term *offshore* began to be used in the drafts prepared by the CMI[5] (the Convention on Mobile Offshore Installations), in 1977, known as the Rio Draft and the Sydney Draft.[6]

In Spanish, the expression "*costa afuera*" is used. For example, in a recent Uruguayan decree, called "Bases for the selection process of oil companies for the exploration and exploitation of hydrocarbons offshore of the Eastern Republic of Uruguay (Round Uruguay II)". Similarly, the expression "*mar adentro*" (inside the sea) was adopted. An example is the International Convention on Preparation, Cooperation and Response to Oil Pollution Incidents (OPRC 1990).[7]

I argue that the use of the expression "*mar adentro*" is redundant, the sea is sea, it is not necessary to clarify that something happens within the sea. If it is the sea, it is inside. If it is not, it is outside, and it will not be sea, but coast or land. It is necessary to call the natural resource "sea" by its name. In this sense, from a linguistic point of view, it is more appropriate to use the positive formulation of terms, not the negative (as is done with "*off*" and "outside"). This is a decision to call things by their name, for what they are, not for what they are not.

[4] Convention on Civil Liability for Damage from Pollution by Hydrocarbons resulting from the Exploration and Exploitation of Mineral Resources of the Seabed ("CLEE 1977"), adopted on May 1, 1977 (not in force).

[5] The International Maritime Committee, established in 1897, is a non-governmental and non-profit Belgian organization. Its central objective is the uniformity of Maritime Law. It is a consultant to the IMO, which requests the drafting of international convention projects. The CMI is made up of the national Maritime Law associations of the States, in the case of Argentina, the Argentine Association of Maritime Law (AADM).

[6] Sydney Draft on an International Convention on Mobile Offshore Artifacts ("Sydney Draft"), CMI, 1994 (not in force).

[7] International Convention on Oil Pollution Preparedness, Response and Cooperation ("OPRC 1990"), adopted on November 30, 1990, 1891 UNTS 51 (entered into force on May 13, 1995). Argentine Republic is a State party, approval law No. 24.292. Official Bulletin, 01/12/1994.

Moreover, the use of the adjective *offshore*, applied to the exploration and exploitation of the seabed, does not currently convey appropriately the meaning of this activity from the perspective of sustainable development and the ecosystem approach, both approaches adopted by the CBD. The CBD considers marine ecosystems[8] and the marine environment[9] as critical for the protection of biodiversity, as demonstrated by the fact that one of its thematic programs, the Jakarta Mandate, is based on six principles, among them the ecosystem approach, which enhances the traditional focus of single-species environmental protection. In practice, the ecosystem approach means that the conservation and sustainable use of biological diversity must be addressed in a holistic manner, that extends to socioeconomic and cultural factors.[10] What is relevant is that the CBD uses the terms "sea" and "marine", it never refers to "offshore". In this line of thought, in this book I decide to refer to "marine" platforms, not to "offshore" platforms. Accordingly, I decide to refer to exploration and exploitation in the sea, instead of *offshore* exploration and exploitation.

The terms *offshore* and "*costa afuera*" are misleading and contribute to difficulties in the governance of this topic. For example, the IMO[11] Council, the executive body of the Organization, has refused to discuss the request that was submitted by the Republic of Indonesia to examine liability for transboundary pollution arising from offshore exploration and exploitation. The IMO Council held that its mandate is limited to pollution that comes from ships and does not extend to offshore pollution [sic] (Balkin, 2014), although the objective of the IMO summarized in its slogan is: "safe and efficient navigation in clean oceans".[12] The request

[8] Art. 2 CBD.

[9] Art. 22.2 CBD.

[10] "The Jakarta Mandate- from global consensus to global work". Convention on Biological Diversity publication, https://www.cbd.int/doc/publications/jm-brochure-en.pdf [Last visited: October 2022].

[11] The International Maritime Organization, is a specialized agency of the United Nations created in 1948. Its main objectives are summarized in its slogan: safe and efficient navigation in clean oceans.

[12] "Introduction to IMO", IMO, London, https://www.imo.org/en/About/Pages/Default.aspx [Last visited: October 2022].

was made by Indonesia in 2010, after the accident on the Montara platform. The refusal by the IMO to study the issue demonstrates that the use of the term offshore carries difficulties in the governance of the subject.

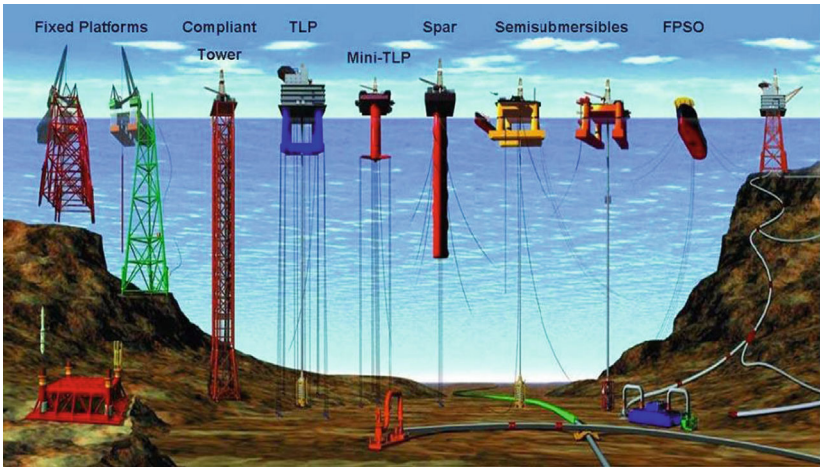
Balkin (2014) argues that this argument is just a "smokescreen", just like the argument that this issue does not require international regulation because hydrocarbons are exploited on the continental platforms of the States, so it is a matter subject to the national jurisdiction of each State, at most to bilateral agreements. Balkin (2014) adds that there has often been political will to extend the mandate of the IMO, for example, by regulating the prevention of terrorist attacks on platforms. The delegations that most opposed the IMO regulating the exploration and exploitation of hydrocarbons at sea were those with industries dedicated to this issue. It is also not relevant to determine whether the platforms are or are not ships for the IMO to have jurisdiction in this regard (Balkin, 2014). It should be clarified that, at the time of expressing this opinion, Rosalie Balkin was the Director of Legal Affairs and External Relations of the IMO.

In this same line of thought, the next chapter mentions that, in the United States, the Minerals Management Service (MMS), named as such before the accident on the Deepwater Horizon platform, was renamed the Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE) after the accident. That is, the new institutional name includes the term "ocean" in its name, but neither the term *offshore*, nor "minerals". The ocean has been placed in the foreground.

4 Types of Marine Platforms

There are two main types of marine platforms: drilling platforms and production platforms. Drilling platforms are used in the first instance as their name suggests: to drill wells—the Montara and Deepwater Horizon platforms were, for example, drilling platforms. Production platforms are used after the wells are drilled and sealed, and are more stable than drilling platforms, as they are not precisely drilling, impacting the seabed.[13]

[13] 'Gulf Platform Investigators Focus on Blast Cause' *CBS News* (September 2, 2010), https://www.cbsnews.com/news/gulf-platform-investigators-focus-on-blast-cause/ [Last visited: October 2022].



Graph 1 Fixed and mobile platforms[14] (*Source* Bureau of Ocean Energy Management, https://www.flickr.com/photos/boemgov/12003915843, https://creativecommons.org/licenses/by-sa/2.0/)

Another classification related to platforms is the one that distinguishes between fixed platforms and mobile platforms (see Graph 1). Fixed platforms are permanently attached to the seabed. On the other hand, mobile platforms are more similar to ships, and indeed most of these platforms are tankers that have been converted into platforms (Tanaka et al., 2005). This last classification is relevant because—as it will be studied later in Chapter 6—these mobile platforms tend to be included, to a greater extent, in the scope of application of specific maritime law conventions, related to ships due to their similarity. However, as it will also be studied later, the trend shows that the most modern maritime law conventions also include fixed platforms in the scope of their regulation.

[14] References. Fixed platform: fixed platform. Semi-sub: semi-submersible. Spar: spar. TLP (Tension leg platform): (platforms with tension legs). FPSO/FSO (Floating Production Offloading and Storing/Floating Storage and Offloading unit): (Floating Unit for Production Discharge and Storage/Floating Unit for Storage and Discharge).

CHAPTER 4

Impacts on the Marine Environment

1 The Role of Maritime Law in the Regulation of Marine-Environmental Disasters

History shows that, in the field of maritime law, each maritime tragedy has been followed by the negotiation of an international convention. Cappagli (2011, p. 30) expresses it in the following terms: "As it can be seen, the history of tanker accidents is the history of the development of international norms relating to marine pollution".

Cappagli (2011) explains that, after the first sea pollution disaster, which occurred in 1967 as a result of the oil spill from the ship *Torrey Canyon* (which had run aground at the entrance of the English Channel and spilled all of its cargo, 120,000 tons of crude oil), in 1969 the Convention on Intervention on the High Seas in Cases of Oil Pollution Casualties (Intervention, 1969) was enacted.[1] This disaster raised concerns about the powers of coastal States to act outside their territorial sea in the event of an accident in which a ship spilled oil. The convention empowered them to intervene on the high seas with respect to foreign ships in cases of serious danger to their coasts.

[1] International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (" *Intervention* 1969"), adopted November 29, 1969, 970 UNTS 211 (entered into force on May 6, 1975). Argentine Republic is a State party, approval law No. 23.456. Official Bulletin, 12/1/1986.

V. S. Radovich, *Marine Exploration and Exploitation of Hydrocarbons*,
Palgrave Studies in Maritime Politics and Security,
https://doi.org/10.1007/978-3-031-75177-6_4

Also, at the time of the *Torrey Canyon* accident, tort liability in maritime law was based solely on fault, which had to be proven by the claimant, in addition to the fact that the shipowner could limit his or her liability and it was difficult to establish the applicable law and the competent court. Thus, after this disaster, in 1969, the International Convention on Civil Liability for Oil Pollution Damage (CLC 69) was negotiated,[2] and in 1971 the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND 71) was negotiated, both in Brussels. Both were amended by the protocols of 1976, 1984 and 1992,[3] and the Fund Convention was enlarged by the 2003 Protocol. The international funds for compensation for damage due to oil pollution are known as FIDAC. They are two intergovernmental organizations, the FUND 92 and the Supplementary Fund, which facilitate the compensation for damage due to oil pollution resulting from spills of persistent oil from oil tankers. The CLC 69 convention established the limited and objective liability of the shipowner from which the spill occurred and the obligation to ensure the liability. FUND 71 established an international fund to pay up to a second limit compensation above the shipowner's liability limit. Therefore, according to these Conventions, the liability is not comprehensive, as required by the Argentine Environmental Law (LGA) (arts. 29 and 30) but limited. As a consequence of this, in the event of a persistent oil spill caused by a tanker, liability will be regulated by the LGA and the Argentine Hazardous Waste Law (24.051), not by the CLC convention. This, because although international conventions have a higher hierarchy than laws, they cannot contradict public order based on art. 27 of the Argentine Constitution (CN), and the LGA is a public order law (art.3) in the

[2] International Convention on Civil Liability for Oil Pollution Damage ("CLC 1969"), adopted November 29, 1969, 973 UNTS 3 (entered into force June 19, 1975). Argentine Republic is not a State party.

[3] 1992 Protocol amending the International Convention on Civil Liability for Oil Pollution Damage ("CLC PROT 1992"), adopted November 27, 1992, 1956 UNTS 255, (entered into force May 30, 1996). 1992 Protocol amending the 1971 International Convention for the Establishment of an International Fund for Compensation for Oil Pollution Damage ("PROT FUND 92"), adopted November 27, 1992, 1953 UNTS 5330 (entered into force May 30, 1996). Argentine Republic is a State party, approval law No. 25. 137. Official Bulletin, 09/08/1999.

opinion of Capaldo (2009).[4] The principle of limitation of liability of the shipowner is a traditional principle of maritime law (Ray, 1992). This principle allows those responsible for damage not to pay the full value of that damage, but up to a legally permitted limit, based on the traditional principle of maritime law, which states that the expedition must continue and that the ship must sail. Ray (1992, p. 363) explains that the institute has been founded on several reasons:

a. *in the conception of the ship as a maritime asset or fortune; as a thing on which the responsibility for the credits born in the course of navigation lay;*
b. *in the fact that the captain, to whom the navigational activity is entrusted, carries it out far from the control of his or her principal, and, finally,*
c. *in the fact that those who submit to the risks of the sea, share the consequences of the acts of the captain or his or her dependents, which are not the result of a fault or omission of the shipowner or operator.*

Ray (1992) argues that currently the institute aims to establish fixed limits that allow the operator to hire insurance within reasonable costs and distribute them among all those interested in the expedition as risks of the sea, especially in cases of major catastrophes.

It is likely that, due to the difficulty of obtaining the issuance of an insurance that covers full of the damage, the environmental insurance that Article 22 of the LGA demands could not be complied with in Argentine Republic.[5]

Regarding CLC 1969 convention, damage caused outside the ship by pollution resulting from oil leaks or discharges from that ship is covered. In the 1992 Protocol (PROT 92) the same damage is considered, but also

[4] In *contrary sensu*, Chami (2010) argues that in this case the liability should be governed by these conventions based on the specialty of the matter and that they have a higher hierarchy than the laws.

[5] Art. 22 LGA: "Every natural or legal person, public or private, who carries out activities risky for the environment, ecosystems and their constituent elements, must contract an insurance coverage with sufficient entity to guarantee the financing of the reparation of the damage that in its type could produce; likewise, according to the case and the possibilities, may integrate an environmental restoration fund that enables the implementation of repair actions".

the costs and losses of preventive measures[6] and environmental restoration are included. When strict liability is established in the event of a spill, the shipowner is liable, even if there was no fault on his part.

Vega (2013) explains that, in principle, responsibility is attributed to the shipowner, but it does not prevent actions from being brought against those who have caused or aggravated an accident, such as shipbuilding companies and classification societies. According to PROT 92, the shipowner has the right to limit his or her liability for each event, unless it is proven that the pollution damage was caused by an action or omission of his or her own fault and that he or she acted with the intention of causing that damage. In PROT 92 a modification was introduced in favor of the shipowner, since previously the CLC 69 convention held that it was enough for the shipowner to have acted with fault or negligence to lose the right to limit his liability. According to PROT 92, the ship- owner has the right to limit his liability and only loses this right if he acted with malice or recklessness. The compensation must be equal to the cost of restoration measures plus the loss of profits resulting from the damage caused to the environment. If the value of the damage exceeds certain limits, FUND 92 establishes that the repair to the victim will be financed from a common fund. In this case there is also a compensation limit, but it is higher than the one set by the CLC convention. Ray (1992) points out that this system does not provide for compensation of the totality of damage caused to all victims, but rather compensates in full those who have been "more victims than others", for being more exposed to the results of pollution. The fund's bodies created a working group that outlined the criteria for determining this category.

Therefore, according to the three-level compensation system established by international conventions, the shipowner owner of the oil tanker in which the spill occurred is legally responsible for the payment of compensation at its first level, and the receivers of the hydrocarbon in the member States of the funds contribute to the second and third level once the limit of liability applicable to the shipowner of the oil tanker is exceeded.

[6] In the field of Maritime Law, "preventive measures" are those that are taken once the accident has already started, not those that are taken to prevent the accident from being triggered.

Also in 1969, the Convention to prevent water pollution by hydrocarbons (OILPOL 1954) was amended,[7] it was designed to combat operational pollution (Nonna, 1998). It was recognized that, although accidental pollution damaged the environment, operational pollution was also significant and habitual. Some of the measures that were arranged with the reform of OILPOL 1954 were that the remnants of tank washing were sent to a special tank. In this way, hydrocarbons would not mix with seawater.

In 1971 the convention was amended again and the size of the ships to be built from 1972 was limited. Later, in 1973, the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) was adopted,[8] and in 1974 the International Convention for the Safety of Life at Sea (SOLAS, 1974) was adopted.[9] They were designed to combat operational pollution. In 1978 both conventions were reformed and, in the same year, the ship *Amoco Cadiz* ran aground off the coast of Great Britain and caused the spill of the 223,000 liters of crude oil that made up its cargo. The oil covered more than 130 beaches and in some places the oil layer reached 5 cm thick (Cappagli, 2011). SOLAS 1974 establishes provisions relating to ship construction linked to safety, including standards to prevent pollution.

In 1972, the London Convention established the International Regulations for Preventing Collisions at Sea (RIPA), in force since 1977, which has 53 States party representing 98.36% of the tonnage of the world fleet. It applies to all ships on the high seas and in waters that have communication with the high seas and are of maritime navigation (Rule 1.a.). Cappagli (2011) explains that, in Argentine Republic, by application of art. 301.0101. (a) and (b) of REGINAVE, they also apply in all waters of national jurisdiction. Part B of RIPA establishes the rules of course and

[7] International Convention to Prevent Oil Pollution from Ships ("OILPOL 1954"), adopted May 12, 1954, 327 UNTS 3 (entered into force July 26, 1958).

[8] International Convention to Prevent Pollution from Ships, 1973, amended by the Protocol of 1978 and by the Protocol of 1997 ("MARPOL 73/78"), adopted February 19, 1978, 1340 UNTS 61 (entered into force October 2, 1983). Argentine Republic is a State party, approval law N° 24.089. Official Bulletin, 25/06/1992.

[9] International Convention for the Safety of Life at Sea ("SOLAS Convention"), adopted November 1, 1974, 1184 UNTS 2 (entered into force May 25, 1980). Argentine Republic is a State party to the 1978 Protocol and 1988 Protocol, approved by laws N° 22.502 and N° 24.213. Official Bulletin, 5/10/1981 and 6/07/1993, respectively.

government, while Part C establishes the lights and marks that ships must display, and Part D regulates the acoustic and light signals.

In March 1989, the accident of the ship *Exxon Valdez* occurred in US waters. After that spill, in 1990, the *Oil Pollution Act* (OPA),[10] which established the obligation of double hulls for all ships entering that country was approved. The requirement of double hulls generated a cost for the shipowners, a cost that could no longer be externalized to the detriment of the environment. MARPOL, according to its 1992 amendment, also established the obligation of double hulls on ships.

Similarly, in line with measures to minimize the consequences of oil spills, the OPRC 1990 Convention can be mentioned, which establishes that all ships must have an emergency plan.

In 1999, the accident of the ship *Erika* accelerated the retirement of single-hull ships. This was the maritime disaster that led to the start of negotiations for an international convention on places of refuge. Places of refuge were defined as "a site where a vessel in need of assistance can take actions to stabilize its condition and reduce risks to navigation and to protect human life and the environment" (Resolution A.949 (23), Art. 1.19, IMO) (Radovich, 2017).

Although this disaster was not directly linked to the denial of access to a place of refuge, it led to the adoption of the package of measures known as "post *Erika*", which included discussions within the IMO about the issue of places of refuge (Radovich J., 2010).

These guidelines state:

> When a ship has suffered an accident, the best way to prevent damage or pollution due to its progressive deterioration is to lighten the cargo and fuel; and repair the damage that the ship has suffered. This operation is most appropriately carried out in a place of refuge. (Resolution A.949 (23), Art. 1.3, IMO)
>
> Therefore, granting access to a place of refuge involves a political decision that can only be made on a case-by-case basis with due consideration to the balance between the advantage for the ship and the environment that results from taking the ship to a place of refuge and the risk to the environment that implies that the ship is near the coast. (Resolution A.949 (23), Art. 1.7, IMO)

[10] U.S. OPA Law. 33 U.S.C. §2701 *et seq*., 1990.

Therefore, the IMO affirms that the best way to assist a ship in danger is in a place of refuge. However, it establishes that the decision is a political one that must be weighed in each case. Currently, States are not obligated to offer places of refuge to ships in distress.

The ship accidents of the *Castor* in 2000, and the *Prestige* in 2002, were directly linked to the denial of access to places of refuge. The ship *Castor*, loaded with gasoline, suffered significant damage during a storm in the Mediterranean, and several States denied it access to places of refuge. However, no significant environmental consequences occurred thanks to the salvagers carrying out a difficult transshipment operation at sea (Radovich J., 2010).

The *Prestige*, which was transporting 77,000 tons of *fuel–oil* heavy, from Lithuania to Singapore, suffered structural damage as a result of bad weather about 30 miles from Cape Finisterre, Spain (Cappagli, 2011). They denied them a place of refuge in Portugal and in several African countries, until finally the ship broke apart and sank about 170 miles from Vigo, at a depth of 3500 meters. The pollution affected 270 beaches and cross-border pollution affected the coasts of neighboring countries. As a result of the spill, authorities had to ban fishing in an area where this activity is of great importance. The total amount of claims for damage resulting from this accident exceeded the compensation limit that the FIDAC had available at the time of the event 203,000,000 special drawing rights. The sinking of the *Prestige* led to new amendments to the MARPOL Convention, which came into effect in 2007, among which a double bottom was required for the pump room (see photographs n.º 3 and n.º 4).

Another accident that involved the issue of places of refuge was, in 2012, the accident of the ship *Stolt Valor*, a chemical tanker that was sailing in the Persian Gulf when it suffered an explosion. The fire was active for five days, and 24 of the crew were rescued by a US destroyer. Then the ship *Stolt Valor* was taken in tow, but not to take it to a place of refuge, but to move it away from the coast, at the request of the authorities. A place of refuge was requested in Bahrain, Qatar, Saudi Arabia and Iran, but all four countries refused to grant it. After prolonged negotiations, Saudi Arabia agreed that the harmful and dangerous substances were transferred to others ships in its waters six days later. The transfer operations concluded after 29 days. Finally, after a month, Bahrain agreed to have the ship moved to one of its ports to be scrapped (Radovich J., 2010) (Photographs 1 and 2).

Photograph 1 Accident of the ship Prestige (*Source* https://www.ecologistasenaccion.org/wp-content/uploads/adjuntos-spip/jpg/Hundimiento_Prestige_02.jpg)

Another case, which occurred in 2013, was the case of the ship *Maritime Maisie*, a Hong Kong-flagged chemical tanker that collided with a car-carrying ship near Busan and caused an explosion, fire, and structural damage to the ship. Two hundred requests for a place of refuge were made without success. By the time the Republic of Korea offered a place of refuge, 102 days had passed since the accident. The ship, which was unmanned and carrying 30,000 tons of harmful and dangerous substances, was continuously towed in search of calm waters, and it took almost two weeks to put out the fire (Radovich J., 2010).

In relation to the institute of places of refuge, I have argued that they are an application of the principle of environmental prevention (Radovich, 2017). When analyzing the granting of places of refuge from the perspective of the social construction of risk, it can be said that it focuses on the dispute between, on the one hand, the interests of the State, which, by allowing a ship that is spilling hydrocarbons to enter its coasts, runs the risk of contaminating its waters, and on the other hand, the interests of

Photograph 2 Accident of the ship Prestige (*Source* https://www.ecologistaseaccion.org/wp-content/uploads/adjuntos-spip/jpg/riasbaixas_03.jpg)

the ship owners, who want the least damage to their ships and for them to continue operating. In this order of ideas, Morrison (2012) explains that, from 1970, when the construction of larger ships began in order to transport a greater amount of hydrocarbons, States began to deny the granting of places of refuge, as the risk of contamination of their coasts was greater.

In Chapter 6 we will study whether the referred international agreements are applicable to marine platforms.

2 The Role of Environmental Law in the Regulation of Marine-Environmental Disasters

At the same time that these changes were occurring in the shipping industry, a new environmental awareness was being generated at the international level. For example, starting with the Stockholm Conference and its subsequent Declaration in 1972, followed by the creation of the

United Nations Environment Programme (UNEP) and the Rio Conference on Environment and Development in 1992, as well as Chapter 17 of Agenda 21[11] and the 2002 World Summit on Sustainable Development. Concomitant with these changes, UNCLOS was being negotiated (Morrison, 2012).

Environmental law is a cross-cutting branch of law in constant evolution, which revolutionizes branches of classical law previously consolidated (Radovich, 2017b). Lorenzetti (2008) explains that environmental law changes the way we see problems and the solutions provided by our culture, a matter that affects the stage of hypothesis formulation and consists fundamentally of an epistemological shift, because a decoding problem arises, which impacts on the existing order, proposing a different one, subject to its own needs, and therefore deeply heretical. The novelty is that now nature, in its entirety, appears as "scarce", so it presents a conflictual scenario different from the one we know.

Lorenzetti (2008) distinguishes between the "macro-good" and the "micro-environmental goods". The environment is a macro-good and as such it is a system, which means it is more than its parts: it is the interaction between all of them. The paradigm shift generated by environmental law focuses on the avoidance and prevention of environmental damage, where the polluter-pays principle appears in a subsidiary form in the face of the transcendence that other obligations, such as the prevention of damage, have acquired (Pigretti and Cafferatta, 2002).

Since 1937, when the first marine platform was installed in the Gulf of Mexico (Commission, 2011, p. 21), the exploration and exploitation of hydrocarbons at sea has been growing at a steady pace worldwide and is increasingly taking place in deep waters, new regions, and extreme environments.

The environmental impacts of this activity affect marine biodiversity, for example, mangrove ecosystems and fish, mammals, and migratory birds. Interferences occur during seismic analyses carried out in the exploratory stage to confirm the presence of hydrocarbons, which cause sound emissions, a form of energy that affects biodiversity. As already mentioned, operational pollution is that which derives from daily activities, such as discharges of substances and gas emissions, which may consist

[11] Agenda 21 ("Agenda 21"), adopted June 14, 1992, UN Doc.A/CONF. 151/126 (vol. I).

of light hydrocarbon molecules and heavy metals in the so-called "production water". Accidental pollution, on the other hand, is that which derives from accidents, such as those that occurred on the Montara and Deepwater Horizon platforms—this latter type of pollution usually has a greater impact on mass media (Radovich, 2017b).

During the stage prior to the installation of the platforms, which I will call the preventive-precautionary stage, the safety aspects to be taken are outlined. An installation authorization system is required that considers the EIAs, the implementation of public hearings, and public participation (in the case of Argentine Republic, specifically, the instruments mandated by the LGA). After the activity is launched, if environmental damage is generated—in case the available tools in the preventive-precautionary stage have not been correctly implemented—recourse will be made to in situ repair or monetary compensation, during what I call the subsequent stage. These stages are linked, respectively, with the principles of prevention and precaution, and also with the principle of responsibility.

From a legal point of view, it can be affirmed that the stages were developed in reverse order. That is, initially, the last stage, the subsequent one, was developed with the contributions that maritime law provided in its conventions, which regulated the mechanisms of compensation for damage caused by oil pollution from ships, studied in the previous point.

The emphasis on the "previous" stage, the preventive-precautionary one, was introduced by environmental law, more specifically from the Rio Declaration. However, it is also true that maritime law regulated preventive issues related to navigation safety to avoid accidents. The principle of prevention was reflected in OILPOL 1954 and is currently reflected in MARPOL 73/78, in SOLAS 1974 standards and in Title 8 of REGINAVE (Regime of Maritime, River and Lake Navigation, dec. 4516/1973 and its amendments) (Cappagli, 2011). However, environmental law introduced other tools, such as public participation, EIA, the MPAs regime, the ICM, and MSP.

Regarding public participation, in Alaska, after the oil spill caused by the tragedy of the Exxon Valdez ship in 1989, citizens organized a Citizens' Council named Prince William Sound Regional Citizens Advisory Council (PWSRCAC, for its acronym in English), an independent and non-profit organization through which citizens promote the environmentally sustainable operation of oil tankers. Kloff et al. (2004) argue that public participation in the planning of the development of marine oil exploration and exploitation is necessary.

2.1 *Environmental Principles*

López Alfonsín (2015) explains that the general environmental principles are the guiding principles of environmental protection. They are standards that constitute the directives on which environmental law is based. They form a guiding pattern of law for legal operators, for example for the legislator, because the rules the legislator dictates must conform to these principles. The principles are useful when there is a dispute between them and the legislation intended to be applied to the respective matter, as they are of vital importance to prevent the dysfunctional advancement of regulations corresponding to another subject, and they contribute to achieving the development and consolidation of the own regulation and the delimitation of the borders of the specialty.

Lorenzetti (2008) states that the principle is a legal norm and not a mere declaration, although its degree of obligation is different from the rule of law. The principles are indeterminate legal concepts and do not describe a fact, while the rules, on the contrary, contain mandates, permissions or prohibitions applicable to a precisely delimited assumption. The principle is an appropriate instrument for situations of uncertainty because it is not rigid and because it allows to measure in each case its concrete weight, making a balance with other competitive elements. Regarding the application of the principle, it is casuistic, it is applied case by case, but this casuistry not only occurs through judicial or administrative application, but also when drafting treaties or laws (Lorenzetti, 2008).

In Argentine Republic, environmental principles are constitutionally based on the environmental clause. Article 4 of the LGA establishes that the principles will be used to interpret and apply the law and all national environmental policy.

2.1.1 *Prevention and Precaution Principles*

The principle of prevention tends to avoid a future, but certain and measurable damage. On the other hand, the principle of precaution aims to prevent the creation of a risk wich is still unknown and therefore has unpredictable effects (Berros, 2013).

The Attorney General of the Argentine Supreme Court of Justice (CSJN) held in his opinion in the case *Salas*[12]:

[12] "*Salas, Dino y otros c/Provincia de Salta y Estado Nacional*", (2009 CSJN, Fallos 332:663).

> The precautionary principle produces an obligation of extended and anticipatory foresight on the part of the public official. Therefore, the law is not complied with if authorizations are granted without knowing the effect, with the purpose of acting once that damage manifest. On the contrary, the administrator who has before him two options based on risk, must act precautionarily, and previously obtain sufficient information in order to decide based on an adequate balance of risks and benefits.

Both repair and prevention are based on "the certain", either because it consists of materialized damage, or because they refer to risks that are known, and susceptible to be matrixed. On the other hand, the problem of precaution is configured as the introduction of the uncertain, the controversial or unknown. Epistemologically these are differentiated situations. Precaution does not present itself as a continuity of prevention, which takes care of that for which this second does not have tools. On the contrary, there is a rupture between both, a relationship with science and an image of it that is profoundly dissimilar (Berros, 2013). Prieur (2001) argues that it seems that we are heading towards a deconstruction of the image of science as the domain of certainty and truths verifiable from data of experience (cited by Berros, 2013, p. 40). The construction of new regimes of causality and new ways of thinking about harm is needed (Berros, 2013).

The initial link of the precautionary principle is usually located in the mid-1960s in Germany, when the *Vorsorgeprinzip*, the first germ of the idea of precaution, was introduced, which was born, precisely, in the area of maritime law. By that date, this principle had already made a significant journey, both in relation to the environmental issue in general, as well as in relation to specific problems, such as the protection of biodiversity or specific natural resources, among others (Berros, 2013).

Internationally, it appears inscribed in both *hard* and *soft* norms. In this sense, Berros (2013, p. 27) explains:

> Its various manifestations have heterogeneous scope and strength, from its consideration as a founding principle of environmental law to being outlined as a "perspective" or "approach", or well, considered as a sort of "anti-scientific technological development" instrument.

In 1992, the Rio Declaration defines it in principle n.° 15:

> In order to protect the Environment, States should apply the precautionary approach widely according to their capabilities. When there is a risk of serious or irreversible damage, the lack of absolute scientific certainty should not be used as a reason to postpone the adoption of effective measures in terms of costs to prevent environmental degradation [sic].

In that year, it is also incorporated into the UNFCCC[13] and the CBD.[14]

> The formulations differ in the texts in emphasis and degree of strength, which has been thematized by those who undertook to carry out a study of the grammar of this principle in a comparative way, reaching different conclusions. It is argued, for example, that beyond the number of different definitions that appear in the treaties it has quickly become one of the fundamental principles of international environmental law, that there is a plurality of non-stabilized conceptions that account for the diversity of social contexts. (Berros, 2013, p. 28).

The direct prohibition of certain activities is an application of the principle of precaution admitted at the international level, because there is no scientific certainty that these can be carried out in perfect care of the environment (Nonna and Radovich, 2016).

For example, the Madrid Protocol on the Environment to the Antarctic Treaty[15] directly prohibits the exploitation of mineral resources (art. 7). In the same vein, the IUCN developed categories of protected areas. One of the categories is national parks, where the IUCN proposes

[13] Art. 3: "The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. When there is a threat of serious or irreversible damage, the lack of total scientific certainty should not be used as a reason to postpone such measures, considering that policies and measures to deal with climate change should be cost-effective in order to ensure global benefits at the lowest possible cost".

[14] Preamble: "Also noting that when there is a threat of reduction or substantial loss of biological diversity, the lack of unequivocal scientific evidence should not be used as a reason to postpone measures aimed at preventing or minimizing that threat".

[15] 1991 Protocol to the Antarctic Treaty on Environmental Protection of 1957 ("Madrid Protocol"), adopted October 4, 1991, 30 ILM 1455 (1991) (entered into force January 14, 1998). Argentine Republic is a State party, approval law No. 24.216. Official Bulletin, 06/11/1993.

that hydrocarbon and mining extraction activities should be prohibited.[16] The same prohibition is proposed in Argentine Republic by Law 22.351 on National Parks[17] in its article 5, although in interjurisdictional coastal-marine parks this prohibition is not applicable, as it has been expressly established in their creation laws the non-application. This goes against the environmental principle of non-regression which establishes that neither the regulations nor the jurisprudence should be modified if this would imply a setback with respect to the levels of environmental protection previously achieved. The principle of non-regression entered the debates around the conference held by the United Nations on Sustainable Development in June 2012, in Rio de Janeiro, known as "Rio + 20". In paragraph 20 of the final text of that summit, called "The Future We Want", the principle of non-regression of environmental protection was established in these terms:

> We recognize that since 1992 progress has been insufficient and there have been setbacks in some aspects of the integration of the three dimensions of sustainable development, aggravated by the multiple financial, economic, food and energy crises, which have endangered the ability of all countries, particularly developing countries, to achieve sustainable development. In this regard, it is essential that we do not backtrack on our commitment to the outcomes of the United Nations Conference on Environment and Development. We also recognize that one of the main current problems of all countries, especially developing countries, is the impact of the multiple crises affecting the world today.

Also, in the field of maritime law, Armas Pfirter (2009) explains that ISA, based on the application of the precautionary principle, requires contractors to establish environmental baselines to measure the possible effects of their activities on the marine environment. Furthermore, when applying for exploitation rights, contractors must propose areas called "impact reference zones" and "preservation reference zones". In these latter zones, mining activities cannot be carried out (regulation 31.7 of the Mining Code).

[16] To see the types of protected natural areas: https://web.archive.org/web/20090804170907/, http://www.wdpa.org/ [Last visited: October 2022].

[17] Argentina. Law 22.351, *National Parks*. Official Bulletin, 11/04/1980.

In parallel, the reference or application of the principle in the international jurisdictional field was also embodied in the International Court of Justice (ICJ)[18] and in the International Tribunal for the Law of the Sea (ITLOS).[19] Regarding ITLOS, it is worth analyzing Advisory Opinion No. 17, dated February 1, 2011, titled "Responsibilities and obligations of States sponsoring "natural or legal persons with respect to activities in the Zone".[20] This request for an advisory opinion was presented to the Seabed Disputes Chamber by the International Seabed Authority of ITLOS. It was consulted on the obligations of States sponsoring natural or legal persons who carry out exploration and exploitation activities in the Zone.

ITLOS determined that the duty to apply the precautionary principle should be considered an integral part of the sponsoring State's "due diligence" obligation and should extend beyond the scope of the Polymetallic Nodules Regulations[21] and the Sulfides Regulations.[22] Similarly, López Alfonsín (2015) argues that the starting point of the prevention principle is the principle of due diligence.

Regulation 31, paragraph 2 of the Regulations on Polymetallic Nodules, and regulation 33, paragraph 2 of the Regulations on Sulfides, establish that sponsoring States of activities (like the authority) "must apply a precautionary approach, as reflected in principle 15 of the Rio Declaration" to "ensure effective protection of the marine environment from harmful effects that may result from activities in the Zone". ITLOS concluded that the provisions of these regulations, by including the direct

[18] Nuclear Tests (New Zealand v. France, 1995) in relation to nuclear tests by France in the Pacific Ocean; Gabcikovo—Nagymaros (Hungary v. Slovakia, 1997) regarding the unilateral suspension of works on the Danube due to possible serious and irreversible damage by Hungary. *Aerial Herbicide Spraying* (Ecuador v. Colombia, 2008) due to aerial spraying by Colombia causing transboundary damage. Pulp Mills on the Uruguay River (Argentina v. Uruguay, 2010) in which one of the arguments used by Argentina is the precautionary approach assigned to the 1975 Uruguay River Statute.

[19] New Zealand v. Japan; Australia v. Japan (1999); Ireland v. United Kingdom (2002) and Malaysia v. Singapore (2003), Advisory Opinion No. 17 (2011).

[20] ITLOS. "Responsibilities and obligations of States sponsoring natural or legal persons with respect to activities in the Zone", Advisory Opinion No. 17, 2011.

[21] Regulations on Prospecting and Exploration of Polymetallic Nodules in the Zone, International Seabed Authority, ISBA/19/C/17, 2013.

[22] Regulations on Prospecting and Exploration of Polymetallic Sulphides in the Area, International Seabed Authority, ISBA/16/A/12/Rev.1, 2010.

reference to the precautionary principle, transform the precautionary approach—which has no binding value in the Rio Declaration– into a binding obligation.

The same could be concluded at the national level, in relation to the inclusion of environmental principles in the LGA. ITLOS pointed out that the Rio Declaration, by establishing that States will apply the precautionary approach "according to their capabilities", introduces the possibility of making differences in the application of the principle according to the different capabilities of each State.

ITLOS highlighted that the Sulfides Regulations, annex 4, section 5.1, establish a "standard clause" for exploration contracts, which has a direct reference to the precautionary principle, in the following terms:

> The Contractor must take the necessary measures to prevent, reduce and control pollution and other risks to the marine environment arising from its activities in the Zone as far as possible by applying the precautionary approach and best environmental practices.

ITLOS specified that the reference to the precautionary approach in the two regulations specifically refers to the exploration of polymetallic nodules and polymetallic sulphides, and recommended that ISA repeat, or even further develop, this approach, when regulating exploitation activities with respect to other types of minerals. Furthermore, ITLOS pointed out that the precautionary principle is also an integral part of the general obligation of due diligence of the sponsoring States, which is applicable even outside the scope of application of the regulations. This obligation applies in situations when the scientific evidence concerning the scope of the activity in question, and its possible negative impact, is insufficient, but there are probable indications of potential risks. ITLOS concluded that, in case the sponsoring State did not take into account these risks, it would not be fulfilling its obligation of due diligence and would be failing to comply with the precautionary approach.

ITLOS cited as a precedent, with respect to the relationship between the obligation of due diligence and the precautionary approach, its Order of date August 27, 1999 in the cases called *Southern Bluefin Tuna Cases* (New Zealand v. Japan; Australia v. Japan).[23] In that case ITLOS held that

[23] ITLOS. *Southern Bluefin Tuna Cases* (New Zealand v. Japan; Australia v. Japan, 1999), Provisional Measures.

the parties "should in the circumstances act with prudence and caution to ensure that conservation measures are taken" (ITLOS Reports 1999, p. 274, paragraph 77), and affirmed that "there is scientific uncertainty as to the measures that should be taken to conserve the stock of *southern Bluefin*" (paragraph 79) and that "although the Tribunal cannot conclusively assess the scientific evidence that was presented by the parties, it holds that measures should be taken urgently" (paragraph 80).

ITLOS concluded that the precautionary approach is a contractual obligation of the contractors, whose compliance the sponsoring States have the obligation to ensure. It added that the precautionary approach has been incorporated, increasingly, into international treaties and other instruments, many of which reflect the formulation of principle 15 of the Rio Declaration. This principle has initiated a trend in which the approach is part of customary international law, which is clearly reinforced with the inclusion of the precautionary approach in the regulations and in the "standard clause" established in annex 4, section 5.1, of the Sulphides Regulations.

Also, ITLOS quoted the following phrase from paragraph 164 of the ICJ's ruling on the Pulp Mills on the Uruguay River[24]: "The precautionary approach may be relevant in the interpretation and application of the provisions of the Statute". It also held that this statement can be read in light of art. 31, paragraph 3(c), of the Vienna Convention on the Law of Treaties,[25] according to which the interpretation of a treaty should consider not only the context, but also "any relevant rule of international law applicable to the relations between the parties".

In addition, regulation 33, paragraph 2, of the Sulphides Regulation, complements the obligation of the sponsoring State to apply the precautionary principle with the obligation to apply the "best environmental practices", which does not happen in the Regulation of the Nodules, which are previous. The Tribunal holds that, unless otherwise stated, the Nodule Regulations should be interpreted in light of the development of law, as evidenced by the subsequent adoption of the Sulfides Regulations.

[24] IACHR. Request for advisory opinion submitted by the Republic of Colombia to the Inter-American Court of Human Rights on March 14, 2016.

[25] Vienna Convention on the Law of Treaties ("Vienna Convention"), adopted May 23, 1969, UNTS 1155 331 (entered into force January 27, 1980). Argentine Republic is a State party, approval law No. 19.865. Official Bulletin, 10/3/1972.

Similarly, Kloff et al. (2004) have concluded that, in the specific case of the exploration and exploitation of hydrocarbons at sea, the best way to protect marine resources is the precautionary approach. This implies that sensitive ecosystems, such as coastal wetlands, deep corals, and areas rich in biodiversity, should be fully protected, prohibiting the exploration and exploitation of hydrocarbons. Sensitive periods, such as the migration times of fish and mammals should also be considered.

Kloff et al. (2004) wonder to what extent the development of hydrocarbon exploration at sea presents an opportunity to rethink the current use of our seas and coasts, as this activity facilitates the generation of knowledge about the marine environment. In Mauritania, for example, research has helped to locate areas along the continental shelf where there are marine life spaces that were previously unknown. Even some oil and gas companies have revealed ecosystems that were unknown, such as cold-water corals in deep waters. This new knowledge allows for more adequate care of sensitive areas and planning the harmony of exploration activities of hydrocarbons and gas with those of fishing, as well as to make national development plans. In the words of Barnes (2012), this planning is related to the concept he calls "sectoral integration, which is one of the integrations he considers most important.

Due to economic problems and lack of alternatives, developing countries find themselves trapped between the short-term development needs of their inhabitants and the need to properly manage their resources in the long term (Kloff et al., 2004). In Argentine Republic, the precautionary principle was forged as a general principle of national environmental policy through the LGA, at the end of 2002. Subsequently, the principle was incorporated into Law 26.331 of Basic Requirements for Environmental Protection of Native Forests[26] (art. 3).

2.1.2 Responsibility Principle

As for the stage after environmental damage, a joint interpretation, between art. 235 of UNCLOS and international custom, indicates that the activities of exploration and exploitation of hydrocarbons at sea generate liability for damage. However, in practice there is no direct means to ensure compensation, as the operators of the industry are neither subject to obligations in multilateral treaties nor is a fund where

[26] Argentina. Law 26.331, Basic Requirements for environmental protection of native forests. Official Bulletin, 26/12/2007.

claimants can obtain compensation for civil liability derived from pollution (Radovich, 2017b).

Internationally, there is no convention or fund related to civil liability for pollution due to the exploration and exploitation of hydrocarbons at sea. As described above, maritime law developed, as maritime accidents were generated, various international conventions that regulate preventive safety measures and the compensation regime for damage caused by oil spills or other harmful and dangerous substances were negotiated. These conventions focus on the stage of repair or recomposition of environmental damage.

Regarding compensation, ITLOS states that the obligation to fully compensate damage is part of customary international law. This conclusion was first adopted by the Permanent Court of International Justice in the case of the Factory Chorzów[27] and was reiterated by the International Law Commission. In this sense, in accordance with art. 31, paragraph 1, of the Articles of the International Law Commission on State Responsibility: "The Responsible State has the obligation to fully repair the damage caused by its international wrongful act".

In Argentine Republic, the reparation of environmental damage must be comprehensive, as required by arts. 27 and 28 of the LGA. The principle is defined as follows (art. 4): "The generator of degrading effects on the environment, current or future, is responsible for the costs of preventive and corrective reparation actions, without prejudice to the validity of the corresponding environmental responsibility systems".

The Rio Declaration contemplates it in the following terms in principle 13:

> States shall develop national legislation relating to liability and compensation for victims of pollution and other environmental damage. States shall also cooperate, expeditiously and more decisively in the development of new international laws on liability and compensation for the adverse effects of environmental damage caused by activities carried out within their jurisdiction, or under their control, in areas located outside their jurisdiction.

[27] Permanent Court of International Justice. "Chorzów Factory" (Germany v. Poland, 1928), Series A, No. 17, p. 47.

The principle is necessarily linked to the standard of solidarity, postulates shared responsibility among all authors of environmental damage (López Alfonsín, 2015). The LGA builds a system of strict civil liability for collective environmental damage with full reparation of the damage (arts. 27 and 28), joint (art. 31), and with specific factors of exemption from liability (art. 29) and adds having taken all measures intended to prevent damage and the absence of concurrent fault between the victim and the responsible party (Capaldo, 2009).

Currently, the Argentine Navigation Law (LN), like the international conventions previously studied, enshrines in art. 175 the limitation of liability in favor of the shipowner—unless there is fault on his or her part—to the value that the ship has at the end of the trip in which the events have occurred—which can well be of value 0—plus the gross freights, the passages received or to be received for that trip and the credits that have arisen in his or her favor during the trip. In cases of personal injury, a larger compensation is provided.

The conflict revolves around the limited liability established by maritime international conventions and the LN, and the comprehensive liability prescribed by the LGA, whose norms are of public order (art. 3). How to reconcile the supremacy of treaties ratified by Argentine Republic in the constitutional reform of 1994, with a subsequent public order law, especially when both have opposing clauses?

Regarding the contradiction within normative systems, Alchourron and Bulygin (2012) analyze the logical and methodological problems related to the completeness, coherence and independence of the normative systems, and affirm that the elimination of contradictions in legal norms is one of the most important objectives of the science of law.

According to international law, no State can invoke its internal laws to justify non-compliance with the obligations assumed through the treaties of which it is a party (Art. 27, Vienna Convention of 1969 on the Law of Treaties). Because there are valid norms that have different solutions, we must look towards the general rules that give coherence to the legal system (Lorenzetti, 2009). The Argentine Constitution clearly establishes that treaties are above the laws, with the caveat that nothing in them can repeal any article of the first part of the Constitution and must be understood as complementary to the rights and guarantees recognized by it (Art. 75, inc. 22), in addition to being in accordance with the principles of public law of the Constitution (Art. 27). Among the articles of the first part, as we have already seen, is Art. 41, which clearly states that

"Environmental damage will primarily generate the obligation to repair, as established by law". This law includes, among others, the LGA.

Capaldo (2009) argues that—as already mentioned—given that the LGA sets public order standards, it takes precedence over international treaties and the LN, and thus the compensation for environmental damage must be comprehensive and cannot be subject to limitations. In addition, she proposes that, in order not to disappoint the treaties signed by the country, and to honor the principles of *pacta sunt servanda* and good faith (Art. 26, Vienna Convention of 1969 on the Law of Treaties), Argentine Republic:

> should denounce the 1992 Protocols that replace the CLC of 1969 and the 1971 Fund (action permitted by Arts. 16 and 34, respectively) to proceed immediately to their new ratification but with the reservation that the shipowners of those ships that contaminate any space subject to Argentine sovereignty, must assume the comprehensive repair of the environmental damage of collective incidence they cause. The right to make reservations implicitly stems from Arts. 12 and 28 of the 1992 Protocols. (2009, p. 26)

The law of navigation is a branch of law of ancient origin. Ray (1992) refers that its antecedents date back to the fourteenth century, and its particular principles, as already mentioned, establish that the expedition must continue and that the ship must sail. If the ship does not sail, astronomical amounts of money are lost. Also, based on the concept of "nautical fault"—which is related to the fact that navigation is a dangerous activity that carries risks—even today, with technical advances, the LN allows the limitation of liability. In economic terms, this limitation of liability benefits all of society, as 80% of trade is moved by sea. If shipowners' liability were comprehensive, this cost would also be transferred to society as consumers.

Gusfield (2014) argues that the social construction of problems implies a historical dimension: the same "objective" condition can be defined as a problem in a certain period and as the complete opposite in another. That is, oil pollution at this time is defined as a problem, although in the past the problem was not seen with this magnitude. Javurek (2009, p. 127) explains that, in recent decades, legal disciplines have been formed that substantially modified traditional concepts of damage, fault, liability and ownership of the right. She exemplifies this by explaining that, some time ago, showing a factory with its smoking chimneys was an image of

progress, but today it is just another example of environmental pollution. "The fact is the same, but reality has changed. And it is the duty of the law to accompany it" (Javurek, 2009, p. 127).

3 The International Human Rights Law Perspective

Internationally, the ICJ recognized, in the Gabcykovo-Nagymaros judgment, that the environment is not an abstraction, but represents the living space, the quality of life, and the health of every human being, including the generation of unborn individuals. It also determined that, in the field of environmental protection, vigilance and prevention are required, due to the generally irreversible nature of environmental damage, in addition to the inherent limitations of the forms of repairing this type of damage.[28] The ICJ also noted that, over time, man interfered with nature for economic reasons, among others, adding that it is necessary to reconcile economic development with environmental protection.

Even years before the ICJ addressed the issue, the European Court of Human Rights (ECHR) had determined that States should achieve a balance between environmental protection and other objectives relevant to society, such as economic development. However, it clarified that this balance should be reasonable and not lead to foreseeable and unjustified violations of human rights.[29]

In this sense, the Inter-American Commission on Human Rights (IACHR) recognized the importance of economic development for the prosperity of people and highlighted, in turn, that development activities must be accompanied by adequate and effective measures to ensure that they are not carried out at the expense of people's fundamental rights.[30] In line with this, the Inter-American Court of Human Rights (I/

[28] ICJ. Gabcikovo—Nagymaros Case (Hungary v. Slovakia). September 25, 1997, para. 140.

[29] ECHR. *Hatton application v. United Kingdom*, Judgment of July 8, 2003, Application No. 360022/97, para. 98. ECHR, *López Ostra v. Spain*, Judgment of December 9, 1994, Application No. 16798/90, para. 58.

[30] IACHR. Report No. 40/04. Case 12.053. Indigenous Mayan Communities of the Toledo District v. Belize. Merits. October 12, 2004, para. 150.

A Court H.R.) has emphasized the existence of an "undeniable relationship between the protection of the environment [sic] and the realization of other human rights".[31]

In this line of thought, more recently, the Human Rights Council (HRC) declared that "environmental damage can have negative consequences, both direct and indirect, on the effective enjoyment of human rights".[32]

In 2016, the Republic of Colombia submitted a request for an advisory opinion to the IACtHR[33] to interpret some obligations arising from the American Convention on Human Rights (ACHR)[34] in the face of the impact of large projects on the marine environment, specifically in the Greater Caribbean region. The request for an advisory opinion submitted by Colombia asked for the scope of the obligations arising under articles 4 and 5 to be established from the ACHR.[35] The Court stated that the tool known as MSP should be developed, in addition to SEA, and that the precautionary principle should be applied.[36]

The IACHR has already conducted an analysis of the rights of the ACHR and interpreted that fundamental rights, such as the right to life and to security and physical integrity, which are necessarily linked and dependent on the physical environment, are the rights that are

[31] IACtHR. *Kawas-Fernández Case v. Honduras*. Merits, reparations and costs. Judgment of April 3, 2009. Series C No. 169, para. 148.

[32] Human Rights Council. *Resolution 16/11 Human Rights and the environment*, April 12, 2011, Preamble.

[33] IACHR. Request for advisory opinion submitted by the Republic of Colombia to the Inter-American Court of Human Rights on March 14, 2016, http://www.corteidh.or.cr/cf/Jurisprudencia2/solicitud_opiniones_consultivas.cfm?lang=es [Last visited: August 2017].

[34] American Convention on Human Rights ("ACHR"), UN: 08/27/79 No. 17955 Vol., 1969. Argentine Republic is a State party, approval law No. 23.054. Official Bulletin, 03/27/1984.

[35] Part of the survey of judgments in the field of International Human Rights Law that is carried out in this Section was prepared for the presentation of the *amicus curiae* by the Human Rights Center of the Faculty of Law, UBA to the Advisory Opinion presented by the Republic of Colombia. The *amicus curiae* was prepared by students of the Faculty with the advice of professors, I was one of those professors.

[36] I/A Court H.R. Request for advisory opinion submitted by the Republic of Colombia to the Inter-American Court of Human Rights on March 14, 2016.

compromised when they are threatened by pollution and environmental degradation.[37] Specifically, it determined:

> Serious environmental pollution can pose a threat to human life and health, and in due course can give rise to the State's obligation to take reasonable measures to prevent such risk, or the necessary measures to respond when people have been injured.[38]

In turn, it argued that there is a direct relationship between the physical environment and the rights to life, security and physical integrity of people.[39] These rights require, as a necessary precondition for their exercise, a minimum environmental quality, and are deeply affected by the degradation of natural resources.[40] Also, the IACHR concluded that conditions of severe environmental pollution could be incompatible with the right to be respected as a human being.[41] When mentioning the Declaration of Principles of the Summit of the Americas, it emphasized that social progress and economic prosperity can only be sustained with a healthy environment, and with ecosystems and natural resources managed with care and responsibility.[42]

As an example, in the Report on the Situation of Rights In Ecuador, where the environmental consequences of oil exploitation were analyzed, specifically their consequences on the soil, air, and water, and how these conditions favor the generation of serious health diseases, the IACHR

[37] I/A Court H.R. Report on the situation of Human Rights in Ecuador, OAS/Ser.L/V/II.96, Doc. 10 rev. 1, April 24, 1997, chap. VIII.

[38] *Cf*. IACHR. *Report on the situation of Human Rights in Ecuador*, chap. VIII.

[39] IACHR. *Thematic Report on the Rights of Indigenous and Tribal Peoples to their Ancestral Lands and Natural Resources*, OAS/Ser.L/V/II, December 30, 2009, para. 190; IACHR, *Second Report on the situation of human rights defenders in the Americas*, OAS/Ser.L/V/II. Doc. 66, December 31, 2011, para. 309.

[40] IACHR. *Rights of indigenous and tribal peoples to their ancestral lands and natural resources. Standards and jurisprudence of the Inter-American Human Rights System*, OAS/Ser.L/V/II. Doc. 56/09, December 30, 2009, para. 190; IACHR, *Second Report on the situation of human rights defenders in the Americas*, OAS/Ser.L/V/II. Doc. 66, December 31, 2011, para. 309.

[41] *Cf*. IACHR. *Report on the situation of Human Rights in Ecuador*, chap. VIII.

[42] *Cf*. IACHR. *Report on the situation of Human Rights in Ecuador*, chap. VIII.

recognized that the rights to life and physical integrity are directly threatened by environmental pollution and degradation.[43] The IACHR held that severe environmental pollution can pose a threat to human life and health.[44]

For its part, the ECHR concluded that the right to life, enshrined in Art. 2 of the European Convention for the Protection of Human Rights (ECHR),[45] implies that States have the positive obligation to take measures to safeguard the lives of people under their jurisdiction,[46] whether it involves activities carried out by the State or by private companies,[47] and that the capacity for harm and the predictability of the risk to life are some of the factors to be taken into account in order to determine the extent of this State obligation.[48] Additionally, the ECHR established that States have the obligation to prevent harm to the right to life also in the case of natural disasters,[49] so this obligation applies even more to the control of man-made disasters, especially if they involve large infrastructure projects.

In turn, the then Special Rapporteur on Human Rights and Environment Fatma Zohra Ksentini, highlighted that, in general, attacks on the environment lead to the deterioration of living conditions and pose a risk to survival, even causing deaths directly or indirectly caused by these deteriorations.[50]

[43] *Cf.* IACHR. *Report on the situation of Human Rights in Ecuador*, para. 88.

[44] *Cf.* IACHR. *Report on the situation of Human Rights in Ecuador*, para. 88.

[45] European Convention for the Protection of Human Rights ("ECHR") entered into force on November 4, 1950, UNTS 231 p. 221.

[46] ECHR. *L.C.B. v. United Kingdom*, Judgment of June 9, 1998, Application No. 14/1997/798/1001, para. 36; ECHR. *Paul and Audrey Edwards v. United Kingdom*, Judgment of June 14, 2002, Application No. 46477/99, para. 54; ECHR. *Budayeva application cz. Russia*, Judgment of March 22, 2008, Application No. 15343/02, para. 128.

[47] CHR. *Öneryıldız v. Turkey*, para. 71.

[48] ECHR. *Öneryıldız v. Turkey*, para. 73; L.C.B. vs. United Kingdom, cit. paras. 37-41.

[49] ECHR. *Budayeva application c. Russia*, para. 131.

[50] UN, Special Rapporteur for Human Rights and the Environment for the United Nations, Sub-Commission on the Prevention of Discrimination and the Protection of Minorities, July 6, 1994, E/CN.4/Sub.2/1994/9, para. 175.

The IACHR, which has already had the opportunity to pronounce itself in a situation that may have a direct impact in relation to the problem that is the subject of consultation by Colombia, held that:

> The construction of the transoceanic canal in Nicaragua would affect Lake Cocibolca, which is the most important natural freshwater reservoir in Central America and there is scientific opinion in this regard that qualifies the construction of the canal as "catastrophic", as there would be no way to replace this natural reserve of drinking water.[51]

This example clearly illustrates how large infrastructure works, the first case under analysis in the advisory opinion presented by Colombia, have a direct impact on the human rights of the population, without distinction of generation.

In relation to the second case raised in the request for an advisory opinion, that is, the exploitation of mineral resources, the IACHR understood, in the previously cited Report on the Situation of Human Rights in Ecuador, that States have the right to grant international concessions for the exploitation of natural resources.[52] However, if the appropriate precautionary measures are not taken, these activities can result in a violation of the human rights contained in the ACHR,[53] so States must be ready to prevent damage[54] and, if necessary, repair the consequences of the damage caused to people.[55]

Thus, in different instances, the violation of numerous economic, social and cultural rights (ESCR), such as the rights to food,[56] health,[57]

[51] IACHR. *Report on Indigenous Peoples Afro-descendant Communities Extractive Industries*, OAS/Ser.L/V/IL, Doc. 47/15, December 31, 2015, para. 282.

[52] *Cf.* IACHR, *Report on the situation of Human Rights in Ecuador*, OAS/Ser.L/V/II.96, Doc. 10 rev. 1, April 24, 1997, chap. VIII, par. 29.

[53] *Cf.* IACHR, *Report on the Situation of Human Rights in Ecuador*, par. 29.

[54] *Cf.* IACHR, *Report on the Situation of Human Rights in Ecuador,* par. 44.

[55] *Cf.* IACHR, *Report on the Situation of Human Rights in Ecuador*, par. 47.

[56] *Cf.* IACHR. *Report on Indigenous Peoples Afro-descendant Communities Extractive Industries*, par. 277.

[57] IACHR. Resolution 12/85. Case No. 7615. *Yanomami Community vs. Brazil*. March 5, 1985; IACHR. *Report on Indigenous Peoples Afro-descendant Communities Extractive Industries*, par. 273/283; IACtHR. *Case of the Indigenous Community Yakye Axa Vs. Paraguay*. Merits Reparations and Costs. Judgment June 17, 2005, Series C No. 125, par.167.

water,[58] housing,[59] work[60] and culture,[61] has been determined due to the impact on the environment caused by the construction of large infrastructure works or the exploitation of natural resources.

[58] IACtHR. *Case of the Saramaka People v. Suriname. Preliminary Objections,* Merits, Reparations and Costs, cit., par. 126; Report of the Special Rapporteur on the human right to safe drinking water and sanitation, Catarina de Albuquerque. Current violations of the human rights to water and sanitation, June 30, 2014, U.N. Doc. A/HRC/27/55, par. 20.

[59] CESCR, General Comment No. 4: The right to adequate housing (Art. 11(1) of the Convention), December 13, 1991, U.N. Doc. E/1992/23, pars. 7 and 8.

[60] UN. Report of the Special Rapporteur on the human rights obligations related to the environmentally sound management and disposal of hazardous substances and wastes, Calin Georgescu, May 5, 2007, U.N.Doc. A/HRC/5/5, par. 36.

[61] CESCR, Consideration of reports submitted by States in accordance with articles 16 and 17 of the Covenant, Concluding observations, Democratic Republic of the Congo, December 16, 2009, 2-20, U.N. Doc. E/C. 12/2009/3, par. 311.

CHAPTER 5

Accidents of Marine Platforms

> The authorization to drill on the continental shelf is a privilege that must be earned, it is not a private right.
>
> Report of the Commission that studied the Deepwater Horizon accident.

1 Preliminary Reference to the Concept "Efficacy"

Kelsen (1934) argues that, for a national legal order to be valid, it must be effective. Regarding the difference between the concepts of "validity" and "efficacy", he explains that a legal order is valid when its rules are created in accordance with the Constitution, which is based on the fundamental norm—a norm of international law. He adds that the relationship between the validity and effectiveness of a legal order is nothing more than the relationship between law and force, so law is a way of organizing force.

The validity of a legal order, considered as a closed system of norms, depends on its effectiveness, that is, on a general correspondence between this order and the facts to which it applies. However, this does not mean that the validity of a norm taken in isolation depends in the same way on its effectiveness.

V. S. Radovich, *Marine Exploration and Exploitation of Hydrocarbons*, Palgrave Studies in Maritime Politics and Security,
https://doi.org/10.1007/978-3-031-75177-6_5

The quality of life of present and future generations depends on the degree to which environmental norms are respected (Capaldo, 2011). The supremacy of law (Rest, 2008, 2010; cited by Capaldo, 2011, p. 19) is a key factor for governance and this in turn is essential for sustainable development. This triad is based on the effective application of the law.[1]

Capaldo (2011, p. 20) understands by effectiveness of law:

> the full compliance with the rights and obligations established in each legal norm, be it a treaty, law, decree, resolution or provision, issued by legislative bodies (national, provincial and municipal) and by administrative bodies (national, provincial and municipal). Broadly speaking, the effectiveness of law provides certainty about what is allowed, prohibited or regulated. This added value generates an environment of legal predictability that allows civil society, government, businesses and investors to define sustainable development objectives in the medium and long term on which they can design environmental policies, governance plans and choose the appropriate instruments to be implemented.

Capaldo (2011) concludes that the effectiveness of environmental law depends on four variables: the individual, the administrative, the legislative and the judicial. Regarding the "administrative" variable, it was found that the most common causes of affecting the effectiveness of law are the lack of regulation of norms or their late regulation, among others.

Regarding the "legislative" variable, it has been verified that some of the causes that most affect the effectiveness of environmental law in Argentine Republic are the proliferation of norms that regulate the same environmental issue and the failures in legislative technique, among others. These causes are observed in the multiple repeals, modifications and implicit subrogations that generate ambiguity, gaps and uncertainty in the interpretation of the law.

Ineffectiveness is a major problem in environmental law, due to two reasons: the first linked to declarative legislation and the second related to collective goods. Environmental legislation reformulates many of the legal systems, restructuring their internal hierarchy, their orders of protected goods and even their remedies to protect rights (Lorenzetti, 2008). When the principles of prevention and precaution, which are forms of inhibitory

[1] Declaration of Cape Town, 8th International Conference on Environmental Compliance and Enforcement, INECE, Cape Town, South Africa, April 5–11, 2008.

protection, are applied to the environment, they serve to prevent the establishment of companies or to stop their production or achieve their transfer, which generates high intensity conflicts.

This reception means the assumption of a series of significant costs that rethink the relationship between business and society. Legislation obliges citizens, companies and the State to internalize costs that historically they did not assume. As a result, there are numerous laws, but there is a lack of adequate implementation mechanisms. This phenomenon takes form in various ways:

- The delay in the enactment of laws that adopt or incorporate a right by virtue of an obligation incurred by signing a treaty.
- The sanction of declarative laws that only seemingly develop the right recognized in a treaty or in a constitutional norm, because they have declarations of objectives, but no effective instruments to bring them to reality.
- The delay in the issuance of regulations that allow the application of a law,
- The weakness of the implementation and control bodies, either because they do not have a budget or because they are exclusively controlled by a central authority and subjected to general policies.
- The enunciation of environmental law programs, but without having systems that measure the results.
- The fragmentation of norms.
- The overlap of control bodies that generate competence problems.
- The lack of prior consensus and deep discussion about the real costs and options available. (Lorenzetti, 2008, pp. 101–102)

Regarding collective goods, both legislation and administrative or judicial decisions that implement them encounter great difficulties related to the nature of collective goods, as the basic premise of legislative, administrative, and judicial models is individual action. Likewise, every decision must contemplate not only behavior but also the cultural and economic context in which it is applied. Legislative strategies must be accompanied by educational, informational, and economic incentive modification measures (Lorenzetti, 2008).

Institutions should not only exist to generate incentives consistent with environmental protection, but they must also be effective. Lorenzetti

(2008) explains that the expression "good governance" is a standard of governability that can serve to examine the effectiveness of institutions. In general, it can be affirmed that if they are open and flexible to changes, favoring interaction with the environment, they will be more effective than if they are closed, self-referential, and immune to context. Only the continuous interrelation between open institutions and environmental demands will allow a closer approach between the two systems.

The existence of clear, predictable rules applied equally by independent institutions is another principle of good governance that contributes to the effectiveness of norms. Environmental legislation makes use of objectives, values, models such as "quality of life" and the "rational and sustainable use of resources". Determined rules have a high cost of elaboration, but their application is simple, while indeterminate concepts have a low cost of elaboration, but great complexity in application. For this reason, legislative technique is oriented towards the establishment of general objectives that are complemented with compliance programs in charge of the administration or the judiciary (Lorenzetti, 2008).

In relation to these programs, the establishment of intermediate and final objectives must be met based on the principle of progressivity. Also, the program known as the "command-control" technique can be mentioned, which consists of the description of a certain behavior defined by standards (command) and the periodic control of its compliance. The command can come from various sources: an international treaty, a national law, a regulatory agency, a non-governmental authority exercising delegated powers, or a judicial sentence. The command is very detailed in the technical aspect, adjustable, and verifiable, for example, the amount of liquids that are thrown into a river or the procedures to obtain a license. Another program constitutes cultural incentives to create "environmental awareness" through public information policies.

Likewise, another program can be mentioned that includes measuring success in order to overcome merely declarative stages. It can be measured by focusing on the means, for example, on the number of inspections carried out, or measuring the results. Lorenzetti (2008) argues that the most appropriate is to use both measurements in a complementary way and expose the data on unified bases, accessible and subject to public control.

Another mechanism consists of identifying the subjects obligated by the regulation, and another in identifying complementary roles. For example, a company that is obliged to comply with a program will

find more incentives if, when applying for a loan, the bank requires it to comply with environmental requirements. There is also another mechanism that consists of compliance control being in charge of a clearly identified authority, which can belong to the public or judicial administration and can make use of the participation of citizens and non-governmental organizations.

The most efficient criterion for adopting these decisions is related to the ability to detect non-compliance. For example, citizens can make a great contribution by reporting violation actions at low cost and with greater efficiency than a central authority. As a counterpart, they lack the ability to act in an integrated way, so their function is to bring the information to the authority designated to take measures. And a final requirement is the precise definition of competences for the application of sanctions. What usually happens is that various organisms and standards overlap that generate their own conflict, neutralizing each other. A good policy in implementation is the clear definition of competences, to avoid these delays (Lorenzetti, 2008).

This description of the problem of effectiveness, which Lorenzetti describes in 2008, is basically exhibited in all its aspects in the conclusions reached by the Commissions that studied the accidents on the Montara and Deepwater Horizon platforms.

Finally, Nonna (2015) highlights the role that the encyclical *Laudato Si* has conferred on the effectiveness of environmental norms, where it asserts that this effectiveness requires institutional health and transparency.

2 The Accident on the Deepwater Horizon Platform

On May 22, 2010, the President of the United States, Barack Obama, announced the creation of a national, independent and non-partisan Commission, intended to issue an impartial opinion on the accident on the Deepwater Horizon drilling platform. The President asked the Commission to determine the causes of the disaster, to improve the country's ability to respond to spills and to recommend the necessary reforms to make energy production from exploration and exploitation at sea safer.

The Commission worked during six months and prepared a report divided into the following main areas:

1. Improving the safety of marine extraction operations: the role of the government.
2. Improving the safety of offshore extraction operations: the role of industry.
3. Environmental protection.
4. Strengthening planning and response capacity to oil spills.
5. Improving well containment capacity.
6. Overcoming the impacts of the spill and restoring the gulf.
7. Ensuring financial responsibility.
8. The commitment of Congress to ensure efficient offshore drilling.

In the first chapter of the Commission's report, the facts leading to the accident are detailed. It is explained that the Macondo well was a difficult well, that all wells have "their personality" and they describe it with the English play of words: "*a well like the hell*", whose translation into Spanish is "a well like hell" (Photograph 1).

The Deepwater Horizon platform was a semi-submersible platform, owned by Transocean—a company founded in 1919 in the state of Louisiana and currently one of the largest contractors in the industry—. Transocean's fleet—which in 2009 produced 11.6 billion dollars in profits—had consolidated its dominant position in the industry by the end of 2007, when it merged with its rival Global Santa Fe. The construction of the Deepwater Horizon platform had cost 350 million dollars and was considered the best driller in the fleet. The chartering of its services was worth 1 million dollars per day. Since 2001 it had been chartered to the London-based company, British Petroleum (BP) (Commission, 2011).

The platform had approximately 126 people on board: 80 were Transocean employees, some from BP, others were cafeteria and laundry employees, and a temporary group of workers were contracted for specific tasks, many of them engineers with different specialties. The offices and residences were on the two upper decks of the drillers. Helicopters frequently flew over with workers and supplies that landed on the helipad located on the upper deck. The platform floated 4992 feet over water, just behind the gentle slope of the continental shelf in the Mississippi canyon (Commission, 2011).

Drilling for hydrocarbons has always been a complicated task, which combines heavy machinery and volatile hydrocarbons that are extracted at high pressures. The high pressure in the ocean depths is the main obstacle facing the exploration and exploitation of hydrocarbons at sea. In the

Photograph 1 The accident on the Deepwater Horizon platform*Source* https://www.flickr.com/photos/ideum/4711481781, https://creativecommons.org/licenses/by-sa/2.0/)

Gulf of Mexico, since 2001, among the 35,000 people working on 90 drilling platforms and on 3500 production platforms, there have been 1550 injured, 60 deceased and 948 cases of fires and explosions up to the time of writing the report (Commission, 2011). "The drilling platform never slept" is explained in the report. Most of the workers have twelve-hour workdays, work three weeks and then have three weeks off. The wages are high because it is a dangerous job and far from home. People who have the highest positions earn salaries of six figures.

The Commission documented the weaknesses of federal regulation and control and made recommendations on amendments that should be made around legal authorities, regulations, and investments in expertise and

management. “Both the Government and the industry failed to anticipate and prevent this catastrophe and also failed in preparation to respond once it had happened” (Commission, 2011, p. ix). In addition, it added:

> Most of the American people enjoy the benefits that energy provides for transportation, but do not appreciate the direct risks that its production entails. The wetlands of Louisiana have suffered for decades their destructive alteration so that the exploration of oil could be carried forward. (Commission, 2011, p. x)

The accident began when the cementing of the top of the well was being finished. That is, the drilling stage had already been completed at 13,000 feet below the seabed, and the well was being closed until the subsequent installation of the production platform to start the extraction of hydrocarbons. The rest of the day, during which the accident occurred, was dedicated to conducting more evaluations in the well, positive and negative pressure tests to prepare this closure, which is known in technical jargon as “temporary abandonment”.

The Commission’s report details that everything seemed to be going well until that moment, although operations were six weeks behind and had exceeded the budget by more than 55 million dollars. Precisely, if this stage ended correctly, they could save the cost that implied that three specialists traveled to carry out an evaluation of the status of the cement, since this evaluation is usually carried out once the well is reopened to start the production stage. In this way, the company saved this hiring, that is, the fees of a value of 128,000 dollars. The Commission (2011) explains that this activity resembles space exploration.

The situation began to get complicated when the negative pressure test was carried out. The drilling pipe continued to exhibit high pressure, but finally gave good results. However, from one moment to another, mud began to come out through the cement, then there was an explosion and the fire started on the starboard side of the drilling tower. The platform was ordered to be abandoned. Many people were injured, of the 115 survivors, 16 had serious injuries. 36 hours after the first explosion, the platform sank. Paradoxically it was on April 22, Earth Day (Commission, 2011).

The explosion of the platform began a human, economic and environmental disaster. Four million barrels of oil began to contaminate the Gulf. The costs of the accident have not yet been accounted for, but it is already

clear that the impact on the region's natural systems and society was enormous, and that the economic costs amounted to ten billion dollars (Commission, 2011).

The first conclusion reached by the Commission is that the accident could have been prevented, since the immediate causes of the explosion of the Macondo well were due to errors identified by BP and Transocean, which revealed that these failures were systematic, thus casting doubt on the safety culture of the entire industry. The main areas of the Report are summarized below.

2.1 Improving the Safety of Marine Extraction Operations: The Role of Government

The Commission (2011) concluded that a regulatory and institutional reform is required to achieve environmental management of exploration and exploitation of hydrocarbons at sea. A fundamental reform is needed as regards the structure of the institutions in charge of regulatory control and in the internal decision-making process, to ensure political autonomy, technical specialty, and absolute consideration for environmental protection.

The experience around the restoration of other sensitive areas, such as the Great Lakes or the *Everglades*, indicates that progress requires coordinated federal and state actions, a financing fund, long-term control, citizenship committed with the support of non-governmental groups and scientific research, among other requirements (Commission, 2011).

> No one can eliminate all the risks associated with deep water exploration. But when the decision is made to carry out the exploration, especially in sensitive environments like the Gulf of Mexico or the Arctic, the State has the obligation to make responsible decisions regarding the benefits and risks. (Commission 2011, p. xi)

Then-President Barack Obama argued that a balance must be struck between interest in sea energy and the protection of marine and coastal environments. In this regard, before ending his term in 2016, he expanded the already existing Papahanaumokuakea National Monument in the Hawaiian archipelago, which now has a marine extension of one and a half million square kilometers.

Before the Deepwater Horizon platform accident, the office then called Minerals Management Service (MMS), which depended on the Department of the Interior, was in charge of activities related to exploration and exploitation at sea. The Commission argues that independent agencies are now needed. The MMS office was not only responsible for resource management and granting licenses to explore and exploit at sea, but also managed the profits from concessions, conducted environmental assessments, reviewed plans and issued permits, ensured audits and enforced environmental and safety regulations. This overlap of attributions made the MMS office more prone to external pressures and this led to internal tensions.

> The tension occurred between the mandate in the 1978 Continental Shelf Law about promoting the development of marine resources and between the mandate to promote environmental care. These external pressures caused decisions to be deferred to the industry, which was responsible for shortening deadlines through political intervention in Congress and delaying and weakening regulations aimed at improving safety in the management of operations. (Commission, 2011, p. 255)

In addition to the MMS office, other offices of the Department of the Interior, as well as the Departments of Transportation, Commerce, Defense and Homeland Security and the Environmental Protection Agency (EPA), were involved in some aspects of the activity.

The Commission decided that three independent institutions should be created, with three different attributions. The budget for these agencies should come from the fees paid by the exploration and exploitation industry. A mechanism should be established, even in the concession contract clauses for the payment of regulatory fees, to achieve adequate, stable and secure financing of regulatory agencies—the Department of the Interior, the Coast Guard and the NOAA agency—and to ensure that they can fulfill their obligations, grant permits and reviews when necessary and hire engineers, inspectors and experienced scientists.

After the platform accident, the MMS office was renamed the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) and announced a plan to divide its responsibilities into three agencies. In line with what was explained in Chapter 4 about the lack of transparency in the use of the term "*offshore*", the name "MMS", which referred to

minerals, has been changed to one that contains the term "ocean" in its denomination.

One agency will be responsible for compliance with environmental regulation and safety of exploration and exploitation at sea, another will focus on granting permits focused on environmental science, and the last will manage the profits.[2]

The following are the names and attributions of the three agencies:

The Safety Office will be responsible for controlling the structural and operational integrity of all facilities and activities related to energy production at sea, both hydrocarbon production and renewable energies. Its responsibilities will be established by special law. The office will have independent authority over technical and operational safety in all phases of energy development projects in the continental shelf, including planning, design, construction, operation, and decommissioning of facilities. That is, it will focus on the non-economic aspects of the activity in the federal zone. It will also play a leadership role in coordinating with other regulatory entities with independent authority over the activity, such as the EPA and NOAA agencies and the Coast Guard. Its main responsibilities, among others, will be the following:

- Review and approve or deny all exploration, development, and production permits.
- Inspect, without prior notice, operations at sea through a team of experts in planned inspections.
- Evaluate the eligibility of concessionaires based on environmental and safety qualifications.

Review and approve the safety and feasibility of environmental mitigation activities established in the national environmental law National Environmental Policy Act (NEPA), the documents, other consultations-Environmental consultations and authorizations, in addition to executing these requirements during the operation's duration.

[2] This recommendation was carried out in 2010, the three agencies were created, see: https://www.boem.gov/reorganization/ [Last visited: October 2022].

- Develop a code of standards on structural, procedural, and occupational safety integrity to replace performance-based regulations (known as "safety case").
- Conduct the technical review of the five-year bidding program.
- Conduct the technical review of spill response plans.
- Investigate all accidents and other significant events that could have been catastrophic.

The organization and composition of the office's employees will be decided during a transition process in which areas and activities will be analyzed and categorized according to the risk. The director must be a suitable professional, with technical or engineering knowledge, and will be appointed by the Nation's President for a period of five or six years, and confirmed by the Senate. Salary scales will be similar to those of the Nuclear Regulatory Commission.

On the other hand, the Office of Concessions and Environmental Science will function as the management office for renewable resources and other mineral resources of the continental shelf. It will be responsible for promoting the environmentally responsible and efficient development of the continental shelf. Its main attributions, among others, will be the following:

- Carry out the planning processes for activities on the continental shelf, including the five-year bidding programs.
- Carry out the bidding for hydrocarbon production and renewable energy production structures.
- Issue regulations regarding the terms and conditions of the bids.
- Review and approve all spill response and containment plans and advise the new safety authority on environmental considerations.
- Making decisions about resource management, for example, on the abandonment of reservoirs, shared reservoir issues and the optimization of the exploration and exploitation of hydrocarbons.
- Reviewing and approving permits for seismic activities.
- Conducting the reviews established by NEPA law during the respective stages and coordinating other environmental reviews when appropriate.
- Administering the Environmental Studies Program.

The office will have two main sections:

- Bidding and resource evaluation.
- Environmental science, which will be led by a chief scientist, who will conduct all the reviews required by NEPA law and administer the Environmental Studies Program, among other tasks. The chief scientist will also give opinions on the areas that will be offered for bidding and on the environmental protection and mitigation actions that will be carried out in these areas.

Finally, the Office of Financial Resource Management will focus exclusively on collecting the profits, without any interference in matters related to authorizations or environmental issues to avoid external pressures. A portion of the profits will be allocated to investment in the generation of marine renewable energies and to the long-term restoration of the Gulf of Mexico.

2.2 Improving the Safety of Marine Extraction Operations: The Industry Role

Regulatory control alone will not be sufficient to ensure adequate safety. The oil and gas industry will have to take its own steps to exponentially increase its safety, implementing self-regulation mechanisms that complement the application of state standards (Commission, 2011).

The Commission (2011) recommended the creation of a new safety office within the industry, which would work alongside government bodies to define new practices, monitor them, and ensure that there are no companies in the industry with less stringent safety standards than required.

Both the government and the industry were unprepared to contain the Macondo well accident, because they did not have an adequate contingency plan and had not invested enough in research to improve containment. The oil and gas industry had not adopted a safety culture. The accident at that well revealed that, while the industry had allocated billions of dollars for the necessary technologies to drill in deep waters, it had hardly invested any money in creating alternative capabilities to deal with the foreseeable consequences of a disaster (Commission, 2011).

The leading companies in the marine oil and gas exploration and exploitation sector must take responsibility for readapting industry practices and thus create a safety culture. The office must achieve excellence in the safety process and must gather the following characteristics:

- Leadership and incentives: the industry's CEOs and board members must lead the participation of the rest of the employees of all ranks.
- Audit: this will be one of the most important functions of the office.
- Evaluation: after its first five years of operation, the office will be audited by an independent entity to evaluate whether it has improved the culture and practices of safety and the results of the security process.

After the accident on the Deepwater Horizon platform, two initiatives emerged to reflect on the technology that had been used to contain the spill. These were the Marine Well Contain- ment Company and the Helix Energy Solutions Group.

In order to contain a future accident, coordination of diverse complex activities that happen simultaneously are required. If the aim is that this process be successful—and thus gain the trust of the industry, the government, insurers, and the public—, new efforts by the industry must include extensive planning, the development of scenarios for potential new accidents and the conducting of full-scale drilling exercises. As new technology equipment is developed, the industry must ensure that the containment technology is compatible with its wells.

Likewise, the Commission (2011) recommended that the American oil and gas industry cooperate internationally to ensure safety and preparedness in marine production areas worldwide. Similarly, it should develop large-scale capabilities and containment, which include the necessary equipment, processes, and logistics.

2.3 Environmental Protection

The Commission (2011) analyzed the licensing and authorization processes followed by the MMS office in the Gulf of Mexico before the Deepwater Horizon platform accident and concluded that the environmental analysis process was systematically violated and that the requirements established by the NEPA law for marine exploration and

exploitation needed significant revision. In particular, it referred to the following needs:

- the application of the process called *tiering*,
- the use of categorical exclusions,
- the granting of concessions in extensive areas, and
- the omission of the development of formal guidance based on the regulations of NEPA law.

Tiering is the process established under NEPA law in which the MMS office relied for the concession of areas for marine exploration and exploitation. A broad environmental impact study (EIS) was used to cover "general topics" in a large area, while it was established that the specific issues of a particular site or smaller areas would be addressed through "subsequent environmental analyses". However, in practice, these subsequent environmental analyses were not elaborated.

Regarding categorical exclusions, categories of activities were established that supposedly did not imply a significant effect on the environment, neither individually nor cumulatively, and on which, therefore, an environmental evaluation or study was not required. The MMS office historically applied these exclusions to development and production plans in the Gulf of Mexico. After the BP Deepwater Horizon spill, it is very difficult to argue that marine drilling does not pose some potential risk to the Gulf environment (Commission, 2011). Consequently, in August 2010, it was announced that the use of these exclusions would be restricted.

The concession of extensive areas was requested by the industry twenty years ago. For example, the 2007–2012 Environmental Impact Study in the Gulf of Mexico covered more than 87 million hectares.

Finally, BOEMRE is developing the guide that the MMS office failed to develop, which should ensure a higher level of consistency and transparency of the requirements established in the NEPA law in the different regions of the country.

The Council on Environmental Quality and the Department of the Interior must review and reinforce the policies, practices, and procedures established in NEPA law to improve the level of environmental analysis, transparency, and consistency at all stages of planning, granting, exploration, and development of the continental shelf. On the other hand,

Congress should reform the Outer Continental Shelf Act and extend the deadline for approving exploration plans from 30 to 60 days. The Office of Safety will be responsible for approving well designs and drilling plans.

Likewise, the Commission (2011) focused on the need for consultation among the various government agencies, based on integrated management.

According to the Outer Continental Shelf Act, the Secretary of the Interior has the attribution to decide the balance between environmental protection and resource development. That is, the suggestions of other agencies are not binding for the Secretary of the Interior, and the same happens in the development and production stage. As a result, the NOAA agency has no role in the selection of areas to be granted for the exploration and exploitation of hydrocarbons on the continental shelf. Regarding this fact, the Commission (2011) established that a formal interagency consultation process is required with the aim of identifying those areas that should be excluded from concessions due to their high importance or ecological sensitivity. Other federal agencies that should be involved are the Fish and Wildlife Service and EPA.

In this order of ideas, on July 19, 2010, President Barack Obama, through Decree 13547, established a new national ocean policy that includes the regulation of MSP, as well as a comprehensive, adaptive, integrated, transparent, ecosystemic, and science-based process to analyze the use of oceans, coasts, and Great Lakes areas. It was also decided that the Gulf of Mexico Integrated Ocean Observation System should be expanded, which includes the installation and maintenance of a network of in situ instruments installed on production platforms.

The Commission (2011) affirms that MSP has the potential to improve efficiency and reduce conflicts among ocean users, as it identifies which are the appropriate or inappropriate areas of the ocean for certain uses. In addition, the Commission (2011) held that Congress should finance subsidies for the development of regional planning bodies and that ocean management should also include strategic MPAs, including but not limited to national marine sanctuaries, which can be used as "mitigation banks" to help offset damage to the marine environment.

To ensure that the exploration and exploitation of hydrocarbons at sea is carried out in a way that minimizes adverse impacts on the environment, decisions on this activity must be based on solid scientific foundations and systematic research should be carried out to increase understanding of the impacts of the activity (Commission, 2011).

The research will be useful for other activities that are developed at sea, such as the development of renewable energies, for example, wind energy. In turn, post-ecological control is critical to understand the impact of activities and to facilitate an adaptive approach to environmental management.

In the United States, the private industry governs the supply of oil, gas, and the rest of the types of energy, the companies are not state-owned or controlled by the State, as in many other countries. The private system has implications in the way the US government controls and regulates drilling at sea, the advantage is that it generates a competitive industry with advanced technology (Commission, 2011).

2.4 Evaluation and Risk Management

In addition, a constant lack of systematic updating of risk assessment and management tools used as a basis for regulation is pointed out. The MMS office tried to adopt, under different governments, regulations that required companies to manage all their activities and facilities under a documented system called "Safety and Environmental Management System" (SEMS). However, due to industry opposition, it was not adopted until September 2010, after the accident on the Deepwater Horizon platform.

Historically, the industry has not been required to report uncontrolled hydrocarbon discharges or so-called "minimum losses", despite both being indicators of a high potential for major accidents. Government agencies that regulate the exploration and exploitation of hydrocarbons at sea must redirect their regulatory approaches to integrate more sophisticated risk assessment and management practices. They must shift their focus, centered on regulations that only cover the operator, to regulations that relate to the integral development of the well, complemented with a proactive, performance-based approach to risk management that is specific to the facilities, operations and environments (Commission, 2011).

This approach is similar to the "safety case" used in the North Sea, which implies that the operator and the owners of the drilling platform assess the risks associated with the specific operation, develop a coordinated plan to manage these risks, integrate all contractors involved in the safety management system and take responsibility for developing the risk management process.

To meet these objectives about the development of a new approach to risk assessment and management, the Commission (2011) provides the following recommendations:

- The Department of the Interior should complement the risk management program with prescriptive safety and pollution prevention standards that are developed in cooperation with international consultants and that are at least as rigorous as the contracting terms and regulatory requirements in force in oil-producing countries. These standards should be applied in the Gulf of Mexico, in the Arctic and internationally where the marine hydrocarbon extraction industry operates. The standards should be updated at least every five years through the formal review process of the International Organization for Standardization (ISO).
- Companies interested in participating in the marine hydrocarbon exploration and exploitation industry must demonstrate their competence based on experience, in addition to their financial capacity, as prerequisites to participate in tenders.

To cultivate and maintain government expertise on marine drilling safety, the following steps must be taken:

a. Establish a procedure under the auspices of the National Academy of Engineering to identify the criteria for drilling high-risk wells and develop methodology to assess these risks. This process should include collaboration from experts from the Geological Service, the Department of Energy, the NOAA agency and the Academy. Likewise, the Department of the Interior must develop internal competence to carry out these sophisticated risk assessments.
b. Establish a coordinated, interagency research effort to develop safer systems, equipment and practices to prevent future design and equipment failures. In the United States, the Oil Resources Program and other unconventional natural gas resources, managed by the Department of Energy, has been created by law, focused on mitigating the risks of marine operations.
c. Develop detailed requirements on the obligation to report accidents and data concerning accidents. This will allow for better tracking and better risk analysis. These reports should be available to the

public and be applicable to all marine exploration activities. They should include the accidents linked to helicopters and supply vessels, both on drilling and production platforms.

a. Provide protection to "whistleblowers" who notify the authorities about safety failures. This protection should be included in the reform of the law of the continental shelf lands and related laws.

The Commission's conclusions regarding marine oil and gas exploration and exploitation are as follows:

- Congress shall reform the Outer Continental Shelf Act to give the NOAA agency a formal binding consultative role during the development of the five-year concerning the exploration and exploitation of hydrocarbons. NOAA shall participate no later than 60 days before the Secretary of the Interior grants the permits, basically to make comments on those areas that should be excluded from this activity or that should be treated in a special way due to their ecological sensitivity, that is, to issue on the MPAs. The NOAA agency's recommendations shall be binding to the Secretary of the Interior, unless he or she determines their inconsistency with relevant national policy interests, with written justification.
- The Department of Energy, NOAA, the Geological Service and other agencies related to the topic should establish a joint research program to systematize scientific information and provide scientific reports based on the ecosystemic approach of the areas subject to exploration.
- The National Academy of Sciences should regularly evaluate the government's study programs in the area, preferably at five-year intervals.
- Together with NOAA, the new Office of Concessions and Environmental Science should develop environmental monitoring programs or a series of protocols, for oil and gas companies to implement at the concession sites once exploration activities begin. Areas of ecological interest and areas where environmental information is lacking should be subjected to monitoring programs. The monitoring must be verifiable independently and allow comparison between individual sites. Companies must provide all monitoring information to the federal government.

- NOAA and other agencies shall act as cooperating agencies in the reviews carried out by EPA on energy production activities, including exploration and development plans and drilling applications.
- Regarding risk assessment and management, deepwater energy exploration and production involves risks for which neither the industry nor the Government have been adequately prepared, but for which they can and shall be prepared in the future.

2.5 Improve Planning and Response Capacity

The Commission (2011) pointed out three critical points or gaps in the government's response capacity:

a. the lack of effective planning for the containment of a large-scale spill, difficult to contain in deep sea waters or, potentially, in the Arctic;
b. the difficulty of coordination between state and local officials to provide an adequate response; and
c. the lack of information and knowledge regarding the effectiveness of specific response measures, such as dispersants and dikes or berms.

Environmental review and planning is currently carried out at different levels between the government and industry. Below, the main recommendations regarding this point issued by the Commission (2011) are summarized, followed by a brief explanation:

Recommendation No. 1: rigorous and transparent analysis of spills to provide a better response.

A new process for reviewing spill response plans is needed. All critical information and spill scenarios must be included in the response plans, it must be ensured that operators can develop the capabilities indicated in their response plans.

Recommendation No. 2: EPA and the Coast Guard must establish plans and procedures to respond to a "spill of national significance".

The following steps should be followed:

- Develop plans and procedures to consider the impacts on human health during a spill of national significance, and reform the

National Contingency Plan, so that it includes different procedures to consider these impacts.

- Increase the structure of the National Response Team and the Regional Response Team, to establish additional frameworks with the aim of providing inter-agency scientific assistance and expertise in policy development.
- Create a communications protocol that considers the participation of high-level officials, who may be less familiar with the National Contingency Plan and create a center of communications with the National Incident Command. In turn, post-ecological control is critical to understand the impact of activities and to facilitate an adaptive approach to environmental management—apart from the joint information center established with the responsible party—to help convey consistent and complete information to the public.
- Strengthen state and local involvement.

In the Deepwater Horizon platform accident, state-level officials were unable to effectively participate because federal officials were competing with them, so the spill control turned out to be less efficient overall (Commission, 2011).

Recommendation No. 3: public participation.

EPA and the Coast Guard shall promote citizen participation at the state and local level in planning and response to spills, similar to the Regional Citizens' Advisory Council established OPA.

The Council shall be represented by citizens with interests in the area, for example, fishing and tourism, and include representatives of workers from the oil and gas industry, as non-voting members. Federal regulatory officials shall be required to consult the Council on relevant issues, operators shall allow the Council to access the reports. When industry and the government do not follow the Council's recommendations, they shall express their reasons to the Council in writing.

Recommendation No. 4: the National Congress must establish mandatory funding for research on spill response to oil and provide incentives to the private sector to carry out the research.

Congress had not even used half of the amount of the money authorized by OPA at the time of the accident on the Deepwater Horizon platform (Commission, 2011). Even the most important oil companies invested minimal resources for internal research and the development of technology to respond to spills. In general, organizations that deal with

removing oil spills fail to have funds. After the tragedy of the Deepwater Horizon platform, some proposals emerged, for example, machines to clean beaches, underwater dispersant systems, and burning techniques in situ (Commission, 2011).

An advisory body shall be established, composed by experts from the Department of the Interior, the Geological Service, the Department of Energy, EPA, and NOAA, as well as members of academia, industry, and NGOs, to develop a research agenda and show which path to follow.

Recommendation No. 5: dispersants and berms.

EPA shall periodically update and review its dispersant evaluation protocols and modify the pre-approval process to include duration, spatial scope, and spill volume. The decision about using dispersants is complicated. If they are effective, less oil will reach the coast, but more dispersed oil will spread in the water column. Research shall be conducted on the effects of using dispersants and on the development of less toxic dispersants (Commission, 2011).

Regarding berms, the Coast Guard shall express in writing that berms at sea and similar barriers are generally not authorized as a response to an oil spill in the Contingency Plan.

These barriers involve time and cost in their construction. It was the least effective measure used in the case of the Deepwater Horizon platform and was based more on popular demand than on a scientific evaluation (Commission, 2011).

Recommendation No. 6: allow scientists access to a spill.

The Coast Guard shall allow scientists access to the response area immediately after a spill occurs, so that they can carry out independent scientific research. This did not happen in the case of the Deepwater Horizon platform.

2.6 Improve Well Containment Capacity

This was the most serious failure in the case of the Deepwater Horizon platform: the well spill could not be contained. The Initial Exploration Plan, presented by BP, identified only one response: a relief well, whose construction would take months.

The National Response Team must develop, along with the federal government, accurate estimated amounts of the spill volume as soon as it occurs and try to control it at the source. The well design and approval process need to be more demanding.

The technology, laws, regulations, and practices to contain, respond to, and clean up spills are far behind the real risks associated with drilling in deep waters, in high-pressure oil and gas reservoirs located far out at sea and at great depth. The government must close this gap and the industry must support the effort, rather than resist it. Scientific knowledge about conditions in sensitive environments in the deep waters of the Gulf, in the region's coastal habitats, and in proposed drilling areas, such as the Arctic, is underdeveloped. The same is true for scientific knowledge regarding the impacts that oil spills cause on the environment (Commission, 2011).

2.7 Overcoming the Impacts of the Spill and Restoring the Gulf

The Deepwater Horizon platform spill caused significant damage to natural resources and habitats on the Gulf coast and in the deep-sea environment (Commission, 2011). In the United States, damage to natural resources is assessed in accordance with the provisions set forth in the OPA law. Restoration must be carried out in situ and in kind, if possible. Five Gulf States were affected in the case of the Deepwater Horizon platform, the greatest damage occurred in the state of Louisiana. The damage to the marine environment caused by this accident is unprecedented (Commission, 2011).

Compensation in accordance with OPA provisions must be transparent and appropriate. An independent scientific auditor shall be appointed to carry out the task of assessing the damage caused to natural resources. It is estimated that restoring the Gulf in its entirety will require between 15,000 and 20,000 million dollars, a minimum of 500 million dollars per year, over a period of 30 years. A reliable source of long-term financing is required to achieve restoration. Currently, various sources provide financing to the States to carry out restoration, but none for the coastal and marine restoration of the Gulf (Commission, 2011).

Congress has already begun to consider other potential sources of financing, including taxing oil production with tariff barriers and charging higher royalties. Congress shall dedicate 80% of the penalties from the *Clean Water Act* for the long-term restoration of the Gulf of Mexico. The Gulf Coast Ecosystem Restoration Task Force was created to deal with this matter.

Congress should establish a Federal-State Gulf Coast Ecosystem Restoration Council. The Spill Beneficiaries Council formed after the accident of the *Exxon Valdez* could be considered. Projects could be

categorized in various ways, for example: by habitat (estuaries, seagrass meadows, wetlands, coral reefs), by objective (biological productivity and ecosystem function, improving resilience, restoring fisheries), or by specific project type (river diversions, beach enrichments). Restoration decisions must have a scientific basis (Commission, 2011).

2.8 Ensuring Financial Responsibility

In the case of the Deepwater Horizon platform spill, the com- pany BP put 20,000 million dollars in guarantee to compensate individuals and legal entities. But if it had been a less solvent company, it would have been more difficult to cover the compensation.

The liability limit in the OPA law is 75 million dollars, except for malice, violation of federal legislation or failure to report the accident. The limit is low, so the Commission (2011) states that it is necessary to increase it. Claims of up to a billion dollars can be paid by the Oil Spill Liability Trust Fund, which is currently funded by 8% of the pre-tariff barrier applied to domestic and imported oil.

This circumstance presents two drawbacks:

- Lack of adequate safety incentives: companies do not adopt cost-effective safety precautions.
- Inadequate compensation for damage: damages in this case amount to ten billion dollars.

Congress shall significantly increase the liability limit and financial responsibility in the case of marine platforms. In the United States, unlike the case of Argentine Republic, according to the provisions of the LGA, liability limitation is accepted. That is, liability is not comprehensive. During legislative attempts to increase the liability limit, it was argued that it could lead to insurers leaving the market, which would mean that various small and independent companies in the industry, consequently, would also leave the market. The counterargument is that oil companies shall bear the social costs of their activities, and if these costs are too large or unpredictable to be insurable, then the companies should leave the market (Commission, 2011). One option to keep independent companies in the market is to form a *pool* of mutual insurance. Another option recommended by the Commission (2011) is to gradually increase liability

limits, with the argument that it will give the insurance industry a period of adjustment. Finally, it can be encouraged that smaller companies form temporary business unions with larger companies.

2.9 The Congress's Commitment to Ensuring Efficient Drilling at Sea

Recommendation No. 1: Congress shall systematically involve itself in ensuring safety and environmental protection of drilling on the continental shelf.

Congress shall increase its attention to the activity. First, safety and environmental risks must be controlled. Second, the relevant Congressional Commissions shall be required to hold an annual hearing on the state of technology, the application of the safety process, and environmental protection to ensure that Congress maintains attention on this activity.

There is an overlap of attributions between the Natural Resources and Energy Commissions in Congress. No Commission directly deals with studying the safety and environmental impacts of marine hydrocarbon extraction, they only started doing so after the Deepwater Horizon platform accident. Indeed, many Commissions do deal with the royalties that the activity leaves (Commission, 2011). The Commission recommended the creation of a Marine Safety Authority and that the Congressional Commission that analyzes these issues audit it.

Congress shall require the Secretary of the Interior to submit an annual public report on marine energy development activities to the respective Congressional Commissions. The report shall be based on the Department's progress in improving safety regulations and the steps taken by industry and government to improve facility management. The report shall also detail areas where the Department believes the industry is not doing everything necessary to promote safety and environmental care, and those areas where additional legislation would be necessary.

Recommendation No. 2: Congress shall prioritize the passing of legislation to create a mechanism for oil and gas operators to provide funding to the agencies that regulate the development of the exploration and exploitation of oil and gas at sea. BOEMRE currently receives money from the industry.

Next, in Table 1, the variables identified in the Commission's Report (2011) are summarized:

Table 1 Variables identified in the Commission's Report (2011)

Commission report (2011)	*Measures to implement*
The role of the government	-regulatory reform -institutional reform (division of responsibilities: security, concessions, profits)
The role of the industry	-creation of a safety office
Environmental protection	-eliminate: . tiering, . categorical exclusions, . concessions in extensive areas -develop NEPA Guide -establish scientific interconsultation process to demarcate zones where exploration is prohibited -expand the integrated ocean observation system
Improve planning and response capacity	-improve federal-state coordination -improve scientific knowledge about response measures -promote public participation -improve scientific knowledge about dispersants and berms -allow scientists access to the site of the accidents
Improve well containment capacity	-control spills at the source
Restoration	- in situ and in kind -form a federal-state ecosystem restoration council
Financial responsibility	-increase the liability limit -form a mutual insurance *pool*
The role of Congress	-control safety and environmental risks -require an annual public report to be sent to it -create a mechanism for companies in the sector to finance regulatory agencies

Source own elaboration, 2017

3 The Montara Platform Accident

The Montara platform accident was a flagship case of cross-border pollution between Australia and Indonesia, the consequences of which have not yet been resolved (Lyons, 2015). The Montara platform was located in the Timor Sea, 140 nautical miles off the coast of Australia and 50 nautical miles from Indonesia's EEZ. The oil spill occurred on August

21, 2009, and lasted for 74 days. Since the spill could not be stopped, another drilling platform was moved in to drill a well in the seabed to relieve the pressure and stop the spill. This platform began drilling on September 11, 2009, and only achieved some success on November 1, 2009 (Commission Montara, 2010). 3400 barrels of heavy mud were used to stop the spill. It was the third oil spill in Australia and the country's worst marine oil industry spill. According to the Australian Department of Resources, Energy and Tourism, 2000 barrels per day (equivalent to 318,000 liters) were spilled. In total, 184,000 liters of six different types of pre-approved dispersants were used according to the Australian National Plan. The Montara Investigation Commission's report was made public on November 24, 2010, along with a draft response from the government.

Historically, Australia and Indonesia have held long and complex negotiations over the Timor Sea and its living and non-living resources, reflected in the negotiation of several boundary treaties (Lyons, 2015). Initially, these treaties applied to part of the seabed, and later, in 1997, the treaty that established the EEZ boundary and various fisheries agreements were signed. Access was even granted to Indonesian fishermen to an area of the EEZ, and an agreement was made for the joint exploration and exploitation of hydrocarbons. There are areas where jurisdiction overlaps, where Australia has sovereign rights over seabed resources, but Indonesia has sovereign rights over the water column resources above the seabed. The spill caused by the accident at the Montara platform affected these areas and areas where Indonesia has jurisdiction over both the seabed and the water column. The spill began in the Australian EEZ and first expanded to the water column—it extends vertically—of the Australian EEZ, but then satellite images showed that it extended to Indonesia.

The Montara platform Investigation Commission's report concludes that the company's errors were systematic. The primary cause of the spill appears to have been a failure of the first and second well control barriers and cement covers, which did not comply with the Construction Standards of the well's owning company. In 2009, well operations had been suspended for four months. When operations resumed, the only secondary barrier that had been installed was removed. The explosion occurred fifteen hours after the first barrier, which did not had been evaluated and had no secondary protection, was left exposed. That is, in this case, according to the report, it is concluded that the accident was not the result of misfortune, but something that was going to happen. The

report concluded that it was a mistake to allow the well to operate with only one barrier for 36 hours (Lyons, 2015).

The Australian government, after the accident, similarly to what happened in the United States after the Deepwater Horizon platform accident, responded with a series of measures. One of the measures was the creation of an independent national institution in charge of regulating hydrocarbon activities at sea and the institutional reorganization of the authorities involved, the institution is called the National Authority for Safety and Environmental Management of Hydrocarbons at Sea (NOPSEMA). This institution must ensure safety, well integrity, and compliance with environmental requirements.

The report concluded that the failure lay in the implementation of the legal regime, because the existing regime to control the monitoring of platform operations was adequate. In Australia, there is an environmental law, the Environmental Protection and Biodiversity Conservation A*ct* 1999 (EPCB),[3] and a specific law on the regulation of the exploration and exploitation of hydrocarbons at sea, called the Offshore Petroleum Act 2006 (OPA), which, although was enacted in 2006, came into force in 2008 with a change in its name: Offshore Petroleum and Greenhouse Gas Storage Act (OPGGS).[4] The report argues that the provisions of both laws should not overlap. For example, it is argued that the explosion fighting system was efficient. Basically, the recommendations are to control and verify in writing the installation and removal of barriers and it is concluded that there should always be a minimum of two barriers. Likewise, an increase in fines is provided in case of omission in respect of safety measures. Similarly, it is recommended that, in the event of a future accident, the decisions to be taken should not rest solely on the operators, and citizens should be kept informed.

It is highlighted that in the Australian Constitution there is a *reference to exploration at sea, as there is the so-called "Offshore Constitutional Settlement"*, which provides for the distribution of competences at the federal and state level in the country. Two authorities are created, one in charge of administrative matters and another authority called "Joint Authority", which determines in which areas the exploration and exploitation of hydrocarbons at sea is allowed.

[3] Australia. *Environmental Protection and Biodiversity Conservation Act* 1999 (EPCB).

[4] Australia. *Offshore Petroleum and Greenhouse Gas Storage Act* 2008 (OPGGS).

From the reading of the report presented by the Montara Commission, in general terms, it is inferred that this had a more technical and less holistic approach in environmental terms, than the report prepared a few years later as a result of the accident on the Deepwater Horizon platform. In other words, the report prepared by the Australian Commission limits to analyzing the accident. On the other hand, the report prepared in the United States reflects a paradigm shift in the country after the accident. Therefore, the American report is not limited to technical issues, but raises philosophical and environmental issues, the issue is approached from a more environmentalist perspective. Greater responsibility is taken, a whole series of measures for the restructuring of the exploration and exploitation of hydrocarbons at sea is proposed, considering it as an activity that impacts the entire society, without reducing the issue to technical matters to be solved by the field of engineering, as is largely inferred from the report presented by the Australians.

The Australian report asserts that the responsibility of the owner or operator shall be comprehensive. However, it has less foundation on environmental law, because it fails to focus on prevention-precaution. On the contrary, it has a greater basis in the stage after environmental damage, for example, it mentions the principle of "polluter-pays". There is also no mention of EIAs and other measures mentioned in the American report, such as the elimination of categorical exclusions - that is, the fact that some activities, such as the exploration and exploitation of hydrocarbons at sea are exempt from EIAs. There is neither mention to the elimination of the tiering procedure, which implies that EIAs are carried out in very extensive geographical areas, subject to promises of future more limited EIAs that were never carried out. The implementation of MPAs or MSP is neither mentioned in the Australian report.

Regarding the monitoring of environmental damage caused by the spill, the Australian Commission's report indicates that there was no daily estimate of the amount of oil being spilled and the terms of the scientific monitoring program were only agreed upon on October 9, 2009. This is because Australia does not have legislation regulating payments for ecosystem services.[5] The Indonesian government, for its part, claims 2.4 billion dollars.

[5] Argentine Republic also fails to have regulation on this issue. Minaverry (2016) explains that ecosystem services are only mentioned in Law 26.331 of basic requirements for environmental protection of native forests.

Likewise, Lyons (2015) points out that the extent of the damage in the water column has not been measured, so she concludes that Australia would not have complied with the obligation of due diligence in monitoring and reporting impacts, according to the parameters established in the judgment of the ICJ Pulp Mills[6] and in ITLOS advisory opinion no. 17.

[6] "Pulp Mills on the Uruguay River" (Argentina v. Uruguay, 2010), ICJ, Reports 2010, p. 14.

CHAPTER 6

International Regulation on Marine Platforms

1 Projects of Specific Conventions on the Subject

There is currently no international convention devoted to the governance of marine platforms for exploration and exploitation of hydrocarbons, despite several attempts to achieve this goal. This chapter will analyze the texts of the draft specific conventions that were developed on this subject, to determine what environmental contributions they made, with the aim of taking them into account in future legislative instruments.

In 1977, CLEE 1977 was adopted, although it never came into force. The signatory States of the convention were the Federal Republic of Germany, the Republic of Ireland, the Netherlands, Norway, Sweden, and the United Kingdom. Its application was specific to coastal States to the North Sea, the Baltic Sea, or that part of the Atlantic Ocean north of latitude 360 degrees north (art. 18). The convention includes, in the definition of hydrocarbon, crude hydrocarbon and natural gas liquids (art. 1, section 1a).

The terms of the convention cover the regulation of abandoned platforms (art. 1, section 2b) and any well used to explore other mineral resources besides crude oil, gas, or natural gas liquids (art. 1, section 2d). In addition, it regulates pollution, but not all types of pollution. Art. 1.6, for example, defines "pollution damage" as any damage caused by pollution resulting from the escape or discharge of oil from the installation,

V. S. Radovich, *Marine Exploration and Exploitation of Hydrocarbons*,
Palgrave Studies in Maritime Politics and Security,
https://doi.org/10.1007/978-3-031-75177-6_6

and includes the cost of preventive measures. However, art. 2 limits the application of the convention only to accidental pollution, that is, it does not cover operational pollution, the pollution that derives from the usual activity of the platforms.

There is a difference in meaning between the term "preventive measures" in the context of maritime law, which refers to the measures taken once the accident has already begun, in opposition to the meaning of the terms "preventive" and "precautionary" in the context of environmental law, whose objective is to prevent the start of the accident. For example, the CLEE 1977 convention (see Annex I), in the context of maritime law, defines preventive measures as:

> any reasonable measure taken by any person in relation to a particular accident to prevent or minimize pollution damage except for well control measures and measures taken to protect, repair or replace an installation. (art. 1.7)[1]

The definition of pollution damage in art. 1.6 also does not include atmospheric pollution from gas burning, which is now regulated in art. 2 of the UNFCCC.

Regarding liability, the general principle is that the operator of the installation at the time of the accident is responsible for any pollution generated (art. 3). However, the full effect of the article, in some way, is distorted by art. 6, which allows ratifying States to choose between limited and unlimited liability. Shaw (1998) explains that some States did not want to accept the notion of limited liability on this issue and that, as a result, a new article was added at the end of the convention, which gave the controlling State the right to set a limit higher than that provided in art. 6, or directly no limitation. Shaw (1998) concludes that this issue turned out to be a "fatal error" and the reason why the convention never came into force.

Also, another defect is that the convention did not include provisions for the establishment of a fund to which the industry would contribute to cover liabilities that exceeded the limits set in art. 6. Funds integrated by

[1] In the same sense art. 1.7, CLC 1992 Convention defines "preventive measures" as "any reasonable measure taken by any person after an accident has occurred to prevent or minimize pollution damage".

industries are well accepted, as demonstrated by FUND 71, which established a fund with respect to pollution caused by tankers, to which the industry contributes, which pays compensation to victims of oil pollution by hydrocarbons that cannot obtain adequate compensation or directly do not obtain compensation from the shipowners or insurers. Basically, a two-level compensation system is established: the first level is composed by the compensation paid by the shipowners, and the second by the compensation paid by the fund. The 1996 Convention on Harmful and Dangerous Substances (SNP 1996)[2] has also established a fund.

Therefore, with respect to this convention, the weaknesses are that it only covers accidental pollution, the possibility of choosing between limited and unlimited liability and the lack of inclusion of a liability fund.

Also, in 1977, the CMI adopted the "Rio Draft", the Convention on Offshore Mobile Platforms. The title of the draft alone conveys two modifications: the term "offshore" is used and the scope of application only refers to mobile platforms.

In 1990, the IMO asked the CMI to review the "Rio Draft". In In 1994, the CMI adopted the "Sydney Draft" (see Annex II) which, like its predecessor, differed from the CLEE convention because these drafts adopted a model called "incorporation by reference" of the conventions applicable to ships, that is, the articles of these projects establish that various maritime conventions, for example the OPRC 1990 agreement, will be applicable to mobile platforms.[3]

Instead of the term "installation", it uses the term "structure", and refers to "mineral resources", not specifically to oil. When considering this draft, the CMI working group on mobile *offshore* structures highlighted that it considered it "necessary to work more and study a convention on *offshore* structures and related issues and that it was necessary to have more consultations between Intergovernmental organizations, governments, NGOs, the industry and other interested parties". An international working group was also established for "further study and development, if

[2] International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea ("HNS 1996") 35 ILM 1415 adopted May 3, 1996. Not in force.

[3] For example, Article 7 of the Sydney Draft states: "Liability for Oil Pollution. Subject to the following paragraph of this article, that State party that is also a party to the International Convention on Civil Liability for Oil Pollution dated November 29, 1969 with its amendments from the 1976 or 1992 Protocols, must apply the rules of that convention to the artifacts if otherwise not applicable.

appropriate, of an international convention on '*offshore*' units and related issues…". That is, these drafts were considered provisional by the CMI, as their name indicates. The drafts were not accepted by the IMO Legal Committee and never entered into force.

The importance of the Sydney Draft lies in the fact that it was thought of as an interim measure to regulate platforms uniformly, by applying ship conventions to mobile "*offshore*" installations while a specific convention on the subject was being negotiated. From the study of these two drafts, it can be mentioned as a weakness that only mobile marine installations are regulated and not also fixed ones, since both types of platforms should be regulated in the same legal body because they are dedicated to the same activity.

In 2001, the Canadian Maritime Law Association (CMLA) concluded that incorporating platforms, by including them in conventions intended for ships—a method called "incorporation by reference"—was not appropriate and prepared the "Draft International Convention on *Offshore* Units, Artificial Islands and Related Structures Used in the Exploration and Exploitation of Oil and Mineral Resources of the Seabed"[4] (see Annex III). Due to the more recent date of this Draft in 2001—almost ten years had passed since the 1992 Rio Declaration—it will be appreciated that this project has incorporated legal tools from environmental law. In this sense, firstly an example of normative integration is observed, in the sense that it has been defined in chapter 2, because in the first paragraphs of the project it is established that the provisions of the convention are consistent with the principles of UNCLOS.

Secondly, the term "*offshore*" is used again. Thirdly, the convention includes both the mobile structures called "offshore *units*" and the fixed structures called "artificial islands". Oil is defined as a natural hydrocarbon. The project is applicable to units in the EEZ and on the continental shelf, and the States parties can extend the partial or total application of the project to their territorial sea or internal waters. The project does not apply to the Area as defined in the UNCLOS.

The project has a broader definition of pollution than that appeating in previous instruments, as the definition in art. XI includes operational pollution, accidental pollution, and air pollution from gas burning.

[4] Available in CMI Newsletter No.1- January/April 2004, http://www.comitemaritime.org/Uploads/Newsletters/2004/Binder1.pdf [Last visited: July 2019].

Another contribution of the project is that it creates an international registry where the identity, flag, owner, and mortgages of the "offshore" platforms must be registered [sic] (art. IV). This will allow the application of the law of the flag under which the platforms are registered. Shaw (1998, p. 149) explains:

> because the operation of offshore units [sic] is a diffuse international industry with many points of contact with various workplaces, this can generate complex legal conflicts and the granting of guarantees on such units for financing can be jeopardized by legal uncertainties.

In turn, Shaw (1998, p. 149) adds that "the application of criminal jurisdiction principles over illicit acts committed on board 'units that do not belong to any State will also be unpredictable" and "…that the general public's right of access to information in local registries must be guaranteed".

Another contribution of the project is that it introduces a safety chapter (art. VIII) that requires the establishment of an emergency and search system and a rescue plan (art. 8.9). The project foresees the "possible extension of the application of the convention to new technologies, for example, seabed aquaculture, commercial satellite launch facility *offshore*" (art. 2.4.).

It also contains provisions relating to salvage and removal of platforms (arts. IX and X). In relation to salvage, the application of the Salvage Convention[5] is extended to platforms when "they are in their location and are not carrying out Economic Activities" (art. 9.7). Therefore, they do not necessarily have to be transported as required by the Salvage Convention to assimilate them to ships. However, they must not be operating. The draft comment from the Canadian Association explains that these clauses are designed to apply principles of the OPRC 1990 convention to marine platforms.

Assistance and salvage is an institute of maritime law, which consists of the help provided to a ship when it is in difficulties due to another ship, for which an assistance and salvage salary is paid. The institute is regulated in the Republic of Argentina under arts. 375 to 386 of LN 20.094.

[5] 1989 International Convention on Salvage ("Salvage Convention"), adopted April 28, 1989, 1953 UNTS 193 (entered into force July 14, 1996). Argentine Republic is not a State party.

It is related to environmental issues, since, when a ship is in distress, it is likely spilling the fuel it uses to navigate, and if it is a ship that transports hydrocarbons as cargo, the threat to the marine environment is even greater. The Canadian project incorporates marine platforms in the scope of application of the 1989 Salvage Convention, although not when they are operating. This inclusion would help reduce pollution in case of hydrocarbon spills.

The project establishes the limitation of liability in cases of death or injury or damage to property, the resulting loss for the violation of extra-contractual rights and extra-contractual claims with respect to the installation, removal or destruction of the platforms. It also establishes the establishment of a limitation fund (art. 13.3).

The IMO has already regulated platforms (Balkin, 2014). Firstly, it adopted in 1988 the Protocol for the Suppression of Unlawful Acts against the Safety of Maritime Navigation to the Convention for the repression of unlawful acts against the safety of navigation maritime ("SUA").[6] The objective of the convention is the prevention of terrorist accidents on ships and the protocol extends the application of the convention to fixed platforms located on the continental shelf. The IMO has also regulated platforms to prevent hydrocarbon pollution. For example, as previously studied, the OPRC 1990 convention requires that contracting parties respond to marine pollution accidents that occur on drilling platforms (arts. 2 and 4). However, it does not establish a liability regime. Also, the IMO approved the Code for the Construction and Equipment of Mobile Offshore Drilling Units *Offshore* (2009 MODU Code).[7]

However, IMO's official position is that there is no pressing need to develop an international convention, but that States should develop regional and bilateral agreements.[8] It is not surprising that States with great development of the hydrocarbon industry are those that mostly oppose to international regulation of compensation for damage derived

[6] 1988 Protocol for the Suppression of Unlawful Acts against the Safety of Maritime Navigation ("1988 SUA Protocol") to the Convention for the Suppression of Unlawful Acts against the Safety of the Maritime Navigation ("SUA"), adopted March 1, 1992, 1678 UNTS 304 (entered into force March 10, 1988). Argentine Republic is a State party, approval law N° 25.771. Official Bulletin, 12/09/2003.

[7] Code for the Construction and Equipment of Mobile Offshore Drilling Units (2009 MODU Code) Resolution A. 1023 IMO (26), adopted December 2, 2009.

[8] IMO Legal Committee LEG 100/13.

from this activity. Clearly, compensation is not reduced to a legal issue, because it also includes other considerations, among which are financial and political implications (Balkin, 2014).

The discussion reveals that, although these instruments have not entered into force, they also do not regulate marine platforms in a holistic way, because none of them considers the creation of MPAs or carrying out EIAs (Radovich, 2017b).

Table 1 summarizes the strengths and weaknesses of the above-mentioned instruments:

Table 1 Strengths and weaknesses of the projects on marine platforms

	Strengths	*Weaknesses*
CLEE Convention	-includes abandoned platforms within its regime	-regulates only accidental pollution -allows to choose between limited and unlimited liability -does not establish a liability fund
Río and Sydney Drafts	-only extends ship conventions to marine platforms	-applicable only to mobile platforms
Draft International Convention on Offshore Units, Artificial Islands and Related Structures Used in the Exploration and Exploitation of Oil and Mineral Resources of the Seabed	incorporates integration -includes fixed as well as mobile platforms -introduces a registry of marine platforms -applicable to operative, accidental and atmospheric pollution -includes a safety chapter - salvage is applicable when platforms are in their location, but not operating	- limited liability -does not consider EIAs neither MPAs

Source Own elaboration, 2017

2 Multilateral Instruments Directly Applicable to Marine Platforms

Due to the lack of a comprehensive instrument that regulates marine platforms, the extent to which maritime law, maritime law, and environmental law regulate the topic is examined below. There are several potentially relevant international instruments in terms of their application to marine facilities, which are summarized in Table 2.

Table 2 Multilateral instruments and marine platforms

International conventions	*Applicable to marine platforms?*	
	FIXED	*MOBILE*
Maritime law		
Convention on the Continental Shelf (Genoa, 1958)	YES	YES
UNCLOS	YES	YES
Maritime law		
SOLAS 1974	NO	YES
MARPOL 73/78, Annex V	YES	YES
	Not applicable to operational pollution from platforms neither to atmospheric pollution	
OPRC 1990	YES	YES
LC 1972 and Protocol 1996	YES	YES
	Not applicable to operational pollution from platforms	
CLC 69/ PROT 92	NO	NO (but it applies when hydrocarbons are being transported to be loaded in another place)
BUNKERS Convention, 2001	YES	YES
Salvage Convention, 1989	NO	NO (only applies when they are being transported, awaiting instructions, being repaired, or being supplied)
AFS Agreement, 2001	YES	YES
Environmental law		
Rio Declaration	YES	YES
Agenda 21	YES	YES
CBD	YES	YES
Espoo EIA Convention	YES	YES

Source Own elaboration, 2017

2.1 Law of the Sea and Maritime Law

First, the Convention on the Continental Shelf (Genoa, 1958)[9] establishes that there must be safety zones around the platforms, and that coastal States must take appropriate protection measures there for the living resources of the sea against harmful agents (art. 5, p. 7), including harmful agents that derive from the exploration and exploitation of oil and gas at sea. It establishes the duty to duly notify the construction of the facilities, and that those that are abandoned or unused must be completely removed (art. 5, p. 5).

UNCLOS, in part XII, called "Protection and Preservation of the Marine Environment", establishes that States have the general obligation to protect and preserve the marine environment (art. 193). Even though States have the sovereign right to exploit their natural resources, they must, however, protect and preserve the environment (art. 194.3.c). More specifically, States are obliged to use the best means at their disposal, and according to their capabilities, to minimize discharges from facilities on the seabed and subsoil (art. 194.3.c). Among these means, measures to prevent accidents, emergency response procedures and the management of the design, construction, equipment, operation and crew of the facilities are included (arts. 60.3 and 80). Like the Genoa Convention on the Continental Shelf, UNCLOS also establishes that abandoned platforms must be removed (Art. 208.1).

Likewise, UNCLOS stipulates that States must enact global and regional regimes, standards, and recommended practices and procedures to prevent and control marine pollution resulting from activities carried out on the seabed (art. 208.5). Similarly, it requires States to enact laws and regulations at the national level to prevent, reduce, and control pollution of the marine environment resulting from activities carried out on the seabed. Article 208.3 demands that such laws, regulations, and measures be no less effective than international rules, standards, and recommended practices and procedures. However, McConnell (1992) explains that these laws and international rules do not exist, that "contrary to the suggestion

[9] Convention on the Continental Shelf, adopted April 29, 1958, 499 UNTS 311 (entered into force June 10, 1964).

in its title, Section 5[10] does not establish rules or international standards but assumes their existence and requires States to implement them". Finally, UNCLOS establishes that States must ensure that there are sufficient financial resources in their systems to provide quick and adequate compensation for damage caused by pollution of the marine environment (art. 235). However, as McConnell (1992) states, UNCLOS does not establish the regimes of liability and compensation for environmental damage, it only mandates that they exist.

Lyons (2015), on the other hand, explains that UNCLOS emphasizes the importance of contingency plans in the context of marine installations used in the exploration and exploitation of natural resources, but does not detail the specific steps that States must follow. In addition, she affirms that neighboring States should:

- Inform each other of activities in their jurisdiction that pose a serious risk of cross-border pollution.
- Agree on a contingency plan in case of pollution.
- Cooperate before an activity that implies cross-border damage begins, to establish a baseline of the marine environment (within the jurisdiction of each State). The need to demarcate this baseline was underscored as a major issue, following the accidents at the Montara and Deepwater Horizon platforms. The EIAs required under national legislation do not require the demarcation of this baseline, but the model adopted by ISA in areas outside national jurisdiction requires does require the development of this prior environmental baseline, and that this demarcation must be shared with the scientific community (reg. 31, art. 4).

The duties of States in the event of cross-border pollution, according to UNCLOS, are as follows:

- Notification of imminent or actual damage (art. 198).
- Cooperation as regards activities that may cause cross-border pollution and development and promotion of a set of contingency plans to respond to these accidents (art. 199).

[10] Section 5 of Part XII of UNCLOS is titled "International Rules and National Legislation to Prevent, Reduce and Control Pollution of the Marine Environment".

- Monitoring of the risks or effects of pollution (art. 204).
- Publication of the reports presenting the results of the monitoring studies (art. 205).
- Measurement of the potential effects of activities (art. 206). In this regard, Del Castillo (2013) asserts that States have obligations recognized by customary law on protection of the environment and prevention of transboundary damage. McIntyre (2007) argues that the duty not to cause harm to third countries is fulfilled through cooperation to reduce environmental risk, through notification procedures, prior consultation, negotiation, and environmental impact studies (cited by Del Castillo, 2013, p. 12).

In summary, the law of the sea conventions impose duties to protect the marine environment from pollution that originates in the activities carried out on the seabed, and also mandate that preventive and compensatory measures be established at the international, regional, and national levels. However, as uniform international rules have not been issued on which regional and national regulations can be based, as established by art. 208 (3) of UNCLOS, it becomes more difficult to adopt these regulations at the regional and national level.

Regarding maritime law, in the stage that I have called "preventive-precautionary", it focuses on the safety of operations, and thus is based, mainly, on the SOLAS 1974 convention, considered the most important convention regarding the safety of merchant ships. The main objective of SOLAS 1974 is to specify minimum standards for the construction, equipment, and operation of ships, compatible with their safety. The first version was adopted in 1914 in response to the disaster of the *Titanic*, the second in 1929, the third in 1948, and the fourth in 1960. Later, the 1974 version included the tacit acceptance procedure that establishes that amendments should begin to apply on a certain date, unless the necessary objections are received. It is a dynamic convention that adapts to current changes. The last modification that came into effect, in 2017, incorporated a chapter related to safety in polar waters navigation.[11] SOLAS 1974 is potentially applicable to mobile platforms, only if they are considered ships (regulation 1.b.). In this sense, the IMO has approved

[11] http://www.imo.org/en/About/conventions/listofconventions/pages/interna-tional-convention-for-the-safety-of-life-at-sea-(solas),-1974.aspx [Last visited: August 2017].

a guide entitled "Guide for the application of safety and environmental protection provisions to FPSOs and FSUs (floating platforms)".[12] Art. 5, called "Principle of application", requires compliance with the provisions of MARPOL 73/78 (which are discussed later), the resolutions of the IMO Assembly and the industry guides, which contribute to safety and prevention of pollution from different perspectives.

2.1.1 Discharges From Marine Platforms

The main objective of MARPOL 73/78 is the prevention and control of marine pollution generated from ships, general waste, chemical waste, and hydrocarbon waste from ship machines that are generated on marine platforms. The convention broadly defines ships, and this is the reason why it potentially includes fixed or floating platforms within its definition (art. 2.4).

In fact, in relation to waste pollution, annex V from MARPOL 73/78, entitled "Regulations for the Prevention of Pollution by Garbage from Ships", applies to marine platforms, because regulation 2 establishes that the annex is applicable to all ships, unless expressly provided otherwise. Even the marine pollution prevention regime for platforms is considerably more rigorous than the regime for ships, because, in the case of ships, this annex allows, under certain conditions, the disposal at sea of certain types of garbage, such as packaging materials or food waste. However, according to regulation 5, this permission is not applicable to marine platforms. Also, MARPOL 73/78 establishes special requirements for fixed or floating platforms. In particular, regulation 21 chapter 2 requires that fixed or floating platforms comply with Annex I of MARPOL 73/78, which regulates the regime for the prevention of pollution by waste generated on marine platforms. This annex applies to ships from 400 gross tons that do not transport hydrocarbons and provides that platforms must have special equipment—such as tanks for hydrocarbon waste—, must keep a record of operations involving hydrocarbon discharges or mixtures of hydrocarbons, and they are prohibited from discharging hydrocarbons

[12] "Guidance for the application of safety, security and environmental protection provisions to FPSOs AND FSUs" MSC-MEPC.2/Circ.9, May 25, 2010, http://cil.nus.edu.sg/wp/wpcontent/uploads/2013/03/Guidance-for-the-Application-of-Safety-Security-and-Environmental-Protection-Provisions-to-FPSOs-and-FSUs.pdf [Last visited: July 2019].

or mixtures of hydrocarbons into the sea, except exceptions safe and involving minimum volumes.

However, MARPOL 73/78 is not applicable to the operational pollution inherent in the activity of marine platforms, nor to the prevention of atmospheric pollution from platforms, in this last case because Annex VI on atmospheric pollution by ships is also not applicable to the exploration and exploitation of mineral resources of the seabed. These gaps should be regulated by an international instrument dedicated to the environmental aspects of the exploration and exploitation of hydrocarbons at sea (Radovich, 2017b).

OPRC 1990 applies to fixed and floating platforms (art. 2). It requires that operators of *offshore* units establish emergency plans for oil pollution coordinated with national systems (art. 3). In addition, it specifies that parties must report, without delay, any event on their offshore unit that involves a discharge or likely discharge of hydrocarbons (art. 4).

This convention, globally, establishes the legal obligations necessary to ensure preparation, contingency planning, and response appropriate to a spill. At the regional level, several agreements have been adopted, specifically, the Offshore Protocol to the Barcelona Convention, which will be studied later, in Chapter 6. These agreements also include specific requirements for equipment, as well as for contingency planning and notification requirements. However, in the case of the Montara platform, Australia and the Republic of Indonesia had not signed any such agreement. The Republic of Indonesia had also not ratified the OPRC 1990 convention, but it was still applied to it by the provisions of UNCLOS. In this sense, Lyons (2015) argues that, since 107 countries have ratified the OPRC 1990 Convention, including most of the major oil and gas producing countries, it could be considered that it constitutes the international rules that, according to art. 208 of UNCLOS, should serve as a reference for national legislation.

OPRC 1990 states the need to promote international cooperation and improve existing legislation at the national, regional and global level, considering the special needs of developing countries. This is the reason why the parties commit to sign bilateral or multilateral agreements on preparation and response to oil spills (art. 10). However, there are no specific requirements on the scope or content of such agreements (Lyons, 2015).

Capaldo (2009, p. 11) explains that OPRC 1990 "aims to mitigate oil pollution, as it indicates how to prepare and how to fight against HC

pollution events, whether or not they come from ships because it includes ports, marine platforms, pipelines, etc.". Likewise, Argentine Republic is a State party to the OPRC 1990 and has the mandatory emergency plan in case of oil pollution (art. 3) required by the convention. This plan is called PLANACON and appears as chapter 7 within title 8 of Ordinance No. 08/98 (DPAM) of the Argentine Naval Prefecture (PNA). The agreement establishes a system of cooperation, information, consultation, notification, and technical assistance among States and specifically establishes a bilateral cooperation system (art. 10).

Operators of marine platforms must have emergency plans to prevent oil pollution, which are coordinated with the national system and report without delay any event on the platform that implies a discharge or possible discharge of hydrocarbons. The next chapter will refer to an agreement that Argentine Republic has ratified with the Eastern Republic of Uruguay, which is very similar to the text of OPRC 1990.

The agreement specifies that a minimum level of prepositioned oil spill combat equipment must be established unilaterally, or through bilateral or multilateral cooperation, commensurate with the risk involved. Moreover, programs for its use, exercise and training programs, detailed plans and communication capabilities, as well as coordination agreements must be adopted.

In relation to the accident on the Montara platform, Lyons (2015) argues that, although countries in the Asia–Pacific region recognize the need for contingency plans at the national and regional level, and the transport working group of Economic Cooperation has taken on the mission of verifying the status of contingency plans in the region and promoting cooperation in this regard, national legislation is not shared or organized institutionally. Neither are the lists of legal dispersants, nor the quantity or location of equipment available to combat spills in the region, unlike what happens in the northwest region of the Pacific, which has an action plan for regional preparedness and response to a marine-environmental emergency.[13]

In the specific case of Australia and Indonesia, the States had signed a memorandum of understanding on the subject in 1996. However, this was not implemented in the Montara case. Both countries had provided

[13] https://www.unep.org/northwest-pacific-action-plan-nowpap [Last visited: October 2022].

the ITOPF (International Tanker Owners Pollution Federation)[14] with the necessary information to comply with the IMO's oil spill reporting procedures. The information recorded in the ITOPF database includes the government authority responsible for dealing with spills from ships. Although it is based on ships and not on marine platforms, Lyons (2015) argues that it is a very useful basis for building consultation mechanisms.

In the specific case of the Montara platform, it was concluded that, despite having a written emergency plan, it did not have adequate equipment to prevent the spill on board. Australia and the Republic of Indonesia had not developed a bilateral agreement nor were there adequate mechanisms for consultation and cooperation. Due to this reason, the Republic of Indonesia filed a lawsuit because Australia failed to provide adequate information, it did not report the types of dispersants that it used or their location.

The London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (LC 1972[15] and Protocol 1996[16]) includes in its scope both fixed and mobile platforms (art. 1.a.i and art. 1.a.ii). However, the definition of "*dumping*" includes the deliberate discharge of waste, but not the operational pollution typical of platforms. In this sense, it is expressly stated that the dumping of waste from the exploration and exploitation of mineral resources from the seabed is not included in the scope of application of the convention (art. 1.c.).

2.1.2 Management and Responsibility in Case of Oil Spills

Other instruments, which could potentially be useful, do not apply to marine platforms or are very restricted in their scope of application to provide a universal regime. For example, the CLC 69/ PROT 92 establishes a liability regime and provides compensation to people who suffer damage from oil pollution, resulting from marine accidents involving

[14] The International Tanker Owners Pollution Federation is a non-governmental organization that represents ship owners worldwide with the aim of promoting an effective response to oil spills, chemicals, and other hazardous substances, http://www.itopf.com/ [Last visited: October 2022].

[15] London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters ("LC 1972"), adopted December 29, 1972, 1046 UNTS 120 (entered into force August 30, 1975). Argentine Republic is a State party, approval law No. 21.947. Official Bulletin, 03/06/1979.

[16] Argentine Republic is not a State party to the 1996 Protocol to LC 1972.

ships that transport them. However, it does not apply to marine platforms, because mobile platforms are not included in the definition of "ship" (Vaughan Love, 2011). In fact, art. 1.1 specifies that only those that transport oil as cargo and on any subsequent journey to that transport will be considered a ship. Therefore, there is no international convention that regulates civil liability and compensation for spills caused by marine platforms.

However, it should be clarified that the CLC 69/PROT 92 establishes a system of limited liability of shipowners for oil pollution, that is, it is not compatible with the system of strict liability for environmental damage of collective incidence with full repair of the damage (arts. 27 and 28) and joint liability (art. 31) established in the LGA (art. 27).

As studied in Chapter 4, the FIDAC is an inter- governmental body intended to compensate for damage caused in its States parties due to pollution caused by spills of persistent hydrocarbons from tankers. It is a mutual insurance established by governments to cover oil pollution, financed by oil interests. Argentine Republic is one of its State parties.

The FIDAC establishes what are the annual contributions to the fund and who should make them. Any person who in a contracting State party had received hydrocarbons in an amount greater than 150,000 annual tons is required to contribute (art.10). The hydrocarbon must be received at ports or terminal facilities, which are defined as "any site intended for the storage of bulk hydrocarbons, suitable for receiving hydrocarbons arriving by a waterborne means of transport". The expression includes any facility located at sea and connected to said site (art. 1º, ap. 8º). Also, for the purposes of determining the amount received, any facility of a contracting State is considered when the hydrocarbon was previously transported by sea to a non-contracting State and unloaded at a port or terminal station to then be received in a contracting State. The FIDAC is also not applicable to marine platforms (Chami, 2010).

The objective of the FIDAC is the settlement of claims in an extrajudicial way and the compensation for damage without delay (Chami, 2010). Claims are settled in cooperation with protection and indemnity clubs, based on a joint investigation of the causes of the incident and the extent of damage. When it comes to incidents with many claimants, FIDAC usually opens local offices together with the protection and indemnity clubs to receive such claims.

Actions are brought exclusively before the courts that the CLC establishes, which are the courts of the contracting State or States in whose

territory, territorial sea or equivalent EEZ the damage have occurred, or preventive measures have been adopted to avoid or minimize the damage caused by pollution in that territory (art. 7.1 of the CLC Convention 1969 and art. 9.1 of the CLC PROT 1992). The statute of limitations is three years from when the damage occurred, and the expiration is six years from the date of the incident. The FIDAC has a claims manual where it indicates which claims are admissible.[17]

The International Convention on Civil Liability for Bunker Oil Pollution Damage, known as the Bunkers Convention 2001,[18] which regulates the damage caused by pollution generated by the hydrocarbons used as ship fuel, applies to mobile and fixed platforms (art. 1.1). The convention advances with respect to the CLC 69/PROT 92 in terms of the inclusion of joint and several liability, as it includes a broader definition of the concept of ship or platform owner, which is not limited only to the owner registered in the Registry—as in the case of the CLC 69/ PROT 92— , but also extends to the bareboat charterer, the ship manager and the shipowner. Likewise, the convention establishes the direct action, which implies that claims for compensation due to pollution damage may be submitted directly to the insurer. The requirement of direct action should be included in any convention that is proposed to regulate compensation matters (Radovich, 2017b).

The CMI has a working group called "*Offshore* Activities". One of the first activities carried out by the CMI was the delivery of a questionnaire to national maritime law associations in July 2013, designed to obtain information about whether States are parties or not to agreements—whether international, regional, bilateral or national—that regulate the liability and compensation caused by the exploration and exploitation of hydrocarbons at sea.[19] In this case, the CMI focused on the stage after environmental damage is caused.

As referred to in Chapter 3, in 2010 the Republic of Indonesia submitted to the IMO Legal Committee a proposal to include in the

[17] http://www.iopcfunds.org/uploads/tx_iopcpublications/claims_manual_s.pdf [Last visited: August 2019].

[18] International Convention on Civil Liability for Bunker Oil Pollution Damage ("Bunkers Convention") adopted March 23, 2001, [2009] ATS 14 (entered into force November 21, 2008). Argentine Republic is not a State party.

[19] http://www.comitemaritime.org/Offshore-Activities/0,27137,113732,00.html [Last visited: August 2020].

work program a new item in order to address the liability for oil pollution resulting from exploration and exploitation of hydrocarbons in the sea, after the accident on the Montara platform in the EEZ of the Timor Sea, which caused transboundary pollution in Australia and the Republic of Indonesia. In 2011, the Indonesian government organized an international conference in Bali on the liability and compensation regime for transboundary damage resulting from oil pollution derived from exploration and exploitation at sea.[20] An Intersessional Consultative Group (ICG) was established, co-chaired by Denmark and Indonesia to develop a draft text to be submitted at the next session of the legal committee.[21]

At the conference, the Indonesian Minister of Environment detailed the damage suffered by coastal communities as a result of the accident on the Montara platform. A complex formula was presented that expressed this damage in monetary terms. Also, the minister pointed out the potential risks of these types of spills for coastal populations, commercial fisheries, coastal and marine tourism, coastal mangroves, migratory species, and biodiversity. Delegates were urged not only to develop response measures to combat these spills, but also to develop international law to ensure fair and swift compensation. The delegates commented that the investigation Commissions that had been appointed by the governments in the cases of the Montara and Deepwater Horizon platform accidents concluded that there was a need for uniform international regulation of the exploration and exploitation industry at sea, and that States should respond to this challenge.

In the absence of treaties that legislate on the consequences of transboundary pollution caused by the exploration and exploitation of hydrocarbons at sea, Indonesia maintains that the development of an international instrument is the best way to respond to future problems. In this regard, Indonesia also asked the IMO Legal Committee to consider the possibility of establishing a supplementary fund regime, and presented the main elements that could be included in it:

– Unlimited and objective liability of the owner/operator of the facility.

[20] "Conference on Liability and Compensation Regime for Transboundary Oil Damage resulting from Offshore hydrocarbon exploration and extraction". A complete report can be read in CMI Newsletter N° 3, 2011. See IMO Legal Committee LEG 97/14/1.

[21] See IMO LEG, session 102, 14–16 April 2015.

- Mandatory insurance by the owner/operator so that resources are always available for compensation. Obligation to have an insurance certificate and guarantee "direct access", which, as explained, implies that compensation claims can be made directly against the insurers.
- Channeling of liability, which prevents compensation claims from being presented to individuals other than the owner/operator of the facilities.
- Balance of obligations between owners and operators.[22]

The 1975 Offshore Pollution Liability Agreement (OPOL) is not an international convention, but a private agreement between sixteen operators in the sector under the jurisdiction of any of the "Designated States" of the agreement (which are the United Kingdom, Denmark, Germany, France, Republic of Ireland, Holland, Norway, the Isle of Man, the Faroe Islands, and Greenland). This agreement was, in its beginnings, a provisional measure to provide a full liability regime while waiting for the CLEE 1977 convention to come into force. OPOL remains in force and imposes strict liability on operators of marine facilities. In addition, it guarantees the payment of compensation up to a limit that is currently set at 250 million dollars per accident. This fund seems to be insufficient, as the pollution resulting from the exploration and exploitation of hydrocarbons has proven to be capable of compromising higher sums—in the case of BP, 18.7 billion dollars were paid in compensation—.

2.1.3 Other Environmental Issues

As anticipated when studying the project prepared by the Canadian Maritime Law Association, the Salvage Convention does not apply to fixed or floating platforms, or to mobile drilling platforms when such platforms are exploring or exploiting mineral resources of the seabed (art. 3), that is, their typical function. The convention is applicable when platforms are being transported, waiting for instructions, being repaired or supplied; these are functions more akin to the functions of ships. Similarly, as with respect to other omissions in the regime, this omission should be remedied by the negotiation of an international instrument dedicated to the environmental aspects of the exploration and exploitation of hydrocarbons at sea (Radovich, 2017b). The proposal of the project presented by

[22] See IMO LEG 97/141. Annex 2, I.

the Canadian Maritime Law Association about extending the scope of this convention to marine platforms could be considered, although it should be considered to include platforms when they are performing their typical activity.

The Convention on the Control of Harmful Anti-fouling Systems on Ships (AFS, 2001)[23] prohibits the use of harmful organic tin compounds in anti-fouling paints on ships and establishes a mechanism to prevent the future use of other harmful chemicals in anti-fouling systems. It has been demonstrated that these compounds persist in the water, so they kill marine organisms, cause environmental damage and possibly enter the food chain. One of the most effective anti-fouling paints, created in 1960, contains tributyltin (TBT), an organic tin compound, which causes deformations in oysters and induces sex change in whelks.[24] AFS 2001 is applicable both to fixed and mobile platforms (art. 2.9), and constitutes an example of the application of the precautionary principle, as indicated in its recitals, where reference is also made to chapter 17 of Agenda 21.

From this analysis, it is clear that maritime law instruments only cover certain environmental issues, there are gaps in the regime. For example, MARPOL 73/78 does not cover operational pollution or air pollution, the Salvage Convention does not apply to marine platforms when they are operating and the CLC 69/ PROT 92 regime is also not applicable to them.

2.2 Environmental Law

Among the outcomes of the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992 the Rio Declaration, Agenda 21, UNFCCC and CBD can be mentioned. Although the Rio Declaration and Agenda 21 are within the group of *soft law,* some of their provisions have become part of international custom or *hard law* because they have been directly incorporated into the text of conventions.

[23] Convention on the Control of Harmful Anti-Fouling Systems on Ships ("AFS 2001"), adopted October 5, 2001, AFS/CONF/26 (entered into force September 17, 2008). Argentine Republic is not a State party.

[24] http://www.imo.org/es/About/Conventions/ListOfConventions/Paginas/International-Convention-on-the-Control-of-Harmful-Anti-fouling-Systems-on-Ships-(AFS).aspx [Last visited: October 2022].

The Rio Declaration is based on the promotion of sustainable development and introduces preventive-precautionary environmental tools in its principles, such as the avoidance of transboundary pollution (principle 14), environmental impact assessment (principle 17) and citizen participation (principle 10), among other principles. Likewise, the preamble highlights the need to work towards the approval of international agreements that respect the interests of the global community and protect the integrity of the global environment and development systems. The provisions in the Rio Declaration that call for cooperation and negotiation of international instruments are consistent with IMO and UNCLOS, which likewise call for the adoption of international, regional and bilateral instruments.

2.2.1 Environmental Impact Assessment

Principle 17 defines the EIA as a national process that must be carried out for activities that may have a significant adverse impact on the environment. Principle 19 establishes that States must notify in advance any relevant information to States potentially affected by activities that may have a significant adverse transboundary effect, and must consult with those States at an early stage and in good faith. These mechanisms should be included with their corresponding specificities in any international convention concerning the environmental aspects of the exploration and exploitation of hydrocarbons at sea (Radovich, 2017b).

In the European regional context, within the Espoo Convention on Environmental Impact Assessment in a Transboundary Context (Espoo EIA Convention),[25] the definition of the EIA in the transboundary context is as follows: "a national procedure intended to evaluate the likely impact that a proposed activity will have on the environment" (art.1.6).

The convention lists in Appendix I the activities that are likely to cause a significant transboundary adverse impact, where the exploitation of hydrocarbons at sea is listed under number 15. The country of origin must notify the affected party, which must respond within the specified period in the notification, acknowledge receipt and indicate whether it wishes to participate in the EIA procedure (art. 3.3). The EIA documentation to be submitted to the competent authority is detailed in

[25] Convention on Environmental Impact Assessment in a Transboundary Context ("ESPOO EIA Convention"), adopted February 25, 1991, ECE/MP.EIA/21 (entered into force September 10, 1997). Argentine Republic is not a State party.

Appendix II. The documentation includes the description, if applicable, of the reasonable alternatives to the proposed activity—in terms of location or technology, for example—including the alternative of not carrying out the activity (inc. b) and the description of the mitigating measures to minimize the harmful environmental impact (inc. e). Likewise, the CBD introduces the EIA in art. 14.1(a) and requires each contracting party to implement it in the projects that may cause significant adverse effects on biodiversity, with the aim of avoiding or minimizing such effects and, when appropriate, allowing public participation (art. 14.1.a).

Regarding the EIA, in the field of the Law of the Sea, ITLOS held in Advisory Opinion No. 17 that contractors and sponsoring States must cooperate with ISA to establish monitoring programs to assess the impact of seabed mining on the marine environment, particularly through the creation of "impact reference zones" and "preservation reference zones" (regulation 31, paragraphs 6 and 7, of the Nodules Regulations and regulation 33, paragraph 6, of Sulfides Regulations). The comparison between the environmental conditions in the "impact reference zone" and in the "preservation reference zone" enables the assessment of the impact of activities in the zone.

ITLOS asserts that the obligation to carry out an EIA is a direct obligation according to UNCLOS[26] and a general obligation in accordance with customary international law. Regarding the obligation of the EIA in transboundary cases, ITLOS cites the case of the pulp mills on the Uruguay River, where the Tribunal has said that it is a requirement of general international law to carry out an EIA when there is a risk that the proposed industrial activity may have a significant impact in the transboundary context, in particular, on a shared resource. If the EIA of a river whose regime or water quality is going to be affected is not carried out, the duty of due diligence is breached, as well as the duty of surveillance and prevention that it implies (paragraph 204 of the ruling).[27]

[26] Art. 206 UNCLOS: "States having reasonable grounds to believe that planned activities under their jurisdiction or control may cause substantial pollution of the marine environment or cause significant and harmful changes to it will evaluate, as far as possible, the potential effects of these activities on the marine environment and will report on the results of such evaluations in the manner provided for in Article 205".

[27] Ibid. note 103.

2.2.2 *Conservation of Biological Diversity*

The requirements mentioned in the previous section are consistent with Chapter 17 of Agenda 21, which is devoted to the protection of the oceans and establishes that new approaches to the management and development of marine and coastal areas at the national, sub-regional, regional and global levels are required, in addition to approaches that are integrated in content and are preventive and precautionary in scope. Similarly, the CBD can contribute to strengthening the environmental provisions of UNCLOS, as it is focused on resources and on the long-term preservation of species and habitat (Wolfrum and Matz, 2000). Art. 6 (a) requires that parties develop national strategies, plans or programs for the conservation and sustainable use of biological diversity. In terms of Barnes (2012), art. 6 (b) requires that parties adopt an integrated approach to biodiversity conservation, to the extent possible and in accordance with their particular conditions and capabilities.

The CBD requires parties to identify processes and categories of activities that have or could have significant adverse impacts on the conservation and sustainable use of biological diversity and to monitor their effects through sampling and other techniques (art. 7.c). Among these activities we can mention the exploration and exploitation of hydrocarbons at sea (Radovich, 2017b). Likewise, States are required to regulate or manage processes and activities that can have a significant adverse effect on biodiversity. Among these measures, the creation of MPAs or the implementation of specific regulation in areas where special measures must be taken to conserve biodiversity may be mentioned (art. 8.a).

Marine and coastal diversity is an important issue in the CBD, as demonstrated by the Thematic Program on Conservation and Sustainable Use of Marine and Coastal Biodiversity, known as the Jakarta Mandate. The work program for the Jakarta Mandate was first adopted at COP-4 (1998),[28] but was developed in subsequent COPs, most recently at COP-10 (2010).[29] The objective of the work program is to assist in the implementation of the Jakarta Mandate at the national, regional and global levels, and identifies five main elements of the program. Point 5 is called “Impacts of human activities on marine and coastal biodiversity”.

[28] The Fourth Session of the COP to the CBD held in Bratislava, Slovakia.

[29] The Tenth Session of the COP to the CBD held in Aichi, Japan.

More generically, CBD COP-10 adopted a revised and updated version of the Strategic Plan for Biodiversity, including the Aichi Biodiversity Targets for the period 2011–2020. Most of the targets can be applicable to marine and coastal biodiversity, and several targets specifically refer to matters related to its conservation and sustainable use. At the tenth COP held in Aichi, Japan, in 2010, the strategic objectives and targets to be achieved by the signatory countries by 2020 were reviewed.

Aichi Target No. 11 states that by 2020 at least 10% of marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem services, must be conserved through effective and appropriately connected protected area systems and other effective conservation measures, based on the area in question, that have equitable management and are ecologically representative.

IUCN has developed guidelines for the creation of MPAs,[30] and IMO has issued resolutions in relation to the establishment of "areas-to-be- avoided", Particularly Sensitive Sea Areas (PSSA) and Special Areas (SA) to identify areas where ships should not enter and where there are discharge restrictions.[31]

In relation to the sustainable development goals (SDGs), for the first time in history, ocean protection was included as a risk management objective. Specifically, SDG No. 14 is entitled "Conserve and sustainably use the oceans, seas and marine resources for sustainable development". One of the goals is to sustainably manage and protect marine and coastal ecosystems by 2020, by protecting 10% of coastal and marine areas, in addition to prevent and significantly reduce marine pollution of all types by 2025.[32]

Finally, Barnes explains that art. 22.2 of the CBD[33] is an example of normative integration, because it shows the path by which legal norms

[30] https://www.iucn.org/about/work/programmes/marine/marine_our_work/marine_mpas/mpa_publications.cfm [Last visited: October 2022].

[31] See IMO Resolution A.927(22): Guidelines for the Designation of Special Areas under MARPOL 73/78 and Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas (PSSA).

[32] http://www.un.org/es/comun/docs/?symbol=A/RES/70/1 [Last visited: August 2019].

[33] Art. 22.2 CBD: "The Contracting Parties shall apply this convention with respect to the marine environment, in accordance with the rights and obligations of States under the Law of the Sea.".

should be considered as part of a system of rules. The regimes established by the CBD and UNCLOS contain fundamental differences in terms of their underlying philosophies and their respective approach and structure (Wolfrum and Matz, 2000). The regime of the living marine resources established by UNCLOS is predominantly oriented towards exploitation (Wolfrum and Matz, 2000). In this line of thought, with respect to non-living resources, the regime is also oriented towards exploitation (Radovich, 2017b). The UNCLOS is oriented towards resources and the CBD focuses on the "preservation of species and habitats in the long term". Furthermore, UNCLOS provides a framework that can be environmentally strengthened by the objectives of the CBD (Wolfrum and Matz, 2000). This conclusion constitutes an example of interdisciplinary integration in law for the environmental management of the sea (Radovich, 2017b). However, the CBD has faced criticism since it was adopted, because it does not establish binding obligations for the parties, but rather limits itself to setting standards that the States party must comply with (Liu, 2016).

2.2.3 Climate Change

Art. 2 (1. avii) of the UNFCCC establishes that the parties, in order to comply with their commitments to limit and reduce emissions according to art. 3, with the aim of promoting sustainable development, must implement measures aimed at limiting and/or reducing emissions of greenhouse gases not controlled by the Montreal Protocol in the transport sector.

By proposing the integration between UNCLOS and the UNFCCC, Boyle (2012) concludes that art. 194 of UNCLOS establishes a due diligence obligation: States must take the necessary measures to prevent or minimize pollution. On this basis, the States have the obligation to control and reduce CO_2 emissions from any source that may pollute the marine environment (such as emissions from marine platforms) and consequently affect marine biodiversity and cause harm to other States.

2.2.4 The Escazú Agreement: Public Participation in the Forefront

In 2021, the Escazú Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the

Caribbean (AE) entered into force.[34] The AE marks the recognition of the environmental rights of non-state actors, gives voice to environmental defenders and indigenous communities. It is important to clarify that in the Republic of Argentina, the AE enjoys the highest constitutional rank, as it is a human rights treaty that was approved by a majority in the Legislative Power (Art. 75 inc. 22 C.N.).

3 Regional Regulation in Europe

3.1 The Turning Point—The Offshore Protocol

As has been mentioned, the IMO recommends that parties negotiate regional agreements to regulate marine platforms. This conclusion coincides with the opinion of Barnes (2012) Silva Oliveira and Silva Savio (2015), who conclude that integration has always been better achieved through regional or binational agreements than at the international level. In the same vein, it has been said that the most promising path for oceanic management lies in concentrating efforts at the level of regional ocean agreements (OECD, 2016). The only regional agreement concerning the regulation of marine platforms is the Protocol *Offshore* [sic] to the Barcelona Convention (see Annex IV). Prieur (2015) argues that the Barcelona Convention,[35] along with its six protocols, is the legal instrument that most adequately replicates the concept of comprehensive management. The protocol entered into force on March 24, 2011, although it had been adopted on October 14, 1994 (two ratifications were missing for it to enter into force). The catalyst for its entry into force was the environmental degradation attributed to the accidents that occurred on the Deepwatwer Horizon and Montara platforms, which led the Syrian Arab Republic and the European Union to ratify the protocol.

The adoption of this protocol constitutes a turning point in the regulation of exploration and exploitation at sea, as it is the first legal instrument

[34] Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean ("Escazú Agreement"), adopted March 4, 2018, UNTC C.N.195.2018. TREATIES - XXVII.I (entered into force April 22, 2021). Argentine Republic is a State party, approval law No. 27.566. Official Bulletin, 19/10/2020.

[35] Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean ("Barcelona Convention"), adopted February 16, 1976, 1102 UNTS 27 (entered into force February 12, 1978).

entirely dedicated to this issue and consolidates the scientific *know-how* with management objectives environmentally effective and economically appropriate (Radovich, 2013; Radovich, 2017b).

Likewise, the protocol establishes an authorization system, and the general principle states that all activities must be subject to prior written authorization (art. 3). The applicant must measure the effects of the proposed activities on the environment and report on it periodically when they begin. Platforms must be built in accordance with international standards and practices and operators must have the technical competence and the financial capacity to carry out the activities.

Among other requirements, the implementation of safety measures, the preparation of a contingency plan, monitoring processes, plans to remove the facilities and precautionary measures for specially protected areas (art. 5.1) are included. However, the authorization will not be approved if there are indications that the proposed activities could cause significant adverse effects on the environment (art. 4.2). An EIA may be required, although it is not mandatory (art. 4.1), not even in the case of specially protected areas (art.22). The EIA shall be mandatory, as it is in the Espoo EIA Convention, which, as was studied in the previous section, mandates an EIA in each case of hydrocarbon production at sea. However, the authorization can impose conditions related to measures to minimize risks and damage from pollution.

Section III of the protocol refers to operational pollution, waste, harmful and dangerous substances, oil mixtures and drilling fluids and sewage. Annex I prohibits the disposal of certain wastes that have been selected mainly based on their toxicity, persistence and bioaccumulation, such as mercury, cadmium, crude hydrocarbons and radioactive substances. Annex II establishes that the disposal of certain dangerous substances, such as arsenic, uranium and silver requires a special permit. These provisions engage in a more detailed way with environmental protection with respect to MARPOL 73/78, as it does not apply to operational pollution (Radovich, 2017b).

Regarding cross-border pollution, the protocol establishes that the parties must take all necessary measures to avoid it and calls for the adoption of international rules on compensation. The text of the protocol emphasizes the need for a treaty to regulate this issue (art. 26). In section V of the protocol, entitled "Cooperation", the parties commit to formulate and develop international rules, standards, practice recommendations, and procedures to comply with the objectives of this Protocol.

Moreover, the Protocol establishes that effective access must be guaranteed in administrative processes to people in other States who may be affected by pollution or other adverse effects resulting from proposed or existing operations. The responsibility is imposed on the operators, who are obliged to take out insurance to face compensation quickly and effectively. As regards interpretation of the Protocol, the parties decided that it should be interpreted considering, among other environmental principles, the prevention and the precautionary principles.[36]

[36] https://www.rempec.org/fr/notre-travail/prevention-de-la-pollution/sujets-dactualite/med-eca/med-sox-eca-introduction [Last visited: October 2022].

CHAPTER 7

The Environment and the Sea in Argentine Republic

1 The Environment and the Sea in Argentine Republic. The Evolution of Environmental Law in Argentine Republic

Nonna (2008) distinguishes the following stages in the formulation of environmental law in Argentine Republic:

- Static regulation of natural resources.
- Dynamic treatment of the environment:

  Approval of International Environmental Treaties.
  Enactment of provincial laws.

- Amendment of the Constitution in 1994.
- Development of basic environmental requirements laws.

1.1 Static Regulation of Natural Resources

During the first stage, towards the end of the nineteenth century, the different natural resources began to be regulated independently, both at the national and provincial level. An example is, precisely, the enactment of the National Mining Code in 1886. Likewise, several national laws prior to the 1970s deal with regulating other natural resources, for

V. S. Radovich, *Marine Exploration and Exploitation of Hydrocarbons*,
Palgrave Studies in Maritime Politics and Security,
https://doi.org/10.1007/978-3-031-75177-6_7

example, Law 2797 of 1891, titled "Purification of sewage waste thrown into rivers". Nonna (2011) describes this law as "the first law that regulates the environmental topic in Argentina, a precursor and premonitory law", a law that, although not applied, remains in force.

1.2 Dynamic Treatment of the Environment

In the second stage, advanced in the twentieth century, the vision on the interpretation of issues related to natural resources was modified. We moved towards a new and globalizing concept, the "environment", understood as the setting where we live and where activities are developed, where we interact with other components. The environment is a complex system in which the different elements that compose it interact and interrelate in a conditioned way. The elements are the natural resources, the human beings who transform them, the cultural resources that result from this transformation and, finally, the waste that is consequently generated. From 1972, with the World Conference on the Human Environment, convened by the United Nations Assembly, with the Stockholm Declaration, and more strongly since 1982, through the United Nations Environment Program, the environmental variable began to consolidate globally. In 1992, the United Nations Conference on Environment and Development in Rio de Janeiro marked an important milestone in the history of international environmental law. The Rio Conference of 1992 generated, worldwide, a strong enthusiasm for enacting organic environmental legal bodies, and the same happened in Argentine Republic (Valls, 2012).

1.3 Constitutional Amendment in 1994

Argentine Republic echoed the previous stage: not only did it actively participate internationally and adopt environmental agreements, but it also increased the process of inserting the environmental dynamics into its positive law. At the dawn of the 1990s, most Argentine provinces had already incorporated the principle of environmental protection into their respective constitutions. In addition, most of the provinces regulated environmental matters through legislation, either through general environmental protection laws, or through specific regulations for environmental impact assessment. Nonna (2011) argues that the starting point for systematizing environmental protection throughout the country

was the Federal Environmental Pact, signed on July 5, 1993, where it was stated that the objective of the agreement is: *to promote environmentally appropriate development policies throughout the national territory, establishing Framework Agreements between the Federated States and between them and the Nation, which streamline and increase the efficiency of environmental preservation, taking as reference the postulates of the "Program 21" approved at the United Nations Conference on Environment and Development (UNCED 92')*. It was primarily considered "that the preservation, improvement and recovery of the Environment are objectives of imminent actions that have acquired dramatic actuality, from the moment that it has been realized that economic development cannot be detached from environmental protection". The parties, when celebrating it, agreed to "promote at the provincial level the unification and/or coordination of all the bodies that relate to the environmental theme, concentrating at the highest possible level the setting of the policies of Natural Resources and Environment" and "to harmonize and implement in their "Environmental Legislation Jurisdictions" (par. 2 and 4 of the pact).

Already in 1990, the provinces, the Autonomous City of Buenos Aires, and the Federal Government had signed the Constitutive Act of the Argentine Federal Environmental Council (COFEMA). COFEMA is a legal entity of public law, whose main objectives consist of formulating policies for the use with conservation aims of environmental resources; to order administratively the strategy and environmental management in the Nation, provinces and municipalities; to set and update the required levels of environmental quality; and to carry out comparative studies promoting the unification of variables and methodologies for the monitoring of environmental resources throughout the national territory (art. 2). When the COFEMA issues a resolution, the parties are obliged to adopt, through the corresponding power, the regulations and general rules resolved by the Assembly (art. 4). COFEMA gave rise to the environmental federalism of concertation. This type of federalism was defined by Frías (1994) as "a participatory relationship of the levels of government, central and provincial, that set aside confrontation, giving way to interjurisdictional programming of thematic areas that affect different territorial units or governmental levels" (quoted by Nonna and Radovich, 2016, p. 42).

We have argued, in these terms:

> This "concertation federalism" in environmental matters was established in our legal system (v. art. 41, AC and art. 23 of the law 25.6754), under whose framework COFEMA must assume a fundamental "role". The national environmental authority must comply with the due process of regulation of the laws of basic environmental requirements giving real participation to local jurisdictions, last executors of these norms, which allows identifying the local interests and needs, establishing the bases of a new type of relationship between the different government levels. Let's not lose sight of the fact that environmental issues recognize neither political boundaries or divisions, nor temporal deadlines and that the right of future generations to enjoy a healthy environment must be respected. (Nonna and Radovich, 2016, p. 42)

This third stage was consolidated with the constitutional amendment in 1994, which enshrined, in the so-called environmental clause, in the first and second paragraph of art. 41, the right and obligation to protect the environment and sustainable development:

> All inhabitants enjoy the right to a healthy, balanced environment, suitable for human development and for productive activities to meet present needs without compromising those of future generations; and they have the duty to preserve it. Environmental damage will primarily generate the obligation to restore, as established by law.
> The authorities will provide for the protection of this right, the rational use of natural resources, the preservation of natural and cultural heritage and biological diversity, and environmental information and education.

The concept of environmental public order is related to the concept of "environmental paradigm". This paradigm serves as a principle organizing rhetorical, analytical and protective thought that is linked with systemic interaction and holistic approaches (Lorenzetti, 2008). The environmental paradigm, from the environmental clause of the National Constitution, operates in Argentine law as the unavoidable basis and starting point for any environmental case (Falbo, 2011).

Lorenzetti (2008) argues that there are "structuring legal principles", that is, they change the paradigm of analysis of a legal issue, and that this happens with environmental issues, which change the way of analyzing many aspects of current law from the Constitution itself and the law.

In the third paragraph of art. 41 of the NC, Congress was conferred the national attribution of enacting basic environmental regulations, thus

a new scheme of environmental competencies has been set up: "It is up to the Nation to enact the standards that contain the minimum environmental protection requirements, and to the provinces, to enact the necessary laws to complement the national basic requirements".

The LGA, in its art. 4, defines the basic requirements for environmental protection as: "…any standard that grants uniform or common environmental protection for the entire national territory, and aims to impose necessary conditions to ensure environmental protection". The national standards of basic requirements for environmental protection must contain basic principles and guidelines for the regulation of the environmental relationship, which are considered fundamental to guarantee a legal basis -or "floor"- throughout the national territory. The standards of basic requirements represent a new sector of delegated competencies from the national legal system. In this line of thought, a new area of competence has been generated, of power distribution, which affects issues previously reserved to the provinces and in areas that before the amendment were within their own jurisdiction. It is necessary to standardize existing legislation to achieve the objective of the delegation of competencies that has a tutelary character (Nonna, 2008).

Provincial authorities are obliged to subject their actions to national laws of environmental basic requirements. They have on their part, regulatory powers to complement the laws of basic requirements for environmental protection and to enact the regulations necessary for the application of both national laws of basic requirements and the respective complementary norms (Bidart Campos, 1996, cited by Nonna, 2008, p. 37).

With respect to the local norms in force and pre-existing to the laws of basic requirements for environmental protection, they will remain in force to the extent that they neither oppose them nor are they less demanding.[1] This is why basic requirements are understood as a base, threshold, common norms, on which the total normative building of environmental federal protection in Argentina, is going to be built.

[1] The UBA-CyT Project "A normative and jurisprudential analysis of the new scheme of competencies in environmental matters. Contributions twenty years after the Reform of the National Constitution" led by Dr. Silvia Nonna analyzed the current provincial environmental regulations and their congruence with the basic environmental requirements. Progress can be consulted on the internet page: https://www.ubacytambiental.com.ar. The project was funded by School of Law, Universidad de Buenos Aires.

However, after the constitutional amendment, art. 124 of the National Constitution has not been modified, which establishes in its second paragraph: "The provinces have the original domain of the natural resources existing in their territory". This constitutional provision gives rise to the provinces opposing the application of the basic requirements for environmental protection.[2] However, Nonna (2008) states that the word "original", which complements the noun "domain", should be understood as a historical claim, derived from the pre-existence of local territorial entities to the National State. "Original" connotes "previous" and evokes the ancestral, it works as a warning to the holders of the domain, in the sense that such ownership does not entail the power of local exploitation detached from the needs of the country, connotes the "not absolute" and evokes the "not definitive" (Nonna, 2008).

In this sense, in Argentine Republic time elapsed until the change of environmental paradigm could become effective, since it was only in the year 2002, eight years after the Constitution was amended, that basic environmental requirements laws began to be enacted. To date, eleven basic environmental requirement laws have been enacted, on different specific topics that, in chronological order, are the following:

1. Law 25.612 on Comprehensive Management of Industrial Waste and Service Activities
2. Law 25.670 on Management and Elimination of PCBs
3. Law 25.675 on Sustainable and Adequate Environmental Management (LGA)
4. Law 25.688 on Environmental Water Management Regime
5. Law 25.831 on Public Environmental Information
6. Law 25.916 on Household Waste Management
7. Law 26.331 on Environmental Protection of Native Forests
8. Law 26.562 on Environmental Protection for the Control of Burning Activities

[2] Between 2009 and 2011 I worked as advisor to the Presidency of the Natural Resources Commission of the Chamber of Deputies, Argentine Congress. According to my experience, the discussion of any environmental law bid of basic environmental requirements in the advisors' meetings that I presided, whether it was about the reduction of plastic bag production, the protection of glaciers or the regulation of public information, was always opposed by representatives of the provinces. They based their argument on the fact that the National Congress did not have the power to enact basic environmental requirements due to the paragraph transcribed from NC art. 124.

9. Law 26.639 on Preservation of Glaciers and Periglacial Environment
10. Law 26.815 on Environmental Protection in terms of Forest and Rural Fires
11. Law 27.279 on Basic Environmental Protection Requirements for Management of Empty Pesticide Containers

Therefore, the issue of the delimitation of environmental jurisdiction in Argentine Republic is not a simple matter. However, far from being an insurmountable obstacle, it is a challenge that deserves the effort that means reaching it, to achieve the definition and subsequent application of a policy for the entire national territory (Nonna and Radovich, 2016). The legal figure of the environmental basic requirements in our country provides an opportunity to organize national environmental regulations, since before there was a proliferation and dispersion of regulations of different levels and hierarchies, generating a "contaminated" scenario with "legislative pollution" (Nonna, 2008).

The LGA, enacted in 2002, establishes the basic requirements for achieving sustainable management and adequate use of the environment, the preservation and protection of biological diversity and the implementation of sustainable development. The law provides the basic institutional structure on which environmental regulations should be organized, interpreted and applied; it is a framework law (Nonna, 2008). Likewise, it is of public order (art. 3), a matter that has been highlighted in various judicial rulings, for example, in the following terms:

> We are facing a case of environmental damage, where social solidarity should be prioritized based on the hierarchy of the human person; noting that the issue is of public environmental order and therefore inalienable and unavailable to the parties.[3]

It is worth noting that the only damage that is constitutionally recognized in Argentine Republic is the environmental damage, under art. 41, par. 1 of the CN.

[3] Cám. Apel. Río Grande, Sala Civil, Comercial y del Trabajo, "Estancia Violeta S.R.L. c. Techint S.A.C.I.", 27/09/2005.

Likewise, the LGA ratified the Constitutive Act of COFEMA, whose text became part of the law as annex I, and also ratified the Federal Environmental Pact signed on August 31, 1990, whose text is part of the law as annex II.

1.4 The New Unified Civil and Commercial Code (CCCN) and Environmental Law

In August 2016, the new CCCN came into effect in Argentine Republic, which contains numerous mentions to environmental law.

The CCCN stands out as the first code in the world to include in its text collective rights, as generally civil codes have referred to and developed individual rights such as those of property, freedom of work and industry, among others (Esaín, 2016).

In this sense, art. 14 CCCN provides: "This Code recognizes: a. individual rights; b. collective rights". The CSJN has already said, in Mendoza[4] and Halabi[5] cases among other emblematic cases, that environmental law is composed of "collective rights", referring to the collective good "environment" (macro good) or one of its components (micro goods).

Collective rights have their source in the Constitution and in human rights treaties. This article can be interpreted together with other articles of the Code: arts. 18 (rights of indigenous communities), 240 (limits to the exercise of individual rights over goods) and 241 (primacy of basic requirements), among others.

Art. 241 CCCN states: "Whatever the jurisdiction in which rights are exercised, the applicable basic environmental requirements regulation shall be complied with". Therefore, not only does environmental law call for the organization of private law institutes from its regulations (art. 3 of Law 25.675), but now private law itself has regulations that indicate the operability of environmental law (Esaín, 2016).

Article 240 CCCN establishes the limits to individual rights over collective goods, from which it is derived that the social function of

[4] "Mendoza, Beatriz Silvia y otros c. Estado Nacional y otros s/daños y prejuicios" (Damage derived from environmental pollution of Matanza-Riachuelo River) (2006 CSJN, M.1569.XL).

[5] "Halabi, Pedro c/ Estado Nacional ley 25.873 y decreto 1563/04 s/ amparo (2009 CSJN, Fallos 332:111).

individual rights requires that they be exercised in a manner compatible with collective rights, in accordance with national and local administrative regulations and public interest and provided they do not affect the environment in the broadest sense (Garrido Cordobera, 2016). The article mentions that the functioning or the "sustainability" [sic] of certain ecosystems: flora, fauna, biodiversity, water, landscape and cultural values –although this is not a taxative list and refers to the criteria of special laws, the sea is also one of these ecosystems–. Garrido Cordobera (2016) affirms that this regulation establishes the paradigm of sustainability which, together with the criteria of progressivity, non-regression and *pro homine* will be very important for the application of the normative system of collective rights protection.

The preventive function of the new code includes art. 4 LGA preventive principle, but not the precautionary one. To enforce preventive protection, the CCCN introduces the preventive action. In other words, it does not only generically include the preventive function, but also provides a tool to make it effective. But this preventive action can only be filed when "an unlawful action or omission makes the occurrence of damage foreseeable" (art. 1711, CCCN). By specifying that the occurrence of the harmful event must be foreseeable, it refers to the preventive principle, leaving aside the precautionary principle (Esaín, 2016).

2 Argentine Republic and Oceans Scientific Knowledge

Argentine Republic was one of the first countries in the world to establish an institution specifically devoted to scientific knowledge of the ocean: the SHN, created in 1879. In 1916, the Argentine Oceanographic Institute, a private organization, was created by initiative of Admiral Storni. Between 1949 and 1970, Argentine Republic had an average of two to three ships permanently devoted to oceanographic activity. Between 1950 and 1970 approximately thirty campaigns were carried out, a third of them concentrated in Antarctica (González, 2012).

In 1964, the National Oceanography Committee was created, by initiative of the Nobel Prize in Medicine and Physiology and first president of the newly created National Council for Scientific and Technical Research (CONICET), Dr. Bernardo Houssay. In 1973 it was renamed the Argentine Oceanography Committee (CADO), and in August 1979 it was dissolved.

In 1996, an attempt was made again to provide Argentine scientific knowledge of the oceans with a structure, the Commission for the Study of the Argentine Sea was established, which operated within the Secretariat of Science and Technology (SECyT). This Commission proposed a specific chapter on the Argentine Ocean in the National Plurianual Plan for Science and Technology 1999–2001. It was suggested to take advantage of the experience of the National Commission for Space Activities (CONAE), especially considering the vastness and diversity of scientific knowledge of the oceans, which resembled that of outer space. Emphasis was placed on capacity-building activities and the intention was to focus research efforts in three areas: living resources, non-living resources, and environment.[6] These courses of action were ultimately not implemented (González, 2012).

Almost twenty years later, in April 2014, the Pampa Azul initiative was presented, a strategic program of the Argentine State to reinforce knowledge and presence in Argentine Republic's ocean. The initiative is based on promoting the scientific study of the country's marine resources, so it aims to provide better foundations for the policies of use and management of the sea, promote innovation for sustainable development, generate greater public awareness about marine issues and support with scientific information and presence the country's sovereignty in the South Atlantic. Pampa Azul is coordinated by the Ministry of Science, Technology and Productive Innovation, and other ministries, national government agencies, research centers and institutes, and universities also participate. The participating ministries are as follows: the Ministry of Foreign Affairs and Worship; the Ministry of Agriculture, Livestock and Fisheries; the Ministry of Tourism; the Ministry of Defense; the Ministry of Security and the Ministry of Environment and Sustainable Development.

With regard to scientific research centers and institutes and universities, Pampa Azul members are: CONICET, the National Antarctic Directorate (DNA), CONAE, the National Institute of Fisheries Research and Development (INIDEP), the SHN, PNA, the Austral Center for Scientific Research (CADIC-CONICET), the National Patagonian Center (CENPAT- CONICET), the Argentine Institute of Oceanography (IADO-CONICET/UNS), the Institute of Marine and Coastal Research (IIMyC-CONICET), the Center for Sea and Atmosphere Research

[6] Presidency of the Nation, Scientific-Technological Cabinet (December 2008). National Pluriannual Plan of Science and Technology 1999–2001, pp. 115–116.

(CIMA-CONICET/UBA), the Institute of Marine Biology and Fisheries Admiral Storni (UNCO), the National University of Comahue; the National University of Patagonia San Juan Bosco, the National University of Southern Patagonia, the National University of Mar del Plata, the National University of the South, the National University of La Plata, the University of Buenos Aires and the National University of Tierra del Fuego, Antarctica and South Atlantic Islands.

It is the first time that there is an inter-ministerial, multidisciplinary and inter-jurisdictional body to discuss, think and project the country's marine affairs. There is no government body in Argentina that centralizes the marine theme in the federal sphere (Michelson, 2016). It is expected that this program will generate information to support cases of MSP, the creation of AMP and the sustainable use of marine resources. Michelson (2016) proposes that since Argentina has one of the most extensive maritime platforms in the world, we should start to walk the path of scientific diplomacy.

Also, through the enactment of Law 27.167[7] in 2015, the National Program of Research and Productive Innovation in Argentine Maritime Spaces (PROMAR) was created, whose main objective is to strengthen the presence of Argentine Republic in the Argentine sea as indicated in its art. 1.

Among the various objectives of the Program, the following stand out:

- Deepen scientific knowledge as a foundation for conservation policies and management of natural resources.
- Promote technological innovations for the sustainable exploitation of natural resources and the development of industries linked to the sea.
- Strengthen the maritime awareness of Argentine society.
- Develop PROMAR's communicative strategy.
- Implement plans in which interdisciplinary projects are articulated.
- Develop capabilities to predict future scenarios in the context of global climate change.
- Articulate national programs with international initiatives in marine research and conservation.

[7] Argentina. Law 27.167, *National Program of Research and Productive Innovation in Argentine Maritime Spaces (PROMAR)*. Creation. Official Bulletin, 04/09/2015.

- Promote international scientific relations, particularly with institutions that can generate technology transfer.

The Executive Power must determine the implementing authority of the law. However, the law has not been regulated; as a consequence, the program is not operational and does not have any implementing authority.

The law creates the Program's Administration Council which is composed of: the implementing authority of the law; the Ministry of Science, Technology and Productive Innovation; the Ministry of Defense; the Ministry of Security; the Ministry of Agriculture, Livestock and Fisheries; the Ministry of Foreign Affairs and Worship; the Ministry of Tourism; the Ministry of Environment; the Chief of Cabinet of Ministers and CONICET.

Moreover, the National Fund for Research and Productive Innovation of the Argentine Maritime Spaces (FONIPROMAR) is created, whose initial amount cannot be less than two hundred and fifty million Argentine pesos ($250,000,000). The fund shall be used for the provision of human resources, infrastructure and technology, the hiring of specialized professional staff, the acquisition of research platforms, including research vessels, the strengthening of building infrastructures in the main academic and scientific institutions of the Atlantic coast, the training of human resources in research, the exploration and management of marine resources and the promotion of the development of mariculture projects and their transfer to the productive sector.

At the regional level, there has even been an institutionalization initiative, the so-called "Sub-regional Cooperation Program of National Specialists for the Upper Southwestern Atlantic" (ASOS). The program was presented by Argentine Republic, the Federative Republic of Brazil and the Oriental Republic of Uruguay in 1993 and implemented since 1994. It constituted an exercise of inter-institutional cooperation that had as interlocutors the SECyT of Argentina, the Division of Marine Sciences of the Ministry of Science and Technology of Brazil and the National Commission of Oceanology in Uruguay. Its main objective was "the coordination of oceanographic activities by specialists from the three countries and the implementation of joint scientific initiatives, observing the recommendations of Agenda 21, especially chapter 17 ('Protection of the Oceans') and the provisions of the United Nations Convention on the Law of the Sea", in a geographical area that extended from the parallel of

23° S (Cabo Frío, in Brazil) to the parallel 45° S (Peninsula Valdés, in Argentina).[8]

The limitation to the south, with respect to the scope of spatial application, was promoted by Argentine Republic due to the Malvinas Islands issue (González, 2012). The ASOS program did not become operational but was limited to some technical work meetings held annually until 1996. Although the program was not formally dissolved, the participating institutions stopped carrying out the activities. The program was succeeded by the Regional Alliance of Oceanography for the Southwest Atlantic (OCEATLAN).

3 Marine Protected Areas in Argentine Republic

For the purpose of framing the country's actions related to the CBD, the then Secretariat of Environment and Sustainable Development of the Nation developed the National Strategy on Biodiversity and Action Plan 2015–2020 (ENBPA), based on consultations with various national bodies, institutions from the scientific-academic field, representatives of indigenous peoples, business chambers and non- governmental organizations.[9]

The ENBPA contains the guidelines and objectives that will guide national public policies on biodiversity and the priority goals for the next five years. ENBPA's Goal 3 establishes that the country should "achieve 4% coverage of protection of marine and coastal areas of Argentine maritime spaces. It is considered desirable to achieve a 10% of protected surfaces based on Aichi Target No. 11".

Currently, Argentina's MPAs do not cover 3% of its maritime spaces. Today there are 61 coastal and marine protected areas, covering about 42,500 km^2, and only 26 of them include marine spaces within their limits. Most are very small (median 89 km^2) and were created as isolated and independent units (Bosquerol, 2016).

Since the inclusion of the environmental clause in the CN, two of the constitutional mandates –the preservation of natural and cultural heritage

[8] Paragraph 352 of the report from the 17th assembly of the IOC (UNESCO, Document SC/md/101, February 25 to March 11, 1993, p. 36.

[9] https://www.argentina.gob.ar/ambiente/biodiversidad/estrategia-nacional#:~text=La%20Estrategia%20Nacional%20sobre%20la,y%20su%20utilizaci%C3%B3n%20en%20un [Last visited: October 2022].

and the protection of biological diversity– directly impact the conservation system of nature (López Alfonsín, 2015). Valls (2006) argues that, in the face of the growing environmental claim against mining, some areas should be restricted from mining, which can be done by the governmental body "National Parks" or by creating special natural reserves modifying the Mining Code.

In Argentine Republic, the consolidation of the national system of protected areas was carried out with the enactment of Law 22.351[10] in 1980, whose implementing authority is National Parks, which depends on the Chief of Cabinet of Ministers. The law, despite dating from 1980, enshrined the principle of precaution by establishing in its art. 5 the prohibition to explore hydrocarbons and install industries in national parks. However, the laws that created the interjurisdictional marine coastal parks established that art. 5 of Law 22.351 is not applicable to them, which constitutes a violation of the principle of non-regression.

Currently, Argentine Republic has 67 national parks, three of which are interjurisdictional marine parks:

- Austral Patagonia Interjurisdictional Coastal Marine Park, Law 26.446 (2007).[11]
- Makenke Interjurisdictional Marine Park, Law 26.817 (2012).[12]
- Penguin Island Interjurisdictional Marine Park, Law 26.818 (2012).[13]

[10] Ibid note 53.

[11] Argentina. Law 26.446, *Approval of the Treaty for the Creation of the "Austral Patagonia Interjurisdictional Coastal Marine Park" signed between the National State and the province of Chubut*. Official Bulletin, 05/01/2009.

[12] Argentina. Law 26.817, *Approval of the Treaty for the Creation of the "Makenke Interjurisdictional Marine Park" signed between the National State and the province of Santa Cruz*. Official Bulletin, 14/12/2012.

[13] Argentina. Law 26.818, *Approval of the Treaty for the Creation of the "Penguin Island Interjurisdictional Marine Park" signed between the National State and the province of Santa Cruz*. Official Bulletin, 14/12/2012.

In December 2018, Law 27.490[14] was enacted and two new protected marine areas were created in the country, Yaganes and Namuncurá *Burwood* II.

The National Parks Administration finds it difficult to coordinate its work with provincial governments in these interjurisdictional parks (Krapovickas, 2016). Regarding the Austral Patagonia Interjurisdictional Coastal Marine Park, Font (2016) defines it as "a park of sea and land", as it is the first park that protects both a terrestrial area and a marine area and includes the Gulf of San Jorge, one of the areas where hydrocarbon exploration is carried out.

López Alfonsín (2015, p. 120) explains that the model of shared management within the framework of a National Network of Protected Areas is an inexorable consequence of the new constitutional scheme:

> the formation of the Network implies the integration of the provinces on an equal footing with the National Parks Authority (APN) in the management of the protected areas of each of the conservation units of their respective territories, in line with the ownership of the original domain of natural resources recognized in 1994.

In 2013, through Law 26.875[15] and the regulatory Decree 720/14,[16] the Namuncurá - Burdwood Bank Protected Marine Area was created, the first oceanic marine protected area of Argentine Republic, located in the EEZ. The implementing authority is the Chief of Cabinet of Ministers.

Law 27.037,[17] enacted in 2014, created the National System of Protected Marine Areas with the aim of protecting and conserving representative marine spaces of habitats and ecosystems under the current national policy objectives (art. 1). Only in December 2018, with the creation of the Yaganes Yaganes and Namuncurá Burwood II MPAs, were the categories of this law applied for the first time.

[14] Argentina. Law 27.490, Creation of Marine Areas. Law N° 27.037. Modifications. Official Bulletin, 17/12/2018.

[15] Ibid. note 15.

[16] Argentina. Decree 720/14, *Marine area. Designation. Implementing authority of law No. 26.875*. Official Bulletin, 05/21/2014.

[17] Argentina. Law 27.037, *National System of Protected Marine Areas*. Official Bulletin, 12/16/2014.

This law does not apply neither to the Argentine Antarctic Sector – since it is governed by the Convention for the Conservation of Antarctic Marine Living Resources, CCAMLR, approved by Law 22.584–, nor to maritime spaces under provincial jurisdiction and to the three inter-jurisdictional parks, which are governed by Law 22.351.

The law defines MPAs as:

> the natural spaces established for the protection of ecosystems, communities or biological or geological elements of the marine environment, including the subsoil, the associated seabed and columns, which due to their rarity, fragility, importance or uniqueness deserve special protection for the use, education and enjoyment of present and future generations. (art. 2)

The creation of MPAs shall be made by national law and their precise perimeter delimitation shall be established (art. 3). MPAs will be managed and used sustainably and in accordance with LGA 25.675, under any of the following categories described by the law, which may be unique or combined, physically horizontal or vertical:

- Strict National Marine Reserve.
- National Marine Park.
- National Marine Monument.
- National Marine Reserve for the Management of Habitats/species.
- National Marine Reserve.

The five types of MPAs—inspired by the categories established by the IUCN—prohibit extractive activity on the seabed and subsoil. However, only in the Strict National Marine Reserve is any type of prospecting or exploration activity also prohibited, in addition to extraction. In the National Marine Reserve, the prohibition is limited to "non-sustainable extractive activity that generates irreversible impacts on ecosystems and affects the conservation objectives of the area". Therefore, the general principle is the permission of extractive activity, provided that the described conditions are met. The only category in which any sporting and tourist activity is prohibited is in the Strict National Marine Reserve.

The implementing authorities of each category will develop a management plan that will last five years and must be based on the environmental policy principles developed in LGA art. 4 and on the ecosystem approach

(art. 8). The management plans will be developed through a consultative and participatory process, which includes zoning if applicable—here an antecedent of MSP regulation in Argentine Republic is glimpsed, although the specific denomination is not used—, a public awareness policy and mechanisms for control and monitoring (art. 6).

The implementing authority is the National Parks Authority, according to Decree 402/17[18] dated June 8, 2017. The Authority shall submit before the Argentine Congress, with a maximum frequency of five years, a report on the state of marine conservation of the created areas and the progress made towards the establishment of a representative system of MPAs (art. 9).

Likewise, the implementing authority must establish for each protected marine area a non-binding advisory committee, which includes government agencies, scientists, universities and representatives of non-governmental organizations specialized in marine affairs, to facilitate the formulation, review and evaluation of the implementation of the management plans of the protected areas.

The last two reserves were created respectively in 2014 and 2015, they are called *Península Valdés* and Patagonia *Azul*. The latter coincides with the exploratory areas of ENARSA in the Gulf Basin (CAA-16 and CAA-20) and the *Península Valdés* could coincide with new exploration and exploitation areas that could be developed in the area. Faced with the increasing exploration and exploitation of hydrocarbons at sea, it is necessary to create new biosphere reserves and MPAs in Argentine Republic. A collision of NGOs, including *Fundación Vida Silvestre* and Foro *por la Conservación del Mar Patagónico*, is pushing for the creation of new MPAs in the country.[19] It is necessary to designate new MPAs to achieve the connectivity and spatial integration of these areas both at the national and regional level.

[18] Argentina. Decree 402/17, *National Parks Administration*. Implementing Authority. Designation. Official Bulletin, 09/06/2017.

[19] http://www.lanacion.com.ar/2029278-impulsan-la-creacion-de-parques-na-cionales-maritimos [Last visited: October 2022].

CHAPTER 8

Hydrocarbons in Argentine Republic

1 Legal Regulation of Hydrocarbons in Argentine Republic

In Argentine Republic, historical records account for the beginning of exploration and exploitation of hydrocarbons in 1865, when citizen Leonardo Villa presented a request to the Chamber of Deputies of Jujuy for authorization to manufacture kerosene for public lighting. The Jujuy Kerosene Company was created, the first Argentine oil company (Zarabozo Mila, 2014). Hydrocarbon initiatives until that time had been private, with local capital, a circumstance that changed with the discovery of oil in Comodoro Rivadavia in 1907.

Law 7.059 enacted in 1910 empowered the Federal State to exploit hydrocarbon resources administratively, and for this purpose the General Administration of Oil Exploitation in Comodoro Rivadavia was created (Decree of 12/24/1910). It was an Administrative Commission, chaired by Eng. Luis A. Huergo. Later, President Irigoyen, through Decree dated 6/3/1922,[1] created the General Directorate of *Yacimientos Petrolíferos Fiscales* (YPF), and thus the public oil history began in Argentina. That same year, President Alvear appointed the engineer Mosconi as General Director of YPF. He believed that the Nation's development could be

[1] Argentina. Decree S/N, *Hydrocarbons. General Directorate of Fiscal Oilfields. Created.* 6/3/1922. Not published in the Official Bulletin.

V. S. Radovich, *Marine Exploration and Exploitation of Hydrocarbons*, Palgrave Studies in Maritime Politics and Security,
https://doi.org/10.1007/978-3-031-75177-6_8

achieved through the revenues and uses that oil generated in all areas and that this resource, as well as its exploitation, should remain in the hands of the Federal State. Due to this reason, Mosconi had a negative view of the "*trusts*", the subsidiary companies and trusts formed by controlled and controlling companies of private and public foreign capital, among them Royal Dutch and Standard Oil, as he considered that these companies were taking over the wealth that belonged to the Argentine (Zarabozo Mila, 2014).

On December 24th 1932 Law 11.668[2] was enacted, the organic law of YPF's General Directorate. After an evolution and legislative discussion product of various visions related to the mode of exploitation of hydrocarbons, in 1935 the first Hydrocarbon Law 12.161[3] was enacted. This law was incorporated into the Mining Code, so its domain was ascribed to the type of typical domain of this code, that is, to the private domain of the provinces in which the oil is found. The law established that both the federal and the provincial State would receive 12% of the oil gross production (Zarabozo Mila, 2014).

Most of the political parties proposed nationalizing oil, despite the reluctance oflegislators, they managed to incorporate Law 12.161 into the Mining Code. Through this law the State was empowered to exploit oil jointly with private individuals (title XVII, Decree 456/97 was published as appendix of the code).

The Argentine provinces granted YPF, through special agreements, the virtual monopoly of hydrocarbon discoveries. Later, Decree 31.559/1945, approved by Law 13.892,[4] authorized YPF's former General Directorate of to carry out all kinds of mining operations aimed at discovering, acquiring and exploiting other minerals.

The precedent of Law 12.161 facilitated the decision of the constituents of 1949 to give constitutional rank to the national monopoly (art. 40) in the following terms: "Minerals and waterfalls, oil, coal and gas deposits (…) are inalienable and imprescriptible properties of the Nation". However, when the Constitution of 1949 was repealed, the

[2] Argentina. Law 11.668, *On the Organization of the General Directorate of Y.P.F.* Official Bulletin, 28/12/1932.

[3] Argentina. Law 12.161, *On the Regime of mines and fluid hydrocarbons*. Official Bulletin, 01/04/1935.

[4] Argentina. Law 13.892, *Will continue in force with the force of law*. Official Bulletin, 22/12/1949.

national monopoly ceased. The de facto government, with its privatizing criterion, authorized YPF to celebrate contracts of location and service dispensing with public bidding (Decree 933/1958) (Valls, 2006).

In 1958, Law 14.773[5] was enacted. It established that hydrocarbon deposits were of exclusive property of the national State (art. 1) and concessions and any contract containing clauses harmful to economic independence or that in any way could weigh on the self-determination of the Nation (art. 4) were prohibited.

In 1967, Law 17.319[6] was enacted, which maintained the system of nationalization of deposits and transferred to the provinces 12% of the production gross collection. Art. 1 establishes that liquid and gaseous hydrocarbon resources located in the territory of Argentine Republic and on its continental shelf belong to the imprescriptible and inalienable heritage of the National State.

The law regulates exploration permits and temporary exploitation concessions (art. 4). Holders of exploration permits and exploitation concessions are the owners of the hydrocarbons that they extract (art. 6, first paragraph). However, when the national production of liquid hydrocarbons does not cover internal needs, the use of all availabilities in the country is mandatory (art. 6, second paragraph). Regarding the production of natural gas, it will be used firstly considering the needs of the area where the deposits are located (art. 6, fifth paragraph).

The law establishes two types of zones for the purposes of exploration and exploitation of hydrocarbons in the territory of Argentine Republic and its continental shelf:

I. *Proven: those that correspond with structural traps, sedimentary or stratigraphic where the existence of hydrocarbons that can be commercially exploitable has been proven.*
II. *Possible: those not included in the preceding definition.*

Broad authorization is granted to conduct superficial surveys for hydrocarbons, even on the continental shelf (art. 14), subject to approval by the implementing authority (art. 15).

[5] Argentina. Law 14.773, *Energy and fuels. Nationalization*. Official Bulletin, 13/11/1958.

[6] Argentina. Law 17.319, *Hydrocarbons Law*. Official Bulletin, 30/06/1967.

Exploration permits confer the exclusive right to explore within the set perimeter and timeframe (art. 17) and the holder shall carry out the necessary work with due diligence to look for hydrocarbons (art. 20). The discovery of hydrocarbons shall be reported within 30 days and the permit holder may dispose of the products extracted during the exploration (art. 21).

In the nineties, in Argentine Republic, the State during the presidential period of *Menemism* passed the presidential decrees 1055/89,[7] 1212/891[8] and 1589/89.[9] These decrees radically changed the orientation of oil policy and determined a significant transfer of exploration and production areas owned by YPF (Zarabozo Mila, 2014). The first decree, backed by the State Reform Law 23.696,[10] established a free supply and demand market for crude oil, basically in the exploration and production stages (*upstream*). The second decree established the game rules for the refining and marketing sector (*downstream*). Finally, the last decree reaffirmed the economic opening of the sector by establishing free import and export of oil and derivatives, along with the elimination of duties and tariffs.

Law 17.319 was partially amended in 1992, when the Provincialization of Hydrocarbons Law 24.145.[11] was enacted. Similarly, in 2006, Law 26.197,[12] known as the "Short Law", established, among other provisions, that hydrocarbon deposits belong to the inalienable and imprescriptible heritage of the national State or the provincial States, depending on the territorial scope in which they are located. That is, both laws provided for a regime of transfer to the provinces of previously national areas, as well as the granting power over the exploration and exploitation of the areas. The 2006 Federal Hydrocarbons Agreement established the need to replace this law, and also provided in its recitals

[7] Argentina. Decree 1055/89, *Hydrocarbons. Regulation of Law 23.696 and 17.319*. Official Bulletin, 12/10/1989.

[8] Argentina. Decree 1212/89, *Hydrocarbons. Objectives*. Official Bulletin, 14/11/1989.

[9] Argentina. Decree 1589/89, *Hydrocarbons. Exploitation, concessions, transport*. Official Bulletin, 4/01/1990.

[10] Argentina. Law 23.696, *State Reform*. Official Bulletin, 23/08/1989.

[11] Argentina. Law 24.145. *Federalization of Hydrocarbons. Business Transformation and Privatization of Y.P.F. Corporation. Privatization of Assets and Shares of Y.P.F. Inc*. Official Bulletin, 06/11/1992.

[12] Argentina. Law 26.197, *Law No. 17.319-ART. 1—substitution*. Official Bulletin, 05/01/2007.

that the "environment will be protected through rational productive activity".

The incorporation of art. 124 in the constitutional text marked the beginning of the provincialization of hydrocarbon deposits. This change was consolidated in hydrocarbon matters with the sanction of the aforementioned Law 24.145 of provincialization of hydrocarbons, the business transformation and privatization of the capital of YPF.

Valls (2006) argues that art. 1 Law 17.319 was repealed by art. 124 CN and arts. 1 and 22 Law 24.145. Zarabozo Mila (2014, p. 300) asserts that the constitutional amendment of 1994 introduced major questions regarding this topic, as: "…the inclusion of art. 124 of the Argentine Constitution consolidated the original domain of the provinces over natural resources in their jurisdiction".

In addition, she adds that this new regime, and the new conditions for exploiting the resource, are diametrically opposed to the logic used in the precedents of the CSJN, "which advocated for regulatory unity and national public property rights, in terms of hydrocarbon resources, in light of the old scheme provided by the Hydrocarbons Law 17.319". Finally, she concludes: "This reform implied the collapse of the State policy that placed hydrocarbon natural resources, as strategic and necessary for the defense and development of the country, at the service of the National State to transform it into a *commodity*" (2014, p.135). In this sense, Zarabozo Mila (2014, p. 159) warned, even when hydrocarbon deposits were included as belonging to the public domain, that the thorniest aspects of interpretation were centered in the mining and hydrocarbon area:

> given that these resources have a system of property and jurisdiction crossed between Provinces-Nation, which in turn presents a dismembered system of domain, as in the right of property of the mines the eminent domain is recognized in the head of the State and the mining property to individuals as useful domain or right of exploitation (which does not imply extinction of the original domain).

This problem is not shared by the rest of the natural resources, which can be subjected to the full domain and jurisdiction of the provinces where they are located (Zarabozo Mila, 2014).

Art. 1 Law 24.145 transferred the ownership of hydrocarbon deposits from the national State to the provinces in whose territory they were

located—including those located in the sea adjacent to their coasts up to a distance of 12 nautical miles measured from the baseline recognized by current legislation. Therefore, the National State only retained the hydrocarbon deposits that were in the Federal Capital, now Autonomous City of Buenos Aires, or in its jurisdiction over the Argentine bed of the Río de la Plata, as well as those that were located from the outer limit of the territorial sea, on the continental shelf or up to a distance of 200 nautical miles measured from the baseline (Zarabozo Mila, 2014).

Subsequently, Law 26.197, known as the "Short Law", modified art. 1 Law 17.319 and established the belonging to the inalienable and imprescriptible heritage of the nation or the provinces of the hydrocarbon deposits, depending on where they are located. The law grants the provinces the administration of the deposits, even those that had been granted by the national State that Decree 546/03[13] reserved for the national government. According to the new law, the powers of the provinces are those that arise from Law 17.319, among them, those of renewing the concessions, controlling the contracts and applying the sanctions, among others. The government of the Nation reserves the design of energy policies at the federal level.

Zarabozo Mila (2014) argues that the objectives of national defense, which at some point were the basis of the nationalization of the resource and the rulings of the CSJN, did not seem to prevail before the sanction of this law of provincialization of hydrocarbons. This allows normative dispersion, the lack of a univocal public policy on the matter, in addition to the reversal of a univocal and unified national hydrocarbon policy, in a international context that is heading to the antipodes of the system provided for by this law.

In 2003, in terms of administration and exploitation powers, Decree 546 was issued, which established that the provinces were the constitutional holders of the resource. However, they lacked powers under the legal regime of Law 17.319. On the other hand, art. 23 Law 24.196[14] establishes that mining companies will pay 5% of the operating extraction costs for the purpose of preventing and remedying the alterations in the environment that may be caused by mining activity.

[13] Argentina. Decree DNU 546/03, *Hydrocarbons. Provincial States. Exploration permits*. Official Bulletin, 11/08/2003.

[14] Argentina. Law 24.196. *Mining activity*. Official Bulletin, 24/05/1993.

It was thus established that the areas that reverted to the provinces (called "in transfer" by decree 1955 of 1994) would be administered by them through the exercise of the powers that Law 17.319 recognized to the implementing authority. It was established that the national authority should be kept informed. The National State maintained the exercise of the powers emanating from arts. 2 and 3 Law 17.319, in other words, the activities related to the exploitation, industrialization, transport and marketing of hydrocarbons, as well as the jurisdiction over the areas granted by the law. Zarabozo Mila (2014) affirms that a dual regime was created in this way: the granted areas remained under federal jurisdiction, and the new ones or those that reverted (due to expiration or will of the parties), under provincial jurisdiction.

In 2004, Law 25.943[15] created Energía Argentina S.A. (ENARSA), a corporation whose capital is state-owned. The corporate purpose of ENARSA allows it to perform a wide range of action on its own, through third parties or associated with third parties, in matters of exploitation and marketing of solid, liquid and gaseous hydrocarbons (art. 1). The creation law granted ENARSA the ownership of the exploration permits and the exploitation concessions in the national maritime areas that were not already subject to permits or concessions at the date of entry into force of Law 25.943 (November 2004). These permits and concessions could be exploited in association with third parties (art. 2). The law granted ENARSA broad powers to carry out the study, exploration and exploitation of solid, liquid or gaseous hydrocarbon deposits and the transport, storage, distribution, marketing and industrialization of these products and their direct and indirect derivatives. It granted powers for the provision of public service of natural gas transport and distribution, for which it could produce, process, refine, buy, sell, exchange, import or export, and carry out any other operation complementary to its industrial and commercial activity or that is necessary to facilitate the achievement of its purpose.

In 2012, Law 26.741 on hydrocarbon sovereignty was enacted,[16] which created the Federal Council of Hydrocarbons. Then, on the 30th

[15] Argentina. Law 25.943. *Energía Argentina S.A. Its creation*. Official Bulletin, 03/11/2004.

[16] Argentina. Law 26.741, *Yacimientos Petrolíferos Fiscales. Self-supply of Hydrocarbons*. Official Bulletin, 07/05/2012.

of October 2014, Law 27.007[17] on hydrocarbons was enacted, which modifies laws 17.319 and 25.943.

The first title of Law 27.007 is called "Modifications to Law 17.319". Article 1 modified Article 23 of Law 17.319, which provides on exploration periods. In the case of exploration at sea, these periods may be increased by one year compared to the periods of conventional exploration. The law introduces the distinction between "conventional exploration" and "unconventional exploration", to regulate the exploration of *shale* gas in the country. Likewise, a basic period consisting of two periods is established. In the case of conventional exploration, the first period is three years (in the case of exploration at sea it is four years), and the second period within this same term is another three years. In the case of exploration with an unconventional objective, the first period of the basic term spans four years and the second period another four years. In addition to the two periods that make up each term, in both types of exploration there is an "extension period" that extends up to five years, which may be exercised by the permit holder who has complied with the investment and the remaining obligations under their charge. In the case of explorations on the continental shelf and in the territorial sea, each of the periods of the basic term of conventional exploration may be increased by one year.

Previously, Article 23 Law 17.319 did not distinguish between conventional and unconventional exploration, and established a basic term that was divided into three periods. The first period lasted up to four years, the second up to three years and the third up to two years. Law 27.007 shortened the term by three years: before the term was nine years, but currently it is six.

Under Article 25 Law 17.319, the exploration permits will cover areas whose surface does not exceed one hundred units and those granted on the continental shelf will not exceed one hundred and fifty units. The requirement that no individual or legal entity could simultaneously hold more than five exploration permits, either directly or indirectly, was eliminated.

At the end of the first period of the basic term, the permit holder will decide whether to continue exploring in the area, or if it fully reverts to the State (Article 3). The permit holder may keep all the area originally

[17] Argentina. Law 27.007, *Hydrocarbons. Law No. 17.319-modification*. Official Bulletin, 31/10/2014.

granted, as long as it has complied with the obligations arising from the permit. Previously, Law 17.319 allowed the permit holder to keep only half of the original area.

Unconventional hydrocarbon exploitation is defined as the extraction of liquid and/or gaseous hydrocarbons using unconventional stimulation techniques applied in deposits located in formations of shale or slate (*shale* gas or *shale oil*), compact sandstones (tight *sands, tight gas, tight oil*), coal layers (*coal bed methane*) or characterized, in general, by the presence of low permeability rocks. Unconventional hydrocarbon exploration could also be carried out at sea, although it involves a high investment (art. 5).

1.1 Hydrocarbons and the Mining Code

Hydrocarbons are subject to the regime of Laws 17.319 and 21.778,[18] to the risk of contract law 24.145,[19] to law 24.076 of natural gas,[20] and to the Decree of Necessity and Urgency 546/2003.[21] However, the current hydrocarbon regime is outside the Mining Code. Regarding the appendix of the consolidated text of the Mining Code entitled "Legal regime of oil and fluid hydrocarbon mines", it only applies supplementarily (Valls, 2006).

The rest of the mining legislation is found in the Mining Investment Laws 24.196 and its amendments, in the articles of the Uruguay River Statute, approved by Law 21.413, and in the Treaty of the River Plate and its maritime front, approved by Law 20.645 and in the Mining Integration and Complementation Treaty with Chile, approved by law 25.243. (Valls, 2006).

Valls (2006, p. 26) states:

> Article 3 1886 Code included hydrocarbons in the first category, the new text only maintains solids, among them, deposits of rafaelites, sands, asphalts and shales bituminous. The other hydrocarbons are governed by art. 8° of the Appendix of the Code, Law 17.319 of hydrocarbons modified by Law 24.145, Law 25.943 and the Decree of necessity and urgency

[18] Argentina. Law 21.778, *Hydrocarbons. Risk contracts*. Official Bulletin, 20/04/1978.

[19] Ibid., note 169.

[20] Argentina. Law 24.076, *Natural gas*. Official Bulletin, 12/06/1992.

[21] Argentina. Decree DNU 546/03, *Hydrocarbons. Provincial States. Exploration permits*. Official Bulletin, 11/08/2003.

546/2003. The Appendix of the Mining Code is titled "Legal Regime of oil and fluid hydrocarbon mines".

The second section of the thirteenth title "Exploitation Conditions" of the Mining Code is entitled "Environmental protection for mining activity". The first article, 246, reads as follows: "The protection of the environment and the conservation of natural and cultural heritage, which may be affected by mining activity, will be governed by the provisions of this section".

The Federal Mining Agreement approved by Law 24.228[22] proclaims in its art. XIV the need to submit an impact statement, when prospecting, exploring, exploiting, industrializing, storing, transporting and marketing minerals.

On the other hand, the first article of the appendix of the Mining Code states: "Oil and fluid hydrocarbon mines are private property of the Nation or the provinces, depending on the territory in which they are located". According to Valls (2006), this article agrees with art. 124 CN, since oil and fluid hydrocarbon mines have always been included in the category, which since 1994 is constitutionally "original domain", which is more similar to private property and not to public domain. Mines bear no resemblance to the rest of the things listed in art. 2340 of the old Civil Code, nor do private individuals have the use and enjoyment of these public goods that the latter authorized in art. 2341. Also, art. 2 of the appendix states: "The National State and the provincial states can explore and exploit mines and industrialize, trade and transport the products of the same directly or by agreements between them or through the mixed societies authorized by this Appendix".

Valls argues that the Hydrocarbons Law 17.319 (amended by Law 24.145, Law 25.943 and the Decree of Necessity and Urgency 546/03) subjected the exploration and exploitation of fluid hydrocarbon mines to a regime different from that of first category substances. Art. 8 of the appendix states that their exploration and exploitation will be governed by the provisions relating to first category substances, as long as they are not modified by the appendix. The following articles of the appendix are not in force: 6, 9, 10, 11, 12, 13, 25, 26, 27 and 36 (Valls, 2006). It should be clarified that the appendix of the Mining Code does not refer to the exploration and exploitation of hydrocarbons at sea. Regarding

[22] Argentina. Law 24.228. *Federal Mining Agreement*. Official Bulletin, 02/08/1993.

the abandonment of hydrocarbon wells on land, the issue is governed by SETYC Resolution 05/96 (Secretary of Energy, Transport and Communications). There are different categories of wells, abandonment deadlines and the obligation on permit or concession companies to present both the annual schedule of well abandonment activities and the final report of the activities carried out during the previous calendar year, before January 31 of each year. The abandonment of wells at sea presents other technicalities that require different regulation than wells on land.

As for the historical regulation of the natural gas resource, the General Directorate of State Gas was created, through Decree 22389/45. In 1975, the year the Loma de la Lata gas field was discovered, Argentine Republic was declared a gas country. Through Decree 633/91, President Menem established the restructuring of the natural gas industry. In 1992, Law 24.076[23] was enacted, which created the regulatory framework for the downstream gas activity (since the upstream remained under the jurisdiction of the hydrocarbons law) and declared *Gas del Estado S.E.* subject to privatization. Zarabozo Mila (2014) points out that the enactment of this law seems to have been achieved by the vote of people outside the Chamber of Deputies, who sat in the benches in order to obtain the necessary quorum, due to the fact that the legislators of the Radical party bench had withdrawn.

2 The Exploration and Exploitation of Hydrocarbons in the Sea in Argentine Republic

Law 27.007 establishes that "offshore" exploration [sic], due to its productivity, location and other unfavorable technical and economic characteristics, may be subject to a royalty reduction of up to 50%, thus promoting the exploration and exploitation of hydrocarbons in the sea (art. 6 which incorporates art. 27 ter into Law 17.319). In this sense, Law 27.007 establishes that the exploitation concessionaire will pay monthly to the grantor, as a royalty on the produced liquid hydrocarbons extracted at the wellhead, a 12%, the same percentage that natural gas production pays. Therefore, in the case of exploitation at sea, concessionaires can end up paying a minimum of 6% in concept of royalty (art. 16 that modifies art. 59 of Law 17.319).

[23] Ibid., note 178.

Prior to the modifications introduced by Law 27.007, it was generically established that the 12% royalty could be reduced to 5%. Currently, only a maximum reduction of 50% is allowed, therefore, up to 6%, and only in the case of exploration and exploitation at sea and in two other cases: tertiary production projects (projects in which enhanced oil recovery techniques are employed, known in English as *Enhanced Oil Recovery –EOR–* or *Improved Oil Recovery –IOR–*) and extra heavy oils (those that require special treatment because the quality of the crude is below 16 degrees API) (art. 27 ter of Law 17.319).

In the same vein, art. 28 Law 27.007, in title III, named "Complementary and transitional provisions", establishes that in the cases of unconventional hydrocarbon exploitations a 25% reduction in royalties may be requested during the ten years following the completion of the pilot project.

The concession for exploitation on the continental shelf and in the territorial sea is a 30-year term, while the conventional one for hydrocarbons is 25 years, and the unconventional one is 35 years (art. 9 of Law 27.007, which introduced inc. 3 to art. 35 of Law 17.319). The Regime for the Promotion of Investment for the Exploitation of Hydrocarbons, under Decree 929/13 (art. 19, Law 27.007) proposes the incorporation of projects that involves a direct investment in foreign currency, not less than 250,000,000 Dollars, which must be invested during the first three years of the project.

The benefits provided in the Decree will be recognized from the third year counted from the implementation of the respective projects. The percentage of hydrocarbons for which the benefits provided in arts. 6 and 7 of said Decree will be applied—that is, the percentage that has the right to freely market in the external market–, in the case of exploitation at sea is 60%, while, in the case of conventional and unconventional exploitations, is 20%.

For these reasons, I conclude that the law specifically encourages the investment of exploitation of hydrocarbons at sea. Within the 60% of benefits are included those marine exploitation projects in which the drilling of the wells is carried out in locations where the distance between the seabed and the surface, measured at the well location, on average between high and low tide, exceeds 90 meters. Otherwise, it will be framed as appropriate in conventional and unconventional exploitation and the respective benefit will be applied, which is the same, 20%.

Within the framework of projects that have the benefit stipulated in Article 19, companies must contribute a 2.5% of the initial amount of the project directed at Corporate Social Responsibility to the producing provinces where the investment project is developed. Likewise, an amount to be determined by the Planning and Strategic Coordination Commission of the National Hydrocarbon Investment Plan is established, based on the magnitude and scope of the investment project, to finance infrastructure works in the producing provinces, which must be contributed by the national State (Art. 21).

In Chapter 5, I explained that the Commission that analyzed the case of the Deepwater Horizon platform recommended that the money obtained from this exploitation be allocated to the development of renewable energies. I consider that a percentage of the money obtained from the exploration and exploitation of hydrocarbons at sea could be allocated to research and development of renewable marine energies in the Republic of Argentina.

Law 27.007 repeals Art. 2 of Law 25.943, enacted in 2004, which created ENARSA, so all exploration permits and concessions of hydrocarbon exploitation of the "offshore" national areas owned by ENARSA are reversed and transferred to the Secretary of Energy of the Nation. This reversal does not apply to exploration permits or concessions of existing exploitation at the entry into force of Law 27.007 that have been granted prior to Law 25.943.

Since 2009, ENARSA has carried out operations in the Argentine continental shelf to analyze and study the limits of liquid and gaseous hydrocarbon reservoirs. The operations consisted, basically, in generating and commercializing information, as well as attracting investments for their exploration and exploitation. The consortia that were created to explore are: E1 (Marine Red Basin), E2 (Marine Austral Basin) and E3 (Marine Red Basin North).[24]

Regarding area E1, the consortium was integrated by:

- YPF S.A. 35% (operator)
- ENARSA 35%
- PETROBRAS ARG. S.A. 25%

[24] https://opsur.org.ar/2014/05/16/plataformas-petroleras-offshore-enarsa-no-controla-la-actividad-ambiental-de-los-operadores-con-los-que-esta-asociada/ [Last visited: October 2022].

- PETROURUGUAY 5%

After the studies were conducted, it was decided not to drill the exploratory well due to the low chances of success and high costs.

Regarding area E2, the consortium was composed of:

- ENAP Sipetrol ARG. S.A. 33.33% (operator)
- ENARSA 33.33%
- YPF S.A. 33.33%

The Austral Marine Basin, in the Magallanes area and CAM 2/A South, is already in the production stage, with six marine platforms operating.[25] A total of 70 wells have been drilled, both exploratory and delineation wells (Figueroa, 2010).

The consortium of area E3 is composed of:

- PETROBRAS ARG. S.A. 35% (operator)
- ENARSA 35%
- YPF S.A. 30%

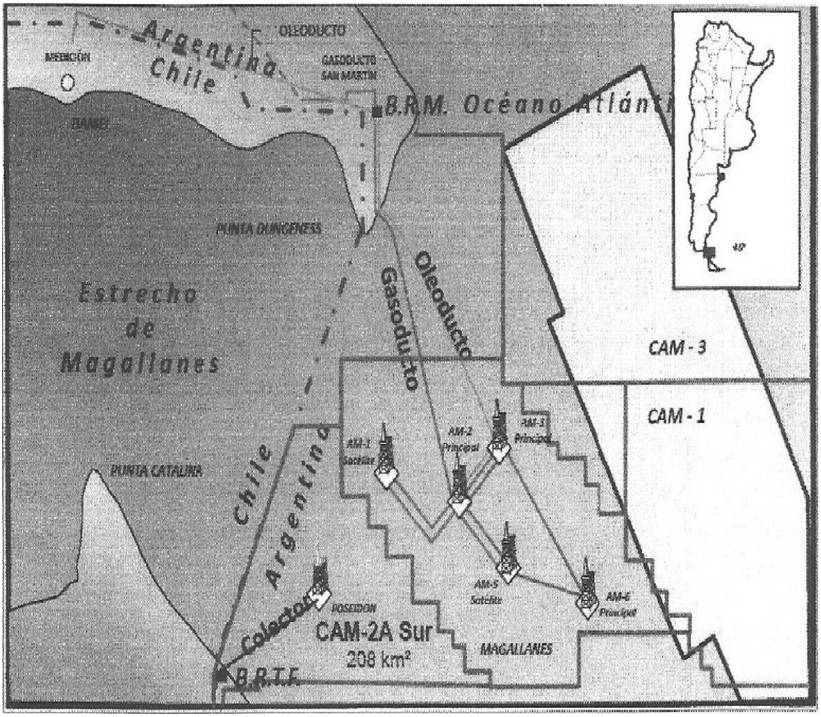
Within area E3 are the Gulf Basin (CAA-16 and CAA-20) and the Malvinas Basin (Calamar Block and Salmon Block) (see Map Nos. 1 and 2).

In 2014, in the country's largest circulation newspapers, the call for the national and international public competition No. PETR 02/2014, entitled "Acquisition of 3D marine seismic offshore Calamar Area" was published.

Regarding the Malvinas Islands, as early as May 14, 1971, the UK government published in the *Herald Tribune*, international edition, a notice inviting oil companies to operate in the East Magallanes area, offered in international tender by YPF (Silenzi de Stagni, 1982).

In 1969, Great Britain had drawn up a geological map of the region, whose preliminary conclusions allowed it to be anticipated that the Malvinas basin contained sedimentary strata two or three times thicker than those of the North Sea. From this discovery, Great Britain decided that

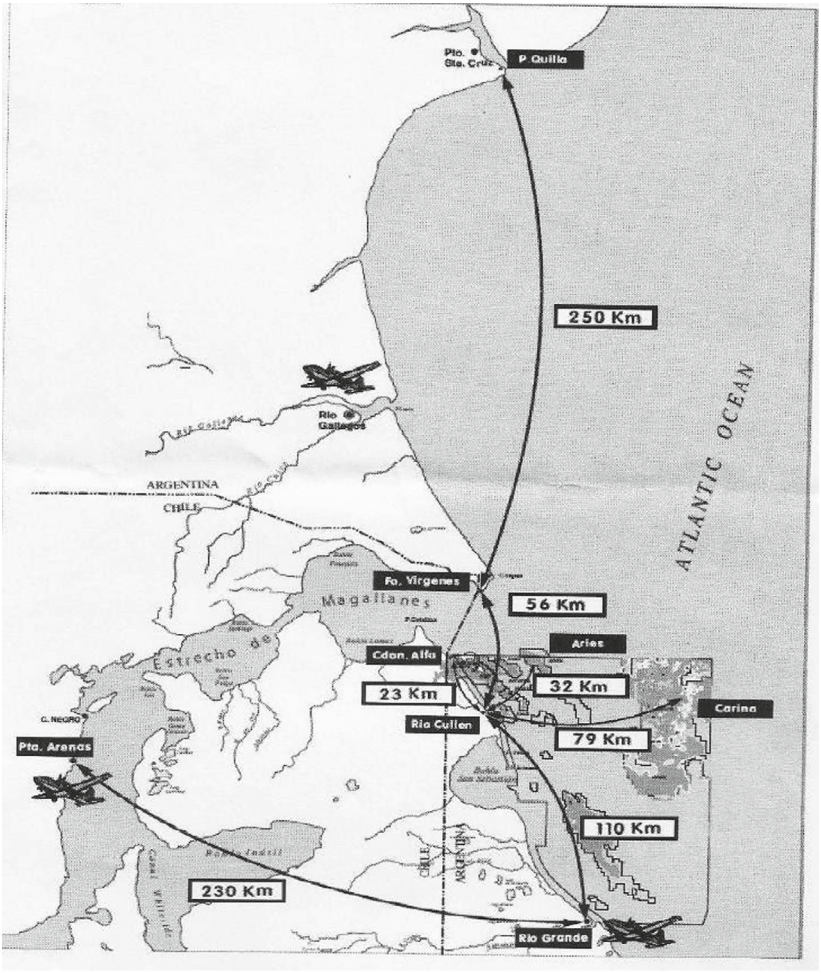
[25] https://econojournal.com.ar/2019/05/ponen-en-marcha-la-ampliacion-de-la-planta-canadon-alfa-en-la-cuenca-marina-austral/ [Last visited: October 2022].



Map 1 Marine platforms on the border with Chile (*Source* Confidential. Given in 2017, in Buenos Aires)

from then on the studies should be confidential (Silenzi de Stagni, 1982). Gutiérrez Posse (2012) explains that a first difficulty in the progress of the negotiations that Argentine Republic and the United Kingdom had begun in 1969, within the framework of the United Nations, arose in 1973, linked to the first oil crisis due to the Arab-Israeli war.

In 1975, the United Kingdom received the *Griffiths* Report, which highlighted indications of the existence of oil fields in the territory and off the coasts. Argentine Republic responded that it would consider null any activity that the United Kingdom carried out regarding this issue, since the Malvinas Islands and the adjacent continental shelf are an integral part of the national territory. In the *The Financial Times* newspaper in



Map 2 Aerial view of the platforms (*Source* Confidential. Given in 2017, in Buenos Aires)

London, an article was published stating that resources could be exploited on a binational basis (Gutiérrez Posse, 2012).

In the Malvinas basin, twenty-seven wells have been drilled, both exploratory and delineation wells. Five wells in the basin had significant

occurrences of hydrocarbons, but did not result in commercial discoveries (Figueroa, 2010).

The maritime deposits are mainly located in the San Jorge basin and in the Austral basin. The Gulf of San Jorge basin is located in central Patagonia, it includes the southern area of the Chubut province, the northern part of the province of Santa Cruz and a large part of the continental shelf in the Gulf of San Jorge, so it covers continental (65%) and maritime (35%) areas (Ferrara, 2015). 30 wells were drilled in the basins (Figueroa, 2010).

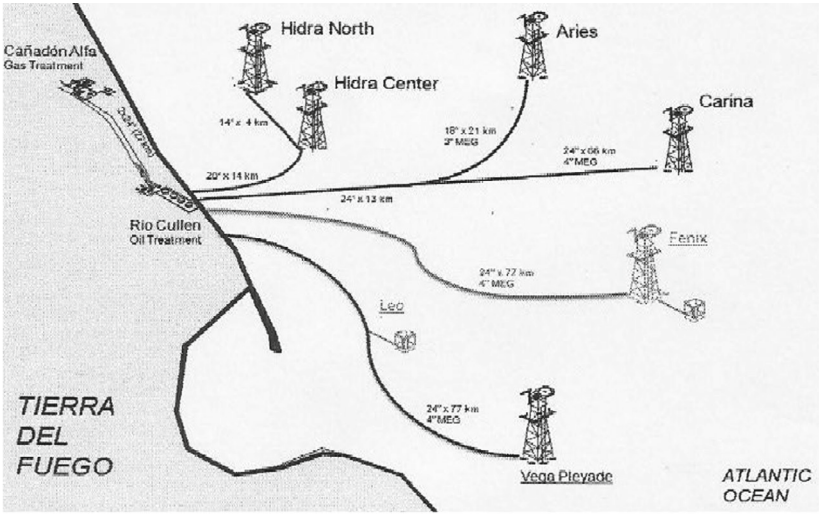
The Gulf of San Jorge Basin is mainly an oil basin, and the Austral basin is fundamentally a gas basin. Since 2008, the oil production of the San Jorge Gulf basin represents between 42 and 44% of national production, while the production of the Austral Basin reaches 6%. Regarding gas, the Austral Basin is the second at the national level after the Neuquina. Between the years 2002 and 2009 its production represented from 19 to 22% of the total production of natural gas in the country (Koutoudjian, 2011). Currently, production at sea is concentrated in the Austral basin, which represented, in 2016, 2% of national oil production and 17% of national gas production.[26]

It should be noted that, in the Gulf of San Jorge Marina basin there is an area that belongs 100% to Pan American Energy (Argentine branch), and in the Malvinas basin there is an area that belongs 50% to this company, and another 50% to YPF S.A.

Currently, there are 21 exploration blocks, most of them located in the Malvinas and Austral basins. Two other areas where there are exploration blocks are the Gulf of San Jorge Marina basin and the Colorado Marina basin (see Map 3). Almost all areas are headed by ENARSA, which, in some cases, has signed agreements with private companies (mainly YPF S.A., ENAP SIPETROL ARGENTINA S.A., PETROBRAS ARGENTINA S.A.) (Cappagli, 2016) (see Map 3).

Regarding exploitation, it is concentrated in the basins of the Gulf of San Jorge Marina and in the Malvinas basin. Four companies have exploitation concessions: YPF S.A., Total Austral S.A., ENAP Sipetrol Argentina S.A. and Petrolera LF Company S.R.L. According to data from the Ministry of Energy, the only two companies that produce in

[26] https://www.minem.gob.ar/prensa/26157/estudio-para-evaluar-el-potencial-de-inversion-en-exploration-of-hydrocarbons-offshore [Last visited: October 2022].



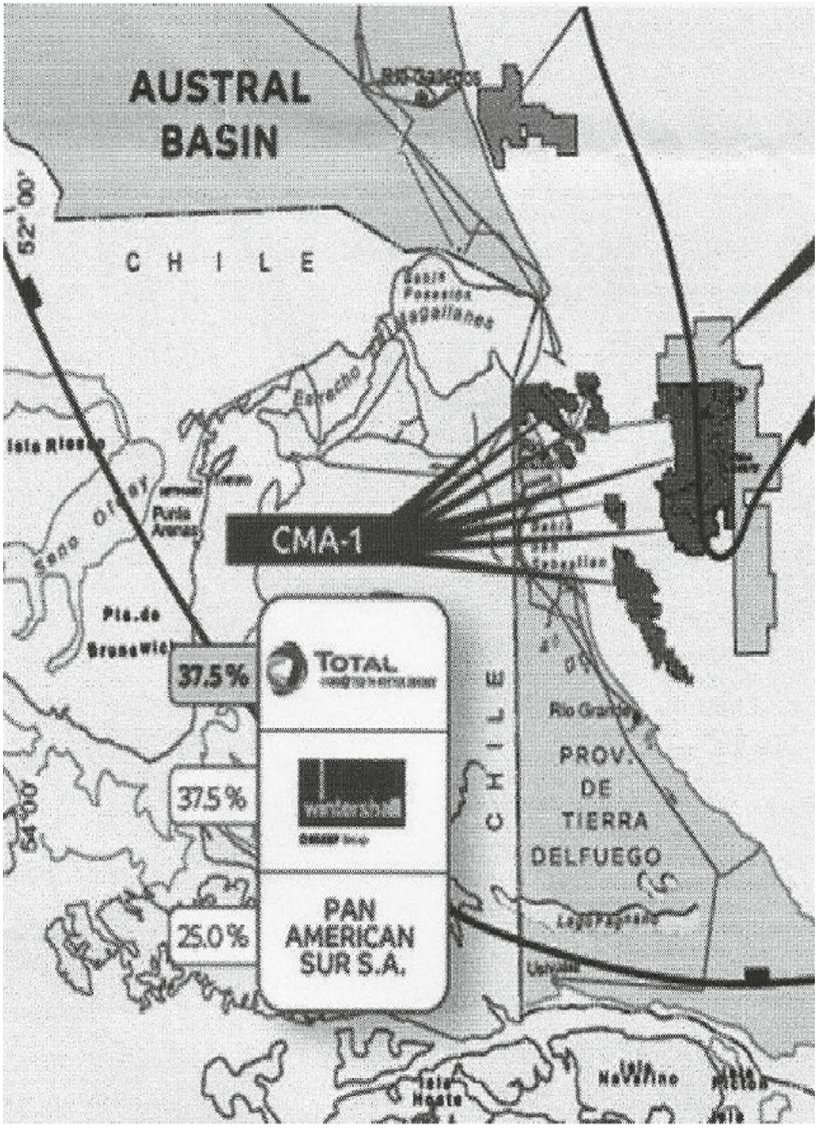
Map 3 Marine platforms in Tierra del Fuego (*Source* Confidential. Given in 2017, in Buenos Aires)

these areas are Total Austral S.A. and, to a lesser extent, ENAP Sipetrol Argentina S.A (Cappagli, 2016) (see Map 4).

The General Audit of the Nation (AGN) approved a report on the ENARSA's environmental management regarding exploration and exploitation at sea during the period 2009–2012.[27] It concluded that, nine years after its creation, ENARSA had not managed to develop a strategic plan and had not generated inter-institutional relations with the bodies operating on the Argentine continental shelf, in order to share technical information and contribute to a more comprehensive diagnosis.

Regarding environmental management, it was argued that, although ENARSA has established an Integrated Management System (SGI), the Integrated Management Manual lacked operability, due to the lack of formal procedures, and the environmental committee within the company had not been established either. Likewise, it was concluded that ENARSA did not record or control the environmental activity of the operators with

[27] http://www.lapoliticaonline.com/files/content/80/80765/2014_040info.pdf [Last visited: October 2022].



Map 4 Aerial view of the platforms in Tierra del Fuego Province (*Source* Confidential. Given in 2017, in Buenos Aires)

which it was associated (EIA, contingency plan, monitoring, well closure reports) nor had it carried out the necessary procedures to comply with the LGA in terms of environmental insurance.

In 2017, the Executive Power withdrew the concession from ENARSA and granted YPF an exploration and surface recognition permit over an area located in the northern zone of the Argentine continental margin, beyond the 12 nautical miles, over 360,000 km^2 of the continental platform, and requested a study to verify the interest of international companies through Resolution E 13/17 issued by the Ministry of Energy and Mining. The area under study extends from the border with the Eastern Republic of Uruguay to the 45° south latitude (north of Comodoro Rivadavia), where water depths range from 500 to 3500 meters.

The granted permit will not generate rights in favor of YPF over that territory, which will work together with the Norwegian state-owned *Statoil*, with experience in Brazil and the North Sea. The work to be carried out includes the collection of two-dimensional seismic data, which involves the sending and receiving of sound waves from a vessel.

In July 2021, for the first time a public hearing (AP1/21) concerning the exploration and exploitation of hydrocarbons at sea was held by the Argentine Ministry of Environment and Sustainable Development (AMESD). The purpose of the hearing was to bring into consideration the EIA of the project 'Argentine Offshore Seismic Acquisition Campaign; Argentina North Basin (CAN 108, CAN 100 and CAN 114 areas)'. This is the first hydrocarbon exploration and exploitation project tendered in front of the coasts of Buenos Aires province, and 300 km from the main touristic city of the province, Mar del Plata. 522 people enrolled to participate in the hearing, 350 presented their opinion orally, the remainder sent their opinion in writing to the hearing. Only 4% of the people who spoke in the audience expressed support for granting these new permits.[28] After the hearing, the Minister of Environment and Sustainable Development initially claimed that he had decided not to grant the permits based on the results of the hearing. However, in the last days of December 2021, the permits were finally granted, in spite of the high opposition shown in the public hearing.[29]

[28] See Final Report of Public Hearing N° 1/21, available at www.argentina.gob.ar/sites/default/files/if-2021-65230741-apn-dneamad.pdf [Last visited: November 2022].

[29] Resolution 436/2021, Argentine Ministry of Environment and Sustainable Development, December 24th, 2021.

3 Marine Platforms in Argentine Republic

At the border between Argentine Republic and the Republic of Chile there are six fixed marine platforms (see Map 1), which were installed through a UTE (temporary union of companies) between the Chilean company, ENAP Sipetrol, and YPF.

This information is not public but was obtained—as well as the images—through an interview with a confidential source. The information that was available on the internet through the page enarsa.gov.ar—it is no longer available—only exhibited the exploration areas, but not the platforms that were operating. On the website of the Ministry of Energy and Mining, the available information reports that, through a public tender process, the ministry has selected Bain & Company, a strategy consulting firm, to provide support in the development of the study to assess the potential for investment in exploration in the Argentine sea. The study includes conducting a survey and interviews with local and international oil companies, both private and state-owned, to understand their position and interest in investing in the exploration of the Argentine sea, "taking into account critical aspects such as geological attractiveness and the availability of information, the regulatory framework, the tax regime and the development of the supply chain and infrastructure".[30] After reading this information published on the Ministry's internet site, it becomes necessary to remember the lessons learned from the Deepwater Horizon platform accident in the Gulf of Mexico, so as not to repeat the circumstance of companies forging the course of the regulatory framework.

In the case of the Federative Republic of Brazil, the location and name of each marine platform and its level of production are provided on the website of the National Petroleum Agency (ANP). It would be desirable that Argentina also publishes information at this level of detail, based on articles 16 and 17 LGA, which refer to environmental information, and on Law 25.831 on basic requirements for public environmental information.[31] Strictly speaking, public hearings should have been held prior

[30] https://www.minem.gob.ar/prensa/26157/estudio-para-evaluar-el-potencial-de-inversion-en-exploracion-de-hidrocarburos-offshore.html [Last visited: October 2022].

[31] Argentina. Law 25.831, *Free access regime to public environmental information.* Official Bulletin, 07/01/2004.

to the installation of these marine platforms. As we have previously said, these audiences were held for the first time very late, in 2021.

The confidential source reported that the platforms located in Chilean territory have already completed their activity, so they are inactive and now a considerable sum of money would have to be invested to dismantle them. Also, in the vicinity of the province of Tierra del Fuego (Map 3), there are five other fixed platforms in activity (Hidra North, Hidra Center, Arias, Carina and Vega Pleyade), which are not more than 100 meters deep. There are two other platforms under construction, Phoenix and Leo. The Leo platform has the characteristic of being an 8-meter-high subsea wellhead. All these platforms belong 37.5% to the company Total, 37.5% to the company Wintershall and the remaining 25% to Pan American Sur S.A. and produce 30% of the gas consumed in the country. Furthermore, there is a platform called "Argo" that has already stopped working. These platforms mostly extract gas, only one extracts oil.

Months before the 2001 crisis, the company Total, along with its partners Pan American Energy and Wintershall, announced the development of the Carina and Aries project, two gas fields off the coast of Tierra del Fuego. Three months later the convertibility exit occurred. The project was launched in 2005.[32]

In the Republic of Argentina, in May 2019, permits were granted for the exploration and exploitation of hydrocarbons at sea through Resolution 276/19[33] of the Energy Government Secretariat, without previously conducting public hearings or consultations, nor the EIAs required by the LGA, and MSP in the country was not initiated either (Photographs 1, 2, 3, 4, 5, 6, 7, and 8).

3.1 Is the Navigation Law (LN) Applicable to Marine Platforms?

Cappagli (2011) wonders if the LN is applicable to marine platforms and their activities. The scope of the law are the legal relationships originated in water navigation, as it emerges from its art. 1:

[32] http://www.lanacion.com.ar/1981740-reactivan-la-busqueda-de-petroleo-Y--gas-in-the-argentine-sea [Last visited: August 2017].

[33] Argentina. Resolution 276/19, Ministry of Finance, Energy Government Secretariat. Official Bulletin, 17/5/2019.

Photograph 1 Onboard view from the Atlantic Ocean, exiting through the Strait of Magellan, of a first line of fixed platforms in Chile

> All legal relationships originated in water navigation are governed by the norms of this law, by the complementary laws and regulations, and by customs and practices. In the absence of navigation law provisions and as far as analogy cannot be resorted to, common law will be applied.

Art. 2 NL defines the ship and the naval artifact:

> A ship is any floating construction intended to navigate by water. A naval artifact is any other floating construction auxiliary to navigation, but not intended for it, although it can move on the water in short stretches for the fulfillment of its specific purposes.

Cappagli (2011) asserts that marine platforms are not naval artifacts because, although they are floating—this is the case of mobile platforms—, they are not auxiliary to navigation. Chami (2010, p. 114) considers that the definition of a ship in the aforementioned article does not include them: "… however, when they navigate, even propelled by external motor

Photograph 2 View from the ship's radar that performs the supply to this first line of platforms, it is the navigable route for about 3000 ships that transit the strait

force, they can be assimilated to ships for the purpose of applying certain rules by analogy, such as collisions, assistance and salvage, towing, etc.".

González Lebrero (2000, cited by Cappagli, 2016, p. 113) states that fixed platforms cannot be considered ships and that mobile ones "should be considered ships only while they move from one place to another, but not when they are operating at a fixed point". I agree with Ray (1992, cited by Cappagli, 2016, pp. 50–51) when he states that this issue "must be approached concretely, that is, from a functional point of view and applicable norms, because the unit in question cannot be considered a ship with respect to one purpose but not all".

The CSJN, in a case where the obligation to pay a union contribution was being discussed, when Argentine workers hired in Argentina

Photograph 3 View of another line of fixed platforms from the Atlantic Ocean, exiting through the Strait of Magellan, from the maximum distance a ship can approach. (*Source* Confidential. Given in 2017, in Buenos Aires)

were working on a floating platform operating in waters under Argentine jurisdiction, has stated that:

> the mobile platform (…) cannot be classified as a "ship" in the terms of art. 2º of law 20.094, since although it can move through water - and in fact, being mobile, it has arrived and has been installed twice in Argentine jurisdictional waters- it is not intended to navigate. Nor is it a naval artifact in the sense of the cited norm, as it is not auxiliary to navigation.[34]

[34] "Federación Argentina Sindical del Petróleo y Gas privados y otro v. Total Austral S.A. y otro", (2002 CSJN, Fallos: 325:586).

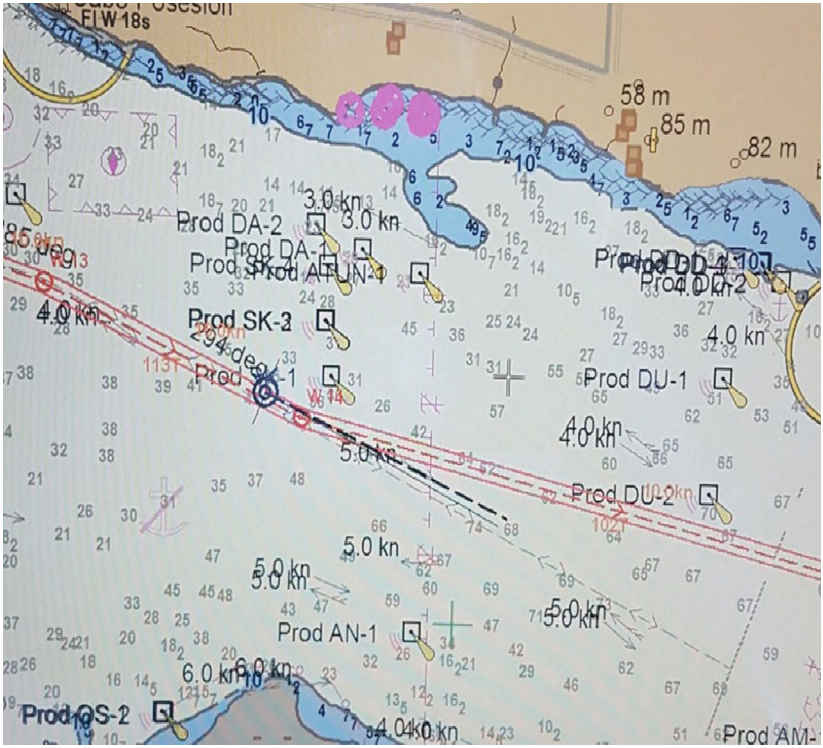
Photograph 3 (continued)

Marine platforms could be classified as naval artifacts. It is true that they are not intended to assist navigation, although it is likely that Malvagni, author of the LN that was approved in 1973, did not have marine platforms in mind at that time, since the technology had not yet been developed. In this sense, Chami (2010) states that the case of platforms falls within the "new trends" in the field of navigation law, because they are product of technical advancement in the exploration and exploitation of hydrocarbons and because they lacked and still lack comprehensive legal regulation. The truth is that perhaps the oldest use of the marine space was navigation, but now more and more activities are developed at sea, so it is necessary to develop a law of comprehensive sea management, as we have seen has been done in certain countries (for example, Canada).

Cappagli (2016) asserts that, although in the past he has expressed a different opinion, a new analysis of the issue led him to the conclusion

Photograph 4 View of the second line of platforms on the radar (*Source* Confidential. Given in 2017, in Buenos Aires)

that under art. 2 of the Argentine LN, floating platforms are ships. The idea that rejects that platforms are ships is based—as the CSJN has done in the cited ruling—on the fact that floating or mobile platforms, are not intended to navigate. Cappagli (2016, p. 152) argues that destination is confused with purpose. The purpose or end of the marine platforms is to explore or exploit the resources of the seabed or subsoil of the sea in different places and, to carry out this purpose, they need to navigate, move in the water. Ships navigate, some little, others a lot—for example, pleasure boats navigate little, some navigate only on weekends, although most spend long seasons at their moorings. However, they have not ceased to be ships according to art. 2 LN:



Photograph 5 View on the electronic chart (*Source* Confidential. Given in 2017, in Buenos Aires)

Ships, in the sense of article 2 of the Navigation Law, fulfill their destiny to navigate, to move through water, little or much, with certain purposes: merchant ships, to transport people or things from one place to another, cargo ships, specifically to transport things and passenger ships, to transport people; bulk carriers, to transport dry bulk loads; tank ships, to transport liquid bulk loads; training ships, to train sailors; tugboats, to transport ships without their own propulsion or to assist in the maneuver of larger ships; racing yachts, to run speed races in the slowest vehicle in the world; pleasure boats, navigate with recreational purposes. It is clear that ships navigate with some purpose. The purpose of the navigation of floating or mobile platforms is to move (or be moved) to position themselves in the places where they will carry out an exploration or exploitation.

Photograph 6 Position of three fixed platforms of ENAP Sipetrol (*Source* Confidential. Given in 2017, in Buenos Aires)

What is the importance of knowing whether marine platforms are ships? If they are ships, the rules of LN will apply to them. In this regard, Cappagli (2016, p. 153) states:

> under Argentine law, these platforms are subject to the regimes of ships, such as those related to construction contracts, ownership, shipowner, limitation of liability, assistance and salvage, insurance and privileges and mortgages.

Regarding ownership, platforms have been registered in the National Ship Registry. Their economic value, whether mobile or fixed, and the fact

Photograph 7 View from the coast of Río Gallegos of the Argentine platform (*Source* Mg. Sofía Villanueva)

that they do not access a property, makes it reasonable for them to be registrable, like ships, which allows for the establishment of mortgages. It is also reasonable to admit the privileges that affect traditional ships. To support his position, Cappagli (2016) explains that platforms, particularly mobile ones, but not only them, find themselves in situations like those of traditional ships. Usually, whether mobile or fixed, they are far from the coast, like traditional ships, and there is a community of people who must be subject to some legal order and some authority. These conditions justify assigning them nationality, so that a specific legal system applies to them and also justifies that there is a subject, like the captain of traditional ships, who is a delegate of the public authority of the respective State.

The fact of being subject to maritime risks justifies the application of the rules on collisions, particularly when they move, Cappagli (2016)

Photograph 8 View from the coast of Río Gallegos of the Chilean platforms (*Source* Mg. Sofía Villanueva)

argues, and also justifies the application of the rules on salvage and the rules of maritime insurance. In addition, he considers it is reasonable to apply to marine platforms the rules applicable to the generality of ships, without prejudice to the exceptions resulting from international conventions. For example, CLC 69/PROT 92 is not applicable.

In this regard, regarding the environmental issue, which is the subject of this book, the LN provisions would not be applicable to marine platforms. Cappagli (2016) agrees that art. 175, first paragraph LN which establishes the limitation of liability of the shipowner and carrier to the value of the ship at the end of the trip—which could well be null since after the accident, a ship may be left without any value—plus the freights,

the tickets received or to be received and the credits that have arisen, would not be considered an applicable article, since the legislator has not had in mind the marine platforms when establishing this limitation, due to the fact that the activity of the platforms can generate leaks of unpredictable volumes and much larger than those that can generate the largest oil tankers. Art. 178 LN establishes the credits excluded from the limitation of liability, among which is not the contamination of the marine environment. Furthermore, in the case of environmental damage of collective incidence, these LN provisions oppose the regime of integral responsibility, which has already been studied that LGA enshrines, which is a law of public order, subsequent to LN, and which therefore will prevail over its provisions.

The liability regimes were established considering the damage that can reasonably be caused by or with traditional ships. Cappagli (2016) adds that, from an oil tanker, even from a huge oil tanker (a VLCC), only the hydrocarbon it transports and its fuel can be spilled. When tonnage is the factor to be taken into account to set the liability limitation, there is a reasonable relationship between the size of the ship and the amount of the limitation, while the magnitude of the spill that can generate an accident derived from the operation of a platform does not necessarily relate to its size, so that the limits resulting from the system CLC/FUND can yield figures with no relation whatsoever to the damage resulting from the enormous volume of the spill. Cappagli (2016) concludes that the solution of LN arts. 175 and subsequent, a solution that is already criticized as regards traditional ships, can simply be scandalous in the face of the damage that can result from the activity of a platform, even in the event of an accident that does not cause its total loss. Regarding the criticism of liability limitation, Aguirre Ramírez and Fresnedo de Aguirre (2002, cited by Javurek, 2009, p. 127) label it as "irritating, which attacks the integrity of the person, against the right of property, against the right to legal equality and against the principle of justice itself". On the other hand, in this line of thought, art. 15.5b) of the 1976 London Convention on limitation of shipowners' liability—of which Argentina is not a State party—expressly excludes from its scope of application marine platforms.

Cappagli (2016) concludes that, according to art. 2 LN, mobile marine platforms are ships and the rules of Argentine law applicable to traditional ships apply to them, except (a) express provision to the contrary, or (b) that the application to platforms of certain rules is contrary their purpose (arts. 1 and 2 of the CCCN), or that their invocation constitutes

an abusive exercise of rights (art. 10, second paragraph of the CCCN). In the same sense, Javurek (2009) wonders if the limited liability of the carrier of goods by water is a protected risky activity or constitutes an abuse of right.

Maritime law is not applicable to the liability regime of the oil owner, which is governed by civil law. This was decided by Argentine courts in the case of the Perito Moreno ship, when the petroleum gases on board exploded and the explosion caused damage to third parties. The owner and shipowner of the ship and the owner of the oil were the same legal person. Argentine courts decided that the responsibility of such a company, as the owner of the oil whose gases exploded, should not be judged by applying navigation law rules.[35] However, it is a case decided prior to the constitutional amendment. If this case were to be dealt with in court today, collective environmental damage should be governed by the LGA.

Now, with respect to the collision institute, it is worth clarifying that, in the case of the process of reparation for environmental damage, the collision trial does not attract jurisdiction according to art. 552 LN. The case of the municipality of Magdalena against the Shell company was a collision between a Shell company ship and another ship, on January 15, 1999. As a result of the collision, an oil spill occurred that extended to the coasts of the Magdalena party in Buenos Aires province. The municipality sued the shipowners of the two ships that collided for reparation of environmental damage in a Federal Court in La Plata, whose lawyers claimed the application of art. 552 of the LN, which provides that the sentence in the collision trial makes *res judicata* against all those interested in the fact. In this way, they tried to have the claim for reparation for environmental damage substantiated in the forum of the collision trial, in the federal jurisdiction of the Autonomous City of Buenos Aires.

The La Plata Federal Court of Appeals Room II,[36] in the judgment of July 20, 2001, held that it would constitute a reductionist simplification the application of art. 552 LN to determine the judicial body that should examine and decide on environmental damage, its reparation and its possible compensation. It was clarified that, notwithstanding the civil,

[35] Caso del buque Perito Moreno. Cámara Civil y Comercial Federal, Sala II. YPF s/ incidente Shell Cía. Arg. De Petróleo SA, 16/12/1993, causa 1402/1993.

[36] Cám. Fed. Apel. La Plata, Sala II, "Municipalidad de Magdalena contra Shell C.A.P.S.A., Schiffahrts, Boston Compañía de Seguros S.A. en garantía", 20/07/2011.

commercial, criminal, mining or labor regulation concerning a certain activity, if it causes environmental damage, the relative consequence would be subject to the rules pertaining to environmental protection, beyond the scope of these particular rights.

Likewise, the Chamber clarified that the points that define the axis of the constitutional framework of the right to a healthy environment do not tolerate, without forcing constitutional norms, being subjected to the fate of an incident in a trial whose impulse depends on the main parties involved in it and who are not, precisely, the party affected by the environmental damage. In the same vein, the Federal Court of Appeals held that as regards environmental matters the public order right to appear before the natural judge of the damaged community prevails, over the essentially private and exceptional right to extend the jurisdiction of those who originated the damage (arts. 18 and 41 CN). The Chamber added that art. 552 LN marks the antipode of the speed and simplicity required by environmental law.

Likewise, Pigretti and Cafferatta (2002) argue that the reparation of environmental damage should be processed before the jurisdiction of the judge of the place of the event, to respect the "territorial principle of competence", since the production of evidence takes place where the events occurred. Moreover, since the collective right, related to the reparation of the environment, exceeds the limited framework of the interest of two parties to the litigation, that is, the classic individual subjective right.

3.2 Maritime Law Regulations on Marine Platforms

Regarding the norms of Argentine maritime law that specifically refer to marine platforms, the maritime ordinances issued by the PNA constitute one of the regulations mentioned in art. 1 LN (Cappagli, 2016).

The PNA has issued regulations applicable to platforms on aspects related to navigation safety, technical aspects, staffing and the preservation of the marine environment. Among the functions that Law 18.398[37] assigns to the PNA, the exercise of navigation security police stands out (art. 5a), which includes matters related to the safety of platforms that are at sea devoted to the exploration and exploitation of hydrocarbons, to

[37] Argentina. Law 18.398, *Argentine Naval Prefecture. Mission and Functions*. Official Bulletin, 10/28/1969.

the nautical suitability of those who operate them and to ensure that such platforms do not endanger navigation. Art. 5, inc. a, subinc. 23 establishes that it is the function of the institution: "To understand matters related to the norms adopted to prevent the contamination of river, lake and sea waters by hydrocarbons or other harmful or dangerous substances, and to verify their compliance".

Regarding technical aspects, the regulations issued by the PNA on the safety of mobile drilling units (Maritime Ordinance N° 07/05 DPSN) demand compliance with the Code for the Construction and Equipment of Mobile Offshore Drilling Units (Drilling Units Code, 1989 or MODU Code, 1989), developed by the IMO, and the Guidelines for Ships Equipped with Dynamic Positioning Systems, from the same organization. In addition, PNA has issued complementary regulations to the aforementioned IMO Code related to heliports or helipads and their operations (Maritime Ordinance No. 02/93 DPSN).[38]

Regarding the preservation of the marine environment, the rules of operational safety management of the ship and prevention of pollution also apply to mobile drilling units (Maritime Ordinance No. 11/97 DPSN).[39] The national contingency plan (PLAN-CON), as mandated by decree 962/98,[40] also includes marine platforms (Maritime Ordinance No. 08/98 DPAM and its annex) and provisions on floating barriers during operations (Maritime Ordinance No. 02/14 DPAM).[41]

The REGINAVE (Regime of Maritime, River and Lake Navigation) constitutes a set of regulatory norms derived from laws and decrees in force on navigation intended to provide the safety of people and merchant ships. Title IV of the REGINAVE, "Various Regulations", dedicates the entire chapter XI to water pollution, while in chapter VIII, on safety standards for tankers dedicated to the transport of liquid fuels, there

[38] Argentina. Ordinance No. 02/93 (DPSN) VOLUME 2 PNA. *Rules for the approval and registration of heliports and helipads on ships and naval devices and registration of owners and operators of helicopters*, 1993.

[39] Argentina. Ordinance No. 11/97 (DPSN) VOLUME 2 PNA. *Rules of Operational Safety Management of the Ship and Prevention of Pollution,* 01/06/1998.

[40] Argentina. Decree 962/98, *Hydrocarbons. National System of fight against pollution.* Official Bulletin, 08/20/1998.

[41] Argentina. Ordinance No. 02/14 (DPAM) VOLUME 6 PNA. *Floating Barriers during the loading or unloading of Persistent Hydrocarbons, of mineral or organic origin, in ports, terminals, platforms and monobuoys*, 02/26/2014.

are several precepts related to environmental care. Title VIII, added in 1983, is entirely dedicated to the prevention of pollution from ships. Also, the scope of the PNA's competence in the matter is regulated in the REGINAVE Decree 4516/73, title VIII: chapter I, Sect. 6 and chapter V.

The PNA is the implementing authority for many of the provisions of SOLAS 1974 and MARPOL 73/78, whose application to marine platforms was studied in chapter V. The Prefecture has regulated the activity of exploration and exploitation of oil and gas at sea within the framework of its functions. The regulations on this matter are listed below:

- Ordinance No. 01/14 (DPAM) VOLUME 6: regulates the dumping of waste and other materials in waters of national jurisdiction.
- Ordinance No. 02/12 (DPAM) VOLUME 6: contains regulations to prevent atmospheric pollution from ships.
- Ordinance No. 07/05 (DPSN) VOLUME 1: contains safety regulations for mobile drilling units and support or supply ships at sea.
- Ordinance No. 01/03 (DPAM) VOLUME 6: approves incinerators for waste from normal ship operations.
- Ordinance No. 05/99 (DPAM) VOLUME 6: controls companies providing services to third parties, dedicated to spill control.
- Ordinance No. 15/98 (DPAM) VOLUME 6: regulates the prevention of water pollution by hydrocarbons from engine rooms, in ships and platforms of gross tonnage less than 400 units.
- Ordinance No. 12/98 (DPAM) VOLUME 6: designates special protection zones on the Argentine coast.
- Ordinance No. 08/98 (DPAM) VOLUME 6: creates the National System of Preparation and Fight Against Pollution by Hydrocarbons and Other Harmful and Potentially Dangerous Substances (National Contingency Plan-PLANACON).
- Ordinance No. 02/98 (DPAM) VOLUME 6 and Annex 21 of the Ordinance No. 08/98 (DPAM) VOLUME 6: manages the emergency and waste management plans on board ships and "offshore" platforms for their subsequent inspection.
- Ordinance No. 02/93 (DPSN) VOLUME 2: regulates the authorization and registration of heliports and helipads on ships and naval artifacts, and the registration of owners and operators of helicopters.

- Ordinance No. 01/93 (DPAM) VOLUME 6: includes checklists for pollution prevention in loading and unloading operations of bulk hydrocarbons or harmful liquid substances in ports, terminals, platforms or monobuoys.
- Ordinance No. 02/88 (DPAM) VOLUME 6: regulates safety for navigation in waters of national jurisdiction where there are "offshore" installations. Platforms, artificial islands, installations or "offshore" structures shall have authorization for the location at their workplace, and their movements shall be carried out under the conditions and with the safety requirements established in each case.
- Ordinance No. 08/87 (DPAM) VOLUME 6: regulates the prevention of pollution, the rules relating to scraping operations or application of antifouling paints on ships, naval artifacts, "offshore" exploitation platforms or other fixed or floating constructions, in waters of national jurisdiction.
- Ordinance No. 06/80 (DPAM) VOLUME 6: regulates the prevention of pollution, dumping of waste and other materials.

In addition, art. 2 Law 22.190/80[42] on the regime of prevention and surveillance of water pollution or other elements of the environment by polluting agents from ships and naval artifacts establishes the prohibition for ships and naval artifacts to discharge hydrocarbons and their mixtures outside the regime authorized by the regulations. In addition, it prohibits them from incurring any action or omission not contemplated by the regulations, capable to pollute waters of national jurisdiction. The prohibition extends to national flag vessels on the high seas. Capaldo (2009) considers that the environmental effectiveness of this law lies in the fact that the responsible vessel, regardless of whether it is required to pay the fine imposed by PNA, must cover the costs incurred by the cleaning tasks. Article 14 establishes a regime of strict and joint liability, between the owner and the shipowner of the vessel or naval device that caused the pollution, for the payment of the cleaning costs of the waters or any other service that the Argentine authorities had to perform as a result of the damaging event.

[42] Argentina. Law 22.190, *Regime of Prevention and Surveillance of Water Pollution*. Official Bulletin, 18/3/1980.

Decree 1886/83[43] regulates Law 22.190 and introduces title VIII, which has already been mentioned, in the REGINAVE. This regulation deals with the prevention of pollution from ships and contains rules like those established by MARPOL 73/78 and CL 1972, which were studied in chapter V. Title VIII comprises three chapters aimed at preventing water pollution by hydrocarbons, by dirty water and by garbage; a chapter on prevention of air pollution by smoke and soot; and another chapter dedicated to the dumping of waste and other materials.

Decree 962/98[44] regulates the 1990 OPRC Convention and creates the system of national preparation and fight against coastal, marine, river and lake pollution, due to hydrocarbons and other harmful and potentially dangerous substances. PNA is the authority responsible for the implementation of the Convention, as in almost 100% of the rules related to environmental damage caused by maritime and river activity.

Art. 4, second paragraph, establishes that the "offshore" units [sic] in operations of exploration or exploitation of hydrocarbons that produce discharges, in addition to what is already established in the Regime of the Maritime, River and Lake Navigation (REGINAVE) in terms of their behavior as ships are regulated by Law 22.190. Arts. 6 (water cleaning), 14 (responsibility for the payment of cleaning costs), 15 (executive nature of the invoices issued) and 16 (provision of bond for cleaning costs) are applicable.

[43] Argentina. Decree 1886/83. *Regime of maritime, river and lake navigation. Regulation. Approval.* Official Bulletin, 11/08/1983.

[44] Ibid., note 198.

4 Environmental Regulation of Hydrocarbon Activity

Law 17.319[45] lacks environmental regulation. However, very vague environmental references can be found in items c and e art. 69,[46] although they do not constitute specific obligations of an environmental nature, but rather, more than an environmental motivation, they had an economic motivation: the profitable exploitation of the deposit, without production losses (Siano and Parravicini, 2015). The *Instituto Argentino del Petróleo* presented in 1991 the "Guide of recommendations to protect the environment during the development of the exploration and exploitation of hydrocarbons", which governed the environmental impacts of the upstream phase. This document, with almost no modifications, was included in the Resolution of the Energy Secretariat (S/E) 105/92,[47] that regulates the aforementioned art. 69 (Siano and Parravicini, 2015).

The rules that regulate the upstream stage are different from those that regulate the midstream and downstream stages. Also the ecosystem sectors where the stages are developed and the actors are different, as well as products and by-products. The rules on the stage of exploration and exploitation of hydrocarbons on land contain various technicalities and have been developed by technical public bodies and are basically repeated in all jurisdictions (Siano and Parravicini, 2015). The hydrocarbon environmental rules, in other words, those that regulate the three stages mentioned, emerged in the 1990s after the "liberalization of the Argentine economy", as a response to the social demand for environmental care and the need to have clear rules for international companies to invest in the country (Siano and Parravicini, 2015). The authority to apply

[45] Ibid., note 164.

[46] Art. 69: "The obligations of permit holders and concessionaires, without prejudice to those established in Title II, are: c) To avoid any waste of hydrocarbons; if the loss is due to fault or negligence, the permit holder or concessionaire will be liable for the damage caused to the State or to third parties. e) To adopt the necessary measures to avoid or reduce damage to agricultural activities, fishing and communications, as well as to the water layers that are found during drilling".

[47] Argentina. Resolution SE 105/92, *Approval of the rules and procedures to protect the environment during the stage of exploration and exploitation of hydrocarbons.* Official Bulletin, 11/11/1992.

Law 17.319, according to Decree 432/82,[48] is the Energy Secretariat (currently, Ministry of Energy and Mining).

Regarding the exploration and exploitation of hydrocarbons on land, the presidential decree 33598/1933 that approved the "Regulation for Explorations and Exploitations of Oil Fields" is a precedent that regulates environmental aspects (Siano and Parravicini, 2015). Although the decree focuses primarily on the protection of the hydrocarbon resource and on technical and safety issues (for example, drilling and abandonment of wells), it also sought the protection of certain environmental goods. An example is groundwater, as it ordered concessionaires to isolate all potable water layers to prevent them from being contaminated by petroleum gases, or by non-potable waters (art. 15). Another example is the air resource, as it prohibited concessionaires from freely releasing gases into the atmosphere once a gas formation was manifested (art. 46) (Siano and Parravicini, 2015).

Another precedent for environmental protection is Resolution 475/87[49] issued by the then Energy Secretariat, where it ordered all bodies responsible for the works included in the National Energy Plan 1986–2000 and to the companies in the sector:

> to present to the Undersecretary of Energy Planning the environmental impact assessment of the different alternatives proposed in the energy projects and the environmental studies carried out at all stages (…) as well as the environmental surveillance and monitoring program during the useful life of the work. (art. 1)

The deregulation of the hydrocarbon activity, as already mentioned, was imposed by decrees 1055/89,[50] 1212/89[51] and 1589/89.[52] None of the deregulatory norms contained environmental provisions, only decree 1212/89 superficially regulated the responsibility for safety in the sale of fuels at service stations.

[48] Argentina. Decree 432/82. *It is determined that the Energy Secretariat will be the authority to apply the current laws on electricity and hydrocarbons*. Official Bulletin, 27/08/1982.

[49] Argentina. Resolution SE 475/87, 04/09/1987. Not published in Official Bulletin.

[50] Ibid., note 164.

[51] Ibid., note 166.

[52] Ibid., note 167.

Secretary of Commerce Resolution 29/91[53] required the hydrocarbon-producing provinces to participate in the technical operational control of hydrocarbon activity, including, among others, environmental aspects. Participation was implemented through the Agreement for the Technical Operational Control of Hydrocarbon Production, annexed to such resolution. Many of the hydrocarbon-producing provinces[54] subscribed to the agreement which tacitly implied the recognition of the application of the federal regulations and the character of the implementing authority of the Energy Secretariat, to which the participating provinces sent a monthly report of their activities (Siano and Parravicini, 2015).

5 Environmental Regulation of Exploration and Exploitation of Hydrocarbons at Sea

With reference to the situation in Argentine Republic, Berros (2015, p. 190) concludes:

> It is not easy to elucidate and reconstruct the normative and institutional system that deals with the exploration of the seabed. In fact, it seems to be a non-central issue in the legal field but that can be scrutinized from the articulation between different existing regulations that, more or less explicitly, is feasible to relate to the issue of the exploration of the seabed.

With regard to the environmental regulation of the exploration and exploitation of hydrocarbons at sea, Resolution SE 105/92 is applicable, as it assigns to the Secretariat the function of control and compliance with the environment conservation during operations, both in continental areas and on the maritime platform of the entire territory of Argentine Republic.

Likewise, the resolution is applicable to concessionaire companies, permit holders and operators and provides both the obligation to present to the Energy Secretariat prior environmental assessment studies (EAP)

[53] Argentina. Resolution SC 29/91, *Require the participation of the Provinces in which oil activities are carried out, to carry out the technical-operational control of the production of oil and natural gas in accordance with the provisions of Law No. 17.319*. 21/08/1991.

[54] Chubut by Law 3705 (today Law IX-N° 26), La Pampa by Law 1441, Santa Cruz by Law 2285.

for the exploration and exploitation stages, as well as the monitoring of works and tasks (MOT). It also establishes guidelines and good environmental practices, for example in relation to:

i. protection measures for water supply sources for the development of exploration tasks,
ii. management of equipment and engine waste during operation, and
iii. methods of confinement of production water, among other topics. Similarly, Resolution SE 25/04, which regulates Resolution 105/92, establishes the requirements for the submission of environmental studies corresponding to exploration permits and hydrocarbon exploitation concessions. However, the term "environmental study" is used. It is a vague term, it does not coincide with the term "environmental impact study" employed in the LGA. Siano and Parravicini (2015) state that this resolution introduces novel aspects, such as the obligations to characterize in the EIA the relevant socioeconomic aspects in areas close to the projects and to consider the presence of indigenous communities in these areas of influence (point 3.B.12).

The activities that Resolution SE 25/04 includes are subject to the environmental study—and the deadlines for presenting these studies—are:

i. drilling of exploratory wells (deadline: twenty days before any work begins);
ii. seismic prospecting (deadline: thirty days before any work begins);
iii. construction of facilities (deadline: thirty days before any work begins); and
iv. abandonment of facilities (deadline: within the annual monitoring report corresponding to the period in which it is carried out). The holders of exploitation concessions must annually present environmental monitoring reports (deadline: by August 31 of each year for the Cuyana, Northwest and Neuquén basins, and by February 28 of each year for the basins of the Gulf of San Jorge and Austral), except for inactive areas, in which case the obligation will be with a frequency of one year and a half.

Contingency Plans and Environmental Incidents

Resolution SE 342/93[55] complements Resolution SE 252/93,[56] which approves the structure of contingency plans and establishes the obligation to report environmental incidents. According to Resolution SE 342/93, oil companies are obliged to report any incident that could affect natural resources within twenty-four hours of its occurrence. Through Resolution SE 24/04,[57] which modifies Resolution SE 342/93, the then Secretary of Energy established two categories of incidents: major incidents and minor incidents. Regarding major incidents, they must be reported within 24 hours of their occurrence and the responsible company must submit a final incident report to the Subsecretariat of Fuel, within thirty days of the completion of control tasks. Regarding minor incidents or those of minimal impact, they must be documented and registered by the operating company. As a lesson learnt from the report of the Commission that investigated the accident of the Deepwater Horizon platform, it can be concluded that in the case of minor incidents, the same report that is requested in the case of major incidents should also be presented to the Undersecretary of Fuel, as these are indicators of the possibility of a major accident occurring.

Gas Venting

Within the framework of the commitment assumed by the country against the fight against climate change, Resolution SE 236/93[58] and SE 143/98[59] establish prohibitions and restrictions on gas venting. The possibility of requesting exceptions to the maximum semi-annual venting limits is recognized.

[55] Argentina. Resolution SE 342/93, *"Contingency Plan Structure"* is approved. Official Bulletin, 1/11/1993.

[56] Resolution SE 252/93, *Guides and recommendations for the execution of Environmental Studies and Monitoring of Works and Tasks required by Resolution No. 105/92* are approved. Official Bulletin, 10/09/1993.

[57] Argentina. Resolution SE 24/04, *Operating companies of hydrocarbon exploration and/or exploitation areas. Classification of environmental incidents. Standards for the presentation of environmental incident reports*. Official Bulletin, 14/01/2004.

[58] Argentina. Resolution SE 236/93, *Hydrocarbons. Natural gas venting*. Official Bulletin, 09/02/1993.

[59] Argentina. Resolution SE 143/98, *Natural gas. Modification of Res. No. 236/96*. Official Bulletin, 04/23/1998.

In 2011, Law 26.659[60] was enacted, which establishes the conditions for the exploration and exploitation of hydrocarbons on the continental shelf. The law prohibits the conduct of exploration activities on the platform without having the appropriate authorization under penalty of disqualification for a period of between five and twenty years, and it is established that the implementing authority is the Secretary of Energy.

5.1 Environmental Standards of the Midstream *Stage*

Resolution SE 1460/06[61] approves the Technical Regulation for the Transportation of Liquid Hydrocarbons by Pipelines, which will apply to oil pipelines, polyducts, maritime terminals and complementary facilities, for which a concession has been granted under the terms of Law 17.319 and Decree 44/91. The resolution establishes technical requirements that must be met by the owners of the hydrocarbon transport facilities. For example, it contains minimum safety requirements for the design, construction, assembly, inspection, operation, maintenance and integrity of liquid hydrocarbon transport systems. The technical regulation provides for the mandatory application of the ASME B.31.4 Code (*American Society of Mechanical Engineers*, in English), 2002 edition. The resolution applies only to maritime terminals that are located in ports, not to marine platforms, so a special regime must also be developed.

Chapter IX refers to "offshore" transport systems [sic]. Now, the *midstream* stage is regulated, but the *upstream* stage is not regulated; therefore, exploration and exploitation, the work of the platforms themselves. Resolution 1460/06 was amended by Secretary of Energy Resolution SE 951/15215, which in its Annex I contains the technical regulations for the transport of liquid and gaseous hydrocarbons by submarine pipelines (RTDS). The international standard DNV-OF-F101 *Submarine Pipeline Systems*, August 2012 edition, issued by *Det Norske Veritas*, has been adopted. Annex II of Resolution SE 951/15 contains the so-called "Environmental Protection Standards applicable to submarine pipelines transporting liquid and gaseous hydrocarbons" (see Annex

[60] Argentina. Law 26.659, Establish *conditions for the exploration and exploitation of hydrocarbons on the Argentine Continental Shelf*. Official Bulletin, 04/13/2011.

[61] Argentina. Resolution SE 1460/06, *Hydrocarbons. Technical transport regulation. Approval*. Official Bulletin, 26/10/2006.

V). It is a comprehensive document that may be useful as a basis for the development of the basic environmental requirements for the *midstream* stage.

5.2 Annex II Resolution SE 951/2015: A Precedent for Environmental Regulation of Exploration and Exploitation of Hydrocarbons in the Sea

In art. I of Annex II to Resolution SE 951/15,[62] a general declaration is made that "the activities carried out by the 'offshore' industry on the continental shelf must be carried out in an environmentally responsible, open and transparent manner". In addition, it adopts the principle of precaution, as it is established that "the absence of absolute scientific certainty should not be used as a reason to postpone measures that prevent environmental degradation".

It is stated in the Annex that environmental assessment requires data and environmental information. Again, there is terminological confusion, as the expression "environmental impact assessment" is not adopted. It is contemplated that, when environmental data and information are scarce, and the baseline for conducting the environmental assessment is complex, the industry and the agencies governmental bodies must identify, classify and make available the existing environmental information that is relevant to the area under study. It is also stated that the collection of this information will generate a "broad database" on which to make decisions (art. I.b.).

The use of the Environmental Sensitivity Atlas of the Argentine Coast and Sea, developed by the Project for the Prevention of Coastal Pollution, which was carried out by the United Nations Development Programme (UNDP) and the then Secretariat of Environment and Sustainable Development (currently Ministry of Environment and Sustainable Development) (art. I.b), is recommended as a source of information.

Therefore, operators are required to carry out the environmental assessment and develop strategies, procedures and practices for the management or mitigation of the specific impacts of their activities. In addition, it is established that the environmental assessment must consider:

[62] Argentina. Resolution SE 951/15, *Technical regulations for the transport of liquid and gaseous hydrocarbons by submarine pipelines*. Official Bulletin, 4/11/2015.

i. The scope of the activity, including the direct and indirect area, duration and intensity.
ii. The cumulative impacts of the activity, both by itself and in combination with other activities in the marine environment.
iii. The availability of technology and appropriate procedures for conducting environmentally safe operations.
iv. The ability to respond promptly and effectively to incidents, particularly those with potentially significant environmental effects and adverse effects (art I.c.).

It is established that operators must prepare an "environmental management plan", which will record all information, environmental and operational management procedures, methodologies, and contingency plans. Therefore, practices or procedures that could cause potential environmental problems must be identified, in order to implement tools or procedures that allow managing, controlling, and mitigating possible adverse effects (art. I.d.). Regarding the role of the industry, the Commission (2011) that investigated the Deepwater Horizon platform accident in the Gulf of Mexico stated that operators must commit to regular and effective self-monitoring of activities.

In turn, operators are obliged to provide adequate training in environmental protection for their employees and contractors (art. I.f.). Moreover, criteria for the location of pipelines are established, which could also be applicable as criteria for the location of marine platforms. Thus, among the environmental factors to be considered, archaeological and paleontological sites, protected areas, environmentally sensitive areas—even when they do not have formal protection status-, marine currents, characteristics of the seabed, seismic activity, and marine flora and fauna are listed. Socioeconomic activities such as maritime routes and shipping, fishing activity, mining, military exercise areas, and recreational and tourist areas should be considered. Regarding commercial activities, it is stated that they are often compatible with hydrocarbon operations. It is established that fishing and tourism areas should generally be avoided, and that communication with area users can improve coordination between the parties (art. II).

Regarding socioeconomic and cultural matters, it is stated that these activities can affect different aspects of the human condition, so they must be managed with an effective community relations plan, "starting from a clear identification of the issues, public consultation, and local support

for development" (art. III.i). It can be concluded that this regulation constitutes a precedent for MSP in Argentine Republic.

In areas where there is evidence of increased geological activity (for example seismic or erosive), geological studies must be carried out. It is also ordered to determine the geotechnical properties of the seabed deposits.

The annex contains a third section, dedicated to the content of environmental studies. The geological, atmospheric, marine, coastal, and biological environments are distinguished, and it is established that the description of the baseline of an environmental study shall consider the characteristics of these environments.

In relation to air quality, it is considered that emissions and vibrations can disturb fauna and humans and that adequately designed, maintained, and operated equipment is required to reduce these effects (art. III.f). On the other hand, regarding the interaction with marine fauna and flora, it is established that the times of the year when marine fauna is more sensitive to external influences, especially during migration, mating, spawning, and birthing seasons, shall be considered (art.III.j).

Section IV describes the content of the contingency plan (PC) for oil spills. It is established that the approach to environmental contingency planning and measures should consider the types of environmental emergencies, the general organization of emergency response, the chain of command, and key areas of responsibility, the interface between the proponent's plans and those of the government and other operators, staff training, staff requirements, plans for recovery, storage, and disposal of recovered contaminants and waste.

In previous environmental studies, the necessary information must be provided to evaluate project alternatives in such a way as to be able to compare routes and their associated impacts, in order to select the one that causes the least impact on the environment. Similarly, it is established that an environmental study of construction-startup (EACP) and contingency plan (PC) (art. VI.a) must be submitted.

During the operation and maintenance stage, an environmental audit of operation and maintenance (AAOM) is ordered, which will be presented annually along with the PC, at least 60 days in advance from the start of operation of the respective facilities. Subsequently, the PC will be presented every two years and every time a modification or update of it is made (art. VI.c.).

Regarding the environmental study for pipeline abandonment, the occurrence reports of contaminating incidents and the legal framework of the acting professionals, reference is made to the general provisions of annex to Regulation 123 of the Undersecretary of Fuels, dated August 30, 2006 (art. VI.f). The purpose of the regulation is to achieve adequate environmental management for each of the stages of the preliminary project, construction, operation, maintenance, decommissioning and abandonment of oil pipelines, polyducts, maritime terminals and other complementary installations. In this sense, the preparation and presentation of environmental monitoring reports (IMA), environmental studies (EA) and contingency plans (PC) for each of these stages is ordered.

6 Need for a Basic Environmental Requirements Law on Hydrocarbon Activity

Argentine Republic does not have a basic environmental requirement law that regulates the exploration and exploitation of hydrocarbons, whether on land, unconventionally or at sea. In this sense, the NGO *Fundación por el Ambiente y los Recursos Naturales* (FARN), in a statement called "Considerations on the environmental aspects of the new hydrocarbon law", issued after the promulgation of Law 27.007, in October 2014, argued that a basic requirements law for environmental protection on hydrocarbon activity is necessary.

However, it only referred to the exploitation of shale gas in *Vaca Muerta*, of unconventional hydrocarbons.[63] The statement omitted to mention the exploration and exploitation of hydrocarbons at sea, even though law 27.007refers to "offshore" exploration and exploitation [sic], so it should also be included in these environmental basic requirements law.

In this sense, Bellorio Clabot, Cavalli and Pigretti (2011, p. 44) argued that "the regulation of hydrocarbon activity in Argentina is disordered, confusing, complex, not transparent". In addition, they added: "it is also incomplete as there is no regulation of offshore exploration and exploitation activity [sic] and in deep waters, fundamentally in its environmental dimension, with the certain risks that this activity has for the environment".

[63] https://farn.org.ar/documentos/ [Last visited: October 2022].

Law 27.007 is the first law in Argentine history that regulates the exploration and exploitation of hydrocarbons at sea, but it does not contain environmental provisions. Only in the title reserved for "complementary and transitional provisions", it refers to the establishment of environmental legislation, in art. 23:

> The National State and the Provincial States, in accordance with the provisions of article 41 of the National Constitution, will aim at the establishment of a uniform environmental legislation, which will have as a priority objective to apply the best practices of environmental management to the tasks of exploration and/or transportation of hydrocarbons in order to achieve the development of the activity with adequate care for the environment.

Law 27.007 seems to have made a regression by issuing a mandate "to the National State and the provinces to aim at the establishment of a uniform environmental legislation", since the pretension of uniformity, understood as a floor, is implicit in the constitutional institute of basic environmental requirements. It is clear that the power to enact these laws corresponds to the National Congress, without the need to require "agreement" from other jurisdictions (Siano and Parravicini, 2015).

The basic environmental requirements that should regulate the exploration and exploitation of hydrocarbons cannot regulate too deeply the environmental aspects relating to the activity, therefore, the treatment of operational particularities to the degree of detail, so as not to lose its essence of basic requirements (Siano and Parravicini, 2015). In this sense, Tripelli (2015) recommends that the law be accompanied by an annex entitled "good environmental practices".

Siano and Parravicini (2015) propose considering the aforementioned Resolution SE 105/92 and certain local legislation, and argue that in addition, Resolution SE 951/15 should be considered. In the same sense, Tripelli (2015) also recommends considering Resolution SE 105/92 and the specific provincial standards for the environmental management of hydrocarbon activity, in addition to the standards of national organizations related to the activity.

The LGA, as an environmental framework law, fulfills the role of source of interpretation and application of specific legislation, in this case related to hydrocarbons, whether they are standards of any category: national,

provincial or municipal. Being a public order law, it prevails over any standard, even over any other basic requirement that opposes to its provisions (Tripelli, 2015).

The LGA contains a series of environmental principles intended to construe not only its own provisions, but also those of any other standard through which environmental policy is executed (principles of congruence, prevention, precaution, intergenerational equity, progressivity, responsibility, subsidiarity, sustainability, solidarity and cooperation). This interpretation can be called "integrative interpretation", since the function is to "integrate" environmentally standards from other areas of law, which legislate on the environmental issue prior to the LGA, so that they comply with the provisions in the environmental clause in the National Constitution.

Likewise, the LGA establishes as basic requirements the instruments of policy and environmental management, currently also mandatory to achieve adequate management of the environment in the face of exploration, exploitation or transport of hydrocarbons. These instruments are: environmental territory planning (OTA), EIA, the control system on the development of anthropic activities, environmental education, the system of diagnosis and environmental information, and the economic regime of promotion of sustainable development, also citizen participation, environmental insurance, the restoration fund and the environmental compensation fund. In other words, Argentine law already has basic tools for the environmental management of hydrocarbon activity (Tripelli, 2015).

The basic requirements law on the exploration and exploitation of hydrocarbons must be based on the principles enshrined in the LGA. The principles of prevention and precaution as regards this activity have special relevance, as one of its applications will be the determination of areas in the sea where exploration and exploitation will be prohibited or will be restricted, AMPs.

Therefore, the law on basic environmental requirements for the exploration and exploitation of hydrocarbons should include the best environmental management practices, in addition to other basic requirements specific to those already proposed by the LGA. Tripelli (2015) states that the law must be the result of federalism of concertation, the Nation, the provinces and various actors from the private hydrocarbon sector must participate. COFEMA, as well as other specialized organizations, such as the National Water and Environment Institute, the National Institute of Seismic Prevention and the Federal Hydrocarbon Council must play a

central role in the debate. It is also desirable that an Argentine federal marine organization exist, so as to participate.

This law should express under art. 1 that it establishes the basic requirements for the environmental management of hydrocarbon activity on land, sea and *shale*, in order to achieve its development with proper care for the environment. Likewise, the following are the basic requirements that the law should include:

a. Prior and mandatory environmental impact assessment (EIA) and strategic environmental assessment (SEA)

As provided by art. 11 LGA, these are the procedures to which any work or activity that is likely to degrade the environment or significantly affect the quality of life of the population must be subjected to.

Globally, shortcomings in the EIA have directed its replacement by the SEA, which is detailed in the Kiev Protocol to the Espoo EIA Convention. Basically, it involves public participation before the start of the project in question. In the Argentine legal system, the SEA has been introduced only in Law 26.639 of basic requirements for the preservation of glaciers and the periglacial environment.[64]

It is a procedure that is in charge of the environmental application authority of the jurisdiction where the hydrocarbon activity is intended to be carried out, prior in nature—before drilling the first well—and has a predictive purpose, to evaluate the possible environmental impacts and their mitigation measures (Siano and Parravicini, 2015). Given the high environmental impact of hydrocarbon activities, it must be mandatory without exceptions. Tripelli (2015) agrees with this statement. In agreement, as studied in chapter 5 in the report on the Deepwater Horizon platform accident, prepared by the Commission that studied the case, it is stated that these evaluations must be mandatory and should not be carried out in very extensive areas. Similarly, as a result of the report, categorical exclusions were prohibited, in other words, those activities on which it was not mandatory to carry out the EIA, among which was the exploration and exploitation of hydrocarbons at sea.

[64] Argentina. Law 26.639, *Basic Requirements Law on Protection of Glaciers and the Periglacial Environment*. Official Bulletin, 10/28/2010.

The EIA evaluates the EIS (environmental impact study) submitted by the proponent. It must contain their identifying data and a detailed description of the exploratory or exploitation project, identify the impacts on the environment and the actions aimed at mitigating their negative effects. The law must require that the EISs be carried out by expert consultants in the field, for which a registry of environmental consultants on hydrocarbon activities should be created (Tripelli, 2015). After the application authority has evaluated the EIS, it must issue an environmental impact statement in which it expresses its approval or rejection (LGA, art. 12).

Tripelli (2015) states that, given the high impact of hydrocarbon activity, the EIS must also contain measures to remedy the environmental liabilities that can be generated and, if this is not possible, provide for environmental compensation measures in line with the principle of responsibility enshrined in LGA art. 4. Likewise, LGA art. 34 creates the "Environmental Compensation Fund". It is an opportunity for the law on basic environmental requirements on hydrocarbon activity to establish a specific Environmental Compensation Fund for the sector (Tripelli, 2015).

Furthermore, Tripelli (2015, p. 436) explains:

> Only once the administrative act approving the EIS has been issued, even with future requirements to be completed by the proponent, the works may begin. Afterwards, the exploration and exploitation stage begin, and at the same time, the second stage, the monitoring by the implementing authority to evaluate the predictive nature of the EIS.

As mentioned, both the EIS and the EIA must contain provisions related to the best environmental management practices. Likewise, an environmental management plan should be anticipated and approved containing a series of measures related to waste management, including hazardous waste, the precise identification of all the chemicals that will be used, permanent monitoring of potential methane leaks and other emissions to the atmosphere, compliance with the maximum levels of noise pollution that affect marine fauna, measures to protect biodiversity, studies to protect the archaeological heritage and the well closure plan, among others (Tripelli, 2015).

a. Right of free access to information and the obligation of individuals and legal entities, public and private, to provide the information related to environmental quality and referred to the activities they carry out, enshrined in art. 16 LGA. Every citizen should be able to access, for example, information about the components of the dispersants that are used to respond to a spill and the location and extraction volume of the marine platforms.
b. Mandatory public hearing. Related to the previous basic requirements and as stated by art. 20 LGA, prior to the authorization of the installation of marine platforms, public hearings shall be held. In this sense, the jurisprudence of the CSJN in the Villivar case can be cited, where the operation of a mine whose installation had not previously been subjected to the public hearing process as required by the LGA was suspended. In this sense, Franza and Tomá (1995) highlight the mandatory nature of the public hearing on environmental issues.
c. National inventory of wells and their area of influence. An inventory should be carried out, like the glacier inventory –which was regulated in Law 26.639 on glaciers and periglacial environment–, which is administered by the Argentine Institute of Nivology, Glaciology and Environmental Sciences (IANIGLA).

Moreover, the inventory should be updated frequently by the Nation Ministry of Energy, with the active participation of the provinces where the hydrocarbon deposits are located, of COFEMA and of other national organisms competent in the matter (Tripelli, 2015). In this sense, COFEMA issued Resolution 282/14,[65] by virtue of which it resolved: "To accompany the work of the authorities in their role of controlling the environmental aspects of energy development, within the framework of compliance with the guiding principles of sustainable development" (art. 1), as well as "To create a working environment for the study of the topic: Renewable energies and new processes for hydrocarbons" (art 3).

This basic requirement is the crystallization of the environmental management instrument OTA, provided for in LGA (art. 8, inc. 1). OTA' s purpose is to ensure the appropriate use of environmental resources, enable maximum production and utilization of ecosystems, guarantee

[65] Argentina. COFEMA Resolution 282/14, *Support the work of the authorities in their role of controlling the environmental aspects of energy development*. 28/05/2014.

minimal degradation and wastage and promote social participation (art. 10 of the LGA). Regarding the inventory of wells in the sea, Pampa Azul should participate. In this way, one more step would be taken in the process of regulating LGA arts. 9 and 10 (Tripelli, 2015).

a. Permanent control and monitoring by the environmental enforcement authority. An objective measurement of the environmental impact indicators identified in the EIA and in the EIS must be carried out. This basic requirement is also provided for in art. 8, inc. 3 LGA, as a "control system on the development of anthropic activities".

CHAPTER 9

Regulation in the Region

1 The Case of the Federative Republic of Brazil

The Federative Republic of Brazil is the country in the region with the highest development of marine hydrocarbon exploration and exploitation. In June 2017, pre-salt production represented 49.6% of the total production of goods in the country (ANP, 2017). In the 1970s and 1980s, the exploration and exploitation of hydrocarbons began to concentrate on the continental shelf, when oil production began in the *Campos* and *Santos* bays. The state-owned company Petróleo Brasileiro S. A. (Petrobras) drilled the first well in 1968, on the Coast of *Espírito Santo* (Cançado Trindade, 2015).

The exploration and exploitation of hydrocarbons in Brazil is subject to the monopoly of the Union, which was established in 1953 by Law 2.004,[1] a law that also created Petrobras to exercise this monopoly. The 1967 Constitution validated this monopoly in art. 162[2] and regulated for the first time at the constitutional level the continental shelf (which it called "submarine platform"), by including it among the assets of the Union (art. 4, inc. II). Two years later, amendment 17/1969 changed

[1] Brazil. Law 2.004, *Provides for the National Oil Policy and defines the attributions of the National Oil Council, establishes the Anonymous Society. 03/10/* 1953.

[2] Art. 162: "The exploration of oil in the national territory constitutes a monopoly of the Union, in the terms of the law".

V. S. Radovich, *Marine Exploration and Exploitation of Hydrocarbons*,
Palgrave Studies in Maritime Politics and Security,
https://doi.org/10.1007/978-3-031-75177-6_9

its designation to "continental shelf". The 1988 Constitution also refers to the continental shelf, but not to include it among the assets of the Union, as its predecessor did. In reality, what belongs to the Union are the "natural resources of the continental shelf" (art. 20, inc. V) (Cançado Trindade, 2015).

In 1995, through amendment 9 to the Constitution, the monopoly was relaxed, as it allowed the Union to contract the exercise of these activities, subject to the monopoly with private or non-private companies, national or foreign. In the current legal regime, according to art. 177 of the Federal Constitution, altered by constitutional amendment 9/95, the Union contracts state and private companies to carry out the activities. After this amendment, a new legal regime had to be adopted, since during 42 years Petrobras had held the monopoly.

Cançado Trindade (2015) explains that there were uncertainties in democratic terms, because only ten years had passed since the military dictatorship had been overcome and high inflation rates had been sustained for decades. These factors were hostile to foreign investment. Therefore, a regime was sought that would attract investments and that would guarantee maximum stability, with the least possible State interference. The regime adopted by Law 9.478/97[3] was the concession, through which the Union grants to companies or the consortium of companies the concession for the exploration and exploitation of a certain block and the interested parties are selected through a tender. The State does not necessarily participate in the consortium, but it does regulate to oversee the activities of exploration and exploitation. The ANP was created with this aim, today it is called Natural Agency for Oil, Natural Gas and Biofuels. The participation of the Union, in economic terms, is limited to charging taxes and royalties it receives in cases of large production or profitability fields. It is a regime with little State interference, significant autonomy of the concessionaire and stability of the contract (Cançado Trindade, 2015).

Law 9.478/97 does not establish a difference between the exploration and exploitation of hydrocarbons on land and at sea, even though differences exist (Costa de Oliveira, Fernandez Coelho and Forniga, 2015). One of the explanations for this is that it is a framework law, which defines

[3] Brazil. Law 9.478, *Oil Law. Provides for the national policy, activities related to the oil monopoly, creates the National Energy Policy Council and the National Oil Agency (ANP)*. D.O.U. (Official Journal of the Union), 07/08/1997.

basic concepts and leaves to the administrator the task of regulating the technical concepts (Cançado Trindade, 2015). Similarly, the ANP's own regulations also make little distinction between land and sea exploration, except for the purposes of calculating and distributing royalties, for example, the Technical Regulation of Deactivation of Installations in the Production Phase, wherein, for obvious reasons, a differentiated treatment is attributed to maritime production systems (Cançado Trindade, 2015).[4]

In the Federative Republic of Brazil, 12 bidding rounds have already been held and 979 blocks have been granted in concession, of which 356 are located on the continental shelf. The analysis of the concession contracts reveals that the same model used for the land blocks was used for the blocks on the continental shelf.

When the pre-salt was discovered, it was characterized as a "new and significant oil province" by the National Energy Policy Council (CNPE) (Cançado Trindade, 2015). In 2010, Law 12.351 was enacted, which regulates the exploration and exploitation of hydrocarbons in the pre-salt and in strategic areas (art. 1). It is stated that the pre-salt presents:

> extremely low exploratory risks and high profitability, which determines the need for it to have a regulatory framework consistent with the preservation of national interest, through a greater participation in the results and greater control of the potential wealth for the Union for the benefit of society.

The law instituted the sharing regime, through which the Union appropriates part of the exploited hydrocarbons, and the contractor appropriates another part. The peculiarities of the sharing regime instituted by this law consist in the fact that Petrobras will be the mandatory operator of all consortia of the pre-salt blocks and will have a minimum 30% participation (art. 4 and art. 10, inc. III a). In the case of the consortium called Libra, Petrobras' participation reached 40%.[5]

Another member of the consortium will be the Brazilian company for Administration of Oil and Natural Gas S.A.—Pré-Sal Petróleo S.A.

[4] Approved by ANP Resolution 27/06, Chapter 6.

[5] The other members of the consortium besides Petrobras are PPSA, Total, Shell, China National Petroleum Corporation (CNPC) and China National Offshore Corporation (CNOOC).

(PPSA), created by law, which will be responsible for receiving the part of the hydrocarbons that corresponds to the Union. Art. 24 of the law establishes the prerogatives of PPSA, which can choose half of the members of the operating committee, and even the president, who has the power of veto. The committee, among other prerogatives, defines the annual production programs. However, among the prerogatives, there is none related to environmental care.

On the other hand, the law creates a social fund that depends on the Presidency of the Republic to constitute a source of resources for social and regional development, such as programs and projects to combat poverty and promote the development of education, culture, sports, public health, science and technology, the environment and mitigation and adaptation to climate change (art. 2).

The pre-salt parcels are located in the States of Espírito Santo, Rio de Janeiro and São Paulo. The law also provides that the sharing regime can be adopted for "strategic areas", which are defined as areas that will be delimited by the Executive Power in cases of low exploratory risk and high productive potential. So far, no strategic areas have been designated. Currently, in Brazil only the sharing regime is used on the continental shelf.

The ANP, as the regulatory body of the sector, must promote studies that tend to the delimitation of blocks and also the tenders for the concession of exploration, development and production. In turn, on behalf of the Union, it celebrates contracts and supervises their execution. The tenders carried out by the ANP adhere to the principles and objectives of the national energy policy, expressed in the Oil Law (art. 1) and to the guidelines of Resolution 08/03 of the Ministry of Mines and Energy,[6] which establishes the policy of oil and gas natural production and defines guidelines for the accomplishment of tenders of exploratory blocks or areas with already characterized discoveries.

[6] Brazil. Resolution 08/03, Ministry of Mines and Energy. *Establishes the policy for oil and natural gas production and defines the guidelines for the realization of tenders for exploratory blocks or areas with already characterized discoveries, in the terms of Law 9.478.* 21/07/2003.

1.1 Environmental Management of Exploration and Exploitation of Hydrocarbons in the Sea

In 1981, Law 6.938[7] on national environment policy was enacted. In addition, the Brazilian Constitution has a chapter dedicated to environmental regulation, called "Environment". Art. 9 Law 6.938 regulates environmental instruments, among others, environmental planning of the territory, EIA, environmental licenses, the creation of AMPs and environmental insurance. From an environmental point of view, there is greater concern by the legislator and the administrator in giving specific treatment to operations on the continental shelf (Cançado Trindade, 2015).

With regard to the specific environmental management of hydrocarbons in Brazil, Law 9.966[8] was approved in 2000. It sets a specific standard for the prevention and control of pollution caused by oil spills in waters of national jurisdiction, which also complements MARPOL 73/78. The law definition of platforms covers both mobile and fixed ones. Sensitive ecological areas are defined, hazardous substances are established and it is stated that platform operators must prepare individual emergency plans (art. 6). Moreover, companies must keep a hydrocarbon registry book (art. 10). Some of these provisions are regulated in Argentina, but not in a law enacted by the Legislative Power as is the case of Brazil. In Argentina these regulations are found in the resolutions issued by Naval Prefecture, studied in the previous chapter, which comply with MARPOL 73/78 provisions.

CONAMA resolution 350/04 issued by the National Environment Council[9] regulates the environmental license for seismic data acquisition activities in land-sea transition zones. In the considerations of the resolution, it is stated that this activity is potentially causing environmental impacts on marine and coastal ecosystems and on fishing and aquaculture activities, among other activities. On the other hand, the *Portaria*

[7] Brazil. Law 6.938, *National Environmental Policy, its purposes and mechanisms of formulation and application and other provisions*. 31/08/1981.

[8] Brazil. Law 9.966, *Provides for the prevention, control and supervision of pollution caused by oil spills and other hazardous substances in waters of national jurisdiction and other provisions*. D.O.U., 29/04/2000.

[9] Brazil. CONAMA Resolution 350/04, Ministry of Environment. *Provides for the specific environmental license for the activities of acquisition of marine seismic data and in transition zones*. DOU Nº 161, 20/08/.

(ordinance) of the Ministry of Environment 422/11[10] regulates the environmental license for oil exploration and exploitation activities in marine environments and transition zones. The *Portaria* defines the areas of environmental sensitivity, where public consultation is mandatory.

Also, the *Portaria* determines that three types of licenses must be granted: preliminary (LP), installation (LI) and operation (LO) licenses. In addition to this, it enables licenses to be granted in the form of drilling polygons covering a group of wells. The drilling process cannot extend beyond a period of ten years. Machado et al. (2013) criticize that no type of monitoring is established during this period. The Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) has already recognized the seriousness of this problem in Technical Note IBAMA/ DILIC/ CGPEG 7/11.

The *Portaria* also legislates on the procedure that must be followed in the phase of deactivation of the activity. Machado et al. (2013) argue that the *Portaria* MMA 422/11 should have provided a deactivation license. There are gaps regarding the regulation of the decommissioning phase of the platforms. The useful life of the platforms is thirty years, and Brazil is already in the phase where some of the platforms must be removed (Machado et al. 2013).

In relation to public information, the *Portaria* established the obligation to publish information about the licensing process on the Internet, with broad access. The following documents must be available: terms and conditions of the license requirements, terms of reference, the environmental study and the respective environmental assessment, technical opinions, clarifications provided by the entrepreneurs, the minutes of the public hearing, environmental licenses and the denials of licenses (Machado et al. 2013). On the ANP website, updated information related to existing marine platforms and their monthly production is published. Contrarily, in Argentine Republic, there are no regulations on the location of platforms nor is there access to this public information on the Internet.

[10] Brazil. *Ordinance* 422/11, Ministry of Environment. *Provides for the procedures for the federal environmental license for activities and enterprises of exploration and production of oil and natural gas in the marine environment and in the land-sea transition zone*. D.O.U., 28/10/2011.

Law 12.351/10[11] establishes, in relation to the preventive-precautionary stage, the obligation to carry out an environmental audit (art. 29 XXIII). It also determines the need to recover the environment after the production sharing contract has ended (art. 32 VI, 2).

1.2 The Regulation of the Sea

Costa de Oliveira et al. (2015) point out two conflicts in relation to marine regulation in Brazil. The first conflict is that there are several agencies that have competencies over the exploration and exploitation of non-living resources in the sea, whose activities overlap, as the competencies between the Union's bodies are not clear. Some of the organisms that can intervene in the authorization procedure for research and marine exploration are the following: the National Department of Mineral Production (DNPM), which authorizes the search for resources; the General Ministry of Mines and Energy; the Maritime Authority; IBAMA; the ANP; the Ministry of the Navy; the Interministerial Commission for Sea Resources and the National Defense Council. The solution to this conflict would be the approval of a specific law that establishes the competence of each organism (Costa de Oliveira et al. 2015). The problem related to the overlap of institutional functions was pointed out in the report of the Commission that studied the accident of the Deepwater Horizon platform in the Gulf of Mexico as a weakness that needed to be modified.

The ANP has competence to regulate geophysics and geology services linked to prospecting, while the Ministry of the Navy–representing the president of Brazil–has competence to authorize and accompany investigations on the continental shelf. The resources of the continental shelf belong to the Union, but there are provisions enacted in 2009 that establish that municipal prefectures must intervene along with the Maritime Authority.

Also, in the case of oil there are conflicts in the supervision and conservation of areas affected by the exploration of the resource and conflicts of competence between IBAMA and the ANP. An agreement that provides

[11] Brazil. Law 12.351/10, Provides for the exploration and production of oil, natural gas and other fluid hydrocarbons, on the production sharing regime, in pre-salt areas and in strategic areas; creates the social fund –FS and provides for the structure and the sources of resources. D.O.U., 23/12/2010.

for coastal management and the protection of marine resources to reduce these conflicts has been signed. These types of agreements can be an alternative to the codification of a single norm for the activity, but political will is required (Costa de Oliveira et al. 2015). Costa de Oliveira et al. (2015) argue that the regulation of living and non-living resources of Brazil's jurisdictional marine spaces should be integrated into a single normative framework. Although these resources are legally disconnected, they are materially connected in the physical marine reality. The law should include terminological definitions and clear definitions of each organism's attributions.

The second conflict is the conceptual issue, Costa de Oliveira et al. (2015) argue that it is essential to define technical concepts with precision, to ensure the legal security of the activities carried out in the jurisdictional marine spaces. As an example, they state that there is no precise definition of the concept "marine scientific research" in the Brazilian legislation. Neither is there a precise definition of this concept in Argentine legislation, as studied in the previous chapter.

Law 12.351/10[12] does not make clear the difference between research and exploration, as it is not clear whether "research" refers to scientific research or commercial research. Exploration seems to include always commercial purposes (Costa de Oliveira et al. 2015). At the Third Conference on the Law of the Sea,[13] a debate arose among various States regarding the definition of marine scientific research. The central point was that scientific research should be separated from the objective of commercial exploration, focusing on the objective of obtaining scientific knowledge about ocean processes and phenomena, seabed, navigation, among others (Costa de Oliveira et al. 2015).

Due to the peculiarities of the Portuguese language, there is no term for "exploitation", it is also called "exploração". Costa de Oliveira et al. (2015) propose that the term "exploration" should always be linked to commercial purposes.

[12] Ibid note. 234.

[13] Third Conference on the Law of the Sea convened by Resolution 2750C (XXV) of the United Nations General Assembly.

2 The Case of the Eastern Republic of Uruguay

In the Eastern Republic of Uruguay, the mines of the territory, which include the continental shelf, are owned by the national State. Deposits are classified under art. 7 of the Mining Code, hydrocarbons are located in class I. Regarding this class, the State reserves the right to carry out mining activity and maintains the monopoly of the activity, which it performs through the National Administration of Fuels, Alcohol and Portland (ANCAP) (González Rodríguez, 2016).

The legal regime applicable to marine hydrocarbons in the Eastern Republic of Uruguay consists of: Decree Law 14.181[14] entitled "Hydrocarbons Law"; the Mining Code (Decree Law 15.242,[15] with modifications introduced by Law 1.813); its Regulatory Decree 110/82[16] and Decrees 454/06[17] and 316/11,[18] specific for the exploration and exploitation of hydrocarbons.

The Eastern Republic of Uruguay has a precedent, Decree 407/74[19] dated May 23, 1974, through which a competition for bids was called for the awarding of exploration contracts and exploitation on the continental shelf and subsoil of the Uruguayan territorial waters. ANCAP signed a contract with Chevron Overseas Petroleum Inc., which carried out two exploratory wells, but without success (González Rodríguez, 2016).

Exploratory activity in the country was almost completely suspended for several decades, until the national government, through ANCAP and the company Wavefield-Inseis ASA, set out to achieve a comprehensive understanding of all of Uruguay's marine basins. With this in mind, a regional 2D seismic survey of 7000 km was carried out in 2007,

[14] Uruguay. Law 14.181, *Hydrocarbons Law*. 29/03/1974.

[15] Uruguay. Law Decree 15.242, *Mining Code*. 16/02/1982.

[16] Uruguay. Regulatory Decree 110/82, *Approval of the General Mining Regulation*. National Register of Laws and Decrees, volume 1, semester 1, year 1982.

[17] Uruguay. Regulatory Decree 454/06, *State Contracts. Exploration and Exploitation of Hydrocarbons*. National Register of Laws and Decrees: volume 1, semester 2, 2006, 28/11/2006.

[18] Uruguay. Regulatory Decree 316/11, *Approval of the Bases for the selection process of oil companies for the exploration and exploitation of hydrocarbons off the coast of the Eastern Republic of Uruguay for Round Uruguay II, which includes the respective contract model*. National Register of Laws and Decrees, volume 1, semester 2, 28/10/201.

[19] Uruguay. Decree 407/74, *Hydrocarbons. Exploration and Exploitation*, 06/06/1974.

which was complemented with a semi-detailed scale 2D seismic survey of 2800 km in 2008, in the *Punta del Este* basin.

In 2006, Decree 454/06 was issued, which approved the regime for the submission of bids for the award of contracts for the stages of prospecting, exploration and exploitation of hydrocarbons, which includes the basic guidelines of the contracts to be signed between ANCAP and third parties for the performance of the activity. Later, various decrees suspended the validity of the regime established by it. The first of these presidential orders was Decree 186/08,[20] which states in its explanatory part the inconvenience of granting areas on the continental shelf due to the exploration work, surveying and interpretation of seismic data that ANCAP was carrying out with the mentioned firm. Subsequently, the suspension of the validity of Decree 454/06 in relation to the granting of exploratory contracts and exploitation at sea, was held by Decrees 463/09[21] and 267/011,[22] until June 30, 2010 and December 31, 2012, respectively.

Decree 239/08[23] approved the call for interested parties to submit bids for the celebration of contracts for exploitation on the continental shelf, the international bidding procedure known as "Uruguay Round I". Then, by Decree 316/11[24] "Uruguay Round II" was approved. The "rounds" consist of the processes of promotion, receipt of letters of intent and offers and, eventually, awarding of exploration and production contracts. "Uruguay Round III" also took place.

[20] Uruguay. Decree 186/08, *Suspension of granting of prospecting and exploration contracts*. National Register of Laws and Decrees, volume 1, semester 2, 05/10/2010.

[21] Uruguay. Decree 463/09, *Contracts for the prospecting, exploration and exploitation of areas on the Uruguayan continental shelf*. National Register of Laws and Decrees, volume 1, semester 2, 15/10/2009.

[22] Uruguay. Decree 267/11, *Maintenance of the Suspension of the Validity of Decree 454/06 related to the exploration and exploitation of hydrocarbons*. National Registry of Laws and Decrees, volume 1, semester 2, 08/08/2011.

[23] Uruguay. Decree 239/08, *Call for interested parties for the award of exploration and exploitation contracts of areas in the Uruguayan Continental Shelf. 2009 offer rounds*. National Registry of Laws and Decrees, volume 1, semester 1, year 2008, 20/05/2008.

[24] Uruguay. Regulatory Decree 316/11, *Approval of the Bases for the selection process of oil companies for the exploration and exploitation of hydrocarbons off the coast of the Eastern Republic of Uruguay for Uruguay Round II, which includes the respective contract model*. National Registry of Laws and Decrees, volume 1, semester 2, 28/10/2011.

In relation to the particular environmental aspects of hydrocarbon mining activity, Law 16.466, Environmental Law and Decree 349/05, called "Regulation of Environmental Impact Assessment and Environmental Authorizations" are applicable. The law derives from art. 47 of the 1997 Uruguayan Constitution, which states:

> The protection of the environment is of general interest. People must refrain from any act that causes depredation, destruction or serious pollution to the environment. The Law will regulate this provision and may provide sanctions for transgressors.

In this sense, Environmental Law art. 1 declares of general and national interest the protection of the environment against any type of depredation, destruction or pollution, as well as the prevention of negative or harmful environmental impact, and, in case it occurs, the reparation of the environment damaged by human activities. It also establishes that the Ministry of Housing, Territorial Planning and Environment must grant a prior environmental authorization before the start of the activity, work or construction. This authorization implies the accomplishment of an EIA of the project within the framework of an administrative procedure, in cases where the projects are categorized by the Ministry, according to the magnitude of their potential environmental impacts, as projects "B" or "C". The law refers only to the EIA, it does not mention environmental principles or other institutes, such as public participation or insurance, unlike the case of the LGA in Argentine Republic.

Decree 349/05[25] establishes that the EIA must cover the project and its possible area of influence, including a general macro-environmental framework. An objective comparison must be made between the conditions before and after the execution of the project, in its construction, operation and abandonment stages. This decree was modified by Decree 72/16[26] art. 1 dated March 9, 2016, which established the requirement of prior environmental authorization for studies of the seabed or subsoil, including prospecting and exploration activities when carried out

[25] *Uruguay. Decree 349/05,* Regulation of Environmental Impact Assessment and Environmental Authorization.

[26] *Uruguay. Decree 72/16,* Modification of the Regulation of Environmental Impact Assessment and environmental authorizations. *National Registry of Laws and Decrees, in edition, 17/03/2016.*

through methods that employ acoustic or electromagnetic sources. Prior to this decree, the prior environmental authorization was limited to the exploratory phase for the drilling of wells.

It is concluded that the Eastern Republic of Uruguay, like the Federal Republic of Brazil, places special emphasis on the stage of seismic and acoustic studies. The same provision should be carried forward in Argentina.

The aforementioned Decree 349/05 under art. 2, numeral 15 establishes the requirement of a prior environmental authorization for the exploitation of fossil fuels, whatever their extraction method. Moreover, the so-called "Environmental Operation Authorization" is required, which is necessary for the start of operations, which serves as a temporary operating license and renewable every three years (art. 23 of the decree).

Similarly, the contracts signed by ANCAP and individuals, within the framework of the Uruguay Rounds I and II, establish environmental obligations for contractors: the use of the best available techniques to develop the contracted activities in a manner compatible with the environment, preventing and mitigating negative environmental impacts and the rational use of natural resources; the compliance with all Uruguayan standards and international treaties and conventions for environmental protection that the country has signed and ratified; the submission before the Administration Committee, for its approval, of emergency action plans and environmental management of the activities to be carried out and measures to minimize environmental impacts; the issuance of guidelines for the management of atmospheric emissions, liquid effluents, solid waste, noise, consumption of chemical products, water and energy. Moreover, the contracts establish programs of:

i. waste management and contingencies for spills, fire, explosion and other abnormal situations,
ii. abandonment,
iii. and of surveillance and environmental audit, of liability for the environmental damage generated as a result of the oil operations oil companies, which include to be insured of civil liability and that of their contractors are insured for environmental damage.

Similarly to the Argentine Republic case, in the Eastern Republic of Uruguay a regime has been developed for the exploration and exploitation of hydrocarbons at sea based on a framework of economic incentives that aims to promote the activity, since the benefits provided in the general regime of the Investment Promotion Law are also applicable to the activity. The energy policy that Uruguay has outlined, and approved by the Executive Power in 2008, planned for the years 2005–2030, includes among one of its objectives to decrease the dependence on imported oil and explore the national territory in search of native resources (González Rodríguez, 2016).

The Eastern Republic of Uruguay is carrying out exploration activity in its territorial sea. A well which starts at 3400 meters deep in the ocean bed is being drilled to search for hydrocarbons almost down to 6000 meters, this is the deepest search in the world.[27]

The search is being carried out in what is known as block 14, an area of 6690 square kilometers over the Atlantic Ocean, about 200 kilometers from the coast and 400 from Montevideo. The companies' estimates calculate that the cost of extracting oil in deep waters like those in Uruguay is a minimum of 70 dollars per barrel.

According to the business plan, if it is confirmed that there is oil or gas, between eighteen and thirty additional wells must be drilled, which implies an investment of between 6 and 20 billion dollars, depending on whether it is gas or oil. This operation will take between three and four years, after which the commercial phase would begin.

In Round I, carried out in 2009, eleven blocks were offered, with an average area of 5000 km, belonging to the marine basins of *Punta del Este*, *Pelotas a*nd *Oriental del Plata*. Contracts were signed with the consortium composed by YPF, Petrobras and GALP Energy, which had submitted bids for blocks 3 and 4, both located in the *Punta del Este* basin.

During Round II, carried out in 2016, ANCAP received nineteen offers from nine companies for the exploration and exploitation of hydrocarbons on the Uruguayan maritime platform, in eight of the fifteen blocks offered. After evaluating them, three blocks were awarded to BP (blocks 6, 11 and 12), three to BG (blocks 8, 9 and 13), one to the French company Total (block 14) and another one to the Irish company

[27] http://www.elpais.com.uy/informacion/total-ya-perforo-busca-hidrocarburos.html [Last visited: October 2022].

Tullow Oil (block 15). Once authorization from the Executive Power is obtained, the respective contracts will be signed.

The planned work will result in a significant increase in quantity and quality of geological knowledge of the basins, expressed in commitments to drill an exploratory well, 33,240 km^2 of 3D seismic, 13,080 km^2 of 3D electromagnetism and 3000 km of 2D seismic for the first three years of exploration. The work units of the awarded bids have been valued at 1.562 billion dollars.

The proposed contracts for signing provide that the winning companies of each block will assume the risks and costs generated by the oil operations during the exploration and production phases. The exploratory period includes a basic sub-period of three years in which the execution of the committed exploratory program is expected. There is a voluntary complementary sub-period of three years, where at least one exploratory well must be drilled, and an extension sub-period of two years, where the contractor must drill a new exploratory well and return to the Uruguayan State 30% of the awarded block. ANCAP will have the option to buy all or part of the hydrocarbon production from the companies, if necessary for the country's internal consumption. Likewise, it may associate with the companies for the exploitation of the areas with a minimum of 20% and a maximum established by the winning proposal of each block (Tato, 2012).

A contract will be signed for a term of thirty years, it may be extended for a maximum of ten more years. Under the contract, the companies benefit from part of the available hydrocarbon production, according to the established percentages (called "Shared Production Contract"). In the case of Argentine Republic, as studied in the previous chapter, Law 27.007/15 provides for the same terms. The Eastern Republic of Uruguay should have notified Argentine Republic about the start of this activity, due to the cross-border pollution that could be generated, even more considering the precedent of the Pulp Mills case between both countries, which has reached the ICJ,[28] where one of the key points was the omission to provide information by the Eastern Republic of Uruguay (González Napolitano, 2013).

[28] Ibid. note 103, p. 14.

It is worth clarifying that the Eastern Republic of Uruguay raised the Pulp Mills controversy before the Mercosur system, but not as an environmental controversy, but as an omission of the Argentine State to adopt appropriate measures to prevent or stop the limitations to free circulation derived from the closure in Argentine territory of international access bridges (Castillo Argañarás, 2015).

Argentine Republic and the Eastern Republic of Uruguay have jointly carried out the FREPLATA Project, the Environmental Protection Project of the *Río de la Plata* and its Maritime Front: Prevention and Control of Pollution and Habitat Restoration. The project was executed through the Administrative Commission of the Río de la Plata (CARP) and the Joint Technical Commission of the Maritime Front (CTMFM).

The FREPLATA action plan, among other measures, established the need to strengthen at the national level the management of existing coastal-marine protected areas, within a period of one to five years, with very high priority, and delimited the *Río de la Plata* critical areas.

From the comparison between the last two maps, an overlap is observed in the Republic of Uruguay between the areas that have been declared by the FREPLATA Project as areas that must be free of contaminants and the areas that were awarded in the tenders to explore and exploit hydrocarbons.

3 Regional Agreements—Mercosur

Regulation at the regional level becomes relevant due to the possible cross-border pollution that may be caused by the exploration and exploitation of hydrocarbons at sea. The countries bordering Argentine Republic -the Federative Republic of Brazil, the Oriental Republic of Uruguay and the Republic of Chile- carry out activities that may have an impact in the Argentine sea. All these countries are Mercosur members, except for the Republic of Chile, so it would be expected that protective measures regarding this issue should be developed by Mercosur. In addition to this, in Malvinas Islands hydrocarbon exploration and exploitation is also carried out in the sea, even in the only protected marine area, Namuncurá—Banco Burwood, although in this case there is not binational or regional integration framework.

Mercosur is a regional integration market. It consists of a free trade zone and is in a state of imperfect customs union (Moya Domínguez, 2006). It was initially formed by Argentine Republic, the Federative

Republic of Brazil, the Eastern Republic of Uruguay and the Republic of Paraguay, through the Treaty of Asunción.[29]

Later, the Bolivarian Republic of Venezuela and the Plurinational State of Bolivia were incorporated. The political factor is the essential factor of any integration process. For many decades, Latin Americans have sought the superstructural path, creating too many institutions, but doing very little integration (Consani and Servi, 1999). It is necessary to define what type of Latin American identity is being built, to which it could be added that such identity should also be made up by the environmental management of aquatic and marine resources that surround and join the countries.

The sources derived from Mercosur are established in art. 2 of the Additional Protocol to the Treaty of Asunción on the Institutional Structure of Mercosur—Ouro Preto Protocol (POP).[30] These sources are the decisions of the Common Market Council (CMC), the resolutions of the Common Market Group (GMC) and the directives of the Mercosur Trade Commission (CCM). In POP arts. 41, section III, and 42, the obligatory nature of the derived sources is recognized.

The doctrine generally agrees that Mercosur's main problem is the absence of supranationality. Without delegation of competences, there is no direct effect or primacy of the community legal system. In this sense, Moreira (2012) suggests that, since the member States have not delegated to central institutions any of their sovereign competences, the agreement of all the representatives of the member States must be achieved to adopt a legal provision in the system's bodies, and afterwards they shall be internalized in the domestic law of the countries members of the system. In the same sense, Pérez Otermin (1995) argues: "the criterion that has prevailed, but certainly not unanimously desired, has been and continues to be, even in the *Ouro Preto* Protocol, to deny the integration process the slightest hint of supranationality".

In other words, due to the lack of delegation of competences, Mercosur remains on the intergovernmental plane and, as there is no supranational legislation, there is no direct effect or primacy of Mercosur

[29] Treaty of Asunción for the Constitution of a Common Market between Argentine Republic, the Federative Republic of Brazil, the Republic of Paraguay and the Oriental Republic of Uruguay, 1991.

[30] MERCOSUR. Additional Protocol to the Treaty of Asunción on the Institutional Structure of MERCOSUR- *Ouro Preto* Protocol, 1994.

laws. However, Didier Operti (1997) argues that Mercosur is not absolutely intergovernmental, because both in the Ouro Preto Protocol and in the Brasilia Protocol, it is "recognized that in *Ouro Preto*, as in the Brasilia Protocol, certain acts have dominion over the four countries, even if they emanate from one of the organs of Mercosur".

Although art. 2 POP declares the obligatory nature of the decisions, resolutions and directives, but establishes that, when necessary, they must be incorporated into the national legal systems through the procedures provided for by the legislation of each State. Therefore, each State may decide to incorporate or not these norms into its internal law or not. Moreira (2012) argues that this incorporation becomes even more complex due to the type of federal organization of most of its member States, where there may be overlap of federal jurisdiction, with provincial, or state and local jurisdictions.

3.1 The Environmental Variable in Mercosur

Mercosur covers almost 13,000,000 km2 of a region rich in biodiversity, both in species and genetic variation, as well as in ecosystems. It has more than 40% of the plant and animal species on the planet, reserves of fresh water, forests and two oceans (Moreira, 2012). Although Mercosur has advanced some steps in the regulation of environmental protection in general, especially with the sanction of the Environmental Agreement, there is still a long way to go in terms of specific environmental protection of both aquatic and marine resources (Radovich, 2016).

The Treaty of Asunción does not expressly refer to environmental protection in any of its articles, the third paragraph of the Preamble states:

> …this objective must be achieved through the most effective use of available resources, the preservation of the environment, the improvement of physical interconnections, the coordination of macroeconomic policies and the complementation of different sectors of the economy, based on the principles of graduality, flexibility and balance.

In relation to the already mentioned case of the Pulp Mills between Argentina and Uruguay, Coria, Devia and Alzari (2010) argue that it should be debated and agreed upon how Mercosur and its countries will control from now on the companies that operate in its territory. They also add that the criteria for selecting the best available technologies and

the best environmental policies should be harmonized, through regional authorizations. This debate should be addressed in an open dialogue, which generates trust and integrates all the sectors involved in civil society, so as not to fail again in the resolution of a conflict that should have been foreseen (Coria et al. 2010).

The following sections will analyze in chronological order the path followed by Mercosur in the legal regulation of environmental management, taking into account that Chapters 17 and 18 of Agenda 21 are devoted, respectively, to the protection of aquatic and marine resources, require new comprehensive and precautionary approaches in the management of these resources at a regional level, as is the case with Mercosur, in addition to at a national and global level.

3.2 Specialized Meeting on Environment (REMA)

In 1992, at the second presidential summit of Mercosur, which took place in the city of *Las Leñas*, Argentina Republic, the Specialized Meeting on Environment (REMA) was established through Resolution 22/92/GMC. The general objectives of REMA consisted in formulating recommendations to the GMC, the executive organ of Mercosur, aimed at ensuring adequate environmental protection in the framework of the integration process. The specific objectives were to contribute to establishing, in environmental matters, adequate conditions of competitiveness between the member States and adequate external competitiveness of the products originating from Mercosur. When analyzing the wording of the objectives, it is clear that they are not centered on the environmental issue, but on the economic issue related to competitiveness. In conclusion, the autonomy of the environmental variable is not foreseen (Radovich, 2016).

In Resolution 62/93/GMC, a schedule for the elimination of non-tariff restrictions was proposed, among which was environmental deregulation. However, the Argentine proposal was finally approved, which argued that the elimination should be assimilated to the harmonization based on the 1980 Montevideo Treaty, which establishes that no provision of the treaty will be interpreted as an impediment to the adoption and compliance with measures aimed, among others, at the protection of the life and health of people, animals, and plants. International environmental acts considered priority in relation to the theme of aquatic and marine resources were identified - the CBD, the RAMSAR Convention on Wetlands, and UNCLOS (Devia, 1998).

In 1994, at the second meeting, which took place in Buenos Aires, Argentine Republic submitted a document on basic guidelines on environmental policy. In this moment, a paradigm shift started as well as a focus on the autonomy of the environmental variable. Also, at that meeting, a recommendation was made about the need to establish legal mechanisms to regulate those activities that can generate environmental impact on shared ecosystems. At the third meeting, held in Brasilia, also in 1994, the document was approved by Resolution 10/94/GMC. The recitals of the Resolution refer to the need to formulate and propose basic guidelines on environmental policy, which contribute to the development of joint management by the States parties in the Mercosur area. The document mentions the following eleven guidelines:

1. Harmonize environmental legislation in the four States, although it is clarified that harmonization does not imply the sanction of a single piece of legislation.
2. Ensure equitable conditions of competitiveness among the States, to include the environmental cost in the analysis of the total cost structure of any productive process.
3. Guarantee non-degrading practices of the environment.
4. Ensure sustainable management in the use of renewable natural resources.
5. Mandatorily adopt environmental authorization. One of these instruments will be EIA, which must be mandatory.
6. Ensure the minimization or elimination of pollutants by the development and adoption of appropriate, clean, and recycling technologies. Also ensure the proper treatment of solid, liquid, and gaseous waste.
7. Ensure the least degree of environmental deterioration in regional productive processes and in exchange products.
8. Harmonize legal or institutional procedures for environmental authorization and monitoring of activities that may cause environmental impacts on shared ecosystems.
9. Encourage common environmental criteria for the negotiation and implementation of priority international acts in the integration process.
10. Strengthen institutions for environmentally sustainable management by increasing information for decision-making, improving

evaluation capacity, and improving teaching, training, and research institutions.

11. Develop intra-regional tourism with environmental balance.

3.3 Working Subgroup 6 "Environment"

In 1995, the Mercosur Resolution 38/95/GMC on negotiated work guidelines, specialized meetings and ad hoc groups, turned REMA into working subgroup 6 "Environment" (SGT N°6). Among the objectives of the subgroup were: competitiveness and environment, sectoral issues, a legal instrument of environment in Mercosur and an Environmental Information System (SIAM).

In turn, within this Resolution, working subgroup 2 was created on mining, which established the accomplishment of a comparative study of national legislation that covered, among other topics, mining legislation and the environment.

3.4 Framework Agreement on Environment

In its VI meeting, the SGT Nº 6 approved Recommendation 4/97, by which it elevated to the GMC an Additional Protocol to the Treaty of Asunción on Environment. The GMC returned it to the SGT Nº 6, which continued examining the topic, until it approved Recommendation 01/01, which was approved by the CMC as Decision CMC 02/01 Framework Agreement on Environment. The agreement came into force in 2004.

From the analysis of the preamble of this instrument, the autonomy of the environmental variable is glimpsed, since there is no reference to it tied to economic development: "Highlighting the need to cooperate for the protection of the environment and the sustainable use of natural resources, with a view to achieving a better quality of life and sustainable economic, social and environmental development" (Radovich, 2016).

The commitment to the principles declared in Rio Declaration (art.1) is reaffirmed. When promoting environmental protection, sectoral policies should be coordinated (art. 3a). Therefore, based on this article, sectoral policies on environmental protection of aquatic and marine resources should be coordinated, as well as based on art. 6), which establishes

that sectoral agreements on specific topics should be developed, as necessary for the achievement of the objective of this agreement. It can be concluded that this demand would also be in line with the annex to the agreement, which lists the thematic areas. The first area is the sustainable management of natural resources, and within this, water resources, protected areas and biological diversity are mentioned. It could be argued that instead of having referred only to water resources, coastal and marine resources should also have been mentioned, as is done in the Additional Protocol to the Framework Agreement on Environment in the Matter of Cooperation and Assistance in Environmental Emergencies, signed in 2001, which no member State has yet ratified. The objective of the Protocol is to provide reciprocal cooperation and assistance when an emergency that has effective or potential consequences for the environment occurs (art. 2). The Protocol would also be applicable to marine, aquatic and coastal resources, since in the form that appears in its annex, pollution of drinking or underground water is established as an option with environmental consequences, and as options for affected ecosystems, "coastal/marine" and "rivers/lakes" (Radovich, 2016).

The objective of the Agreement on Environment is sustainable development [sic] and the protection of the environment, through the articulation of economic, social and environmental dimensions, contributing to a better quality of the environment and the life of the population (art. 4). In addition, the general principles of environmental cooperation between the member States of Mercosur are established, which consist in complying with international agreements, adopting common policies for environmental protection, conserving natural resources, promote sustainable development, making joint presentations and exchanging information on national positions in international forums (art. 5).

The Environmental Agreement legislates on the preventive and precautionary stage of environmental law. However, only environmental principles are stated, their direct application is not provided, as could be done in the case of the precautionary principle through the prohibition, for example, of hydrocarbon extraction activities in certain marine areas and through the instrumentalization of protected areas- as established in art. 7 Madrid Protocol to the Antarctic Treaty.

As it has already been said, another instrument to apply the principle of precaution is the EIA. In this sense, the Mercosur Framework Agreement on the Environment promotes in several of its articles the EIA but does not define its content. Taking into account cultural differences,

the definition given in the European regional context, in the Espoo EIA Convention and in the Kiev Protocol could be adopted.

Law 25.626[31] enacted by Argentine Republic, relating to the import prohibition of retreaded tires from Uruguay, led to the latter country filing a claim in an arbitration tribunal arguing that this law violated arts. 1 and 5 of the Treaty of Asunción, because it unjustifiably prohibited the free movement of goods within Mercosur. Argentina argued that the principle of free trade should yield to some exceptions, among which were those related to the protection of the environment. The argument was shared by the Tribunal in its award dated October 25th 2002, which stated that freedom of trade "cannot be considered an absolute and non-derogable principle, a true *deus ex machina* emerged to solve all the problems of commercial relations and immune to any exception" (paragraph 94).

The Permanent Review Tribunal, which analyzed the appeal for review filed by Uruguay, overturned the sentence on December 20th 2005. The same tribunal, when resolving the clarification appeal filed by Argentine Republic, held regarding the Framework Agreement on the Environment (paragraph XI) that:

> unfortunately, being obviously a framework agreement, it does not have in any of its 11 articles any rule on the criteria to be used by a Tribunal to evaluate whether a measure in question becomes or not appropriate to restrict free trade within an integration scheme. (Del Castillo, 2013)

3.5 Regulation on the Environmental Protection of Aquatic Resources in the Same Geographical Area of Mercosur

The four original member States of Mercosur are crossed by *La Plata* basin, one of the most important transboundary river basins in the world and the second most important in the American continent. In addition, the four States are supported on the same *Guarani* aquifer (Capaldo, 2007).

The following are the regional conventions applicable in *La Plata* basin that regulate the protection of aquatic resources:

[31] Argentina. Law 25.626. *Prohibition of the importation of certain goods included in the Common Nomenclature of Mercosur and individualized and classified in the Harmonized System of Designation and Coding of Goods.* Official Bulletin, 09/08/2002.

– Argentine Republic-Eastern Republic of Uruguay:

a. Cooperation agreement between Argentina and Uruguay to prevent and combat against incidents of aquatic environment pollution caused by hydrocarbons and harmful substances (COOP. e/ARG and UR 1987, Law 23.829/90).[32]

The pollution preventive tasks in this agreement focus on increasing safety measures (art. 5). Likewise, the agreement has an annex that appears in the 1973 Treaty of the River Plate and its Maritime Front, which empowers the parties to establish critical areas (coastal, river or maritime areas) that are ecologically sensitive or at high risk of pollution incidents. When these areas are involved, preventive tasks and combat for their preservation will be increased (art. 11.2). Furthermore, when a pollution incident threatens or directly affects the critical areas pre- established in their respective contingency plans, the non-acting party may adopt the precautionary measures it deems appropriate (art. 15).

Therefore, the agreement allows preventive and precautionary action by designating critical areas and becomes relevant at this moment, when the tendering of exploration and exploitation of oil and gas in the sea in the Eastern Republic of Uruguay is starting (Radovich, 2016).

b. Treaty of the River Plate and its Maritime Front, 1973.

Articles 47 to 52 contain specific rules on pollution prevention. The States commit to apply severe sanctions, to enact laws, to adopt the measures indicated by international agreements on this matter and to exchange information. Each party will be responsible for damage inferred as a consequence of pollution caused by its own activities or by the activities of the people domiciled in its territory. Article 78 prohibits, in a certain area determined by the agreement, defined by an imaginary line from *Punta del Este*, Eastern Republic of Uruguay, to another imaginary line at *Punta*

[32] Cooperation Agreement between Argentina and Uruguay to Prevent and fight against incidents of aquatic environment pollution caused by Hydrocarbons and harmful substances (COOP. e/ARG and UR 1987). Approved by Law 23.829. Official Bulletin, 08/10/1990.

Rasa of *Cabo Antonio*, in Argentina Republic, the dumping of hydrocarbons originating from any action that has polluting effects. Therefore, in this area, offshore oil extraction platforms could not be installed, which constitutes a precautionary measure (Radovich, 2016).

c. Treaty of the Uruguay River, 1975.

Contains rules on pollution in articles 40 to 43, very similar to those of the previous treaty.

- Argentina-Brazil:

  a) Environmental Cooperation Agreement, 1996.

  Provides for environmental cooperation on the topics listed in Annex A, among which are waterways and watersheds, with the aim of protecting ecosystems in function of the projects under development. Transboundary areas are included and the promotion of cooperation for the conservation of the marine environment, particularly in terms of pollution of coastal areas by land-based sources (Capaldo, 2009).

  It is a relevant agreement due to the exploration and exploitation of hydrocarbons in the sea that Brazil has been developing for years in the so-called pre-salt. In this regard, with respect to the environmental management of marine resources, apart from pollution generated by land sources and by ships, pollution generated by marine platforms becomes relevant (Radovich, 2011 and Radovich, 2012).
- Regional:

  b) Santa Cruz de la Sierra Agreement on river transport through the Paraguay-Paraná waterway and its six additional protocols (Waterway Agreement, 1992).

The States party to this agreement are Argentine Republic, the Plurinational State of Bolivia, the Federative Republic of Brazil, the Federal Republic of Paraguay and the Eastern Republic of Uruguay. Special zones are established, waterway zones where discharges of any type that could cause damage to the environment are prohibited (art. 82j).

Protocol 2 on navigation and safety introduces rules on the prevention of water pollution from ships and requires the contracting of an insurance policy against pollution incidents (art. 83) (Capaldo, 2009).

b. Latin American Agreement on Port State Control of Ships, 1992, in Viña del Mar.

Through this agreement, the States parties commit to request in their respective ports the safety and maritime protection measures imposed by SOLAS 74/78, MARPOL 73/78 and CLC 1969/PROT 92 (Capaldo, 2009).

c. Treaty of *La Plata* Basin, 1969.

Its signatories are Argentine Republic, the Plurinational State of Bolivia, the Federative Republic of Brazil, the Federal Republic of Paraguay and the Eastern Republic of Uruguay. Its main objective is to promote the harmonious development and physical integration of the basin, as well as its areas of direct and significant influence (art. 1). "Despite the year in which it was negotiated, it already enshrined the principle of intergenerational responsibility" (Capaldo, 2009, p. 19). To this end, the States parties commit, among several other objectives, to preserve and promote the animal and plant life of the basin (art. 1.c) and to develop collective actions within respect for international law and according to good practice among neighboring and friendly nations (art. 5).

As regards mprotection of aquatic and marine resources would be relevant, MERCOSUR mission would be relevant since UNEP has not developed in the region the Regional Seas Programme, which has developed in almost all the seas of the rest of the continents. The program covers the following eighteen coastal and marine regions: the Antarctic, the Arctic, the Baltic, the Black Sea, Caspian, East Africa, East Asia, northeast Atlantic, northeast Pacific, northwest Pacific, Pacific, Red Sea and Aden, ROPEM sea area, South Asian oceans, southeast Pacific, East Africa and the Caribbean Sea.[33]

[33] For more information on this Program: https://www.unep.org/explore-topics/oceans-seas/what-we-do/regional-seas-programme [Last visited: October 2022].

Regarding other integration agreements, the case of the Union of South American Nations (Unasur), which was established in 2004 in Peru as the Community of South American Nations, and changed to its current name in 2007, can be mentioned. Since it has not yet been ratified by all the States parties, it has not developed in a way that considers environmental law. Its constitutive treaty does not make an explicit reference to the principles of environmental policy, although this is established as one of the common objectives of the signatory States.[34] In the case of the intergovernmental organization Communities of Latin American and Caribbean States (CELAC), at the meeting of December 2011, a document on sustainable development was drafted that refers to the Rio Declaration.[35]

[34] "The Union of South American Nations aims to build, in a participatory and consensual manner, a space for integration and union in the cultural, social, economic, and political aspects among its peoples, giving priority to political dialogue, social policies, education, energy, infrastructure, financing, and the environment, among others, with a view to eliminating socioeconomic inequality, achieving social inclusion and citizen participation, strengthening democracy and reducing asymmetries within the framework of strengthening the sovereignty and independence of the States" (Art. 2, Constitutive Treaty of Unasur).

[35] CELAC is composed of 32 countries in Latin America. The referred text is available at: http://www.celac.gob.ve/index.php?option=com_docman&task=cat_view&gid=77&lang=es [Last visited: July 2017].

CHAPTER 10

Conclusions

The sea is often observed from the perspective of its chemical or physical composition. There is a lack of a social and cultural approach to the sea, as proposed with the concept of "oceanity" (IMPAC3, 2013), which aims to highlight the relationship between human beings and the ocean. In this sense, the integrated management of the sea proposes a comprehensive vision as opposed to a sectorized one. The concept of "integration", described in the preamble of the UNCLOS, states that the problems of the sea are interrelated and should be considered as a whole. Three paths are pointed out to carry out a more effective integrated environmental management of the sea: economic analysis, innovation in governance processes and structures, and scientific and technological research.

Regarding economic analysis, the theory of ecosystem services contributes, understood as the benefits that people obtain from nature. The sea provides supply, regulation, base, and cultural services. Regarding innovation in processes and governance structures, the integrated management of the sea proposes that there be a single legislative instrument that manages the activities and uses that converge in the sea—such as fishing, navigation or tourism—as well as the same institution that does the same. Integrated management also proposes that the relationship between government institutions and interest groups be more fluid. Integrated coastal management (ICM), marine protected areas (MPAs), and

V. S. Radovich, *Marine Exploration and Exploitation of Hydrocarbons*,
Palgrave Studies in Maritime Politics and Security,
https://doi.org/10.1007/978-3-031-75177-6_10

marine spatial planning (MSP) are tools of integrated sea management that have gained momentum in some countries in recent years.

The introduction to the integrated management of the sea allowed me to subsequently evaluate the conclusions reached, mainly, by the Commission that studied the accident on the Deepwater Horizon platform, since they are based on this concept. It was concluded that the sea provides necessary ecosystem services for human beings, but that it is still necessary to regulate its governance in an integrated manner, and that the necessary path to carry out this regulation is, among others, scientific knowledge about the oceans, not just the domain of more territory.

I chose to refer to the topic of this book with a term derived from the word "marine", to focus the attention on the sea, so I justified why I would not employ the term "*offshore*".

The environmental problem that implies the exploration and exploitation of hydrocarbons in the sea was introduced. It is a constantly growing activity, which is carried out increasingly in more distant and deep waters and generates effects on the environment. This is the reason why it is urgent to have environmental legislation on this matter at the international, regional and national level. The contributions to fight against this pollution that have been made from the law of the sea, maritime law, environmental law and international human rights law, from the perspective of "integration" were analyzed.

The contributions of maritime law have been focused on safety measures and regulations to compensate for environmental marine damage, which have been developed in response to marine disasters, through the Intervention Convention 1969, CLC 69/ PROT 92, MARPOL 73/78, SOLAS 1974 and OPCR 1990, among others.

Environmental law, on the other hand, has changed the paradigm with the introduction of the precautionary principle in the Rio Declaration. The main objective is to prevent environmental damage from occurring. Among the specific applications of the principle, MPAs and public participation may be mentioned. Regarding the principle of responsibility, the paradigm shift generated by environmental law focuses on the fact that, in case of environmental damage, it must be fully repaired.

In the field of the law of the sea, ITLOS construed the application of the precautionary principle in the marine environment, and held that the principle has ceased to be *soft law,* included in the Rio Declaration, to become a principle of *hard law*, being included in the Regulations of the Polymetallic Nodules and Sulphides issued by ISA. In addition to this,

ITLOS held that this principle shall continue being applied in all areas of the law of the sea.

International human rights law has established that pollution and environmental degradation affect fundamental human rights, such as the right to life and physical safety and integrity. Far from being conceived as watertight compartments, the contributions of these areas of law should interact and feedback interdisciplinarily to contribute to improving the integral environmental management of the sea.

The conclusions of the Commissions that studied the accidents of the Montara and Deepwater Horizon platforms were analyzed, and the normative and institutional modifications that were recommended to be carried out in the regulation of this activity based on efficiency were categorized. These accidents placed on the international agenda the need to regulate the activity of the hydrocarbon industry at sea. In particular, the lack of control by governments, in addition to the need to repair the environment—or compensate for the transboundary environmental damage generated—are critical points. Above all, an environmental regime is needed that acts *ex ante*, in the preventive and precautionary stage, before the platforms are installed.

By analyzing the recommendations made by the Commission that studied the accident of the Deepwater Horizon platform in the United States, it can be concluded, regarding the role of the government, that a normative reform and an institutional reform were recommended, with the aim of creating three different offices: one with powers over safety, another over concessions and another over the profits generated by the activity. Previously, the same office was in charge of managing all the activity. In this sense, the denomination "minerals", which was included in the name of the agency that was dedicated to regulating this subject (MMS), has been replaced by a denomination that contains the word "ocean", BOEMRE, which is currently an agency that not only manages the exploration and exploitation of hydrocarbons at sea, but also the generation of renewable energy at sea. In relation to the role of the industry, the creation of a safety office within it was proposed to develop corporate responsibility.

Regarding environmental protection, the Commission's conclusions held that the activity of exploration and exploitation of hydrocarbons at sea must be previously subjected to an EIA, that is, categorical exclusions in this regard must be eliminated and EIAs that cover very extensive areas (*tiering*) should not be allowed. Likewise, the commitment to manage

the sea integrally and environmentally through MSP, involving various government agencies and mainly scientific ones, to develop the MPAs was established. Similarly, it was established that the integrated ocean observation system should be expanded. Finally, it was concluded that a formal interagency consultation process with a scientific basis should be established, that includes, for example, the binding opinion of NOAA, the scientific agency that deals with oceanic and atmospheric issues, to delimit the MPAs and establish the areas where the exploration and exploitation of hydrocarbons cannot be carried out.

Regarding the improvement of planning and response capacity, it was concluded federal-state coordination and scientific knowledge about response measures should be improved, in addition to promoting citizen participation. Moreover, the Congress should control security and environmental risks, require that an annual public report regarding the status of the exploratory and extractive activity of hydrocarbons at sea be submitted to it, and create a mechanism for companies in the sector to finance regulatory agencies.

In relation to the report prepared by the Australian Commission that studied the accident on the Montara platform, it is noteworthy that, when referring to the assessment of environmental damage to carry out its compensation, it was explained that it has not been properly quantified, because in Australia the valuation of ecosystem services is not legislated.

From the comparative analysis of both Commission reports, it follows that the Australian report has mainly focused on issues related to the stage after environmental damage, not so much on the preventive-precautionary stage, as it does not mention in the report the EIA, nor the MPAs, nor citizen participation as in the case of the report prepared by the American Commission.

Likewise, the legal regulation at the international level of the issue was analyzed. Regarding the failed attempts to regulate marine platforms in a uniform instrument, it was pointed out that the first attempt, CLEE 1977, was not adopted because it established a limitation of liability that most States opposed and did not establish a limitation fund, in addition to that it was only applicable to accidental pollution, neither operational nor atmospheric pollution. Other attempts, the Rio and Sydney drafts, consisted in applying conventions on ships to mobile marine platforms. Likewise, by focusing on the recomposition stage of environmental damage, they did not contemplate environmental preventive-precautionary mechanisms, such as, for example, EIA and MPAs, and only

included in their scope of application mobile platforms and not fixed ones—when both types of platforms are used for the same economic activity and should be regulated in the same instrument–. Therefore, what should prevail is the consideration of the economic activity carried out by the platforms, not just focusing on defining whether they are ships or not. Platforms have their own specificities that should be considered in an instrument that takes them into account. These drafts were thought of as a provisional step until the approval of an international convention that regulated the compensation for environmental damage caused by the exploration and exploitation of hydrocarbons at sea.

Finally, the project prepared by the Canadian Maritime Law Association included fixed platforms in its scope of application. The project regulated not only accidental, but also operational pollution, with more precision than MARPOL 73/78, it also regulated air pollution from platforms. It also introduced a safety chapter, an international platform registry, and extended the scope of the Salvage Convention to marine platforms when they are not operating. However, it stated that liability for environmental damage is limited and fails to contain provisions on EIA or MPAs. Furthermore, the initiative led by Indonesia to negotiate a document on compensation for transboundary pollution arising from oil pollution at sea was studied.

Currently, despite numerous international instruments refer to the issue of exploration and exploitation of hydrocarbons at sea, they only take a partial approach to the problem and superficially commit to environmental repair and compensation, as there is no convention applicable to liability for environmental damage caused by marine platforms. The instruments also fail to regulate operational pollution or salvage. SOLAS 1974 Convention only applies to mobile platforms, not to fixed ones. OPCR 1990, which regulates contingency and response plans in the event of an oil spill, is applicable to both types of platforms. On the other hand, UNCLOS contains programmatic provisions, it imposes on States the duty to protect and preserve the marine environment, take measures to prevent accidents, implement emergency and accident response regimes, remove abandoned platforms and requires that liability regimes be approved. However, it assumes the existence of international regulations that it mandates to take as a reference for the issuance of regional and national standards, but these international regulations have precisely not been issued.

The CLC 69/PROT 92 Convention does not apply to marine platforms. The LC 1972 is applicable, but only in relation to the dumping of waste from platforms, as it explicitly excludes operational pollution generated by the exploration and exploitation of mineral resources on the seabed. The Bunkers Convention applies to both types of platforms, and although it establishes that liability is limited, it advances with respect to the CLC 69/PROT 92 in terms of the inclusion of joint and several liability, as it includes a broader definition of the concept of ship or platform owner, which is not limited only to the owner registered in the registry—as in the case of the CLC 69/PROT 92, but also extends to the bareboat charterer, the ship manager and the shipowner. Likewise, the Bunkers Convention establishes direct action, which implies that claims for compensation for damage due to pollution can be submitted directly to the insurer. The AFS 2001 Convention applies to both fixed and mobile platforms and is an example of the application of the precautionary principle.

Regarding environmental law instruments, EIA should increasingly approach SEA, which includes, to a greater extent, public participation from the moment prior to the installation of the project in question. Regarding the conservation of biodiversity, it was concluded that both the Aichi Biodiversity Targets 2011–2020 and the SDGs include in their scope the environmental protection of marine biodiversity. In relation to the fight against climate change, the integration between provisions of UNCLOS and the UNFCCC, allows to conclude that States have the obligation to control and reduce CO_2 emissions from any source that can pollute the marine environment.

In the absence of a comprehensive international agreement, it is argued that to protect the global environment, global approaches must prevail (McConnell, 1992). Some authors, such as Rochette (2014) and organizations such as the IMO, concluded that there is no compelling need to develop an international convention on the exploration and exploitation of hydrocarbons at sea, and that the issue can be more appropriately approached through regional and bilateral agreements. However, an international convention is required that includes both fixed and mobile facilities, covering the environmental aspects of the preventive-precautionary stage and the compensatory stage. This approach is demanded by UNCLOS Article 197 and would be particularly useful in regions like South America, where there are no specific regional agreements (Radovich, 2011). Similarly, this international instrument becomes

necessary to serve as a guide for future regional and national agreements, as established by UNCLOS Article 208 (3).

The appropriate forum to discuss the project of this international convention should be the IMO, along with UNEP and IUCN. The exploration and exploitation of hydrocarbons at sea is a topic with a large political component, therefore, the adoption of an international instrument to regulate its environmental aspects will not be easy but seems to be the healthiest option for our blue planet. In terms of McConnell (1992), this minor activity in relation to the implementation and the adoption of acceptable international rules and standards, and in comparison with regional rules, derives "in part from a historically ad hoc approach by various agencies and groups (…) that have developed overlapping programs in response to marine pollution or have developed responses that are not necessarily compatible". Likewise, she calls for greater information exchange and better coordination of the various efforts between the various organizations and States. A solution could include the development of environmental law instruments, such as EIA and the creation of MPAs, both based on the precautionary principle. In this sense, it can be concluded that the instruments of the area of environmental law are consistent in their call for the application of EIA and the establishment of MPAs for the conservation of marine biodiversity (Radovich, 2017b). Also, EIA shall be mandatory, as established in the report prepared by the Commission that studied the accident on the Deepwater Horizon platform. Therefore, categorical exclusions cannot be applicable to this activity. In the same sense, the Espoo EIA Convention establishes that, in the case of exploration and exploitation of hydrocarbons at sea, EIA is mandatory.

Regarding regional regulation, the *Offshore* Protocol to the Barcelona Convention is the only instrument entirely dedicated to the regulation of this topic. It is noteworthy that it regulates the authorization system, citizen participation and atmospheric operational pollution- in this last case it extends the scope of application of MARPOL 73/78-. However, it stipulates that EIAs are not mandatory, not even in special protection areas, and it does not contain direct references to MSP or integrated ocean management. The provisions of this Protocol could be taken into account *mutatis mutandi* in the drafting of a regional agreement within the framework of Mercosur, and also in the drafting of the law on basic requirements for hydrocarbon activity in Argentine Republic.

The evolution of environmental law in Argentine Republic was also studied, from the static regulation of natural resources to the inclusion of basic requirements in the new CCCN. In the country, in recent years since 2007, a regulatory framework has been developed to strengthen the presence of the State at sea. In 2013, the oceanic protected marine area "Namuncurá—Banco Burwood" was created. In 2014, law 27.037 on the National System of Protected Marine Areas was enacted, and in the same year, the Pampa Azul initiative was introduced, a federal initiative to strengthen the presence of Argentine Republic in the sea. In 2015, Law 27.167 was sanctioned, whose objective is also to strengthen the presence of Argentine Republic in the Argentine Sea. The law creates the National Program for Research and Productive Innovation in Argentine Maritime Spaces (PROMAR), with the aim of deepening scientific knowledge as the basis for conservation policies, among others. The "Pampa Azul" program should generate information to justify cases of marine spatial planning, the creation of protected marine areas and the sustainable use of marine resources (Michelson, 2016). From the comparative analysis among Law 27.037, which creates the national system of MPAs and the laws that create interjurisdictional coastal marine parks, it is concluded that the first law clearly establishes the categories of reserves and the prohibitions in each category. In our country, a law should be enacted whose main object is the sea and its integral management, in which the strategy of the MPAs and the participation of different social and political actors in the process should be included. *Mutatis mutandi* the case of the Canadian law on the ocean strategy may be studied.

However, the laws that create interjurisdictional marine coastal parks establish that the uses and prohibitions in the parks will be agreed upon in a subsequent regulation. Also, these laws establish that art. 5 Law 22.351 of National Parks that prohibits, among other activities, the exploration and exploitation of hydrocarbons and the installation of industries, is not applicable to interjurisdictional marine coastal parks. In conclusion, by stating the non-application of art. 5 of Law 25.351, a violation of the principle of non-regression in environmental matters is made. In our country, in 2017, YPF was granted a permit to carry out the surface recognition of the area located in the northern zone of the Argentine continental margin. This incentive to the exploration and exploitation of hydrocarbons in the sea should be made compatible with the environmental management that the sea requires through the creation of more

parks and MPAs. Coastal and marine protected areas should be harmonized with the areas that are granted in tender for the exploration and exploitation of hydrocarbons, as there is an overlap between the areas.

Afterwards, the regulation of hydrocarbons in Argentine Republic was studied from its first precedents in 1865, passing through the creation of YPF, the enactment of Law 17.319 in 1967, the modifications introduced in the nineties through the Law of Provincialization of Hydrocarbons 24.145 and Law 26.197, called Short Law in 2006. Followed by the creation of ENARSA in 2004, company to which the ownership of exploration permits and the concessions for exploitation in national maritime areas was granted. In 2012, Law 26.741 of Hydrocarbon Sovereignty was enacted, which created the Federal Council of Hydrocarbons. In 2014, Law 27.007, amending Law 17.319, was enacted, which promotes the exploration and exploitation of hydrocarbons in the sea, as it reduces its royalties by up to 50% and includes it in the regime of promotion of investment for the exploitation of hydrocarbons. The law transferred the exploration and exploitation permits in the sea that had been granted to ENARSA, to the current Ministry of Energy and Mining of the Nation.

The consortia that ENARSA created to explore and ex- ploit on the continental shelf when it began its activities in 2009 were described. Currently, there are approximately 21 exploration blocks, the majority located in the Malvinas and Austral basins. There are also exploration blocks in the Gulf of San Jorge Marina basin and in the Colorado Marina basin. With respect to exploitation, it is concentrated in the basins of the Gulf of San Jorge Marina and in the Malvinas basin.

Regarding the study about whether platforms are or are not ships, and if as a consequence, the LN is applicable to them, and in terms of the object of this book on the environmental aspects of the activity, the conclusion is that the liability of limitation institute and the constitution of judicial attraction forum is not applicable to marine platforms. In the first case, because from a platform, considerably larger amounts of hydrocarbons can be spilled than from a ship, in addition to the fact that the tonnage of the platform has no relation to the amount of hydrocarbon that can be spilled. In the second case, because the reparation of environmental damage must be processed before the jurisdiction of the judge of the place of the event, to respect the "territorial principle of competence", since the production of evidence takes place where the events occurred. Moreover, because the collective right related to the reparation of the

environment exceeds the limited framework of the interest of two parties to the litigation, the classic individual subjective right.

In terms of Argentine maritime law regulations on marine platforms, the role of PNA is highlighted. The maritime ordinances issued by this institution constitute one of the regulations mentioned in LN art. 1. PNA has issued rules applicable to platforms on aspects concerning safety, technical aspects and the preservation of the marine environment. Illustratively, the PNA has regulated in various ordinances—which are applicable to marine platforms - on the dumping of waste and other matters in waters of national jurisdiction, on the prevention of atmospheric pollution and on safety standards specific to mobile drilling platforms. The national contingency plan (PLANCON) is also applicable to marine platforms. Title VIII of REGINAVE is entirely devoted to pollution from ships.

Regarding the legal-environmental regulation of hydrocarbons in Argentine Republic, the *midstream* stage has been regulated by the then Secretary of Energy; but not of the *upstream* stage, which precisely includes the installation of marine platforms. For example, Resolution SE 342/93 classifies incidents into minor and major: major incidents must be reported, while minor ones only need to be recorded. Based on the conclusions drawn by the Commission that studied the accident on the Deepwater Horizon platform, these minor incidents should be reported, as they constitute indications of major accidents. Also, in another resolution from the same authority, gas venting is prohibited, in line with the fight against climate change. Law 27.007 did not introduce environmental provisions, only limited to stating that the provinces and the nation will establish uniform environmental regulations, without using the expression "basic environmental requirements" as indicated by art. CN. The conclusions indicate that the environmental chapter of the exploration and exploitation of hydrocarbons at sea in Argentine Republic still needs to be developed through a law of basic environmental requirements on hydrocarbon activity, which includes the particularities of the exploration and exploitation of hydrocarbons, both on land, at sea and *shale*. The provisions that this law should contain are the instruments regulated in the LGA: EIA and SEA, free access to information, citizens' participation, inventory of wells and platforms, control and permanent monitoring by the environmental authority. These instruments are already mandatory based on the LGA but should be developed in the specific instrument that the environmental clause in the CN mandates. Even the

new CCCN refers to the laws of basic environmental requirements. Annex II to Resolution SE 951/15, applicable to the *midstream* stage, constitutes a precedent for the environmental regulation of the exploration and exploitation of hydrocarbons at sea, because it enshrines the precautionary principle. It establishes that environmental information must be public and the details that the EIA must contain, and encourages public participation, among other measures.

Regarding the Brazilian experience, there is institutional overlap concerning the responsibilities for the exploration and exploitation of hydrocarbons at sea, which is why Costa de Oliveira et al. (2015) propose the sanction of an integrated law that deals with exploration and exploitation of non-living and living resources at sea for an integral management of the sea. In Brazil, the concept of marine scientific research also lacks a definition.

A notable fact about the Brazilian regulatory framework is the *Portaria* of the Ministry of Environment 422/11 which, in addition to having provisions on environmental licenses and on the dismantling of platforms, established the obligation to publish information about the licensing process on Internet, with broad access to public information. The following documents must be available: terms and conditions of license requirements, terms of reference, the environmental study and the respective environmental assessment, technical opinions, clarifications provided by entrepreneurs, summarized minutes of the Public Hearing, environmental licenses and license denials. On the ANP website, updated information related to existing marine platforms and their monthly production is published. In Argentine Republic, there is no public Internet access to this information, nor is the phase of platform dismantling regulated.

On the other hand, the Eastern Republic of Uruguay, like the Federative Republic of Brazil, places special emphasis on the stage of seismic and acoustic studies. Argentine Republic should do the same.

Regarding Mercosur, it could be argued that some degree of progress has been achieved in the conventional dimension regarding the regulation of environmental protection in general. The first advance is the paradigm shift in the treatment of the environmental variable, as in the Agreement on Environment—and previously in the Guidelines on Environmental Policy–, because the autonomy of the environmental variable is considered, not only focused on its role to enable economic development.

Although the Agreement on Environment, which came into force in 2004, constitutes an advance, regarding the protection of specific marine

resources, these resources are not even listed in the thematic areas of the annex, although water resources do are. The Additional Protocol to the Framework Agreement on Environment in Matters of Cooperation and Assistance in Environmental Emergencies, which has not come into force, does indeed specifically list marine resources. Based on arts. 3 a) and 6 n) of the Agreement, and on its annex, aquatic and marine sector policies should be coordinated.

These policies should outline the preventive and precautionary tools of environmental law, the scope and minimum contents of the EIA in the case of transboundary aquatic and marine resources and the regime of protected areas, where certain industrial activities could be directly prohibited based on the principle of precaution. Regarding the EIA, the provisions of the Espoo EIA Convention and the Kiev Protocol could be taken as a model. It is noteworthy that the Agreement on Environment establishes the obligation to carry out the EIA, unlike, for example, the *Offshore* Protocol, where the EIA is not mandatory, not even in the areas called special in the protocol.

The mission of Mercosur regarding protection of aquatic and marine resources would be relevant, since UNEP has not developed the Regional Seas Programme in the region, programme which does carry out in almost all the seas of the rest of the continent.

Environmental regulation, both preventive and for environmental damage compensation related to exploration and exploitation of hydrocarbons at sea in Argentine Republic, partially incorporates the constitutional right to enjoy a healthy environment and the principles of precaution and responsibility. This partial reception is because the principles and the instruments established in the LGA, such as the EIA, are in themselves applicable to hydrocarbon activities at sea, due to the character of framework law and public order that this law holds. However, there remains the sanction of specific basic environmental requirement regulations, both on the sea and on conventional and unconventional hydrocarbons, as required by art. 41 CN.

In the case of the conventional dimension of Mercosur, certain advances have been made on the regulation of environmental protection in general, although there is still a long way to navigate regarding the protection of aquatic and marine resources.

Annex I

Convention on Civil Liability for Damage from Oil Pollution resulting from the Exploration and Exploitation of Seabed Mineral Resources ("CLEE 1977"), adopted May 1, 1977 (not in force). [Last visited: March 2024].

https://cil.nus.edu.sg/1977-convention-on-civil-liability-for-oil-pollution-damage-resulting-from-exploration-for-and-exploitation-of-seabed-mineral-resources/

V. S. Radovich, *Marine Exploration and Exploitation of Hydrocarbons*, Palgrave Studies in Maritime Politics and Security,
https://doi.org/10.1007/978-3-031-75177-6

Annex II

The 1994 Sydney Draft on the International Convention on Offshore Mobile Installations ("Sydney Draft") (not in force).

Available in CMI Newsletter No.1–January / April 2004, http://www.comitemaritime.org/Uploads/Newsletters/2004/Binder1.pdf [Last visited: March 2024].

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Annex III

Model Convention on Offshore Units, Artificial Islands and Related Structures used in the Exploration and Exploitation of Petroleum and Seabed Mineral Resources.
https://comitemaritime.org/wp-content/uploads/2018/06/2004-1.pdf [Last visited: March 2024].

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Annex IV

Protocol for the Protection of the Mediterranean Sea against Pollution resulting from the Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil ("Offshore Protocol"), adopted October 14, 1994, 2742 UNTS 77 (entered into force March 24, 2011). https://wedocs.unep.org/bitstream/handle/20.500.11822/2961/94ig4_4_protocol_eng.pdf?sequence=1&isAllowed=y [Last visited: March 2024].

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ANEXO V

Anexo II a la Resolución SE 951/2015—Normas de protección ambiental aplicables a ductos submarinos que transportan hidrocarburos líquidos y gaseosos, Boletín Oficial, 4/11/2015. https://www.argentina.gob.ar/normativa/nacional/resoluci%C3%B3n-951-2015-254382/texto [Last visited: March 2024].

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